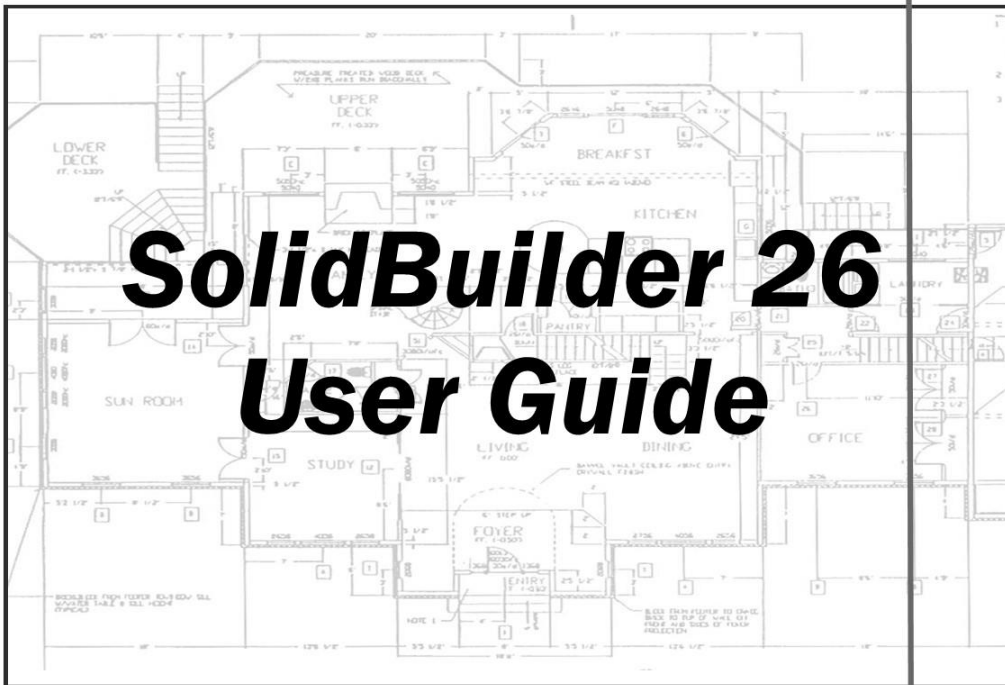
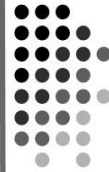




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SolidBuilder's User's Guide

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SECTION ONE: INTRODUCTION

Chapter 1: Introduction

Section 1 Introduction



Chapter 1: Introduction

Thank you for purchasing **SolidBuilder**. By purchasing software products from Digital Canal, you have joined thousands of users of the most powerful, yet easy-to-use, design software available. We appreciate your confidence in our products and we will make every effort possible to ensure that your investment is protected.

SolidBuilder is not intended to replace the presence of a qualified design professional. Instead, the software augments the capabilities of qualified professionals. A solid working knowledge of the principles of timber building is expected of the operator.

Drawing Modes and Features

- **SolidBuilder** allows you to create a 3D model, working drawings, database, quantities (or quantities reports), framing, and production drawings. Each of these will be explained in the following sections.
- 3D modeling allows you to create a 3D representation of the house or building you are creating. This model will be produced exactly as it will be built in the field. Having the ability to create a three-dimensional model will allow you, the designer, and your clients to visualize exactly how the home will work.
- Quantities will allow you to produce estimates and takeoffs from the three-dimensional model you have created. These reports will include all the specified material information for the construction of the project.
- Framing allows you to graphically frame your three-dimensional model in the way you have specified. These framed models will be the bases for your estimate and production drawings.
- Production drawings give you the ability to produce separate drawings for each shell (wall, floor, ceiling, roof, etc.) showing how to cut and where to place each framing member.
- Database contains all the necessary information for producing an accurate takeoff. Within your database you can specify such items as pricing, markups, takeoff method, etc.
- Working Drawing mode allows you to create 2D working drawings. This includes floor planes, elevations, sections, details, site plans, structural plans, roof plans, framing plans, foundations plans, isometrics, electrical, etc. Notes, text, symbols, and dimensions, can be placed on the working drawings. Each drawing is assigned a unique name. The individual drawings remain part of the **SolidBuilder** model.
- Building Blocks allows you to create fast footprint designs. With the Building Blocks, you simply step through a wizard, design your layout, locate openings, and produce simple blueprints. Building Blocks will then transform your design into 3D SolidBuilder model.

Help File Layout

The help file is divided into the following sections to help you understand the Digital Canal **SolidBuilder** software.

- **Introduction:** This section provides a brief description of the organization of the help files as well as conventions used throughout the help files.
- **Pull Down Menus:** This section provides a description of each menu found under the pull down menus for both the 3D and the 2D menus.
- **Toolbars:** This section provides a brief description of each of the toolbars and icons.
- **Snap Commands / Special Functions:** This section provides a description of the snap (or jump) commands and short cut keys.
- **3D Modeling:** This section provides a description of the 3D modeling functions.
- **2D Working Drawings:** This section provides a description of the 2D working drawing commands.
- **Borders:** This section provides a description of creating and modifying Borders or Title Blocks for printing.

On-Line Help

Digital Canal offers on-line help to assist you in using the software. Access the on-line help by selecting the Help pull down menu. The Contents option will open the **SolidBuilder** Help files.

Technical Support

At times, you might need help solving a problem. If you do, Digital Canal is available to help you. Your first source for assistance is the Help file. If further assistance is needed, consult the **SolidBuilder** Tutorial and User Guide as well as the Solution Papers.

Phone Technical Support is included free of charge for the first 30 days. After the initial 30 days, yearly-unlimited support contracts are available or you may choose to pay on a per call basis. If you need assistance, call Technical Support at:

1-800-449-5034

563- 690-2000 (outside the United States)

8:00 AM – 5: 00 PM Central Standard Time, Monday-Thursday 8:00 AM-4:30 PM Friday

Fax questions or authorization request to Digital Canal at:

563-690-2003 (24 hours a day, 7 days a week)

To make the support process more efficient, please provide us with your company name, your name, telephone number and extension.

If calling in for Technical Support, be sure to be in front of your computer and have the following information ready for the Support Engineer:

- Type and version of the Digital Canal software
- Version of Microsoft Windows Operating System

To contact support by email: support@digitalcanal.com

System Requirements

Minimum System Requirements:

1. Windows 8, or 10
2. 450 MB of hard-drive space.
3. 1024 x 768 resolution monitor minimum
4. SolidBuilder 25 requires a graphics card compatible with OpenGL. (If the end-user is uncertain about OpenGL compatibility, it should be safe to assume that any standard graphics card manufactured after 1998 will suffice.)
5. 250 MHz CPU speed.
6. 128 MB of RAM.

Recommended Minimum System Requirements:

1. Windows 8, or 10
2. 900 MB of hard-drive space.
3. 1280 x 768 resolution monitor minimum
4. OpenGL compatible graphics card.
5. 500 MHz CPU speed.
6. 256 MB of RAM.

Optimal System Requirements:

1. Windows 8, or 10
2. 2GB of hard-drive space.
3. 1280 x 768 resolution monitor minimum
4. OpenGL compatible graphics card.
5. 1.6 GHz or faster CPU speed.
6. 1GB or more of RAM

SECTION TWO:

PULL DOWN MENUS

CHAPTER 2: FILE

CHAPTER 3: SETTINGS

CHAPTER 4: COMPONENTS

CHAPTER 5: BUILD

CHAPTER 6: PRODUCTION

CHAPTER 7: INSERT

CHAPTER 8: EDIT

CHAPTER 9: VIEW

CHAPTER 10: TOOLS

CHAPTER 11: DATABASE

CHAPTER 12: WINDOW

CHAPTER 13: PRINT LAYOUT

CHAPTER 14: HELP

CHAPTER 15: TOOLBARS

CHAPTER 16: SNAP COMMANDS & SPECIAL FUNCTIONS



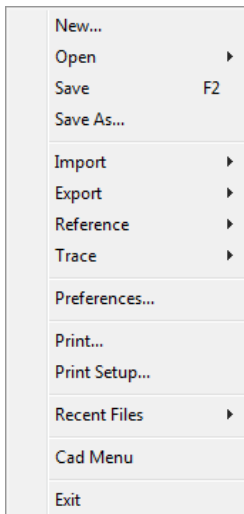
Chapter 2: File

Pull-Down Menus

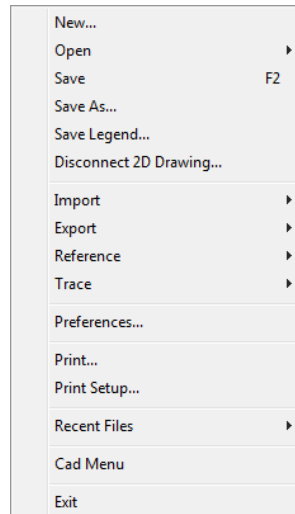
SolidBuilder has a variety of Pull-Down Menus to help you access commands. Most commands can be accessed by the Pull-Down menus or by selecting the icon for the desired command. The Pull-Down menus are located at the top of the **SolidBuilder** screen, and will change depending what Drawing Mode you are in. Some Pull-Down menus are only available in *3D Modeling*, while some are only available in *2D Working Drawings*.

File

File Management commands may be found under the File pull-down Menu in the opening screen of **SolidBuilder**. The File pull-down menu will change depending if you are in a 3D model or a 2D working drawing, shown below.



File Menu in a 3D Model



File Menu in a 2D Working Drawing

File - New

SolidBuilder ➡ File ➡ New

Icon:

The New option under the File pull-down menu is used to create a new 3D model, 2D working drawing, or Border. If you click on the New icon while currently in a drawing, **SolidBuilder** will prompt you to save your current drawing before starting a new one.

File - Open

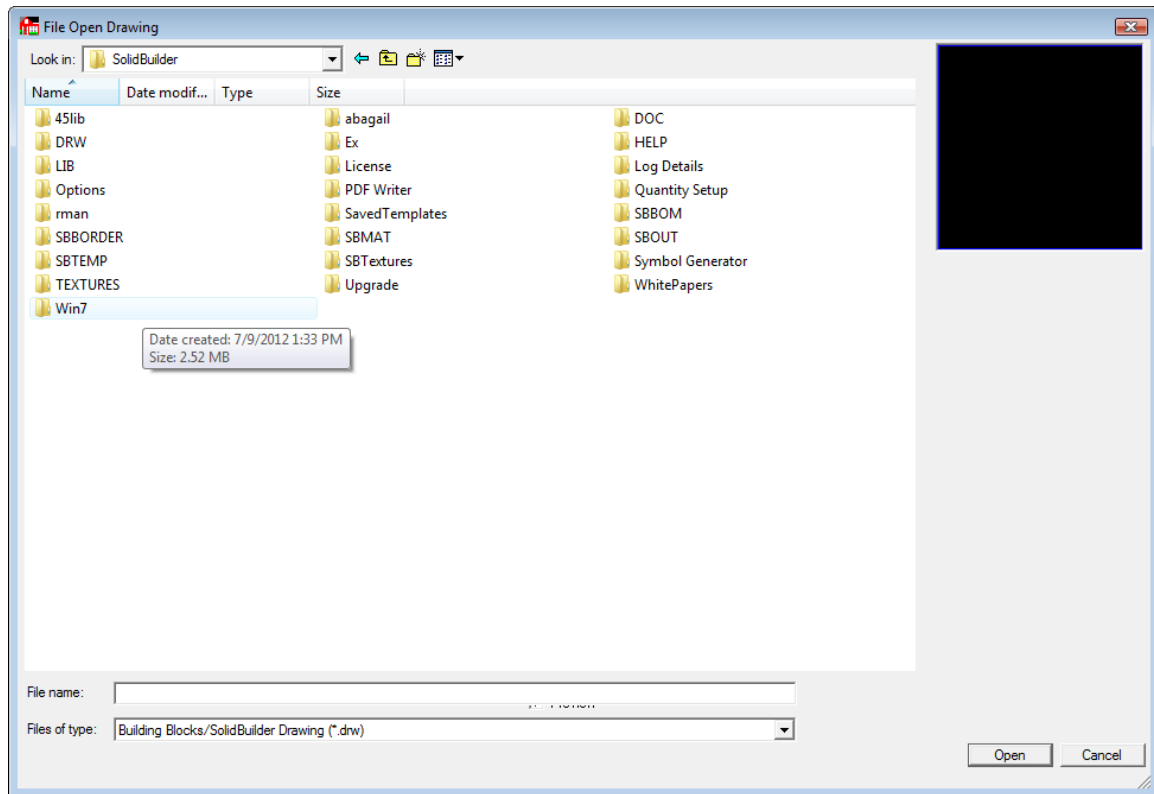
Chapter 2

File Pull Down Menu

SolidBuilder ➔ File ➔ Open

Icon: 

The open command allows you to access existing models, 2D drawings, borders, or DXF files. Regardless of the type of drawing you select, a windows' file dialog box (below) displays, allowing you to select the desired file.



Select File Dialog Box Definitions

Option	Function
Look in	Lists the current directory. To change directories, click the list box arrow to the right to look in another directory, or click on the file folder icon to move a directory.
List box	The files in the current folder and of the selected type display here.
File name	Lists the selected file.
Files of Type	This lists the type of file being sought. If you are unsure of the desired file type, select All Files.
Preview	Toggling this option on allows you to see a preview of the drawing in the preview screen prior to opening the drawing. Each time a drawing is saved, an associated Bitmap file is created of the saved view for the preview option.

File - Save

SolidBuilder ➡ File ➡ Save

Icon: 

Use the Save commands to save your 3D model, 2D working drawing, or border. The first time you save your drawing, you will be prompted to give your drawing a name. The drawing is saved as a .drw file, which is the default extension and by default is saved to the **SolidBuilder** - DRW folder. You should frequently use the Save command as you work.

You can open a **SolidBuilder 15** or **16** drawing in **SolidBuilder 17**. Once open in SolidBuilder 17 you have the option of saving it as a **SolidBuilder 17, 16** or **15** drawing.

File - Save As

SolidBuilder ➡ File ➡ Save As

When you select Save As from the File pull-down menu, the Drawing Save As dialog box displays. This is a standard open/select dialog box and is similar to the Open dialog box. This dialog box allows you to save your model under a different name. You should use the Save As command when you save a copy of your drawing, change the assigned file name, directory, or file type.



When you use the Save As command, you are creating a new file; when using Save As with an existing file, both the previous and new drawing files are retained. However, no changes are saved to the previous file.

File - Save Legend

SolidBuilder ➡ File ➡ Save Legend

Use the Save Legend command to create/save a legend in a working drawing. After selecting Save Legend, you will be prompted to assign a name to the legend. After a name is assigned, the legend will be added to the list of other legends and can be accessed by clicking on the legend icon .



Remember that if you want to create a legend, the linework and text must be on the same layer name.

This option is only available in a 2D working drawing.

File - Disconnect 2D Drawing

SolidBuilder ➡ File ➡ Disconnect 2D Drawing

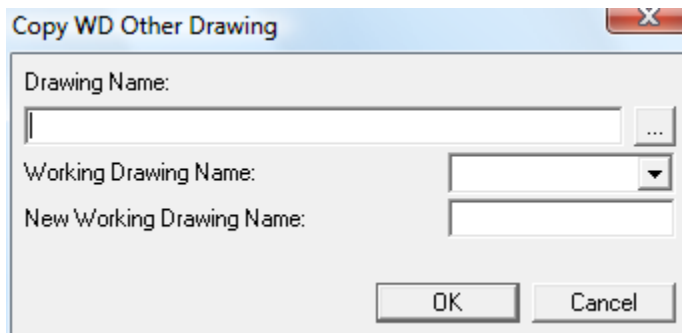
Use the Disconnect 2D Drawing command to disconnect a working drawing from the model. When you create a working drawing, it is saved within the model. You access the working drawings by using the Window pull-down menu in **SolidBuilder**. If you run the Disconnect 2D Drawing command, **SolidBuilder** will save the working drawing as its own separate file. You will be prompted to assign a name and location to the working drawing. The working drawing will now be saved as a .wd file and you can access the working drawing without going through the model by going to open 2D drawing under the File pull-down.

This option will only be available when you are in 2D working drawing mode.

File - Import

SolidBuilder ➡ File ➡ Import ➡ Working Drawing

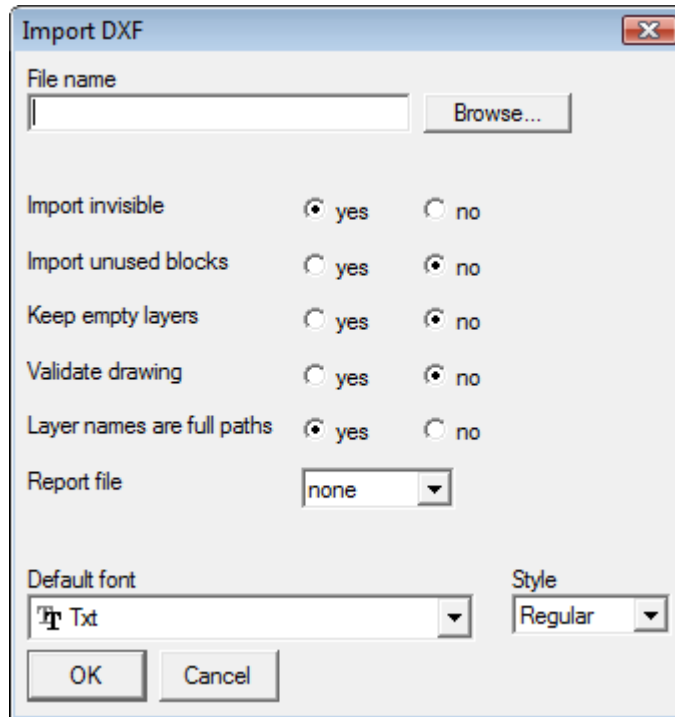
Import Working Drawing allows you to import a working drawing from a different model into your current model. The feature is nice for sharing details or working drawings. The imported working drawing will become part of your model and can be accessed under the 'Window' pull down menu. When Working Drawing is selected, the following dialog box will appear.



- **Drawing Name:** Allows you to browse to the desired model you want to copy the working drawing from
- **Working Drawing Name:** Allows you to select the desired working drawing you want to copy.
- **Working Drawing Name:** Allows you to give your copied working drawing a new name. This name will appear in your current 'Window' pull down menu.

SolidBuilder ➡ File ➡ Import ➡ Working Drawing

You may need to utilize drawings or projects from other CAD packages that do not read or write .dwg files. If so, **SolidBuilder's** Import DXF command allows you to import a data exchange file, known as a DXF file, which is exported from another CAD package. Typically the default settings will work fine.

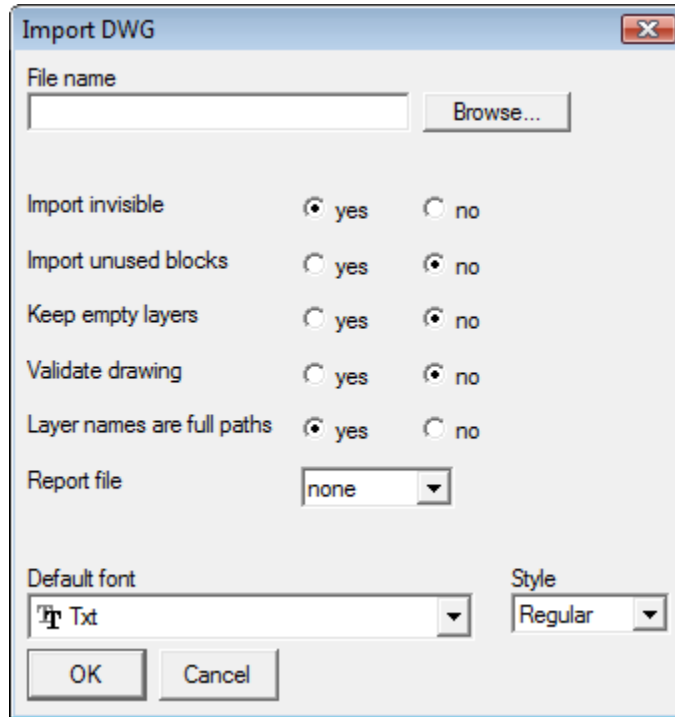


- **File name:** Enter the file name with the drive and directory location here. This must be a DXF file.
- **Browse:** Click here to select a DXF file from a Windows directory tree.
- **Import invisible:** If the DXF file invisible objects, this option will give you the choice to include them in the import (yes or not)
- **Import unused blocks:** If the DXF file contains block references, but no actual block entities, this option will give you the choice to include them in the import (yes or not)
- **Keep empty layers:** If the DXF file contains layer references, but no actual entities reside on the layer, this option will give you the choice to include them in the import (yes or no)
- **Validate drawing:** If you select yes, this option will perform an audit of the drawing to check the DXF file for any errors or problems that would give **SolidBuilder** problems during the import.
- **Font:** This option will allow you to substitute a default font type for any fonts contained in the DXF file that do not match **SolidBuilder's** selection.

- **Style:** This drop list will allow the user to specify if they want their selected font to be regular, bold, italic, or bold italic.

SolidBuilder ➡ File ➡ Import ➡ DWG

You may need to utilize drawings or projects from other CAD packages that do not read or write .dwg files. If so, SolidBuilder's Import DWG command allows you to import a DWG file, which is exported from another CAD package. Typically the default settings will work fine.



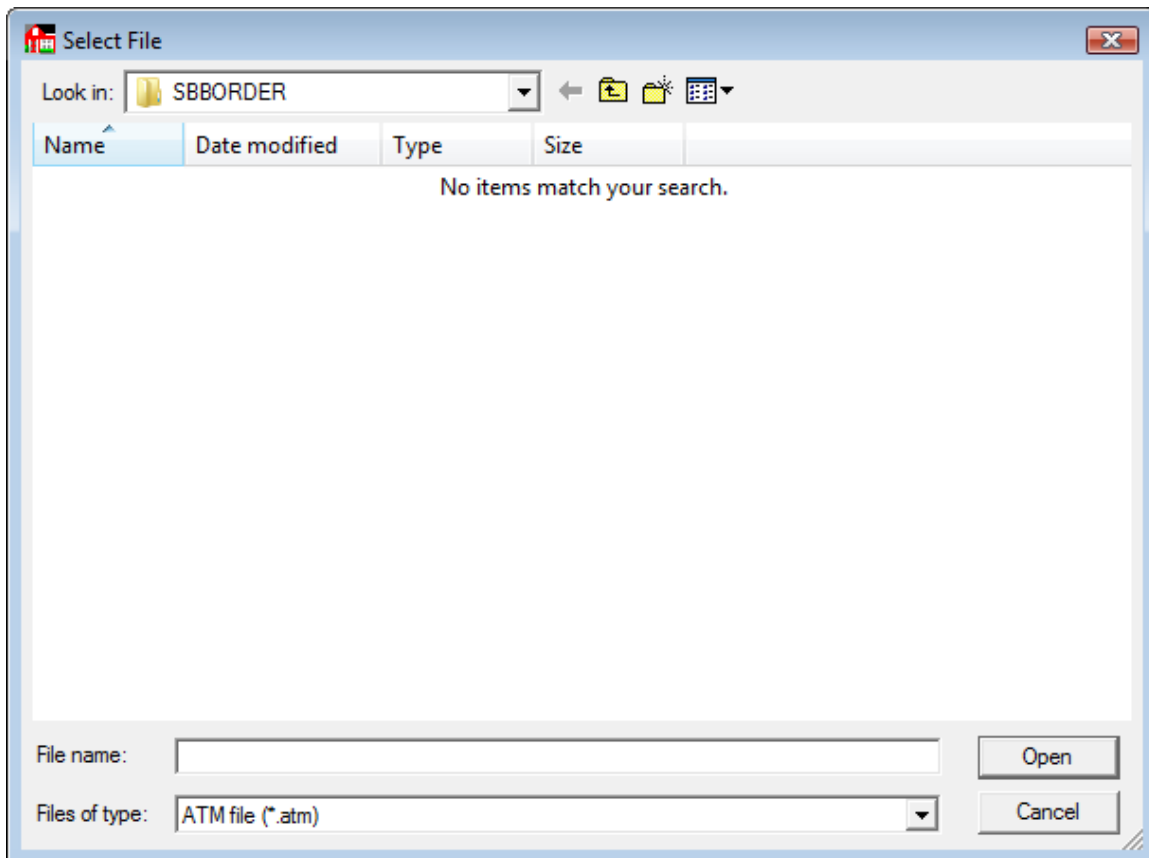
- **File name:** Enter the file name with the drive and directory location here. This must be a DWG file.
- **Browse:** Click here to select a DWG file from a Windows directory tree.
- **Import invisible:** If the DXF file invisible objects, this option will give you the choice to include them in the import (yes or not)
- **Import unused blocks:** If the DWG file contains block references, but no actual block entities, this option will give you the choice to include them in the import (yes or no)
- **Keep empty layers:** If the DWG file contains layer references, but no actual entities reside on the layer, this option will give you the choice to include them in the import (yes or no)
- **Validate drawing:** If you select yes, this option will perform an audit of the drawing to

check the DWG file for any errors that would give **SolidBuilder** problems during the import.

- **Font:** This option will allow you to substitute a default font type for any fonts contained in the DXF file that do not match **SolidBuilder's** selection.
- **Style:** This drop list will allow the user to specify if they want their selected font to be regular, bold, italic, or bold italic.

SolidBuilder ➡ File ➡ Import ➡ Trusses

SolidBuilder allows you to import files from truss design programs. This information must be an ATM file and will come from a truss program. Once Trusses is selected, the following dialog box will appear.

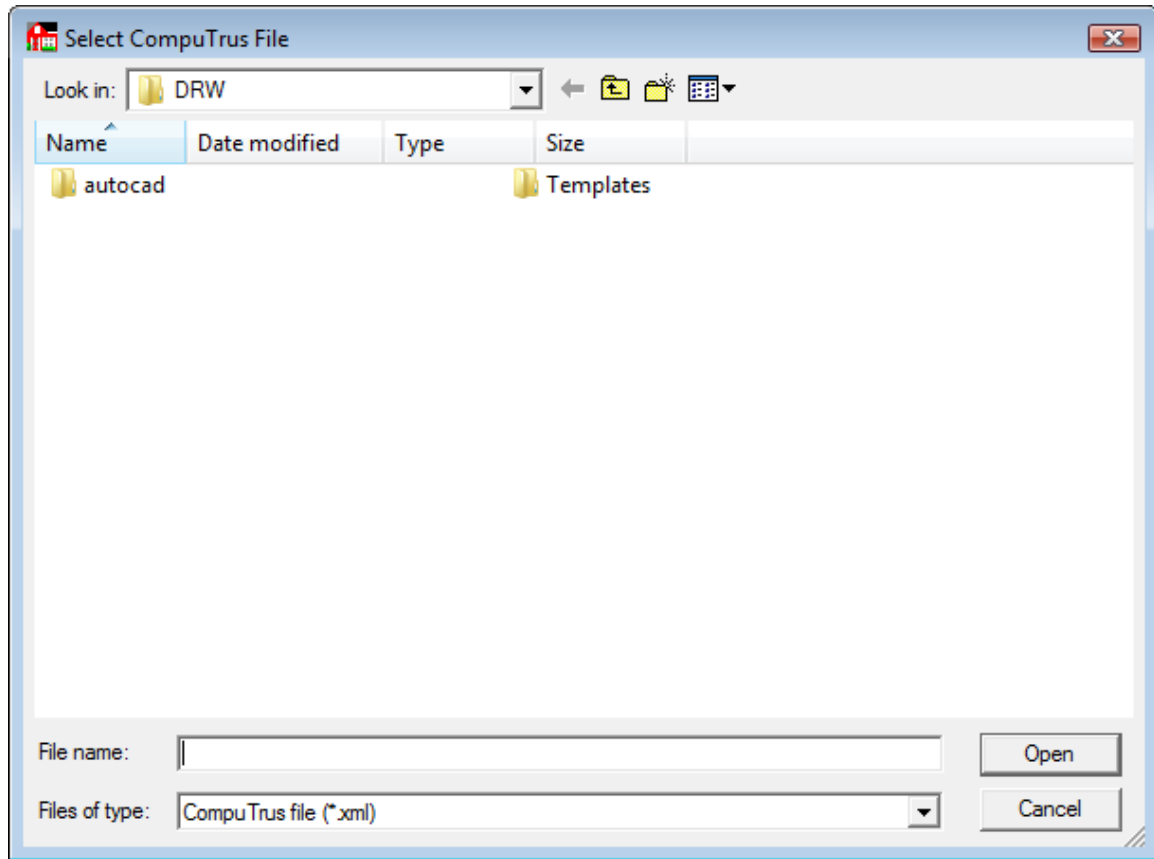


This window allows you to browse to the desired .ATM file. Once the .ATM file is selected, the trusses will appear in your model. Depending on the location, the trusses may have to be moved into the correct position.

SolidBuilder ➡ File ➡ Import ➡ CompuTrus

SolidBuilder allows you to import trusses from CompuTrus. This information must be a CDA file and will come from a CompuTrus program. Once CompuTrus File is selected, the following

dialog box will appear.

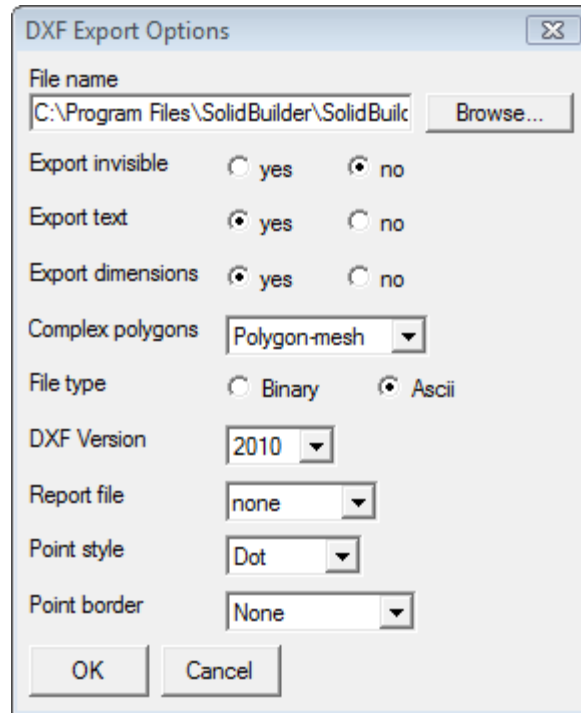


This window allows you to browse to the desired CDA file. Once the CDA file is selected, the trusses will appear in your model. Depending on the location, the trusses may have to be moved into the correct position.

File - Export

SolidBuilder ➔ ***File*** ➔ ***Export*** ➔ ***DXF***

The Export DXF command allows you to export a model for use in another CAD package, which does not directly support DRW files. ***SolidBuilder*** has been equipped with a utility that will automatically generate a DXF file that can be exported to the rendering package ***Virtual Image*** offered by Digital Canal Corporation. Each time you save your model, you will be prompted to create this DXF file. The option in the menu can be toggled on or off so that this operation will not take place every time you save your model.

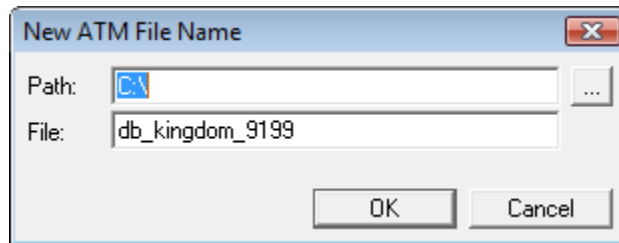


- **File name:** Enter the file name with the drive and directory location here. This must be a DXF file.
- **Browse:** Click here to select a DXF file.
- **Layering by:** Choose from either block or object. These are the layer assignment choices as they will be used in another package.
- **Export Invisible:** This option will give you control over whether or not to export entities that are stored on layers that are currently invisible at the time of the export.
- **Export Text:** The option will give you control over whether or not to export text entities as part of the DXF.
- **Export Dimensions:** The option will give you control over whether or not to export dimension entities as part of the DXF.
- **Export holes:** The option will give you control over whether or not to export holes (openings) as part of the DXF. It is suggested that you choose yes.
- **Complex Polygons:** Choose from a list of polygon types (Polyline, Polygon Mesh, Faces, or None). When making your selection, consider the CAD program in which you will be using the DXF file, since not all complex polygon types are suitable in all CAD programs. Consult the CAD program you will be using for the best method.
- **File Type:** Choose between Binary and ASCII. ASCII file types are editable; binary file types are not.

- **Point Style:** This is typically set to Dot. Select the type of point to use. You may select a default point style to use (dot, nothing, cross, or X).
- **Point Border:** Select if a border around points is desired in the resulting DXF (none, circle, square or circle-square).

SolidBuilder ➔ File ➔ Export ➔ GoToMitek

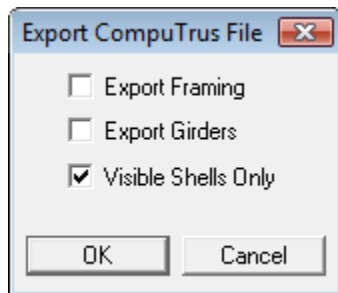
SolidBuilder allows you to export your 3D model to a Mitek truss program. The link allows a Mitek truss user to open your 3D model and create the trusses based on your model. When GoToMitek is selected, the following dialog box will appear.



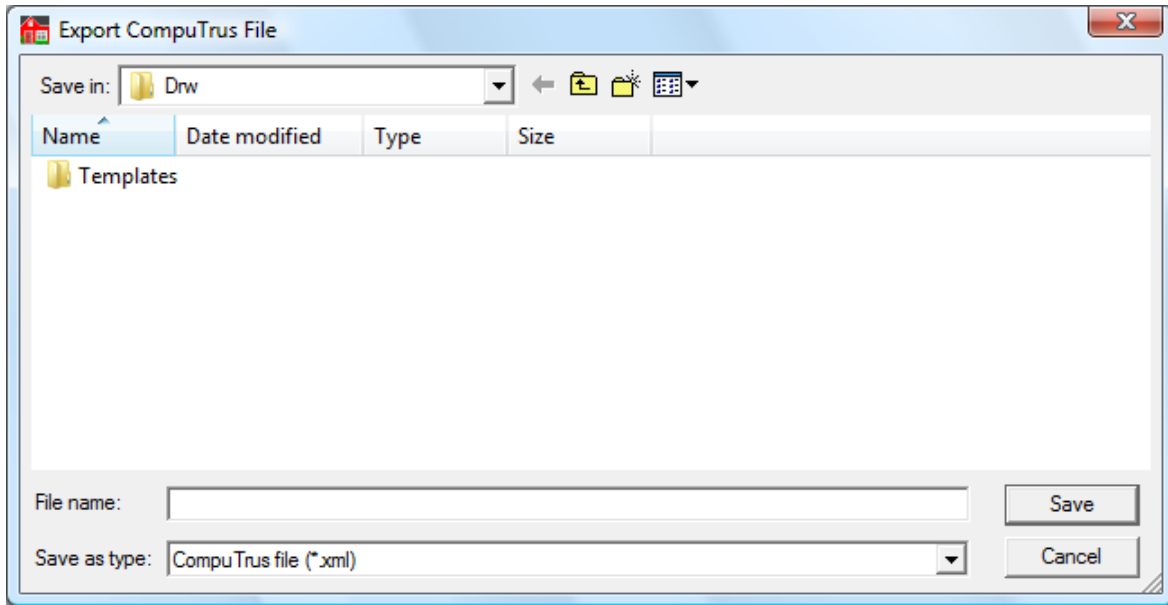
This dialog box allows you to specify where you want the file saved, and also the file name. Once you select OK, SolidBuilder will create an .ATM file in the directory specified.

SolidBuilder ➔ File ➔ Export ➔ CompuTrus File

SolidBuilder allows you to export your 3D model to a CompuTrus program. The link allows a CompuTrus user to open your 3D model and create the trusses based on your model. When CompuTrus File is selected, the following dialog box will appear.



This dialog box allows you to specify the information you want to export to CompuTrus. Once the desired information is selected, and OK is clicked, the following dialog box will appear.



This dialog box allows you to specify a name for the file and to where the file will be exported.

File - Reference

SolidBuilder ➡ File ➡ Reference

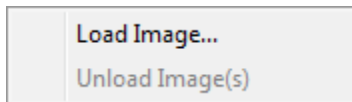
The Reference command allows you to overlay an existing drawing before opening the current project. This is handy if tracing needs to be done using an existing project.

File - Trace

SolidBuilder ➡ File ➡ Trace

The Trace command allows you to overlay an existing drawing before opening the current project. This is handy if tracing needs to be done using an existing project.

When choosing the trace feature the command will prompt you to load an image:



You will want to choose the image that you want to load and eventually trace over on your screen.

Note: the command line will show you the next step throughout the process

-Mark reference point to align initial drawing: The point that you choose will help you align drawings if you plan to add another trace drawing such as a second floor. You can choose a point that would line up on the second floor so that your model, when tracing will line up with what you did on the first floor.

-Mark 1st point of known distance for horizontal scale: This allows you to scale the drawing

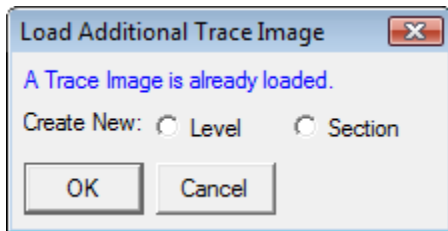
that you chose to trace over. This step is for the horizontal scale.

After drawing your horizontal line, SolidBuilder will prompt you to type in the horizontal scale for the line you drew.

-Mark 1st point of known distance for vertical scale: This allows you to scale the same drawing vertically. It should be noted that if the scale is the same as the horizontal, you can hit the F10 key to have the scale be the same as the horizontal you chose earlier.

This will conclude the tracing process. You can now trace over the drawing that is currently on your screen using all of the SolidBuilder commands.

Note: To add another drawing on top of the current drawing you will repeat the process as outlined above but when you click load image you will get this dialog box:



This box allows you to choose a new level or section.

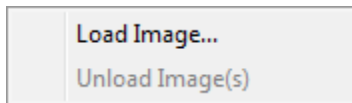
-A new level: would be if you are adding a second floor plan on top of the drawing that is currently there.

- If you choose level the command the first step prompts you to choose a reference point to match the previous level.
- The next step will prompt you to choose the elevation of the new level so that you can start stacking shells on top of each other in the model.
- You will then be prompted for the scales as in the above steps.

-A new section: would be if you wanted to add another image in addition to the one that is currently on your screen.

- This command works the same as the new level.

-Unloading Image(s): To unload the Trace Image go to File:Trace and choose unload image



Note: If an image is already loaded on your screen the Unload Image(s) button will be active

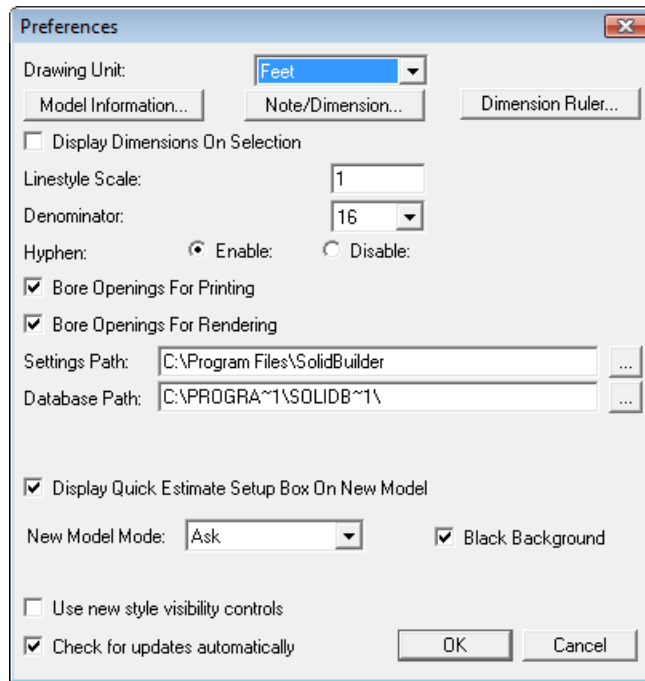
File - Preferences

SolidBuilder ➡ File ➡ Preferences

The Preferences command allows you to set the default **SolidBuilder** preferences

Chapter 2

File Pull Down Menu

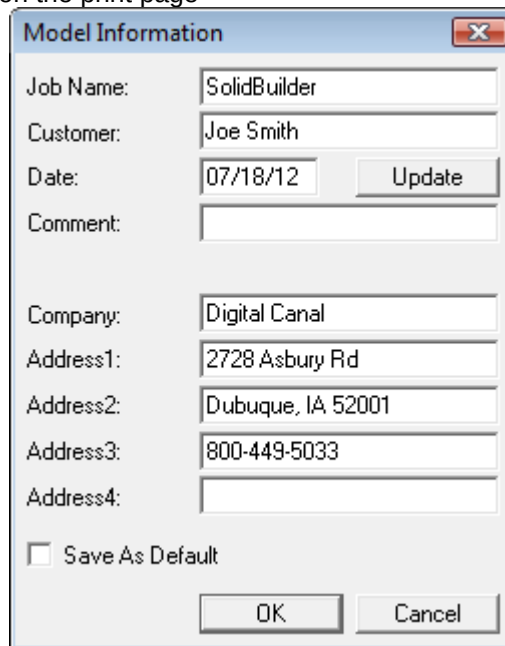


Preferences Dialog Box Definitions

Option	Function

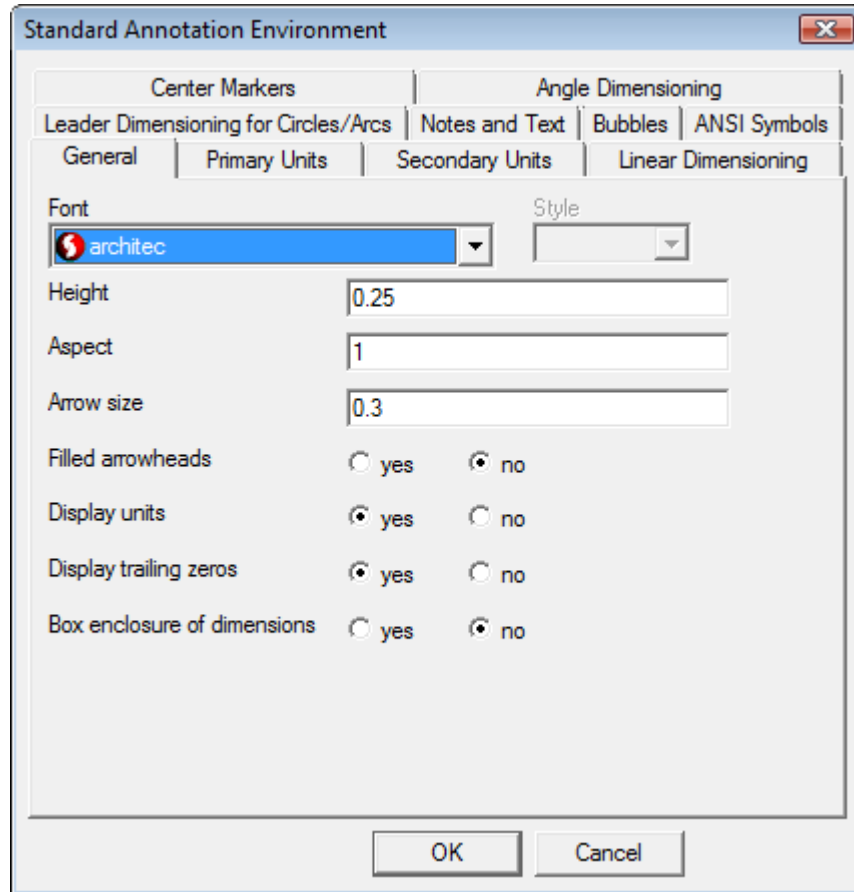
Drawing Units	Select the appropriate drawing unit for measure. Typically this will be Feet. Feet will give the measurements in Feet and Inches.

Model Information	Model Information (below) allows you to enter the job name, customer name, date, and comments, as well as addresses. This information is also used when you create or use a Border Drawing for printing and will be automatically inserted on the print page



Note/Dimension

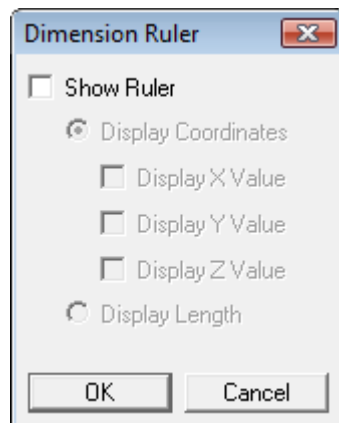
The Note/Dimension dialog box (below) contains settings for notes and dimensions.



- The General tab allows you to specify font size and height, arrowhead size, and whether or not the arrowhead is filled in. You may also specify whether units and trailing zeros are displayed and if you want to enclose the dimension
- The Primary Units tab allows you to select a primary unit of measure and setting for precision denominator and rounding value.
- The Secondary Units tab allows the placement of a designated alternate unit of measure after the primary unit of measure (for example, noting length in meters after the length in feet).
- The Linear Dimensioning tab allows you to set your defaults for the way the dimensions are displayed. You can select either arrows or tick marks for the witness lines, your witness line offset distance and extension length, the text and line colors, the text location and orientation and the position of the dimension arrows - either inside or outside the witness lines.
- The Leader Dimensioning for Circles/Arcs tab allows you to set the default position of the leader arrows, arrow location and text settings.

- The Notes and Text tab allows you to set the defaults for your leaders and text
- The Bubbles tab allows you to set your defaults for the note bubbles.
- The ANSI Symbols tab allows you to set the defaults for the leader offset and extension, as well as text and lone colors when inserting ANSI symbols.
- The Center Markers tab allows you to set the default size for display of the center mark used with diameter and radius dimensioning. It also sets the default color of the center mark.
- The Angle Dimensioning tab allows you to set the defaults for how angle dimensions are placed, as well as any information pertaining to these dimensions.

Dimension Ruler You can turn the graphic Dimension Ruler on or off, below. When turned on, a graphic is displayed on the **SolidBuilder** screen. You can choose to display the X, Y, or Z value or any combination. If you choose Display Length, the length that the cursor moves is displayed on the screen in feet and inches.



Display Dimensions on Screen This toggle allows you to turn off automatic dimensions. Automatic dimensions are dimensions that appear when you select an object. Un-check this option to not see the dimensions.

Linestyle Scale The Linestyle Scale is used to modify linestyle scaling that was applied under Edit - Drawing - Linestyle. This increases or decreases the linestyle pattern scaling (distance between dashes or dots, etc.).

Denominator This command allows you to set the fractional rounding off values. For example, if it is set to 16, **SolidBuilder** displays dimensions to the nearest 1/16".

Hyphen Enable This command allows you to disable/enable dimensions with a hyphen between feet and inches.

Bore Openings For Printing	This option should be toggled on. This bores or cuts out all openings when you print.
Bore Openings For Rendering	This option should be toggled on. This bores or cuts out all openings when you render
Settings Path	This is the path to your settings file. Leave this set to the default path.
Database Path	This is the path to your database file. Leave this set to the default unless you are using multiple databases.
Display Quick Estimate Setup Box On New Model	This toggle will either display or not the Quick Estimate Setup box every time you start a new mode.
New Model Mode	This option allows the user to specify whether or not SolidBuilder should prompt them the option of starting with Building Blocks or SolidBuilder when entering the program.
Black Background	This allows the user the option of using a Black or White background.
Use new style visibility	The allows you to choose between the classic visibility menu or the new style visibility menu
Check for updates automatically	When this is checked SolidBuilder will check for automatic updates whenever we have a patch to update the current version.

Print

SolidBuilder ➡ File ➡ Print

Icon: 

The Print command allows you to print your model. Please see the Printing Section of this document for more information on printing.

Print Setup

SolidBuilder ➡ File ➡ Print Setup

The Print Setup command allows you to verify which printer you are using, the paper size, source, and orientation. Please see the Printing Section of this document for more information on printing.

Recent Files

SolidBuilder ➡ File ➡ Recent Files

The Recent Files command allows you to select and open one of the four files you most recently saved. This allows you to bypass any browsing that may be necessary when using the Open

command.

CAD Menu

SolidBuilder ➡ File ➡ CAD Menu

The CAD Menu command will allow you to access the functionality of the graphics engine in **SolidBuilder** to perform more advanced operations.

To get back to **SolidBuilder** from CAD, click on the Tools tab and choose Toolbars - Edit. Select "epsbengn10.c" in the File drop down. Once "epsbengn10.c " is selected, click on the "Execute" icon. Now you are back to **SolidBuilder**.

Exit

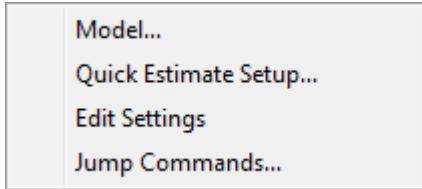
SolidBuilder ➡ File ➡ Exit

To exit your **SolidBuilder** software, select Exit from the File menu.

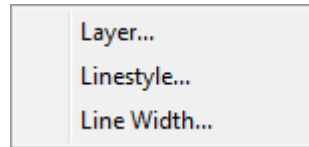


Chapter 3: Settings

The Settings menu provides access to **SolidBuilder's** default settings. The File pull-down menu will change depending if you are in a 3D model or a 2D working drawing, shown below.



Settings Menu in a 3D Model



Settings Menu in a 2d Working Drawing

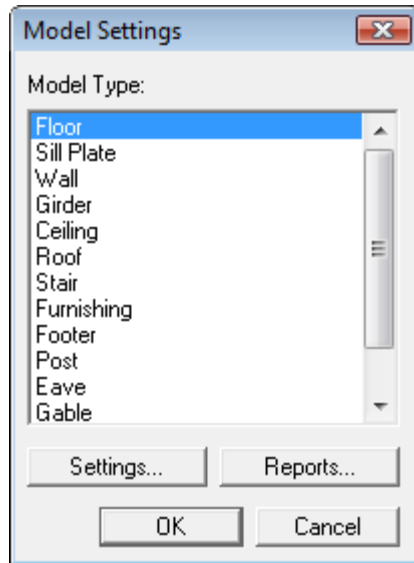
In this Section:

• Model	Layer
• Quick Estimate Setup	Linestyle
• Edit Settings	Line Width
• Jump Commands	

Settings - Model

SolidBuilder ➡ Settings ➡ Model

The Settings menu provides access to **SolidBuilder's** Model default standards. The Model Settings are important because, when properly set, they can save you time in creating the model. As you create various shell types in the model, you are presented dialog boxes where you must select various options such as framing values entered in the various shell Model Settings. If the values representing your building practices are entered in the Model Settings dialog box, you can accept (and bypass) the Shell Options standard defaults (which are your values) by merely pressing the Enter key on your keyboard. If these shell standards do not conform to your building standards, you must correct the various fields in each Shell Options dialog box.

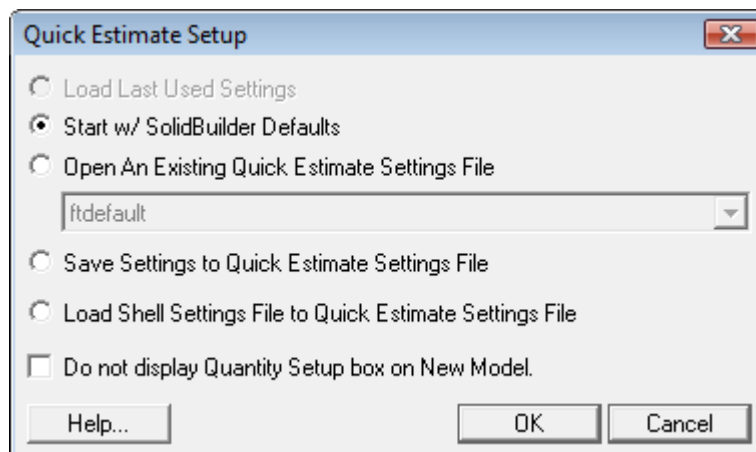


After selecting a shell type, click on the Settings button in the lower left corner. This displays the appropriate shell settings dialog box. Change the values to reflect the conditions that you use in building. For more information regarding each shells framing options, look for that shells options section under 3D modeling. *This option is only available in the 3D model.*

Settings - Quick Estimate Setup

SolidBuilder ➔ **Settings** ➔ **Quick Estimate Setup**

When you first open **SolidBuilder**, the Quick Estimate Setup box (below) is displayed. The Setting file contains all of the framing, assembly, and material information for a model. You can use the **SolidBuilder** default settings file for each new model and modify it as needed while creating the model. Or you can create your own settings file, with specific framing settings and specific assemblies for floors, walls, roofs, etc., and the materials you choose.



Quick Estimate Setup Definitions

Option	Function
Load Last Used Settings:	Use this option to start a new drawing using the

Chapter 3
Settings Pull Down Menu

settings used on the previous **SolidBuilder** drawing.

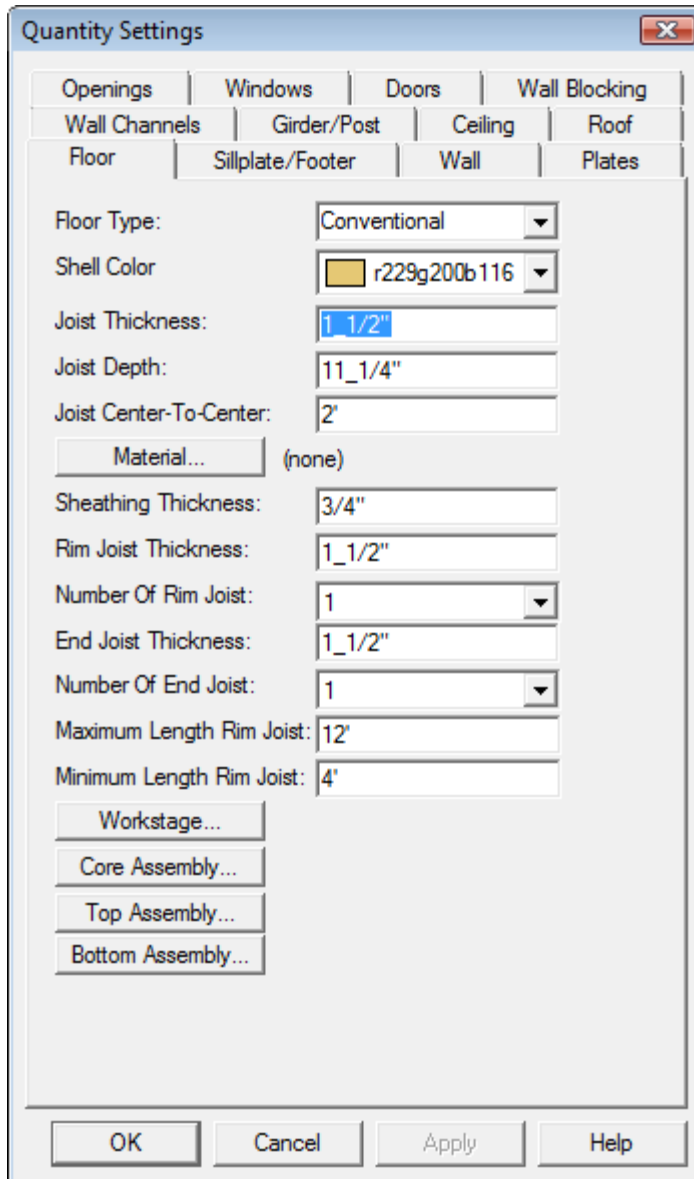
Start w/ SolidBuilder Defaults	Use this option to use the SolidBuilder default settings file.
Open an Existing Quick Estimate Settings File	This will list all of the custom Existing Quick Estimate Settings Files that you have created
Save Settings to Quick Estimate Settings File	Use this option to save your settings as a settings file. You will be prompted to assign a name to you settings file. After the settings file has been saved, it will appear in the Open An Existing Quick Estimate Settings File.
Do not display Quantity Setup box on New Model	When toggled on, the Quick Estimate Setup window will not appear when you start a new model and the new model will use the last saved setting file. When toggled off, it will open when you start a model.

This option is only available in the 3D model mode.

Settings - Edit Settings

SolidBuilder ➡ Settings ➡ Edit Settings

The Edit Settings command allows you to preset every shell option before you start drawing. This feature can save you time by allowing you to access the Quantity Settings (below) and setting your options. By presetting your options, you can skip (bypass) setting your options when you start the drawing.



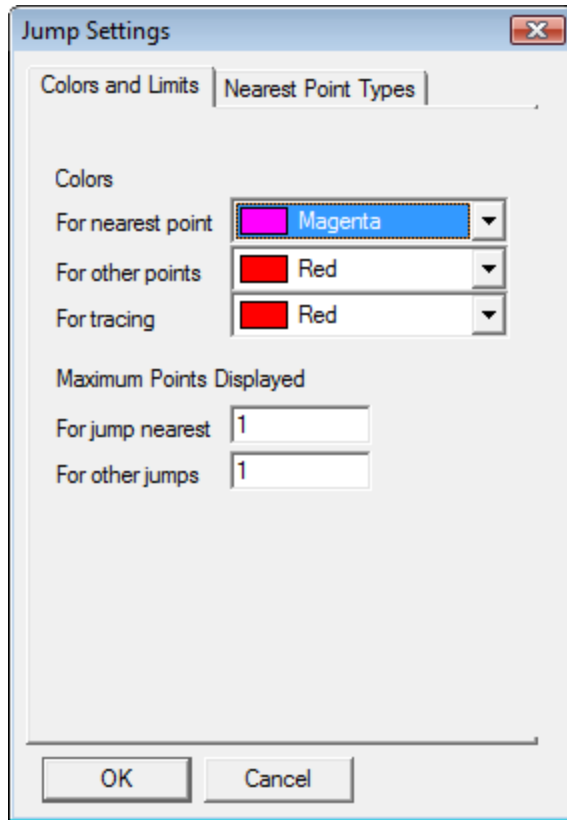
The 'Quantity Settings' dialog box features a tabbed interface with the following categories: Openings, Windows, Doors, Wall Blocking, Wall Channels, Girder/Post, Ceiling, Roof, Floor, Sillplate/Footer, Wall, and Plates. The 'Floor' tab is currently selected. The settings for this tab include: Floor Type (Conventional), Shell Color (r229g200b116), Joist Thickness (1 1/2"), Joist Depth (11 1/4"), Joist Center-To-Center (2'), Material (none), Sheathing Thickness (3/4"), Rim Joist Thickness (1 1/2"), Number Of Rim Joist (1), End Joist Thickness (1 1/2"), Number Of End Joist (1), Maximum Length Rim Joist (12'), and Minimum Length Rim Joist (4'). Below these settings are buttons for Workstage..., Core Assembly..., Top Assembly..., and Bottom Assembly... At the bottom of the dialog are OK, Cancel, Apply, and Help buttons.

For more information regarding the shells options, see that particular shell's option topic under the 3D Modeling section.
This option is only available in the 3D model mode.

Settings – Jump Commands

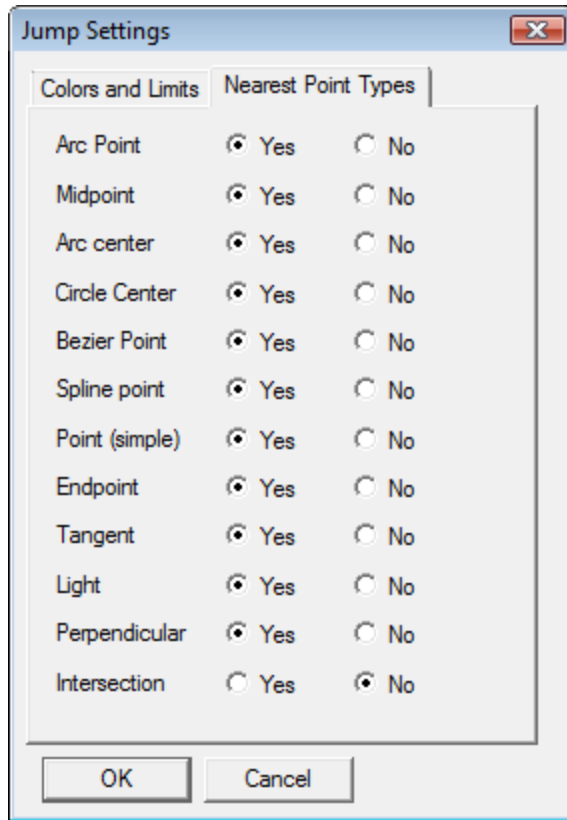
SolidBuilder ➔ **Settings** ➔ **Jump Commands**

The edit Jump Commands dialog box allows the user to set their Jump Command preferences. There are two tabs to the dialog box. The first tab will look like this.



This tab allows you to set the colors of your jump commands. For example, when using the 'Endpoint' jump command, SolidBuilder will highlight your endpoints. This is where you can set the color of the highlighted points.

This tab also allows you to set the number of highlighted points. For example, you can set the number of points to 3. With this setting, the program will highlight the closest endpoint in one color, and highlight the next two closest points in another.



This tab allows you to specify which snap commands you want to have available. Simply toggle 'Yes' or 'No' to make available or unavailable.

Settings - Layer

SolidBuilder ➔ **Settings** ➔ **Layer**

SolidBuilder organizes the information of 2D drawings by assigning all geometry, text, symbols, notes, dimensions, etc. to layers. Each entity is placed in a layer. Some of the layers are defined and named by **SolidBuilder**; others may be created and defined by the user. **SolidBuilder** groups each entity into one of three categories:

- **Symbol/Text** layers for symbols and text (S/T)
- **Linework** layers for linework (L)
- **Note/Dimension** for notes, dimensions, and labels (D/N)

When you create a working drawing, **SolidBuilder** converts the lines you see in the model into 2D linework on a working drawing. As it creates the drawing, it places each different shell on its own linework layer, so linework for walls is on its own layer, linework for floors is on its own layer and so on. You may also modify or erase any linework created on the drawing. **SolidBuilder** also creates one layer for the symbol/text category and is named plsym for a plan drawing (flsym for a flat drawing). Any symbols visible prior to creating the drawing are placed on this layer. **SolidBuilder** also creates one layer for the note/dimension category and is named pldim1 for a

Chapter 3 Settings Pull Down Menu

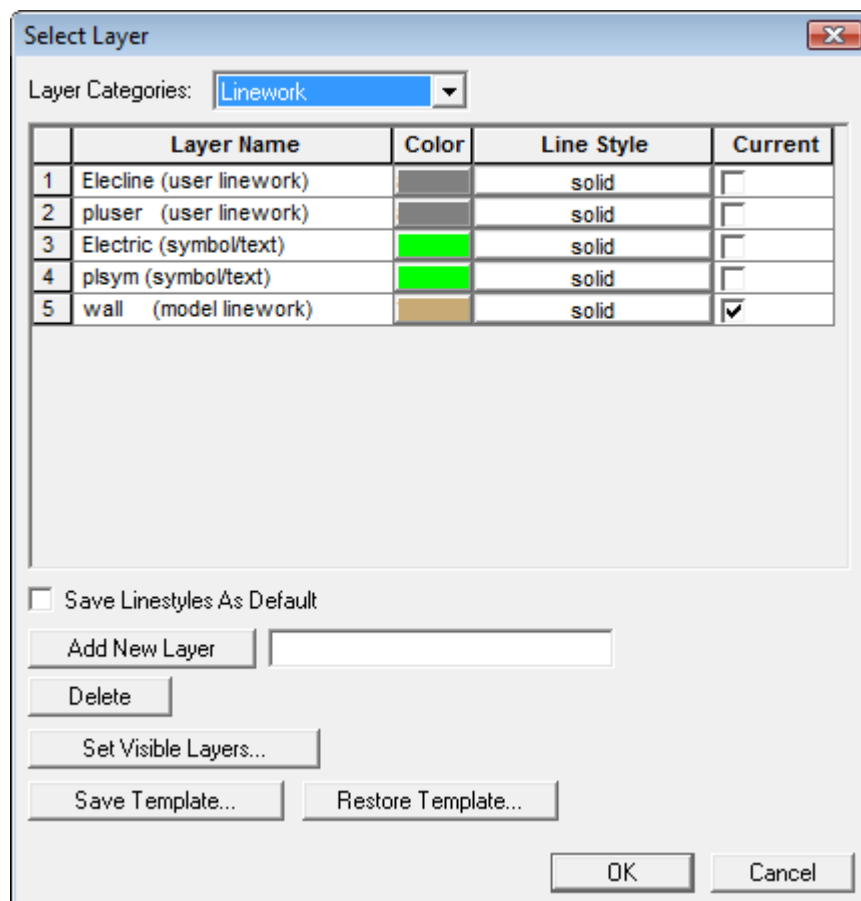
plan drawing. (fldim1 for a flat drawing). To distinguish between layers, the following toolbar appears when a working drawing is created displaying the current layers:



You can draw lines, polylines, and other geometry on the working drawing. These elements are placed in the current Linework Layer. In addition to 2D geometry, you may add symbols, notes, dimensions, legends, text files, and text tables from **SolidBuilder** Quantities reports, each of which is placed in the current layer.

Layers is a convenient way of grouping similar items together. For example, you want to group together all the information for the layout of an electrical plan. To do this, you can create a new layer for each category and then place all the electrical lines, symbols, and notes on the layers. Then the layers can be made visible or invisible to ease the process of modifying and printing other layers.

You can select one of the categories to change the current layer using the Current Layers tool bar (above) or you can access them by selection Settings - Layer from the menu and the following dialog box displays (below).



- **Layer Categories:** Displays a category with a list of the layers in that category. the layer with a check mark is the current layer for that category. You may click on the drop list to select another category and it will list all its layers.

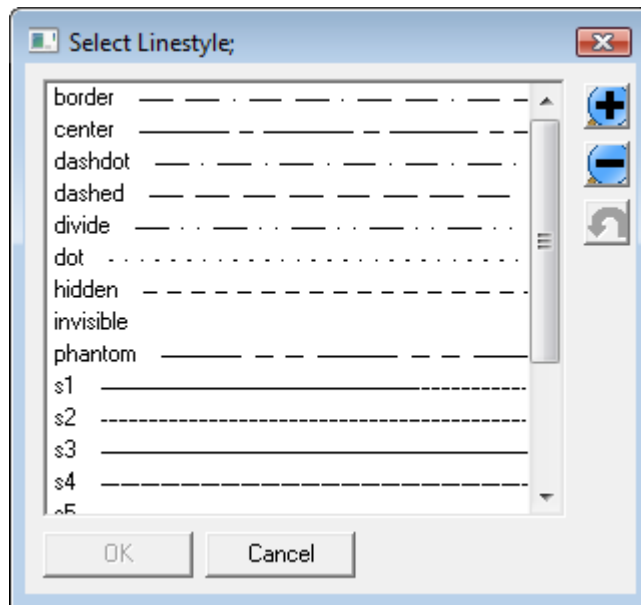
- **Add New Layer:** You may type a name for a new layer (leaving no spaces) and then click on the Add New Layer button. It will place the layer in that category with a default color. You may change the color of a layer by clicking on that specific color button.
- **Delete:** You may delete a layer by clicking on the gray box next to the name so it is highlighted and then clicking on the Delete button. It deletes that layer and everything that was created or inserted on that layer. It does not allow you to delete all the layers in a category.
- **Set Visible Layers:** This lists all of the layers in that working drawing. You can click on which layers that you want to make visible on the screen. You can hold the Shift or Ctrl key down and click if you only want certain ones visible or select All to have all the layers visible.
- **Save Template:** This creates a template based upon your current layer names and colors for those layers to be used for other drawings. When this button is clicked on, you are prompted for a Template Name.
- **Restore Template:** To use the template when in another drawing, click on this button, and select the desired template from the list. This creates all of the layers in the template with the correct colors for the current drawing.

This option is only available in a 2D working drawing.

Settings - Linestyle

SolidBuilder ➡ Settings ➡ Line Style

This command allows you to select from available linestyles from the Select Linestyle dialog box (below).

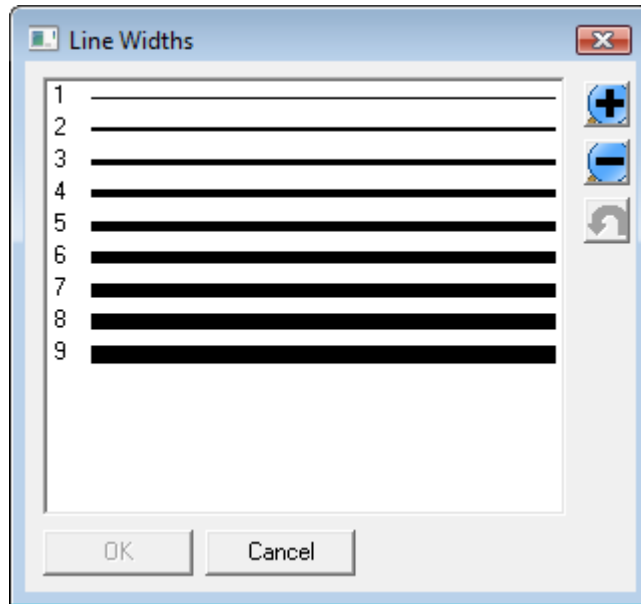


This option is only available in a 2D working drawing.

Settings - Line Width

SolidBuilder ➡ **Settings** ➡ **Line Width**

This command allows you to specify line widths from the Select Line Width dialog box (below).

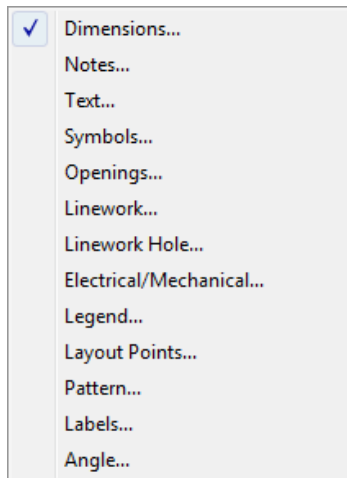


This option is only available in a 2D working drawing.



Chapter 4: Component

You can choose from the following menu under Component to insert items into you working drawing or you may use the icons from the Working Drawing toolbar. The Component pull-down menu will only be available in a 2D working drawing.



Component - Dimensions

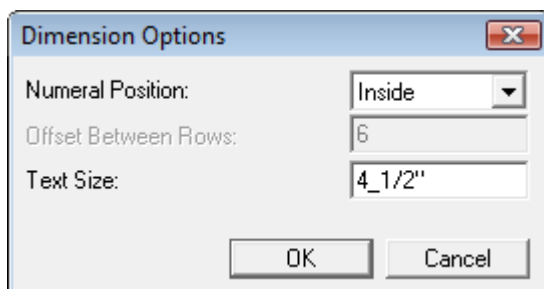
SolidBuilder ➡ Component ➡ Dimensions

Icon:

You can insert dimensions by clicking on the Component pull-down menu or clicking on the Dimension icon. The select the Then select the Insert menu or use the Model Information tool bar to choose what method of dimensioning. The following methods are listed below.

- **Insert Single**

This command is used to define a dimension line between two points or between a set of points along a line. The following dialog box displays when you run this command.



Numeral Position: The Numeral Position allows the dimension value to be placed at the Inside, Right, Left, Above, Below, or Parallel to the witness lines.

Offset Between Rows: The Offset Factor is used to calculate the desired distance between dimension rows when using the Automatic method. Each row is placed the same distance apart. The distance between rows is computed by multiplying the Text Size by the Offset.

- **Text Size:** Text Size is given in Drawing Feet. You must determine this number by deciding the actual size of the text that to want to appear on the drawing relative to the scale of the drawing. If you want the text size on the drawing to be 1/4" and the scale of the drawing is 1/4", then you would set your Text Size to 1 foot.
1. In single dimensioning, the command line prompts:
Mark 1st point for dimension (esc to quit)
Mark 2nd point for dimension
Mark offset for Dimension Line (enter if same offset)
 2. You first locate the two points to be dimensioned by using the Jump Commands. Next you mark or locate a point which determines the location of the dimension line. Only the perpendicular distance between this point and a line between the two dimension points is pertinent relative to the placement of the dimension line.
 3. A dimension line and witness lines are drawn. The position and style can be modified by the Modify Dimension menu, found underneath the right click.
 4. After placing one dimension, a row of dimensions can be placed along the same dimension line. Locate the two points and press Enter when Mark offset... prompt is given. The command returns the cursor to the second point located. This is to facilitate placement of the first point of subsequent pairs of points along a line.
 5. After the line is drawn, the command checks to see if it is a horizontal or vertical line. A default value is set to determine this so that any line within the number of degrees of the default value is determined to be a horizontal or vertical line.
 6. If the line is not horizontal or vertical (within the default deviation value), the following message appears:
Line should be: Skew Horizontal Vertical
 7. Select one of the three options. If you select Skew, the dimension line is drawn along and parallel to the line defined by the two points. If you select Horizontal, then the horizontal component is measured. If you select Vertical, then the vertical component is measured.
- **Insert Single Modify**
This command is the same as the Insert Single dimension commands with the exception that after inserting each dimension, you are presented with the opportunity to immediately modify the inserted dimension notation by right mouse clicking.
 - **Insert Cumulative**

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Component Pull Down Menu

This is the same as Insert Single dimension command, except that a series of measurements is given along a set of multiple lines, beginning at the same first point. You are prompted:

Mark Base Point for Cumulative Dimension Set (Esc to quit)
Mark Next Point to Dimension
Mark Offset for Dimension Line (enter if same offset)

- **Insert Continuous**

This is similar to Insert Cumulative dimension. You select a series of points to dimension to. Then set the offset for the dimension line and the dimensions are inserted. Continuous allows you to specify the length of the dimension line. Typically it is rather short and serves only to show the direction of the dimension.

You are prompted:

Mark Base Point for Continuous Dimension Set (esc to quit)
Mark Next Point to Dimension (esc to quit)
Mark Offset for Dimension Line (enter if same offset)

- **Insert Automatic**

Insert Automatic dimensions allows you to place multiple rows of dimensions between any two locations on the drawing. Rows of dimensions are placed in this manner have the same offset between them as well as the same Numeral Position (relative to the dimension line) and the same text size.

1. You are first prompted for the orientation of the dimension lines.
2. Next you are prompted to enter the points for the beginning point, the intermediate points and the ending point of the nearest dimension row to the linework. Once these have been entered, subsequent rows of dimensions require that you enter only the intermediate points - the beginning and ending points are set with the first row. As each row is complete (by pressing the F10 key) it is automatically placed at the offset distance from its preceding line.
3. Pressing the F10 key to complete the next to the last line and then pressing the F10 key again without entering intermediate values places the last dimension row. This last row contains only the beginning and end points (an overall dimension). You are prompted:

Insert dimension rows along the: Top Bottom Left Right
4. Select either top, bottom, left, or right depending on which side you dimension. This places the dimension line at the proper angle (typically vertical or horizontal) and generates the additional rows in the right direction relative to the first row. The next prompt is:

Mark point 1 along Top row 1; F10 to finish

(If you select Bottom, Left, or Right, that selection replaces the word Top in this message.)
5. As you select each point, the point number in the message is increased by one in the subsequent prompts. Select all the points until you have located the last point and press the F10 key. You are prompted:

Mark offset to nearest (1st) row of dimensions
6. Move the cursor to the desired location and left click or press Enter. The first row of dimension is placed. You are prompted:

Chapter 4
Component Pull Down Menu

Mark point 3 along Top row 2; F10 to finish

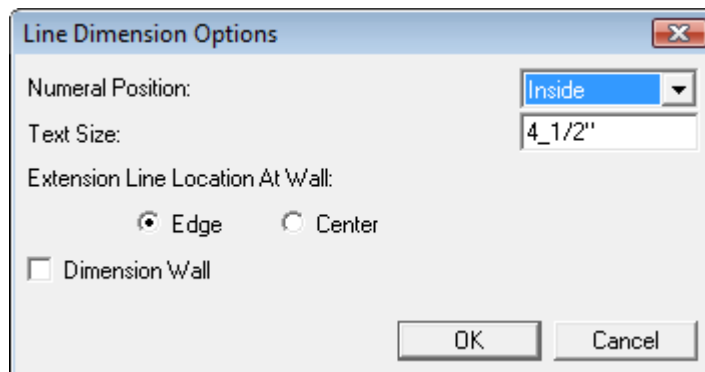
7. Note that the first point displayed is point 3. This is because the first two points are the beginning and end points. Note also that the row number in the message has been increased by 1. As you place each row, the number in the message is increased.
8. Continue the process until you have placed the next to last dimension line (by pressing the F10 key after you indicated the intermediate points). Press the F10 key again and the last row, containing only the beginning and end points is placed. You are then prompted to adjust the dimensions or press Esc to quit.

- **Insert Line**

Insert Line dimensions allows you to select a line on the current layer and have it automatically dimensioned. Simply pick the line you want to dimensions, and then pick the offset.

- **Insert Quick**

Insert Quick dimension places dimensions from wall to wall. The following dialog box displays when you click on the Quick dimension icon or select Quick from the Insert pull-down menu.



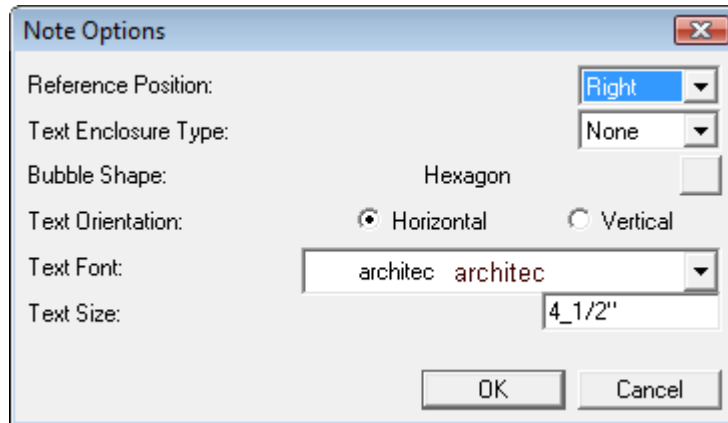
- **Numeral Position:** Select from above, below, or parallel to position the dimension relative to the witness line.
- **Text Size:** Set the size of the dimension numerals.
- **Extension Line Location At Wall:** The option can be toggled to either edge or center for the location that the dimension intersects on the wall.
- **Dimension Wall:** This option can be toggled on or off. If toggled on, the walls that the line crosses automatically receive a dimension for the wall width.

Component - Notes

SolidBuilder ➡ Component ➡ Notes

Icon: 

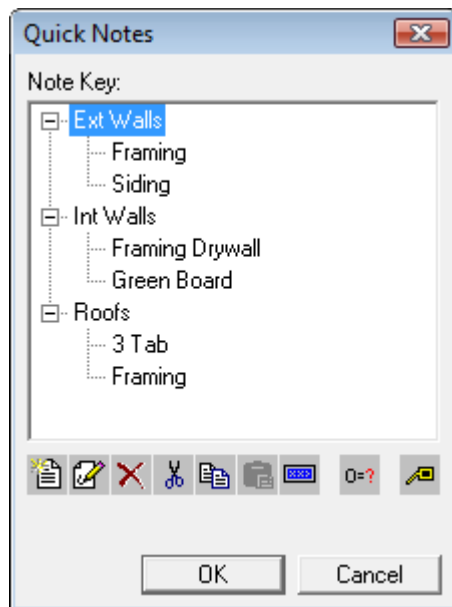
You can insert Notes by clicking on the Notes icon or selecting notes from the Component menu. Then you may select Insert to insert a Single note or a Quick note. The following dialog box displays.



- **Reference Position:** (Right-Left-Above-Below) This determines the orientation relative to the point located for the note.
- **Text Enclosure Type:** (None-Box-Bar-Bubble) This selection provides for boxes, bubbles, sidebars, or nothing around the text.
- **Bubble Shape:** This option offers the following choices for your text bubble by clicking on the gray box: Circle, Triangle, I-triangle, Square, Diamond, Pentagon, Hexagon, and Octagon.
- **Text Orientation:** (Horizontal-Vertical) Then text is written either in a horizontal or vertical direction.
- **Text Font:** Choose a text font by clicking on the gray box.
- **Text Size:** This sets the size of the text. Note that the Text Size is given in Drawing Feet. You must determine this number by deciding the actual size of the text that you want to appear on the drawing relative to the scale of the drawing. If you want the text size on the drawing to be 1/4" and the scale of the drawing is 1/4", then you would set your Text Size to 1 foot.
- **Insert Single**
This option allows you to place a note at a specified location with a leader line attached to it. After you have set the proper values in the dialog box, the command prompts for a line of notes. Each note is entered as a one line entry.
 1. You are prompted:
Mark Location for <Reference Position value >> of Note; (esc to quit)

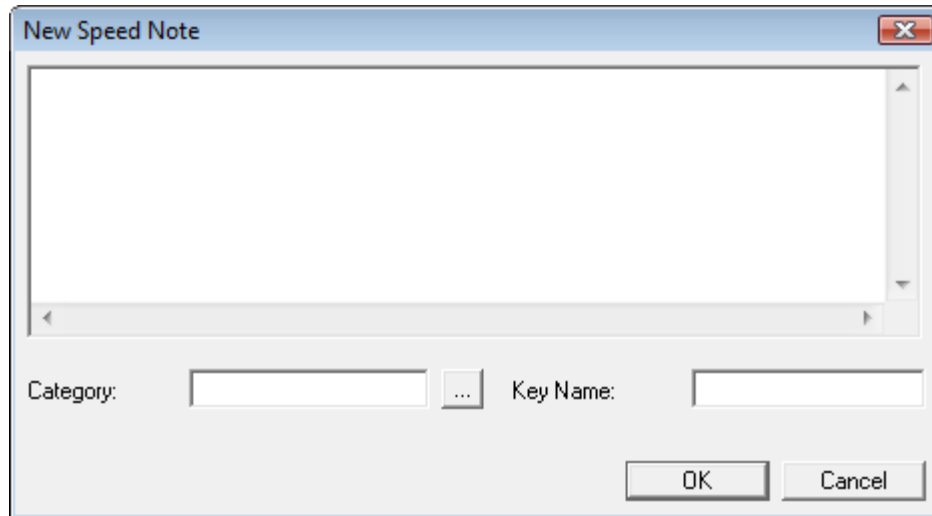
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Component Pull Down Menu

2. Move the cursor to the desired location and left click. You are prompted:
Enter Text Line
 3. After you have entered the note, you are prompted:
Mark location for Tag Line Origin (<Enter> if No Tagline)
 4. The user is given the opportunity to modify the note. The sequence is repeated until the user presses Esc.
- **Insert Quick**
Inserting quick notes allows you to create a list of commonly used notes that you may insert onto your working drawings for any project. Quick Notes can be accessed by either clicking on the icon or by selecting it from the Insert pull-down menu. The following Quick Notes dialog box displays.



-  **New:** Click on this icon to create a new quick note (the following dialog box displays). After you type the note, you need to type or select an existing Category and type a Key Name (heading for the note)

Chapter 4
Component Pull Down Menu



- Large Edit Field - Within this field the user can type the desired notes. It can be any length and use any characters. Multiple lines can be achieved by pressing the Enter key on the keyboard to advance down one line.
- Category - A new category name can be typed into the edit field, this name is displayed in the quick notes dialog box. Once a category name is entered, the existing names can be accessed by clicking on the button to the right of the edit field. Once this button is pressed, a list of the existing category names displays.
- Key Name - You can type the name of the quick note. This name appears in the Quick Notes dialog box. This key name will be the identifier for what is contained in the note.



Remove: Click this icon to remove the selected Category or Key Name



Cut: Click this icon to cut the selected Key Name in a Category



Copy: Click this icon to copy the selected Key Name in a Category



Paste: Click on this icon to rename the selected Key Name into a Category



Rename: Click this icon to rename the selected Key Name or Category



Options: Click this button to change the settings of your notes



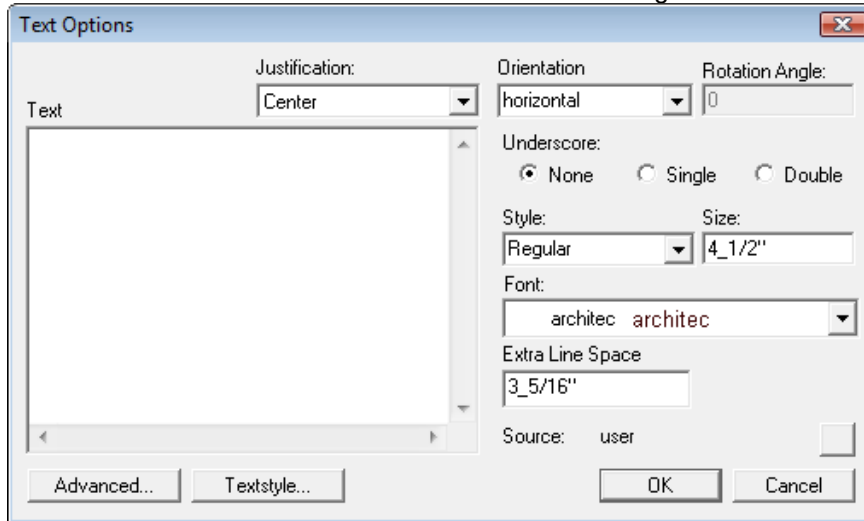
Insert: Click on this button to insert the selected Note.

Component - Text

SolidBuilder ➡ Component ➡ Text

Icon: 

You can insert text by clicking on the Text icon or selecting Text from the Component menu. Click on the Insert menu to select the method of inserting text. The following dialog box displays.

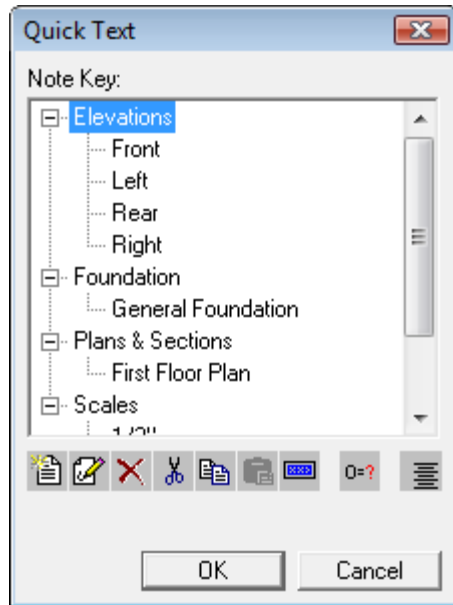


- **Justification:** (Left-Center-Right) This selection determines the justification of the text.
- **Text Font:** Choose a text font by clicking on the gray box.
- **Text Size:** Note that the Text Size is given in Drawing Feet. You must determine this number by deciding the actual size of the text that you want to appear on the drawing relative to the scale of the drawing. If you want to text size on the drawing to be 1/4" and the scale of the drawing is 1/4", then you would set your Text Size to 1 foot.
- **Source:** This allows the user to enter text (if User is selected) otherwise you can select a field from the Model Information. This information can be changed by selecting File - Preferences - Model Information, in the Model mode,
- **Underscore:** This allows you to insert a single or double strike underscore.
- **Rotate:** This allows you to enter text at any angle.
- **Insert Line Text:**
 1. After you have set the proper values in the dialog box, the command prompts for a line of text if you selected User for the Text Source option. Otherwise the text from the Text Source is inserted (for example, the Company, Job, Name, Address2, line, etc, from the original Model information you entered). If you choose User, you are prompted:
Mark location for right edge (or) center (or) left edge of text line.
 2. Move the cursor to the desired location. You are prompted:

Enter Text Line

3. This prompt is repeatedly displayed and you may enter more than one line of text; click on OK or press Enter once to define each line of text. Entering text is terminated by click on Ok or Cancel.
- **Insert Text File**
 1. One way to use this command is to write all your general notes with you work processor and save them as an ASCII file or text file. Use this command to place them on the drawing. You are prompted:
Mark location for right edge (or) center (or) left edge of text file; (esc to quit)
 2. Rather than typing the text after you have specified its placement, you can place already prepared text. This text file must be in an ASCII format or .txt format. The Select File dialog box displays locations where you can choose which file to insert.
 - **Insert Text Table**
 1. This command is similar to Insert Text Line. It allows you to place a table in a working drawing. You can also place information generated from the Quantity Reports. In combination with the editable Openings Schedule described in the Quantity Reports section, this command allows the Openings Schedule to be added to a working drawing. You are prompted:
Mark location for right (or) center (or) left edge of text file (esc to quit)
 2. Rather than typing the text after you have located its insertion point, you insert an already prepared table. This table must be in an ASCII or .txt file **SolidBuilder's** export tables are of these type.
 3. Select one of the files. If you select a **SolidBuilder** generated file, you are prompted for the format of the table. You may select particular columns from the report and the order of the column in the table. You may place some or all of the columns from the report in the table. For more discussion on column selection and the formatting of tables, see the Quantities section.
 - **Insert Quick**
 1. Insert quick text allows you to create a list of commonly used text that may be inserted on to your working drawings for any project. You can click on the Quick Text icon or select Insert Quick to display the following dialog box.

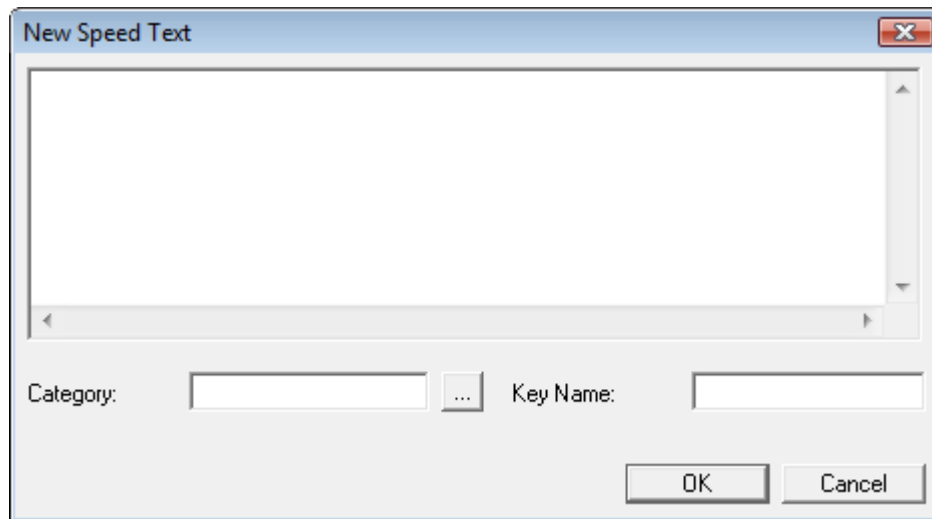
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You can also right click on any text and save it as Quick Text.



New: Click this icon to create a new quick text (the following dialog box displays). After you type the note, you need to type or select an existing Category and type a Key Name (heading for the note).



- **Large Edit field** - Within this field you can type the desired notes. It can be any length and use any characters. Multiple lines can be created by pressing the Enter key on the keyboard to advance down one line.
- **Category** - A new category name can be typed into the edit field, this name is displayed in the Quick Notes dialog box. Once a category name is entered, the existing names can be accessed by clicking on the button to the right of the edit field.

- **Key Name** - Within this edit field you can type the name of the quick note. This name displays in the Quick Notes dialog box. This key name is the identifier for what is contained in the note.



Remove: Click this icon to remove the selected Category or Key Name.



Cut: Click this icon to cut the selected Key Name in a Category



Copy: Click this icon to copy the selected Key Name in a Category



Paste: Click this icon to paste a Key Name in a Category



Rename: Click this icon to rename the selected Key Name or Category



Options: Click this icon to change the settings of your text



Insert: Click this icon to insert the selected text.

Component - Symbols

SolidBuilder ➡ Component ➡ Symbols

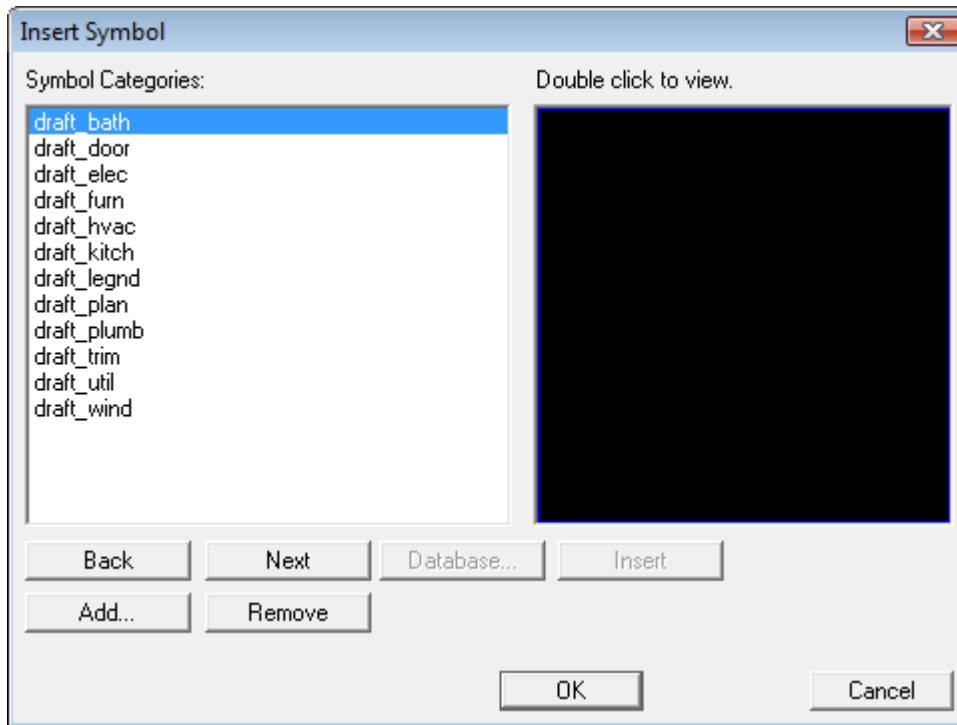
Icon:

To insert symbols, click on the Symbols icon or select Symbols from the Component pull-down menu. This command allows for applying symbols to floor plans. Note that assemblies are not automatically attached to 2D symbols inserted on working drawings. For more detailed information refer to the Symbols section.

- **Insert Automatic Openings**
This command automatically places door and window symbols in the floor plan. The symbols placed are those selected at the time the openings were placed in the model.
- **Insert One by One**
This command is used to place individual symbols in the plan. Note that the symbols are placed based on the Location Options choice in the Symbol Database. The Insert Symbol dialog box (below) displays and then you can choose which symbols you want to insert. First select a Symbol Category and then choose a symbol subdivision until you have narrowed it down to the symbol you want to insert.

Placing symbols is a matter of finding the symbol you want, then clicking (using Snap Commands) where you would like the symbol to be placed. Once the symbol appears in the drawing, you have the option to use your arrow key to shift the symbol to its exact location. Once the symbol is in the exact location, press the Enter key. This command can be repeated until

cancel or esc is selected to end the command.



Openings

SolidBuilder ➡ Component ➡ Openings

Icon: 

Typically a house is sliced at 5'-0" when creating a Plan drawing. However, some openings (typically a bathroom window above a shower) are above the 5'-0" line. You need to use this command to call out those openings. Another situation may be on a split level with two floors and you want both floors to appear on the same floor plan. If you select 5'-0" above the lower floor, you slice the upper floor below the bottom of the windows. This command can then be used to place those windows by clicking on the Openings icon or selections Openings from the Component pull-down menu.

1. You are prompted:
Select openings to copy to plan
2. If the model is not visible, it becomes visible. Each opening is highlighted in the original model for selection. After selecting an opening, the wall linework is cut and the opening is placed.
3. This allows you to change openings in the model and add the openings to the plan drawing without regenerating the entire model.

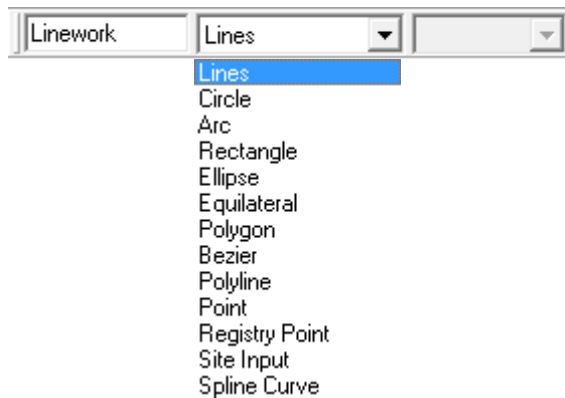
4. To add a symbol to the opening, use the Insert Symbol command.

Component - Linework

SolidBuilder ➡ Component ➡ Linework

Icon: 

You can insert any type of linework into your workings drawing just like any other CAD program by clicking on the Linework icon or selecting Component - Linework from the pull-down menu. You are prompted to place and define the parameters for the various kinds of linework. Most of these line types are simple geometric shapes.



- **Lines** – You are prompted to draw a set of lines. The command prompts:
Mark the first point of line
and
Mark the next point
This command functions in the same manner as the Model Outline command.
- **Circle** – There are 3 ways to enter a circle: Diameter, Points or Radius.
If you select Diameter, you are prompted:
Indicate a point of a circle
and
Indicate other end of circle diameter

A circle is drawn using the two points as the diameter.

If you select Points, you are prompted to locate three points. A circle is drawn touching on these three points.

If you select radius, you are prompted to indicate the center of the circle and then a point on the circle. The circle is then drawn.

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- **Arc** - There are 3 ways to enter an arc: Angles, Points or Chord.
If you select Angles, you are prompted to indicate center of arc, Start angle, End Angle and Radius. An arc is drawn.

If you select Points, you are prompted to locate three points. An arc is drawn touching on these three points and ending on two of them.

If you select Chord, you are prompted to indicate the two end points and a third point between them. This sets the arc.
- **Rectangle** - This is used to draw rectangles. You are prompted:
Mark the first corner of rectangle
and
Mark the opposite diagonal corner
- **Ellipse** - You are first prompted:
Indicate center of ellipse
Next you are prompted to
Indicate major axis and Indicate minor axis.

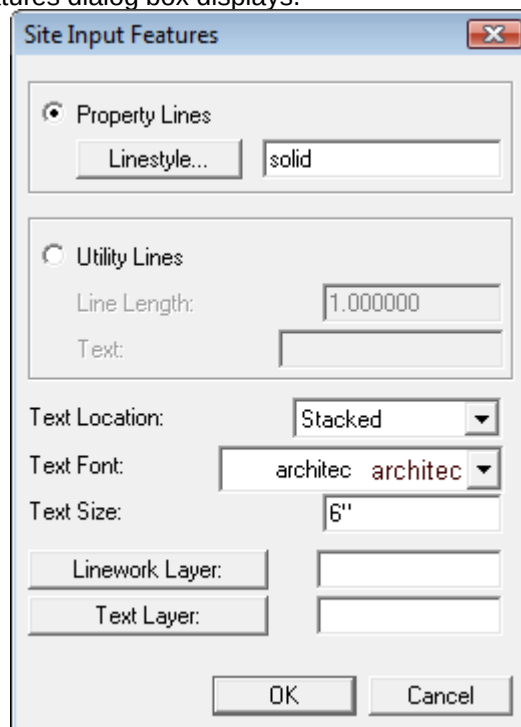
The ellipse is centered on the first point and the other two points locate the two axes.
- **Equilateral** - This is used to draw equilateral polygons.
You are prompted for "Number of edges in equilateral". Enter the number. Next you choose either "vertex" or "edge".

You then "Indicate center of equilateral". Mark the center. Next you are prompted to either "Indicate vertex of equilateral" or "Indicate edge of equilateral", based on the pick of vertex or edge before. The equilateral polygon is drawn.
- **Polygon** - This is used to draw closed polygons. You are prompted to
Mark first point.
and
Mark next point.
Pressing the F10 key or clicking your right mouse button completes the last leg of the polygon.
- **Bezier** - You are prompted to locate a series of points. A curve is drawn along the series of points.
- **Polyline** - You are prompted to draw a set of lines, which may be open rather than closed like a polygon. The command will prompt:
Mark first point
and
Mark next point
- **Point** - You are prompted:
Mark a point

- **Registry Point - SolidBuilder** uses Registry Points for automatic splicing of the symbol to the opening. This is a unique command typically used when creating trim and shutter symbols. This command is used twice to locate two points, one at the upper right and one at the lower left of the Opening/trim symbol, or vice versa. You are prompted:
Mark a point

If you create a symbol that only has a horizontal or vertical attachment to the opening, insert a Registry point at one end of the edge that aligns to the opening. Locate the other point out in space immediately in line with the other end of the symbol but at a 45-degree angle from the first point on the symbol. The symbol splices between the Registry point locations. Set the points with this in mind. Note that this capability is for Opening/trim symbols that are inserted around openings.

- **Site Input** - When you select Site Input from the Linework Information drop list, the Site Input Features dialog box displays.



- **Property Lines** – Toggling this option on allows you to create property lines. After this is toggled on, click OK and you are prompted to select a point to start. Additional dialog boxes will open to help you input the property lines.
- **Linestyle** – Clicking on the Linestyle button opens the Select A Linestyle dialog box, in which the desired line style for the property line can be selected.
- **Utility Line** – Toggling this option on allows you to create utility lines. When this option is toggled on, the Line Length, and Text options allow you to select different options.
- **Line Length** - This edit field allows you to specify the desired length of the lines that create the utility line. When a utility line is created, it is created as a line segment, then the specified text. This option is allowing you to specify the line length before the piece of text.

Chapter 4
Component Pull Down Menu

- **Text** – This edit field allows you to specify the text that you would like to have displayed in the drawing when a utility line is created.
- **Text Location** – When creating property lines there are four options for the way text is placed on the actual property line. When **SolidBuilder** places the text, it places both the bearing and distance for that line.
 - Stacked places the bearing above the line and the distance below the property line.

Above places both the bearing and distance above the line.

Below places both the bearing and distance below the line.

None omits any text.

When creating utility lines, there are four options for the placement of the text. The text that is going to be placed is that which is specified in the text section within utility line function.

Inside breaks the line at the specified segments and places the desired text within the line.

Above places the specified text above the line.

Below places the specified text below the line.

None omits any text.

- **Text Font** – Clicking on this button allows you to select the desired text font from the Font dialog box.
- **Text Size** – This allows the user to specify the size of the text that appears in the drawing.
- **Linework Layer** – Clicking on this button allows selection of a layer from the Linework Layer dialog box. Within this box you can also create a new linework layer.
- **Text Layer** – Clicking on this button allows the selection of a text layer for the Text Layer dialog box. Within this box may be created a new text layer

After clicking on OK in the Site Input Features dialog box for creating property lines, the program prompts to select a starting point for the property line. After the starting point is specified, the Site Input Data dialog box (below) displays.

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The screenshot shows a dialog box titled "Site Input Data". At the top, there is a dropdown menu for "Input Method" currently set to "Bearing & Distance Data", and a "Select Point" button to its right. Below this, the "Format" is specified as "AA DDD.MMSS". There are two input fields: "Bearing:" with the value "NE45.0000" and "Distance:" with the value "0". To the right of these fields is a circular directional compass with cardinal directions (N, E, S, W) and intermediate directions (NE, SE, SW, NW). A red line is drawn from the center of the compass pointing towards the NE. At the bottom of the dialog are "Apply" and "Cancel" buttons.

- **Input Method** – Within this drop list there are two options for inputting property line segments, Bearing & Distance Data (box shown above) and Curve Data (box shown below).
- **Close** – This button only appears after at least two property line segments have been created in the drawing. Clicking on this button automatically closes the property line boundary, connecting the last point selected and the very first point selected. Bearing and distance are automatically generated for this closed line segment. You are then returned to the Site Input Feature dialog box.
- **Select Point** – Clicking on this button allows you to return to the drawing and select the next desired point. The bearing and distance between the first point and second point is automatically generated.
- **Bearing** – Within this edit field, the user can type the bearing for the desired property line segment. This should be entered with the direction, the degrees, minutes and seconds. Using the directional compass you can automatically specify the direction.
- **Distance** – Within this edit field the user can specify the distance of the property line. The distance is specified in decimal feet, and not feet and inches.
- **Direction Compass** – This option allows you to click on the desired direction and it is automatically added to the bearing edit field.
- **Undo** – This option allows you to undo the last property line segment created, taking you back one step at a time.
- **Done** - This option returns you back to the Site Input Feature dialog box. It does not close the property line however just stops the property line at the last point selected.
- **Apply** – This button creates the property line segment for the information that has been entered in the box, and return you back to the Site Input Data dialog box.
- **Cancel** – This option cancels the command and does not create any property line segment. You are returned to the Site Input Feature dialog box automatically.

The screenshot shows the 'Site Input Data' dialog box. At the top, the 'Input Method' is set to 'Curve Data' in a dropdown menu, with a 'Select Point' button to its right. Below this, the dialog is divided into two main sections. The left section, titled 'Enter at least one of these', contains two input fields: 'Radius:' and 'Delta Angle:'. The right section, titled 'And then one of these values', contains three input fields: 'Arc Length:', 'Chord Length:', and 'Tangent Length:'. Below these sections, there is a 'Clockwise' button with a circular arrow icon. At the bottom left, the 'Tangent Direction' is set to 'NE90.0000' in a dropdown menu. At the bottom right, there are three buttons: 'Update', 'Apply', and 'Cancel'.

- **Input Method** – Within this drop down list there are two options for inputting property line segments. Bearing & Distance Data (Figure 20-16 on page 392), and Curve Data (above).
- **Close** – This button only appears after at least two-property line segments have been created in the drawing. Pressing this button automatically closes the property line, connecting the last point selected and the very first point selected. Bearing and distance automatically generated for this closed line segment. You are then returned to the Site Input Feature dialog box.
- **Select Point** – Clicking this button will allow you to return to the drawing and select the next desired point. The bearing and distance between the first point and second point will automatically be generated.
- **Radius** – The user can enter the radius of the curve into this field. The radius or the delta angle value needs to be entered for the curve to be created. The field that is left blank will automatically be calculated after clicking on the Update button.
- **Delta Angle** – The user can enter the delta angle of the curve into this field. The delta angle or the radius needs to be entered for the curve to be created. The field that is left blank automatically is calculated after clicking on the Update button.
- **Arc Length** – The user can enter the arc length of the curve into this field. Either the arc length, the chord length or the tangent length needs to be entered for the curve to be created. The fields that are left blank are automatically calculated after clicking on the Update button.
- **Chord Length** – The user can enter the chord length of the curve into this field. Either the arc length, the chord length or the tangent length needs to be entered for the curve to be created. The fields that are left blank are automatically calculated after clicking on the Update button.
- **Tangent Length** – The user can enter the tangent length of the curve into this field. The arc length, the chord length or the tangent length needs to be entered for the curve to be created. The fields that are left blank are automatically calculated after clicking on the Update button.

- **Clockwise/Counter Clockwise** – This toggle specifies the arc to be created in either a clockwise or counterclockwise direction.
- **Tangent, Radial or Chord Direction Drop List** – One of these three choices can be selected from the drop list and the corresponding value can be entered into the following edit field.
- **Update** – Clicking on this button automatically generates all the values that have been left blank in the various edit fields. These calculations are performed using the numbers that you specified in the other edit fields.
- **Undo** – This option allows you to undo the last property line arc that was created taking you back one step at a time.
- **Done** - This option returns you back to the Site Input Feature dialog box. It does not close the property line, however, just stops the property line at the last point selected.
- **Apply** – This button creates the property line arc for the information that has been entered in the dialog box and return you back to the Site Input Data dialog box.
- **Cancel** – Will cancel the command and does not create any property line segment. You are returned to the Site Input Feature dialog box automatically.
- **Spline Curve** – This command is used to draw a closed polyline. The command will prompted:
 - Indicate first point of Spline curve.
 - Then indicate another point of Spline curve.
 - You may specify any desired points to form the curved polyline. Once the last point has been selected, simply right click. Once you right click, SolidBuilder will draw a polyline to connect the selected points

Component- Linework Hole

SolidBuilder ➡ Component ➡ Linework Hole

Icon: 

This command is mainly used for drawing holes around openings when inserting patterns on the working drawing. Click on the Linework Hole icon or select Linework Hole under the Component pull-down menu. The command prompts you for an existing linework polygon in which to place a hole.

Select linework item to contain hole

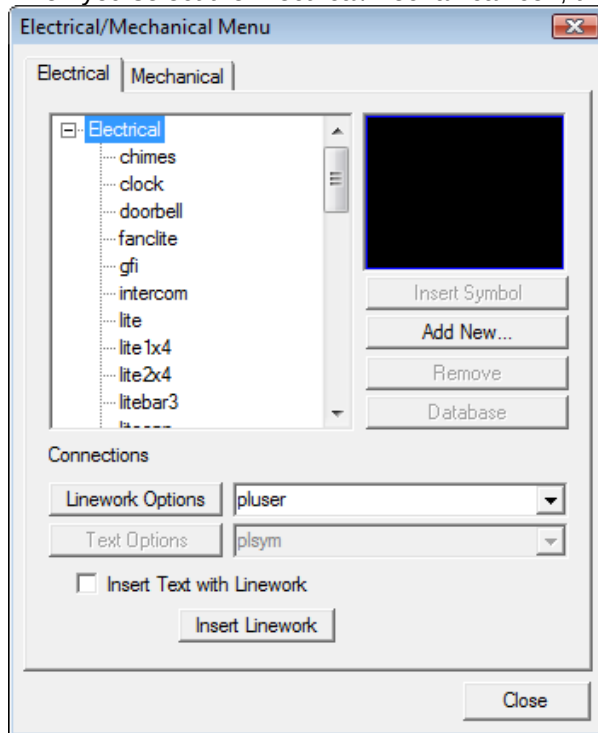
After selecting the existing closed linework, you are prompted with a list of geometry options, which can be drawn to represent the hole. These options are a subset of the Insert Linework geometry types described above. After the hole is drawn, it is subtracted from the polygon linework that you selected.

Component- Electrical/Mechanical

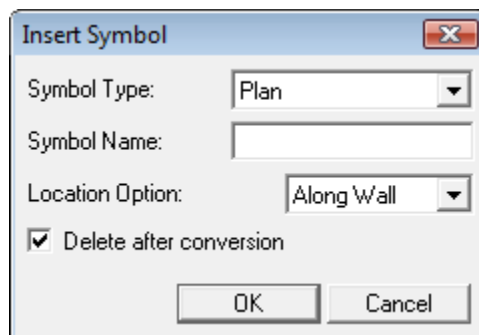
SolidBuilder ➔ **Component** ➔ **Electrical/Mechanical**

Icon: 

1. When you select the Electrical/Mechanical icon, the dialog box below opens.



2. Select either the Electrical or the Mechanical tab. The 2D symbols for that category are displayed and listed.
 - **Insert Symbol:** Select a symbol from the list. Click on Insert Symbol. Place the selected symbol in the drawing.
 - **Add New:** Click on the Add New button. The Insert Symbol dialog box opens.



Symbol Type: Since these are 2D working drawing symbols, this must be set to

Chapter 4
Component Pull Down Menu

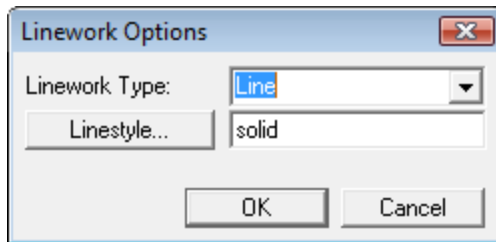
Plan.

Symbol Name: This must be a unique name, with a maximum of 8 letters and/or numbers. Do not use any special characters, ONLY LETTERS AND/OR NUMBERS!

Location Option: Typically this will be set to Free. This will allow you to place the symbol anywhere on the drawing.

Delete after conversion: Typically you will leave this un-checked.

- **Remove:** This will permanently remove the selected symbol from the list and the program.
- **Database:** Allows you to attach an assembly to the symbol as well as set how the symbol is located in the drawing.
- **Linework Options:** The Linework Options dialog box opens.

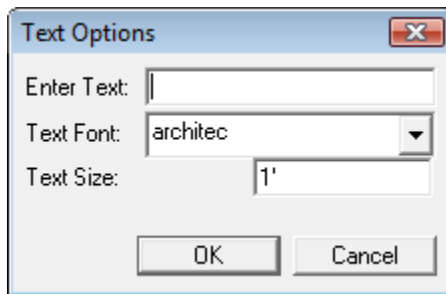


Linework Type: Select the type of linework from the list.

Linestyle: Select the linework style from the list.

Layer: Select the layer, or create a new layer, to place the symbol linework on.

- **Text Options:** The Text Options dialog box opens.



Text: Enter text to be included with the linework.

Text Font: Select the Font.

Text Size: Set the text size.

Text Layer: Select the layer, or create a new layer, to place the symbol text on.

- **Insert Text with Linework:** If this is toggled on, it will insert the text with the

linework.

- **Insert Text:** Toggle on to insert the text and linework selected.

Component - Legend

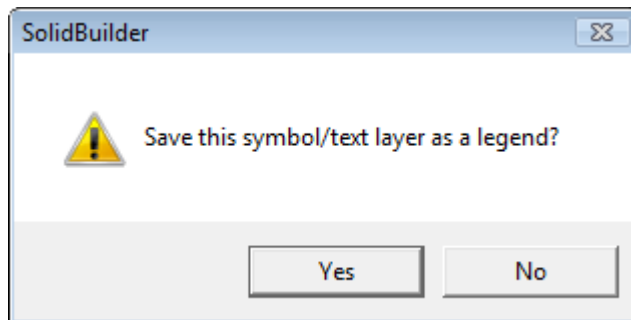
SolidBuilder ➡ **Component** ➡ **Legend**

Icon: 

A legend may be a group of text and linework commonly used on a drawing such as general notes or tables. After a legend is created and saved in a library, it may be inserted into any drawing in the future.

- **Creating a Legend**

To create a legend, first you need to create a layer in the Symbol/Text category (see the section of Layers for creating new layers). Once you create the new layer, **SolidBuilder** creates a linework layer simultaneously. Make sure these new layers are current when you insert the text and linework for the legend. When you are finished, select File - Save - Legend. **SolidBuilder** highlights everything on the current Symbol/Text layer (including linework) and the following dialog box displays.



- **Inserting Legends**

1. To insert Legends, click the Legend icon or select legend under the pull-down menu. Select a legend from the list in the dialog box. After selecting one, click on OK and then the command prompts:
2. Locate the base-point of legend <name>
3. Click on the left mouse button to place the legend in the drawing. After inserting a legend, it automatically creates layers in the Symbol/Text and Linework categories. To move the legend, these layers need to be current. To remove a legend from a

drawing, you may delete these layers.

Component - Layout Points

SolidBuilder ➡ Component ➡ Layout Points

When you select Layout Points from the Component pull-down menu, **SolidBuilder** will graphically show the stud layout points and represent each one with a green diamond.

Component - Pattern

SolidBuilder ➡ Component ➡ Pattern

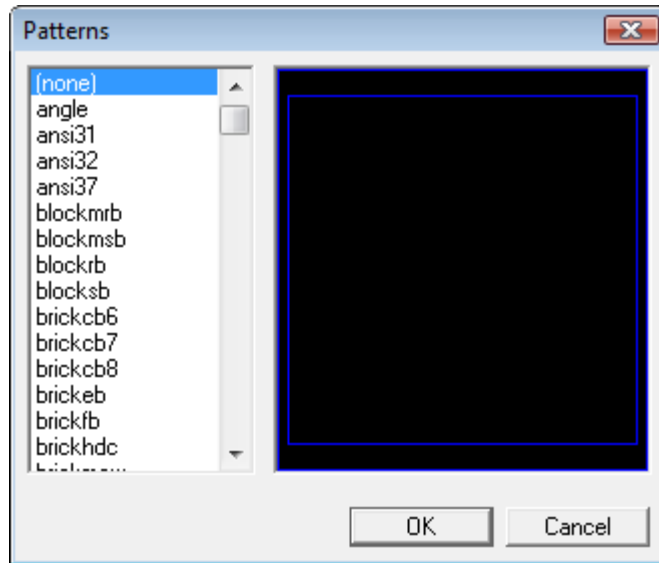
Icon: 

You may insert patterns into your working drawings using polygon linework. Patterns are inserted into polygons, so first you need to outline the designated area for the pattern with a polygon.

1. Once the polygon is drawn, you may click on the Pattern icon or select Pattern from the Component pull-down menu. You are prompted:

Select closed 2D items to insert patterns

2. Select the closed 2D polygons by moving you mouse or pressing your arrow keys to scan through the linework and click you left mouse button or press Enter to select.
3. It only highlights closed linework that is in on the current layer. Once you have selected the polygon (s), click your right mouse button or press F10 to finish. A dialog box displays (below) with a list of patterns to choose from and a preview of the pattern. Click on OK when you have selected one and the pattern will then be placed inside the polygons around the Linework holes. You also have the capability of turning on or off patterns by selecting Tools/Pattern from the pull-down menus.



Component - Labels

SolidBuilder ➡ Component ➡ Labels

Icon: 

This command is used to place shell labels on drawings, which acts as a guide to the framing of the building. It also provides labels for openings as well as for rooms. Click on the Labels icon or select Labels from the Component pull-down menu. Then you may select Shell/Opening or Room names from the Insert pull-down menu.

- **Insert Shell/Opening**

This command allows the labeling of visible shells, openings, and framing features. The names of the shells are typically placed on a floor plan, which is then used in framing the shells. This helps organize lumber and locate it properly on the job site. The shell label information can also be included in the Lumber Cutting list. See the section of Quantities for more information. Labels include names and production information. The following dialog box is displayed.

Chapter 4
Component Pull Down Menu

- **Label Walls:** This command creates a label for each wall visible on the drawing and places the label near the wall. The label is of the form "W2 - X3" where the first letter W designates the label as a wall, the first digit (2) is the number of the wall, the second letter (X) notes the wall type (X for exterior, I for interior) and the second number (3) designates the level. This label is typically placed on a created plan drawing. Wall labels are placed in plan view. The purpose of the Label Wall option is to provide a map for the placement of walls. The labels are the same labels as those printed on production drawings. The same labels are used in generating lumber reports - this allows you to see which framing members are associated with which wall. If you elect to place the labels on a plan view on the model, the visibility of this layer can be controlled through the Visibility command.
- **Label Other Shells:** This option works the same as the Label Walls option. It labels roofs, floors, and ceilings.
- **Label Openings:** This option is typically used to place the opening labels on a plan drawing. The labels placed are those defined in the Plan Label field at the time you insert the opening in the 3D model.
- **Label Symbols:** This option will place furnishing symbol labels on a drawing. The labels placed are those defined in the Symbol Label field at the time you insert the opening symbol in the 3D model.
- **Call-out Header:** This option enters the size of the header (hd) and the length for each opening.
- **Call-out Opening Top Height:** This option enters the top height of each opening. You do not need to frame the walls to use this command.
- **Call-out Opening Framing:** This option lists the number and length of the king studs (ks), trimmers (tr), cripples (cr) and sills (sl). You must frame the walls to use this command.

Chapter 4
Component Pull Down Menu

- **Call-out Header Start/Stops:** This option shows the ends of the header in a plan view and the measurements from the wall end to the header. You must first frame the walls to use this command. The header ends are drawn and placed in a linework layer; the measurements to the header end are placed in a note-dim layer. Note that to remove the header start and stops require two remove commands, one for the linework, and one for the measurements.
- **Call-out Posts in Walls:** All posts in the walls are labeled along with their heights. An X is drawn in the wall at the position of the post. The height and size of the post is noted next to the wall. You must frame the wall to use this command. Note that with the X visible in the drawing, you can easily add a dimension line to indicate the post location for accurate post installation in the field.
- **Call-out Raked Walls:** This option draws a dimension line between the long point and the short point of the raked wall. It also lists the height of the wall at the long point and short point. The height is preceded by the code SP for short point and LP for long point. An arrow is drawn from each to the proper end of rake of the rake section. You do not need to frame the walls to use this command.
- **Call-out Shear Walls:** This option locates the ends of a shear panel, indicates the shear wall with a line and inserts a note entered at the time the shear wall was inserted in the model. You do not need to frame the walls to use this command.
- **Note/Dimension Layer:** Labels are placed on this layer. You may change the layer by clicking on the gray box.
- **Label Size:** This is the size of the note.
- **Label Style:** Note inserts just the label, Target puts a circle around each label with the wall number and the opening label. Bubble allows you to put a geometric shape around the label.
- **Bubble Shape:** You may select the shape to put around the notes if you have selected Bubble for the label style.
- **Tag Line:** If this is toggled on, the label has a leader line attached to it.
- **Label Orientation:** Horizontal places the labels on the horizontal axis. Parallel places the labels parallel to the walls.
- **Label Font:** This is the type of font to be used for the label. You may select a different font by clicking on the gray box.
- **Insert Room**

This command allows you to select names of rooms for insertion. The command prompts you for the location of the midpoint of the room name and displays a list of names in the message area for placement. You may choose an existing label or enter a new one. You may also add to or change the room names by selecting Database - Room names.

Component - Angle

SolidBuilder ➡ Component ➡ Angle

Icon: 

1. You may insert an angle measurement by clicking the Angle icon or select Angle from the menu. The command prompts:

Mark location for pivot point of angle notation; (Esc to quit)

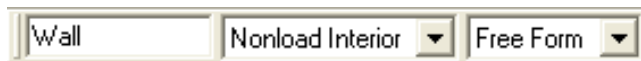
2. Use the cursor to select a point and click the left mouse button. The command prompts:

Mark location for the 1st leg of angle, Esc to quit
Mark location for the 2nd leg of angle, Esc to quit
3. Use the cursor to locate the legs of the intended angle. The angle and numerical degree notation is placed in the working drawing.

Chapter 5: Build

The Build menu (below) contains all the commands from the Model Information status bar, as well as the Option and Elevations commands. When selecting a shell command, the shell name is placed in the Model Information status bar. For example, if you select Wall from the Build menu, Wall displays in the Model Information edit field and the Wall options display in the drop list as shown below. The Build pull-down menu will change depending on which command you are in.

The Build pull-down menu is only available in the 3D Model.



Model Information Status Bar

If floor, Sill Plate/Footer, Wall, Girder/Post, or Ceiling is selected, another section is added to the menu as shown below. If you are changing from a shell not checked, you will need to select the Build menu a second time to see all the commands.



Options

SolidBuilder ➡ **Build** ➡ **Options**

Icon: 

The option command opens the Options dialog box and allows you to set or change options for the current shell in the Model Information status bar. For example, if you are working on stairs, the Options command will list the available stair options, such as tread, stringer dimension, and material assignments.

For a description of each shell's options, look in the options section of the desired shell type.

Elevation

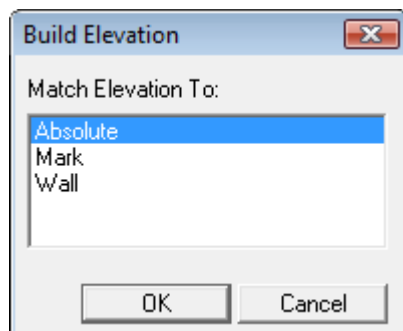
SolidBuilder ➡ **Build** ➡ **Elevation**

Icon: 

The Elevation command opens the Build Elevation dialog box (below) and is used to set the elevation of shells. When you begin to place a shell, whether it's a wall, sill plate, floor, etc., you must specify where and how it is to be placed. By using the Elevation command, you are able to place that shell by referencing either the top or bottom of it relative to the top or bottom of another shell, absolute (0), or by a specified mark. The choices will vary depending on which shells or objects have been created. Only created items will be available for reference. Absolute and Mark are always a choice.

Once you have selected the basis for elevation, the Model Elevation dialog box displays. You are prompted to select either the top or bottom of the shell as the basis for elevation. **SolidBuilder** keeps track of all elevations and always displays the distance as measured from absolute. The vertical offset field allows you to add or subtract a value to the elevation field.

Keep in mind when using the elevation command that you are matching the shell or object you have selected for basis of elevation to the shell or object you are creating and matching it to either the top or bottom of the new shell or object. You must specify the top or bottom of the new shell or object using the Options command.



Outline

SolidBuilder ➡ Build ➡ Outline

Icon: 

You can access the Outline command from the outline icon or by selecting Outline under the Build pull-down menu. Floors, walls, footers, sill plates, and flat ceilings call all be created by referencing general outlines which you create using various outline commands. The Outline functions resulted from the recognition that walls, floors, and ceilings have outlines that are related to each other. By working with these outlines first, it is possible to layout most, if not all, of a model's walls and floors by using simple lines. Forethought during the creation of these outlines results in rapid creation of actual walls, floors, and flat ceilings. The Outline menu includes options for creating both closed and free form outlines.

A closed outline forms a closed loop (a polygon), with the first and last lines of the outline meeting at a common point.

In general, use closed outlines for wall, floor, and ceiling outlines.

For a complete description of the different types of outlines look under 3D Modeling in the Outline section.

Closed outlines offer greater flexibility with the ability to join them together or trim one against another.

Floor

SolidBuilder ➡ Build ➡ Floor

Icon: 

This command allows you to create floors. **SolidBuilder** is able to create both framed and slab floors. You can access the Floor command by selecting the floor icon or choosing Floor under the Build pull-down menu. You typically create a single floor for each elevation in the structure. If you wish to have a different joist direction layout for sections of a single floor, create each section as a separate floor. Or create the floor as one section, and split it into sections of different joist directions.

For a complete description on floors see 3D Modeling under the Floors section.

Sill Plate/Footer

SolidBuilder ➡ Build ➡ Sill Plate/Footer

Icon: 

This command is used for creating both Sill Plates and Footers. You can access the Sill

Plate/Footer command by clicking on the Sill Plate/Footer icon or choosing Sill Plate/Footer under the Build pull-down menu. You may choose from the Model Information status bar if you want to create Sill Plates or Footers. Both Sill Plates and Footers have individual options, which can be access through the options icon.

For a complete description on Sill Plates/Footers, look under 3D Modeling, in the Sill Plate/Footer section.



When creating a footer that contains short distances 1'-0" or less use the Miter option. Because of the short distances, **SolidBuilder** may have trouble creating the corners if they are not mitered.

Walls

SolidBuilder ➔ **Build** ➔ **Wall**

Icon:

The Wall command is used for creating walls. You are able to create different types of walls and each type has options that are specific to it. You can access the Wall command by clicking on the wall icon or choosing Wall from the pull-down menu.

For a complete description on all types of walls look under 3D Modeling, in the Walls section.

Girder/Post

SolidBuilder ➔ **Build** ➔ **Girder/Post**

Icon:

The Girder/Post command is used for creating girders and posts. You can access the Girder/Post command by clicking on the Girder/Post icon or by selecting Girder/Post under the Build pull-down menu. You may choose from the Model Information status bar if you want to create Girders or Posts. Both Girders and Posts have individual options, which can be access through the options icon.

For a complete description on Girders/Posts, look under 3D Modeling, in the Girders/Post section.

Ceiling

SolidBuilder ➔ **Build** ➔ **Ceiling**

Icon:

The Ceiling command is used for creating Ceilings. The Ceiling command can be accessed by clicking on the ceiling icon or by selecting Ceiling under the Build pull-down Menu. **SolidBuilder** allows you to create flat and vaulted ceilings. Each type of ceiling has options specific to that

type.

For a complete description on Ceilings, look under 3D Modeling, in the Ceiling section.

Roof

SolidBuilder ➡ Build ➡ Roof

Icon: 

The Roof command is for creating Roofs. The Roof Command can be accessed through the roof icon or by selecting Roof under the Build pull-down menu. Roofs are created by placing roof planes and creating the roof around those planes with the addition of overhangs. **SolidBuilder** allows you to create everything from a basic roof to very complex roof configurations.

For a complete description on Roofs, look under 3D modeling, in the Roof Section.

Stair

SolidBuilder ➡ Build ➡ Stair

Icon: 

The Stair command is used for creating Stairs. It can be accessed by clicking on the stair icon, or by selecting Stair under the Build pull-down menu. The Stair command can be used for creating straight, curve, "L" shape, or "U" shape sets of stairs.

For a complete description on Stairs, look under 3D Modeling, in the Stairs section.

Symbol

SolidBuilder ➡ Build ➡ Symbol

Icon: 

The symbol command is used for placing 3D symbols in your model. The Symbol command can be accessed by clicking on the symbol icon, or by choosing Symbol under the Build pull-down menu. The Symbol command allows you to place either 3D Furnishings (cabinets, appliances, furniture, etc.) Landscaping, and Opening/Trim (windows, doors, trim, etc.).

For a complete description on Symbols, look under 3D Modeling, in the Symbols section

Style

SolidBuilder ➡ Build ➡ Style

This command is used in conjunction with the shells and allows you to select the style options for the particular shell. The options in the style command will change according to the shell selected. For example, if Wall is selected under the Build pull-down menu, the different types of walls would be listed under Style of wall. The current style of the shell also appears in the left drop list on the Model Information status bar.

This command is not available for Symbols.

Freeform

SolidBuilder ➡ Build ➡ Freeform

This command allows you to create shells using the Free Form drawing method. You create a freeform shell or object by specifying each leg's distance and direction, or dragging and clicking each leg into place. Basically with Freeform, you are drawing shell by shell or leg by leg.. The Freeform method of drawing can be used when creating Walls, Floor, Outlines, Girders/Posts, Sill Plates/Footers, and Ceilings.

Outline

SolidBuilder ➡ Build ➡ Outline

This command allows you to create shells using an existing outline as a reference. Outline drawing method is available when drawing Walls, Floors, Ceilings, Sill Plate/Footers and Girders. Once an outline has been created, it can be used as a drawing method for creating more shells. When creating more shells around an existing outline, first complete that shell's options and elevation. Then left click on the existing outline to create that shell

For a description on creating different types of Outlines to use as drawing methods, look under 3D Modeling, in the Outlines section.

Rectangle

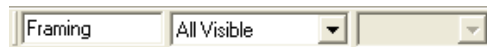
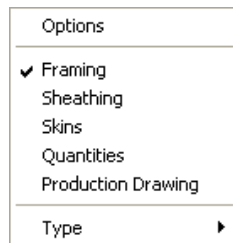
SolidBuilder ➡ Build ➡ Rectangle

This command allows you to create shells using the Rectangle drawing method. You create a rectangle by specifying a corner, then dragging the cursor to the opposite diagonal corner. You are able to draw walls, floors, ceilings, sill plates, footer, and Girder/Posts using the Rectangular drawing method.

Chapter 6: Production

The Production menu (below) contains all the commands from the Production Commands toolbar. When selecting a production command, the production command is placed in the Model Information status toolbar. For example, if you select Framing from the Production menu, Framing displays in the Model Information status and Framing options display in the drop list as shown below. The Production pull-down menu is only available in the 3D Model and will change depending on which Production command you are running.

The Production pull-down menu is only available in the 3d model.



Model Information Status Toolbar

When Framing, Sheathing, Skins, Quantities, or Production Drawing is selected, a separate window is added listing the options that correspond with the selected command. For example, if framing is selected, a separate window (type) is added listing the options of which shells to frame.

Options

SolidBuilder ➡ Production ➡ Options

Icon: 

The Option command opens the Options dialog box and allows you to set or change options for the current production command in the Model Information toolbar. For example, if you select Quantities, the Options command will list the Report Options, such as Estimate, Lumber, and Assembly Options.

For a description of each production command, see 3D modeling, in the desired production command.

Framing

SolidBuilder ➡ Production ➡ Framing

Icon: 

The Framing command is used to frame shells in the 3D model. Framing can be accessed by clicking on the framing icon, or by choosing Framing under the Production pull-down menu. You are able to frame Walls, Floors, Ceilings, Roofs, Stairs, Fascia, Sill Plates, or Girder/Posts. Once you have clicked on the Framing icon or choose Framing from the Production pull-down menu, you can select which shell you would like to frame by choosing from the Model Information Status toolbar or under type in the production toolbar.

For a complete description on framing look under 3D Modeling in the Framing section.

Sheathing

SolidBuilder ➡ Production ➡ Sheathing

Icon: 

The Sheathing command is for adding sheathing to shells. You can access the Sheathing command by clicking on the sheathing icon, or by selecting Sheathing under the Production pull-down menu. You are able to add Sheathing to Walls, Floors, Ceilings, and Roofs. Sheathing works by first assigning templates, then applying the Sheathing.

For a complete description of Sheathing look under 3D Modeling in the Sheathing section.

Quantities

SolidBuilder ➡ Production ➡ Quantities

Icon: 

The Quantities command is used for creating estimates, takeoffs, and reports from your 3D model. You can access the Quantities command by clicking on the Quantities icon, or by choosing Quantities under the Production pull-down menu. There are many types of reports you can create and many options to go along with those reports.

For a complete description on Quantities, look under 3D Modeling, in the Quantities section.

Production Drawings

SolidBuilder ➡ Production ➡ Production Drawings

Icon: 

The Production Drawings command is used to create Production Drawings of framed members in your 3D model. You can access the Production Drawings by clicking on your production-drawing icon, or by choosing Production Drawing under the Production pull-down menu. There are two types of Production Drawings for walls. Production Drawings can be created for framed Walls, Roofs, Ceilings, Floors, and Joiners.

For a complete description on Production Drawings, look under 3D Modeling, in the Production Drawings section.

Type

SolidBuilder ➡ Production ➡ Type

The Type fly out found under the Production pull-down menu is used to specify which type of shell you want to run the production command on. For example, if Framing is selected, the types of shells available for framing will be listed in the Type fly out menu. This list can also be accessed in the Model Information Status toolbar

Stacking

SolidBuilder ➡ Production ➡ Stacking

Icon: 

The stacking command is used to create stacks of walls panels for shipping. You can access the Stacking command by clicking on your Stacking icon, or by choosing Stacking under the Production pull-down menu.

For a complete description on framing look under 3D Modeling in the Stacking section.



Chapter 7: Insert

The Insert command is used for inserting openings, framing members, working drawings functions, etc. into shells/drawings. The Insert pull-down menu will change depending on which command you are in. For example, if you are in the Wall command, the Insert pull-down menu will include choices for inserting openings, blocking, channels, ledger, posts, and shear walls into existing walls. If you are in the Floor command, the Insert pull-down menu will include choices for inserting openings, joists, breaks, layout points, blocking, and channels.

The Insert pull-down menu is available in the 3D model as well as a 2D drawing.

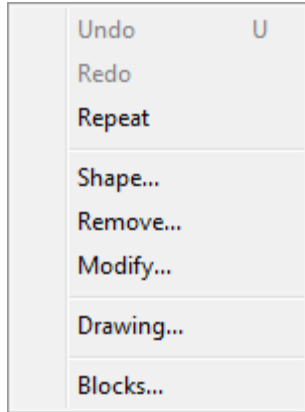
For a complete description on inserting look under 3D Modeling or 2D Working Drawings in the corresponding section of the shell command currently in use.



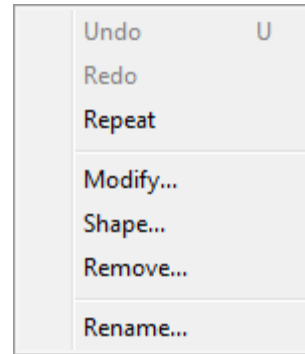
Chapter 8: Edit

SolidBuilder ➡ Edit

The Edit menu (below) contains commands for editing or modifying a drawing. This menu will change depending on which command is currently in use and whether it is a 3D model or 2D working drawing.



Edit Menu in a 3D Model



Edit Menu in a 2D Working Drawing

Undo

SolidBuilder ➡ Edit ➡ Undo

Icon: 

The Undo command is used to Undo the last command. The Undo command is accessible by clicking on the undo icon, or by choosing Undo from the Edit pull-down menu. The Undo command allows you to undo the recently performed commands up until the last time the drawing was saved. Once a drawing is saved, the Undo icon will be grayed out and will not highlight until another command is completed.

Redo

SolidBuilder ➡ Edit ➡ Redo

Icon: 

The Redo command is used to Redo a command (s) that were undone. You can access the Redo command by clicking on the Redo icon, or by choosing Redo from the Edit pull-down menu. (If you accidentally hit the redo icon, by clicking on the redo command, it will "undo" your "undo".)

Repeat

SolidBuilder ➡ Edit ➡ Repeat



The Repeat command is used to repeat the last command performed. The Repeat can be accessed by clicking on the Repeat icon, or by choosing Repeat under the Edit pull-down menu. Repeat doesn't work for commands performed under the right click. The command must be a major command accessed through an icon or pull-down menu. For example, if you are drawing walls and hit esc to end the Wall command, by clicking the Repeat command, **SolidBuilder** will re-activate the Wall command.

Shape

SolidBuilder ➔ **Edit** ➔ **Shape**



The Shape command is used for modifying a model and/or working drawing. The Shape command can be accessed by clicking on the Shape icon, or by choosing Shape under the Edit pull-down menu. The items under the Shape command will change depending upon the type of the current drawing (3D model, or 2D Working Drawing). The Shape menu will also change depending on the current shell command. For example, when working with walls, the Shape menu will have choices for modifying walls. When in a working drawing, the Shape menu will have options for modifying elements of a working drawing.

For a complete description on the Shape functions, look under 3D Modeling or 2D Working Drawings in the section that applies to a specific Shell type.

Remove

SolidBuilder ➔ **Edit** ➔ **Remove**



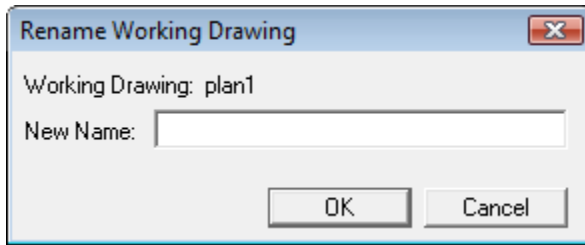
The Remove command is used to Remove parts of your model/working drawing. The Remove command can be accessed by clicking on the Remove icon, or by choosing Remove from the pull-down menu. The items under the Remove command will change depending on which shell is currently selected, and whether it is a 3D model or a 2D working drawing. For example, when working with walls, the remove command will list parts of existing walls that may be selected for removal. In a working drawing, the remove command will list parts the working drawing that can be chosen.

For a complete description of the Remove command, see 3D Modeling, or 2D Working Drawing, in the section that applies to the shell currently selected.

Rename

SolidBuilder ➔ **Edit** ➔ **Rename**

The rename command allows you to rename a working drawing. When rename is selected, the following dialog box will appear.



This dialog box allows entry of a new name for a working drawing. Once entered, the new name will display in the 'Window' pull down men.

Modify

SolidBuilder ➡ Edit ➡ Modify

Icon: 

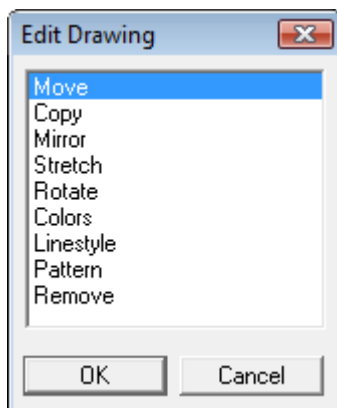
The Modify command is used for modifying your model/working drawing. The Modify command can be accessed by clicking on the Modify icon, or by choosing Modify under the Edit pull-down menu. The items under the Modify command will change depending on the type of drawing (3D model, or 2D Working Drawing). The Modify menu will also vary with the type of shell currently selected. For example, when working with walls, the Modify menu will have choices for modifying walls. In a working drawing, the Modify menu will have options for modifying parts of the working drawing.

For a complete description of the Modify functions, see 3D Modeling or 2D Working Drawings, in the section that applies to the currently selected shell type.

Drawing

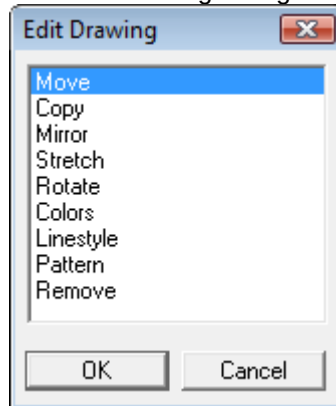
SolidBuilder ➡ Edit ➡ Drawing

The Edit Drawing command is used for modifying a whole drawing versus just one shell. The command can be accessed by choosing Drawing under the Edit pull-down menu. The Edit Drawing dialog box (below), will display listing the possible modifications to the drawing.



Chapter 9
View Pull Down Menu

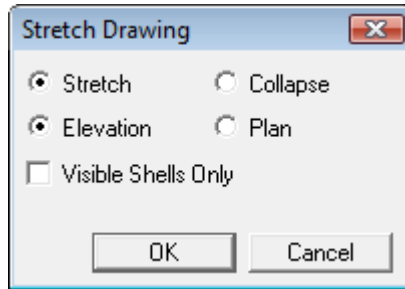
- **Move:** This command allows moving any group of selected shells in the existing model. You may specify any distance left and right or up and down.
 1. You are prompted to select shells to move.
Select the desired shells to move.
 2. You are prompted to enter the base point.
Using the jump commands, pick a point to reference.
 3. You are prompted to enter offset point.
Using either the jump commands or X, Y, and Z coordinates, enter the offset location (where you want to move the base point)
- **Copy:** This command allows copying any part of your model to a new location. You have the option to copy as many shells as you would like and you can copy different types of shells at the same time. When this copy command is used, all the tagged information is retained and is included with your take off. Within this command, you also have the option to make multiple copies of the selected shells
 1. You are prompted to enter the number of copies.
Type in the number of copies and press Enter or click OK
 2. You are prompted to select shells to copy.
Select the shells to copy, right mouse click, and select Finished.
 3. You are prompted to enter base point.
Using the jump commands, pick a point to reference.
 4. You are prompted to enter offset point.
Using either the jump commands or X, Y, and Z coordinates, enter the offset location (where you want to move the base point)
- **Mirror:** This command allows you to quickly create a new model, which is a mirrored image of the existing model. You may mirror the model form left to right or up and down. (in plan view). The Mirror Drawing dialog box (below) displays.



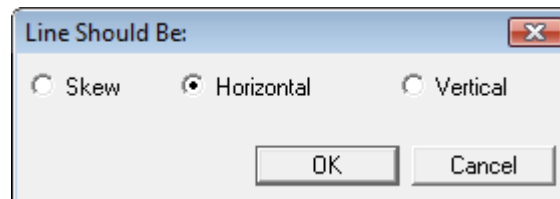
1. You also have the option of copying the shells so the original shells remain with the addition of mirrored shells. Select the option desired.
2. **SolidBuilder** will prompt you to mark point to mirror about.
3. Use the jump commands or pick a point to pivot your drawing about. The model will

then be a mirrored copy of the original.

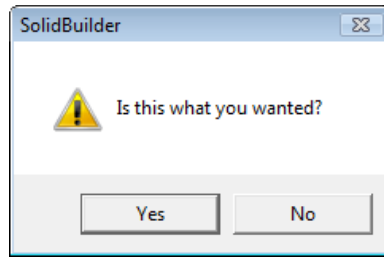
4. It may take some time mirror the drawing due to the complexity of the geometry.
- **Stretch:** This command allows you to stretch or shorten a model, either in the vertical or horizontal direction. Select the appropriate Plan, or Elevation, or Side view. The Sketch Drawing dialog box (below) displays.



1. Select the options desired. Visible Shells Only selects either an alteration of those shells that are visible or all shells of the model. Stretch increased the model in the indicated direction. Collapse shrinks the model in the indicated direction. Elevation indicates that the command is to affect the height of the model. Plan indicates that the command is to affect a Plan view dimension. Select the desired option.
2. You are prompted to mark the start stretch line endpoint.
Locate the first end of the stretch line endpoint at an appropriate spot.
3. You are prompted to mark the end stretch line endpoint.
Locate the other end of the stretch line endpoint at an appropriate spot.
4. This command would most typically be used to stretch or collapse along some orthogonal axis of the model, but **SolidBuilder** allows you to draw a skewed line to indicate the plane of modification. If you draw a line that is neither horizontal nor vertical, you are given a verification dialog box.

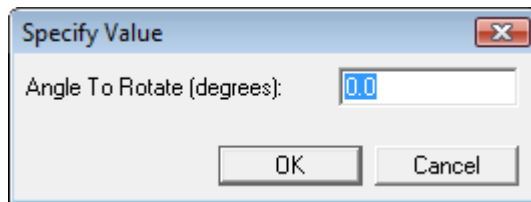


5. If the line unintentionally went askew when drawn, it can be corrected by choosing either horizontal or vertical in this dialog box. If skewed line is desired, verify that option with this dialog box.
6. You are prompted to indicate the distance to stretch
Either move the cursor the desired distance or enter the value
7. The model is either stretched or collapsed. After the command is executed and the model is redrawn, the Message dialog box (below) displays



8. Selecting Yes will accept the results. Selecting No will cancel the procedure..

- **Rotate:** This command allows rotation of the entire model. You are prompted:



1. Enter the angle to rotate the model. The model is rotated to the indicated angle
2. In plan view, **SolidBuilder** considers 0° to point to the right of the screen, 90° to the top of the screen, 180° to the left of the screen, and 270° to the bottom of the screen by default.

- **Colors:** This command is used to change the color of shells in a model.
 1. You are prompted to select shells to change color.
Select the desired shells.
 2. After selecting a shell or shells, a color chart displays with the heading New Color. Select a new color for the shells selected.
- **Linestyle:** This command is for changing the linestyle of a shell in your model.
 1. You are prompted to select shells to change linestyle.
Select the desired shells.
 2. After selecting a shell, a list of line styles appears. Select a new line style for the selected shells.
- **Pattern:** This command allows changing the pattern of a shell in your model.
 1. You are prompted to select shells to change pattern
Select the desired shells.
 2. After selecting a shell or shells, a list of patterns displays. Select a new pattern for the selected shells.
 3. You are prompted for a pattern color.

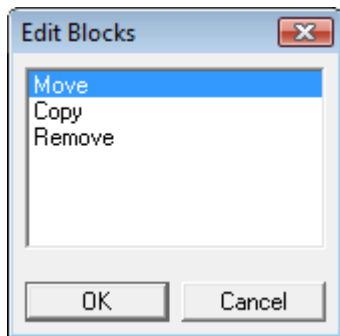
Select a new pattern color.

- **Remove:** This command is for removing shells from a model.
 1. You are prompted select shells to remove.
Select the desired shells and then right click and select Finished.

Blocks

SolidBuilder ➡ Edit ➡ Blocks

The Blocks command allows you to modify *Option Blocks*. The command can be accessed by choosing Blocks under the Edit pull-down menu. The Edit Blocks dialog box (below) displays.



- **Move:** This command allows moving a block option as a whole block. You may specify any distance left and right or up and down.
 1. You are prompted to select block to move.
Select the desired shells to move.
 2. You are prompted to enter the base point. Using the jump commands, pick a point to reference.
 3. You are prompted to enter offset point. Using either the jump commands or X, Y, and Z coordinates, enter the offset location (where you want to move the base point)
- **Copy:** This command allows you to copy a block option as a whole block to a new location. When this copy command is used, all the tagged information is retained and is included with your take off. Within this command, you also have the option to make multiple copies of the selected shells
 1. You are prompted to enter the number of copies. Type in the number of copies and press Enter or click OK
 2. You are prompted to select block to copy. Select the shells to copy, right mouse click, and select Finished.
 3. You are prompted to enter base point. Using the jump commands, pick a point to

reference.

4. You are prompted to enter offset point. Using either the jump commands or X, Y, and Z coordinates, enter the offset location (where you want to move the base point).
- **Remove:** This command is for removing a block option as a whole block from your model.
1. You are prompted select block to remove. Select the desired shells and then right click select Finished.

Rotate DWG/DXF

This allows you to rotate an imported DWG or DXF. When selected you will be prompted to select a rotation angle.

Scale DWG/DXF

This allows you to scale an imported DWG or DXF. You will be prompted to input a Scale Factor.

DWG/DXF Tree

This allows you to turn layers in the dwg on and off. The layer visibility will be saved. When using Imported Drawing under in the visibility command only the visible layers will be turned on and off.



Chapter 9: View

SolidBuilder ➡ View

View refers to the way you see the model as it is developed on the screen. Since the model is developed in three dimensions, you are able to view it from any angle, including the inside of the model. You may also expand or contract a particular view (zooming) or you may color the views in different ways. The View menu includes many functions that are also available through individual icons.

Refresh

SolidBuilder ➡ View ➡ Refresh

Icon: 

The Refresh command redraws linework to clean up any missing lines due to moving, shaping, trimming, etc. The Refresh command can be accessed by clicking on the refresh icon, or by clicking Refresh under the View pull-down menu. Refresh should be used after a lot of editing has occurred where geometry may appear fragmented.

Zoom

SolidBuilder ➡ Views ➡ Zoom

The Zoom command allows you to Zoom Previous, Zoom All, Zoom an Area, Zoom to Scale, Zoom In or Zoom Out.



Zoom Previous: This command allows you to view the previous view that was displayed on the screen.



Zoom All: This command allows you to zoom in the entire model.



Zoom Area: This command allows you to zoom to a selected area. The cursor is changed to a yellow cross hair that extends to the edges of the screen. You are prompted to locate the first corner of a rectangle that will be used to define the limits of the zoomed area. You will then locate the second diagonal corner to define the rectangle. The rectangle is formed on the screen as you move the cursor.



Zoom to Scale: This command allows you to zoom the entire model to a specified scale. A value of 1 is the current scale as shown on the screen. A value of less than 1 will zoom out and a value greater than 1 will zoom in.



Zoom In: This command allows you to zoom in on the entire model. Left mouse click to zoom in. You must click the mouse button again to continue to zoom in.



Zoom Out: This command allows you to zoom out on the entire model. Left mouse click to zoom out. You must click the mouse button again to continue to zoom out.

Pan

SolidBuilder ➡ Views ➡ Pan

The Pan command allows you to move the model up, down, left, or right. You can also manually place a cross hair on the model at any point that you wish to become the center on your screen. The Pan command will move you drawing one unit at a time.



Pan Up: This command allows you to pan up.



Pan Down: This command allows you to pan down.



Pan Right: This command allows you to pan to the right.



Pan Left: This command allows you to pan to the left.



Manual Pan: This command will change your cursor. A yellow rectangle the size of your screen will appear with a yellow cross hair located in the center. By moving the cross hair you are able to select a new center point for the model as it appears on the screen.

Views

SolidBuilder ➡ View ➡ Views

SolidBuilder defines certain frequently used views that can be easily selected. The Views command can be accessed by clicking on the desired view icon, or by selecting Views under the View pull-down menu. The View command will display your model in different views/angles.



Plan View: This command allows you to view the model from the top, looking down. The 3D model will look 2D in Plan View.



Front View: This command allows you view the flat front view of the model.



Back View: This command allows you to view the flat back view of the model.



Bottom View: This command allows you to view the flat bottom view of the model.



Right View: This command allows you to view the flat right view of the model.



Left View: This command allows you to view the flat left view of the model.



Front-Right View: This command allows you to view the model from a front-right isometric view from a point above the model.



Front-Left View: This command allows you to view the model from a front-left isometric view from a point above the model.



Back-Right View: This command allows you to view the model from a back-right isometric view from a point above the model.



Back-Left View: This command allows you to view the model from a back-left isometric view from a point above the model.



Isometric View: This command changes your cursor to a 3-D cube, which can be rotated in any direction by grabbing any edge or corner of the cube with your mouse. By moving your mouse you can quickly reposition the model to any position.

Named View: This command allows saving the current view or visibility and recalling it. To name and save the current view, turn on Save and View radio buttons. You are prompted for a name. This view is saved under that name. To recall it, simply turn on the Recall and View radio buttons and select it from the list.

2D/3D: This command will toggle between the 2D only toolbar and the 3D toolbar, which also has the 2D icons.

Visibility

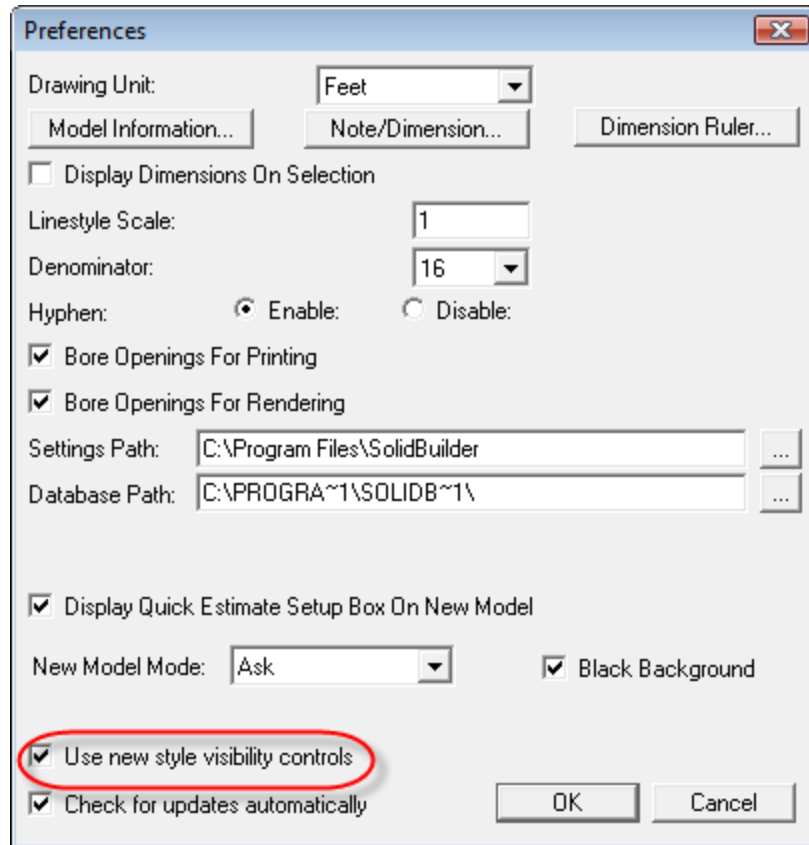
SolidBuilder ➡ View ➡ Visibility

Icon: 

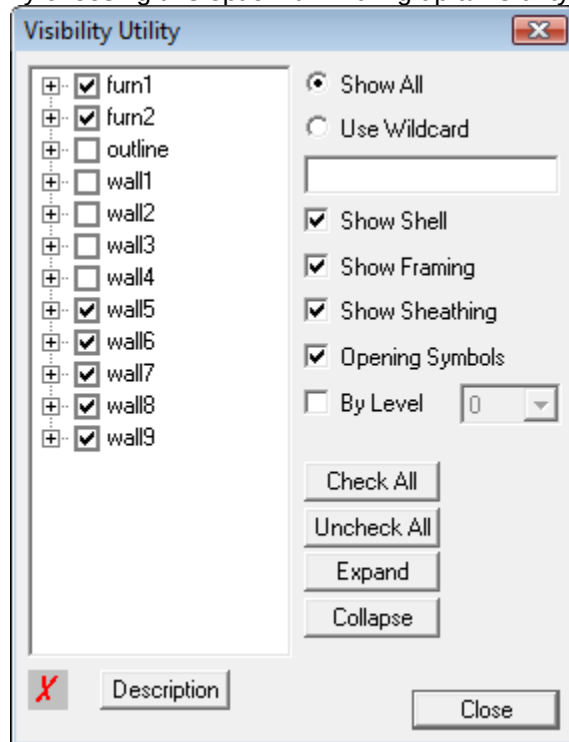
SolidBuilder allows you to control the visibility of model components in a variety of ways. As a model becomes more complex, turning off the visibility of some model components makes it easier for further development. Using the Visibility dialog box is either a two or a three-step process depending on your selection from the main menu. For example, if you are inserting doors and windows in walls, you may wish to isolate the visibility of some walls (making everything else invisible). After making your selection from the main list box, click the "plus" sign, and a second list replaces the first. After making your selection in the second list, click the "plus" sign, and the final list displays. Make your selection in the third list and click on the Select button. You will then select the shells you want to make visible, invisible, or isolate (depending on your selection). Reading the command line facilitates choosing shells.

We have incorporated a new visibility dialog box which can be accessed by going to File:Preferences and choosing the following option:

Chapter 9
View Pull Down Menu

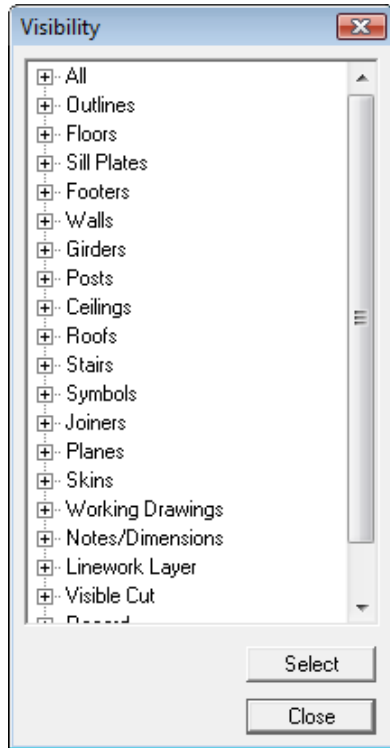


By choosing this option it will bring up a visibility menu that looks like this:



In this new visibility box, you can choose to make shells, framing, sheathing, and openings

symbols visible or invisible by the shell number or by level.



Visibility Dialog Box Definitions

- **All:** When selecting All, you have the option of Combination, Framing, Shells, Sheathing, Faces, Opening/Trim, Per Assembly or Per work stage. After you make your selection, you are prompted to make these Invisible, Isolate or Visible.
- **Outlines:** When selecting Outline you have the option of selecting Outline, Lines, Points or All. After making your selection, you are prompted to make these Invisible, Isolate or Visible.
- **Floors:** When selecting Floor you have the option of selecting Combination, Framing, Shells or Sheathing. After making your selection, you are prompted to make these Invisible, Isolate or Visible.
- **Sill Plate:** When you select Sill Plate you have the option of selecting Invisible, Isolate or Visible.
- **Footers:** When you select Footer you have the option of selecting Invisible, Isolate or Visible.
- **Wall:** When you select Wall you have the option of selecting Combination, Framing, Shells, Sheathing, By type, By Floor, By Level or Layout Point. Depending on your desired selection, you will have the option to make these Invisible, Isolate, or Visible.
- **Girder/Post:** When you select Girder/Post you have the option of selecting Invisible, Isolate or Visible.

- **Ceilings:** When you select Ceiling you have the option of selecting Combination, Framing, Shells or Sheathing. After making your selection you are prompted to select Invisible, Isolate or Visible.
- **Roof:** When you select Roof you have the option of selecting Combination, Framing, Shells or Sheathing. After making your selection you are prompted to select Invisible, Isolate or Visible.
- **Stairs:** When selecting Stair you have the option of selecting Combination, Framing, or Shells. After making your selection, you are prompted to select Invisible, Isolate or Visible.
- **Symbols:** When you select Symbols you have the option of selecting Furnishings or Opening/Trim. If you select Furnishings, you are prompted to select Invisible, Isolate, Visible or By Level. If you select Opening/Trim, you are prompted to select Invisible or Visible.
- **Joiners:** When you select Joiners you have the option of selecting Invisible, Isolate or Visible.
- **Planes:** When you select Planes you have the option of selecting Invisible, Isolate or Visible.
- **Skins:** When you select Skins you have the option of selecting Invisible, Isolate or Visible.
- **Working Drawings:** When you select Working Drawings, you make working drawings visible or invisible by drawing name.
- **Note/Dimension:** Selecting Note/Dimension controls the visibility of notes, dimensions, labels, and similar information. This type of information is placed in layers which are given unique names. Notes/dimensions layers are made visible or invisible by layer name.
- **Linework Layer:** When you select Linework Layers, linework can be made visible or invisible by layer name.
- **Visible Cut:** Visible Cut is the fastest way to disable or enable the visibility of large portions of the screen. You select the drawing components by their position on the screen, rather than by name. This is done by marking a position on the screen with the cursor and by telling **SolidBuilder** whether components to the Left, Right, Front, Above or Below the marked position are to be selected. Also, you can choose to include those items which fall Completely within the marked area or only Partially within the marked area. Upon selecting Visible Cut, selected components can be made Invisible or Visible.
- **Record:** When you select Record you have the option of selecting Record, Rename or Recover. The Record command allows you to save a selected visibility of a model. Rename allows you to rename a previously saved visibility. Recover allows you to restore a previously saved visibility.
- **Trusses:** Selecting Trusses, provides the option of selecting Invisible, Isolate or Visible.

Solid Views

SolidBuilder ➡ View ➡ Solid Views

The Solid View commands allow you to redraw the model so that it appears as a solid. Some solid views are only available from the main toolbar View - Solid Views.



Hidden Line: This command causes the transparent quality to be removed and only those lines that would be visible if it were a solid model are shown.



Painted: This command causes the model shells to appear as solid, colored objects.



Quick Shade: This command creates a very quickly shaded model rather than a full painted view. The colors are somewhat muted compared to painted.

Full Shade: This command is similar to quick shade but develops more color intensity.

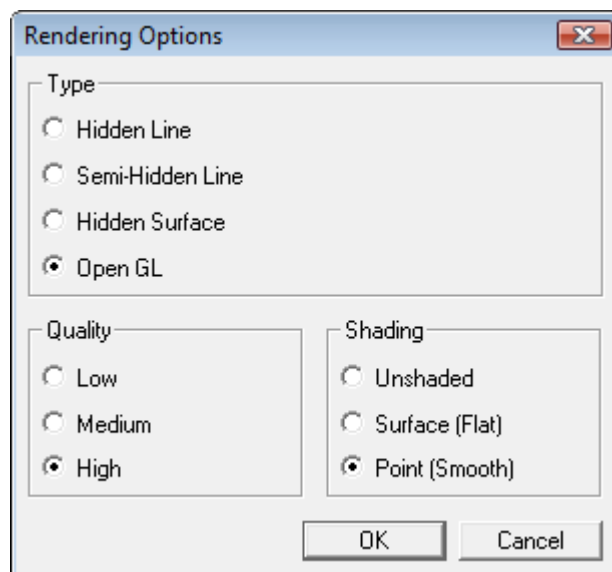
Shade /w Shadows: This command creates a shaded model with some minor shadowing

Quick Render: This command creates a very quick rendered view.



Full Render

This command creates a full rendered view that remains on until you click on it a second time. It is not recommended that you work with the full render on. Use it while rotating the model.



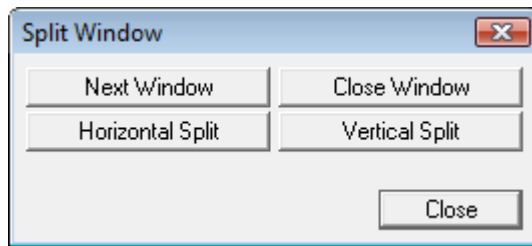
The other options are Hidden Line, Semi-Hidden Line, and Hidden Surface (painted). These options operate in the same manner as the standard Hidden Line and Painted, with one exception. Standard Hidden Line and Painted turn off automatically whenever you

move the model. The Full Rendered option locks on and stays on until you click the icon a second time to turn it off. As with Full Render, it is not recommended to work with either of these options active.

Split Window

SolidBuilder ➡ View ➡ Split Window

SolidBuilder allows you to split the screen, creating new windows, as many times as you choose. This allows you to view simultaneous views of the same model in one screen.

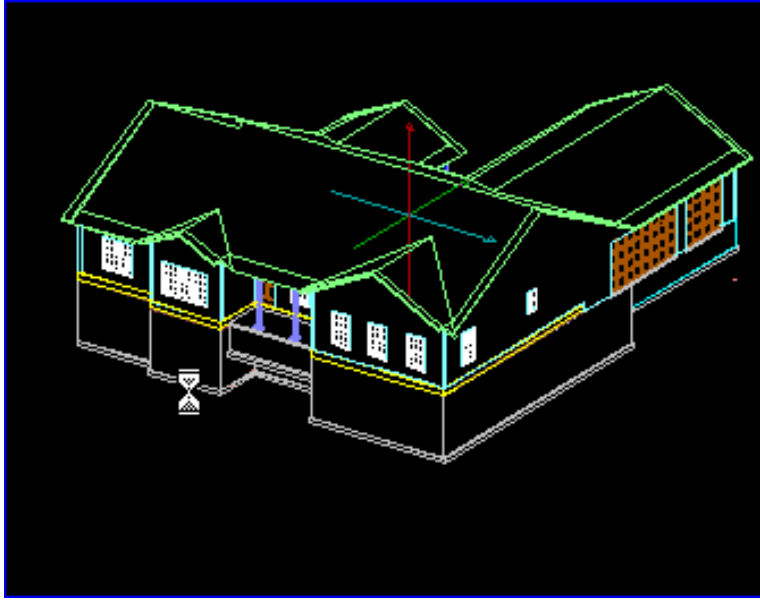


You begin by either clicking on the Horizontal or Vertical Split button. This creates two windows. The active window has a white outline and the inactive window has a blue outline. If you select split, **SolidBuilder** splits the active window. To change the active window, click on the Next Window button. To close individual windows, click on the Close Window button until you have closed those that you want or are returned to the original window.

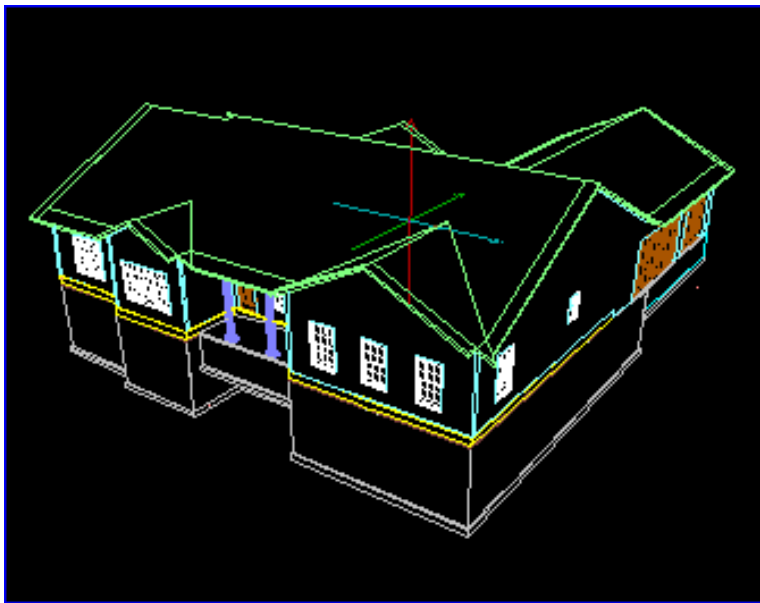
Perspective

SolidBuilder ➡ View ➡ Perspective

This places the model in a Perspective view. A Perspective view has vanishing points and the model appears more realistic in a 3-D perspective view.



Parallel View



Perspective View

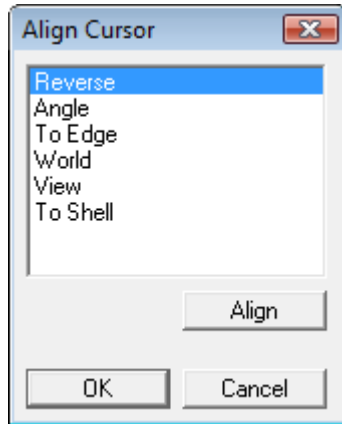
Cursor Align

SolidBuilder ➡ View ➡ Cursor Align

Icon: 

The Cursor Align command is used to change the alignment of the cursor. If at times the cursor

seems to be stuck and does not move or only moves in one direction, the cursor needs to be aligned.



Align Cursor Dialog Box Definitions

- **Reverse:** This reverses the direction of the X and Z-axis.
- **Angle:** This aligns the cursor to a user specified angle.
- **To Edge:** This aligns the cursor to a selected shell edge.
- **World:** This aligns the cursor to world space.
- **View:** This aligns the cursor to the current view and is the most commonly used.
- **To Shell:** This aligns the cursor with a selected shell.

Exhibit

SolidBuilder ➡ View ➡ Exhibit

Icon: 

This command allows you to exhibit various shell parameters. This provides a method for a very rapid visual check of the model. The appropriate Exhibit dialog box opens. The Exhibit command is linked to the Model Information status bar. The shell or object listed in the Model Information edit field becomes the shell or object that will be exhibited. For example, if you are currently working on walls and Walls is shown in the drop list in the Model Information status bar, the Exhibit command will exhibit selected wall information. The Exhibit Walls dialog box (below) is shown as an example.

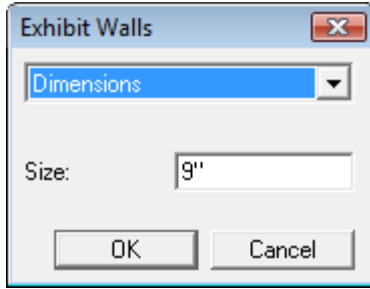


Exhibit Dialog Box Definitions

- **Drop List:** This contains different options for exhibitions.
 - Dimensions** - Exhibit dimensions of selected shells or objects.
 - Layout Points** - Exhibits the layout points of selected shells or objects.
 - Stud Points** - Exhibits the stud points of selected shells.
 - Description** - Exhibits many features associated with the selected shell.
 - Opening Description** - Exhibits many features associated with the selected opening.
- **Size:** This is the numerical value that will be assigned to the font size.

Isolate Framed

SolidBuilder ➡ View ➡ Isolate Framed

This command isolates any and all framing in the model, making all other entities invisible. This is a very fast and useful tool to make sure that all desired shells have been framed.

Isolate Unframed

SolidBuilder ➡ View ➡ Isolate Unframed

This command isolates any and all unframed shells in the model. Only shells appear. All openings, symbols, eaves, gables, etc. are invisible.

Isolate Reset

SolidBuilder ➡ View ➡ Isolate Reset

This command restores the view prior to using either Isolate Unframed or Isolate Framed commands.

Layer

SolidBuilder ➡ View ➡ Layer

When the Layer command is activated, each layer is highlighted on the drawing and displays the layer in the command line. This is very useful in determining on which layer a particular note, dimension, label, symbol, or linework has been placed.

Patterns

SolidBuilder ➡ View ➡ Patterns

When the View Patterns command is activated, the available patterns are displayed on the screen. The display may be printed by pressing the P key.

Linestyles

SolidBuilder ➡ View ➡ Linestyles

When the View Linestyles command is activated, the available linestyles are displayed on the screen.

Snapshot

SolidBuilder ➡ View ➡ Snapshot

The Snapshot command creates a snapshot of the **SolidBuilder** screen as a Bitmap file, which can be manipulated or used in other paint/graphics or word programs.

- **Screen** is the entire screen included **SolidBuilder** menus and toolbars
- **Window** is the drawing window area of **SolidBuilder** (the black area).
- **Area** is determined by creating a box around the exact area to be included.

Camera

SolidBuilder ➡ View ➡ Camera

The Camera command allows you to walk through the model by recording a series of snapshots or by drawing a path through the model. When you start the Camera command, you need to select a camera location and direction to activate the command. Once you have specified the location, the following dialog box will appear.



Camera Dialog Box Definitions



Place Camera:

Click this icon to start recording by taking snapshots. First click the New icon in the lower left corner and type a name. Now you will see an Elevation and Plan view of the model. Use the other icons to move your way around the model and click the "Take Snapshot" icon to save a photograph. Click Stop when you're done.



Restore Camera: Click this icon to restore the camera to the original camera location.



Record Path: Click this icon to start a new recording by drawing a path. Click the New icon in the lower left corner and type in a name. You can draw a path through the model by clicking the left mouse button as you move. You can adjust the height of the camera location by clicking the (+) or (-) keys on your keyboard. You will see the cross hairs move in the elevation view.



Take Snapshot: Click this icon when you would like to take a snapshot and save a view. This will only be enabled when you are recording using the Camera command.



Stop: Click this icon to stop recording. This will only be enabled when you are recording using the camera command.



Play: Click this icon to play back a saved recording. You will be prompted to select which file and then click OK. The walk-thru will start. Adjust the speed by clicking on Preferences icon.



Move Left: Click or hold this icon down to walk to the left.



Move Forward: Click or hold this icon down to walk forward.



Move Right: Click or hold this icon down to move the drawing to the right.



Move Backwards: Click or hold this icon down to walk backwards.



Rotate Right: Click or hold this icon down to rotate the drawing to the right.



Rotate Left: Click or hold this icon down to rotate to the drawing to the left.



Look Up: Click this icon to look up from where you are standing.



Look Down: Click this icon to look down from where you are standing.



Move Up: Click this icon to move the line of sight or elevation up.



Move Down: Click this icon to move the line of sight or elevation down.



Increase Lens Angle: Click this icon to widen the angle view from where you are standing. The more you increase the lens angle, the more you will see.



Decrease Lens Angle: Click this icon to decrease the angle view from where you are standing. The more you increase the lens angle, the more you will see.



Render: Click this icon to render the model in OpenGL. **Be sure to click this icon before playing back the walk-thru.**

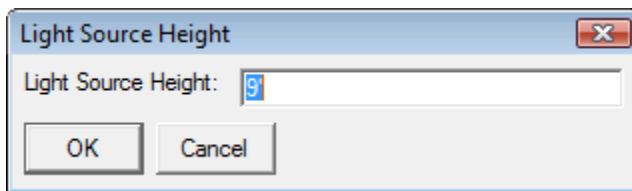


Refresh: Click this icon to refresh the drawing or to turn off the rendered view.



Lights: Click this icon to create a light source. See Light source below.

- **Add Light:** Click this icon to add extra light sources to your camera view.
-After clicking the add light button you will be prompted to choose where you want the light source to be placed.
-After choosing the location SolidBuilder will prompt you to choose a height for your light source.

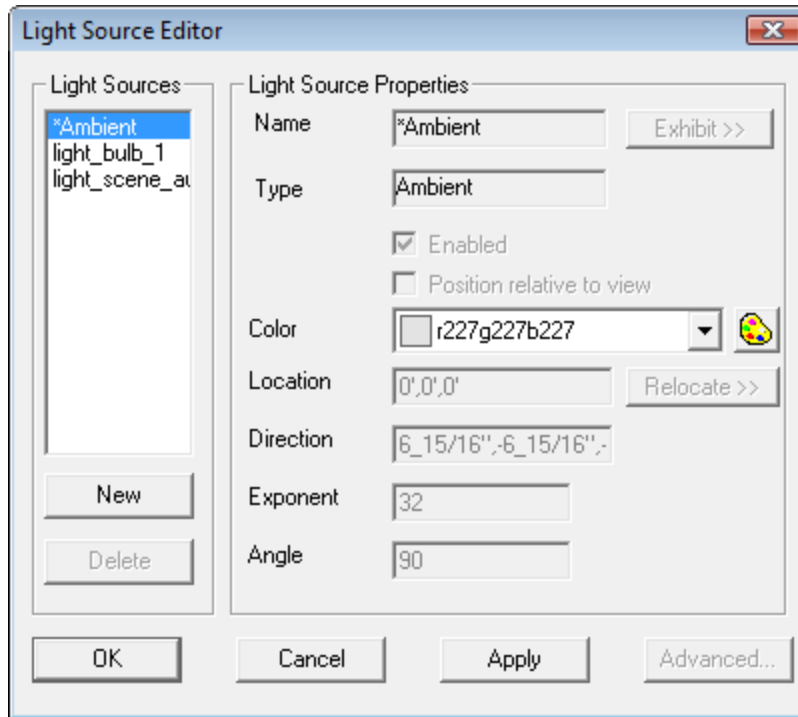


Edit Lights: The Edit Lights command is used to define and modify light characteristics that are used in conjunction with the Camera command. The light commands allow you to establish characteristics for light source and ambient light. The appearance of a rendered scene is highly influenced by the light and surface reflection.

The Locate option is used to place the camera at the appropriate point inside or outside of the model. Next, mark the aim point using the mouse or arrow keys to move the cursor on the screen. The light source represents the primary directional light that strikes surfaces. Since light emanates from a defined location, the distance and position of the surfaces influence how they react to the light. The source lights are also the primary determinant in the casting of shadows.

The Ambient light is the "background" light that falls equally on all surfaces of the drawing. Since it is not directional, the ambient light does not depend on the position of the surface or the position of the viewer.

When you select the light the first time, only the Ambient light is defined. Select New to establish a new light source. The light source is automatically given a name, which can be changed. Click on Relocate and this will allow you to select a point on the drawing to locate the light source. Once the light source has been established, the light source properties can be set for the newly created light source. The currently highlighted light source can be deleted by selecting Delete. The Exhibit button is used to visually display the light source in the graphics window. After selecting a defined light source to exhibit, the position of the light source is displayed in each visible graphics window.



Light Source Editor Dialog Box Definitions

Ambient: Ambient light describes a non-directional light that is uniformly present throughout.

Spotlight: A spotlight source is a directional light the intensity of which diminishes with the square of the distance from the source. The light is contained within the angle of a defined "cone" shape.

Directed: A directed light source is a directional light the intensity of which diminishes with the square of the distance from the source.

Distant: A distant light source is a directional light that essentially most closely resembles the parallel rays of the sun.

Point: A point light source shines evenly in all directions. The intensity of the light diminishes with the square of the distance from the source.

Enabled: Each light source can be enabled by checking the box.

Color: The light color is the color of the light. The color can be selected by name or by using the color palette button.

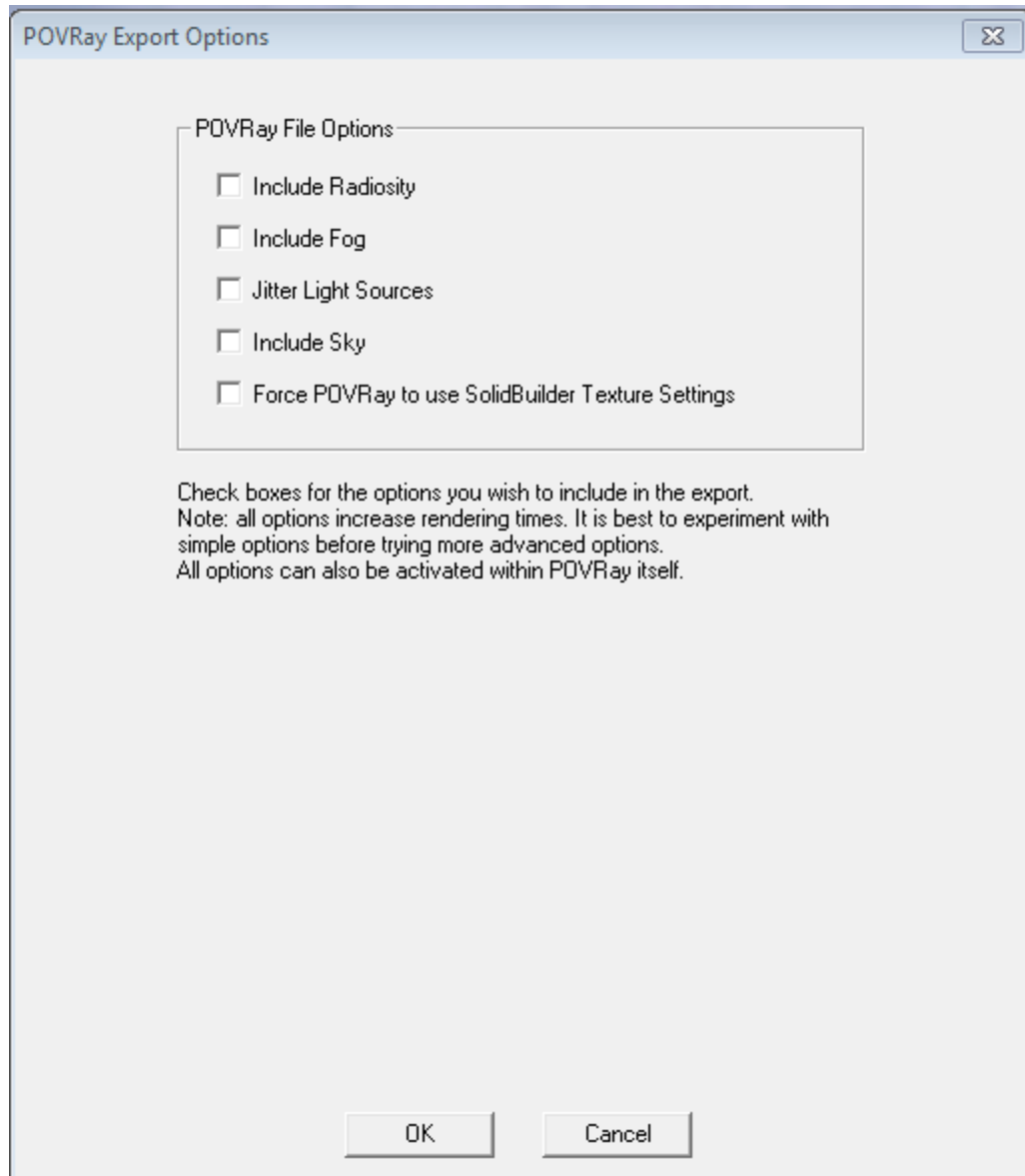
Location: The Location determines the location of the light source in the world space. If it is a directional light source, the direction indicates where the light is pointing. The Directed, Distant, and Spotlight are directional lights. The Relocate button allows you to use the cursor to select both the location (where the light is located) and direction (where the light is pointing), if appropriate.

Exponent: For a Directed and Spotlight type of light source, the exponent defines the

degree to which the light falls off relative to the axis defining the light's direction. A low value indicates the light does not fall off rapidly. With a specular exponent value of 0, the light acts like a point light source. The range of values is normally 0-200.

Angle: The angle determines the angle of the cone forming from the spotlight in the direction of the light. The Cone angle can range from 0-180 degrees.

- **Advanced:** The Advanced button allows you to control the intensity of the light relative to surfaces at varying distances to the light source. Although it is well known that the intensity of light decreases inversely to the square of the distance from the light source, the mathematical realities of applying that relationship to a drawing often results in unrealistic variations in intensity.
- **Level Camera:** Click this icon to bring the camera back to the original view that you started in.
- **Current view:** Shows you where you are currently in your drawing
- **Preferences:** Click this icon to increase or decrease the movement and playback speed.
- **Export to POV-Ray:** The export to POV-Ray command allows you to export a model to POV-Ray. POV-Ray is a powerful rendering tool to create high-end renderings. After you select the Export to POV-Ray the following dialog box appears.



POV-Ray Dialog Box Definitions

- **Include Radiosity:** This will allow light to scatter from objects. For example, a white table on a green floor will take on a greenish tint. In a complex scene Radiosity can greatly increase the rendering time.
Note: Radiosity requires the presence of light sources. If a rendering is done with Radiosity for a room with no lights, the rendering may be completely black.
- **Include Fog:** This will create an atmospheric effect which can slightly blur sharp edges. When edges are too sharply defined, they can make the screen look unrealistic.
- **Jitter Light Sources:** This introduces a slight randomness into the effect of the light sources which can help keep shadows from looking unrealistically crisp.

- **Include sky:** This will export a 'sky sphere' to the POV-Ray file based on your current background texture. It is possible to adjust the sky sphere scale and rotation angle inside the POV-Ray by doing a test search for the word 'sky_sphere'.

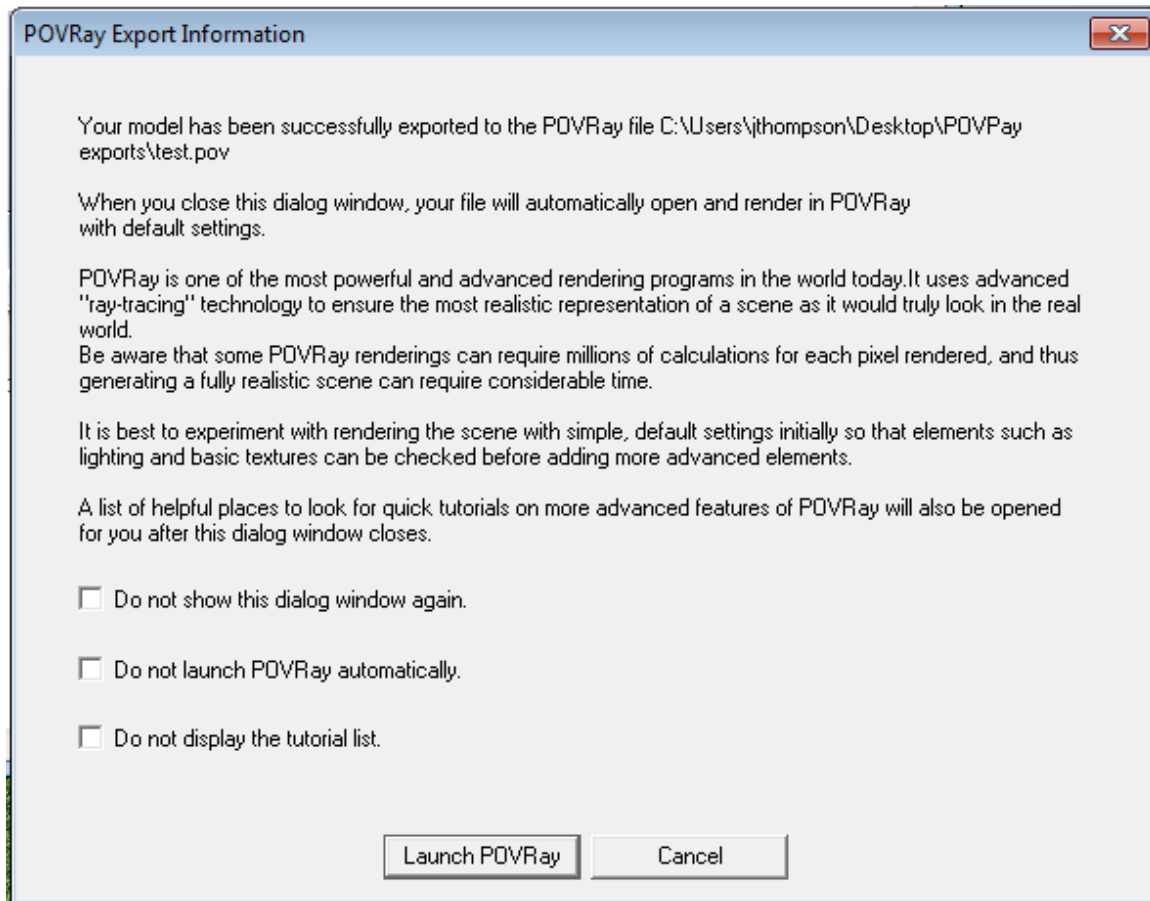
Note: The effect on rendering time should be negligible.

Compatibility WARNING! Fog and Sky checkboxes are not compatible with each other. Ground fog will be used in place of standard fog.

- **Force POV-Ray to use SolidBuilder Texture Settings:** Because SolidBuilder and POV-Ray use slightly different lighting models the export normally re-maps SolidBuilder texture settings (such as 'ambient', 'diffuse' etc.) to their best equivalents in POV-Ray. If you manually adjust all textures settings in SolidBuilder to produce proper POV-Ray output, you can use this option to maintain those settings in POV-Ray.

WARNING!!! THIS OPTION IS ONLY RECOMMENDED FOR ADVANCED USERS UNDER SPECIAL CIRCUMSTANCES! ORDINARILY THIS CHECKBOX SHOULD BE LEFT IN THE 'OFF' POSITION.

After you select OK SolidBuilder will prompt you to save the POV_Ray file. After the file is save the following dialog box will appear.



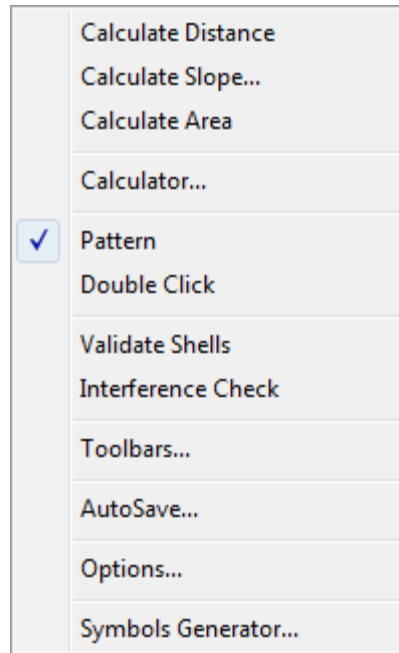
POV-Ray Export Information Dialog Box Definitions

- **Do Not show this dialog box again:** By choosing this option this dialog box will no long appear.
- **Do Not launch POV-Ray automatically:** By choosing this option POV-Ray will not launch automatically.
- **Do Not display the tutorial list:** By choosing this option the tutorial list will not display automatically after Launch POV-Ray is selected. When this option isn't selected SolidBuilder will open helpful POV-Ray tutorials.
- **Launch POV-Ray:** When Launch POV-Ray is selected, POV-Ray will open and render you model.



Chapter 10: Tools

The Tools menu contains a list of tools and helpful settings that enable you to pull important information from you model, The Tools pull-down menu is located in both the 3D model and 2D working drawing.



Tools Menu in a 3D Model & 2D Working Drawing

Calculate Distance

SolidBuilder ➡ Tools ➡ Calculating Distance

Icon: 

The Distance command (or tape measure) allows you to measure the distance between any two points. If the points are in a horizontal plane, the measured distance is displayed in the X coordinate box. If the points are in a vertical plane, the measured distance is displayed in the Y coordinate box. If the points are at an angle or not in the same plane, the measured distance is displayed in the L (true length) coordinate box. When you click on the Distance icon you are prompted to:

Select a Point

Using the jump commands, move to the first point and left mouse click. The coordinate edit field must be reset to 0 so that your measurement will start from 0. If the coordinate fields are not at 0, left mouse click a second time or press the R key of the keyboard to reset them. You are then prompted:

Select a Point

Using the jump commands, jump to the 2nd point. **Do not click a second time**, as this will reset the coordinates to 0. Read the distance in the appropriate edit field.

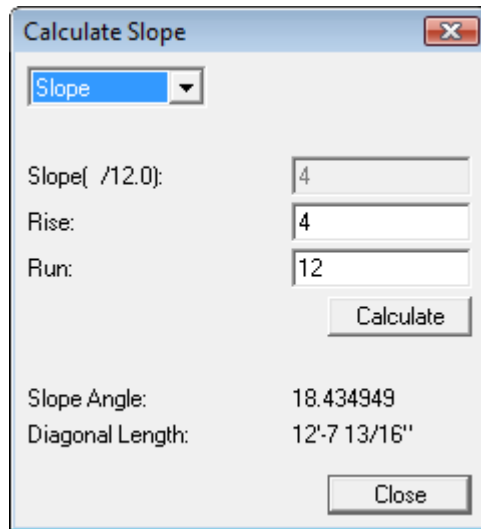
Calculate Slope

SolidBuilder ➔ **Tools** ➔ **Calculate Slope**

Icon: 

The Slope Calculator allows you to find the slope, rise, or run of a roof triangle (or any right triangle).

When you select any one of these, you need to enter the values for the other two.



Calculate Area

SolidBuilder ➔ **Tools** ➔ **Calculate Area**

Icon: 

The Calculate Area command allows you to quickly find the area of a polygon. When selected, you are prompted to select a point. Continue selecting points. When you are finished, right click and the area of the polygon is displayed. Basically you are drawing a polygon (using the jump commands) around the area of which you want to find the square footage.

Calculator

SolidBuilder ➔ **Tools** ➔ **Calculator**

The Calculator command opens an Architectural format calculator. You can enter values in this calculator by clicking the keys of the calculator, or by pressing the keys on your keyboard.

Pattern

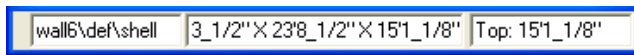
SolidBuilder ➡ Tools ➡ Pattern

The Pattern command allows you to make patterns that have been created in the Working Drawing to be visible or invisible.

Double Click

SolidBuilder ➡ Tools ➡ Double Click

This command requires you to click twice to select rather than the usual once. It is used in conjunction with the Info toolbar. The Info toolbar contains three windows or sections. When a shell command is executed, Shape or Modify, for example, the first click on the shell displays the shell type and number, the thickness, length, height, and the top elevation. The second click on the shell actually selects it.



Validate Shells

SolidBuilder ➡ Tools ➡ Validate Shells

This command may be used if some shells have become an invalid solid. This may occur doing extensive editing to a shell. **SolidBuilder** will attempt to correct the invalid shells; however some may not be fixed. The ones still invalid will be highlighted for you to delete.

Interference Check

SolidBuilder ➡ Tools ➡ Interference Check

This command may be used to check if shells are interfering with each other. If shells are interfering with each other a message will pop up letting you know which shells are interfering with other shells.

Toolbars

SolidBuilder ➡ Tools ➡ Toolbars

The Toolbars command allows you to turn individual toolbars on or off.



If you ever have problems loading or viewing the toolbars, you may need to reset them. There is a file called "Resetregistry.exe" located in your **SolidBuilder** install directory. Double click on this file in Windows Explorer or My Computer and this will reset the toolbars. Reopen **SolidBuilder** and the toolbars should be in the default locations.



Auto Save

SolidBuilder ➡ **Tools** ➡ **Auto Save**

The AutoSave command will automatically save the current model at time intervals you specify. If enabled, AutoSave will also create three backup files, which will be saved from each previous interval.

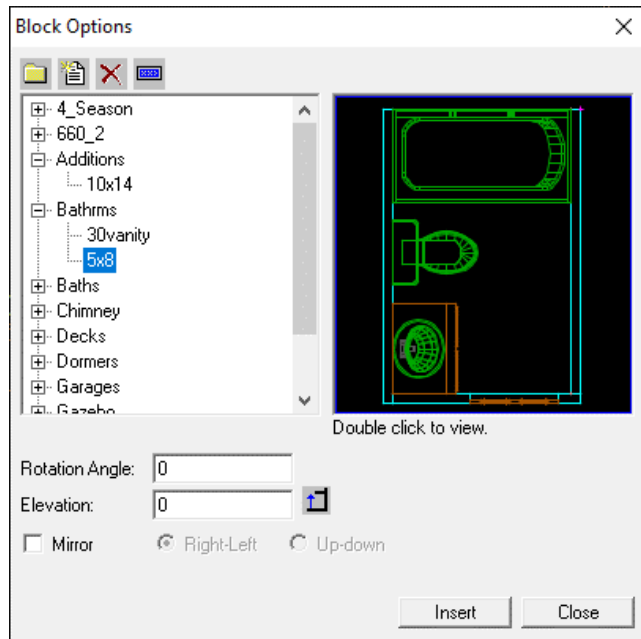
Options

SolidBuilder ➡ **Tools** ➡ **Options**

Icon: 

The Options command allows you to create Options or blocks of a shell or symbol or groups of shells and symbols. These Options then can be inserted into the current drawing or future drawings saving a tremendous amount of time. Examples might be common size dormers that you use could be created as Options and simply inserted as an entire Option complete with walls and roofs at once. Other uses might be stairs, decks, chimneys etc. You can create Options in a Model, in the Framing Editor (Framing/Modify) and in the 2D Working Drawings. Once you select Options the Block Option window opens.

Chapter 10 Tools Down Menu



New Category Folder: Allows you to create new folder to store different Options.



Create a New Block: Allows you to name and create a new Option. You will be prompted to enter a name for the new Option. Then you will be prompted to select the category to store the Option. Next you will be prompted to select the shells to save as an Option. Once you have selected the shells, right mouse click and Finished. You will be prompted to Choose an insertion point, this will be the point on the block that **SolidBuilder** will use to locate the block when inserted into a model.



Delete Item Record: Allows you to delete a block from the list.



Rename: Allows you to rename an existing block.

To insert a block from the list, click in the desired block. You may type in a Rotation Angle if you would like the Block rotated. You may also set the elevation to where you want the Block placed. The Insertion Point will be placed at this elevation (the insertion point is represented by a magenta colored point). Click Insert and using the mouse or arrow keys on the keyboard move the block into position.

The block can also be Mirrored from right to left or up to down.

Block Options can also be edited under Edit Blocks. You can move, copy and/or remove the entire block.

While in 2D working drawings, you can create 2D Blocks on the fly out of linework already placed in your drawing. Holding the Shift key, left click on multiple lines you wish to be included in the block. When finished selecting the desired linework, right click and choose Create Block Option. SolidBuilder will then prompt you for a name, category, and insertion point similar to clicking into the Block Option icon.

Symbols Generator

SolidBuilder ➡ ***Tools*** ➡ ***Symbols Generator***

This command allows the user to launch the Symbols Generator. Selecting Symbols Generator from the pull down menu will act exactly like clicking on the Symbols Generator icon.

The Symbol Generator allows you to create your own symbols (2D and 3D) and save them in your SolidBuilder library. For more information on the Symbols Generator, please see the Symbols Generator Help Files



Chapter 11: Database

Database Descriptions

SolidBuilder ➔ Database

SolidBuilder's databases are unique and powerful. With them, you are able to build and maintain a price book. You can then link your price book items to assemblies and link the assemblies to shells, surfaces or symbols; thus giving you the ability to use **SolidBuilder** to estimate for you automatically—while you model. You may also link items directly to symbols. See the chapter on Symbols for more information. Any data inputted to the Database is stored under one file called "Sbitems". You may want to back up this file if you modify any records or tables. The databases and tables included are:

- **Items:** The item section of **SolidBuilder** includes a division database, a subdivision database and an item database. The division and subdivision databases act as indexes to the item database. The item database is where you enter and store each of your price book items such as lumber, framing labor, stucco, etc.
- **Assemblies:** The Assemblies database is where items from your price book are combined into groups. These groups called assemblies are then linked to the shells, surfaces and symbols that are used to create a model. **SolidBuilder** extracts quantities from the model and uses the price book items contained in the assemblies to generate a report.
- **Assign Shell Assemblies:** The Assign Shell Assemblies assigns the various assemblies to shell types. Once the assembly is created, you need to tell **SolidBuilder** to which shell types the particular assembly can be applied.
- **Framing Member Assignments:** The framing member assignment database is where you link each framing member (stud, plate, rafter, ridge, valley, joist, rim, block, etc.) to a primary and secondary material grade (#2 green Douglas fir, southern yellow pine, metal stud, etc.). Also, one or more optional material types (species/grades) can be assigned to each framing member.
- **Sheathing:** The sheathing database contains the list of sheathing options that are used in the sheathing command in the production mode. You can create sheathing options that link materials and sizes to specific sheathing requirements.
- **Room Names:** The room names database contains the list of the default room names that you like to use when you name the rooms of a house in a working drawing.
- **Header Table:** The header table database is designed to contain a list of headers for optional use (in lieu of the default header size) when creating a door or window opening where structural load conditions require the use of a specific sized header.
- The following databases are not listed under the Database menu, but are independent databases inside **SolidBuilder**.

- **Assembly Categories:** The assembly categories database allows you to enter assembly category names (wall interior, wall exterior, doors, etc.). You may define as many assembly categories as you wish. The assembly category is an index (or menu) to your assemblies.
- **Assembly Items:** The assembly item database contains a complete listing of all of the assemblies and the items they contain in **SolidBuilder**. The assembly item database contains the assembly category, name and number, division, id number, description, take off and order units.
- **Markups:** The markup database includes a list of markup formulas which can be linked to your price book items via the item database.
- **Budgets:** The budget database provides a list of budget names, which can be linked to the item database. Once in the item database, the budget name can be used to sort price book items into budget groups for report purposes or for use in a job cost system. A budget name can be anything you want it to be.
- **Workstages:** The Workstage database provides a list of workstage names which can be linked to the item database. Once in the item database, the workstage name can be used to sort price book items into workstage groups. **SolidBuilder** uses workstages to group items for reports. A workstage name can be anything you want it to be. For example, you might want to use CSI division names or building phases (main floor, walls, roof, etc.). Remodelers might want to use only a few workstages such as existing, demolition and new.
- **Order Units:** This is the database of different material order units. It includes such items as bundle, case, cubic yard and square foot. The detailed list of available order units is listed in Field 10 of the Standard Items Database on page 485 section of this chapter.
- **Cost Family:** This is the database of the available cost families. You place items in the database into one of the cost families. This is necessary for ease of price changes of the items.
- **Manufacturer:** The manufacturer database lists the names of often used door and window manufacturers. This list is used in the Openings database. Manufacturer is the selection mechanism used to select doors and windows from the Openings database using the Model Wall Insert Opening List command.
- **Framing Material Options:** The framing material options database is where you can create framing option names that are used in framing material assignments part of the program to link framing material options to specific modeling shells.
- **Openings:** The Openings database is designed to contain a list of your standard doors and windows. Once this list has your doors and windows in it, selecting openings from the List option is much quicker than using **SolidBuilder's** Prompt command sequence.
- **Symbol Categories:** The symbol categories database allows you to enter symbol category names (plumbing, electrical, HVAC, etc.). You may define as many symbol categories as you wish. Each symbol that you draw must be assigned to a

symbol category before it can be saved. The symbol category is an index (or menu) to your symbols library. Categories are used in Plan and Opening/trim symbols.

- **Symbol List:** The symbols list database contains a listing of all the Plan, Opening/trim and Furnishing symbols in **SolidBuilder**. Symbols have five items of information associated with them in this list: (1) symbol name, (2) location option, (3) symbol type, (4) symbol category and (5) symbol default assembly. Symbols are organized into libraries and categories.

Adding and Deleting Database Records

SolidBuilder ➡ Database

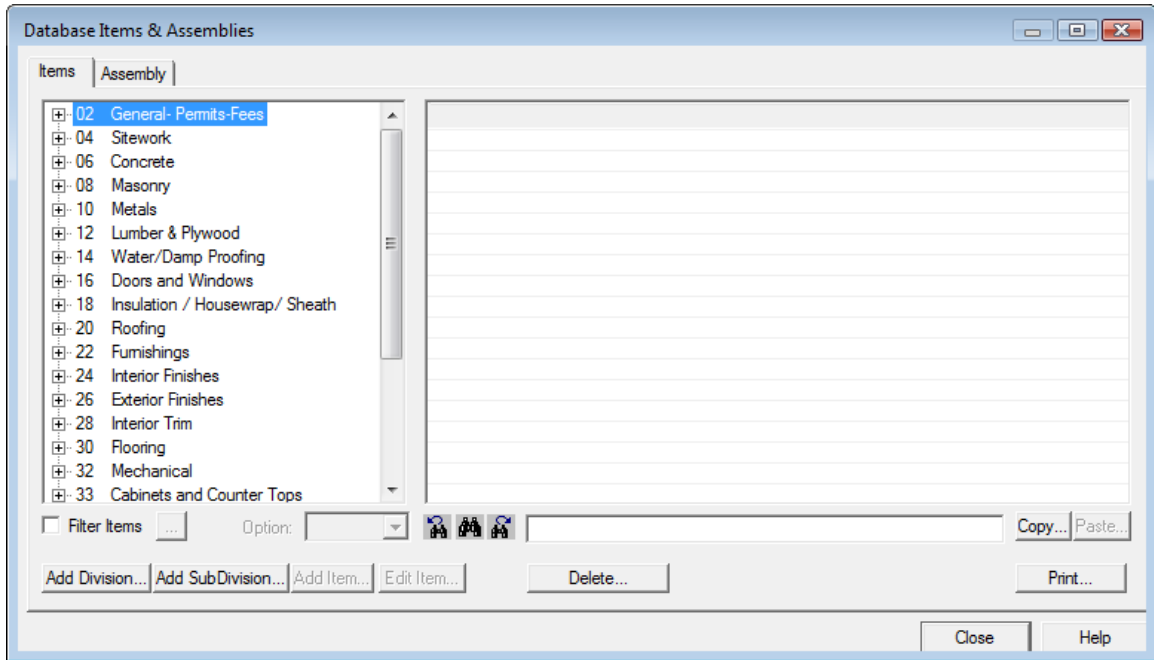
- **Adding Records:** If you wish to add a new record to the database, use the slide bar on the right side and move to the last row in the database. There is always one blank row. You cannot insert a row between existing rows. You must enter all new records in the last row.
- **Deleting Records:** If you wish to delete a complete record, use the up and down arrow keys or the mouse to select the record. Next, press the Delete key, or click on the Delete icon.

Database Items

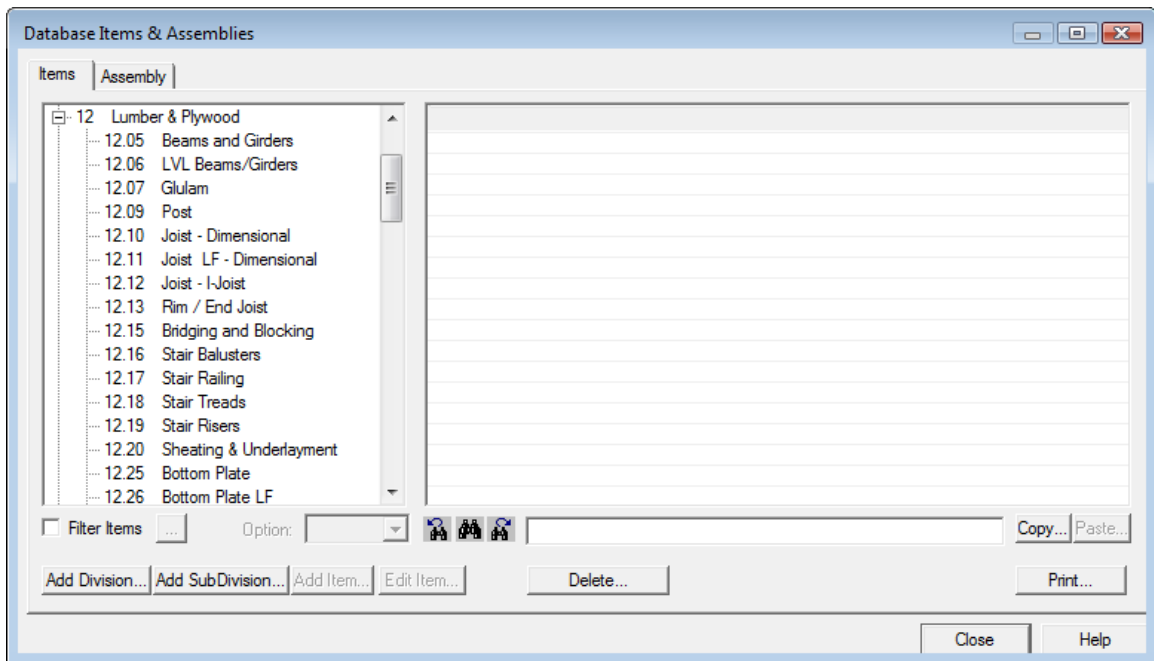
SolidBuilder ➡ Database ➡ Items & Assemblies ➡ Items

The item database is the heart of **SolidBuilder's** estimating and bill of materials systems. The item database is where you create and maintain your company's price book database. After you select Items, the program displays the Manage Database dialog box containing the division number and description. The division number is part of the item database record.

Print Layout Pull Down Menu



Select a Division by clicking on the + sign to the left of the Division name. This displays the Subdivisions dialog box containing the Subdivision Number and Subdivision Name and the Options. The Subdivision Number is part of the item record.



Selection Column Field

After selecting a subdivision by left clicking on the subdivision name, the Items for that subdivision are displayed in the right window. You may add or delete items from this database or

edit the contents of the fields by either right clicking in the right window or selecting a button from the bottom left corner of the dialog box. . The first step in estimating is to create and/or revise the items that are part of the estimate.

There are three data access levels in **SolidBuilder's** item database:

1. The division level.
2. The subdivision level.
3. The item level.

You can move between levels by clicking on the tabs on the bottom and using the small arrow buttons on the left and right.

SolidBuilder's Item Database can contain up to 98 divisions (divisions can be numbered from 1-98). Each division can contain up to 98 subdivisions (subdivision can be numbered from 1-98). And each subdivision can contain an almost infinite number of items (item numbers can contain any combination of letters, punctuation marks, spaces and numbers). Therefore, you could conceivably have millions of items in your company's price book—assuming your computer has sufficient data storage capacity.

To access the item level of the Item Database, you must first select a division and then a subdivision. The division and subdivision databases act as indexes to the item database; an on-screen filing system if you will. For example, you might want foundation forming labor in a division called concrete and a subdivision called foundation or even foundation labor. Whatever you like is available.

Database Divisions

SolidBuilder ➡ Database ➡ Items & Assemblies ➡ Divisions

The division database acts as an index into the subdivision database. For your convenience **SolidBuilder** has included the 16 division names and numbers that are recommended by the Construction Standards Institute (CSI). You may change the names and/or numbers to fit your needs.

The division database includes two fields:

- **Field 1 – ID or Division Number (DN):** Division Number is a 2 character, user-defined, numeric field. You may enter any number that you wish into this field. You can create up to 98 different divisions by entering numbers from 1 to 98. The division database is sorted on this field.
- **Field 2 – Description or (Division Name):** Description is a 30 character, user-defined, alphanumeric field. Any combination of characters can be used to name the division. To access its respective subdivision screen, move the cursor to the Selection Column field and double click.

Database Subdivisions

SolidBuilder ➡ Database ➡ Items & Assemblies ➡ Subdivisions

The subdivision database is an index into the item database. For your convenience **SolidBuilder** has included CSI subdivision names and numbers in the subdivision database. You may change the names and numbers to fit your needs.

- **Field 1 –ID or Subdivision Number (SN):** Subdivision Number is a 2 character, user-defined, numeric field. You may enter any 1 or 2 character number into this field. You can create up to 98 different subdivisions by entering numbers from 01 to 98. The subdivision database is sorted on this field ID or Subdivision Number. (DN) Division Number is a 2 character reference field. The division number is entered at the division level and is used to reference the division, the subdivision and the item databases to each other.



The user can change this field. When you change the ID number, you are alerted that changing the item number modifies assemblies.

- **Field 2 – Description or Subdivision Name:** Subdivision Name is a 30 character, user-defined, alphanumeric field. It is used to hold the name of the subdivision. As with the Division Name, the Subdivision Name field is used to access the next database level.
- **Field 3 – Option or Lumber Option:** Lumber option is a 7 character, user-selected field that allows you to connect a subdivision to either the standard item database or the framing item database. The three choices in this field are (none), dim_lum and nom_lum. These choices are provided by **SolidBuilder** and cannot be altered by the user. If the lumber option field is blank you access the Standard Item database. Choosing (none) blanks the field. If the lumber option field contains dim_lum or nom_lum, the subdivision accesses the framing item database.



The subdivision name that you create for a framing item database should be the name of a TYPE or SPECIE of framing material (#2DF, TREATED_FIR, STUD_GRADE, REDWOOD, STEEL_25GA, etc.). The framing item sizes within that subdivision should be the material sizes that correspond to the subdivision name (material specie or type).

- **Nom_lum.** – Nom_lum is selected when you want the subdivision you are working on to be linked to a framing item database. In a nom_lum lumber item database your lumber list contains nominal lumber sizes (1"x4", 2"x4", 6"x6", etc.). **SolidBuilder** assumes that you want to be able to frame your model using dimensional (actual) lumber sizes (1 ½" x 3 ½"), but you want your lumber list to be written in nominal sizes (2" x 4"). So, when you frame in actual sizes, but want your lumber list to be printed in nominal sizes, first select nom_lum, enter nominal lumber sizes into your lumber list, frame in actual sizes and **SolidBuilder** makes the conversion for you automatically.



If you accidentally frame a model with material that does not exist in the lumber list, **SolidBuilder** tells you the exact items of framing material that cannot be found. Then, to get a correct lumber bill of materials, all you have to do is add the missing material to your lumber list and reframe the part of the model where the error was noted.

- **Dim_lum** – is also used when you want a subdivision to be linked to the framing item database. However, dim_lum is used when you do not want actual lumber dimensions rounded up to nominal dimensions. There are many instances when you want the framed size of the material and the order size of the material to be exactly the same. For example, if you create a 5 1/8" x 21" glulam in your model, you probably want your lumber list to show a 5 1/8" x 21" glulam. As you can see, you probably need to have at least one subdivision linked to a dim_lum framing item database.
- **(none)** - (none) is used when you want to access the standard item database. Selecting (none) clears (blank) the lumber option field. If you accidentally select dim_lum or nom_lum and do not want the subdivision to access the framing item database, you can clear the incorrect selection by clicking on (none).

Later you use **SolidBuilder's** powerful Framing Member Assignments database to attach a whole subdivision of framing material to an individual framing member (block, stud, joist, plate, etc.). **SolidBuilder** lets you use multiple types and species of material to frame each wall, each roof, each ceiling, etc.

Database Items & Assemblies

SolidBuilder ➡ Database ➡ Items & Assemblies Items

As you have seen so far, the division database and the subdivision database act as indexes to the standard item and lumber item databases. As you will soon discover, the item databases are the truly important ones. Without information in the item database, there can be no assemblies, no estimate and no bill of materials.

There are 13 fields per record (item) in the standard item database and 12 fields per record (item) in the lumber items database. However, data does not have to be entered into every field. There are two types of item databases: 1) standard items and 2) lumber items.

Database Items & Assemblies - General

SolidBuilder ➡ Database ➡ Items & Assemblies ➡ Items

- **Field 1 – ID or Item Number:** Item number is a 20 character, user-defined, alphanumeric field. You may enter numbers or letters. Of course you cannot duplicate ID numbers in the same Subdivision. However you may have the same ID number in a different Subdivision. The item database is sorted on this field.
- **The Division Number and Subdivision Number** are shown at the top of the Item Database dialog box. These and the Item number create the DN SN Item Number for the database item.
- **Field 2 - Description:** Item description is a 50 character, user-defined, alphanumeric field. It is used to record the item name. You may enter numbers, letters, spaces and punctuation marks or any combination thereof into the description field.

- **Field 3 – Takeoff Unit:** Takeoff Unit is a 10 character user-selected field. Takeoff quantities are extracted from your model based on one of the following nine measuring methods:

CuFt (The area of a shell in cubic feet)

Ea (A single each count of an item)

LF_3sides (The linear footage of three sides of an opening)

LF_height (The linear footage of the height of shell)

LF_length (The linear footage of the length of shell)

LF_perim (The linear footage of the perimeter of shell)

LF_width (The linear footage of the width of shell)

SF_gross (The gross area of a shell* in square feet)

SF_net (The net area of a shell* in square feet)

* Area of the interior or exterior surface of a wall shell or skin or the area of the top or bottom surface of a floor, ceiling or roof shell. Gross area includes the area of window and door openings. Net area subtracts the area of window and door openings. The takeoff method options are part of **SolidBuilder** and cannot be changed by the user.

- **Field 4 – Conversion Factor:** Conversion factor is a 10 character user-defined, numeric field. The conversion factor can be entered as integers, decimal numbers or fractions or it can be left blank if no conversion factor is desired. The conversion factor is used to convert the takeoff quantity into an order quantity. For example, plywood is taken off in square feet but ordered in sheets. A conversion factor of 1/32 or .03125 (.03125 is the result of dividing 32 into 1) converts square feet to 4' x8" (32 square foot) sheets.



Conversion factors may be negative values. When you create a thin slab floor representing a particular floor surface such as slate or tile, you can provide for the subtraction of assembly items that are attached to the floor shell underneath by attaching the same assembly items with a negative conversion factor.

- **Field 5 – Waste Percent:** Waste percent is a five character user-defined, numeric field. Waste percent may be entered as a decimal number (.1, .3, .4, etc.) or as an integer (1, 3, 11, 86, etc.). It may be left blank or can contain a zero if no waste factor is desired. If you enter .5 in the waste percent field, the waste factor calculated would equal ½ of 1% (.5%). If you entered 10 instead, the waste factor would be 10%—and so on. You can enter waste from 0% to 99%.
- **Field 6 – Order Unit:** Order unit is a 10 character user-selected field. You may enter new units by clicking on the Field Values button near the bottom. Below is a list of units in the field already.

Bdle - Bundle; Box - Box; C - Hundred Count; Case - Case; CF - Cubic Feet; CSF - One Hundred Square Feet; CY - Cubic Yard; Ea - Each; Gal - Gallon; Hr - Hour; Lbs - Pounds; LF - Linear Foot; MH - Man hours; none - no units; Panl - Panel; Roll - roll; SF - Square feet; Sht - Sheet; Sq - Square (100 square feet); Ton - Ton; Yd - Yard.

- **Field 7 – Unit Cost:** Unit cost is a 10 character user-defined, numeric field. The price that you pay for the item is entered into this field. Numeric values ranging from .000 to 9999999 are allowed. **SolidBuilder** recognizes a value without a decimal as a whole number. For example: seven nines (9999999) are recognized as \$9,999,999.00. The unit cost is usually equal to the price you pay for the item in relation to its order unit (order unit of measure). However, you may choose to build other cost factors directly into your unit cost.
- **Field 8 – Markup:** Markup is a 20 character, user-selected field, which acts as an index between the markup database and an item. The selections in the drop list are the names of the markups in the markup database. Once a markup name is incorporated into an item, the markup (s) corresponding to that markup name are calculated into the net cost of that item.



The markup database is entirely user-defined and contains three fields. The first field contains the markup name and the next two fields can each contain a percent-based markup value ranging from .000000% to 9999999%. Clicking on the Field Values button can access the markup database.

- **Field 9 – Budget:** Budget is a 20 character, user-selected field that is used by **SolidBuilder** reports to group items by job-cost categories. The Budget Database is designed to contain a list of the budget names that you use for job cost accounting. This database provides a uniform method for adding budget names to the items database. Once the list has been created, names can then be added to the item database with the click of a mouse. Adding a budget name to the items database from a pick list reduces typing time and the chance for misspellings. The drop list contains the list of job-cost budget names that you create in another database called the Budgets database and can be accessed by clicking on the Field Values button.



The budget database contains two fields: 1) budget name and 2) budget description. Both fields in the budget database are user-defined. The budget value can be very powerful for job costing. For example you might want cabinetry, cabinet installation and cabinet painting in your cabinet subdivision for estimate presentation purposes. While at the same time you may want cabinet painting to be job costed with painting instead of cabinets for accounting or subcontracting purposes. In **SolidBuilder**, all you have to do is assign a budget called painting to your item called cabinet painting. You would first have to create an item in the budget database called painting. Clicking on the Field Values button can access the budget database.

- **Field 10 – Revision Date:** Revision date is an 8-character date field. Each time an item is added or changed, **SolidBuilder** revises the revision date. **SolidBuilder** extracts the date from your disk operating system. If the computer date is not correct, then the revision date for your item is also incorrect. The user cannot modify the revision date.

Check your operating system manual to find out how to correct your computer's date.

- **Field 11 – Cost Family:** Cost family is a 13 character, user-defined, alphanumeric field, which makes it possible for you to upgrade groups of prices (or other data relating to a certain cost family) almost instantly. For example, the price of all items assigned to the same cost family can be updated all at once regardless of where the items are in the database. Clicking on the Field Values button can access the cost family database.
- **Field 12 – Cost Type:** Cost type is a 3 character user-selected field. Cost types are provided by **SolidBuilder** and cannot be changed. The choices are: Lab - Labor; Mat - Materials; Equ - Equipment; Oth - Other; Sub - Subcontractor. The cost type field makes it possible to group estimated items for job cost review and to upgrade prices and other information by cost type group.
- **Field 13 - Workstage:** Workstage is a 20 character, user-selected field, which is used by **SolidBuilder** to group items for job cost or scheduling purposes. When you click on the Workstage field, a drop list displays at the bottom of the screen. The box contains the list of workstage names that you create in another database called the workstage database that can be accessed by clicking on the Field Values button. The Workstages Database contains a list of workstages that can be assigned to shells or items. **SolidBuilder** uses workstages as a basis to sort data for reports. Your list of workstage names can be whatever you want them to be—a list of CSI codes or the names of construction sequences (foundation, wall framing, etc.). Remodelers might even want to use a tiny list of only three workstages: existing, demolition and new. When you select a workstage name from the list, **SolidBuilder** copies that name to the workstage field of the item you are working on. **SolidBuilder** knows that clicking on a name from a list is much easier than typing the name hundreds of times.
- **Field 14 – Round Up:** Round is set to Up as a default. Generally the Round Up feature is used for material such as concrete or fill to provide a non-rounded number for exact quantities.

Database Items & Assemblies - Lumber

SolidBuilder ➡ Database ➡ Items & Assemblies ➡ Items

Lumber Items Database

The lumber items database is a slightly modified version of the standard items database. The lumber option field in the subdivision database allows you to select from a standard item option and two kinds of lumber item options. The three choices in subdivision field number four are: (none), dim_lum and nom_lum. They are provided by **SolidBuilder** and cannot be altered by the user. When (none) is selected, the subdivision links to the standard item database. When dim_lum or nom_lum is selected, the subdivision links to the framing database.

The lumber option item database differs only slightly from the standard item database. For example, the lumber database replaces the item description field with width, depth and length. Only those fields that differ from the standard item database are discussed here.



The subdivision name that you create for a framing items database should be the name of a TYPE or SPECIE of framing material (#2DF, TREATED_FIR, STUD_GRADE, REDWOOD,

STEEL_25GA, etc.). The framing item sizes within that subdivision should be the material sizes that correspond to the subdivision name.

Later you use **SolidBuilder's** powerful Framing Member Assignments database to attach a specie or type of framing material to each individual framing member (block, stud, joist, plate, etc.) used in **SolidBuilder**.

- **Field 2** — Width: This is a 15 character, user-defined, alphanumeric field the width of the material. For example: 2" if nom_lum is selected. If dim_lum is selected, the width is expressed in more exact dimensions such as 1_1/2."
- **Field 3** – Depth: This is a 15 character user-defined, alphanumeric field. For example: 4" if nom_lum is selected. If dim_lum is selected, the width is expressed in more exact dimensions such as 3_1/2".
- **Field 4** – Length: This is a 15 character user-defined, alphanumeric field. For Example: The actual length of the material is entered (i.e. 8') when takeoff method is Each. If Takeoff Method is Random Length, enter Length as 1'.

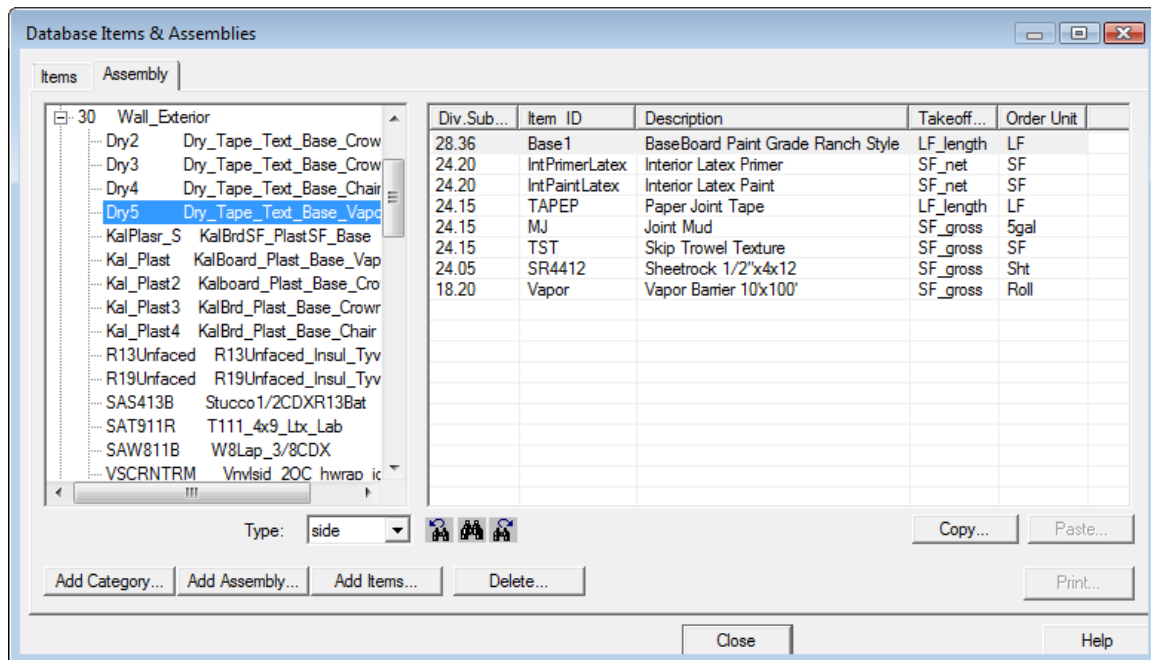
Framing items are sorted by their width, depth and length. **SolidBuilder** knows that no matter what order you build a house in, you want your lumber list sorted and reported in order of size and length.

- **Field 5** – Takeoff Method: Takeoff method is user-selected field, which determines the way **SolidBuilder** searches the database for material once a model has been framed. The two choices are part of **SolidBuilder** and cannot be changed by the user. They are: 1) Ea (Each—specified or optimized lengths), and 2) R/L (Random Length—linear or board foot of lumber).
- **Takeoff Method** – Each: When the takeoff method is Ea, **SolidBuilder** optimizes the lumber list by comparing the specific lengths created by the framing program to the various lengths in the database. First, **SolidBuilder** looks throughout the entire database for each of the exact lengths specified in the framed model. If a specific length is not found, **SolidBuilder** looks for the next closest size available. Therefore, the more sizes in the database, the better **SolidBuilder** can optimize a material takeoff.
- **Takeoff Method** – R/L: When the takeoff method is R/L, **SolidBuilder** does not care what lengths exist in the database as long as there is at least one item listed in the width and depth required and a length of at least 1'. When the R/L method is used, **SolidBuilder** simply adds up all the lengths for a specific material size (width and depth) in a given spec/grade and spits out a grand total in LF or BF. Do not use EA (each) as the order unit when LF is the specified takeoff method. **SolidBuilder** still gives you an exact framing list, but when you use R/L as the takeoff method you have to determine which pieces to cut what length, to make best use of the resultant material list.
- **Field 7** – Order Unit: Order unit is a user-selected field. The choices are part of **SolidBuilder** and cannot be changed by the user. They are: BF (Board Feet), EA (Each) and LF (Linear Feet). Each should not be used as the order unit when the takeoff method is LF. Any of the three choices can be used when the takeoff method is lengths.

You assign a workstage to a shell as you model in **SolidBuilder**. When the shells are framed the workstage name is attached automatically by **SolidBuilder** to the framing materials used in that shell, thus, eliminating the need for the workstage to be assigned at the framing item level.

Assemblies

The Assemblies Database is used to gather one or more of the items from the Item Database into groups called assemblies. Once an assembly of items is created, it can then be linked to a modeling shell, a skin or a symbol. This is how **SolidBuilder** estimates your model. To access the Assemblies Database from **SolidBuilder's** main menu simply click on Database Assemblies. This selection brings up the following dialog box.



You may create, modify and delete assemblies' categories and assemblies. The list of assembly categories is used as an index to your individual assemblies. **SolidBuilder** comes with categories that you can use, change or add to. **SolidBuilder** includes these names because using shell types as assembly categories makes linking assemblies to shells easier. This is because assemblies are already grouped by shell type. If you have a large number of assemblies and need more categories, it is suggested that you amplify **SolidBuilder's** suggestions by combining various modeling shells with the existing category names. The Assembly Categories database includes two fields:

- **Field 1 – Category Number (CN):** Category Number is a 3 character, user-defined, alphanumeric field. Commas and spaces may not be used. The category database is sorted on this field.
- **Field 2 – Category Name (CategoryName):** Category Name is a 21 character, user-defined, alphanumeric field. Commas and spaces may not be used. As with all other **SolidBuilder** databases that have more than one level, the name field can be used to access the next database level. Selecting and clicking on the category name moves you to the Assemblies database where you actually create your assemblies.



Note that the Category Name, when selected, has a black background. Clicking on the Selection Column field displays the list of Assemblies that are included in that category. The Assemblies database includes three fields.

- **Field 1 – Assembly Number:** Assembly Number is a 10 character, user-defined, alphanumeric field that is used to sort the assembly database. ***NO SPECIAL CHARACTERS (periods, # signs, *, %, etc.) ARE ALLOWED!***
- **Field 2 – Assembly Name:** Assembly Name is a 30 character, user-defined, alphanumeric field that is used to name an assembly.
- **Field 3 – Type:** Type is a user-selected field, which you use to determine which one of the following choices your assembly is linked to.
- **Core:** Core assembly is used to attach items to the "core" or inside of a shell. Typically core assemblies would be insulation for inside a wall or floor or concrete and rebar for inside a concrete wall.
- **Side:** Side assemblies are used to attach assemblies to the outside face and the inside face of shells.
- **Symbol:** Symbol assemblies are used to attach assemblies to both 3D and 2D symbols.

The choices are provided by **SolidBuilder** and cannot be changed by the user. Each assembly must be assigned to one of these three choices. Core and Side are only linked to shells (walls, floors, roofs, etc.). Symbol is for creating an assembly type that can only be attached to Furnishing or Opening symbols.

Double clicking on the Selection Column field displays assembly Items dialog box that lists the individual items that are part of that assembly.

SolidBuilder Assemblies Database Dialog Box – Asm Items Tab

Database Tools

SolidBuilder ➡ Database ➡ Items & Assemblies

There are several database tools located in the lower section of the database dialog box. These tools are a series of data management options which are used to Filter, Search, Copy, Paste, Add, Edit, Delete, and Print and are standard Windows functions.

Filter Items when toggled on opens the following dialog box.

Assign Shell Assemblies

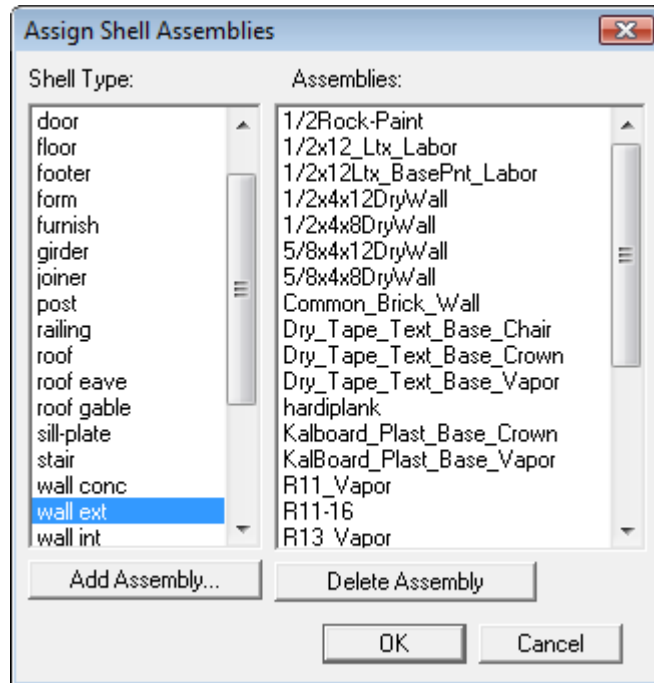
SolidBuilder ➡ Database ➡ Assign Shell Assemblies

The Assign Shell assemblies are where you organize a list of assemblies that can be linked to

SolidBuilder's modeling shells (wall, roof, slab, window, etc.). You have created the assemblies, but **SolidBuilder** needs to know what shells are allowed to use the various assemblies. Assemblies are linked to a modeling shell by creating the link here.

When you select Options for any shell type, the Options dialog box opens. There is a Reports button, which allows you to select a core or side assembly to be attached to the shell for your takeoff. By adding or deleting assemblies from this list is done through this step.

To create lists of optional assemblies, first select Assign Shell Assemblies from the Database menu. The Assign Shell Assemblies dialog box displays.



- **Shell Type:** Shell Type is a list of the names of the shells that you use to model in **SolidBuilder**. The modeling shell types are built into **SolidBuilder** and cannot be changed by the user. They are: cabinet, ceiling, door, floor, footer, form, furnish, girder, joiner, post, railing, roof, roof eave, roof gable, sill-plate, stair, wall conc(rete), wall ext(erior), wall int(erior), wall log, wall mas(only), wall non_Id, wall railing and window.

To attach a single assembly or a list of assemblies to a modeling shell type and to its Report Information in Options, highlight the modeling shell type that you want by clicking on it. Click on the Add Assembly button in the lower left corner of the dialog box. The Assembly Sheet dialog box displays. Select the Assembly Category and double click on the Selection Column field to add the assembly to the shell list. A message appears that informs you the assembly has been added to the shell. Click on OK to return to the Assign Shell Assemblies dialog box. You may also delete an Assembly from this list by highlighting the assembly and clicking on Delete Assembly. This does not delete the actual assembly but just deletes it from the list to choose from in the Options.



It is important that the Assign Shell Assembly is performed; otherwise, the assemblies that you create do not appear in the dialog windows for your selection.

Which type of option (core or side) the assembly is available to, is dependent upon which type it was assigned to when the assembly was created. If you select a side assembly, the assembly becomes one of that shell types Outside_side and Inside_side assembly options. If you select a core assembly, the assembly becomes one of that shell types Core assembly options.

Framing Material Assignments

Linking Framing Members to Material Type

SolidBuilder ➡ Database ➡ Framing Material Assignments

Framing Member Assign provides a way to link **SolidBuilder**'s built-in framing members (mudsill, stud, block, rafter, fascia, etc.) to price book items in your framing items database. This is done by assigning a framing items subdivision name (a material specie/grade) to a **SolidBuilder** framing member.

Once there is a link between a **SolidBuilder** framing member and a subdivision all you have to do is sit back and watch **SolidBuilder** work. From then on every time you frame in **SolidBuilder** each linked framing member will search the subdivision it is linked to for the appropriate size framing material it needs. This is a powerful **SolidBuilder** feature. For example, each different part of a wall (stud, very top plate, top plate, bottom plate, blocks, etc.) can be assigned a different specie/grade of framing material.

To link a default subdivision to a **SolidBuilder** framing member, move the cursor into the Subdiv1 field click and the available subdivisions are listed in a drop list. The available subdivisions are those listed in the items database under Subdivisions.

Framing Material Assignments

Shell Type: Wall Material Options Choices...

Prefix	Material Option	Member Name	Subdiv1	Subdiv2	Member Color	Label
lb	Standard Wall	Block	Pre-Cut Studs		10276836	Yes
bp	Standard Wall	Bottom Plate	Bottom Plate		8702971	Yes
st	Standard Wall	Stud	Pre-Cut Studs	#2 Lumber	10276836	Yes
hd	Standard Wall	Header	Headers - LF		65535	Yes
bk	Standard Wall	Channel Block	Pre-Cut Studs	#2 Lumber	10276836	Yes
bs	Standard Wall	Step Stud	Pre-Cut Studs	#2 Lumber	8454016	Yes
ch	Standard Wall	Channel	Pre-Cut Studs	#2 Lumber	16744576	Yes
cr	Standard Wall	Cripple	Cripples		255	Yes
ks	Standard Wall	King Stud	Pre-Cut Studs	#2 Lumber	16776960	Yes
lg	Standard Wall	Ledger	#2 Lumber		8454016	Yes
ps	Standard Wall	Post-in-Wall	Post		10276836	Yes
re	Standard Wall	End Stud	Pre-Cut Studs	#2 Lumber	8454016	Yes
sl	Standard Wall	Sill	Pre-Cut Studs		10276836	Yes
tr	Standard Wall	Trimmer	Trimmers	#2 Lumber	65535	Yes
vt	Standard Wall	V-Top Plate	Very Top Plate		9748950	Yes
lo	Logs	Log	Logs		10276836	Yes
sa	steel	Stud 13 Ga	14 Gauge Metal		8454016	Yes
sb	Standard Wall	Stud3	Pre-Cut Studs	#2 Lumber	8454016	Yes
sc	Standard Wall	Stud4	Pre-Cut Studs	#2 Lumber	8454016	Yes
bp	Treated Bottom Plat	Treated Bottom Plate	Treated Plate LF		8702971	Yes
le	steel	End Stud	20 Gauge Metal		8454016	Yes
ks	steel	King Stud	20 Gauge Metal		16776960	Yes
re	steel	End Stud	20 Gauge Metal		8454016	Yes
bn	steel	Bottom Plate	20 Gauge Track		8454016	Yes

Record 1

Insert Assignment

OK

Creating Framing Material Options

SolidBuilder ➡ Database ➡ Framing Material Assignments

Linking framing members to a default material type is nice, but, **SolidBuilder** knows that from time to time you may want to vary from the default material type. Doing this can be very helpful if you want to change from your default girder specie to let's say—a glulam or a minilam. Or if you want to vary from your default post material to REDWOOD or PRESSURE TREATED material. This feature also works very nicely to convert bottom plate to or from pressure treated material.

All of the material option names in frame assign's Material Option field end up in option menus at modeling time. You may have noticed that the Wall Options dialog box contains a framing option called PT_BPlt under the Material button. This is because a material option named PT_BPlt exists in the frame assign database. This particular option comes with **SolidBuilder**, but you may change it if you wish.

Creating a Secondary Material Option

SolidBuilder ➡ Database ➡ Framing Material Assignments

This is where you assign a secondary material type to a framing member by loading a subdivision name into the Subdiv2 field. Although there are similarities, this function should not be confused with the material option feature of frame assign. First, because the secondary material type is accessed by **SolidBuilder** behind the scenes—automatically. And secondly, because it only works when the framing program creates a material size that does not exist in the subdivision linked to Subdiv1.

More than likely your standard wall stud is some sort of stud grade material. In most areas the three or four different grades of stud material that are usually available only come in one or two sizes (2x4 and 2x6) and one or two lengths (92" +/- for studs and 81" +/- for trimmers). If you want to frame with a certain stud grade by default, then the subdivision where the stud is located should be loaded into the Subdiv1 field.

When **SolidBuilder** frames, it looks into that database for studs in the specified stud length. If the stud length cannot be found in that database, **SolidBuilder** looks for the next closest size in the subdivision linked to Subdiv2 field. This is handy when the wall height changes from a standard height (where standard studs can be used) to a taller wall (where non-stud grade material must be used).

Each field in the Framing Members Assignments dialog box is explained on the following pages.

Framing Members Names and Prefixes

SolidBuilder ➡ Database ➡ Framing Material Assignments

- **Shell Type** is a list of **SolidBuilder** modeling shell names, which cannot be changed by the user. The shell selected from this list determines what is listed in the dialog box.
- **Prefix** is a list of codes **SolidBuilder** uses to name its built-in framing parts. These codes are built into **SolidBuilder** and cannot be changed by the user. The following lists the framing member names and code identification for each shell type.

Framing Member Names and Prefix

Ceiling

ba-Channel Block	bl- Block	ch -King Channel
hd- Header	ks- King Joist	la-Ladder
lj- Joist	rj- Rim Joist	sb- Splice Block
bm- Beam		

Floor

ba-Channel Block	bl- Block	ch- King Channel
hd- Header	ks- King Joist	la-Ladder
lj- Joist	rj- Rim Joist	sb- Splice Block
bm- Beam		

Girders, Posts Joiners, and Sill Plates

gd- Girder	jn- Roof Joiner	mu- Sillplate
po- Post	ks- King Joist	la-Ladder

Roof

bl- Block	fc- Fascia	gb- Lookout
hd- Header	ks- King Rafter	la- Ladder
lj- Rafter	of- Ledger	sb- Splice Block
va-Valley Rafter	fb- Freeze Block	

Wall

bk- Channel Block	bp- Bottom Plate	bs- Step Stud
ch- Channel	cr- Cripple	hd- Header
ks- King Stud	lb-Block	le- Left End Stud
lg-Ledger	ps-Post-in-Wall	re- Right End Stud
sl-Sill	st-Stud	tp-Top Plate
tr-Trimmer	vt-V-Top Plate	lo-Log

- Material option** is an 8 character, user selected field. Adding a material option is not quite as simple as just clicking on a material option name from a list at the bottom of the screen. First, the framing member that you want to create an option for must be copied. This results in two copies of the same record. Thus, leaving one copy of the framing member as the default which is designated by a blank Material field, and a second copy with the name of the material option you want. The Subdiv1 field must be altered so that it contains a specie or grade that matches the specie or grade identified in the option field.



To copy a framing member record, click on the gray box of the member you wish to copy. Click on the Insert Assignment button. A dialog box will appear which will allow you to enter the new framing member information.

- Member name:** Member name is a 20 character, user-defined, alphanumeric field, which is used to designate the name of the framing member that is used for your reports. Here, you can change framing member names to those you like to use.

- **Subdiv1** is a user-selected field. Click on the record field to open the drop list. This is a list of framing item subdivisions. To select a subdivision name for this field, point to it and click.



FOR FIELDS 4 & 5 - REMEMBER: A subdivision can only be designated for framing by selecting dim_lum or nom_lum in of the subdivision database. Subdivisions where field #4 is blank do not show on the list. At the time of the writing of this manual new framing subdivisions must be added to the end of the subdivision list with a subdivision number that causes the new subdivision to be sorted into the old list. Without this sort the new subdivision name does not show on the selection screen in frame_Assign.

- **Subdiv2:** Subdiv2 is a user-selected field. This is a list of framing item subdivisions. To select a subdivision name for this field, point to it and click.



When **SolidBuilder** begins to frame it looks in the Framing Material Assignments database for the individual framing members and then in the appropriate Subvi1. If it cannot find it in there look in Subdiv2. Using the Subdiv2, you can have **SolidBuilder** make some decisions. For example, if you want to use dimensional lumber for all headers up to a certain size and after that you want to use laminated beams. Set you header Subdiv1 to dimensional #2 and Subdiv2 to microlam.

- **Member Color** allows you to specify a color for each individual framing member.
- **Label** places labels on the framing members in production drawings.

Sheathing

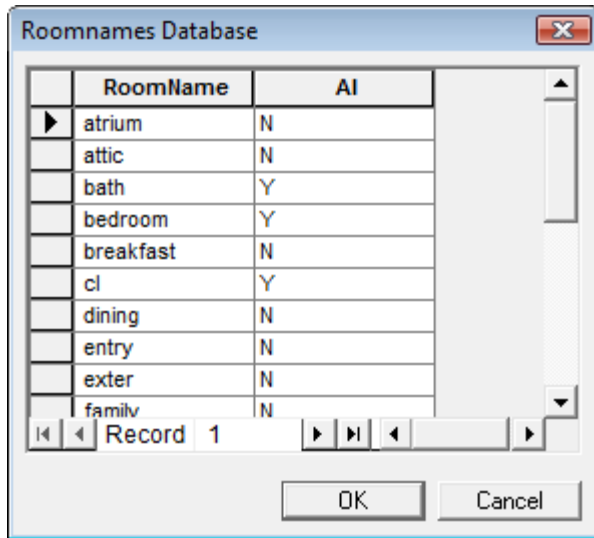
SolidBuilder ➡ Database ➡ Sheathing

This is the database for sheathing materials. You can specify a name for a sheathing choice, the size of the sheathing material and an item number where the sheathing material can be found in the item database. The user types the Sheathing, Width and Length data. This determines the size of the sheathing and therefore the layout and Cutting drawings for sheathing. The ItemNo is selected by clicking on the curved arrow in the Item Number filed. This takes you to the item database where you can select the sheathing

Room Names

SolidBuilder ➡ Database ➡ Room Names

The Room Names Database allows you to create a default list of room names (bedroom, bath, closet, entry, attic, etc.). When Room Names is selected, the following dialog box displays;



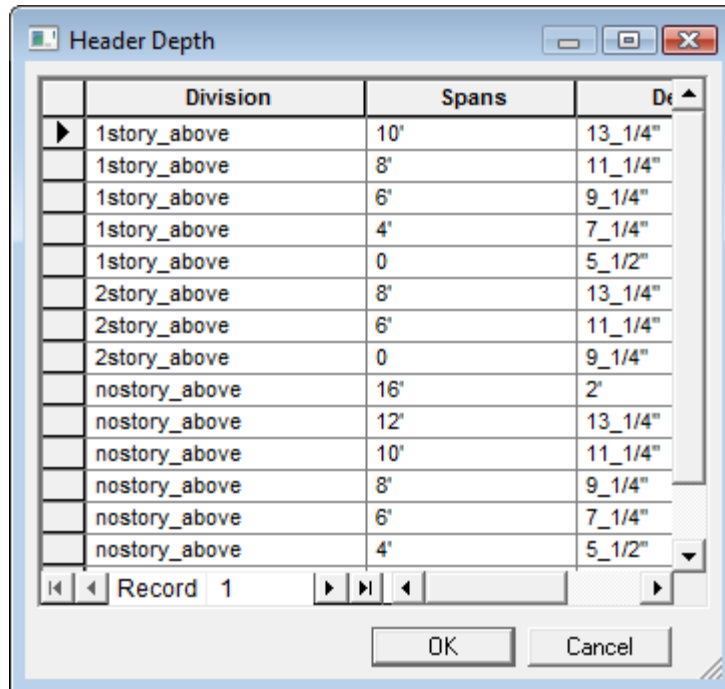
The room names database contains two fields: 1) Room Name and 2) AI (auto-index).

- **Room Name:** Room name is an 8 character, user-defined, alphanumeric field, which is used to contain your list of room names.
- **Auto-index (AI):** Auto index is a one character, user-selected field. There are two choices in this field, yes and no. The two choices tell **SolidBuilder** whether or not you want a number to follow the name when you use it in a drawing or a skin. If your answer is yes, a numeral 1 follows the first use of the name, the numeral 2 follows the second use and so on. Once you begin an entry, the numbering sequence continues even if you save, exit and reopen the drawing at a later date. This is handy for bathrooms, bedrooms and closets. If you answer no, the name is not be succeeded by a number.

Header Table

SolidBuilder ➡ **Database** ➡ **Header Table**

The Header Table contains a set of header types organized by number of stories supported and the header depth for each opening size. The Header Table database is used to create a list of header sizes, which you can use in lieu of the default header size when you create openings in walls. The list becomes available on the insert door and window screens when you insert openings in walls during modeling. The choice (s) display when you click on Header table to use.



Division	Spans	Depth
1story_above	10'	13_1/4"
1story_above	8'	11_1/4"
1story_above	6'	9_1/4"
1story_above	4'	7_1/4"
1story_above	0	5_1/2"
2story_above	8'	13_1/4"
2story_above	6'	11_1/4"
2story_above	0	9_1/4"
nostory_above	16'	2"
nostory_above	12'	13_1/4"
nostory_above	10'	11_1/4"
nostory_above	8'	9_1/4"
nostory_above	6'	7_1/4"
nostory_above	4'	5_1/2"

Record 1

OK Cancel

The Header Table database is more than just a list of headers. It is a table which associates a series of various header depths to specific spans for use under specific conditions.

When you click on Header table to use and click again on a certain header condition, **SolidBuilder** compares the span of the opening you are creating to spans in the header table and assigns the proper size header for the condition specified. Examples of conditions are: 4x no story above, 6x 2 stories above, 8x below 2 floors and 1 roof, etc. In the header_size database, each load condition line is duplicated until all span ranges have been included for that load condition. Each span value for a given condition is assigned its own header depth (height).

- **Division:** Header Table division is a 19 character, user-defined, alphanumeric field that is used to describe a load condition. Each load condition is assigned a minimum span value in field 2 and a header height in field 3. Regardless of how many times the same load condition is listed in the table, it only appears once in the optional header pick list.

While inserting openings and after you select a load condition, **SolidBuilder** automatically chooses the proper header height for the selected load condition. **SolidBuilder** does this by matching the span of the opening you are creating with the span (s) noted in the header table.

- **Spans:** Minimum span is a 9 character, user-defined, alphanumeric measurement field, which is used in series to create the span range for a given load condition. Each load condition can be linked to several spans, while EACH span is linked to a specific header height.



When creating a list of spans for a given condition, the beginning span is usually zero (or minimum span for that condition). The second span value for a given load condition serves as both the maximum span for the previous listing and the minimum span for that listing. For example, if span #1 is 0' and span #2 is 4' then span #1's header should be designed to work for spans ranging from 0' to any length less than 4' and so on.

- **Depth:** Header depth (height) is an 8 character, user defined numeric measuring field, that defines the depth of a header to be used for a given span.

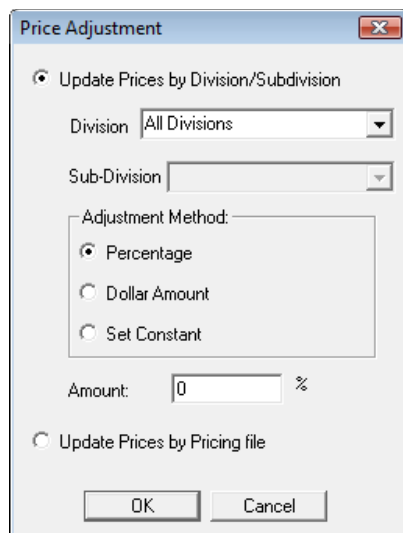


If the optional header is smaller than the default header, **SolidBuilder** automatically adds cripples from the top of the smaller header to the plate above. Also, the header width is always determined by the width of a shell. If the shell width is 5 ½" and the optional header depth is 11 ½", **SolidBuilder** calls out a 6x12 header for the opening. As with other framing parts, the header specie and price are determined in Framing Member Assignment database.

Update Prices

SolidBuilder ➔ Database ➔ Update Prices

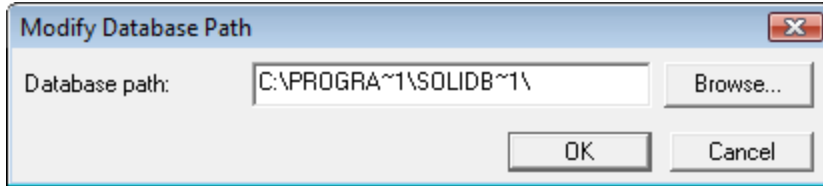
SolidBuilder provides a very easy method to update unit cost. You can adjust the price of any or all Divisions and subdivisions, by a percentage, a set a dollar amount or a set constant amount. After you set the options and enter an amount or a percentage click on OK, **SolidBuilder** recalculates the unit costs.



Modify Path

SolidBuilder ➔ Database ➔ Modify Path

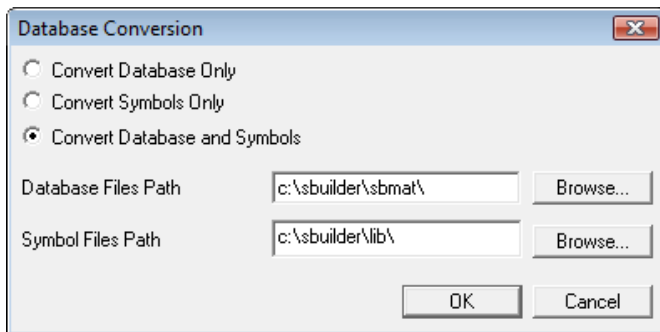
This command allows you to select a different path for the database, thereby allowing you to have multiple databases. Any data entered into the database is stored in one file called Sbitems.mdb (for Imperial Units) and is located in the install directory of **SolidBuilder** (Default is C:\Program Files\SolidBuilder). Make sure you back up this file if you enter anything related to the Database this including Items, Assemblies, Openings by List, etc



Convert DOS Database

SolidBuilder ➔ **Database** ➔ **Convert DOS Database**

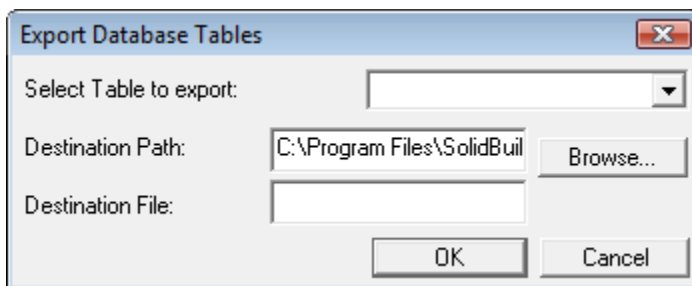
SolidBuilder can convert databases and symbols from the old DOS version into the current version. You can convert the database only, symbols only or both. Click on the Browse button to locate your **SolidBuilder** DOS sbitems.mdb database and or the LIB folder for symbols.



Export

SolidBuilder ➔ **Database** ➔ **Export**

The Database Export allows you to export any of the database tables as a CSV (comma separated value) file. These files can then be opened in Microsoft Excel and Access as well as any data program that can open csv files.



1. Click on the down arrow button to Select Table to export.
2. The Destination Path is the folder where you want to save the export file.
3. The Destination File is the name you will give the export file.



Chapter 12: Window

SolidBuilder ➔ Window

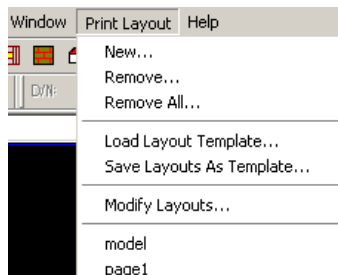
Under the Window menu, the 3-D model and the working drawings you have created for that model are listed. The first one listed is your model. The one with a check mark next to it is active on your screen. You can click on another drawing to open it. If you click on a working drawing, select which layers you want visible or select All to include all the layers in the drawing.



Chapter 13: Print Layout

SolidBuilder ➔ Print Layout

Print Layout is accessed from the main pull down menus. The Print Layout allows you to create layout sheets with a Border and selected drawing or drawings that are maintained with the model. If any of the drawings that are included in any of the Print Layout sheets are changed, the Print Layout sheets are automatically updated. Another benefit of using the Print Layout is the ability to reprint any of the Print Layout sheets at any time in the future without having to go through the setup.



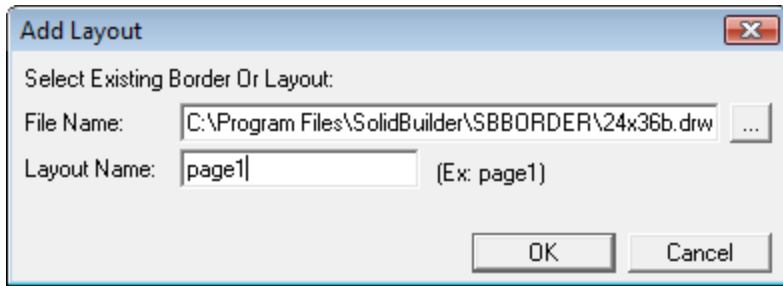
It is not recommended to move your drawings once Print Layout sheets have been created. If you do move the drawing you must also move the Templates folder.

New

SolidBuilder ➔ Print Layout ➔ New

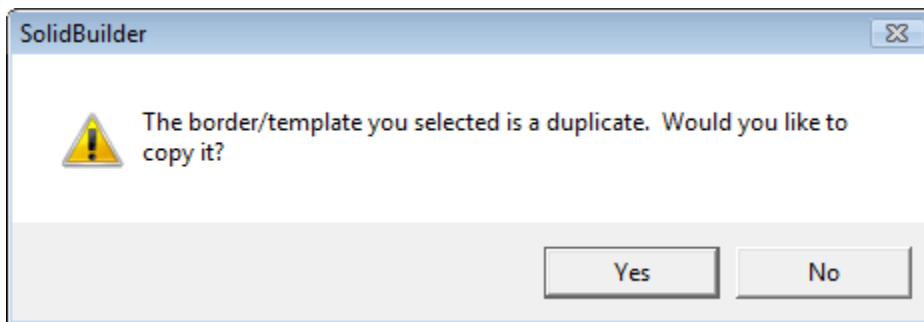
New creates a new Print Layout sheet. Click the button to select a Border. Enter a name. Click OK

Chapter 13
Print Layout Pull Down Menu

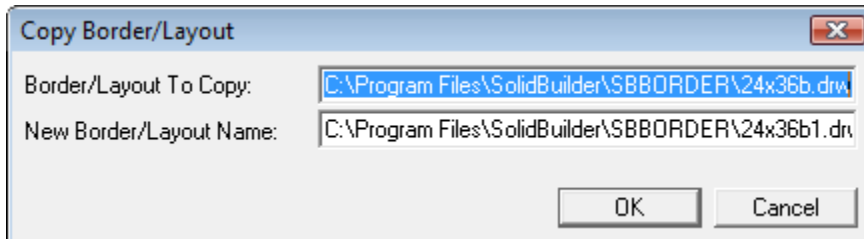


The Border Page Number box opens. Enter a page number.

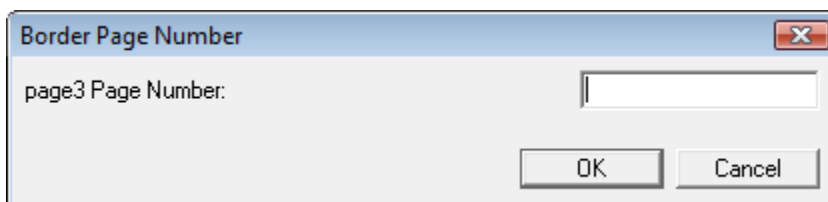
If you select the same border for the second print layout, the following message appears. Select Yes to copy it.



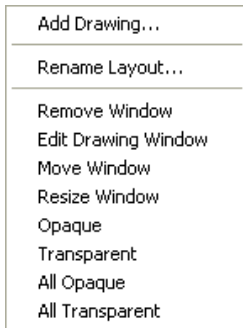
The Copy Border/Layout box opens. Click OK.



SolidBuilder will make a copy of the original border and rename it numerically starting with a 1 at the end of the border name. Example: if you use the border 24x36a for a second print layout, **SolidBuilder** will copy the border 24x36a and rename it to 24x36a1. Enter a page name and page number.

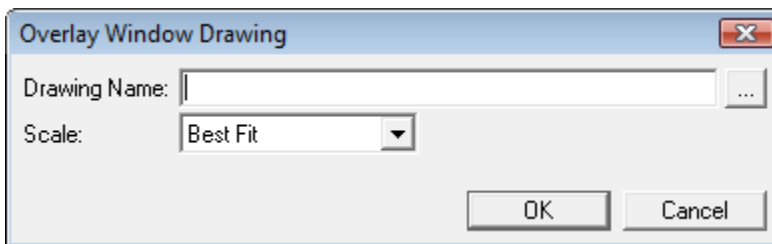


The Border appears on the screen. Right click anywhere inside the border. The dialog box below opens



Here you can add a drawing, rename the Layout and remove a window. The rest of the options are the same as in a Border. Refer to the Border chapter for more information.

When you select Add Drawing a full screen cross hair will appear on the screen. You are prompted in the lower left corner of the screen to Mark Corner of drawing area. If you are only adding one drawing to the page move to the upper left corner, inside the border, left click and then move to the opposite diagonal corner inside the border and left click. If you are adding more than one drawing to the page draw a box the size and location you need. Once you have drawn the box the Overlay Window Drawing box opens.



Select the desired drawing and set the scale. Click OK. You can now finish this page and go to the menu and start a new print layout page or you can right mouse click inside the border and add, modify or remove a drawing. Once you have added a drawing to the Print Layout sheet, a tab appears in the lower left corner of the screen with the drawing name. As you create more pages, tabs are created for them also. You can click on the model tab to go back to your model.

Remove

SolidBuilder ➡ Print Layout ➡ Remove

Remove will remove a Print Layout

Remove All

SolidBuilder ➡ Print Layout ➡ Remove All

Remove will remove all Print Layouts

Load Layout Template

SolidBuilder ➡ Print Layout ➡ Load Layout Template

Once you have created a set of Print Layout sheets and saved them as a template, you can recall or load them into any existing or new drawing. When you select Load Layout Template, you will be prompted to enter a page name and page number for each sheet. The templates will then load and the tabs will appear in the lower left corner of the screen. Although you are prompted for a new page name and number, the drawings, scale and position will be transferred to the new sheets.

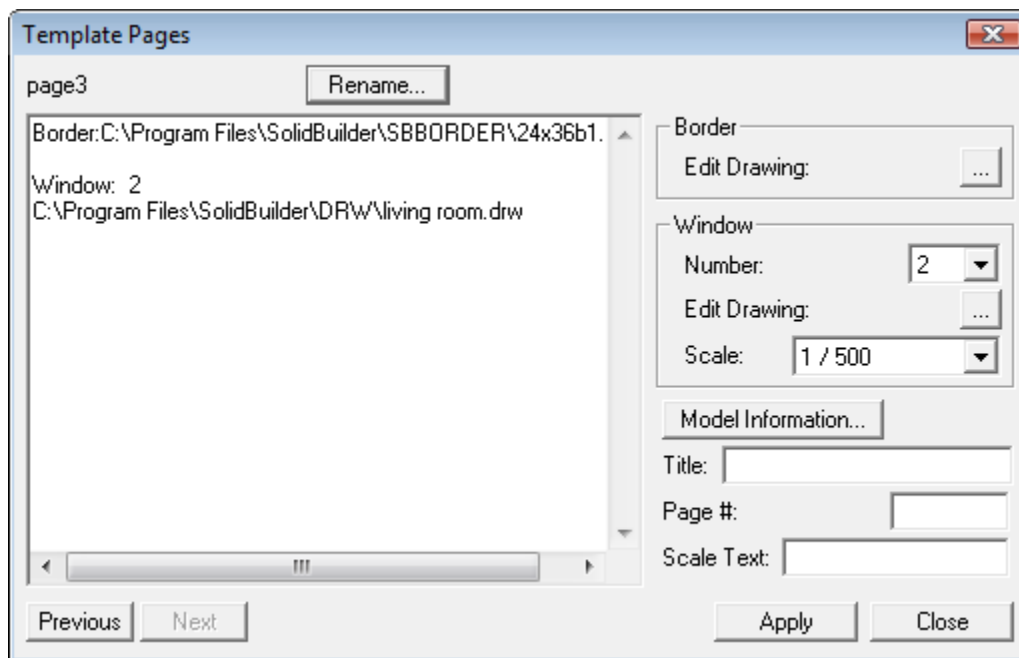
Save Layout As Template

SolidBuilder ➔ **Print Layout** ➔ **Save Layout as Template**

Once the Print Layout sheets have been created for a drawing they can be saved as a template set for future use. You will be prompted for a template name.

Modify Layouts

SolidBuilder ➔ **Print Layout** ➔ **Modify Layouts**



page1: By default modify will always start with the page1 sheet. To modify other sheets select the Next button in the lower left corner.

Rename: You can rename the page name. Keep in mind that this is not the page title that appears on the title block; rather it is the name that appears on the tab at the bottom of the screen.

Border – Edit Drawing: This allows selection of a different border or if print layouts have become

disconnected (if you move your model but not your templates and borders) and the borders are no longer visible to select the correct border.

Window:

Number: The number of window for drawings in the template. The border is always considered the first window and as a result is never an option. For example if you have a layout with 4 drawings, you would have 5 windows.

Edit Drawing: You can change the drawing located in the selected window.

Scale: You can select any of the 4 windows and modify or set the scale of that window



Chapter 14: Help

SolidBuilder ➔ Help

SolidBuilder Help provides access to; Help Files, information regarding software version, link to the Digital Canal website and links to the Solution Papers.

Contents

SolidBuilder ➔ Help ➔ Contents

Provides access to all **SolidBuilder** Help Files

About SolidBuilder

SolidBuilder ➔ Help ➔ About **SolidBuilder**

When you select About **SolidBuilder** the current version is displayed.



The About **SolidBuilder** version number will also be automatically updated anytime you install an update or a patch.

SolidBuilder *Home page*

SolidBuilder ➔ Help ➔ **SolidBuilder**

This is a direct link to the Digital Canal website www.digitalcanal.com

SolidBuilder *Solution Papers*

SolidBuilder ➔ Help ➔ **SolidBuilder**

SolidBuilder Solution Papers are very detailed step-by-step documents on a variety of topics.

Launch Explorer

SolidBuilder ➔ Help ➔ Launch Explorer

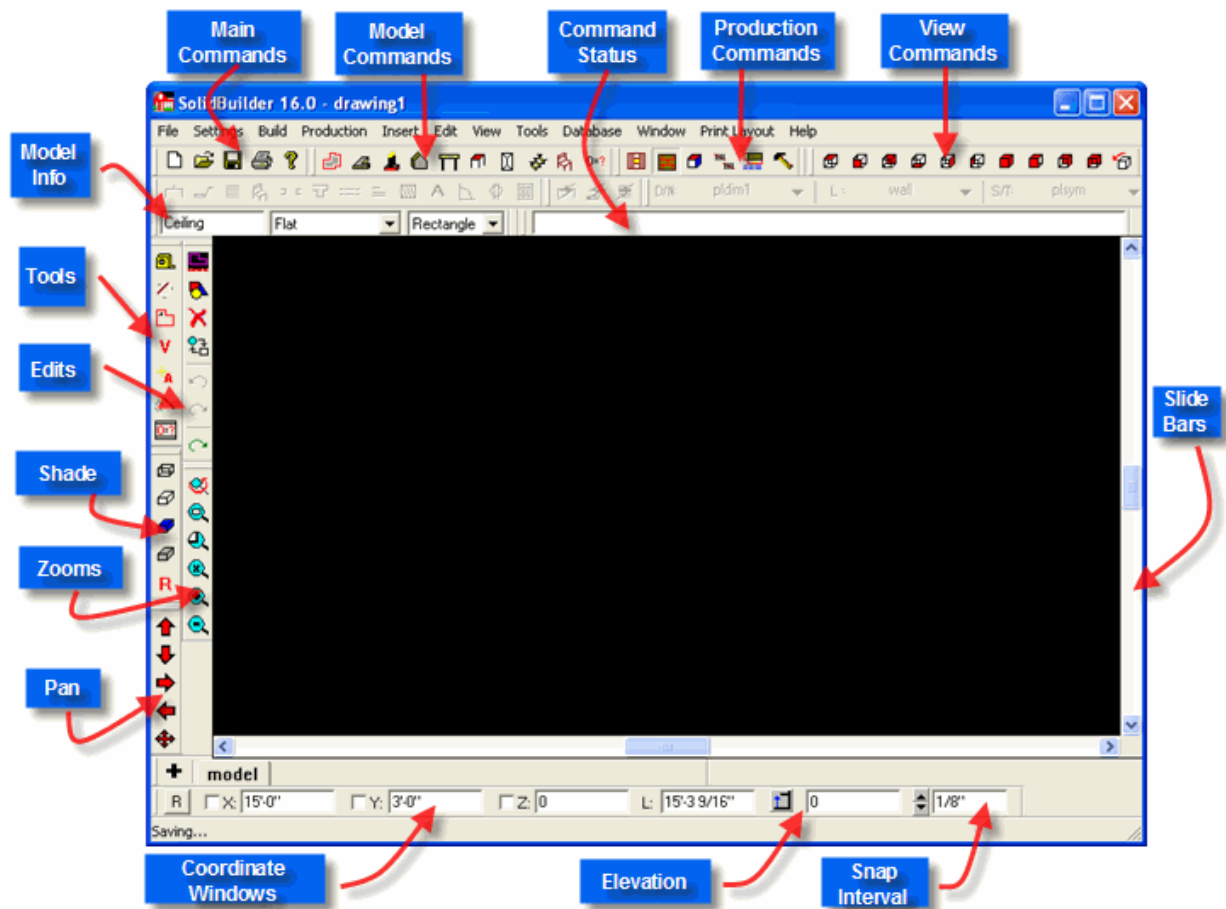
Launch Explore will automatically open the Windows Explorer window. This is a quick and easy way to locate and manage your **SolidBuilder** files.

Chapter 15: Toolbars

SolidBuilder ➔ Toolbars

This section will explain the different toolbars in **SolidBuilder**. All the toolbars contain icons, which you may click on to start a command. The function of each icon is described below. You may also use the pull-down menus to execute the same command. There are some commands that are only accessible through the drop down menus.

Depending on current mode (Model/Production, Working Drawings or Borders), there will be a different toolbar for each mode. **SolidBuilder** will automatically enable or disable these toolbars when switching from one mode to another. There are also some toolbars that are accessible in any mode. The commands within the toolbars will work the same throughout the program.



Menu

SolidBuilder ➔ Toolbars ➔ Menu Toolbar

Icon: 



New: Allows the user to create a new Model, Working Drawing, or Border.



Open: Allows the user to open a Model, Working Drawing, or Border.



Save: Saves a Model, Working Drawing, or Border.



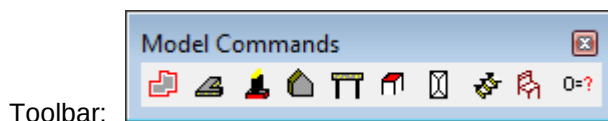
Print: Calls up the options for printing.



Help: Launches the help files.

Model

SolidBuilder ➡ **Toolbars** ➡ **Model**



Outline: Refer to the 3D Modeling Outline section for detailed information.



Floor: Refer to the 3D Modeling Floor section for detailed information.



Sill Plate/Footer: Refer to the 3D Modeling Sill Plates/Footers section for detailed information.



Wall: Refer to the 3D Modeling Wall section for detailed information.



Girder/Post: Refer to the 3D Modeling Girders/Posts section for detailed information.



Ceiling: Refer to the 3D Modeling Ceiling section for detailed information.



Roof: Refer to the 3D Modeling Roof section for detailed information.



Stair: Refer to the 3D Modeling Stair section for detailed information.



Symbol: Refer to the 3D Modeling Symbols section for detailed information.

Q=? **Option:** Refer to the 3D Modeling section for detailed information on the Options for each shell type.

Working Drawing Commands

SolidBuilder ➡ Toolbars ➡ Working Drawing Toolbar



The Working Drawing Toolbar will only be active after a Working Drawing has been created from a Model.



Dimensions: Refer to the Component Menu Dimensions for detailed information.



Notes: Refer to the Component Menu Notes for detailed information.



Text: Refer to the Component Menu Text for detailed information.



Symbols: Refer to the Component Menu Symbols for detailed information.



Openings: Refer to the Component Menu Openings for detailed information.



Linework: Refer to the Component Menu Linework for detailed information.



Linework Hole: Refer to the Component Menu Linework Hole for detailed information.



Legend: Refer to the Component Menu Legend for detailed information.



Patterns: Refer to the Component Menu Patterns for detailed information.



Labels: Refer to the Component Menu Labels for detailed information.



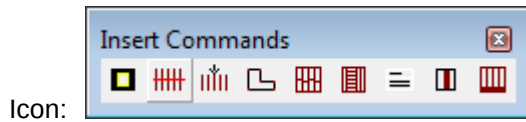
Angle: Refer to the Component Menu Angel for detailed information.



 Electrical/Mechanical: Refer to the Component Menu Electrical/Mechanical for detailed information.

Insert

SolidBuilder ➔ **Toolbars** ➔ **Insert**



 **Insert Opening:** This icon allows the insertion of openings into a floor, wall, ceiling or roof, depending on which is the current shell type. Refer to the 3D Modeling Floor, Wall, Ceiling or Roof section for detailed information.

 **Insert Break:** This icon allows the insertion of breaks into a floor, ceiling or roof depending on which is the current shell. Refer to the 3D Modeling Floor, Wall, Ceiling or Roof section for detailed information.

 **Insert Joist:** This icon allows for the insertion or omission of joists into a floor or ceiling. You must be in the floor or ceiling command to insert or omit joists. Refer to the 3D Modeling Floor or Ceiling section for detailed information.

 **Insert Layout Point:** This icon allows the insertion of layout points into a floor or ceiling. You must be in the floor or ceiling command to insert layout points. Refer to the 3D Modeling Floor or Ceiling section for detailed information.

 **Insert Blocking:** This icon allows the insertion of blocking into a floor, wall, ceiling or roof depending on which is the current shell type. Refer to the 3D Modeling Floor, Wall, Ceiling or Roof section for detailed information.

 **Insert Channel:** This icon allows the insertion of channels into a floor. You must be in the floor command to insert channel. Refer to the 3D Modeling Floor section for detailed information.

 **Insert Ledger:** This icon allows the insertion of ledgers into a wall. You must be in the wall command to insert a ledger. Refer to the 3D Modeling Wall section for detailed information.

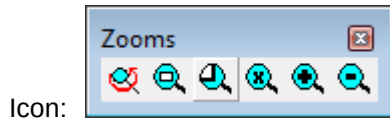
 **Insert Post in Wall:** This icon allows the insertion of posts in a wall. You must be in the wall command to insert a post. Refer to the 3D Modeling Wall section for detailed information.

 **Insert Studs in Wall:** This icon allows the insertion of studs in a wall. You must be in the wall command to insert a studs. Refer to the 3D Modeling Wall section for detailed information.

 **Insert Shear Wall:** This icon allows the insertion of shear walls along a wall. You must be in the wall command to insert a shear wall. Refer to the 3D Modeling Wall section for detailed information.

Zoom

SolidBuilder ➔ **Toolbars** ➔ **Zoom**



 **Zoom Previous:** This will Zoom to the previous view.

 **Zoom All:** This will Zoom the entire drawing to the maximum size to fit in the screen.

 **Zoom Area:** This command allows you to Zoom a selected area. The cursor is changed to cross hairs that extend to the edges of the screen. You are prompted to locate the first corner of a rectangle that will be used to define the limits of the zoomed area. Left mouse click. You will then locate the second diagonal corner to define the rectangle. Left mouse click. The rectangle is drawn on the screen as you move your cursor.

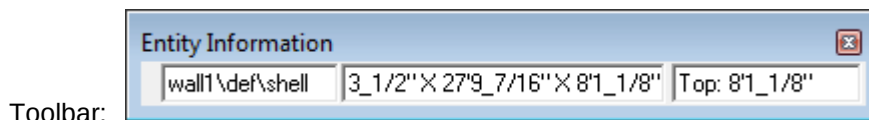
 **Zoom Scale:** This command allows you to Zoom the entire drawing to a specified scale. A value of 1 is the current scale as shown on the screen. A value of less than 1 will zoom out and a value greater than 1 will zoom in.

 **Zoom In:** This command allows you to Zoom in on the entire drawing.

 **Zoom Out:** This command allows you to Zoom out on the entire drawing.

Info

SolidBuilder ➔ **Toolbars** ➔ **Info**



The Info Toolbar is NOT on by default. To turn it on, open the Toolbar State menu. The Info toolbar contains three windows or sections. When a shell command is executed (Shape or Modify for example), the first click on the shell displays the shell type and number, the thickness, length, height, and the top elevation. The second click on the shell actually selects it.

Drawing

SolidBuilder ➡ Toolbars ➡ Drawing



The Model Information toolbar is also known as the Drawing toolbar.

Left Window: Depending on the current mode, this field indicates which command is active. It may not be edited here. If you wish to change the command, select the desired command from the Build/Component menu or click on the appropriate icon using the toolbars.

Center Window: This drop list displays options associated with the active command.

Right Window: This drop list contains more detailed options than those that are available in some shells. Not all shells have an active right drop list. In Production and Working Drawing Mode, the right drop list is never active.

Status

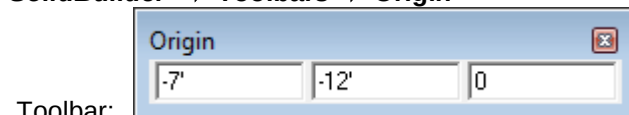
SolidBuilder ➡ Toolbars ➡ Status



The Status toolbar is also known as the Command Line. It is perhaps one of the most important toolbars in **SolidBuilder**. When you start a command, **SolidBuilder** will prompt you for a specific action. This prompt appears in the Command Status toolbar. **It is important to look at and follow the instructions and directions that appear in the Status window.**

Origin

SolidBuilder ➡ Toolbars ➡ Origin



The Info Toolbar is NOT on by default. To turn it on, open the Toolbar State menu. When you start drawing a shell, a wall for example, you are prompted to mark a start point. When you left mouse click, the X, Y and Z coordinate windows reset to 0 as will the Origin X, Y and Z.

As you draw the wall you will notice that the X, Y and Z values in the Origin toolbar will change and reflect the distance you currently are in all three directions from the starting point. This can be very useful when creating Outlines and floors to make sure that the dimensions will work. As you get closer to the starting point, the X, Y and Z values will begin to decrease until, if all dimensions are correct and work the values will be back to 0.

The Silver Screen Status toolbar provides information and command instructions for the Silver

Screen Cad engine upon which **SolidBuilder** runs.

Edits

SolidBuilder ➡ **Toolbars** ➡ **Edits**



The Edit toolbar is displayed throughout the program by default. Each icon is accessible and performs the same function in very mode. However, the mode and command you are working in will determine what you can edit. This toolbar is displayed by default. If it is not visible, toggle Edit on in the Toolbar State dialog box. To hide it, toggle Edit off.

 **Exhibit:** This icon allows the viewing on your screen of a variety of information for a selected shell, such as dimensions, description or material assignment. If you choose Exhibit and Outlines, the Outline will be displayed on the screen with dimensions and the square footage will be displayed in the command line. This also works in Production for displaying framing and quantity reports.

 **Shape:** In Model mode, this icon allows for manipulation or customization of a selected shell or shells. This icon also works in Working Drawing mode for manipulation of linework. Refer to each shell type (walls, floors, roofs, etc.) for detailed information on using the Shape commands for that shell type.

 **Remove:** This icon allows you to delete the selected shell or attribute of a shell, such as an opening. It also allows you to delete entities in Production and Working Drawing mode. Refer to each shell type (walls, floors, roofs, etc.) for detailed information on using the Remove commands for that shell type.

 **Modify:** This icon allows you to modify the selected shell or attribute of a shell, such as an opening. Modify allows you to modify framing in Production mode and entities in Working Drawing mode. Refer to each shell type (walls, floors, roofs, etc.) for detailed information on using the Modify commands for that shell type.

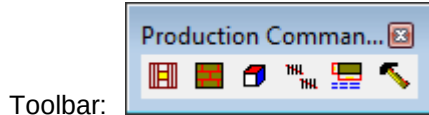
 **Undo:** This icon allows you to undo the last command.

 **Redo:** This icon allows you to redo an Undo command.

 **Repeat:** This icon allows you to repeat the last command.

Production Commands

SolidBuilder ➡ Toolbars ➡ Production Commands



The Production toolbar enables you to prepare production output such as framing, quantities, etc., from the completed model



Framing: This icon allows you to create framing for the selected shells. Once selected you may select a shell type to frame, or frame all shells at once from the drop down list. Refer to 3D Modeling Framing section for more detailed information.



Sheathing: This icon allows you to create a sheathing template, sheathing and cutting drawings for the selected shell. Refer to 3D Modeling Sheathing section for more detailed information.



Skins: This icon allows you to create skins on selected shells for patterning. Refer to 3D Modeling Skins section for more detailed information.



Quantities: This icon allows you to generate an estimate from the model. Refer to 3D Modeling Quantities section for more detailed information.

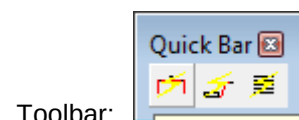


Production Drawings: This icon allows you to generate production drawings from selected framed shells. Refer to 3D Production Drawings section for more detailed information.



Create: This icon allows you to initiate, or start, the chosen command.

Quick



Quick Dimensions: Refer to the Component Dimensions section for detailed information.



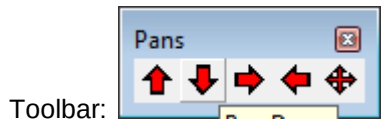
Quick Notes: Refer to the Component Notes section for detailed information.



Quick Text: Refer to the Component Text section for detailed information.

Pans

SolidBuilder ➔ **Toolbars** ➔ **Pan**



 **Pan Up:** This command allows you to pan up, causing the model to move down on the screen.

 **Pan Down:** This command allows you to pan down, causing the model to move up on the screen.

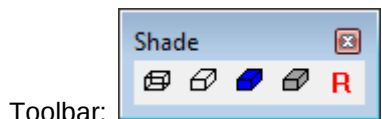
 **Pan Right:** This command allows you to pan to the right, causing the model to move to the left.

 **Pan Left:** This command allows you to pan to the left, causing the model to move to the right.

 **Manual Pan:** This command will change your cursor. A yellow rectangle the size of your screen will appear with a yellow cross hair located in the center. By moving the cross hair, you are able to select a new center point for the model as it appears on the screen.

Shade

SolidBuilder ➔ **Toolbars** ➔ **Shade**



 **Refresh:** This command allows you to refresh or redraw the model to remove any ghost lines or gaps in the linework.

 **Hidden Lines:** This command allows you to remove all hidden lines (lines you would not see if you were standing outside looking in) from the model.

 **Painted:** This command allows you to “paint” the model. The painted command adds color to the surfaces of the shells and all other lines disappear, producing solid surfaces.

 **Quick Shade:** This command allows you to quickly shade your model. The Quick Shade while faster than the Painted will have less detail and contrast.

R Full Render: This will allow you to fully render the model. With this command you can keep the model rendered as you rotate the model into different views. For Painted, set the Type to Hidden Line and the other selections set to the defaults. While Full Render is very useful, use it only as needed and turn it off when not necessary. You will not want to work with Full Render on as it greatly slows **SolidBuilder** down.

View

SolidBuilder ➡ **Toolbars** ➡ **Views**



 **Plan View:** This command rotates the model into plan view.

 **Front View:** This command rotates the model into front view.

 **Back View:** This command rotates the model into rear view.

 **Bottom View:** This command rotates the model making the bottom visible.

 **Right View:** This command rotates the model making the right side visible.

 **Left View:** This command rotates the model making the left side visible.

 **Front - Right View:** This command allows you to view the model from a front right isometric view from a point above the house.

 **Front - Left View:** This command allows you to view the model from a front left isometric view from a point above the house.

 **Back - Right View:** This command allows you to view the model from a back right isometric view from a point above the house.

 **Back - Left View:** This command allows you to view the model from a back left isometric view from a point above the house.

 **Isometric View:** This command changes your cursor to a 3-D cube, which you can rotate in any direction by grabbing any edge or corner of the cube with your mouse. By moving your mouse you can quickly rotate the model to any position you desire.

Tools

SolidBuilder ➔ **Toolbars** ➔ **Tools**



-  **Calculate Distance:** Or "tape measure". This icon allows you to calculate the distance between two user-defined points.
1. Click on Calculate Distance icon.
 2. You are prompted to Select Point. Using one of the jump commands such as E jump to an endpoint and left click twice without moving the crosshair. The X, Y and Z coordinate windows will reset to 0. You are prompted to Select Point. Again using one of the jump commands such as E jump to an endpoint and left click only once. Read the X, Y and Z values for the measurements.

 **Calculate Slope:** This icon allows you to calculate the slope between two user-defined points at different elevations. This is useful for checking a roof slope.

 **Calculate Area:** This icon allows you to calculate the area of any closed polygon. This is usefeul when you want to check room sizes.

 **Visibility:** This icon will display the visibility dialog box allowing you to control the visibility of your drawing.

 **Cursor Align:** This icon will display the cursor align dialog box. With the use of this dialog box you will be able to align your cursor to a view, an edge of various other options.

 **Options:** This icon will open the Options dialog box. The Options command allows you to create blocks of one or more shells and/or objects to store in a library and incorporate into new or existing drawings.

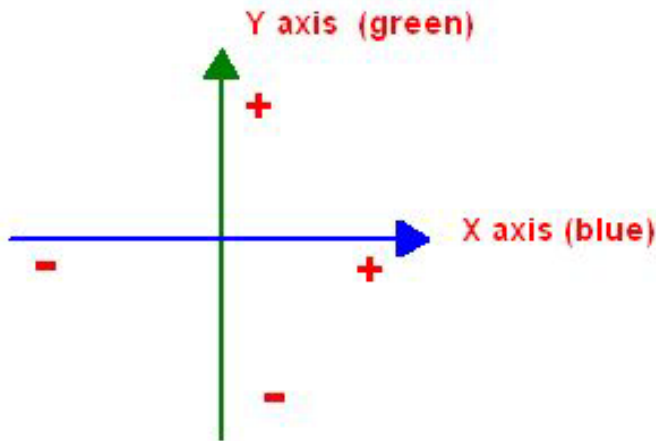
Drawing Coordinates

SolidBuilder ➔ **Toolbars** ➔ **Coordinate**



 **Relative/World:** This icon indicates whether you are drawing in the world coordinate system or the relative coordinate system.
Click on the button to toggle from one to the other. W or R displays accordingly. Relative is

the default and should be used exclusively.



X: **X Coordinate:** This field indicates the position of the cursor on the X-axis. This field changes from the world position readout to a relative one after a command has been started and a first point is anchored.

Y: **Y Coordinate:** This field indicates the position of the cursor on the Y-axis.

Z: **Z Coordinate:** This field indicates the position of the cursor on the Z-axis. The Z-axis is the third dimension axis and is red.

L: **Length:** This field displays the running length. For example, when drawing a wall, as you move your cursor, the changing length is reported. Click on this icon to display the Build Elevation dialog box, which allows you to select a shell to which you will match the elevation of the current shell.

 0 **Elevation:** This displays the current elevation being utilized.

 1' **Snap Interval:** This field allows you to set your snap interval as desired; this is the interval the cursor moves. Type a value in the field or click the up and down arrows to set your interval. It is recommended to keep the interval to at least 4", the jump commands will lock into the point more precisely.

SolidBuilder works in three dimensions simultaneously. When you first start a model, **SolidBuilder** places you in Plan view, which is viewing the model from above looking down, with the rear of the model at the top of the screen.

SolidBuilder considers the "x" axis to run from your left to your right, with positive values to the right. The "y" axis runs from the front of the model (or bottom of your screen) to the rear (or top of your screen) with positive values to the rear. The "z" axis is the third (3-D), this is the height or

elevation of the model.

Coordinates may be entered one of three ways.

1. Type in the actual values, press X or Y key and then the values (i.e. X6', Y16'3_1/4")
X-Coordinate (Horizontal axis) - Right is positive, Left is Negative (-)
Y-Coordinate (Vertical axis) - North is Positive, South is Negative (-)
Z-Coordinate (Elevation/Height) - Up is Positive, Down is Negative (-)
2. Using the arrow keys, you can move the cursor while watching the coordinates box, and moving the desired distances.
3. Use your mouse in the same manner as using your arrow keys.

Current Layer

SolidBuilder ➔ **Toolbars** ➔ **Current Layer**

Toolbar:



The Current Layer toolbar is only available in the 2D Working Drawing mode.

D/N: Click to open the Select Layer dialog box.

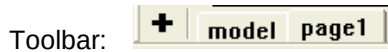
D/N: pldim1 **Dimension/Note Layer:** lists the current or active Dimension/Note Layer.

L: wall **Linework Layer:** lists the current or active Linework Layer.

S/T: plsym **Symbol/Text Layer:** lists the current or active Symbol/Text.

Print Layout

SolidBuilder ➔ **Toolbars** ➔ **Print Layout**



The Print Layout toolbar appears in the lower left corner of the screen.

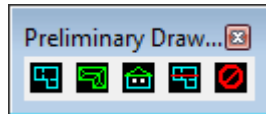
The + is used to create a new Print Layout.

The Model tab will switch for a Print Layout page back to the model.

The succeeding page tabs are automatically created when you create a new Print Layout sheet. They are used to switch from one sheet to another.

Preliminary Drawings

SolidBuilder ➡ Toolbars ➡ Preliminary Drawings



These icons are used to generate quick, preliminary blueprints from your model. These icons work best with drawings that originally were started in Building Blocks. If using these icons for a drawing started in SolidBuilder, special attention must be given to your drawing. First, you must pay attention to the layers you assign to your drawing. You must use the same layering system as Building Blocks, Foundation level 0, First Floor level 1, Second Floor level 2, Roof level 1. Next, you must make sure you generate a 'clean' 3D model where all of your exterior walls are touching at the corners. Last, you must make sure your walls along the exterior footprint of your design are tagged as exterior. If any of the walls are tagged as interior, the preliminary drawings won't work.

 - **Plan** - This icon is used to generate a preliminary Foundation, 1st Floor, or 2nd Floor plan. SolidBuilder will prompt you for a level. Enter 0 for a Foundation plan, 1 for the 1st Floor, or 2 for the 2nd Floor plan. After a level is entered, the preliminary drawing will be created. Once created, you can use the Preliminary Drawing tools to further detail your drawing.

 - **Roof** - This icon is used to generate a roof plan. Once the icon is selected, the drawing will be created. Once created, you can use the Preliminary Drawing tools to further detail your drawing.

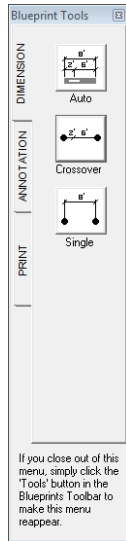
 - **Elevation** - This icon is used to generate elevation drawings. SolidBuilder will prompt you for a drawing (F, B, L, R). Enter F for a Front Elevation, enter B for a Rear (back) elevation, enter L for a Left Elevation, or enter R for a Right Elevation. Once a letter is specified, the drawing will be created. Once created, you can use the Preliminary Drawing tools to further detail your drawing.

 - **Section** - This icon is used to generate a Section drawing. SolidBuilder will prompt you to specify where you would like your section cut at. By left clicking, select two points to draw a line indicating where you would like to cut your design. After specifying the cut point, SolidBuilder will prompt you select a side of that line to discard. This is done by left clicking of the side you wish to hide. The section drawing will be created. Once created, you can use the Preliminary Drawing tools to further detail your drawing.



- Clear – This icon is used to clear your current preliminary drawing view and return to your normal SolidBuilder 3d model.

Preliminary Drawings Tools



These icons are used to further detail your preliminary drawings. With these tools you may insert dimensions, text, notes, linework, or print. As you click on these icons to run the command, SolidBuilder will prompt you with instructions for executing each command. Further detail on these commands can be found in the Building Blocks user guide.



Chapter 16: Snap Commands that do not have

Icons & Short Cuts

- **A:** The A key can be used to select All when in a selection mode. You may also click your right mouse button to Select All.
- **U:** By pressing the U key, you are able to undo the last line segment when you are drawing a floor, outline or any linework.
- **O:** By pressing the O key, you are able to draw in the ortho mode, which will only draw lines at right angles. This can be very useful as it will prevent crooked lines. Remember to turn it off by pressing the O key again.
- **R:** The R key can be used to Reset the x, y and z coordinates boxes to 0.
- **N:** The N key will bring up a large cross hair that will allow you to “fence” in the desired objects for picking purposes. You must be in a selection mode for this to work.
- **Insert:** The Insert key will zoom out when not in a command.
- **Insert:** The Insert key will increase the snap interval when in a command.
- **Delete:** The Delete key will zoom out when not in a command.
- **Delete:** The Delete key will decrease the snap interval when in a command
- **Esc:** The Escape key will cancel out of any command you are in.
-  The Left Arrow key will rotate the drawing counterclockwise when not in a command.
-  The Right Arrow key will rotate the drawing clockwise when not in a command.
-  The Up Arrow Key will rotate the drawing about the X-axis toward the top of the screen when not in a command.
-  The Down Arrow Key will rotate the drawing about the X axis toward the bottom of the screen when not in a command.
- **Page Up:** The Page Up key will move the drawing down towards the bottom of the screen when not in a command.
- **Page Down:** The Page Down key will move the drawing down towards the top of the screen when not in a command.
- **Home:** The Home key will move the drawing to the right of the screen when not in a command.
- **End:** The End key will move the drawing to the left of the screen when not in a command.

- **Alt:** The Alt key activates the hot (underlined) letter for each command in the menus.
- **F4:** Zoom cursor. This works the same as the Zoom cursor icon.
- **F5:** Zoom all. This works the same as the Zoom All icon.
- **F6:** Displays the Cursor Align dialog box.
- **F7:** Zoom Area. This works the same as the Zoom Area icon.
- **F9:** Displays the Split Window dialog box.
- **F10:** This works the same as right mouse clicking and selecting Finish.
- **X:** Press X to type in an X-axis (horizontal) coordinate when you need to input a dimension. The coordinate box will open and may type a positive dimension to move in the Right direction, type negative value to move Left.
- **Y:** Press Y to type in a Y-axis (vertical) coordinate when you need to input a dimension. The coordinate box will open and may type a positive dimension to move in the Up direction, type negative value to move Down.
- **Z:** Press Z to type in a Z-axis coordinate when you need to input a dimension. In 3-D, the Z-axis is the height or elevation of the model. The coordinate box will open and you may type a positive dimension to move in the Up direction, type negative value to move Down.

"E" End Snap

Press the E key to use. **SolidBuilder** will prompt to select an endpoint. Move the arrow to near the endpoint or corner you want the cursor to jump to and left click. The cursor jumps to the end of the nearest line segment.

"C" Center Snap

Press the C key to use. **SolidBuilder** will prompt to select an center point. Move the arrow to the nearest center maker that you want the cursor to jump to and left click. The cursor jumps to the center of the the nearest line segment.

"I" Intersect Snap

Press the I key to use. **SolidBuilder** will prompt to select two lines and the cursor will jump to the intersection of the two lines selected. The cursor moves to the point where two existing line segments intersect.

"T" T Intersect

Press the T key to use. First move the cursor in the direction you moving to and then press T. **SolidBuilder** will prompt for a second edge. Select the edge and this moves the cross hair to the location where the line segment being drawn will T intersect with an existing line segment in the

model.

"D" Distance

Press the D key to use distance and angle. This command allows you to enter a desired length and angle. This is very useful for creating angled walls. **SolidBuilder** uses the industry standard for measuring angles with 0 at 3:00 and moving counterclockwise with 90 degrees at 12:00, 180 degrees at 9:00 and 270 degrees at 6:00.

"M" Midpoint

Press the M key to use. This command lets you select two points and will place the cursor in the exact midpoint between them. You may use Endpoint to select the first two points.

"P" Point Snap

Press the P key to use. **SolidBuilder** will prompt to select a Point. Move the arrow near a point and left click. The cursor jumps to the nearest Point. You may use Point Snap while using Trace Input to snap to an image point.

"A" Arch Point

Press the A key to use. **SolidBuilder** will prompt to select an Arch endpoint. Move the arrow to near an arch endpoint and left click. The cursor jumps to the nearest arch endpoint. This command only works in 2D Working Drawings.

"L" Nearest Point

Press the L key to use. **SolidBuilder** will not prompt you to select anything. It will automatically jump to the nearest end of a line. It is similar to the E endpoint jump but does not allow you to select the point you want.

"K" Perpendicular

Press the K key to use. **SolidBuilder** will prompt you to select close to perpendicular point. Left click on the shell or line you want to draw perpendicular to and the shell or line you are drawing will snap to it perpendicular.

SECTION THREE: 3D MODELING

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Section 3 3D Modeling



Chapter 17: 3D Modeling

Modeling allows you to create a 3-D representation of the home or building you are designing. This model will be produced exactly as it will be built in the field. Having the ability to create a three-dimensional model will allow you, the designer, and your clients to visualize exactly how the home will look.

SolidBuilder allows you to create the model virtually in any order you choose. You are not required to create the various shells (walls, floors, roofs, etc.) in any particular order. If you only need the exterior and interior walls for a floor plan, then that is all you need to create. Create only what you need.

The term shells is used frequently in **SolidBuilder**. It refers to the components of a model.

- Floors
- Walls
- Roofs
- Ceilings
- Girders
- Posts
- Sill Plates
- Footings
- Stairs

The shell is the 3D object. You will not see any framing until you select the framing icon  and frame the shells. Typically the model is created first and then framed. This is done because any modification to a shell (changing window and door sizes, projecting, etc.) will remove the framing. By waiting until the modeling is done you will save yourself from having to re-frame the shells.

All shells have 6 "faces" or surfaces. These are the top - bottom - front - back - left and right.

A typical procedure for starting to model is to:

1. Select the icon for the shell type you want to work with (floors, walls, etc.)
2. Click on the Options icon . Set the options to meet your needs.
3. Click on the Reports button. Set the Level, Workstage and attach assemblies and items as needed.

The Level allows you to create shells on levels 1-50. A common practice is to create the first floor shells on level 1, the second floor shells on level 2 and so on. Since level 0 is not used, many users will always create the foundation on level 10 for example. The benefits of using levels are the ability to use the Visibility command to isolate, make visible or invisible all shells by a selected level, in addition to creating and sorting reports and estimates.

Workstages are a sort key used to sort the reports and estimates. The Workstages can be

changed to meet your needs.

Assemblies are one or more items from the items database that are attached to a shell for estimating purposes. (these are not physically created in the model, only figured in reports and estimates)

4. Click on the Elevation icon  and set the elevation.
5. Draw the shell.

Layout Points

Layout Points are small, red cross-hairs that are automatically created for all shells. By default the Layout Point is created at the lower left corner of the shell. Layout Points serve several functions.

- They are used as a starting reference point when framing the wall. Think of it as the point where you would hook the end of a tape measure to layout the framing.
- They are always placed on the "outside" of a wall. When you create wall you are asked to select the inside of the wall you just created. You move the mouse pointer to the edge of the wall that will be on the inside of the house, garage etc. This will place the Layout Point on the opposite edge.



It is very important to create walls with the Layout Point on the outside. Otherwise your wall will be backwards. If your walls are backwards, the roofs will try to create sloping from the wall to the outside, doors and windows will be inserted backwards and trim symbols will be inserted to the inside of the wall. If you have mistakenly created a wall or walls backwards, simply right click on the wall and select Modify - Reverse.

- You can modify the layout points of shells so that all studs in parallel walls, for example, would line up, or the roof rafters would line up with the studs. Refer to the sections on Wall - Modify - Layout, Roof - Modify - Layout, Floor Modify - Layout or Ceiling - Modify - Layout for detailed instructions.



Chapter 18: Outlines

SolidBuilder ➔ Outlines



Floors, walls, footers, sill plates, bay roofs, and flat ceilings can all be created by referencing general outlines which you create using commands in this menu. The Outline functions resulted from the recognition that walls, floors and ceilings have outlines that are related to each other. By working with these outlines first, it is possible to lay out most, if not all, of a model's walls and floors by using simple lines. Proper forethought in the creation of these outlines results in rapid creation of the walls, floors and horizontal ceilings.

The Outline menu includes options for creating both Closed and Free Form Outlines.

- Closed outlines offer greater flexibility with the ability to join them together or trim one against another.
- A closed outline forms a closed loop (polygon), with the first and last lines of the outline meeting at a common point.
- In general, use closed outlines for exterior wall outlines, for each floor and for each horizontal ceiling.

This menu offers three methods for drawing a Closed Outline: as an equilateral polygon (all sides of equal length), as a closed polygon (you mark all endpoint locations) and as a simple rectangle. In general, the Closed method is the most practical when you are working from an existing rough drawing or plan, since the shape and dimensions are known. However, for design experimentation, you might find that working with some basic shapes, combining them in different ways, helps you visualize your potential design. The Outline Shape menu (discussed below) includes options to Join outlines together and to Trim outlines against each other, providing another means of creating new outlines. Several examples are presented under those headings.

Practice helps you determine when it is appropriate to create several simple outlines as the basis for a more complex outline.

All outlines are created at an elevation of 0'. When a plate is set, a floor or horizontal ceiling is created by "referencing" the outline. You specify the elevation of the plate set, floor or ceiling. Keeping all outlines at a common elevation allows you to use the endpoints and midpoints of one outline as reference for the creation of another outline.

All outline work should be done in a plan view. In this view, when entering coordinate positions using the keyboard, the x axis runs left to right and the y axis runs bottom to top. For example, an entry of x-3' y-2 results in cursor movement 3 feet to the right and 2 feet down. An entry of x-2' 3" y12' 4_1/2" results in cursor movement 2 feet 3 inches to the left and 12 feet 4 and a half inches up.

Free Form

SolidBuilder ➔ Outlines ➔ Free Form

Creating a Free Form outline is very similar to creating a Closed outline. The only difference between the two is that **SolidBuilder** does not close the loop on an open outline. Open outlines are used primarily for interior walls or an attached garage to avoid a double wall between the garage and the house.

1. Upon selecting Open, the system prompts:
Mark the first outline point
2. Move the cursor to the beginning point of the outline by clicking the left mouse button, pressing Enter or you can key in the coordinates. The system prompts:
Mark the next outline point
3. Mark or enter the next endpoint of the outline, by clicking the left mouse button, pressing Enter or keying in the coordinates. Continue this process until all sides have been defined, then press F10. The Outline menu displays again.

Closed

SolidBuilder ➡ **Outlines** ➡ **Closed**

This command requires you to mark or enter every endpoint of the desired outline.

1. Upon selecting Closed, the system prompts:
Mark the first outline point
2. Locate the cursor at the beginning point of the outline or key in the coordinates, then press Enter. The system prompts:
Mark the next outline point
3. Mark or enter the next endpoint of the outline, then press Enter. Continue this process until all but the last side has been defined, then press F10. **SolidBuilder** closes the outline for you.

Rectangle

SolidBuilder ➡ **Outlines** ➡ **Rectangle**

Many of the outlines you use are rectangles or combinations of rectangles.

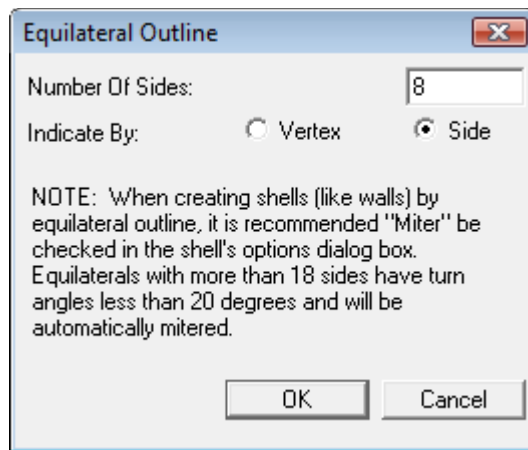
1. Upon selecting Rectangle, the system prompts:
Mark the first outline corner
2. Mark or enter the first corner of the outline by clicking the left mouse button or pressing Enter. The system prompts:
Mark the opposite diagonal outline corner
3. Mark or enter the diagonally opposing corner of the rectangle by clicking the left mouse button, pressing Enter or key in the coordinates.

Equilateral

SolidBuilder ➡ Outlines ➡ Equilateral

An equilateral or faceted circle outline is one with every side having a common length. In most cases, such an outline is useful only when experimenting with complex designs, and when combined with other closed outlines using the Join and Trim selections. However, in those cases where it can be used, Equilateral is a time saving tool. For example, the following outline was created from an 8-sided (octagonal) outline and a rectangular outline:

1. Upon selecting Equilateral the system prompts:
Indicate center of equilateral/faceted circle:
2. The Equilateral Outline dialog box (below) displays.



3. You may specify any number of sides from 3 to 32. The greater the number of sides, the more the polygon resembles a circle. Enter the number of sides, then press Enter. The system prompts:
Indicate by Vertex Side

SolidBuilder uses the term "vertex" to refer to angle corners and endpoints whereas "side" refers to the lines or legs of a polygon or angle.

4. Select one of these choices and press Enter or click on OK. The system prompts:
Indicate center of equilateral/faceted circle
5. Move the cursor to the center of the form and press Enter. If you have selected vertex, the system prompts:
Indicate vertex of equilateral
7. If you have selected side, the system prompts:
Indicate side of equilateral
8. Move the cursor to the side or vertex desired and press Enter. The outline is drawn.

Reference Line

SolidBuilder ➡ Outlines ➡ Reference Line

A reference line is a 2-D line, which is drawn in 3-D space to be used when locating plane elevations, which in turn are used to determine the elevation of the top portion of a roof shell. They are also used when creating roof shells to determine the outer boundary (or vertical plane) of certain roofs. They can also be used to create construction lines to measure from or used to locate and place shells.

1. Set the desired elevation . After the elevation is set, the system prompts for the line:
Enter first point:
Enter second point:
2. You may continue to draw lines or press the Esc key.

Reference Crease

SolidBuilder ➡ Outlines ➡ Reference Crease

This command allows you to create a reference line by intersecting two planes. These two planes can be any combination of previously created lines, planes, faces and edges of walls and roof shell surfaces.

1. Select a shell from the list. You are prompted to select which particular shell you want. Next you are prompted to Select face that determines the plane. Next you are prompted to select a second shell and the face that determines the plane. A reference line is placed at the intersection.

Line: A vertical plane defined by a reference line.

Plane: A plane defined by a plane marker.

Wall: A plane defined by the front or back face of a wall.

Roof or Wall: A plane defined by one of the faces or edges of a roof or wall shell.

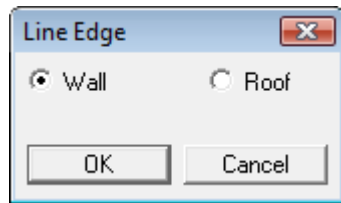
2. If you select Line, the system prompts:
Select line to determine a vertical plane
3. If you select Plane, the system prompts:
Select plane
4. If you select Roof or Wall, the system prompts:
Select Wall (or roof) to define a plane
Select face that determines plane
Use the arrow keys to select the face of the wall or roof.

The selection process is repeated for the second plane. Upon completion, a reference line is drawn at the point of intersection of the two planes selected.

Reference Edge

SolidBuilder ➡ Outlines ➡ Reference Edge

1. When you select this command, the following dialog box displays:



2. After you select a shell type, the system prompts:
Select roof (or wall) to define a line
Select the desired edge
3. A reference line is drawn along the edge of the selected roof or wall edge.

Reference Point

SolidBuilder ➡ Outlines ➡ Reference Point

This command is used to create a reference point anywhere in 3-D space (construction or C-space).

1. Use the Elevation  selection methods to set the elevation. After the elevation is set, the system prompts for the point:
Enter point location
2. Mark or enter the desired point. A small six pointed brown marker displays on screen.

This command is used widely when creating planes using Geometry Match and Compute by Third Point.

Intersect

SolidBuilder ➡ Outlines ➡ Intersect

This command will place a reference point at the intersection of planes.

1. You are prompted to select a vertical plane (represented by a reference line) containing the front or back of a plane marker or any face of a wall or roof.
2. After selecting three such planes, the system places a point at the location where the planes intersect.

Rows

SolidBuilder ➡ Outlines ➡ Rows

This command is used to create a grid of points, which can be used to easily locate a grid of pads, piers and posts.

1. After selecting the shell type or other basis for elevation , you are prompted for a particular shell, its top or bottom and any vertical offset. Once the elevation is determined, you are prompted for the points:
Enter location of a corner point:
2. Move the cursor to one of the four corners and press Enter. This locates one corner of the grid. The system prompts:
Enter the second point along the row
3. Locate the cursor to the desired next point in the grid and press Enter. This determines the spacing between points along the row. The system prompts:
Number of points along this direction, including corner:
4. Enter a value that determines the number of points in the first row of the grid. You are prompted:
Indicate the distance to the next row
5. Move the cursor to the first entry in the next row. This determines the distance between rows. The system prompts:
Number of rows of points, including first row:
6. Enter a number of rows. The program creates a grid of points with the desired spacing.

Bay Roof

SolidBuilder ➡ Outlines ➡ Bay Roof

This command allows you to trace around a bay bump-out with an outline, and then convert the outline into a bay roof.

When Bay Roof is selected from the outline pull down menu, you will be prompted to specify the first point for the outline. At this time, you can trace around your bay bump-out walls (it is recommend that you place your bay bump-out walls prior to running this command) outlining your bay bump-out. Your outline will typically resemble a trapezoid. Once finished, you will notice a green outline located in your design.

To convert the outline into bay roof, simply right click on the outline and choose Shape – Generate Roof. At this point SolidBuilder will create a bay roof using your outline for reference. It is recommended that your place the roof on the main body of the house prior to placing the bay roof. The bay roof will automatically tie into the roof over of the main body of the house.



Chapter 19: Floors

SolidBuilder ➔ Floors

Icon: 

The Floor command contains options for creating floors and floor features, modifying existing floors and floor features, removing floors and floor features and changing the shapes of floors.

Framed Floor Options

SolidBuilder ➔ Floor ➔ Framed ➔ Options

Icon:  

You typically create a single floor for each elevation in the structure. If you wish to have a different joist layout for sections of a single floor, create each section as a separate floor. Click on the Options icon to display the Floor Options dialog box (below).

Chapter 19
Floors

- **Shell Color:** Allows you to set the top floor color.
- **Floor Type:** This option determines the shape of the joists when framed. Your choices are:
 - Conventional:** framed as dimensional lumber
 - Deck Board:** This will flip the dimension to create the joist laying flat (5-1/2" x 1-1/4").
 - I-Joist:** This option will frame the joist to resemble I-Joists.
 - Floor Truss:** This option will frame the joist to resemble a generic floor truss.
- **Joist Thickness:** The thickness of the joist.
- **Joist Depth:** The depth of the joist.
- **Center to Center:** The distance from center of one joist to the center of the next joist.
- **Match Elevation To:** This refers to which face of the Floor Shell to be used to match to another shell or elevation. For example, if you want to set the bottom of the floor to be at 0 elevation, turn the Top radio button on.
- **Elevation:** You may set the wall elevation by referencing its top or bottom. The "to elevation of:" field allows you to choose a shell type which then determines the wall elevation (typically a floor).

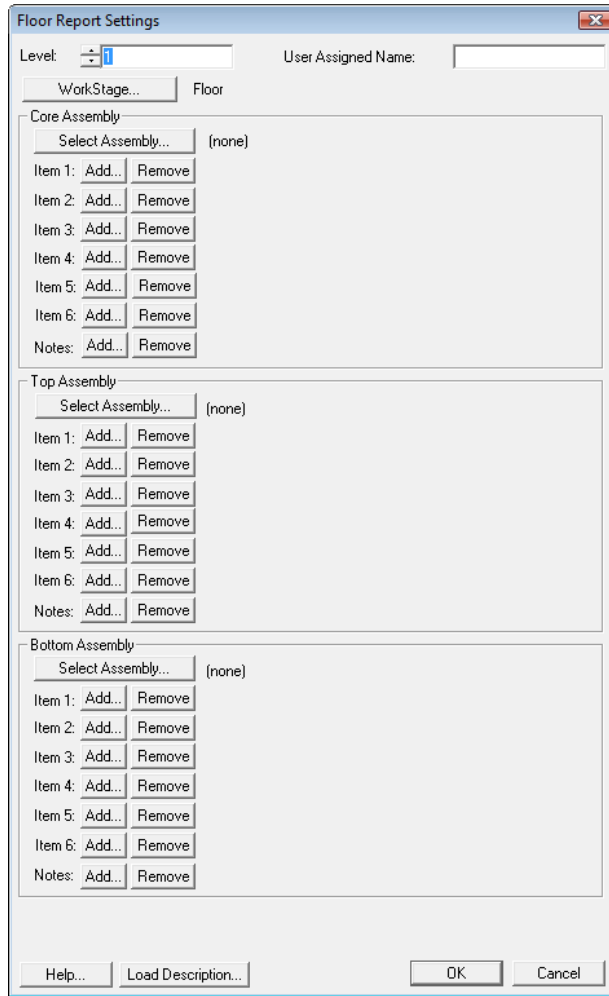
Chapter 19
Floors

- **Material:** Allows you to specify a material option for floors.
- **Material Notes:** Allow you to add material notes to your floor.
- **Sheathing Material:** Select either the sheathing option for sheet goods or the planking option for boards.
- **Sheathing Thickness:** Enter the thickness of the sheathing.
- **Rim Joist Thickness:** Enter the thickness of the Rim joists.
- **End Joist Thickness:** Enter the thickness of the End joists.
- **Textures:** Allows you to assign textures for rendering purposes. See the rendering chapter for further explanation.
- **Reports:** Assign levels and assemblies.
- **Settings:** Setup up framing defaults.
- **Save Options:** This allows you to save the options and be able to bring those settings back at a later date
- **Load Options:** This allows you to load the options that you may have saved

Enter your Joist Thickness and Width (width in this instance refers to the depth of the joist).

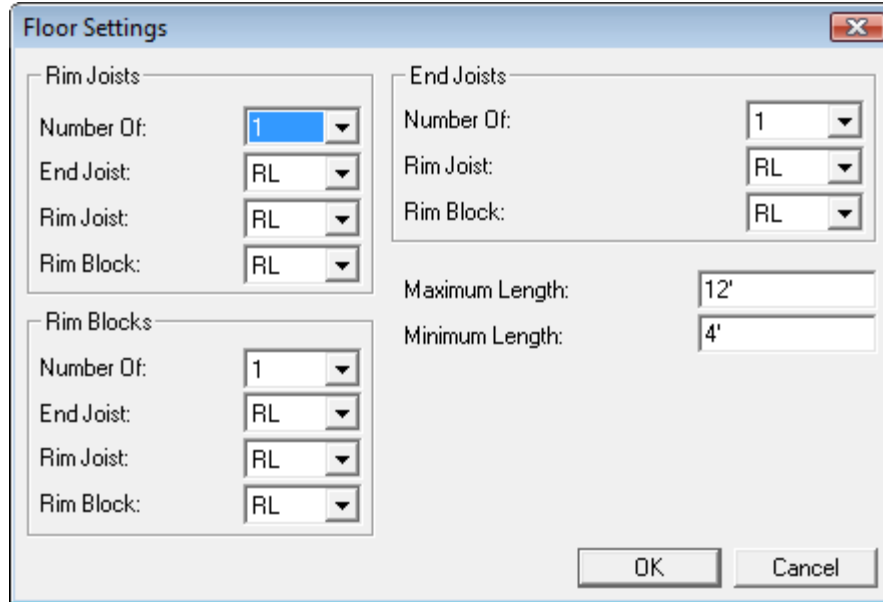
2. Set your Center-to-Center Spacing.
3. Match Elevation To: This refers to which face of the Floor Shell should be used to match to another shell. For example, if you want to set the top of the floor at 0 elevation, turn the Top radio button on.
4. Material: This option lets you specify different materials to use in the floor.
5. Reports: Click on this button to display the Floor Report Settings dialog box.

Chapter 19 Floors



The 'Floor Report Settings' dialog box is used to configure floor reports. It includes fields for 'Level' (with a dropdown arrow) and 'User Assigned Name'. Below these are three main sections: 'WorkStage...' (with a 'Floor' button), 'Core Assembly', 'Top Assembly', and 'Bottom Assembly'. Each assembly section contains a 'Select Assembly...' button (with a '(none)' dropdown), six 'Item' rows (each with 'Add...' and 'Remove' buttons), and a 'Notes' row (with 'Add...' and 'Remove' buttons). At the bottom are 'Help...', 'Load Description...', 'OK', and 'Cancel' buttons.

1. Select a Level. Select a Work Stage, a Core Assembly, a Top Assembly and/or a Bottom Assembly as needed.
 2. You can also add up to 6 individual items, as well as material notes, for each of the assembly types to the floor from the database. This can be very useful for getting accurate and complete takeoffs. An example might be to use an assembly for hard wood floors to the top of the floor. Without having to either make a new assembly or change your existing assembly you could add an item to the floor bottom for sound insulation. This can also be accessed from Floor --> Modify --> Description
6. Click on the Settings button.



The **Floor Settings** dialog box is shown with the following settings:

- Rim Joists:**
 - Number Of: 1
 - End Joist: RL
 - Rim Joist: RL
 - Rim Block: RL
- End Joists:**
 - Number Of: 1
 - Rim Joist: RL
 - Rim Block: RL
- Rim Blocks:**
 - Number Of: 1
 - End Joist: RL
 - Rim Joist: RL
 - Rim Block: RL
- Maximum Length:** 12'
- Minimum Length:** 4'

Buttons: OK, Cancel

- **Rim Joists:** the outside perpendicular joist
 - **End Joists:** the outside parallel joist.
 - **Rim Blocks:** are individual blocks placed between the joists at the outside edges.
 - **RL:** run long. The joist would "run long" or past the connecting perpendicular joist.
 - **RS:** run short. The joist would "run short" or butt into the connecting perpendicular joist.
 - **MI:** miter the outside joist corners
 - **Maximum Length:** the maximum length of lumber **SolidBuilder** will use for a Rim or End Joist.
 - **Minimum Length:** the minimum length of lumber **SolidBuilder** will use for a Rim or End Joist.
- Click on the Elevation icon. You may set the floor elevation by referencing to its top (top of sheathing) or its bottom (bottom of framing members). The "to elevation of:" field allows you to pick a shell type which then determines the floor elevation (typically a sill plate or the top of a wall).
 - Click on OK when you are finished entering values and selecting options. You are prompted:
Select <Shell> for elevation
 - Select the appropriate shell. The Model Elevation dialog box (below) displays.
 - Once you have set the elevation to the bottom or top, click on OK or press Enter.
 - This takes you back to the Options dialog box. Click on OK.

Creating a Floor

SolidBuilder ➔ **Floor** ➔ **Framed**

Icon: 



1. You may reference an existing outline or draw a new outline to define the floor boundary. Select Free Form, Outline or Rectangle from the drop down menu.
 - A. To create a Free Form outline to define the floor boundary, select Free Form from the drop list. You are prompted to:
Mark the first floor outline point
 - B. Locate or enter the first point. You are then prompted for subsequent lines.
Mark the next floor outline point
 - C. As the cursor is moved, a red line from the previous point is drawn and the distance moving the cursor is displayed in the coordinate box. You may enter coordinates by clicking the left mouse button in the desired location or type the X and Y coordinates. If you enter an incorrect line segment, press the U key. This locates the cursor at the previous segment endpoint and “undoes” the erroneous entry.
 - D. The last line segment is defined by pressing the F10 key or right mouse clicking and selecting finished, which connects the last point of the last line with the first point of the first line. The outline may be drawn in either a clockwise or counter clockwise direction. After the outline is complete, a colored polygon appears on the screen and the system prompts:
Joist direction layout <Right Arrow-Rotate, Up Arrow-Mark, Enter to Accept >:
 - E. Use the right arrow to rotate this marker 90 degrees or use the up arrow to create a new line to mark the joist direction at any angle you choose. If you use the up arrow the system prompts:
Mark the start layout line endpoint
 - F. Use the cursor to locate the start point of the new line and left mouse click or press the Enter key. The system prompts:
Mark the end layout line endpoint
 - G. Move the cursor or enter coordinates for the endpoint and press the Enter key. You return to the Set joist direction prompt listed above. Press the F10 key to have **SolidBuilder** finish. The floor is created.
2. To create a floor using an existing Outline select Outline, from the drop list. You are prompted to select outline to use. Follow remaining steps above.
3. To create a floor using the rectangle method: simply select a starting location for the first corner of the floor and left mouse click. This anchors the first corner of the rectangle. Then by moving the mouse, using the arrow keys or entering in x and y coordinates,

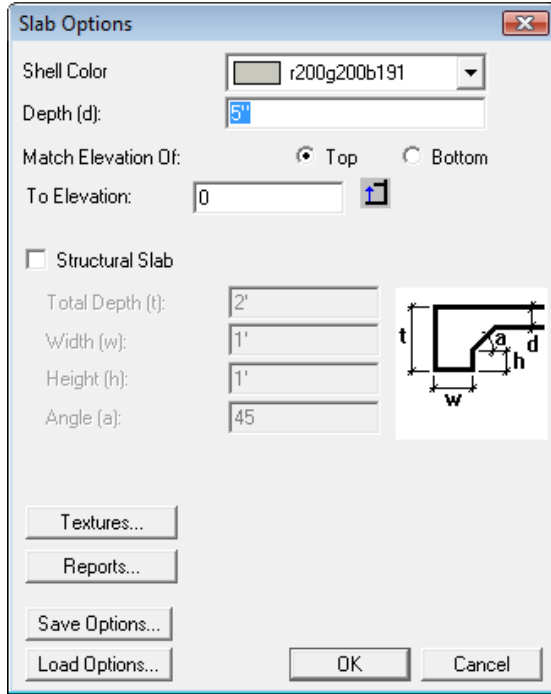
move to the opposite diagonal corner of the rectangle and left mouse click.

Slab Floor Options

SolidBuilder ➔ **Floor** ➔ **Slab** ➔ **Options**

Icon:  

This command allows you to create flat slab floors or structural (monolithic) slabs. Click on the Options icon  and the following dialog box displays.



The Slab Options dialog box contains the following fields and controls:

- Shell Color: A color selection box showing a gray swatch and the code "r200g200b191".
- Depth (d): A text input field containing "5".
- Match Elevation Of: Two radio buttons, "Top" (selected) and "Bottom".
- To Elevation: A text input field containing "0" and a small icon of a floor slab.
- Structural Slab: A checkbox that is currently unchecked.
- When Structural Slab is checked, the following fields are enabled:
 - Total Depth (t): A text input field containing "2".
 - Width (w): A text input field containing "1".
 - Height (h): A text input field containing "1".
 - Angle (a): A text input field containing "45".
- A diagram on the right shows a cross-section of a slab with dimensions labeled: t (total depth), w (width), h (height), and a (angle).
- Buttons at the bottom: Textures..., Reports..., Save Options..., Load Options..., OK, and Cancel.

1. Set the values for the Depth. You may define the elevation to be at the bottom of the slab or the top of the slab.
2. To create a flat slab, turn the Structural Slab toggle off.
3. To create a Structural Slab, make sure the toggle is on. The Depth, Width, Height and Angle dimensions you enter on the left side, correspond to the letters on the figure to the right.
4. The Report options for a slab function are the same as those for Framed Floors.

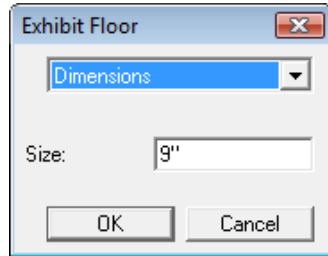
You create the slab in the same manner as the floor except you are not prompted for a joist direction. The slab displays as a gray colored shell.

Exhibit

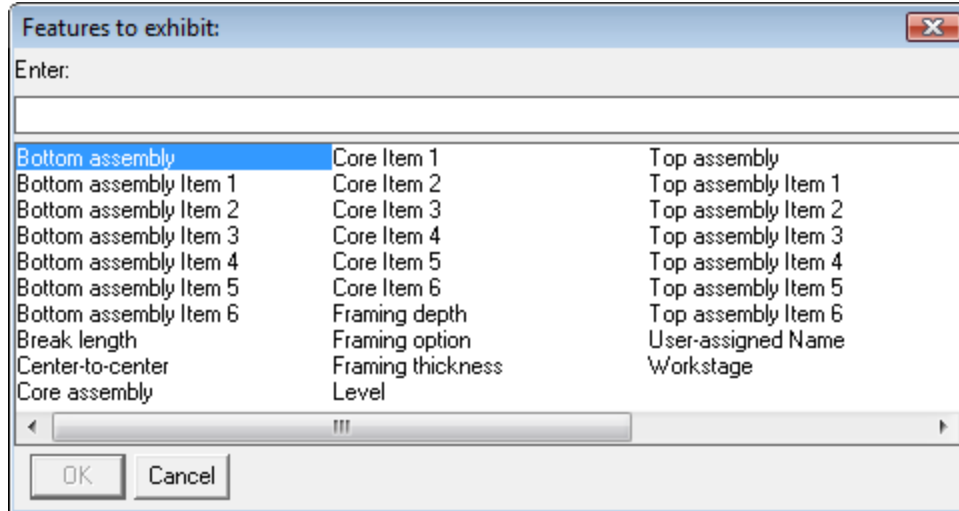
SolidBuilder ➔ **Floor** ➔ **Exhibit**

Icon: 

This selection on the View menu allows you to view the dimensions, layout point and work stage of Floors. When you select Floors from the Build menu and select Exhibit from the View menu, the Exhibit Floors dialog box (below) displays.



- **Dimensions**
 1. You are first prompted for the size of the dimension numerals which shows the floor dimensions. The system prompts:
Size of dimension numerals: 9"
 2. Backspace through the suggested dimension size if you wish to enter a different value. You must next select the floor to dimension. The system prompts:
Select floor to view
 3. Select the floor, right click and select Finished. Each selected floor is dimensioned and displayed on the screen, along with the floor number and the top and bottom elevation. You may print this drawing by pressing the letter P.
- **Description**
 1. This command allows you to see many of the features associated with a floor. To execute this command, click on the Floor icon and select Exhibit from the View menu. The Exhibit Floor dialog box (above) displays. Finally, select Description from the drop list and click on OK. The Features to Exhibit dialog box (below) displays.



2. Select a feature. The value for the information is displayed in the Command Status window and the floors that share that same value are made visible on screen. The system exhibits the selected feature.
- **Layout Points:** Click on the Floor icon and select Exhibit from the View menu. In the Exhibit Floor dialog box select Layout Points from the drop list. The cursor is moved to the layout point for each floor. Pressing the arrow keys moves the cursor to the layout points for other floors. Press the Escape key to terminate the command.

Insert

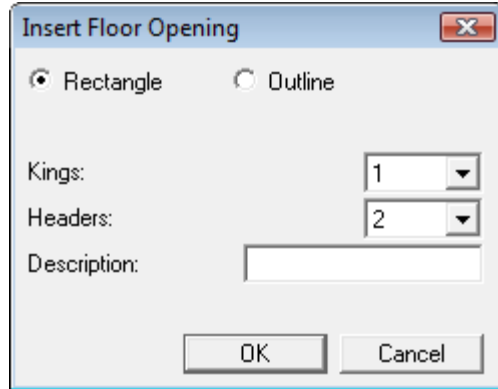
Opening

SolidBuilder ➡ Floor ➡ Insert ➡ Opening

Icon:  

Use this command to insert openings in floors.

1. Right Click on the desired floor and select Insert Opening or click on the Opening icon. Select Insert Opening.
2. When you select the Insert Opening command, the Insert Floor Opening dialog box (below) displays.



3. You can elect to insert a rectangular opening or an opening in the shape of any closed outline that has been drawn to lie within the floor shell. The rectangle opening is oriented according to the layout direction, so that two sides are parallel to the joists and two sides are perpendicular to the joists. Openings inserted by using existing outlines are not necessarily oriented according to the layout direction.

Rectangle: select the number of kings and headers, click on OK. You are prompted by **SolidBuilder:**

Select floor for opening

- Select the floor to insert an opening. The system prompts:
Mark the first opening corner
- Locate the first corner of the rectangle, left mouse click or press the Enter key. The system prompts:
Mark the opposite diagonal opening corner
- Locate the second corner of the rectangle and press the Enter key. Enter additional openings or press the Escape key.
- The opening is properly framed when the Frame Floor command is given.



Floor Openings cannot be created at the edge of a floor. If an opening occurs at the edge of a floor, create the floor initially with the cutout or split the floor at both ends of the cutout, project the cutout section back and re-join the floors.

Outline:

- Select the number of kings and headers. Click on OK. You are prompted by **SolidBuilder:**
Select floor for opening
- Select the floor to insert an opening, the system prompts:
Select outline to use as opening
- Pick any closed outline that has been drawn to lie within the floor shell. This anticipates that you have drawn the closed outline prior to issuing this command and situated the outline where you want the opening in the floor.
- The opening is created in the floor and is properly framed when the Frame Floor command is given.

Breaks

SolidBuilder ➔ **Floor** ➔ **Insert** ➔ **Breaks**

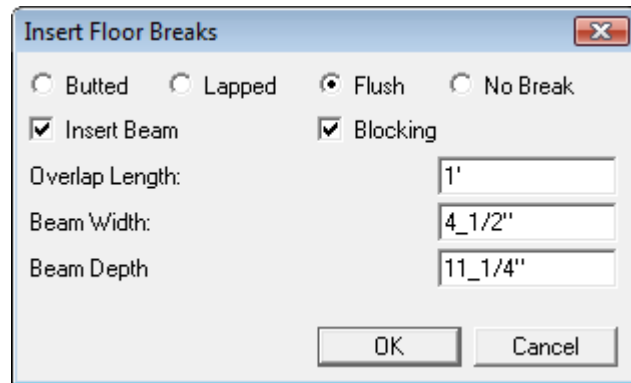
Icon:  

Use this selection to mark where joists are to be lapped or spliced or where a beam is to be placed in the floor. You determine the location by drawing a line. Without breaks, **SolidBuilder** assumes the joists run the full length of the floor.



You must insert floor breaks to set joist length! If you do not insert floor breaks, **SolidBuilder** assumes the joist is the length of the continuous span.

1. Right click on the floor and select Insert Breaks or click on the Breaks icon.



- **Butted:** This radio button cuts the joists at the line but does not overlap them.
 - **Lapped:** This radio button cuts the joists and shifts one set.
 - **Flush:** This radio button allows you to place a beam in the floor so that the joists hang from the beam. The top of the beam will be flush with the top of the floor joist.
 - **Overlap Length:** This option is either the length of the splice block (for Butted) or the measure of the amount of overlap (for Lapped). The overlap is measured from the end of one joist to the end of the other joist.
 - **Beam Width:** This option specifies the value of the width of the beam.
 - **Beam Depth:** The depth of the beam.
 - **Blocking:** If you select the Break type to be Butted or Lapped, you may optionally elect to block the joists at the break line. This is the toggle for Blocking. If this is toggled on, then **SolidBuilder** frames blocking between each joist from the center of the break line.
2. After selecting and setting the appropriate items in the dialog box, you are prompted to indicate the start and end locations of the break line. The system prompts:

Mark the start point of break line
Mark the end point of break line

3. After the line is marked, you are prompted to select another floor or press the Escape key to cancel out of the command. The actual break is created when the floor is framed.

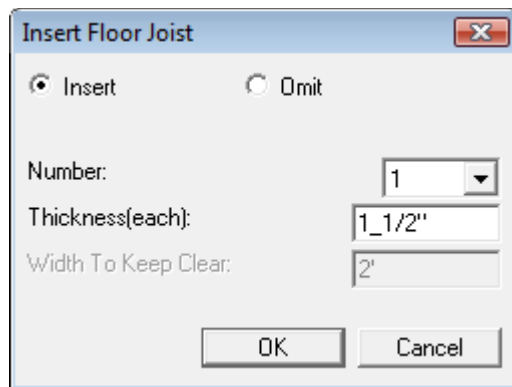
Joist

SolidBuilder ➤ **Floor** ➤ **Insert** ➤ **Joist**

Icon:  

This command is used to add additional joists to a floor at points you designate. You may add one or two joists at each point. This command is also used to mark areas of the floor, which are to be kept clear of joists. This allows you to designate an area for HVAC or other reasons, which do not allow the placement of layout joist members.

1. Right click on the floor and select Insert Joist or click on the Insert Joist icon. The Insert Floor Joist dialog box opens.



- **Insert:**
 1. You are prompted:
Select floor for additional joists:
 2. Select a floor. You are prompted:
Mark center point of additional joists; ESC to finish
 3. Move the cursor to the center point of the joist or pair of joists and click the left mouse button or press the Enter key. A yellow cross displays to mark the location. Continue marking the center point until you have placed the extra joists. Press the Escape key to exit the command and then the floor needs to be re framed.
 4. The extra joists are placed when the floor is framed. If a floor has already been framed and you add extra joists with this command, the framing is removed at the completion of the command.

- **Omit:** This command is used to mark areas of the floor, which are to be kept clear of joists. This allows you to designate an area for HVAC or other reasons, which do not allow the placement of layout joist members.
 1. Enter the width of the area you wish to keep clear of floor joists and click on OK.
You are prompted:
Select floor for omitted joists:
 2. Select the desired floor. You are prompted:
Mark center point of area to omit joists; ESC to finish
 3. Move the cursor to the center point of the area to be kept clear of joists and click the left mouse button or press the Enter key. A red cross displays to show the location. Continue marking the center points until you have denoted all the areas to keep clear. Press the Escape key to exit the command.
 4. The spaces designated have no joists placed when the floor is framed. If a floor has already been framed and you mark areas to omit joists with this command, the framing is removed at the completion of the command.

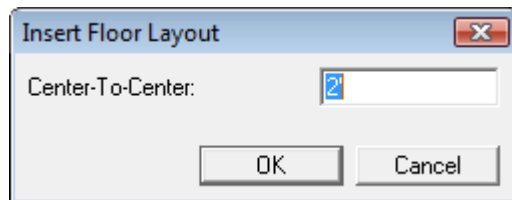
Layout Points

SolidBuilder ➡ Floor ➡ Insert ➡ Layout Points

Icon:  

This command is used to mark areas of the floor, which are to be laid out with a different center-to-center distance. This allows you to increase or decrease the density of joists within a floor.

1. Right click on the floor and select Insert Layout Points or click on the Layout Points icon.



1. Enter the Center-to-Center distance for this layout area and click on OK.
2. The system prompts:
Select floor for alternate layout point:
3. Select a floor. The system prompts:
Mark alternate layout point:
4. This should be the same layout point as the first layout point so that the sheathing falls on the center of the joists. This point defines the joist layout position and is marked with a blue cross. The system then prompts:
Mark the start layout limit

5. Move the cursor to the beginning of the area for alternate layout and click on the left mouse button or press the Enter key. The system prompts for the end of the area.
6. Mark the end layout limit.
7. Mark the second point of the area. After this point is marked, a group of green lines is drawn to show the alternate range area for the selected floor.

Blocking

SolidBuilder ➡ Floor ➡ Insert ➡ Blocking

Icon:  

Use this selection to create blocking between joists.



Right click on the floor and select Insert Blocking or click on the Insert Blocking icon.

- **Below Wall**
 1. You can elect to place a line of blocking beneath an existing wall (Below-wall) or you can choose to mark a line, which represents the location of a line of blocking (Free).
 2. Turn on either the In-Line or the Staggered radio button and enter a value for Blocking thickness edit field. You are prompted:
Select floor for wall blocking line:
 3. Select a floor. The system prompts:
Select walls for blocking line
 4. Select the walls that determine blocking. The blocking is generated when the floor is framed.
- **Free**
 1. Turn on either the In-Line or the Staggered radio button and enter a value for blocking thickness edit field. You are prompted:
Select floor for blocking line:

2. Select the floor. The system prompts:
Mark the start point of blocking line
3. Locate the starting point. The system prompts:
Mark the end point of blocking line
4. The blocking line is created. The system prompts for another floor. You may continue marking blocking lines until you press the Esc key.



The Insert Blocking Free command allows you to place blocking at any point or at any angle. **SolidBuilder** also provides for placing blocks at the mid-span of the joists without drawing a line. This is selected with the Floor Modify Description One-by-one and the Floor Modify Description Group commands.

Channels

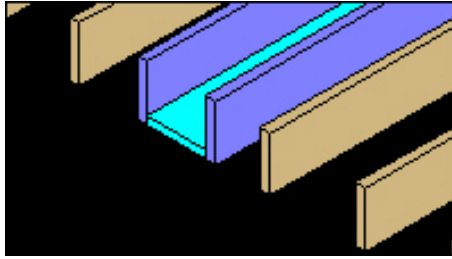
SolidBuilder ➔ **Floor** ➔ **Insert** ➔ **Channel**

Icon:  

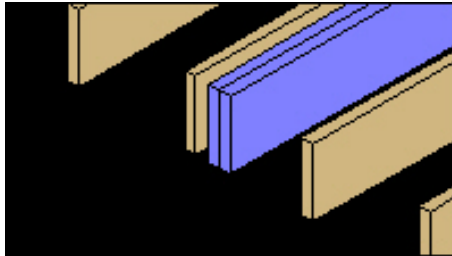
Use this selection to insert channels parallel to joists.

If you select Below Wall, the channel is placed beneath selected walls; if you select Free, you are prompted to locate the channel. Different combinations of options and fields will be highlighted depending on the options selected.

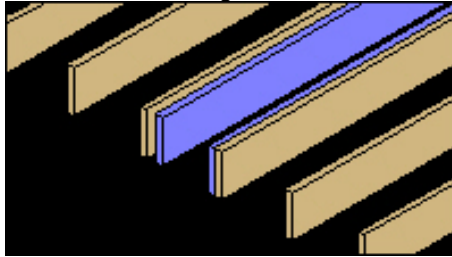
- **Backed Channel:** This channel includes a flat member between the king joists. The Backed Channel dialog box includes an option (Flush) for setting the flat member to the top or bottom of the floor.



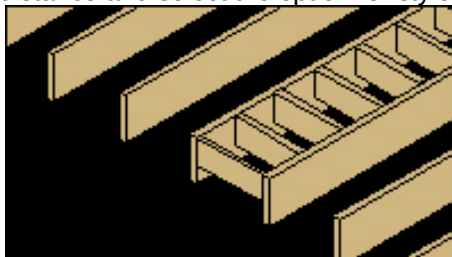
- **Closed Channel:** A closed channel places the king members side by side and leaves no gap between them.



- **Open Channel:** An open channel is similar to a backed channel except there is no member generated between the kings, which define the channel.



- **Ladder Channel:** A ladder channel generates ladder blocking for the channel. You enter the thickness of the block and (for free members) the width of the block. You also enter the center-to-center distance and select the option for style, either flat or normal.



Upon selection of a channel type, different options in the Insert Floor Channel dialog box are

highlighted, depending on the channel type selected.

- **Kings:** This is the number of kings (0, 1, or 2) on either side of the channel.
 - **Wall Must Exceed:** This value is used for all four types of channels which are placed with the Above Wall option. This is the minimum length of a wall that has a channel placed beneath it.
 - **Back Flush To:** For backed channels, this sets the flat member to the top or bottom of the floor (ceiling).
 - **Width:** For Backed and Open free channels, this is the width between the kings.
 - **Ladder block width/thickness:** This is the size of ladder blocks.
 - **Style:** This determines whether the blocks are to be placed flat or vertically.
 - **Center-to-center:** This is the distance between ladder blocks.
1. Once you have selected the desired settings, click on OK. The system prompts:
Select floor for channel line.
 2. Select a floor.
 3. If you have selected the Above Wall toggle, you are prompted to select the walls for channel installation. After you select the walls, the channel lines are placed.
 4. If you have selected the Free toggle, the system prompts:
Mark the start point of channel line
 5. Mark the beginning of the line to define the channel location. The system prompts:
Mark the end point of channel line
 6. Mark or enter the end of the line to define the channel location. At this point, Closed and Ladder channel creation is complete. The marked line is always the center line for Closed channels. Ladder channels always span the existing joists which lie on either side of the marked line.
 7. For Backed and Open channels, however, you must specify which way the channel is to be widened from your line. The system prompts:
Mark direction to widen channel:
 8. Use the mouse or appropriate keyboard arrow key to mark a point on the side of the marker line to which the channel should be widened. The system returns to the prompt to allow entering additional channels. Press the Esc key to exit to the Floor menu.

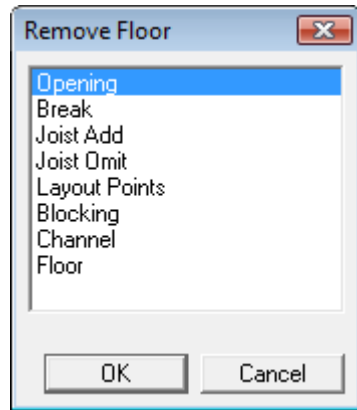
For all channels, a line is drawn marking the channel location (in light blue). When the floor is framed, the channel is created.

Remove

SolidBuilder ➡ Floor ➡ Edit ➡ Remove

Icon: 

1. Right click on the Floor and select Remove to remove the entire floor. Or for more options select the Remove icon.



2. Select the item to be removed and click OK. The system prompts:
Select (items) to be removed
3. After you select the items, right mouse click and select Finished. Select Yes or No to remove the selected items.

Shape

Move

SolidBuilder ➡ Floor ➡ Shape ➡ Move

Icon: 

This command allows you to move a floor.

1. Right click on the floor and select Shape Move or select the Shape icon and then Move.
The system prompts:
Select floor to move
2. Select the desired floors to move. If you have more than one floor visible, right mouse click and select Finished. The system prompts for distance and direction of move:
3. You are prompted:
Enter base point
4. The cursor moves to the layout point of the floor. Either press Enter or left mouse click to select this as the base point for the move or move the cursor to a more convenient

location to specify the distance and direction for the move. Press

5. Enter and the system prompts:
Enter offset point
6. Enter or type the desired coordinates. Thus entering the move distance, the floors are moved, indicating the distance and direction.

Split

SolidBuilder ➡ Floor ➡ Shape ➡ Split

Icon: 

This command allows you to split a single floor into two separate floors. You may wish to split a floor due to component construction requirements or for specific framing considerations and or change in joist layout direction.

1. Right click on the floor and select Shape Split or select the Shape icon and then Split. You are prompted:
Select floor to split
2. After the desired floor has been selected, You are prompted:
Mark the first dividing-line point then
Mark the next dividing-line point
3. Move the cursor to the location at which the split is to occur, then click the left mouse button. You may split the floor with a multi-segmented line. When you finish entering the dividing line points right mouse click or press F10.
4. The floor is split into two floors and the system prompts for another floor to split. Continue the command, and then press Esc to exit the command.

Join

SolidBuilder ➡ Floor ➡ Shape ➡ Join

Icon: 

This command lets you join two floors into a single floor. Typically, Shape Join is used to rejoin two floors, which were previously split.

1. Right click on the floor and select Shape Join or select the Shape icon and then Join. You are prompted:
Select first floor to join then:
Select second floor to join

The floors are joined.

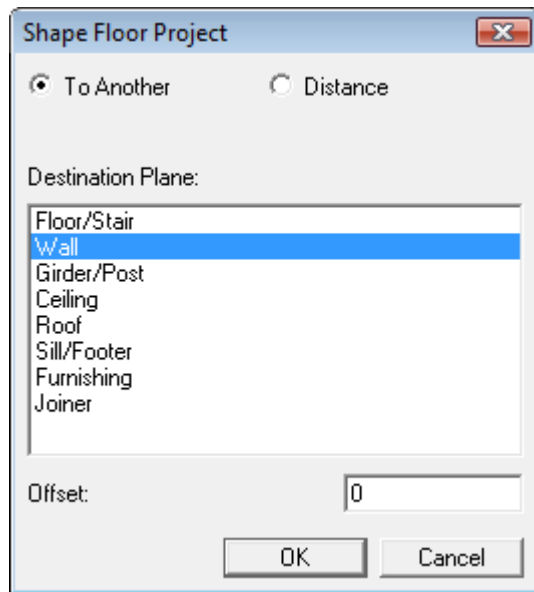
Project

SolidBuilder ➡ Floor ➡ Shape ➡ Project

Icon: 

This command allows you to project a floor face to either a distance or to a plane defined by one of the faces of a floor, wall, girder, ceiling or roof.

1. Right click on the floor and select Shape Project or select the Shape icon and then Project



Every shell contains six faces, front, back, top, bottom, left and right. A face can only be projected to another face in the same plane; otherwise an invalid or corrupted shell results. For example, the right face of one sill plate cannot be projected to the top face of another.

- **To Another**
 1. If you choose To Another, select the type of model shell (wall, roof, etc.), which contains the desired destination plane, and indicate any distance you wish to offset the floor projection from this plane. A positive value projects the floor to a point beyond the plane; a negative value projects the floor face to a point before the plane. After selection of a shell type click on OK and the system prompts:
Select <shell> to project to
 2. Select the appropriate shell. The system prompts:
Select face to project to
 3. Use the left arrow or right arrow key to select the face of the shell to which you wish to project a floor face. The system prompts:
Select floor to project:

4. Select a floor to be projected. The system prompts:
Indicate the face to project
 5. Use the left arrow or right arrow key to select the face to be projected. The designated face is projected to the selected plane.
- **Distance**
 1. If you choose Distance, type the distance to project. This may be a positive or negative value. The system prompts:
Select floor to project:
 2. Select a floor to be projected. The system prompts:
Indicate the face to project
 3. Use the left arrow or right arrow key to select the face to be projected.

Trim

SolidBuilder ➡ Floor ➡ Shape ➡ Trim

Icon: 



You can only trim a floor to a roof surface. You cannot trim a floor to another floor, wall, or any other shell other than a roof.

1. Right click on the floor and select Shape Trim or select the Shape icon and then Trim. You are prompted:
Select roofs to trim against if you right clicked or select the floor to trim if you clicked on the icon.
2. Select all roofs that you want to trim the floor against. Right mouse click and select Finished or press F10 to finish the selection process. After you select the roofs, the floors are trimmed against the roofs.



The roof must completely intersect and pass through the floor in order for the Trim command to work properly. It may be necessary to project a roof edge through the floor, trim the floor and then project the roof edge back.

Perimeter

SolidBuilder ➡ Floor ➡ Shape ➡ Perimeter

Icon: 

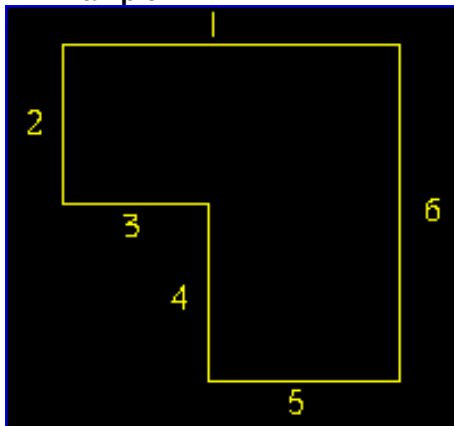
Use this command to alter a floor's perimeter or boundary.

1. Right click on the floor and select Shape Perimeter or select the Shape icon and then

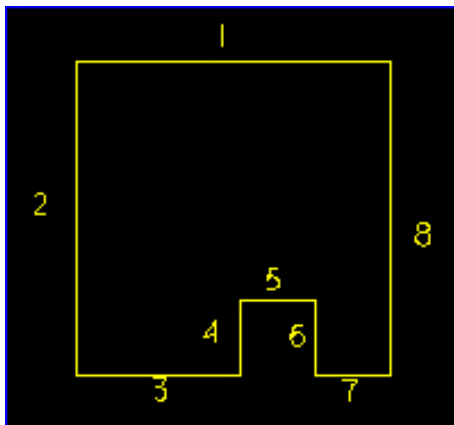
Perimeter. You are prompted:
Select floor to modify

2. After selecting a floor, you are prompted:
Start edge 0 stop edge 1
3. Select the first floor edge to move. You are prompted:
Select the remainder of the portion to replace
4. Use the arrow keys to highlight the last floor edge to change and press Enter. You are prompted:
Mark the first new perimeter point
5. Press Enter. You are prompted:
Mark the next new perimeter point
6. Enter the coordinates of the next point or points using either the mouse or keyboard entry. Press F10 when the new perimeter is complete. **SolidBuilder** connects the last entered point of the new perimeter with the original floor outline.

Example



Existing Floor Shape



New Floor Shape

1. Right click on the floor and select Shape Perimeter or select the Shape icon and then Perimeter. You are prompted:
Select floor to modify
2. After selecting a floor, you are prompted:
Start edge 0 stop edge 1
3. Use the right arrow key on the keyboard and scan around until edge 1 is highlighted.
You are prompted to select the remainder of the portion to replace.
4. Use the right arrow key to highlight edge 2, then 3, and then 4 and finally edge 5, and press F10.
5. **Do not press enter when each edge is highlighted, only when you finish highlighting edge 5!**
You are prompted to:
Mark first new perimeter point.
6. Use the End jump command and jump to the corner of edge 6 and 1 and press Enter. You now have a red rubber band anchored at this corner.
7. Use the E jump command and select the corner of 1 and 2 and press Enter.
8. Next, using the E jump command create the corner of edges 2 and 3
9. Next, the corner of edges 3 and 4.
10. Next, create the corner of edges 4 and 5.
12. Next, create the corner of edges 5 and 6.
12. Next, create the corner of edges 6 and 7.
13. Finally, jump to the corner of edges 7 and 8 and press F10 to Finish.
14. The Select Floor prompt returns. Select another floor to modify or press Esc to end the command.

Modify

Opening

SolidBuilder ➡ Floor ➡ Modify ➡ Opening

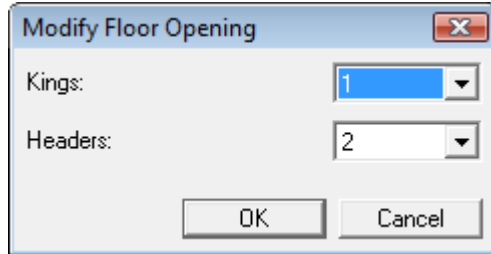
Icon: 

This command allows you to modify an opening in a floor.

1. Right click on the floor opening and select Modify - Opening or select the Modify icon and then Opening. If you used the Modify icon you are prompted:

Select opening to modify
Left click on the floor to modify

2. Once you have selected the opening to modify, the Modify Floor Opening dialog box opens.



3. Set the number of king joists (joists that run parallel and next to the header) and headers and hit OK.

Breaks

SolidBuilder ➡ Floor ➡ Modify ➡ Breaks

Icon: 

This command allows you to modify a break in a floor.

1. Right click on the floor break and select Modify - Break or select the Modify icon and then Break. If you used the Modify icon you are prompted:
Select break to modify
Left click on break to modify
2. The same dialog box opens that is used to create the floor break and you can change any of the settings and options.

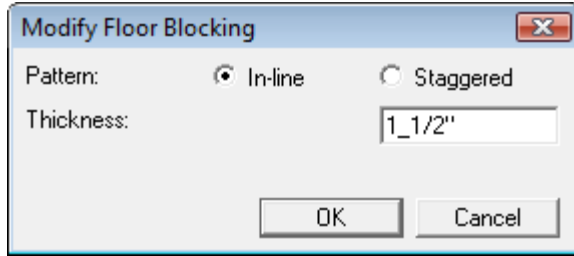
Blocking

SolidBuilder ➡ Floor ➡ Modify ➡ Blocking

Icon: 

This command allows you to modify the blocking in a floor.

1. Right click on the floor and select Modify - Opening or select the Modify icon and then Blocking. If you used the Modify icon you are prompted:
Select blocking to modify
2. Left click on the blocking line to modify. Blocking lines are a dull red color.
3. The Modify Floor Blocking dialog box opens.



4. Make your modifications and hit OK.

Channel

SolidBuilder ➔ **Floor** ➔ **Modify** ➔ **Channel**

Icon:

This command allows you to modify the channel in a floor.

1. Right click on the floor and select Modify - Channel or select the Modify icon and then Channel. If you used the Modify icon you are prompted:
Select Channel to modify
2. Left click on the channel line to modify. Channel lines are light blue color.
3. The Modify Channel dialog box opens. A different modify channel box will open depending on what type of channel you are modifying. The modify options are very similar to the options for inserting a channel.



Description

SolidBuilder ➔ **Floor** ➔ **Modify** ➔ **Description**

Icon:

This command allows you to modify the description and framing members of a floor. Some options not available in the Create Floor command are available here. You may specify Outliner (or rim joist) break length, double alternate joists and blocking mid span for floor joists.

Chapter 19
Floors

1. Right click on the floor and select Modify - Description or select the Modify icon and then Description.
2. The Modify Floor Description dialog box opens.

The majority of the modify options are the same as those found in the Floor - Options dialog box. You may modify the fields as desired.

- **Modify Floor Width From:** If you change the joist width, thus changing the depth of the floor, you can select whether to keep the top of the floor at the current elevation and adjust the bottom of the floor or keep the bottom of the floor elevation and adjust the top of the floor.
- **Outline Break:** Also known as rim joists. This value will be the longest rim joist used when framing.

- **Double Joist:** This option doubles all joists.
- **Block Mid-span:** This option will insert a row of blocking at the mid span of all joists.

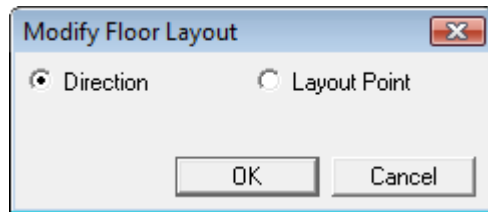
Layout

SolidBuilder ➤ **Floor** ➤ **Modify** ➤ **Layout**

Icon: 

This command allows you to set the joist layout direction and layout start point.

1. Right click on the floor and select Modify - Layout or select the Modify icon and then Layout.
2. The Modify Floor Layout dialog box opens.



- **Direction:** Allows you to change the joist direction.
 1. After selecting the Direction command, if you have multiple floors, you are prompted to select floor to modify.
 2. Left click on the floor or floors and right click to finish.
 3. The joist layout direction indicator line appears on the floor. Use the right or left arrow keys to select either vertical or horizontal joists and left click. You can now select another floor or esc to quit.
- **Layout Point:** Allows you to modify the layout point.
 1. After selecting the Layout Point command, if you have multiple floors, you are prompted to select floor to modify.
 2. Left click on the floor or floors and right click to finish.
 3. The cross hair jumps to the current layout point of the floor. Using the jump commands and entering the X, Y or Z coordinates enter the new layout point.

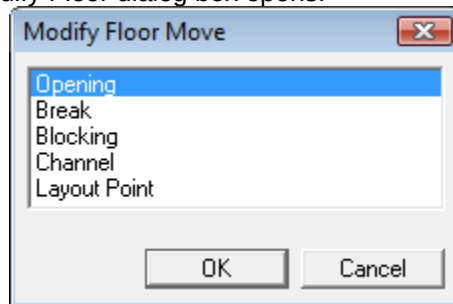
Move

SolidBuilder ➡ Floor ➡ Modify ➡ Move

Icon: 

This command allows you to move components of the floor.

1. The command is only available through the Modify icon. Select the Modify icon and then Move.
2. The Modify Floor dialog box opens.



- This command allows you to move openings, breaks, blocking, channels and the layout point. Note that the layout point can be changed using Modify Framing Layout, also. However, each of these other two options require that you locate the absolute position of the layout point, whereas the Move option lets you specify the new layout point relative to the old one.
 - For each of the Move options, the command sequence is the same. If more than one of the selected features is available (such as more than one line of blocking), you are prompted to select a specific feature to move.
1. Select an item to move.
 2. Once the correct feature has been selected, you are prompted to mark the base point. Using a jump command select a point.
 3. You are then prompted to enter the offset:
 4. Usually this point lies somewhere on the selected shell. However, since the move is strictly relative to the marked beginning and endpoints, any points can be used for reference. For example, if you wish to move an opening from a position next to one wall to a position next to another wall, you might simply mark a start point directly on the first wall and an endpoint on the target wall using the endpoint jump command. The opening is moved to the exact relative distance specified by the two marked points.
 5. After the second point is entered the feature is moved and the system prompts for another feature to move. Press Esc to exit the command and return to the Floor menu.

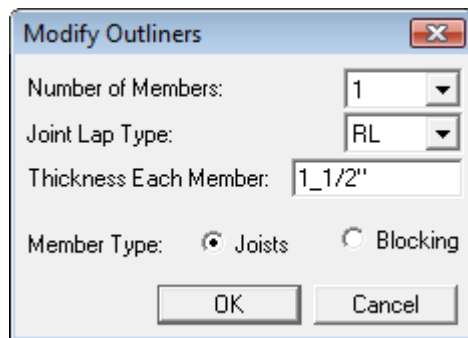
Outliner

SolidBuilder ➤ Floor ➤ Modify ➤ Outliner

Icon: 

SolidBuilder offers a powerful mechanism for adjusting the floor edges (also known as rim joists). You may change the number of members and the thickness of each member for each edge of the floor. You may also change the lapping at the ends of the outliner.

1. Right click on the floor and select Modify - Outliner or select the Modify icon and then Outliner. If you used the Modify icon you are prompted:
Select floors to modify outliner:
2. Left click on the floor to modify.
3. The Modify Outliner dialog box opens.



- A green marker at one end of the outliner shows which end is affected by changing the Joint lap type. RL (run long), RS (run short), MI (miter).
- Each edge of the floor is highlighted.
- Modify the fields as desired. The program displays dialog boxes for each edge of the selected floor. Upon completion of the command, the Floor menu displays again.

Name

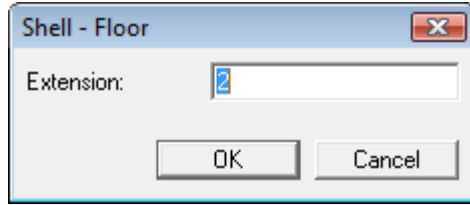
SolidBuilder ➤ Floor ➤ Modify ➤ Name

Icon: 

This command allows you to review and change the names of one or all of the floors.

1. Right click on the floor and select Modify - Name or select the Modify icon and then Name. If you selected the Modify icon, you are prompted to select floor to rename.
Select a floor.
2. The Modify Floor Description dialog box opens.

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3. After selecting a floor, **SolidBuilder** gives you the current name.
4. You have the option of providing three characters after the required initial term "floor." For example you could rename "floor7" to "floorbak" or "floor17" or "floorred." First press the backspace key to clear the number part of the proposed name. Then type in a one to three character name or value. After renaming one floor, you are prompted to select another floor for renaming. Continue or press Esc to exit the command.



Chapter 20: Sill Plates/Footers

SolidBuilder ➔ **Sill Plate / Footer**

Icon:

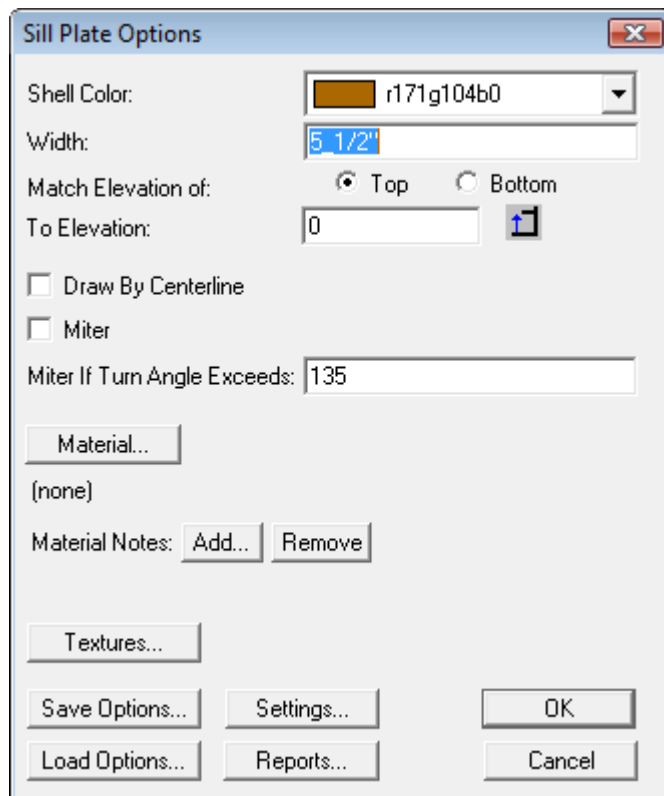


These menus contain options for creating sill plates and footers, for modifying sill plates and footers and for removing existing sill plates and footers. The Sill/Footer command operates using the same type of dialog boxes, menus and options as the Outlines and Floors commands.

Sill Plate Options

SolidBuilder ➔ **Sill Plate** ➔ **Options**

Icon:



- **Shell Color:** Allows you to specify the sill plate color.

- **Width:** the width of the sill plate. You set the thickness of the sill plate in the Settings menu.
- **Match Elevation to:** which surface (Top of Bottom) of the sill plate do you want to use to match to another shell. Typically if you have created the floor first, you would match the elevation of the top of the sill plate to the bottom of the floor.
- **Draw By Centerline:** will draw the sill plate by the center of the sill plate rather than an edge.
- **Miter:** will miter the sill plates at corners.
- **Miter If Turn Angle Exceeds:** if miter is toggled on, corners will not be mitered until the angle of the corner exceeds this value.
- **Material:** select the material or species of lumber to use for the sill plates.
- **Material Notes:** allows you to add material notes.
- **Reports:** set the level, workstage and attach assemblies and items to a sill plate.
- **Settings:** click on the Sill Plate tab. Set the thickness, Standard Length (longest length to use), and Minimum Length (shortest length to use).
- **Elevation:**
 1. Click on the icon. The Build Elevation window opens.
 2. Select the shell you want to match the sill plate to. For example, if you created the floor first and are now creating the sill plate you would select floor.
 3. You are prompted to select a floor for the elevation.
 4. The Model Elevation window opens. Select which surface of the floor you want to match to. Following our example, we would want to match the sill plate to the bottom of the floor so we would select bottom.
- **Textures:** Allows you to assign textures for rendering purposes. See the rendering chapter for further explanation.

Creating Sill Plates

SolidBuilder ➡ **Sill Plate**

Icon: 

Once you have all of the options set, you are ready to create sill plates.

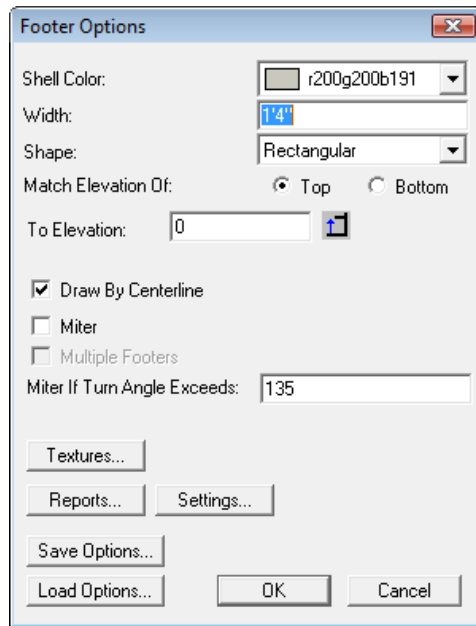
1. Click on the Sill Plate icon to start the command again.
2. Select **Free Form**, **Outline** or **Rectangle** from the drop down menu. Typically you will create the floor first. Since a floor automatically creates an outline, you will use the Outline method.

3. If you selected Free Form you are prompted to:
Mark First Corner of Sill plate:
 - Using a jump command Left mouse click to select the starting point for the sill plate.
You are prompted to:
Mark end Corner of Sill plate:
 - Using a jump command or hit the X or Y key and enter the X or Y coordinates for the length of the sill plate. Left mouse click to select the end point for the sill plate. You are prompted to:
Mark other side. Move your mouse pointer to any position inside the foundation area and left click.
 - The red rubber band is still attached and you can continue creating sill plates or right mouse click twice to finish
2. If you selected Outline from the drop down menu, you are prompted to:
 - Select an outline.
 - All previously created outlines will be visible.
 - Select the desired outline.
3. If you selected Rectangle you will be prompted to:
 - Mark First Sill Plate Corner Point.
 - Using a jump command Left mouse click to select the starting point for the sill plate.
You are prompted to:
Mark opposite diagonal sill plate corner.
 - Using a jump command or hit the X or Y key and enter the X or Y coordinates for the opposite diagonal corner of the sill plates.
 - Right mouse click to finish.

Footer Options

SolidBuilder ➡ Footer ➡ Options

Icon:  



- **Width:** the width of the footer. You set the thickness or depth of the footer in the Settings menu.
- **Match Elevation to:** which surface (Top of Bottom) of the footer do you want to use to match to another shell. Typically if you have created the foundation wall first, you would match the elevation of the top of the footer to the bottom of the wall.
- **Draw By Centerline:** will draw the footer by the center of the footer rather than an edge.
- **Miter:** will miter the footers at corners.



When creating a footer that contains a distance equal to or less than the width of the footer, use the Miter option. Because of the short distance, **SolidBuilder** may have trouble creating the corners if they are not mitered.

- **Miter If Turn Angle Exceeds:** if miter is toggled on, corners will not be mitered until the angle of the corner exceeds this value.
- **Material:** select the material or to use for the footer.
- **Reports:** set the level, workstage and attach assemblies and items to a footer.
- **Settings:** click on the Footer tab. Set the depth and number of sides for a circular or round footing. **SolidBuilder** creates round objects as a series of flat faceted sides. The more sides selected, the smoother the circle becomes but also more lines are created. Typically in round objects 8-10 sides are sufficient.
- **Elevation:**
 1. Click on the icon. The Build Elevation window opens.
 2. Select the shell you want to match the footer to. For example, if you created the

- foundation wall and are now creating the footer you would select foundation wall.
 3. You are prompted to select a wall for the elevation.
 4. The Model Elevation window opens. Select which surface of a wall you want to match to. Following our example, we would want to match the footer to the bottom of the wall so we would select bottom.
- **Textures:** Allows you to assign textures for rendering purposes. See the rendering chapter for further explanation.

Creating Footers

SolidBuilder ➡ Footer

Icon: 

Once you have all of the options set, you are ready to create footers.

1. Click on the Sill Plate icon to start the command again.
2. If you selected Free Form you are prompted to:
Mark First Corner of Footer:
 - Using a jump command Left mouse click to select the starting point for the footer. You are prompted to:
Mark end Corner of Footer:
 - Using a jump command or hit the X or Y key and enter the X or Y coordinates for the length of the footer. Left mouse click to select the end point for the footer. You are prompted to:
Mark other side. Move your mouse pointer to any position inside the foundation area and left click.
 - The red rubber band is still attached and you can continue creating footers or right mouse click twice to finish.
2. If you selected Outline from the drop down menu, you are prompted to:
 - Select an outline.
 - All previously created outlines will be visible.



If you have previously created a floor which creates its own outline, or created an outline for the foundation wall, you will not want to use this outline for the footers. The footers will need

an outline that is offset to the outside of the other outlines. To do this select the Outline icon 

and select the Shape icon . Select Offset and Outside. Select the outline needed to be offset and enter the offset distance.

- Select the desired outline.
3. If you selected Rectangle you will be prompted to:

- Mark First Footer Corner Point.
- Using a jump command Left mouse click to select the starting point for the footer.

You are prompted to:

Mark opposite diagonal footer corner.

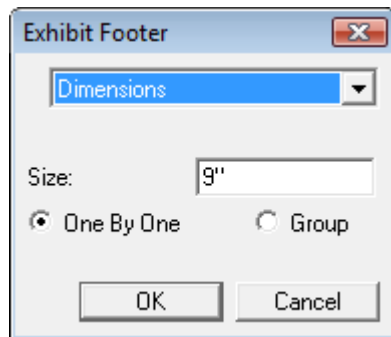
- Using a jump command or hit the X or Y key and enter the X or Y coordinates for the opposite diagonal corner of the footer.
- Right mouse click to finish.

Sill Plate/Footer Exhibit

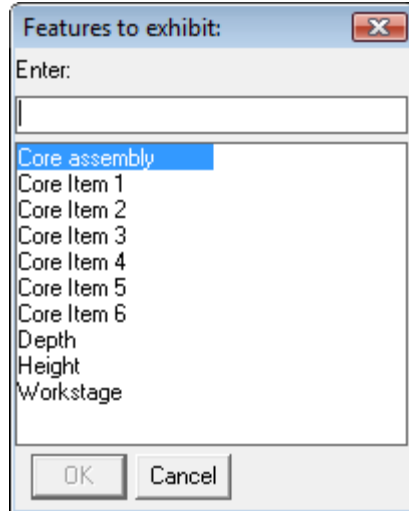
SolidBuilder ➔ **Sill Plate / Footer** ➔ **Exhibit**

Icon: 

The Exhibit commands for both Sill Plates and Footers function exactly the same, other than the dialog boxes may appear a bit different and will be discussed as on in the same.



1. **Dimensions:** When you select this command, the system prompts:
Size of dimension numerals: 9"
 - Backspace through the suggested dimension size if you wish to enter a different value. Otherwise click on OK.
You are prompted to:
 - Select <shells> to view
 - The shells selected are displayed with dimensions and top and bottom elevations called out. The shell name is displayed in the upper left corner of the screen. The displays may be printed.
1. **Description:** When you select this command the Features to exhibit dialog box displays:



- Select one of the choices and click on OK. The system displays each shell or group of shells that contains a different value for the choice. The first set of shells with a unique value is displayed. Pressing any key then displays subsequent groups with different values. When all have been displayed, the dialog box displays again. Press Esc to end the command.

Remove

SolidBuilder ➡ Sill Plate / Footer ➡ Remove

Icon:  

The Edit commands for both Sill Plates and Footers function exactly the same, other than the dialog boxes may appear a bit different and will be discussed as on in the same. You can edit one sill plate or footer by right click on it or you can edit multiple or all at once by selecting the icon.

1. Right click on a sill plate or footer and select remove.



Right clicking also offers you the ability to select more than one shell at a time. Left click on a shell. Hold the Shift key on the keyboard down and select additional shells. Once all the desired shells are selected, right and select the desired command. The shells selected must be the same type i.e. all walls or all floors etc.

2. Or select the Remove icon to remove multiple or all sill plates or footers.

Shape

Move

SolidBuilder ➡ Sill Plate / Footer ➡ Shape ➡ Move

Icon:  

The Edit commands for both Sill Plates and Footers function exactly the same, other than the dialog boxes may appear a bit different and will be discussed as on in the same. You can move one sill plate or footer by right click on it or you can move multiple or all at once by selecting the icon.

1. Right click on a sill plate or footer and select Move.



Right clicking also offers you the ability to select more than one shell at a time. Left click on a shell. Hold the Shift key on the keyboard down and select additional shells. Once all the desired shells are selected, right and select the desired command. The shells selected must be the same type, i.e. all walls or all floors etc.

2. Or select the Shape icon and select Move to move multiple or all sill plates or footers.
3. Select the desired shell to move,
4. Right click and select Finished. You may select more than one shell. The system prompts for distance and direction of move.
5. Enter base point
6. The cursor is located at the left outer face of the footer or sill. Either press the Enter key to select this location as the base point for the move or move the cursor to a more convenient location to specify the distance and direction for the move. Press the Enter key and the system prompts:
Enter offset point
7. Move the cursor or type in the distance using the X, Y and Z coordinates dialog box and press the Enter key, thus indicating the move distance. The shells are moved.

Split

SolidBuilder ➡ Sill Plate / Footer ➡ Shape ➡ Split

Icon:  

The Edit commands for both Sill Plates and Footers function exactly the same, other than the dialog boxes may appear a bit different and will be discussed as on in the same. You can split one sill plate or footer by right click on it or you can split multiple or all at once by selecting the icon.

1. Right click on a sill plate or footer and select Split



Right clicking also offers you the ability to select more than one shell at a time. Left click on a shell. Hold the Shift key on the keyboard down and select additional shells. Once all the desired shells are selected, right and select the desired command. The shells selected must be the same type i.e. all walls or all floors etc.

2. Or select the Shape icon and select Split to split multiple or all sill plates or footers.
3. You are prompted:
Select sill plate/footer to split
4. After the desired shell has been selected, the system prompts:
Mark or enter location of split:
5. The cursor is positioned at one corner of the selected shell.
6. Move the cursor to the location at which the split is to occur, then press Enter.
7. The shell is split into two shells and the system prompts for another shell to split.
8. Continue the command until there are no more splits to be made, then press Esc to exit the command.

Join

SolidBuilder ➡ Sill Plate / Footer ➡ Shape ➡ Join

Icon:  

The Edit commands for both Sill Plates and Footers function exactly the same, other than the dialog boxes may appear a bit different and will be discussed as on in the same. You can join one sill plate or footer by right click on it or you can join multiple or all at once by selecting the icon.

1. Right click on a sill plate or footer and select Join



Right clicking also offers you the ability to select more than one shell at a time. Left click on a shell. Hold the Shift key on the keyboard down and select additional shells. Once all the desired shells are selected, right and select the desired command. The shells selected must be the same type i.e. all walls or all floors etc.

2. Or select the Shape icon and select Join to joint multiple or all sill plates or footers.
3. Typically Join is used to rejoin two shells of the same type, which were previously split.

The system prompts you to select each of the shells to be joined.

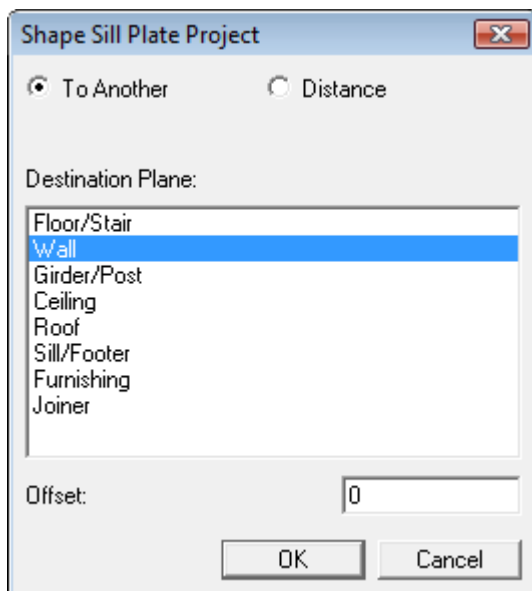
4. Select first sill-plate/footer to join; ESC to quit
5. Select second sill-plate/footer to join
6. Select the two shells. After the second shell is selected, the two are joined.

Project

SolidBuilder ➡ Sill Plate / Footer ➡ Shape ➡ Project

Icon:  

The Edit commands for both Sill Plates and Footers function exactly the same, other than the dialog boxes may appear a bit different and will be discussed as on in the same. This command allows you to project a sill plate or footer face by projecting to the plane defined by one of the faces of another shell. You may also project a face to a distance. When you select Project, the dialog box below displays



- **To Another:**
 1. Select the shell type (wall, roof, etc.), which contains the desired destination plane, and indicate any distance you wish to offset the footer or sill plate projection from this plane. A positive value projects the footer or sill plate to a point beyond the plane; a negative value projects the footer or sill plate face to a point before the plane.
 2. After selection of a shell type, click on OK and the system prompts:
Select <shell> containing the destination plane
 3. Select the appropriate shell. The system prompts:
Select face for destination plane

4. Use the left arrow or right arrow key to select the face of the shell to which you wish to project a footer or sill plate face. The system prompts:
Select sill-plates to project:
5. Select a footer or sill plate to be projected. The system prompts:
Indicate the face to project
6. Use the left arrow or right arrow key to select the face to be projected. The face is projected to the selected plane and the system prompts:
Select next sill plate/footer to project to a plane; ESC to quit
7. If there are other footers or sill plates you wish to project to this same plane, you may select them now using the same procedure. When there are no more footers or sill plates to project, press Esc to exit the command.



Every shell contains six faces: front, back, top, bottom, left and right. A face can only be projected to another face in the same plane; otherwise an invalid or corrupted shell results. For example, the right face of one sill plate cannot be projected to the top face of another.

- **Distance**

1. Turn the Distance radio button on in the Shape Floor project dialog box. Enter the distance to project. You may use positive or negative values (positive value lengthens and negative value shortens). You are prompted:
Select sill-plates to project:
2. Select a footer or sill plate to be projected. The system prompts:
Indicate the face to project
3. Use the left arrow or right arrow key to select the face to be projected.
4. You are then prompted to select another footer or sill plate. When there are no more footers or sill plates to project, press Esc to exit the command.

Trim

SolidBuilder ➡ Sill Plate / Footer ➡ Shape ➡ Trim

Icon:  

The Edit commands for both Sill Plates and Footers function exactly the same, other than the dialog boxes may appear a bit different and will be discussed as on in the same. This command is used to trim selected footers or sill plates against other shells and is only available through the Shape icon.

1. When you select Shape Trim, the dialog box below displays:



2. This selection tells the system to keep either the Bottom or the Top of the trimmed footers or sill plates. Click on OK when your selection is correct and the system prompts:
Select sill-plate/footer to modify
3. Use the left arrow or right arrow key to move the highlight among the footers or sill plates or switch to pick mode and select each shell when highlighted. After all have been selected, press the F10 key or right click and select Finished.
4. Now select shells to be used in trimming.
5. After you select the trimming shell or shells, the footers or sill plates are trimmed, with the selected portion discarded.

Modify

SolidBuilder ➡ Sill Plate / Footer ➡ Modify ➡ Trim

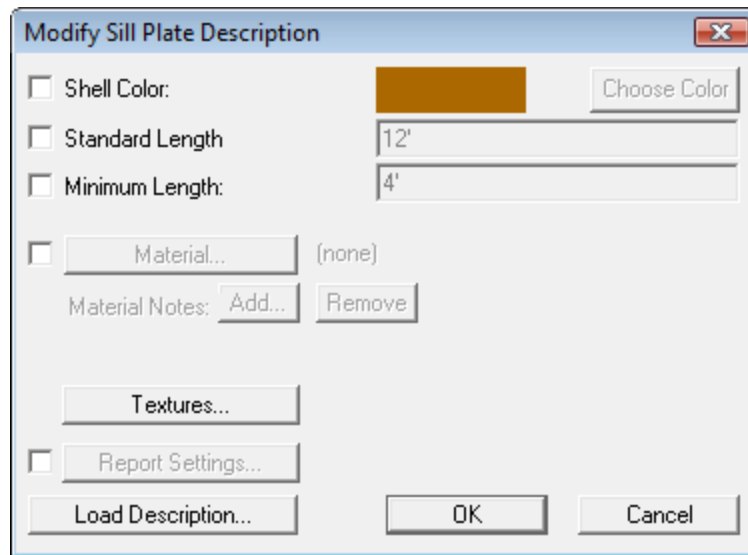
Icon:  

The Modify commands for both Sill Plates and Footers function exactly the same, other than the dialog boxes may appear a bit different and will be discussed as on in the same.

1. This command set includes the function to modify the description of selected shells. After selecting Modify, the system prompts:
Select sill/footers to modify
2. After you select the sill plate(s) / footer(s) to modify, right click and select Finished. One of the following dialog box displays depending on the option you selected.

For Sill Plates

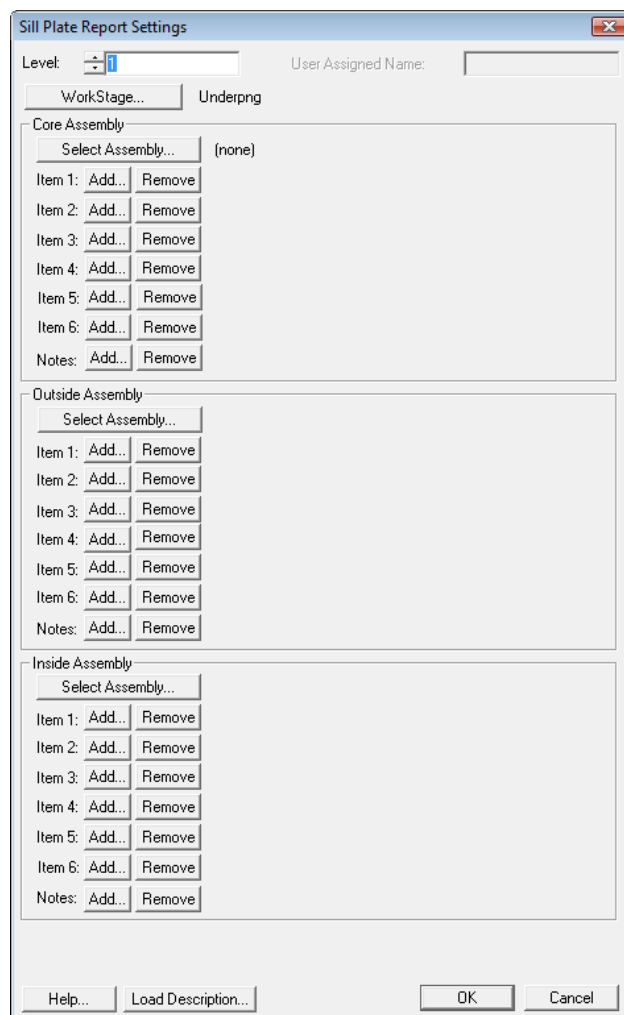
Chapter 20
Sill Plates



The "Modify Sill Plate Description" dialog box contains the following elements:

- ☐ Shell Color: A color selection area with a brownish-gold swatch and a "Choose Color" button.
- ☐ Standard Length: A text field containing "12'".
- ☐ Minimum Length: A text field containing "4'".
- ☐ Material...: A button next to the text "(none)".
- Material Notes: Two buttons, "Add..." and "Remove".
- Textures...: A button.
- ☐ Report Settings...: A button.
- Load Description...: A button.
- OK: A button.
- Cancel: A button.

For Footers and Sill Plates (after you click on the Report Info button)



The "Sill Plate Report Settings" dialog box contains the following elements:

- Level: A dropdown menu showing "1".
- User Assigned Name: A text field.
- WorkStage...: A button.
- Underpng: A button.
- Core Assembly:
 - Select Assembly...: A button next to the text "(none)".
 - Item 1: Add... Remove
 - Item 2: Add... Remove
 - Item 3: Add... Remove
 - Item 4: Add... Remove
 - Item 5: Add... Remove
 - Item 6: Add... Remove
 - Notes: Add... Remove
- Outside Assembly:
 - Select Assembly...: A button.
 - Item 1: Add... Remove
 - Item 2: Add... Remove
 - Item 3: Add... Remove
 - Item 4: Add... Remove
 - Item 5: Add... Remove
 - Item 6: Add... Remove
 - Notes: Add... Remove
- Inside Assembly:
 - Select Assembly...: A button.
 - Item 1: Add... Remove
 - Item 2: Add... Remove
 - Item 3: Add... Remove
 - Item 4: Add... Remove
 - Item 5: Add... Remove
 - Item 6: Add... Remove
 - Notes: Add... Remove
- Help...: A button.
- Load Description...: A button.
- OK: A button.
- Cancel: A button.

3. Select a Level. Select a Work Stage, a Core Assembly, a Top Assembly and/or a Bottom Assembly as needed. You may change any of the values or options. After you have entered the appropriate values and clicked on OK, the system returns to the Select prompt. Press the Esc key to exit the command.



Chapter 21: Walls

SolidBuilder ➔ Walls

Icon: 

The Wall command includes options for creating, modifying, shaping and removing walls. It also includes provision for inserting blocking, shear wall sections, channels, ledgers, in-wall posts, doors, and windows. Modification and shaping options include trimming, splitting and joining walls; changing framing values, and moving doors, windows, and framing features. There are three methods of creating walls: drawing them free-form, using an existing outline, or drawing a rectangle.

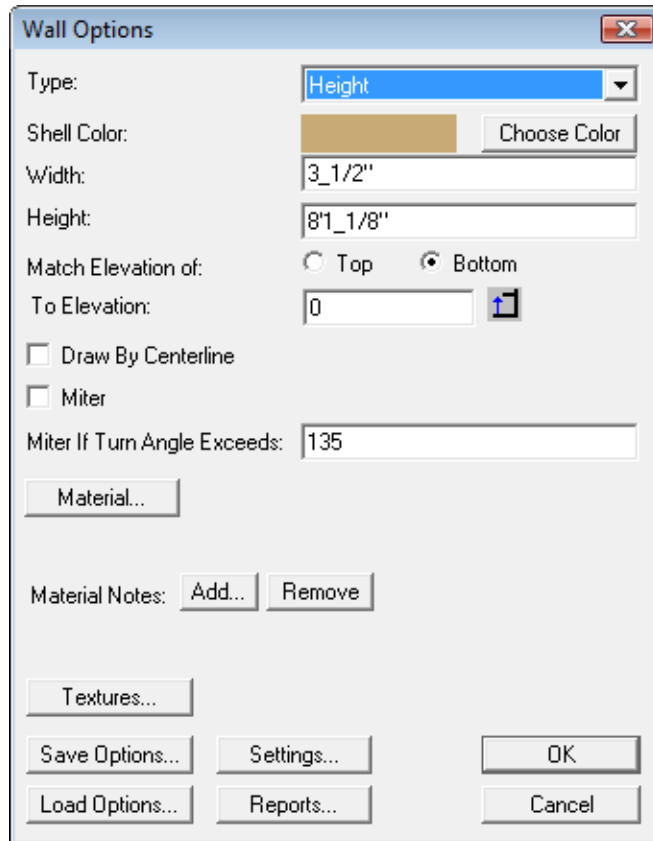
Wall Options

SolidBuilder ➔ Walls ➔ Options

Icon:  

The Options icon provides the options for creating walls. The wall elevation may be determined by simply entering a specific height, by referencing an existing wall or girder, by specifying multiple values for points along the wall (for stepped or rake walls), by specifying the slope of wall segments, or by using any overhead roofs and/or ceilings as wall top boundaries. The wall settings remain as entered until changed. Each wall type (exterior, interior, log, masonry, staggered etc.) holds the current settings for that type independent of all other types, eliminating the constant need to reenter settings when switching between wall types. The following dialog box displays when you click on the Option icon

Chapter 21
Walls

The image shows a software dialog box titled "Wall Options". It contains several settings for configuring walls. At the top, there is a "Type:" dropdown menu set to "Height". Below it is a "Shell Color:" field with a tan color swatch and a "Choose Color" button. The "Width:" field is set to "3_1/2\"", and the "Height:" field is set to "8'1_1/8\". The "Match Elevation of:" section has two radio buttons: "Top" (unselected) and "Bottom" (selected). Below this is a "To Elevation:" field set to "0" with a small icon to its right. There are two checkboxes: "Draw By Centerline" (unchecked) and "Miter" (unchecked). The "Miter If Turn Angle Exceeds:" field is set to "135". At the bottom of the main settings area is a "Material..." button. Below that is a "Material Notes:" section with "Add..." and "Remove" buttons. Further down is a "Textures..." button. At the very bottom are four buttons: "Save Options...", "Settings...", "OK", "Load Options...", "Reports...", and "Cancel".

- **Type:** There are seven wall types available.
- **Shell Color:** Allows you to select a outside wall color.
- **Width:** Enter the width of the wall
- **Height:** Enter the Height of the wall.
- **Match Elevation To:** This refers to which face of the Wall Shell should be used to match to another shell. For example, if you want to set the bottom of the wall to be at 0 elevation turn the Top radio button on.
- **Elevation:** You may set the wall elevation by reference to its top or its bottom. The "to elevation of:" field allows you to pick a shell type which then determines the wall elevation (typically a floor).
- **Draw by Centerline:** Will draw the wall by the centerline of the width.
- **Miter:** All wall corners will be automatically mitered.
- **Miter if Turn Angle Exceeds:** Miter wall corners that exceed the value entered in this field.
- **Material:** Allows you to specify a material option for walls.
- **Material Notes:** Allows you to specify material notes for walls.

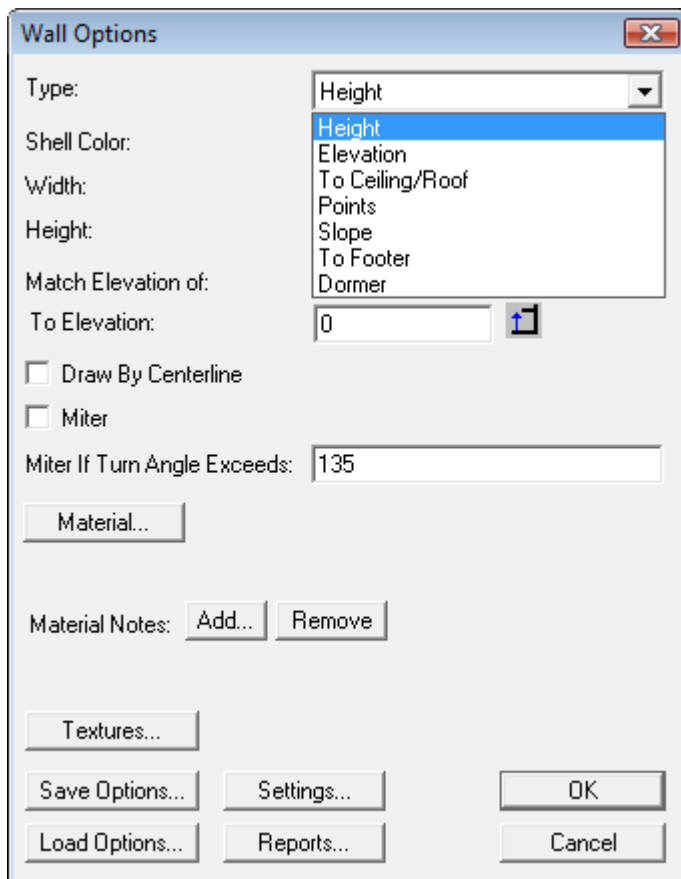
- **Textures:** Allows you to assign textures for rendering purposes. See the rendering chapter for further explanation.
- **Reports:** Assign levels and assemblies.
- **Settings:** Setup up framing defaults.

Wall Types

SolidBuilder ➔ **Walls** ➔ **Options**

Icon:  

There are seven wall types available.



The 'Wall Options' dialog box is shown. It has a title bar with a close button. The 'Type:' dropdown menu is open, showing options: Height, Elevation, To Ceiling/Roof, Points, Slope, To Footer, and Dormer. The 'Height' option is selected. The 'Shell Color:' field is empty. The 'Width:' field is empty. The 'Height:' field is empty. The 'Match Elevation of:' field is empty. The 'To Elevation:' field contains the value '0'. There are checkboxes for 'Draw By Centerline' and 'Miter', both of which are unchecked. The 'Miter If Turn Angle Exceeds:' field contains the value '135'. There are buttons for 'Material...', 'Material Notes: Add...', 'Material Notes: Remove', 'Textures...', 'Save Options...', 'Settings...', 'Load Options...', 'Reports...', 'OK', and 'Cancel'.

Height: Specify the actual wall height, from its bottom to its top.

Elevation: Specify elevation of the wall top, which may be referenced to another shell or may be simply entered as a value.

To Roof/Ceiling: This option raises the top of the wall to a ceiling or roof (gable ends). If you are able to define the roofs above the wall first, then the To-roof/ceiling option should be your choice, as it is the easiest to use.

Points: Specify the top and/or bottom wall elevations by using points.

Slope: This option creates the wall by specifying the slope for the top of the wall.

To Footer: This option lowers the bottom of the wall to a footer or slab.

Dormer: This option creates a wall on top of a roof, trimming against that roof.

Height

SolidBuilder ➔ Walls ➔ Options ➔ Type

Icon:  

Height: Specify the actual wall height. The wall height is calculated from the top of the top plate to the bottom of the bottom plate.



If you are using pre-cut studs, the wall height set here must be the exact height of the stud (92 5/8") + 1 bottom plate (1.5") + 2 top plates (3") = 8' 1 1/8". If the wall height specified here does not match exactly, **SolidBuilder** uses full 8' pieces.

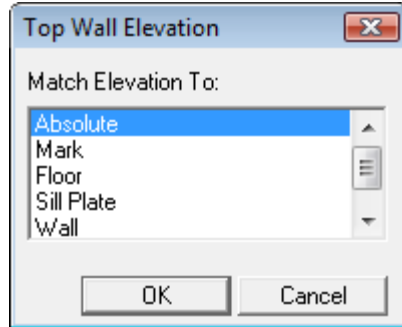
Elevation

SolidBuilder ➔ Walls ➔ Options ➔ Type

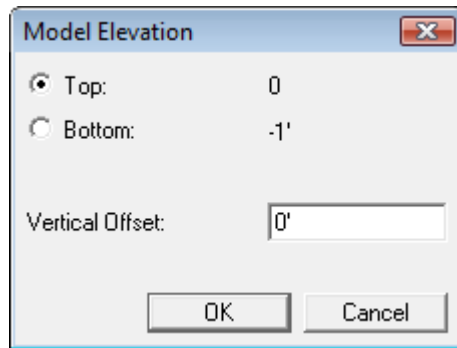
Icon:  

Elevation: This command allows you to raise a wall to a desired elevation. Use this command when you wish to create the wall at the same elevation as an existing shell or when you know the top plate elevation value, but not the actual wall height. In all cases, the top plates are horizontal and at the single entered elevation.

2. After selecting elevation, click on the Elevation icon and after selecting wall type and other information in the Elevation dialog box, click on the Wall icon and the dialog box below displays:



3. This dialog box is asking you which shell you want to use to match the top of the new wall to. Remember, you set the bottom elevation of the new wall using the Elevation icon. Generally you will select Wall from this list. You are prompted:
Select wall for elevation
4. Select any wall that has the correct top elevation. The dialog box displays:



5. Select either the top or bottom elevations to reference. You may also enter an offset from that elevation. After the elevation has been determined, all the walls are created from their respective base-prints to that elevation.

To Ceiling / Roof

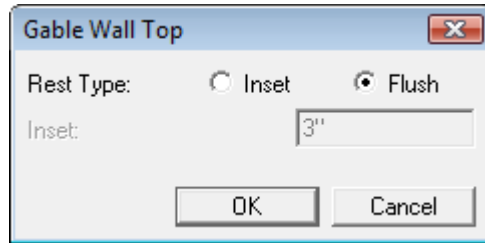
SolidBuilder ➔ **Walls** ➔ **Options** ➔ **Type**

Icon:  

To Ceiling/Roof: command automatically raises the wall to the roof, ceiling or roofs and ceilings that are above it.

1. After selecting To Ceiling/Roof, type and other information in the Options dialog box, you are prompted:
Mark first corner of Wall-Exterior point.
2. Select a starting point and draw the wall. Mark the Inside of the wall. The dialog box (below) displays once for each wall.

For Gable Walls



3. If the wall is a gable wall and you select Inset, the value of the inset size edit field is added to the wall height. The inset size is defined along the plumb cut, not the vertical distance. If you select Flush, the wall is flush with the bottom side of the roof and/or ceiling.

For Eave Walls



4. If the wall is an Eave Wall, select between Square/Beveled and Seat/ Birdsmouth. If you select square, the wall top is horizontal. If you select Beveled, the wall top is at the slope of the roof or ceiling above. Set the appropriate values and options and click on OK when finished.
5. After the wall is created, you may draw another wall or press Esc to end the command.

Points

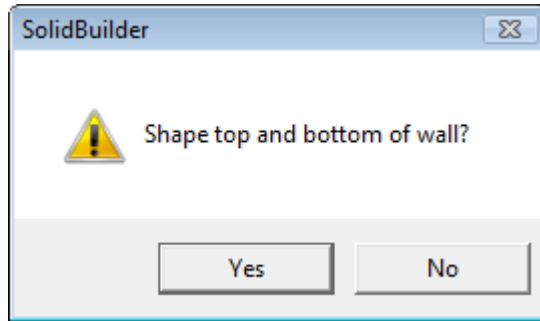
SolidBuilder ➔ **Walls** ➔ **Options** ➔ **Type**

Icon:  

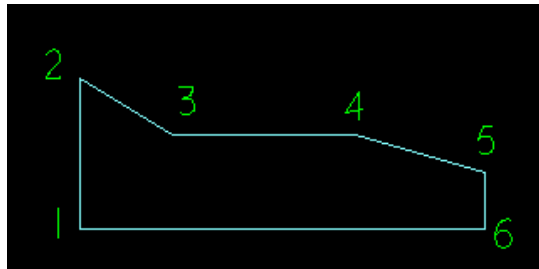
Points: creates an irregularly shaped wall. Using this feature, you can create a stepped, rake or other shape wall. This is accomplished by drawing the wall profile outline along the wall top and/or bottom. The front face of the wall determines Left and right. The Points option is used to create a stair railing with balusters by creating a wall with the bottom matching the treads and risers of the stair.

1. After selecting Wall type and other information in the Options dialog box, you are first prompted:
Mark first corner of Wall-Exterior point (using the free form method)
2. Create the wall in a Plan-View. You are prompted:
Mark Inside of wall:

3. Pick a side for the Inside. The following dialog box displays:



4. If you click on No, the cursor moves to the beginning of the green outline that **SolidBuilder** created. You are prompted:
Mark the first Top/bottom point of wall
5. Draw the outline of the desired wall top or bottom profile and press F10 when completed. Generally you create this in an Elevation view.
6. Select an appropriate view of the green outline using the View icons and selecting either the Left, Right, Front or Back option. Your selection should be so that you are viewing the outline from the side. The cursor is oriented to a side view so moving the mouse enables you to move the cursor to a desired elevation when drawing the wall profile.

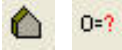


7. In the example above, the line 1-6 was created in Plan-View. Next, click on the Front-View icon. The first point is 1 then 2 and so on entering each point, ending with point 6. Right mouse click or press F10. If you place the points below the outline, then the bottom of the wall is created.
8. If you select the Both option, **SolidBuilder** asks you to draw both the top and bottom outline of the wall. The steps to create the top portion are the same as described above. Once you have selected the last point for the top portion and have right clicked or hit F10, do not move the crosshair and left click. This becomes the first point of the wall bottom. Continue selecting points for the shaped wall bottom
9. You draw a top and bottom wall outline of the desired profile and press F10 when finished. The last line segment you draw need not go all the way to the end of the base-print. The program projects the line segment to the edge of the outline. If the last line is sloped, it is projected to the outline end so that the end of the top section of the wall is at the indicated slope. The wall is created with a stepped bottom and top.

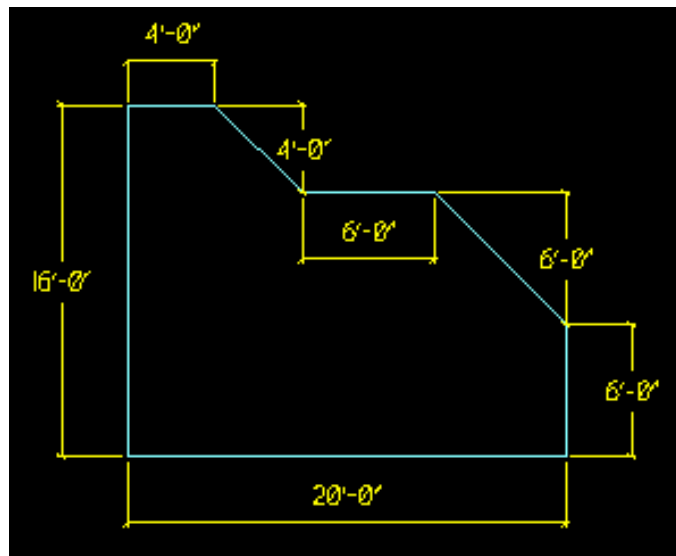
10. The By Points method is also used to create walls or railings on stairs.

Slope

SolidBuilder ➔ **Walls** ➔ **Options** ➔ **Type**

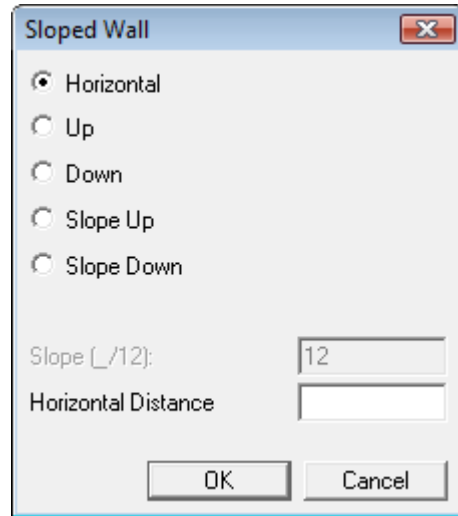
Icon: 

Slope: This allows you to divide a wall section into a number of top plate sections. This approach uses a similar technique to the Points command. The elevation of the left edge is given. From then on, the slope and horizontal distances are given. The initial steps are generally done in Plan view. Use the drawing below for reference.



1. After selecting type and other information in the Option dialog box you are prompted:
Mark first corner of Wall-Exterior point.
2. After selecting a starting point, you are prompted:
Mark end corner of Wall-Exterior point.
3. Enter the end point of the wall. You are prompted:
Select Inside of wall
4. Select a side and you are prompted:
Enter Start Height
5. This elevation is relative to the absolute elevation and represents the actual wall height at the left edge. For this example, 16'. After entering the beginning elevation, you are prompted:
Number of Segments

- This is the total number of different heights in the wall. In the example above the total number is 4 (2 horizontal and 2 sloped). After this number is entered, the Sloped Wall dialog box (below) displays:



- For our example, select horizontal and enter 4' in the Horizontal Distance edit field.
- The Sloped Wall dialog box displays again. Select Slope Down and type 12 for the pitch (you must know the pitch of the angle) and 4' for the horizontal distance. The Sloped Wall dialog box displays again.
- Select Horizontal and enter 6'. The Sloped Wall dialog box displays again.
- Turn on the Slope Down radio button and enter 12 for the pitch. You do not need to enter a horizontal distance since this is the last segment and **SolidBuilder** automatically sets the distance.
- Press the Esc key to end command and the slope is now created.

The selections allow you to specify where the top plate ends (and the next one begins). The codes used are explained as follows:

Horizontal: This top plate has no slope.

Up: This top plate goes straight up.

Down: This top plate goes straight down.

Slope up: This top plate slopes upward.

Slope down: This top plate slopes downward.

If you select Horizontal, you are prompted for the horizontal distance.

If you select Up, you are prompted for the distance of the vertical step upward.

If you select Down, you are prompted for the distance of the vertical step downward.

If you select slope-up or slope-down, you are prompted for the slope.

After you enter the slope, you are prompted for the horizontal distance:

This sequence of prompts is repeated for each top plate or segment with the last plate automatically terminating at the right edge (horizontal distance is not entered).

To Footer

SolidBuilder ➔ Walls ➔ Options ➔ Type

Icon:  

To Footer: creates a wall from a shell that is above a footer or slab. The wall is projected downward to the footer/slab top.

1. After selecting To Footer and other information in the Options dialog box, you are prompted:
Select an outline (if you are using the outline method)
2. Select the appropriate outline. **SolidBuilder** then creates the walls downward to the footer. You may also use the Free Form or Rectangle methods.
3. The shell above must lie directly above the footer/slab so that if drawn on the footer, its edges would be within the edges of the footer.

Dormer

SolidBuilder ➔ Walls ➔ Options ➔ Type

Icon:  

Dormer: The method of creating Dormers depends on what information is known to the designer.

Type 1: In many cases, the designer knows the height of the dormer from a floor beneath the supporting roof.

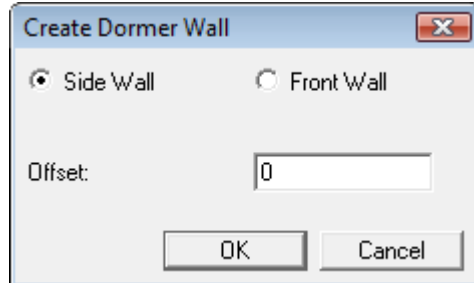
Type 2: In other cases, the designer knows the height of the dormer above the roof rather than the floor.

Type 3: Sometimes the designer has specified the exact length of the dormer sidewalls.

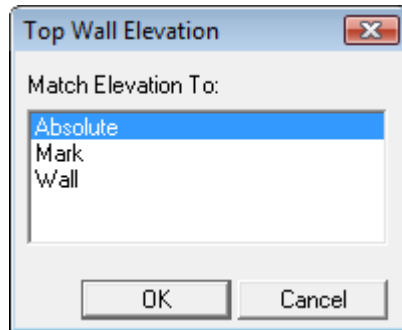
- **Type 1**
 1. Place the model in Plan view. Select Wall - Dormer from Options. You are prompted:
Mark first corner of Wall-Exterior point.
 2. Select your starting point for the front dormer wall. You are prompted:
Mark end corner of Wall-Exterior point

Chapter 21
Walls

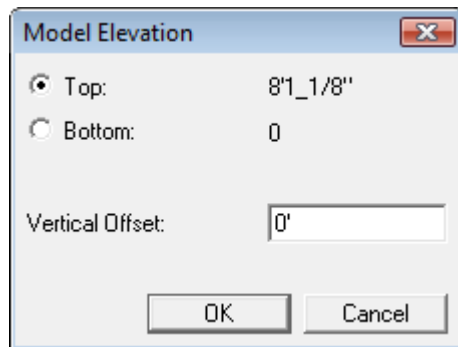
3. Select your end of the front dormer wall. You are prompted:
Select Inside of wall
4. Select anywhere toward the center of the roof. The Create Dormer Wall dialog box (below) displays.



5. Turn the Front Wall radio button on and set the Offset to 0. The Top Wall Elevation dialog box displays:



6. Select Floor from the Match Elevation To list box. You are prompted to:
Select Floor for elevation
7. Select the appropriate floor. The Model Elevation dialog box (below) displays:



8. Turn the Top radio button on and enter the height of the top of the dormer wall above the floor in the Vertical Offset edit field.
9. The front wall is now created. The red rubber band is attached and you can now create one sidewall. If the length of this sidewall is known, enter it. Otherwise create the sidewall to an arbitrary length. The Create Dormer Wall dialog box displays again.

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Walls

10. Turn on the Side Wall radio button and leave Vertical Offset to 0. The side wall is then created. You are prompted:
Mark end corner of Wall-Exterior point.
11. Click on the Esc key to finish the command and disconnect the rubber band.
12. Click on the Wall icon again to create the other Dormer sidewall in the same manner. Since in this case we did not know the exact length of the sidewalls, our sidewalls are not the correct height, since the sidewall length determines the wall height. Use the Wall - Shape - Project command to project the top of the sidewalls to the top of the front wall.

- **Type 2**

1. Place the model in an Elevation view (front, back, left or right depending on where the dormer is placed).
2. Take a measurement from the top of the exterior wall to the top edge of the roof (or the thickness of the roof in an elevation view). This measurement is then added to the actual wall height of the dormer for the vertical offset.
3. Select Wall - Dormer. Place the model in Plan view . You are prompted:
Mark first corner of Wall-Exterior point.
4. Select your starting point for the front dormer wall. You are prompted:
Mark end corner of Wall-Exterior point
5. Select your end of the front dormer wall. You are prompted:
Select Inside of wall
6. Select anywhere toward the center of the roof. The Create Dormer Wall dialog box opens.
7. Toggle on Front, set the Offset to 0 and click on OK. The Top Wall Elevation dialog box displays. Select Wall and click on OK. You are prompted:
Select wall for elevation
8. Select the exterior wall. The Model Elevation dialog box displays.
9. Turn on the Top radio button. The measurement you enter for the vertical offset is the measurement of the thickness of the roof in an elevation view added to the front dormer wall height. Type this value in and click on OK.
10. The rest of the process is identical to Type 1.

- **Type 3:**

1. Place the model in Plan view . Select Wall - Dormer from the Options.
2. Since you know the exact length of the sidewalls you start the dormer by creating one

Chapter 21

Walls

side wall, then the front and last the other sidewall. You are prompted:
Mark first corner of Wall-Exterior point

3. Using the jump commands, jump to one of the corners of the roof eave line. You want to start from the back of the dormer and work your way to the front. Move the cross hair to the desired location or type the X or Y coordinate depending on which direction the dormer runs and enter the length of the Dormer side wall. This is the starting point for the sidewall: You are prompted:
Mark end corner of Wall-Exterior point
4. The end point will be to the front of the roof eave edge. Select the roof eave end point. You are prompted:
Select Inside of wall
5. Click anywhere towards the center of the Dormer. The Create Dormer Wall dialog box opens.
6. Turn on the Side radio button and click on OK.
7. You will have the red rubber band attached. You are prompted:
Mark end corner of Wall-Exterior point.
8. You are now creating the front wall and this is the end of it. To enter the front wall width, type in the coordinate. The Top Wall Elevation dialog box displays.
10. Select Wall and click on OK. The system prompts:
Select a wall
11. Select the sidewall you just created. The Model Elevation dialog box displays. Select the top and click on OK (this is the top elevation for the front wall).
12. The front Dormer wall is now created. You have the red rubber band attached. You are prompted:
Mark end corner of Wall-Exterior point.
13. Enter the other sidewall using the same method.

The above methods assume that the Dormer walls are sitting on top of the roof. For cases where the Dormer walls extend down to the floor, you need to create the walls on the floor first and project them through the roof and cut an opening in the roof.

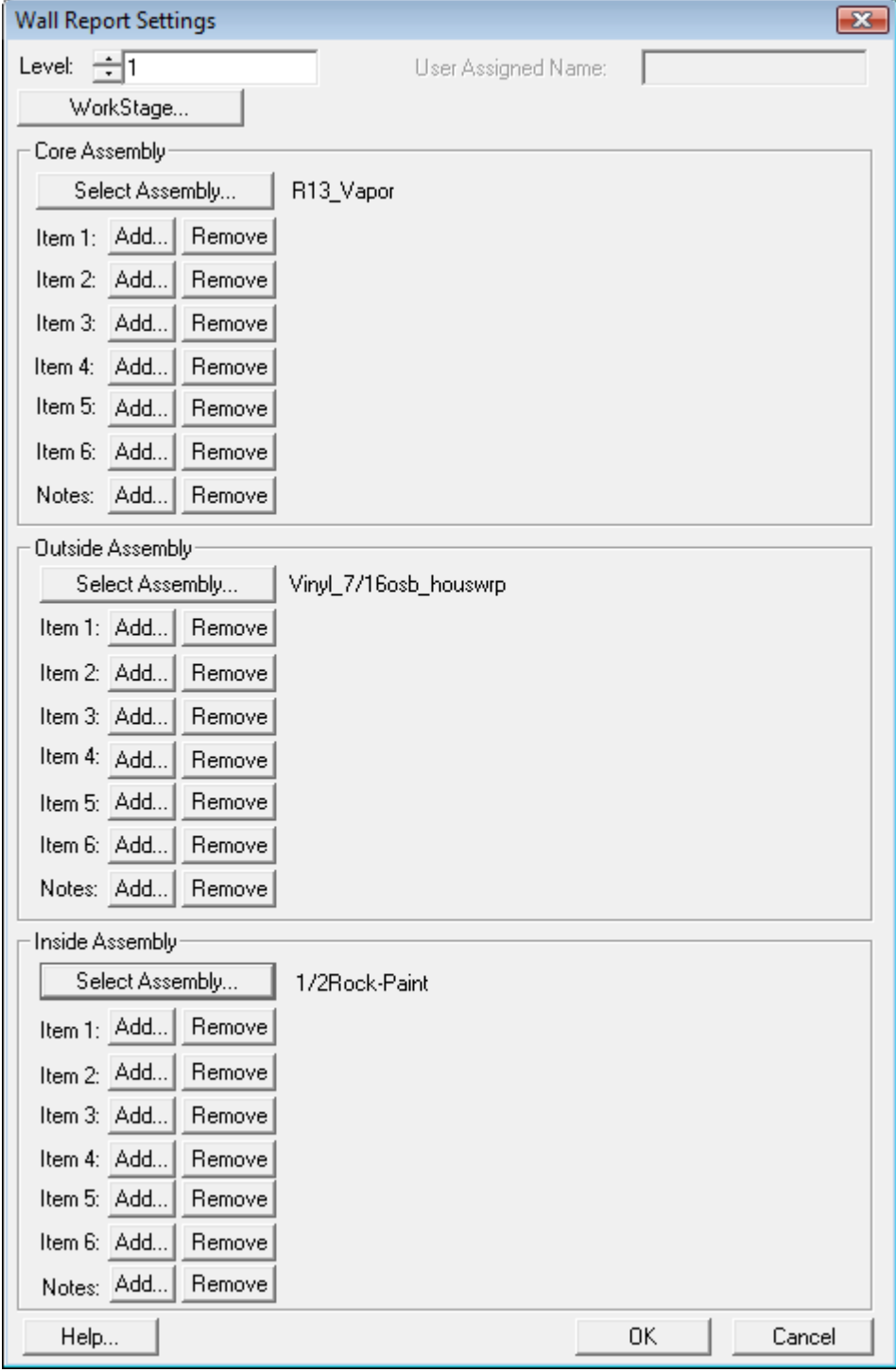
Wall Reports

SolidBuilder ➡ Walls ➡ Options ➡ Reports

Icon:  

Reports: Reports provides for setting level, work stage and assembly information. The Wall Report Settings for Level, Workstage, Core Assembly, Outside Assembly, and Inside Assembly, remain as entered until changed. Each wall type (exterior, interior, log, masonry etc.) holds the current settings for that type independent of all other types, eliminating the constant need to

reenter settings when switching between wall types.



The dialog box is titled "Wall Report Settings" and has a standard Windows window border with a close button (X) in the top right corner. It contains several sections for configuring wall reports.

At the top, there is a "Level:" label followed by a spinner box set to "1". To the right is a "User Assigned Name:" label followed by an empty text box.

Below this is a "WorkStage..." button.

The main body of the dialog is divided into three sections, each with a title bar and a list of items:

- Core Assembly:** This section has a "Select Assembly..." button followed by the text "R13_Vapor". Below this are six rows, each with an "Item" label (Item 1 through Item 6) and a "Notes" label, each followed by "Add..." and "Remove" buttons.
- Outside Assembly:** This section has a "Select Assembly..." button followed by the text "Vinyl_7/16osb_houswrp". Below this are six rows, each with an "Item" label (Item 1 through Item 6) and a "Notes" label, each followed by "Add..." and "Remove" buttons.
- Inside Assembly:** This section has a "Select Assembly..." button followed by the text "1/2Rock-Paint". Below this are six rows, each with an "Item" label (Item 1 through Item 6) and a "Notes" label, each followed by "Add..." and "Remove" buttons.

At the bottom of the dialog, there are three buttons: "Help...", "OK", and "Cancel".

Level: This is very useful when using the Visibility commands. You are able to isolate, for example, Level 2 walls only and make everything else invisible with a minimum number of keystrokes.

Workstage: Workstage used for sorting the reports.

Assemblies: There are three types of assemblies. Core is generally thought of as inside the shell, e.g. concrete or insulation. Outside represents the exterior faces of walls and roofs and the top of floors. Inside represents the inside faces of walls and roofs and the bottom of floors or ceilings.

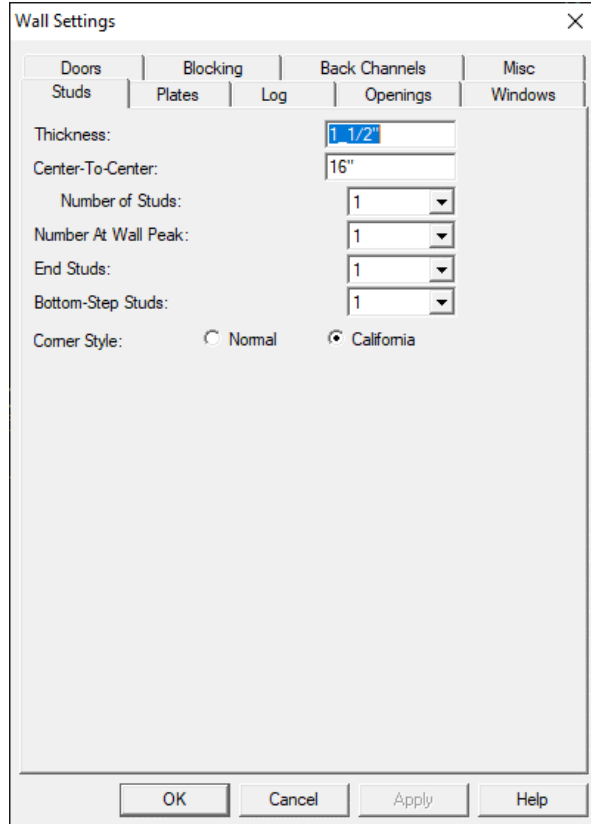
Items: By clicking on any of the Items buttons, you are taken to the Items Database. You can select individual items to attach to the wall without having to modify an assembly to add them. This is very useful when you have a special situation that requires a special item added but you do not want to modify the assembly since it is a one-time occurrence.

Settings

SolidBuilder ➔ **Walls** ➔ **Options** ➔ **Settings** ➔ **Studs**

Icon:  

The Wall Settings offer you a great deal of flexibility in the way **SolidBuilder** frames.

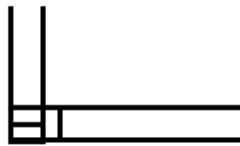


The image shows a 'Wall Settings' dialog box with a close button (X) in the top right corner. The dialog has a tabbed interface with the following tabs: Doors, Blocking, Back Channels, Misc, Studs, Plates, Log, Openings, and Windows. The 'Studs' tab is currently selected. The settings are as follows:

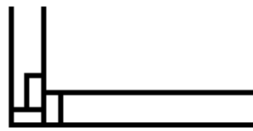
- Thickness: 1 1/2"
- Center-To-Center: 16"
- Number of Studs: 1 (dropdown)
- Number At Wall Peak: 1 (dropdown)
- End Studs: 1 (dropdown)
- Bottom-Step Studs: 1 (dropdown)
- Corner Style: ☐ Normal ☒ California

At the bottom of the dialog are four buttons: OK, Cancel, Apply, and Help.

- **Thickness:** This is the thickness of the standard framing members (studs, joists, rafters), normally 1_1/2". You may enter any values up to 8' in floors and ceilings. Rafters can be up to 2' thick.
 - **Center-To-Center:** This is the distance measured from the center of one stud to the center of the next stud.
- Number of stud:** This is the number of studs that will be placed center to center spacing.
- **Number At Wall Peak:** You have the option to place extra studs on either side of the peak of a gable wall. If you place an odd number of studs, the middle member is centered on the peak, resulting in a double bevel end cut on this member.
 - **End Studs:** This is the number of studs placed at the end of a wall. You may have 0, 1, 2 or 3 end studs.
 - **Bottom Step Studs:** This is the number of studs placed on the side of a step in the bottom of a wall. You may have 0, 1, 2 or 3 step studs. The step stud runs between the two bottom plates. You may select treated material for these members when the steps represent a foundation change of elevation. Examples would be stepped foundations or the step down from the main house to the garage.
 - **Corner Style:** Select California or Normal. This setting controls the placement of the second stud in a wall corner. When set to Normal, this stud is placed to one side of the inside of the intersecting wall. Specifying California, the stud is rotated 90 degrees and placed along the edge of the plate, butting the first stud with its edge and the end of the intersecting wall with its face.



Normal



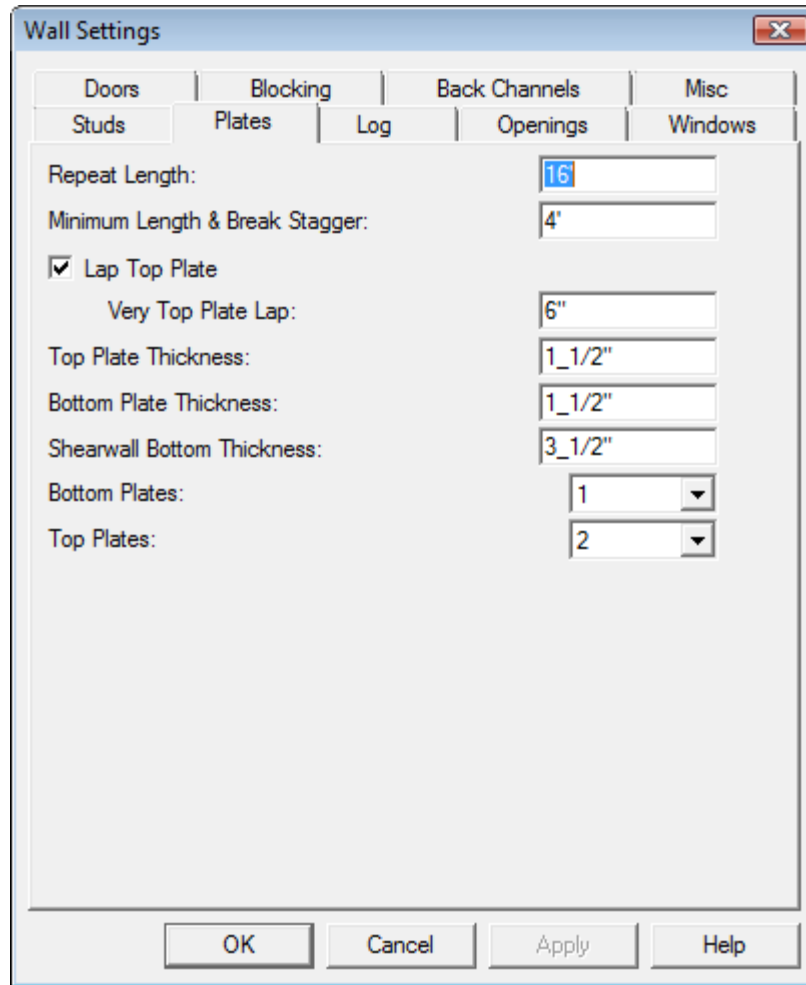
California

Plates

SolidBuilder ➔ Walls ➔ Options ➔ Settings ➔ Plates

Icon:  

The Wall Settings for Plates offer you a great deal of flexibility in the way **SolidBuilder** frames.

The image shows a 'Wall Settings' dialog box with a tabbed interface. The 'Plates' tab is selected. The settings include: 'Repeat Length' set to 16; 'Minimum Length & Break Stagger' set to 4'; 'Lap Top Plate' checked; 'Very Top Plate Lap' set to 6"; 'Top Plate Thickness' set to 1_1/2"; 'Bottom Plate Thickness' set to 1_1/2"; 'Shearwall Bottom Thickness' set to 3_1/2"; 'Bottom Plates' set to 1; and 'Top Plates' set to 2. The dialog has OK, Cancel, Apply, and Help buttons at the bottom.

Doors	Blocking	Back Channels	Misc
Studs	Plates	Log	Openings
Repeat Length: 16			
Minimum Length & Break Stagger: 4'			
☒ Lap Top Plate			
Very Top Plate Lap: 6"			
Top Plate Thickness: 1_1/2"			
Bottom Plate Thickness: 1_1/2"			
Shearwall Bottom Thickness: 3_1/2"			
Bottom Plates: 1			
Top Plates: 2			

- **Repeat Length:** This is the maximum length of plate stock material you want to use before it repeats itself. All plate lengths are equal to or less than this value.
- **Minimum Length & Break Stagger:** The minimum length of plate you want to use in a wall. This value is also the minimum distance between the break of one plate and the break of the plate above or below it.
- **Lap Top Plate:** This option allows you to control if your top plates are going to lap each other. If this option is unchecked, SolidBuilder will run the plates flush.
- **Very Top Plate Lap:** This is the minimum length of a break between Very Top Plate and Top Plate.
- **Top Plate Thickness:** For wall top and bottom plates, this is the least dimension of the plate material. For 2x4 materials this is typically 1_1/2".
- **Bottom Plate Thickness:** For wall top and bottom plates, this is the least dimension of the plate material. For 2x4 materials this is typically 1_1/2".
- **Shear wall Bottom Thickness:** When you insert a shear wall, this is the thickness of the bottom plate.

- **Bottom Plates:** The number of Bottom Plates. You may have 0, 1, 2 or 3 top or bottom plates. The default is two top plates and one bottom plate.
- **Top Plates:** The number of Top Plates. For wall top and bottom plates, this is the amount of plates. You may have 0, 1, 2 or 3 top or bottom plates. The default is two top plates and one bottom plate.

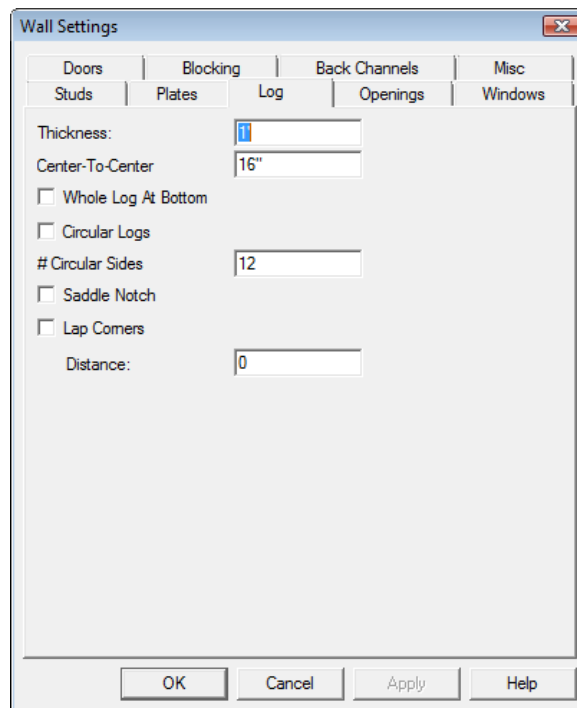
Logs

SolidBuilder ➔ Walls ➔ Options ➔ Settings ➔ Logs

Icon:



The Wall Settings for Logs offer you a great deal of flexibility for the way **SolidBuilder** frames.



- **Thickness:** The thickness or depth of the log.
- **Center-To-Center:** This is the distance measured from the center of one log to the center of the next log.
- **Whole Log at Bottom:** This will place a whole log at bottom of the wall if checked. If not, then **SolidBuilder** will place a half log.
- **Circular Logs:** This will frame in round logs if checked. If not then **SolidBuilder** will frame square or rectangular logs.
- **# Circular Sides:** Enter number of edges for circular logs. Typically users will set this to 8-10 sides. This will still give a round log look. If you use more than 10 sides, it creates a generally unwanted look in the elevation drawings because of so many lines so close

together. The maximum is 32 sides.

- **Saddle Notch:** This will frame a notch in the logs at the corners. Every other wall needs to have a half or full log.
- **Lap Corners:** This will extend the walls at the corners. Enter the distance for the length of overhang.
- **Distance:** The distance of the log wall that extends past the outside face of the intersecting log wall.

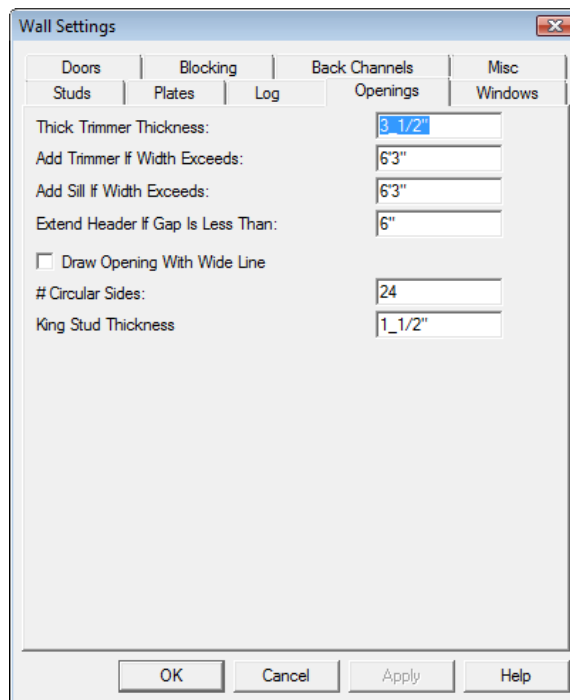


If you want to create butt and pass logs you will need to frame the log wall. Then select: Framing - Modify and project the end face of every other log back the lap distance plus the thickness of the wall.

Openings

SolidBuilder ➔ **Walls** ➔ **Options** ➔ **Settings** ➔ **Openings**

Icon:  



The 'Wall Settings' dialog box is shown with the 'Openings' tab selected. It contains the following fields and options:

Doors	Blocking	Back Channels	Misc
Studs	Plates	Log	Openings
Thick Trimmer Thickness: 3 1/2"			
Add Trimmer If Width Exceeds: 6'3"			
Add Sill If Width Exceeds: 6'3"			
Extend Header If Gap Is Less Than: 6"			
☐ Draw Opening With Wide Line			
# Circular Sides: 24			
King Stud Thickness: 1 1/2"			

Buttons: OK, Cancel, Apply, Help

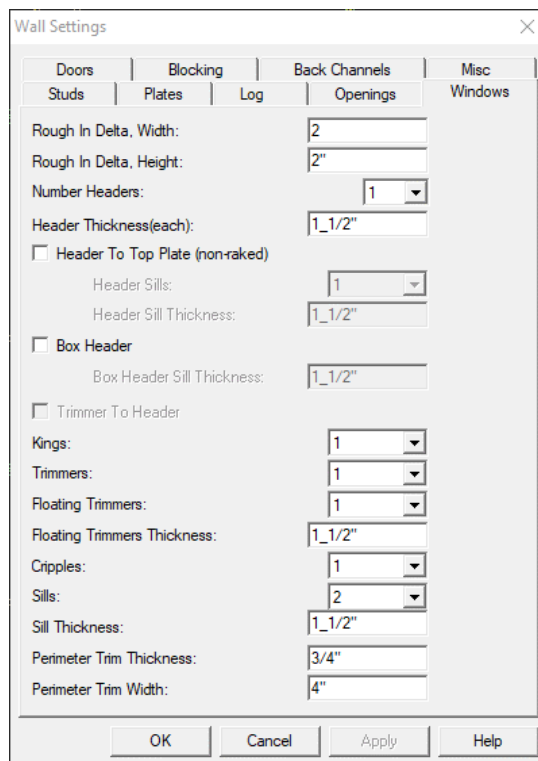
- **Thick trimmer thickness:** This is the thickness (or width) of the thick trimmer at the time the opening is inserted. The Thick Trimmer is the first stud of an opening that runs from the bottom of the top plate to the top of the bottom plate and along the side of the header.
- **Add trimmer if width exceeds:** This is the distance of the opening width which determines if an extra trimmer is to be added automatically at the opening sides.

- **Add sill if width exceeds:** This is the distance of the opening width which determines if an extra sill is added at a window opening.
- **Extend header if gap less than:** This value determines if a header spans two openings. If two openings are closer than this value, a single header is automatically placed across both openings.
- **Draw Opening with Wide Line:** When toggled on it draws the opening with a heavier line making it more visible.
- **# Circular Sides:** This is the number of facets, or flat sides that **SolidBuilder** uses to create any window or door opening involving an arch or circle. You must enter a value between six and 32 facets.
- **King Stud Thickness:** Allows you to set the thickness of the King Stud (the stud that runs from the bottom of the top plate to the top of the bottom plate, next to a header). The standard is a 2x4 (1-1/2" thickness). This option allows you to insert it as a 4x4, 4x6 etc

Windows

SolidBuilder ➔ **Walls** ➔ **Options** ➔ **Settings** ➔ **Windows**

Icon:  



The image shows the 'Wall Settings' dialog box with the 'Windows' tab selected. The dialog has a tabbed interface with 'Doors', 'Blocking', 'Back Channels', and 'Misc' as main tabs. Under 'Blocking', there are sub-tabs for 'Studs', 'Plates', 'Log', 'Openings', and 'Windows'. The 'Windows' sub-tab is active, showing settings for window openings. The settings include: 'Rough In Delta, Width' (2), 'Rough In Delta, Height' (2"), 'Number Headers' (1), 'Header Thickness(each)' (1_1/2"), 'Header To Top Plate (non-raked)' (unchecked), 'Header Sills' (1), 'Header Sill Thickness' (1_1/2"), 'Box Header' (unchecked), 'Box Header Sill Thickness' (1_1/2"), 'Trimmer To Header' (unchecked), 'Kings' (1), 'Trimmers' (1), 'Floating Trimmers' (1), 'Floating Trimmers Thickness' (1_1/2"), 'Cripples' (1), 'Sills' (2), 'Sill Thickness' (1_1/2"), 'Perimeter Trim Thickness' (3/4"), and 'Perimeter Trim Width' (4"). At the bottom are 'OK', 'Cancel', 'Apply', and 'Help' buttons.

Setting	Value
Rough In Delta, Width:	2
Rough In Delta, Height:	2"
Number Headers:	1
Header Thickness(each):	1_1/2"
☐ Header To Top Plate (non-raked)	
Header Sills:	1
Header Sill Thickness:	1_1/2"
☐ Box Header	
Box Header Sill Thickness:	1_1/2"
☐ Trimmer To Header	
Kings:	1
Trimmers:	1
Floating Trimmers:	1
Floating Trimmers Thickness:	1_1/2"
Cripples:	1
Sills:	2
Sill Thickness:	1_1/2"
Perimeter Trim Thickness:	3/4"
Perimeter Trim Width:	4"

Chapter 21
Walls

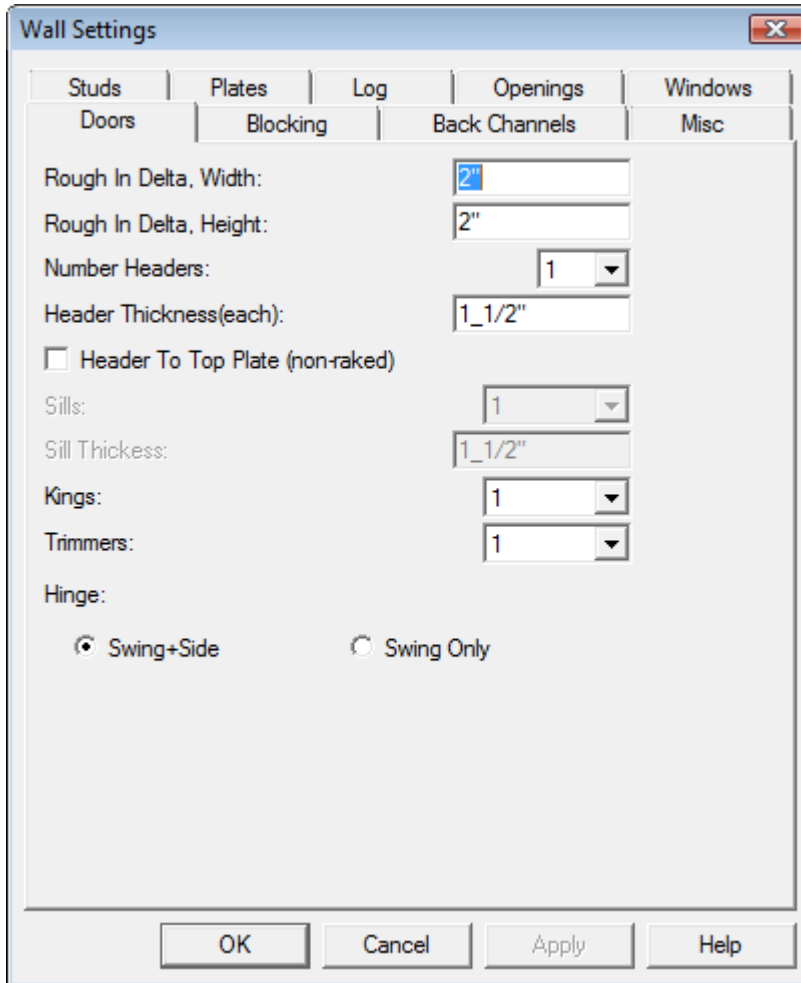
- **Rough in delta, width:** This is the value that is added to the frame width to get the rough opening width.
- **Rough in delta, height:** This is the value that is added to the frame height to get the rough opening height.
- **Top of finished opening:** This is the height from the top of the rough opening (or bottom of header) to the bottom of the wall. If you want your header tight to the top plate, you calculate the value that is equal to the stud length plus bottom plate thickness minus your header depth.
- **Number Headers:** Select from 0-5 plies.
- **Header to Top Plate:** This option allows the user to bump the header directly under the top plates. If this is chosen, SolidBuilder will run cripples from the bottom of the header to a header sill.
- **Header Sills:** This option allows the user to choose the number of header sills they would like per opening.
- **Header Sill Thickness:** This option allows the user to define the size of the header sill.
- **Header Thickness (each):** This is thickness of each header ply. For example, if your header is made from (3) 2x10's, the header thickness would be 1 1/2".
- **Box Header** This option adds a Header Sill above and below the header.
- **Trimmer to header** This option when used with Header to the Top Plate or Box Header will run the trimmer directly to the header and place the header sill inside the trimmers
- **Kings:** A king stud is the vertical stud that runs along the side of the header from the bottom of the top plate to the top of the bottom plate. Select from 0-3.
- **Trimmers:** A trimmer is the vertical stud that runs from the bottom of the header to the top of the bottom plate. Select from 0-3.
- **Floating trimmers:** A floating trimmer is a stud inside an opening that runs from the bottom of the header to the top of the sill and can be slid back and forth to adjust the rough opening width. Select from 0-3.
- **Floating trimmer thickness:** This is the thickness of a floating trimmer.
- **Cripples:** Cripples are the vertical studs under a window sill or between the header and top plate for doors. Select 0-3.
- **Sills:** Sills are the horizontal framing for the bottom of a window opening. Select 0-3.
- **Sill Thickness:** The thickness of the sill member.
- **Perimeter trim thickness:** This is the default thickness of a concentric trim symbol.

- **Perimeter trim width:** This is the default width of a concentric trim symbol.

Doors

SolidBuilder ➔ **Walls** ➔ **Options** ➔ **Settings** ➔ **Doors**

Icon:  



The image shows a 'Wall Settings' dialog box with a tabbed interface. The 'Doors' tab is selected. The dialog contains the following fields and controls:

- Studs** | **Plates** | **Log** | **Openings** | **Windows**
- Doors** | **Blocking** | **Back Channels** | **Misc**
- Rough In Delta, Width:** 2"
- Rough In Delta, Height:** 2"
- Number Headers:** 1 (dropdown)
- Header Thickness(each):** 1_1/2"
- ☐ **Header To Top Plate (non-raked)**
- Sills:** 1 (dropdown)
- Sill Thickness:** 1_1/2"
- Kings:** 1 (dropdown)
- Trimmers:** 1 (dropdown)
- Hinge:**
 - ☒ **Swing+Side**
 - ☐ **Swing Only**
- Buttons:** OK, Cancel, Apply, Help

- **Rough in delta, width:** This is the value that is added to the frame width for the rough opening width. .
- **Rough in delta, height:** This is the value that is added to the frame height for the rough opening height.
- **Number Headers:** Select from 0-5 plies.
- **Header Thickness (each):** The thickness of each ply of a header. For example, a header made from (3) 2x10's would have a thickness of 1 1/2".

- **Header to Top Plate:** This option allows the user to bump the header directly under the top plates. If this is chosen, SolidBuilder will run cripples from the bottom of the header to a header sill.
- **Header Sills:** This option allows the user to choose the number of header sills they would like per opening.
- **Box Header** This option adds a Header Sill above and below the header.
- **Trimmer to header** This option when used with Header to the Top Plate or Box Header will run the trimmer directly to the header and place the header sill inside the trimmers
- **Header Sill Thickness:** This option allows the user to define the size of the header sill.
- **King Studs:** A king stud is the vertical stud that runs along the side of the header from the bottom of the top plate to the top of the bottom plate. Select from 0-3.
- **Trimmers:** A trimmer is the vertical stud that runs from the bottom of the header to the top of the bottom plate. Select from 0-3.
- **Hinge:** When you create the Plan Working Drawing, and insert the Window and Door schedule, the door hinge can be listed by the direction of swing and the hinge location or direction of swing only.

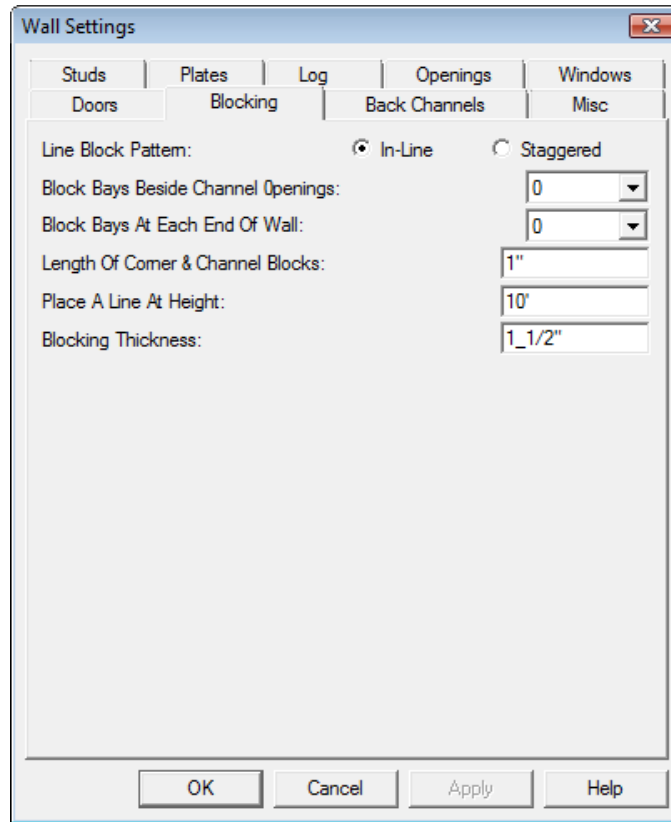
Blocking

SolidBuilder ➡ Walls ➡ Options ➡ Settings ➡ Blocking

Icon:



Chapter 21 Walls



- **Line block Pattern:** Blocking can be in line or staggered.
- **Block bays beside channel & openings:** You may block 0, 1, 2 or 3 bays (spaces between studs) from a channel or opening.
- **Block bays at each end of wall:** You may block 0, 1, 2 or 3 bays (spaces between studs) from the end of a wall.
- **Length of Corner & Channel blocks:** This setting determines the length of the blocks used when the options Type – Stud Block is toggled on in the backed channels section. This measurement is the length of each separate block placed within the channel.
- **Place a line at height of:** This is the vertical distance at which a line of blocking is placed. It is measured from the top of the bottom plate to the center of the blocking. If you do not want blocking, set this to a higher value than your average wall height.
- **Blocking Thickness:** This sets the default thickness of blocks.

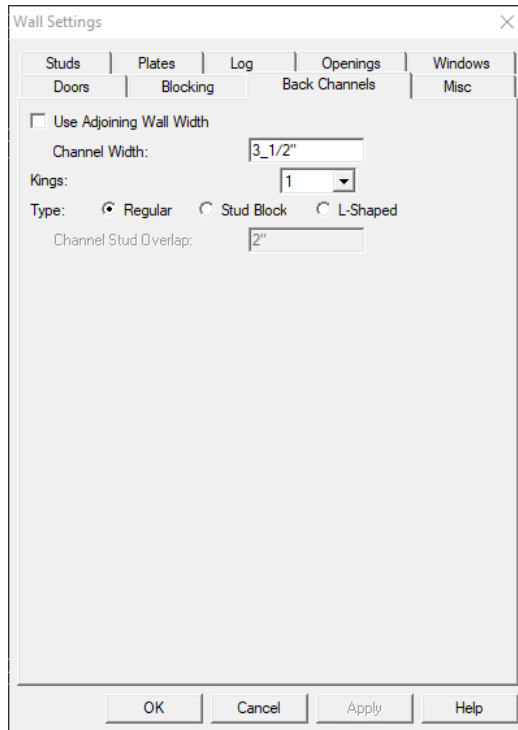
Back Channels

SolidBuilder ➡ Walls ➡ Options ➡ Settings ➡ Back Channels

Icon:  

Chapter 21

Walls



The image shows a 'Wall Settings' dialog box with a close button (X) in the top right corner. It features a tabbed interface with the following tabs: Studs, Plates, Log, Openings, Windows, Doors, Blocking, Back Channels, and Misc. The 'Blocking' tab is currently selected. Inside this tab, there is a checkbox labeled 'Use Adjoining Wall Width' which is unchecked. Below it is a text field for 'Channel Width' containing '3_1/2"'. A 'Kings' dropdown menu is set to '1'. The 'Type' section has three radio buttons: 'Regular' (selected), 'Stud Block', and 'L-Shaped'. At the bottom of this section is a text field for 'Channel Stud Overlap' containing '2"'. At the very bottom of the dialog are four buttons: 'OK', 'Cancel', 'Apply', and 'Help'.

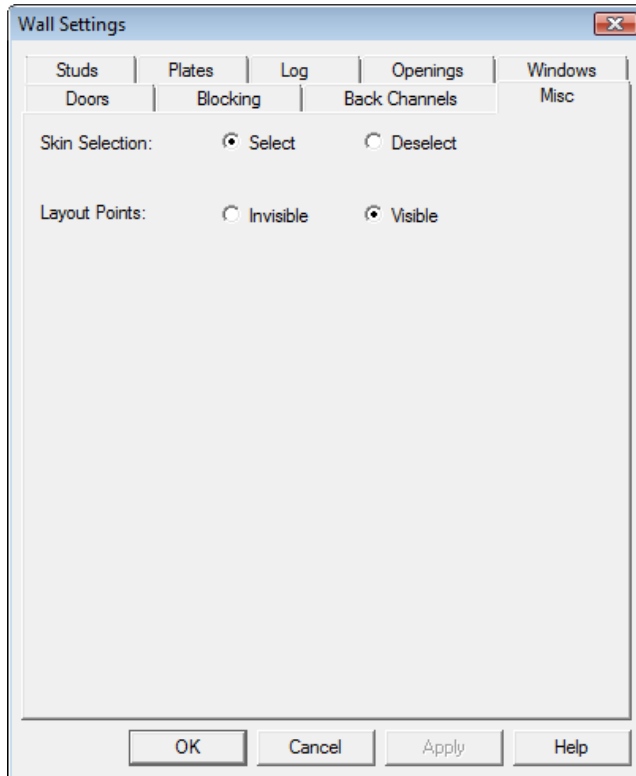
- **Use Adjoining Wall Width:** This toggle allows you to set **SolidBuilder** so that the size of the channel is determined automatically based on the width of the adjoining wall. For example, if the adjoining wall is created as 2x4 construct and this is toggled on, **SolidBuilder** automatically creates the backed channel as a 2x4.
- **Channel Width:** This option allows you to specify the desired width of channel to be created without consideration given to the size of the adjoining wall. In order for this option to work the Use Adjoining Wall toggle is toggled off.
- **King Studs:** This is the number of king studs (vertical stud running from bottom of top plate to top of bottom plate) you may have on either side of a backed channel. You may have 0, 1, 2 or 3 on either side. You might select 0 king studs if you were using framing clips for sheet rock backing.
- **Type:** Within **SolidBuilder** you have the option to select between two different ways to frame intersecting walls that create a T intersection. These two options are Regular and Stud Block.
 - Regular - Generates a channel for the entire height of the wall - from top plate to the bottom plate. The width is determined by the settings mentioned earlier in this section.
 - Stud Block - This option places three blocks in place of the complete stud, one starting at the top, one starting at the bottom, and one centered. The width of the blocks is determined by the settings defined earlier in this section, and the lengths are defined by the settings in the blocking tab - Length of Corner and Channel Blocks.
 - L-Shaped- This option a stud is rotated 90 degrees and placed along the edge of the plate, butting the first stud with its edge and the end of the intersecting wall with its face.
 - Channel Overlap-This setting determines the size of the turned stud.

•

Misc.

SolidBuilder ➔ **Walls** ➔ **Options** ➔ **Settings** ➔ **Miscellaneous**

Icon:  



Skin Selection: This is the default option to select or deselect skins choices. If set to Select, when creating skins you have to manually Select all shells for skins, and those you do not select do not get skins. The Deselect option will create skins on all shells by default and you have to click on the shells that you do not want skins on.

Layout Points: Set the default to either make all layout point invisible or visible.

Creating Walls

SolidBuilder ➔ **Walls**

Chapter 21 Walls

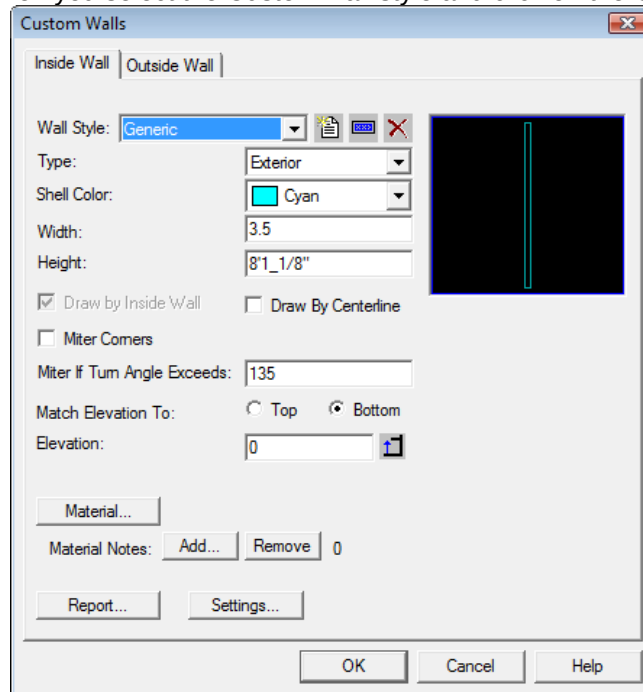


There are 10 wall styles. The default settings for thickness, height, framing etc., can be set for each wall style, and each is independent of the others. For example Exterior walls can be set to 3 1/2" thickness and 8' 1- 1/8" height, while Concrete can be set to 8" wide and 9' in height.

All wall styles perform in the same manner except the Custom style. The Custom style allows you to create two walls at once. This is very useful when creating a framed wall and a masonry veneer wall. When inserting a door or window in a Custom Wall style, the opening will be cut in both walls simultaneously.

Custom Wall Style:

1. When you select the Custom wall style and click on the Option icon the dialog box opens:

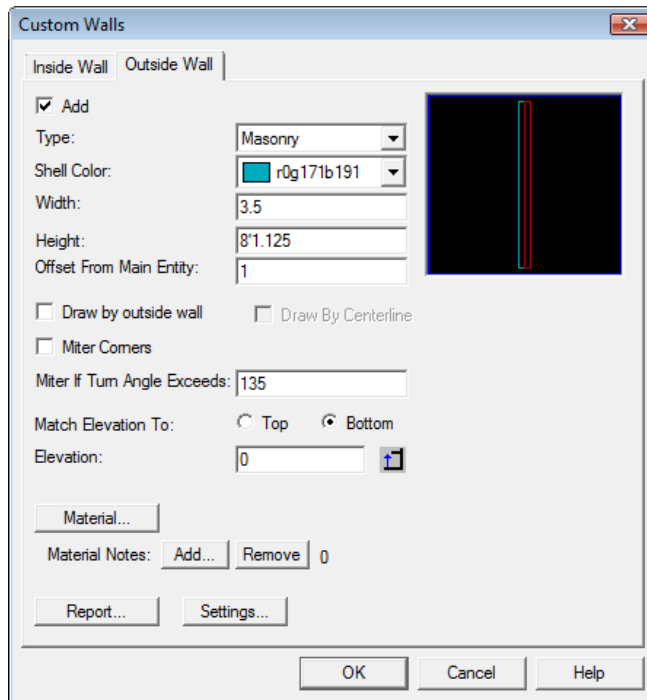


Inside Wall:

- **Wall Style:** This allows you to create custom wall styles and name them.
- **N** : **New name.** Enter the name for the new wall style.
- **R** : **Rename** an existing wall style.
- **D** : **Delete** an existing wall style.
- **Type:** Select a wall type.

- **Width:** Set the wall width.
- **Height:** Set the wall height.
- **Draw wall by Inside Wall:** When drawing a double custom wall, you can select the line you draw to be the outside wall or the inside wall and the second wall is positioned accordingly.
- The remaining options are the same as all other wall styles. Refer to Wall Options for detailed information.

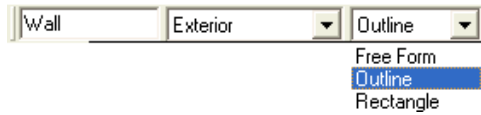
Outside Wall:



- **Add:** Toggle on to add an outside wall to the inside wall.
- **Offset From Main Entity:** This is the space between the outside wall and the inside wall.
- **Draw wall by Outside Wall:** When drawing a double custom wall, you can select the line you draw to be the outside wall or the inside wall and the second wall is positioned accordingly.
- **Match To Main Entity:** Select to match the outside wall to the top or to the bottom of the inside wall.
- **Offset From Top:** Enter an offset value. This value can be positive or negative and will position the top of the outside wall above or below the top of the inside wall by the entered distance.
- The remaining options are the same as all other wall styles. Refer to Wall Options for detailed information.

Chapter 21

Walls



1. You may reference an existing outline or draw a new outline to define the wall boundaries.
2. Select Free Form Outline or Rectangle from the drop down menu.
 - A. To create Free Form walls, select Free Form from the drop list. You are prompted to:
Mark the first corner of Wall
 - B. Locate or enter the first point. You are then prompted:.
Mark the end corner of wall
 - C. As the cursor is moved, a red line from the previous point is drawn and the distance moving the cursor is displayed in the coordinate box. You may enter coordinates by clicking the left mouse button in the desired location or type the X and Y coordinates. If you enter an incorrect line segment, press the U key. This locates the cursor at the previous segment endpoint and “undoes” the erroneous entry.
 - D. After you have marked the end of the wall, you are prompted:
Select inside of wall
 - E. Move the mouse pointer next to the edge of the wall that will be inside the house and left mouse click.
 - F. The "red rubber band" is still connected and is ready to create a connecting wall segment. You can enter new coordinates for the second wall or to end the command, right click
 - G. Repeat the above steps to continue creating more walls.
3. To create walls using an existing Outline select Outline, from the drop list. You are prompted to select outline to use. Follow remaining steps above.
4. To create walls using the rectangle method simply select a starting location for the first corner of the first wall, left mouse click. This anchors the first corner of the rectangle. Then by moving the mouse, using the arrow keys or entering in x and y coordinates, move to the opposite diagonal corner of the rectangle and left mouse click.

Exhibit

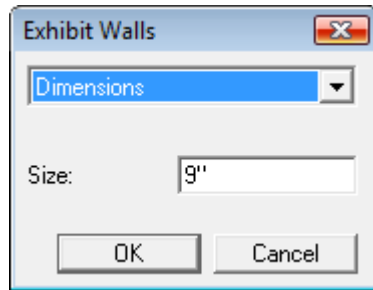
SolidBuilder ➡ Walls ➡ Exhibit

Icon:  

This selection on the View menu allows you to view the dimensions, layout point and work stage of Walls. When you select Walls from the Build menu and select Exhibit from the View menu, the Exhibit Walls dialog box (below) displays.

Chapter 21

Walls



- **Dimensions**

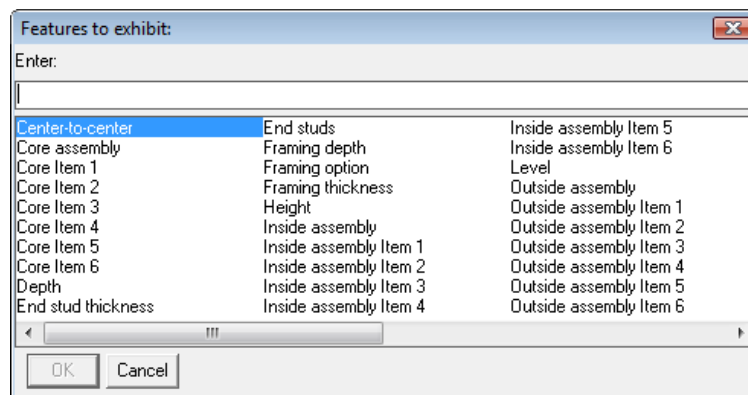
1. You are first prompted for the size of the dimension numerals, which shows the wall dimensions. The system prompts:
Size of dimension numerals: 9"
2. Backspace through the suggested dimension size if you wish to enter a different value. You must next select the wall to dimension. The system prompts:
Select wall to view
3. Select the wall, right click and select Finished. Each selected wall is dimensioned and displayed on the screen, along with the wall number and the top and bottom elevation. You may print this drawing by pressing the letter P.

Layout Points: Click on the Wall icon and select Exhibit from the View menu. In the Exhibit Wall dialog box select Layout Points from the drop list. The cursor is moved to the layout point for each Wall. Pressing the arrow keys moves the cursor to the layout points for other walls. Press the Escape key to terminate the command.

Stud Points: green diamonds are displayed representing the stud centers of the wall.

Description

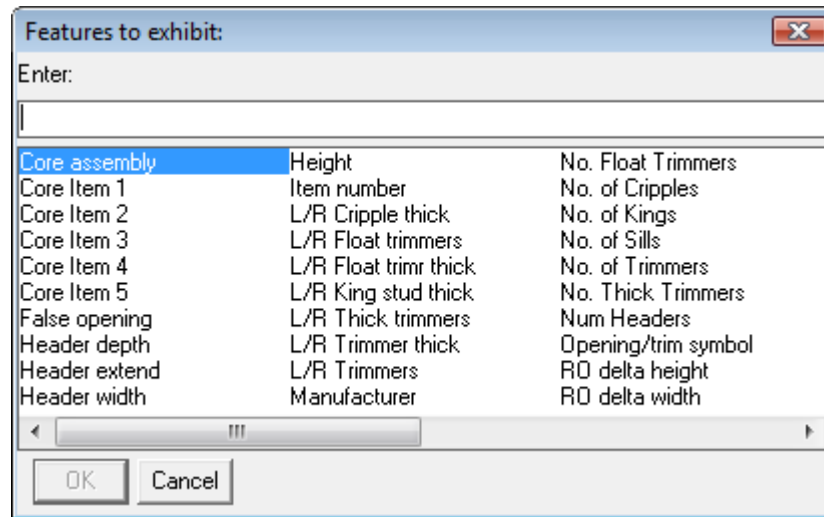
1. This command allows you to see many of the features associated with a wall. To execute this command, click on the Wall icon and select Exhibit from the View menu. The Exhibit Wall dialog box (above) displays. Finally, select Description from the drop list and click on OK. The Features to Exhibit dialog box (below) displays.



2. Select a feature. The value for the information is displayed in the Command Status

window and the walls that share that same value are made visible on screen. The system exhibits the selected feature.

Opening Description:



1. Select one of the choices. The system displays each opening or group of openings that contains a different value for the selection. The first set of openings with a unique value is displayed. Pressing any key displays subsequent groups with different values. When all have been displayed, the dialog box displays again.

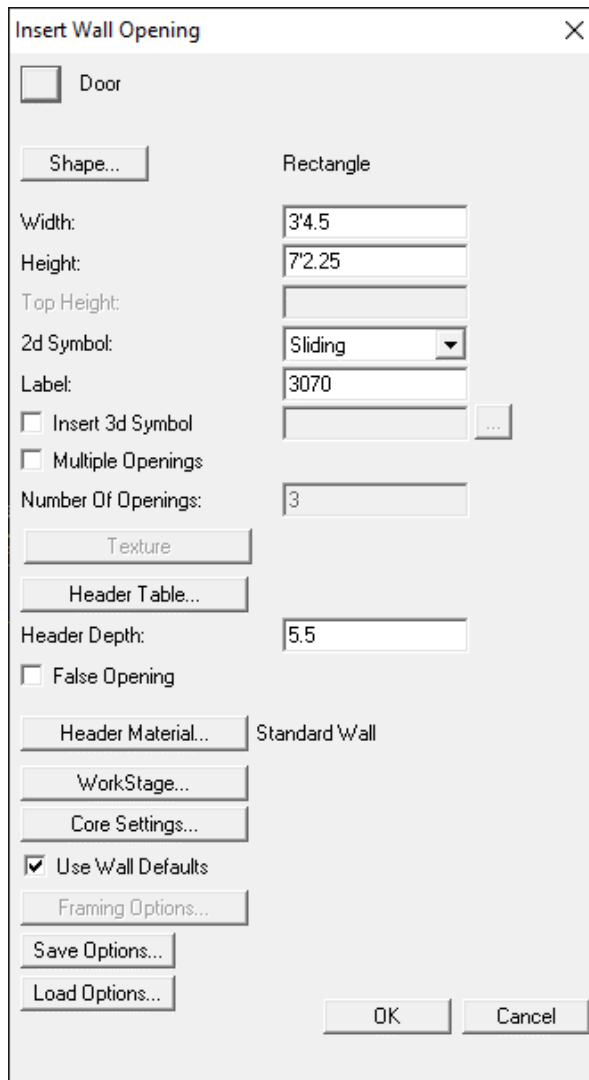
Insert

Opening By Prompt

SolidBuilder ➡ Walls ➡ Insert ➡ Opening by Prompt

Icon:  

1. Right click on a wall and select Insert - Opening (this will allow you to only insert one opening at a time) or select Insert from the main drop down menus along the top and select Opening by Prompt, or click on the Insert Opening icon.
2. If you selected the Insert Opening by List icon or the Insert Opening by List from the drop down menus, you will be prompted to select wall to insert opening. Select the wall. If you right click on a wall the dialog box automatically opens.



The 'Insert Wall Opening' dialog box is shown. It has a title bar with a close button. Inside, there is a 'Door' checkbox with a door icon. Below it is a 'Shape...' button and a 'Rectangle' label. The 'Width' field is set to '3'4.5', 'Height' to '7'2.25', and 'Top Height' is empty. The '2d Symbol' dropdown is set to 'Sliding'. The 'Label' field is '3070'. There are checkboxes for 'Insert 3d Symbol' (unchecked), 'Multiple Openings' (unchecked), and 'False Opening' (unchecked). The 'Number Of Openings' field is '3'. There are buttons for 'Texture', 'Header Table...', 'Header Material...' (set to 'Standard Wall'), 'WorkStage...', 'Core Settings...', 'Use Wall Defaults' (checked), 'Framing Options...', 'Save Options...', and 'Load Options...'. At the bottom are 'OK' and 'Cancel' buttons.

- The top icon toggles between Window and Doors.
- **Shape:** Click on the Shape button to change the shape of the opening. Optional shapes are: rectangle, qtr-circ, semi-circ, raked, arc-top, peaked, multiple rectangle, multiple quarter circle, multiple semi-circle, triple circle, corner-cut, circle rectangle, triple arc, circle, octagon, multiple arc, zigerat and diamond.
- **Width:** This is the finished width of the opening. If this value is changed, the next time the prompt displays, the most recent value entered is displayed.
- **Height:** This is the finished height of the opening. If this value is changed, the next time the prompt displays, the most recent value entered is displayed.
- **Top Height:** This is the height that locates the height of the window above the bottom of the wall. If this value is changed, the next time the prompt displays, the most recent value entered is displayed.

- **Plan Symbol:** This is the plan symbol to be placed on the 2D floor plan by the Working Drawing - Insert -Symbols command. Available window plan symbol options are: None, Fixed, Generic, Sliding, Bay and Bow. Available door plan symbols options are None, Bi-fold, Cafe, Pocket, Sliding, Swing, Swing 45Garage, Pair, Pair 45, Single Bi-fold. These are fixed symbols.
- **Label:** This is a text field that contains the name of the opening. This name is placed on a floor plan drawing using the Working Drawing - Insert - Labels command.
- **Insert 3D Symbol:** Check this box to insert a 3D symbol into the opening upon insertion. Click the gray box to browse for desired 3D symbol to be inserted. You may also insert door/window symbols after the opening is inserted by clicking on the Symbols icon.
- **Multiple Openings:** Check this box to insert multiple openings into one wall. Type the number of openings desired and then **SolidBuilder** will prompt you to select two points. The number of openings inputted will be spaced evenly between those points.
- **Number of Openings:** Enter the total number of openings for multiple openings.
- **Texture:** Allows you to apply a texture to a 3D opening symbol.
- **Header Table:** Click on this to select from the Header Table.
- **Header Depth:** The depth of the header to use for the opening. If you select Header Table, the Header Table value selected overrides the Header Depth value. If you did not select Header Table the Header Depth value is used.
- **False Opening:** Inserts an opening, frames it correctly but will sheath over top of it.
- **Header Material:** This allows you to select a header material for the current opening. This will override the material selected under the wall material.
- **Workstage:** Allows you to assign a Workstage to the wall.
- **Core Settings:** Allows you to assign an Assembly to the wall.
- **Use wall defaults:** When check box is checked the framing from the Wall Options will be used. If unchecked, you can select **Framing Options**. **Framing Options** will allow you to change the framing options for the current opening.

Opening By Lists

SolidBuilder ➡ Walls ➡ Insert ➡ Opening by List

Icon: 

When you insert an opening by list, the correct size rough opening is inserted in the wall and the opening will be framed correctly. It will automatically include a window or door in the estimate

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even if you do not insert a 3D window or door symbol. Typically Insert Opening by List is used if you are using the estimating capabilities of **SolidBuilder**.

1. Right click on a wall and select Insert - Opening by List or select Insert from the main drop down menus along the top and select Opening by List. There is no icon for insert opening by list.
2. The Opening Database dialog box opens. Currently **SolidBuilder** includes Andersen, Marvin and Pella window databases as well as generic sizes. You can add your own Manufacture and their sizes.

PlanLab	FinishWid	FinishHgt	DeltWid	DeltHgt	PlanSymb	DfltAsmb	Dn_Sn_ItmNo	DoorWindSymb
C12	2'0_1/8"	2'0_1/8"	.5"	.5"	wgenerc		16.01C12	WIN_CLAD.cc2
C125	2'0_1/8"	2'4_3/8"	.5"	.5"	wgenerc		16.01C125	WIN_CLAD.cc2
C13	2'0_1/8"	2'11_15/16"	.5"	.5"	wgenerc	Csg_OC_2S_Door	16.01C13	WIN_CLAD.cc2
C135	2'0_1/8"	3'4_13/16"	.5"	.5"	wgenerc	Csg_PGC_1S_Window	16.01C135	WIN_CLAD.cc2
C14	2'0_1/8"	4'0"	.5"	.5"	wgenerc		16.01C14	WIN_CLAD.cc2
C145	2'0_1/8"	4'4_13/16"	.5"	.5"	wgenerc		16.01C145	WIN_CLAD.cc2
C15	2'0_1/8"	4'11_7/8"	.5"	.5"	wgenerc		16.01C15	WIN_CLAD.cc2
C155	2'0_1/8"	5'4_13/16"	.5"	.5"	wgenerc		16.01C155	WIN_CLAD.cc2
C16	2'0_1/8"	5'11_7/8"	.5"	.5"	wgenerc		16.01C16	WIN_CLAD.cc2
C235	4'0"	3'4_13/16"	.5"	.5"	wgenerc		16.01C235	WIN_CLAD.cc2
C24	4'0"	4'0"	.5"	.5"	wgenerc		16.10BB05	WIN_CLAD.cc2
C245	4'0"	4'4_13/16"	.5"	.5"	wgenerc	Casing_1_Side	16.01C245	WIN_CLAD.cc2
C25	4'0"	4'11_7/8"	.5"	.5"	wgenerc		16.01C25	WIN_CLAD.cc2

- The icon in the far upper left corner toggles you back and forth between Windows and Doors.
- To select a new door and/or window manufacturer, simply select on from the drop down list. The Manufacturer and Symbol type are completely customizable by you. The All option lists all windows and doors depending on what the Symbol Type is set to. This list can become quite extensive and long and difficult to sort through. By utilizing the Manufacturer options, you are able to filter out unwanted items.
- The Openings database can be used to create your own list of doors and windows. The list is designed to insert doors and windows that are commonly used in construction.
- The Openings database offers you a few extras that are not included in **SolidBuilder's** Insert By Prompt method.

First, you can stipulate a manufacturer's name by clicking on the Manufacturer Choices button (used to automatically select only doors or windows from that manufacturer in the Insert Opening List command).



This does not have to be an actual manufacturer. It can be a type or other category listing.

The only function of the Manufacturer Choice is to aid in the sorting.

Second, you can enter your own special plan label that can be automatically accessed in working drawings (via insert, labels, opening) to identify your openings more specifically.

Third, you can select an Opening/trim symbol that is automatically inserted using the Symbols Insert Opening/trim Automatic command. To insert a new item, scroll down to the bottom of the list. There will be one blank row. Start in the very far left column labeled Mfr. If you have Manufacturer set to All, you can use the tab key to move to each heading and then click on the blank window. This displays the current list of manufacturers. Select one from the list.

- **Manufacturer:** Manufacturer is a 40 character, user selected, alphanumeric field. You can select a manufacturer's name from the drop down list that displays when you are working on this field. The standard choice can be used when you do not have a specific manufacturer in mind.
- **Plan Label:** Plan label is a 50 character, user-defined, alphanumeric field. **SolidBuilder** uses the information in this field in working drawings to label (identify) openings. When you select Label Openings in the Working Drawings, this is the label it uses.
- **Finished Width:** Finished width is a user-defined, numeric field, which is used to define the finished opening for doors and windows. Entries in feet should include an apostrophe (') and entries in inches should be followed by a quote mark ("). For example, one foot six and a half inches should be written as 1'6.5", 1'6_1/2" or 18.5".
- **Finished Height:** Finished height is a user-defined, numeric field, which is used to define the finished opening height for doors and windows. Entries in feet should include an apostrophe (') and entries in inches should be followed by a quotation mark ("). For example, one foot six and a half inches should be written as 1'6.5", 1' 6_1/2" or 18.5".
- **Delta Width:** Rough-in delta width is a user defined, numeric field. The dimension you enter into this field helps **SolidBuilder** frame the rough opening correctly. **SolidBuilder** adds the finished opening width to the rough in delta width to determine the size of the framed opening. With both doors and windows, the rough in delta width is split equally between the two sides of the finished opening. Many window companies build their windows so that the called size (nominal size) of their window is the same size required for the rough opening. An example of this would be when a 4'x4' window is made to be installed in a 4'x4' rough opening. In such a case, the rough-in delta dimensions should be set to zero.
- **Delta Height:** Rough-in delta height is a user-defined, numeric field. The dimension you enter into this field helps **SolidBuilder** frame the rough opening correctly. **SolidBuilder** adds the finished opening height to the rough in delta height to determine the size of the rough opening for framing purposes. With windows, the rough in delta height is split equally between the top and bottom of the opening. With doors, the rough in delta height is the distance from the finished side of the door top frame to the underside of the wall header. Many window companies build their windows so that the called size (nominal size) of their window is the same size required for the rough opening. An example of this would be when a 4'x4' window is made to be installed in a 4'x4' rough opening. In such a case the rough in delta dimensions should be set to zero.
- **Plan Symbol:** The Plan symbol name is selected by the user from the drop list, which connects an opening to a 2-D drawing symbol. These symbols are used in the working

drawings section of **SolidBuilder**.

- **Default Assembly:** You can assign an assembly for the opening by clicking on the blue arrow. This also opens the Assemblies table.
 - **Division/Subdivision/Item Number (Dn_Sn_ItmNo):** This is the division number, the subdivision number and the item number for a door or window. Click on the blue arrow to assign an item for the opening.
 - **Door/Window Symbol (DoorWindSymbol):** This is a field that contains the name of the symbols library you selected before viewing the Door and Window list and the symbol that is to be placed on the model for this particular opening. The selection of a library is designed to make the Door and Window List easier to manipulate by eliminating hundreds of extraneous symbols. Click on the blue arrow to select a particular 3-D symbol for that opening.
 - **Shape:** This field contains the shape of the window. You can select fixed choices from the Shape menu. They are Arc (for arced top openings), QtrCir (for openings with ninety degree quarter circular topped openings), Rake (where either the top or the bottom of the opening conforms to the angle of a raked wall), Ret (rectangular openings), Semi-circle (one hundred eighty degree half circular topped openings). You can leave this box blank if the opening is rectangular shaped.
 - **Arc Side Drop:** If you select an arced top opening shape in the column immediately preceding this column, you can specify the distance from the top of the opening that the arc is to intersect the side of the opening.
 - **Header depth:** This field contains the automatic header depth that is specified when you insert an opening from list.
 - **Header type:** This field contains the type of header, select from 0-5 from the fixed choices available in the Header drop list. Select the tab key to jump to the next line.
 - **Top Height:** In this field you may either accept the default top height or press Backspace and type in a new value.
 - **Number of Openings:** If you toggle on the Multiple Opening option, enter the total number of openings in the array.
 - **Manufacturer Choices:** You can add to the manufacturer list by clicking on the Manufacturer Choices button in the lower right hand corner of the Opening Database window and typing the name. Thereafter, the new manufacturer is available in the Manufacturer drop list to use in entering openings specific to that manufacturer.
 - **Insert Symbol:** When this option is selected, the symbol from the Door/ Window column above will be inserted at the time the opening is cut in the wall.
 - **Multiple Openings:** When this option is selected, you may insert more than one opening spaced evenly between two points.
1. To insert an opening by list, either right click on a wall (this will only allow you to insert one opening) or select the Insert menu from the main dropdown menus along the top (this will allow you to insert the same opening in multiple locations).

2. The Openings Database dialog box opens. Locate the window or door you want.
3. Click on the small grey box to the left of the PlanLab of Manufacturer column. The entire item row is highlighted in black and you can move to the next row by using the right arrow key on the keyboard. To insert the window or door, click on the Insert Opening button located at the bottom.
4. If you use the Insert menu you will be prompted to select wall to insert opening. If you right clicked on a wall you will not be prompted to select a wall.

Select wall to insert door/window.

5. Select the desired wall. You are prompted:
Indicate corner or center of Door (Window) FINISHED OPENING:
6. The cursor is positioned at one corner of the selected wall. Move the cursor to the location of one side of the opening or to the center of the opening and press Enter. You can also use the X and Y coordinates to enter a dimension. Because height values have already been specified, the position indication should be along the bottom plate. In Plan view, this is on the x-axis if the wall is horizontal, so only use the right arrow or left arrow keys to mark position. If the wall is running vertically on your screen in Plan view, then it is on the y-axis, so only use the up arrow or down arrow keys to mark position. After you have located the cursor and pressed Enter the system prompts:

Mark direction to enlarge Door (Window); ENTER for centerline.

7. If you have marked the opening's center, press Enter without indicating any direction and the opening is created with its centerline at the previously marked point. If you have marked one side of the opening, use the right arrow or the left arrow key (or the up arrow or down arrow keys if the wall is vertical on the screen) to indicate the direction to the other side of the opening, then press Enter. The opening's outline is drawn and the framing values are stored to be used when you select the Framing Wall command.
8. If you have selected door, the system prompts:

Mark direction of hinge - ARROW KEYS to change;

9. Use the arrow key to select the hinge side and direction and press Enter.
10. To continue inserting the same window or door you just select the next wall. To insert a different door or window press Esc.

Opening By Layout

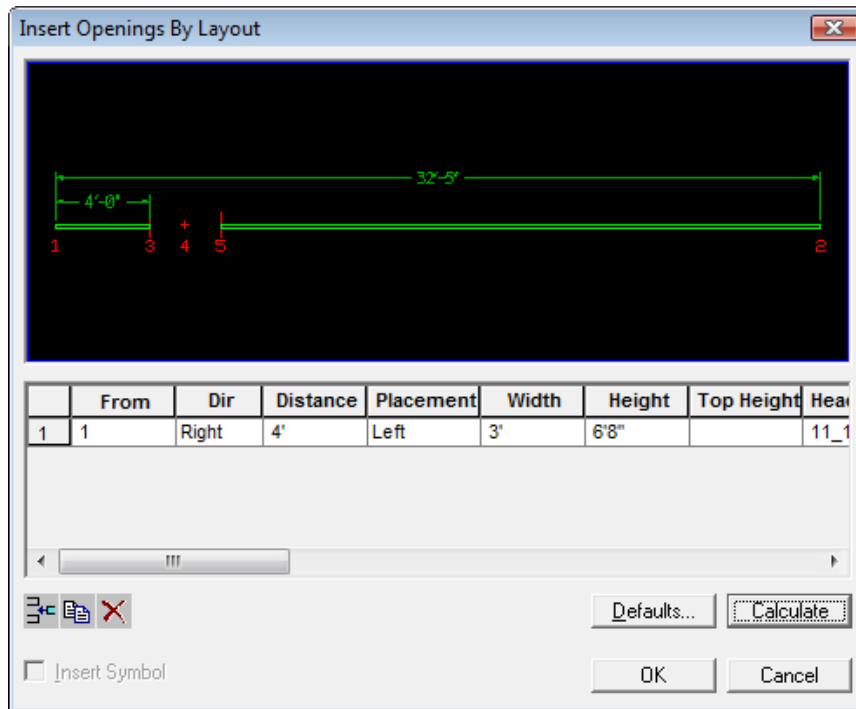
SolidBuilder ➡ Walls ➡ Insert ➡ Opening by Layout

Icon: 

The Opening By Layout method can be a very fast and easy way to place openings. This is

especially true if you are working from an existing plan with all dimensions given. This method places openings by layout points in reference to other openings edges or center point.

1. Right click on a wall and select Insert - Opening by Layout or select Insert from the main drop down menus along the top and select Opening by Layout. There is no icon for insert opening by layout.
2. The Insert Openings By Layout dialog box opens.



3. The entire wall is displayed as well as the wall length dimension. Point 1 is placed at the left edge facing the Outside of the wall and point 2 is placed at the right edge.
4. To start inserting Openings By Layout, click on the Insert Row icon in the lower left hand corner.
Row 1 is added under the headings.

- **From:** Enter the end, either 1 or 2 as your starting point in the From edit field.
- **Dir:** is the direction from the first point, either Left or Right.
- **Distance:** is the distance from the start point that the new opening is placed.
- **Placement:** determines if the opening is centered at the distance set above or if it is the Left or the Right edge.
- **Width:** is the width of the finished opening.
 - Height: is the height of the finished opening.

- **Top Height:** is the height of the top of a window from the bottom of the wall.
 - **Header Depth:** is the size the header.
 - **Type:** can be toggled between door and window.
 - **Label:** is the name of the opening and is placed on a plan drawing automatically.
 - **Assembly:** allows you to attach an assembly such as trim, hardware, etc. to the opening.
 - **Symbol:** is the 3-D symbol to use for this opening and is selected from the various libraries.
 - **Plan Symbol:** is the 2-D symbol used in the plan working drawing.
 - **Insert Symbol:** toggle allows you to insert the 3-D symbol once the opening is placed.
5. Once you have all of the information entered, click on the Calculate button. This inserts the opening. After inserting the first opening, you have a total of 5 points, the 2 end ones you began with and three from the new opening for the left and right edges and the center.
 6. To insert the same opening, click on the far left gray box next to the From column. This highlights the entire row in black. Click on the Copy icon and a duplicate of the first line is added. You need to change the From column for the second entry to either 3, 4 or 5 depending if you are placing the second opening layout from the first left edge, right edge or center. Click on Calculate and you now have 8 points. Simply delete a row to delete an opening.
 7. Continue the above procedures until all openings are inserted in that wall. Click OK once finished and the openings will be placed.

Opening Shapes

SolidBuilder ➡ Walls ➡ Insert ➡ Openings

Icon: 

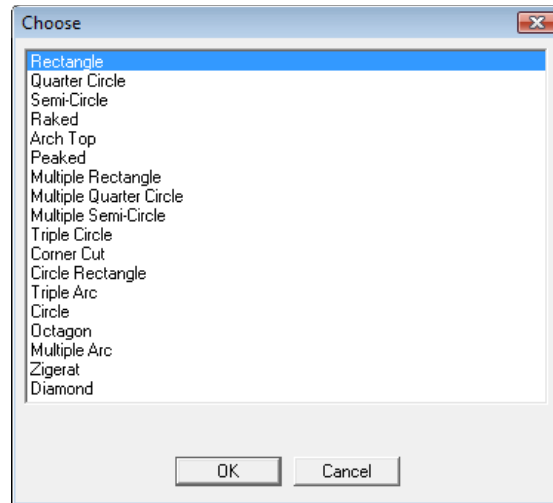
Whether you Insert Openings by Prompt, List or Layout, you can select the shape of the opening.



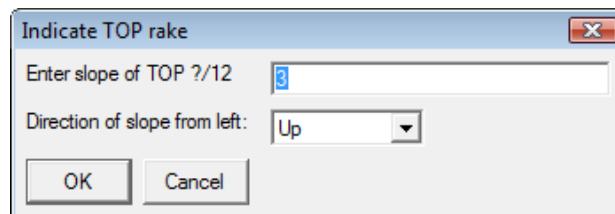
Remember that all alternate opening shapes are framed as rectangular openings. This restricts their proximity to rake or sloped wall tops.

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Walls



- **Rectangle Option:** This shape places a rectangular opening at the designated location. It is described in the preceding section.
- **Quarter Circle Option:** This option allows you to change the top of the opening to a quarter circle.
 1. There are two possible positions for the quarter circle. After the opening has been sized and placed, the system prompts:
Press left/right arrow to reverse. Press Enter to accept
 2. Press the arrow keys for the preferred orientation and press Enter.
- **Semicircle Option:** This option allows you to change the top of the opening to a semicircle shape.
- **Raked Option:** This option provides for a raked top and bottom.
 1. You may either enter the rake by entering the rise in inches per foot or you may select an existing wall in the model with a sloping top or bottom edge that slopes at the desired rake slope for the window.
 2. After the rectangular opening is placed in the wall, the following dialog box displays:



3. If you wish to enter the slope, type in a number representing the inch rise per foot in the top field. You must then select the direction of the slope relative to the left side of the opening when you are viewing it from the front face. In the second line, select either Down or Up from the drop list.

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Walls

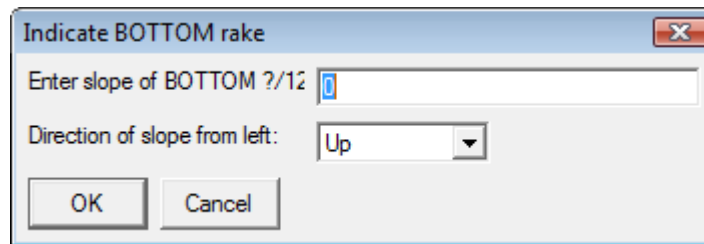
4. If the top slope is to be the same as the slope of a wall, do not enter a value and use the mouse to select the Use model option in the Direction of slope from left drop list. If you select the Use model option, then the angle of the top of the raked opening is determined by the angle of a wall top or bottom. You select a wall and an edge (normally the top or bottom edge) of the wall, which provides the slope for the top and bottom of the raked window. After choosing the Use Model Option, the system prompts:

Select a wall that determines TOP rake

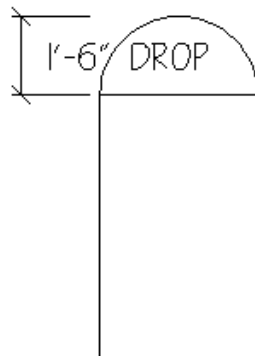
5. Select a wall. You are then prompted to:

Indicate wall edge that determines rake on the TOP

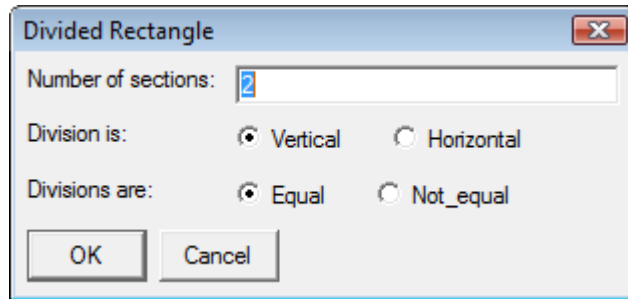
6. Press the arrow keys to highlight the desired edge. Then press Enter or click the left mouse button. The following menu displays:



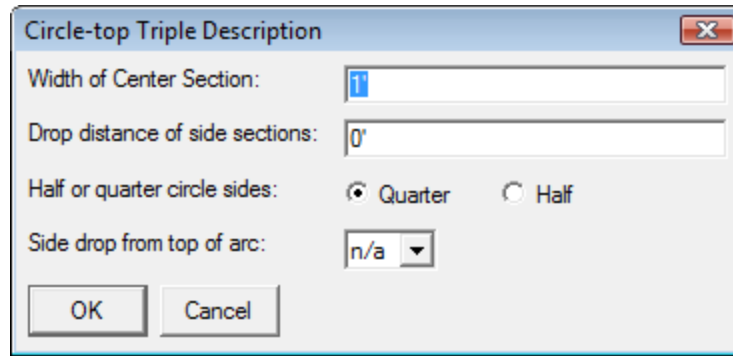
7. You are prompted for the bottom of the opening in the same manner as the top. Either enter a value and select Down or Up or select Use model and follow the prompts.
 8. The opening size is adjusted after the top and bottom rake has been selected. In all cases, the resulting raked opening fits within the size of the rectangular opening you designated when placing the opening.
- **Arc-Top Option:** This shape allows you to shape the top of the opening to an arc.
 1. The program prompts:
Enter side drop from top of arc.
 2. Enter a value and press Enter. The following diagram shows the side drop location.



- **Peaked Option:** A peaked opening is typically used on a gable wall end. The top of the opening is made up of two sloping parts, each at the same slope in opposite directions. As with a raked opening, the slope is established by either selecting a wall and then an edge of the wall or entering a value. The sequence is the same as the first part of the raked wall sequence. After selecting a wall and an edge or entering a value, the top of the opening is modified to include two sloped edges at the same slope.
- **Multiple Rectangle Option:** After placing a rectangular opening, the following dialog box is displayed.



1. Type a number in the Number of sections edit field. The rectangle opening is divided into the number of sections you entered.
 2. The divisions can be either Vertical or Horizontal.
 3. The divisions can be either Equal or Not Equal. In the case of a twin window the divisions would be 2 and equal. In the case of a 3' door with 2 12" sidelights, the divisions would be 3 and not equal.
 4. Each of these sections can have a different symbol entered into it. Placement of the opening is done in the same manner as the rectangle option. If you select not equal, you are prompted to enter the size of the sections.
 5. When the model is painted or hidden view the different sections are not apparent. The only difference between this opening and its counterpart rectangle opening is how symbols are inserted.
- **Multiple Quarter Circle Option:** This automatically divides the opening into a rectangle section and into a quarter circle section. You may insert a separate symbol into the quarter circle section and the rectangle section. Otherwise it functions in the same manner as the quarter circle option.
 - **Multiple Semi-Circle Option:** This automatically divides the opening into a rectangle section and into a half circle section. You may insert a separate symbol into each section. Otherwise it functions in the same manner as the semicircle option.
 - **Triple Circle Option:** This opening provides for a center section with a semicircular top and two side sections with either quarter or semicircle tops. The following dialog box displays.



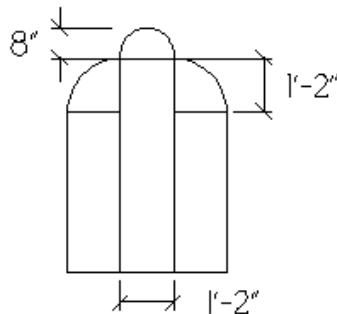
Width of Center Section: the width of the center or middle window or door section.

Drop distance of side sections: This determines the vertical distance from the top of the opening to the top of the two side openings.

Half or quarter circle sides: This determines if the side section top is a semicircle or a half circle.

The last field is not applicable to this command.

The following picture illustrates the results of the three field settings.



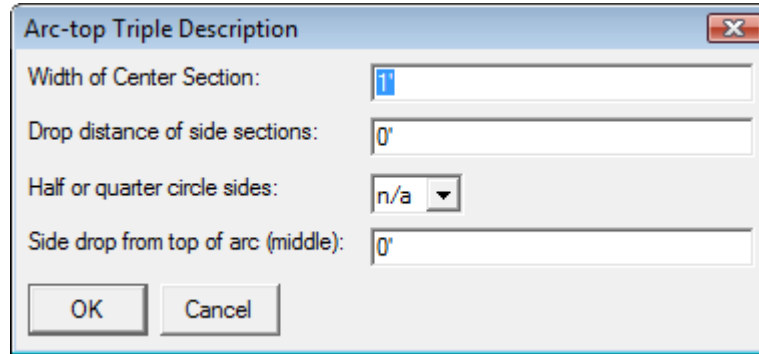
The opening is automatically divided into three rectangles and three semi or quarter circle sections. A different symbol can be placed in each of the six sections. This shape is divided for symbols in the same manner as the rect-mult, qtr-mult and semi-mult options.

- **Corner Cut Option:** This opening is commonly used for garage doors. The top corners of the opening are clipped at a 45 degree angle.
 1. You enter the vertical or horizontal distance. They are the same since the angle is always 45 degrees. You are prompted:
Horizontal or vertical distance to cut: 1'
 2. Either hit Enter to accept the default value or press Backspace, type a new value and press Enter.
- **Circle Rectangle Option:** This option allows you to place a half circle over a rectangle.
 1. The center of the circle of which the half circle is part is set at the midpoint and top of

the rectangular opening. You must enter the radius of the half circle. You are prompted:

Radius of half-circle: 1'

2. Either hit Enter to accept the default value or press Backspace, type a new value and press Enter.
- **Triple Arc Option:** This opening provides for a center section with a semicircular top and two side sections with either quarter or semicircle tops. The following dialog box displays:



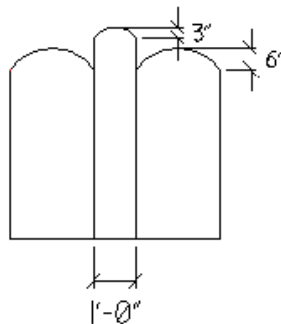
The dialog box is titled "Arc-top Triple Description" and contains four input fields and two buttons. The first field, "Width of Center Section:", has the value "1". The second field, "Drop distance of side sections:", has the value "0'". The third field, "Half or quarter circle sides:", has a dropdown menu showing "n/a". The fourth field, "Side drop from top of arc (middle):", has the value "0'". At the bottom are "OK" and "Cancel" buttons.

Width of Center Section: Enter the width of the center section.

Drop Distance of side sections: Enter the distance from the top of the opening to the top of the two side openings.

Half or quarter circle sides: This field is not applicable to this command.

Side drop from top of arc (middle): Enter the side drop of the middle section. This operates in the same manner as the arc top option. The two side sections will have the same arc as the middle section. The following picture illustrates the results of the three field settings.

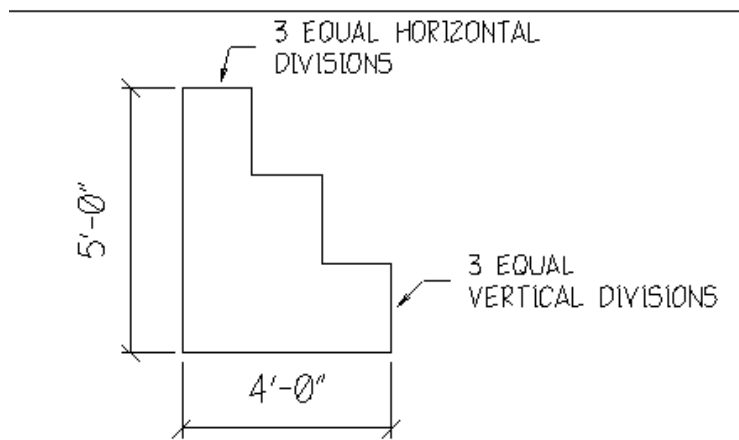


The opening is automatically divided into three rectangles and three arcs. A different symbol can be placed in each of the six sections. This shape is divided for symbols in the same manner as the rect-mult, qtr-mult, and semi-mult options.

- **Circle Option:** A circle is placed in the rectangular opening. The circle is set in the

middle of the rectangle if the width and height are different.

- **Octagon Option:** The top and bottom corners of the opening are clipped at a 45 degree angle.
 1. You enter the vertical or horizontal distance. They are the same since the angle is always 45 degrees. The system prompts:
Horizontal or vertical distance to cut: 1'.
Horizontal or vertical distance to cut: 1'.
 2. Either press Enter to accept the default value or press Backspace, type a new value and press Backspace.
- **Multiple Arc:** Almost identical to the Arch-Top option. The only difference is in the Arc-Top option the opening is a single opening and requires a single round top symbol. In the multiple Arc option the rectangle portion and the half round top portion are two separate openings and require two separate symbols.
- **Zigerat:** Or stacked windows will divide the opening width and height into 3 equal divisions. The resulting opening will allow for 3 symbols along the bottom row, two symbols along the second row and one symbol along the top row.



- **Diamond Option:** A diamond shape is formed to fill the opening.

Blocking

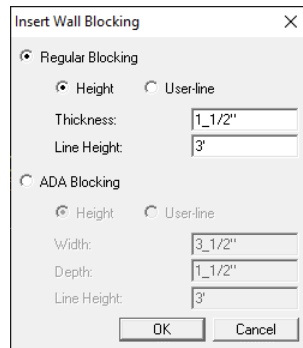
SolidBuilder ➡ **Walls** ➡ **Insert** ➡ **Blocking**

Icon:  

Blocking comprises the horizontal framing member (s) placed between vertical framing members to either reinforce the wall or provide nailers for items to be fastened to the wall later. This command allows you to create a line of blocking in a selected wall at a particular height or along a line you draw. You may select either a single wall or a group of walls. This is handy for framers that need to install a row of 4x4 blocking for shear transfer. For example, consider a wall 10 ft. tall and the plywood sheathing is to be 4x8 sheets. The shear must run from bottom plate to very top

plate. The shear schedule usually specifies edge nailing at 3" O.C. and that all seams must break on a 3_1/2" member.

1. Right click on a wall and select Insert - Blocking (this will allow you to only insert one Blocking set at a time) or select Insert from the main drop down menus along the top and select Blocking, or click on the Insert Blocking icon.
2. If you selected the Insert Blocking icon or the Insert Blocking from the drop down menus, you will be prompted to select wall to insert Blocking. Select the wall. If you right click on a wall the dialog box automatically opens. This can be either regular blocking or ADA Blocking. ADA blocking turns the blocking vertically and in on the inside or outside of the wall.



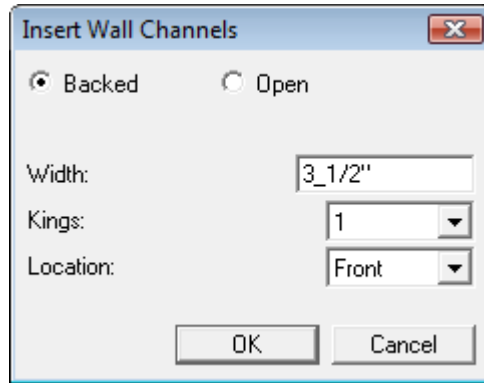
- **Height:** Create blocking at a specified height.
 1. Enter the blocking thickness and the height from the bottom of the wall for the blocking and click on OK. The system prompts:
Select walls for blocking lines
 2. A line is drawn marking the location and the information is stored for framing. The blocking is generated when you frame the wall.
- **User-line:** Create a line of blocking by drawing a line.
 1. Enter a blocking thickness and click on OK. The system prompts:
Select walls for blocking lines
 2. You are prompted to:
Mark the start blocking line endpoint
 3. Mark the end blocking line endpoint
 4. Draw a line marking the location for the blocking. You may draw a horizontal line or a line at an angle. The information is stored for framing. The blocking is generated when you frame the wall.

Channels

SolidBuilder ➡ Walls ➡ Insert ➡ Channels

Icon:  

1. Right click on a wall and select Insert - Channels (this will allow you to only insert one channel at a time) or select Insert from the main drop down menus along the top and select Channel, or click on the Insert Channel icon.
2. If you selected the Insert Channel icon or the Insert Channel from the drop down menus, you will be prompted to select wall to insert Channel. Select the wall. If you right click on a wall the dialog box automatically opens.



This dialog box contains options for creating backed or open channels in walls. The entry procedure is identical for both of these channel types with the only difference being the options presented in the dialog boxes.

1. When you select either of the channel types, the system prompts:
Select wall for channel line; ESC to quit
2. After you set the values, the system prompts:
Mark or enter location of channel:
3. The cursor is positioned at one corner of the selected wall. Mark or enter the location of one side of the channel. The system prompts:
Mark direction to enlarge centerline; Enter for centerline
4. Move the cursor to enlarge the left/right/up/down to enlarge, and left click or press Enter to mark the location as the center of the channel.

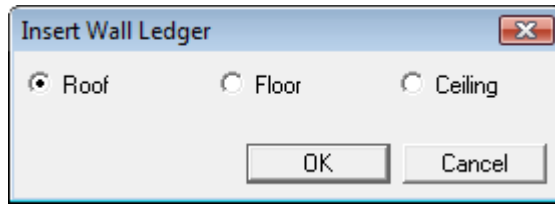
Ledger

SolidBuilder ➡ Walls ➡ Insert ➡ Ledger

Icon:  

This command allows you to place a ledger in a selected wall. It allows ledgers when a roof, floor or ceiling shell edge is located along a wall face.

1. Select Insert from the main drop down menus along the top and select Ledger, or click on the Insert Ledger icon. The right click on a wall does not work for Insert -Ledger.



2. If you selected the Insert Ledger icon or the Insert Ledger from the drop down menus, you will be prompted to select wall to insert Ledger. Select the wall.
3. The system prompts:
Select a roof, floor or ceiling for ledger generation.
4. Select the roof, floor or ceiling to use to create the ledger. The Create Ledger dialog box opens.

Enter the Ledger thickness

Enter the Ledger depth.

The ledger will be created and notched into the wall studs. The actual ledger that is cut into the wall studs is 1/2" the depth entered above. If you entered 7 1/4" for the Ledger depth, the actual ledger cut into the studs would be 3 5/8". The command continues until you press the Esc key.

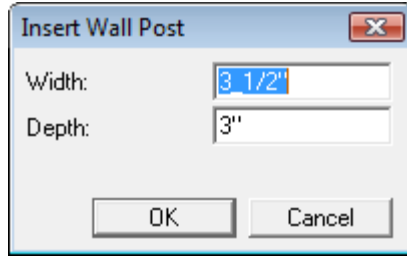
Post

SolidBuilder ➡ Walls ➡ Insert ➡ Post

Icon:  

This command allows you to place a post within a wall. If you wish to create a post, which is not within a wall, you must use the Create Post command in the Girder-post menu.

1. Right click on a wall and select Insert - Post (this will allow you to only insert one Post set at a time) or select Insert from the main drop down menus along the top and select Post, or click on the Insert Post icon.
2. If you selected the Insert Post icon or the Insert Post from the drop down menus, you will be prompted to select wall to insert Post. Select the wall. If you right click on a wall the dialog box automatically opens.



3. Change or accept the default values
4. After you select the desired wall, you are prompted:
Mark or enter location of post:
5. Using the X or Y coordinates; locate the position for the post. You are prompted:
Mark direction parallel to wall to enlarge post
6. If you do not move the cross hair, the center of the post is placed at that point. If you move your cross hair in the X or the Y direction the first edge of the post will be created at the original point and the second edge of the post will be created in the direction you have moved. A line is drawn where the post is located when the wall is framed. Press Esc to leave the command.

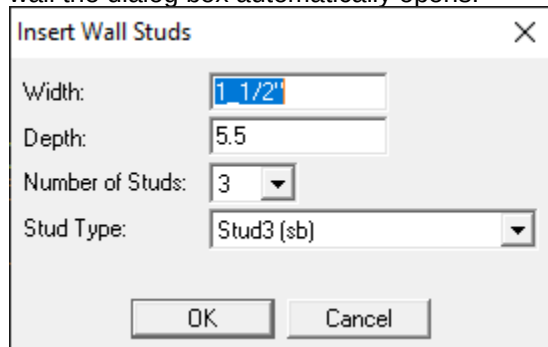
Studs

SolidBuilder ➔ **Walls** ➔ **Insert** ➔ **Suds**

Icons:  

This command allows you to place stud within a wall. If you wish to create a post, which is not within a wall, you must use the Create Post command in the Girder-post menu.

1. Right click on a wall and select Insert - Studs or select Insert from the main drop down menus along the top and select Studs, or click on the Insert Studs icon.
2. If you selected the Insert Studs icon or the Insert Studs from the drop down menus, you will be prompted to select wall to insert Studs. Select the wall. If you right click on a wall the dialog box automatically opens.



3. Change or accept the default values.
4. After you select the desired wall, you are prompted:

Mark or enter location of studs.

5. Using the X or Y coordinates; locate the position for the Studs. You are prompted:
Mark direction parallel to wall to enlarge Studs
6. If you do not move the cross hair, the center of the post is placed at that point. If you move your cross hair in the X or the Y direction the first edge of the studs will be created at the original point and the second edge of the post will be created in the direction you have moved. A line is drawn where the post is located when the wall is framed. Press
Esc to leave the command.

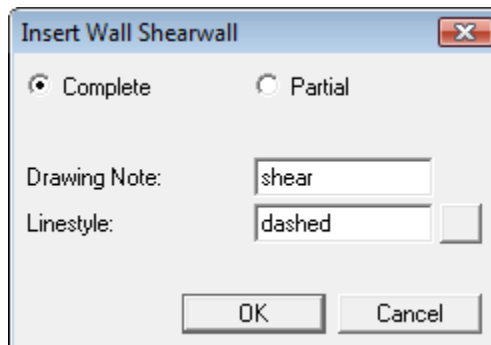
Shear Wall

SolidBuilder ➡ Walls ➡ Insert ➡ Shear Wall

Icon:  

This command allows you to call-out where a Shear Wall is needed.

1. Right click on a wall and select Insert - Shear Wall (this will allow you to only insert one Shear Wall at a time) or select Insert from the main drop down menus along the top and select Shear Wall, or click on the Insert Shear Wall icon.
2. If you selected the Insert Shear Wall icon or the Insert Shear Wall from the drop down menus, you will be prompted to select wall to insert Shear Wall. Select the wall. If you right click on a wall the dialog box automatically opens.



- **Complete Wall:**

1. If you type a note in the Drawing note field, it displays on your plan Working Drawings when you use the Insert Labels command. You may select a linestyle from 10 available styles. This is used to mark the shear wall on plan Working Drawings.
2. After entering a note and selecting a linestyle, the system prompts:
Select walls to be designated as shear walls

3. Select the walls desired. The bottom plate thickness is set to the dimension specified in the Plates section in Wall Settings. A red line will be placed on the outside edge of the wall to denote it as a shear wall.

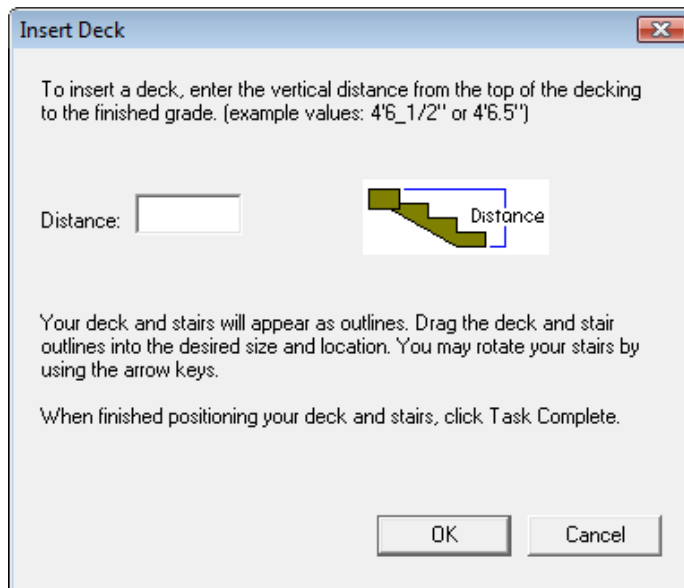
- **Partial Wall:**

1. The initial commands are the same as for Complete Wall. The difference is with Partial Wall you will mark the start of the shear area and the end of the shear area.
2. After entering a note and selecting a linestyle, the system prompts:
Select walls with shear wall ranges.
3. Select a wall or walls. You are prompted:
Mark the start shear wall range
4. Using the X or Y coordinates; locate the position for the start of the shear wall. You are prompted:
Mark the end shear wall range
5. Using the X or Y coordinates; locate the position for the end of the shear wall.

Decks

SolidBuilder ➡ Walls ➡ Insert ➡ Deck

The command allows you to quickly insert decks into your design. It is recommend you have the footprint of the main design complete before inserting decks because typically a deck ties into the house. When deck is chosen from the Insert pull down menu, the following dialog box will appear:



This dialog box allows you to specify information about your desk stairs. In this dialog box, you may enter the distance from the deck floor to the finish grade. SolidBuilder will use this information to generate your deck stairs. Once this information is entered, select OK.

SolidBuilder will then display a rectangle representing the deck as well as a stair outline. At this

point the deck outline can be resized and moved into position. To move the outline into position, simply left click & hold your mouse button down while dragging the outline. Move the outline to the desired position, then let go of your mouse button. To resize the deck outline, simply left click and drag the desired grip. You will notice as you move a grip, the dimensions of the deck will change.

Next, move the deck stairs into position. If you need to rotate the stairs, simply right click on the stair outline and select Shape – Rotate. Enter a degree, then use your arrow keys to rotate the stairs into the desired orientation. To move the stair outline, use similar steps as above. Left click and hold to drag the stairs to the desired position, let go of mouse button to drop the stairs at the desired location.

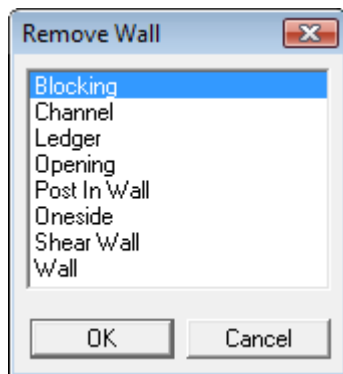
Once the deck & stair outline has been sized and moved into position, right click and choose Build Deck. SolidBuilder will convert your outlines into deck shells. The purpose of this command is to generate a quick deck. If a different (or more complete design) is desired, the generated deck can be modified using standard SolidBuilder tools.

Remove

SolidBuilder ➡ Wall ➡ Edit ➡ Remove

Icon:  

1. Right click on the Wall and select Remove to remove the entire wall. Or for more options select the Remove icon.



2. Select the item to be removed and click OK. The system prompts:
Select (items) to be removed
3. After you select the items, right mouse click and select Finished. Select Yes or No to remove the selected items.

Shape

Move

SolidBuilder ➡ Wall ➡ Shape ➡ Move

Icon:  

This command allows you to move a wall.

1. Right click on the wall and select Shape Move or select the Shape icon and then Move.
The system prompts:
Select wall to move
2. Select the desired walls to move. If you have more than one wall visible, right mouse click and select Finished. The system prompts for distance and direction of move:
3. You are prompted:
Enter base point
4. The cursor moves to the layout point of the wall. Either press Enter or left mouse click to select this as the base point for the move or move the cursor to a more convenient location to specify the distance and direction for the move. Press Enter and the system prompts:
Enter offset point
6. Enter or type the desired coordinates indicating the distance and direction. The walls are moved.

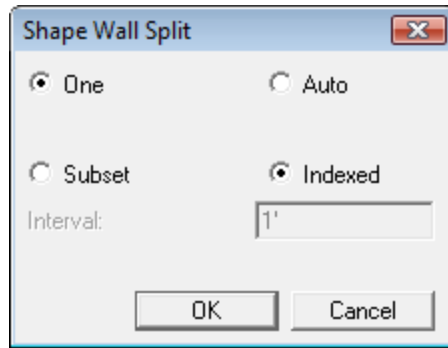
Split

SolidBuilder ➡ Wall ➡ Shape ➡ Split

Icon:  

This command allows you to split a single wall into two separate walls or into several walls all of the same width. You may wish to split a wall due to panelized construction or for specific framing considerations to change a portion of the wall's thickness or height and add planes to these modified walls.

1. Right click on the wall and select Shape Split or select the Shape icon and then Split, or select Edit from the main dropdown menus then Shape and select Join. The Shape Wall Split dialog box opens.



- **One:** This option will split one wall at a time.
- **Auto:** This option will split all walls automatically starting from their layout points to the selected interval.
- **Subset:** If you select Subset, the system adds a letter to the existing wall name for each consecutive wall. In other words, when you split wall2 it would become wall2a and wall2b.



Remember that you are limited to 8 characters in a wall name. So if you have wall110 (7 characters already) you can only split it once, then you have wall110a and wall110b (you now have 8 characters and cannot split this wall again)

- **Indexed:** If you select Indexed, the system keeps the current name for one of the resulting walls and name the other wall using the next available wall name. In other words, assuming a house with 35 walls, if you split wall2 it would then become wall2 and wall36.
2. Hit OK. You are prompted:
Select wall to split
 3. Select the wall or walls to split.
 4. After the desired wall has been selected, the wall's stud centers are displayed. Green diamonds at the front face of the wall represent the physical locations of the stud centers in the walls. They can be used to select an appropriate split point for the wall. The system prompts:
Mark or enter location of split:
 5. The cursor is positioned at one corner of the selected wall. Move the cursor to the location at which the split is to occur and press Enter or you may type the X and Y coordinates. The wall is split into two walls and the system prompts for another wall to split. Continue the command until there are no more walls to split, press Esc to exit the command.



If you Split a wall to modify a portion of it for thickness, height or any other reason, remember to Join it back together when you are done. When you split a wall, you create double framing at the split and by joining it back together you prevent the double framing.

Join

SolidBuilder ➡ Wall ➡ Shape ➡ Join

Icon:  

This command lets you join two walls so that they become a single wall. The two walls must be in line with each other and must touch each other. It will not join perpendicular walls or walls at corners. It is appropriate when the resulting wall shell does not have any jogs or turns in it. Typically, Shape - Join is used to rejoin two walls, which were previously Split.

1. Right click on the wall and select Shape - Join or select the Shape icon and then Join, or select Edit from the main dropdown menus then Shape and select Join.
2. The system prompts you to select each of the walls to be joined:
3. Select first wall to join.
4. Select second wall to join
5. After the second wall is selected, the two walls are joined.

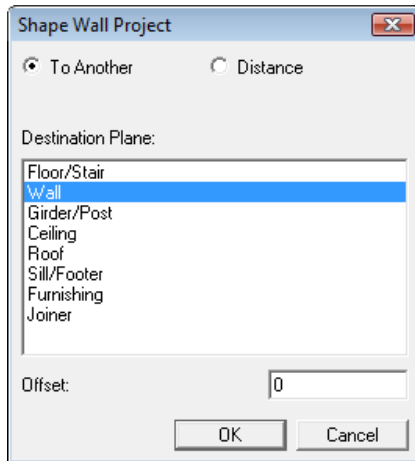
Project

SolidBuilder ➡ Wall ➡ Shape ➡ Project

Icon:  

This command allows you to project a wall face (making it taller, shorter, longer or wider) by selecting a plane defined by one of the faces of the faces of another shell. You may also project a face to a distance.

Right click on the wall and select Shape - Project or select the Shape icon and then Project, or select Edit from the main dropdown menus then Shape and select Project. When you select Project, the following dialog box (below) displays



- **To Another:**
 1. Turn the To Another radio button on.
 2. Select the type of model shell (wall, roof, etc.), which contains the desired destination plane, and indicate any distance you wish to offset the wall projection from this plane. A positive value projects the wall to increase a dimension; a negative value projects the wall face to decrease a dimension. After selection of a shell type, you are prompted:
Select <shell> to project to
 3. Select the appropriate shell. You are prompted:
Select face to project to
 4. Use the left arrow or right arrow key to select the face of the shell to which you wish to project a wall face. You are prompted:
Select walls to project
 5. Select a wall to be projected. You are prompted:
Indicate the face to project
 6. Use the left arrow or right arrow key to select the face to be projected. The face is projected to the selected plane. You are prompted:
Select next wall to project to a plane; ESC to quit
 7. If there are other walls you wish to project to this same plane, you may select them now using the same procedure. When there are no more walls to project, press the Esc key to exit the command.



Every shell has 6 faces: front, back, top, bottom, left and right. It is extremely important that you pay special attention to what the command line is asking you to do and what shells and faces you select. If you tell **SolidBuilder** to do a projection that cannot possibly be done, **SolidBuilder** tries but you displays an error message about an invalid solid or shell has no definition etc. and this shell has to be removed in the Cad Menu. For example, you tell **SolidBuilder** to project the left face of one wall to the top face of an adjacent wall. This is impossible to do and results in an error message.

- **Distance:**

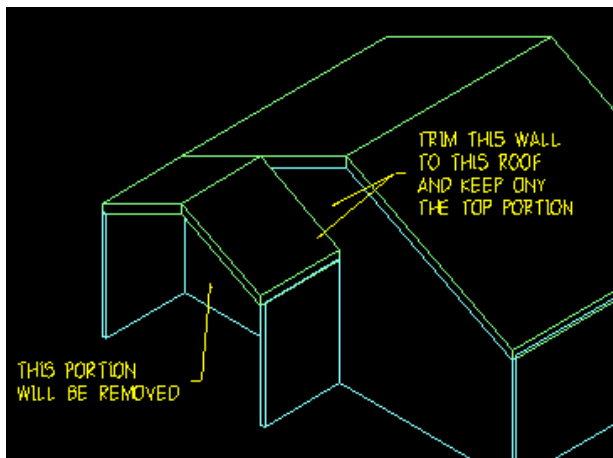
1. If you choose Distance type in the distance to project, (positive value lengthens the face and negative value shortens the face). You are prompted:
Select walls to project a distance
2. Select a wall to be projected. You are prompted:
Indicate the face to project
3. Use the left arrow or right arrow key to select the face to be projected. Press Enter once you have the desired face to project. You are prompted:
Select another wall.
4. When there are no more walls to project, press Esc to exit the command.

Trim

SolidBuilder ➡ Wall ➡ Shape ➡ Trim

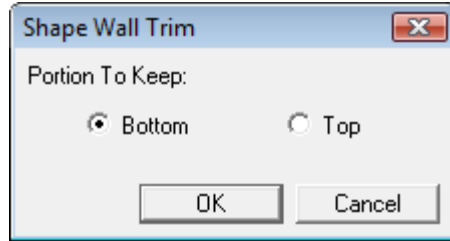
Icon:  

This command allows you to trim away a portion of a wall or walls lying directly above or below selected roofs and ceilings. Where a portion of a wall lies between two roofs, the wall can be created at full height for its full length, and then the Trim function can be used to remove the part of the wall below the intersecting roof plane. The following example shows such a wall.



The roof edge must extend through the wall to be trimmed. If it does not, the wall will not be trimmed. Before you start the trim command project the edge of the roof that butts up against the wall, a distance of 1'. Trim the wall and when finished project the roof edge back -1'.

1. Right click on the wall and select Shape - Trim or select the Shape icon and then Trim, or select Edit from the main dropdown menus then Shape and select Trim. The Shape Wall Trim dialog box opens.



2. Select to keep the bottom portion of the wall or the top portion of the wall. Hit OK. If you selected the Shape icon and then Trim, or select Edit from the main dropdown menus then Shape and select Trim you will be prompted to select a wall.
3. In the example drawing above, the top portion was kept.
4. After all desired walls have been selected, right mouse click and select Finished or press F10. You are prompted:
Select roofs & ceilings to be used in trimming
5. You need to select all roof sections that you want to trim the wall to. After you select the roofs or ceilings, the walls are trimmed against the roofs with the selected portion discarded.

Width

SolidBuilder ➡ **Wall** ➡ **Shape** ➡ **Width**

Icon:  

This command allows you to modify the width of a wall.

3. Right click on the wall and select Shape - Width or select the Shape icon and then Width, or select Edit from the main dropdown menus then Shape and select Width. The Shape Wall Width dialog box opens.
4. If you selected the Shape icon and then Width, or select Edit from the main dropdown menus then Shape and select Width you will be prompted to select a wall or walls.
5. The current width is displayed.
6. Enter the new width.
6. Since you are physically changing the width, any adjoining walls will be affected by the different wall width. **SolidBuilder** recognizes this and will prompt you
Shorten/lengthen this wall too- No Yes
6. All other adjoining walls are also highlighted in red in turn. You are prompted for each in the same manner. After the choices for changing adjacent walls have been entered, the wall width is changed. You are prompted:
Select another wall to change width; ESC to quit.

7. Press the Esc key to exit the command.

Move Group

SolidBuilder ➡ Wall ➡ Shape ➡ Move Group

Icon:  

This command allows you to move a group of walls.

1. Right click on the wall and select Shape - Move Group or select the Shape icon and then Move Group, or select Edit from the main dropdown menus then Shape and select Move Group.
2. If you selected the Shape icon and then Move Group, or selected Edit from the main dropdown menus then Shape and select Move Group you will be prompted to select a wall or walls. You are prompted:
Select walls to move
3. Select the walls to be moved. You are prompted:
Enter base point
4. The cursor is located at the lower left outer face of the wall. Press Enter to select this as the base point for the move or move the cursor to a more convenient location to specify the distance and direction for the move. Press Enter. You are prompted:
Enter offset point
5. Enter the distance to move using the X and Y coordinates, or using the arrow keys of the mouse. Move the cursor and press Enter.
6. This enters the move distance. The walls are moved as a group the indicated distance and direction.

Recreate

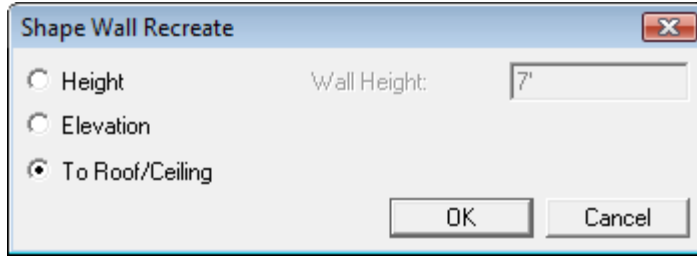
SolidBuilder ➡ Wall ➡ Shape ➡ Recreate

Icon:  

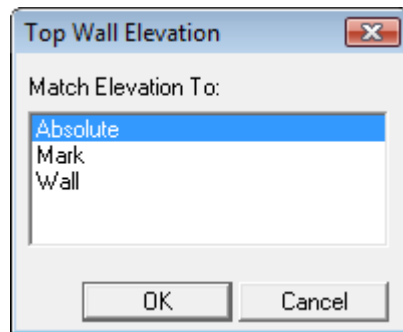
This command allows you to change the height and or shape of a wall or walls.

1. Right click on the wall and select Shape - Recreate or select the Shape icon and then Recreate, or select Edit from the main dropdown menus then Shape and select Recreate. The Shape Wall Recreate dialog box opens.

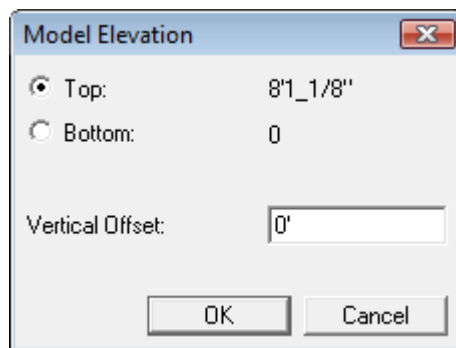
Chapter 21
Walls



- **Height:** Enter the new wall height. The wall will be recreated to this new height.
 - **Elevation:** You can match the elevation of the selected wall to the elevation of another shell without having to measure it.
1. Select the wall or walls to recreate. The Top wall Elevation dialog box opens. Select the shell you want to match the top of the wall to. Hit OK.



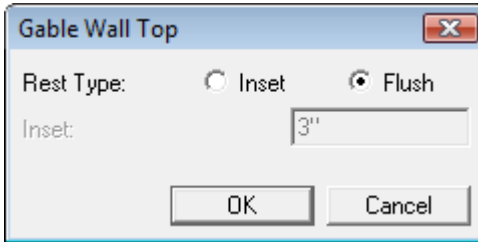
2. You are prompted:
Select Wall for Elevation.
3. Select the wall (or other shell you may have chosen) that you want to match elevations to. The Model Elevation dialog box opens.



4. Typically you will select Top to match the top of the selected wall to the top of this wall. Hit OK.
- **To Roof/Ceiling:** This option raises the top of the wall to a ceiling or roof (gable ends). You select the roof or ceiling to use and the wall will be recreated to that pitch and the top of the wall will be flush with the bottom of the roof or ceiling. If you are able to define the roofs above the wall first, then the To-roof/ceiling option should be

your choice, as it is the easiest to use.

1. Select the wall or walls to recreate. Depending on whether you are recreating a eave wall, or a gable wall one of these dialog boxes will open.



2. If the wall is a gable wall and you select Inset, the value of the inset size field is added to the wall height. The inset size is defined along the plumb cut, not the vertical distance.
3. If the wall is an eave wall and you select square, the wall top is horizontal. If you select bevel, the wall top is at the slope of the roof or ceiling above.
4. If the wall is a gable wall and you select Inset, the value of the inset size field is added to the wall height. The inset size is defined along the plumb cut, not the vertical distance.
5. After the options have been selected, the walls tops are projected to the selected shells.



If the roof or ceiling does not completely cover (in plan view) the wall selected, the wall will not recognize the roof or ceiling above it and continue out into space. The walls that are created as a result of this error stop at 100 feet in height.

Reinsert

SolidBuilder ➡ Wall ➡ Shape ➡ Reinsert

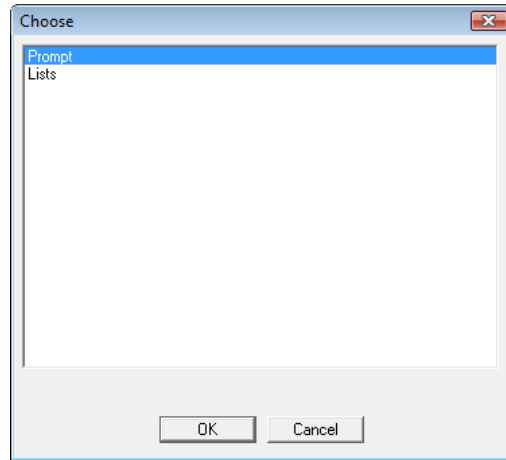
Icon:  

This command allows you to remove an opening and insert a different size or shape. .

1. Right click on the wall opening and select Shape - Reinsert or select the Shape icon and

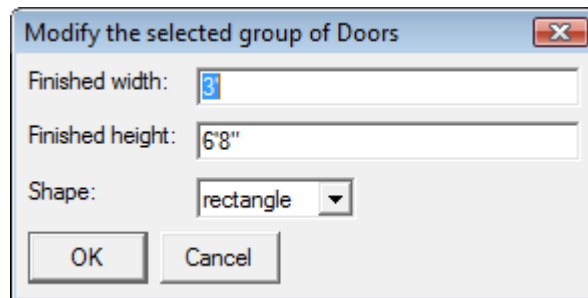
then Re-insert, or select Edit from the main dropdown menus then Shape and select Reinsert. The Shape Wall Width dialog box opens.

2. If you selected the Shape icon and Reinsert, or select Edit from the main dropdown menus then Shape and select Reinsert you will be prompted to select a wall or walls.
3. When you select Shape - Reinsert, the Choose dialog box (below) displays.



- **Prompt Option:** This will insert the new opening using the Opening by Prompt option.

1. The following dialog box is displayed.



2. The current width, height and shape are displayed. You may enter values for Finished width and Finished height. Pressing the button next to Shape displays the shape options: rectangle, qtr-circ, semi-circ, raked, arc-top, peaked, rect-mult, qtr-mult, semi-mult, cir-trip, cornr-cut, cir-rectn, arc-trpl, circle, octagon and diamond.
3. You may change the sizes of the opening and the top height of the window by typing in new values. The Finished height of the door and window refer to the top of the finished opening.

- **List Option:** This will insert the new opening using the Opening by List option.

1. If you select the List option, you are prompted::
Select opening to modify size & shape
2. Select the door or window openings that you wish to modify. After selecting the first

Chapter 21 Walls

opening, all other openings are of the same type. If you select a window, all subsequent openings that you are able to select are windows, not doors. After finishing the selection process, the following dialog box displays.

PlanLab	FinishWid	FinishHgt	DeltWid	DeltHgt	PlanSymb	DfltAsmb	Dn_Sn_ItmNo	DoorWindSymb
D2068	2'0"	6'8"	2"	2"	bifold		16.15D2068	DOOR.flush20
D2468	2'4"	6'8"	2"	2"	dswing		16.15D2468	DOOR.flush24
D2668	2'6"	6'8"	2"	2"	dswing		16.15D2668	DOOR.flush26
D2868	2'8"	6'8"	2"	2"	dswing		16.15D2868	DOOR.flush28
D3068	3'0"	6'8"	2"	2"	dswing		16.15D3068	DOOR.flush30
DB1068	1'0"	6'8"	2"	2"	s_bifold		16.15DB1068	DOOR.bifldr20
DB1668	1'6"	6'8"	2"	2"	s_bifold		16.15DB1668	DOOR.bifldr20
DB2068	2'0"	6'8"	2"	2"	s_bifold		16.15DB2068	DOOR.bifldr26
DB2668	2'6"	6'8"	2"	2"	s_bifold		16.15DB2668	DOOR.bifldr26
DB3068	3'0"	6'8"	2"	2"	s_bifold		16.15DB3068	DOOR.bifldr30
DBP1068	2'0"	6'8"	2"	2"	bifold		16.15DBP1068	DOOR.bifldr50
DBP1668	3'0"	6'8"	2"	2"	bifold		16.15DBP1668	DOOR.bifldr50
DBP2068	4'0"	6'8"	2"	2"	bifold		16.15DBP2068	DOOR.bifldr50

3. Select a door/window from the icon in the upper left corner.
4. You may select a new size or type for your selected set of openings from this door and window list. Click on OK when you have selected one. When there are no more openings to reinsert by list, press Esc to exit the command.

Rotate

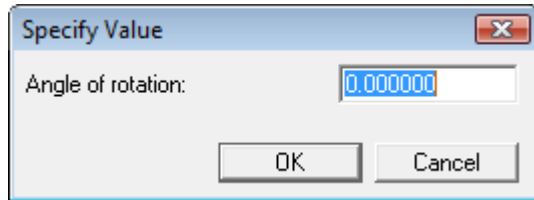
SolidBuilder ➡ Wall ➡ Shape ➡ Rotate

Icon:  

This command allows you to rotate a wall or group of walls around a selected pivot point.

1. Right click on the wall and select Shape - Rotate or select the Shape icon and then Rotate, or select Edit from the main dropdown menus then Shape and select Rotate.
2. If you selected the Shape icon and then Rotate, or select Edit from the main dropdown menus then Shape and select Rotate you will be prompted to select a wall or walls.
3. You are prompted:
Select walls to rotate
4. Select the group of walls to be rotated. You are prompted:
Mark or enter pivot point:
5. The cross hair will jump to the layout point of the wall. Typically this point will be fine and

- left click to accept.
6. The Specify Value dialog box opens.



7. Type in a positive or negative angle. Hit OK.
8. The walls are rotated as a group around the designated pivot point.

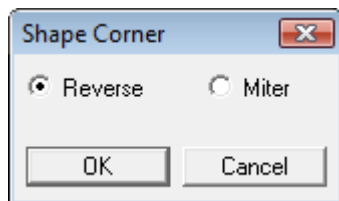
Corner

SolidBuilder ➔ Wall ➔ Shape ➔ Corner

Icon:  

The Shape Corner command allows you to reverse the corner relationship of two walls so that the wall, which runs long relative to the other wall, runs short relative to that wall. The short wall is extended to run long. It also allows you to change a corner condition from lapped to miter or vice versa.

1. Right click on the wall and select Shape - Corner or select the Shape icon and then Corner, or select Edit from the main dropdown menus then Shape and select Corner.
2. If you selected the Shape icon and then Corner, or select Edit from the main dropdown menus then Shape and select Corner you will be prompted to select a wall or walls.
3. The Shape Corner dialog box opens.



4. If you select Reverse, you are prompted:
Select first wall to reverse corner:
5. After the wall has been selected, you are prompted to pick an adjacent wall forming the corner.
6. Select other wall to reverse corner. The command repeats until you press Esc.
7. If you select Miter, you are prompted:
Select first wall to miter
8. After selecting the wall, you are prompted to pick an adjacent wall forming the miter.

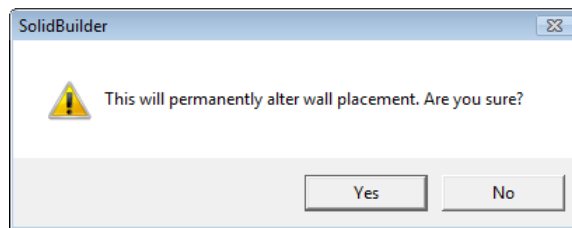
9. Select other wall to miter. The command repeats until you press Esc.
Lineup

SolidBuilder ➔ Wall ➔ Shape ➔ Lineup

Icon:  

This is a specialty command used by some panelizers. The command allows you to line up a group of walls, thus insuring all wall outside faces are in perfect alignment with each other.

1. Select the Shape icon and then Lineup, or select Edit from the main dropdown menus then Shape and select Lineup.
2. You are prompted:
Select walls to lineup.
3. Select the walls to lineup.
4. After selecting the walls to line up, a warning dialog box (below) displays:



5. After the wall has been selected, you are prompted to pick an adjacent wall forming the corner.
6. Select Yes and the selected walls line up in a row.

Brick ledge

SolidBuilder ➔ Wall ➔ Shape ➔ Brick ledge

Icon:  

The Shape Brick ledge command allows you to create a brick ledge in concrete wall.

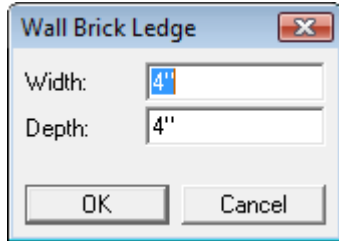


It is usually preferred to miter the concrete walls at the corners if you are using brick ledges. You can do this at the time you create the concrete walls by toggling on the Miter Corner option, or after they are created using the Shape - Corner - Miter.

1. Right click on the wall and select Shape - Brick ledge or select the Shape icon and then Brick ledge, or select Edit from the main dropdown menus then Shape and select Brick

ledge.

2. If you selected the Shape icon and then Brick ledge, or select Edit from the main dropdown menus then Shape and select Brick ledge. The Wall Brick Ledge dialog box opens.



3. Set the width and the depth of the brick ledge to be cut into the concrete wall. Hit OK.
4. You will be prompted to Select walls to add brick ledge. Select the desired walls.

Remove

SolidBuilder · Walls · Remove

This command provides a way to remove unwanted walls and wall features. Each of the commands results in the same general prompt sequence. When you click on the Remove icon, the Remove Wall dialog box (below) is displayed.

Clicking on Yes removes the features selected and returns you to the wall menu. Clicking on No makes no changes and returns you to the wall menu. The Oneside choice displays a dialog box for wall ends or openings.

Remove Wall Dialog Box

If you are trying to pick a shell to perform a command and it does not pick, right click and select the Scan Mode. This scans between the shells highlighted in red, left mouse click or press Enter to select one of the shells highlighted in red. You may then stay in Scan Mode or right mouse click and select Pick Mode if you prefer using Pick Mode to select other walls.

Modify

Openings

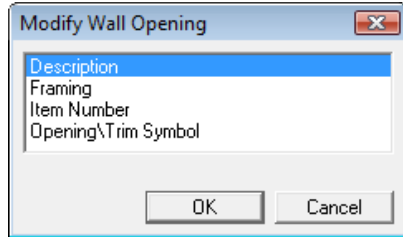
SolidBuilder ➡ Wall ➡ Modify ➡ Opening

Icon:  

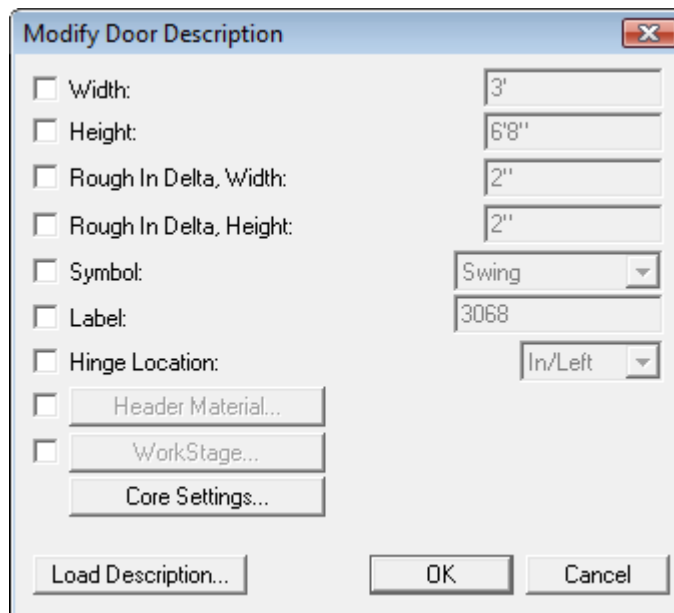
Openings may be modified one at a time or in groups. The following dialog box applies to both doors and windows. The modify command allows you to modify the size of the opening, relocate the top height, change header and rough-in values, modify kings, trimmers, cripples and sills (for windows), move the hinge point (for doors) or change the item number, label information and work stage and change the 3D symbol.

1. Right click on the wall and select Modify - Opening or select the Modify icon and then Opening, or select Edit from the main dropdown menus then Modify and select Opening.
2. If you selected the Modify icon and then Opening, or select Edit from the main dropdown menus then Modify and select Opening you will be prompted to select a wall or walls.

3. The Modify Wall Opening dialog box opens.



- **Description:** Depending on whether you select a door or a window opening to modify: one of the dialog boxes below will open.



Width: The current width is displayed. Enter the new value if needed.

Height: The current height is displayed. Enter the new value if needed.

Rough In Delta Width: The current delta width (the measurement added to frame size to get rough opening) is displayed. Enter the new value if needed.

Rough In Delta Height: The current delta height (the measurement added to frame size to get rough opening) is displayed. Enter the new value if needed.

Top Height: For windows only. This is the height to the bottom of the header. Enter the new value if needed.

Symbol: The current 2D opening symbol is displayed. Select a new symbol if needed.

Label: The current label is displayed. This is the label that **SolidBuilder will** automatically place next to the opening in the 2D floor plan drawing. Enter a new value if needed.

Hinge Location: This is for doors only. The current hinge location and swing are displayed. Enter a new location and/or swing if needed.

Header Material: This option allows the user to be more specific about how and with what they want to frame their openings. This option is directly related to Framing Material Assignments. See the database section for further explanation.

Workstage: The current workstage, if any, is displayed. Select a new workstage if needed.

Core Assembly: The current core assembly, if any, is displayed. Select a new core assembly if needed.

- **Framing:** The Modify Framing will only modify the framing for the selected openings, leaving all other opening framing alone. Depending on whether you select a door or a window framing to modify one of the dialog boxes below will open.

The image shows a software dialog box titled "Modify Door Framing". It contains several input fields and checkboxes. The fields are: "Number Headers" (dropdown menu showing 1), "Header Thickness" (text box showing 1_1/2"), "Header Width" (text box showing 11_1/4"), "Header Height" (text box showing 6'8"), "Sills" (dropdown menu showing 1), "Sill Thickness" (text box showing 1_1/2"), "Kings" (dropdown menu showing 1), "Trimmers" (dropdown menu showing 1), and "Thick Trimmers" (dropdown menu showing 0). There are two checkboxes: "Header To Top Plate (non-raked)" and "False Opening", both of which are currently unchecked. At the bottom of the dialog are "OK" and "Cancel" buttons.

The framing options listed are the same as those in the Wall - Options -

Settings Windows and Doors.

Make changes as needed.

- **Item Number:** This selection will open the items database and allow you to select a new item number for the opening to be used in the estimate.
- **Opening \Trim Symbol:** This selection will open the Opening/ Trim Symbol dialog box. Select the appropriate category and the Symbols dialog box will open. Select a new symbol if needed.



One Side

SolidBuilder ➔ Wall ➔ Modify ➔ One side

Icon:  

This command provides for modifying framing openings on just one side of a wall or an opening, leaving the other side unchanged.

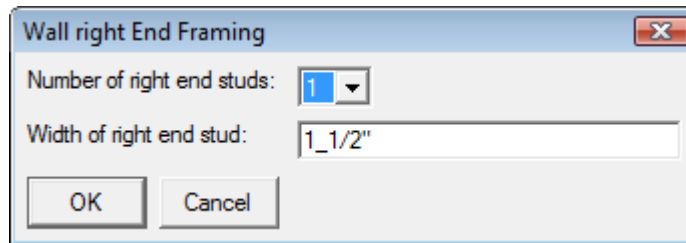
1. Select the Modify icon and then One side, or select Edit from the main dropdown menus then Modify and select One side. Right clicking cannot access this command.
2. If you selected the Modify icon and then One side, or select Edit from the main dropdown menus then Modify and select One side you will be prompted to select a wall or walls.
3. It is best to have the wall in an isometric view rather than a plan or elevation view.
4. The Modify Wall One side dialog box opens.



5. Select either Wall or Opening. Hit OK.

- **Wall:**

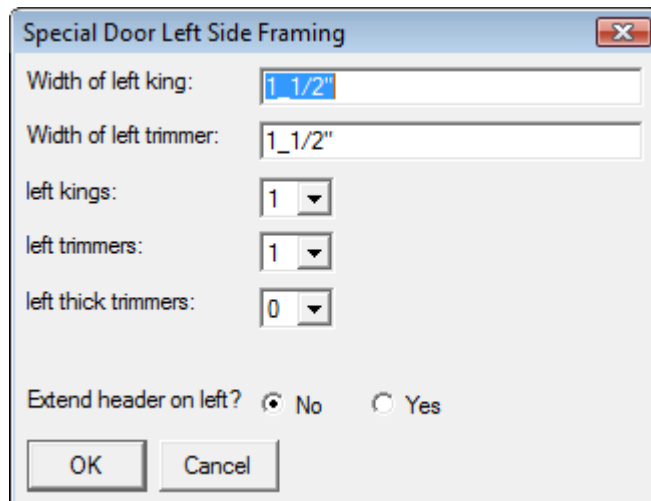
1. You are prompted to select the end to modify.
2. Use the arrow keys on the keyboard or the mouse to select the end to modify.
3. The Wall End Framing dialog box opens.



1. Set the desired number of studs and the stud thickness.
- 2.
3. You are prompted to select another end to modify. Hit ESC to quit.

- **Opening:**

1. You are prompted to select side to modify.
2. Use the arrow keys on the keyboard or the mouse to select the side to modify. Be careful to make sure that you select the left or right side and not the front or back face.
3. The Special Window Framing dialog box opens.



4. These are the same opening settings found in the Wall - Options - Settings.
5. Make changes as needed.

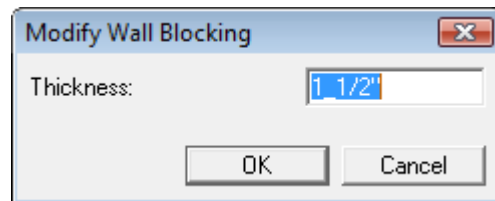
Blocking

SolidBuilder ➔ Wall ➔ Modify ➔ Blocking

Icon:  

This command provides for modifying of the thickness of blocking that has been insert previously in a wall.

1. Select the Modify icon and then Blocking, or select Edit from the main dropdown menus then Modify and select Blocking. Right clicking cannot access this command.
2. You are prompted:
Select blocking line to modify.
3. You will only be able to select walls that have a visible red blocking line created previously. Select the wall or walls to modify the blocking. The Modify Wall Blocking dialog box opens.



4. Enter the new blocking thickness.

Base

SolidBuilder ➔ Wall ➔ Modify ➔ Base

Icon:  

This command allows you to reposition a wall's base point. The base point is the location used as a start position reference for placing door and window openings in the wall. When a wall is created, the default base point is set at the bottom left outside corner of the wall space (in the wall's face view).

1. When you select Modify Base, the system prompts:
Select wall to set base point
2. After the wall has been selected, the system prompts:
Mark or enter location of base point:
3. The cursor displays at the base point on the selected wall. Move the cursor to a new

point and press Enter. The command repeats until you press Esc.

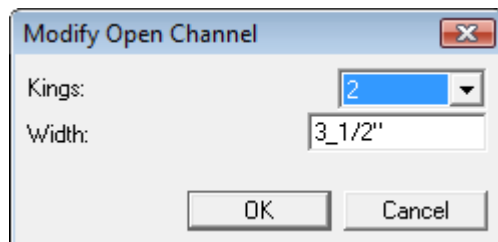
Channel

SolidBuilder ➔ Wall ➔ Modify ➔ Channel

Icon:  

This command changes the settings and options for channels (where walls intersect) that were inserted using the Wall - Insert - Channel command.

1. Select the Modify icon and then Channel, or select Edit from the main dropdown menus then Modify and select Channel. Right clicking cannot access this command.
2. You are prompted to Select channel to modify. Select the channel. The Modify Channel dialog box opens.



3. Make changes as needed. The channel will not actually appear until the wall is framed.

Description

SolidBuilder ➔ Wall ➔ Modify ➔ Description

Icon:  

This command allows you to modify any of the listed attributes. To change an attribute, toggle on the option to the left and the attribute is highlighted.

1. Right click on the wall and select Modify - Description or select the Modify icon and then

Chapter 21

Walls

Description, or select Edit from the main dropdown menus then Modify and select Description.

2. If you selected the Modify icon and then Description, or select Edit from the main dropdown menus then Description you will be prompted to select a wall or walls.
3. You are prompted:
Select wall or walls to modify description
4. Select the wall(s) to modify description. The Modify Wall Description dialog box opens.

5. You may change any values or options for the selected wall. Choices include the number of top and bottom plates, end studs and bottom steps for a wall. You can also click on Report Items and add up to 3 individual items per assembly type to a wall or walls. These options are the same as the found in Wall - Options - Settings and Reports.



Changing the stud width in this section does not change the actual wall thickness. You must select Wall - Shape - Width to change the actual wall thickness.

6. All these commands operate in the same manner. Change the value and press Enter. The new value replaces the displayed value.

Reverse

SolidBuilder ➡ Wall ➡ Modify ➡ Reverse

Icon:  

This command allows you to reverse the front and back face of a wall (the A and B side). If you place roof or ceiling planes on a wall and they are pointing in the wrong direction, you have your walls reversed, or backwards. When you create a wall, **SolidBuilder** creates the wall with the A side at the layout point and you are prompted to mark the inside edge. When creating exterior free form walls, you must carefully choose the starting point as this is the A side and may be on the wrong side.

1. Right click on the wall and select Modify - Reverse or select the Modify icon and then Reverse, or select Edit from the main dropdown menus then Modify and select Reverse
2. If you select the Modify icon and Reverse, or Edit from the main dropdown menus then Reverse you will be prompted to select a wall or walls.
3. Select the wall or walls to be reversed. You will probably not notice any change. But if you look closely, you will see that the wall layout point has moved to the other side of the wall.

Layout Point

SolidBuilder ➡ Wall ➡ Modify ➡ Layout Point

Icon:  

This command allows you to modify the Layout point for a wall or walls. This will allow you to modify the layout point of a wall so that the stud framing lines up with the framing on another wall, the joist in a floor or ceiling or even roof rafters.

1. Right click on the wall and select Modify - Layout Point or select the Modify icon and then Layout Point, or select Edit from the main dropdown menus then Modify and select Layout Point.
2. If you selected the Modify icon and then Layout Point, or select Edit from the main dropdown menus then Modify and select Layout Point you will be prompted to select a wall or walls.
3. Select a wall or walls to relocate its layout point.
4. After selecting a wall, the system prompts:
Enter a new layout point or press ENTER to accept:
5. Move the cursor to the new layout point location and press Enter. The layout point is reset for this wall.

Layout Point By Group

SolidBuilder ➡ Wall ➡ Modify ➡ Layout Point by Group

Icon:  

This command allows you to reposition a group of wall's layout point. When a wall is created, a default layout point is set at the bottom left corner (in the wall's face view).

1. Right click on the wall and select Modify - Layout Point By Group or select the Modify icon and then Layout Point By Group, or select Edit from the main dropdown menus then Modify and select Layout Point By Group.
2. If you selected the Modify icon and then Layout Point By Group, or select Edit from the main dropdown menus then Modify and select Layout Point By Group you will be prompted to select a wall or walls.
3. Select the wall or walls. You are prompted:
Select the wall that determines layout
4. After the wall has been selected, the system prompts:
Select parallel wall(s) to share layout point or ESCAPE
5. Enter new layout point location or ENTER to accept:
6. The cursor is positioned at the current layout point of the selected wall. Move the cursor to the new layout point location and press Enter. The layout point is

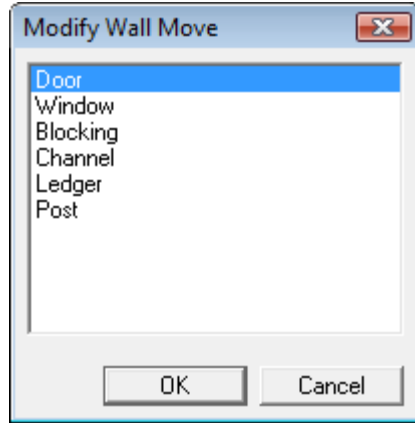
Move

SolidBuilder ➡ Wall ➡ Modify ➡ Move

Icon:  

This command allows you to move openings and lines that have been inserted which represent Posts, Ledgers, Channels and Blocking. Be careful not to reposition an item so that it falls outside of the wall shell.

1. Select the Modify icon and then Move, or select Edit from the main dropdown menus then Modify and select Move. This command is not available by right clicking.
2. If you selected the Modify icon and then Move, or select Edit from the main dropdown menus then Modify and select Move you will be prompted to select a wall or walls.
3. The Modify Wall Move dialog box opens.



4. Select object to move. Hit OK. After the item has been selected, you are prompted:
Mark displacement for move of <feature>:
5. Enter base point - Enter offset point
6. To mark the move displacement, you must begin by entering a base point. As a default, the cursor is positioned at the bottom left corner of the opening. If you wish to use this point as the base point for moving the opening, simply press Enter. Otherwise, position the cursor at the desired base point and press Enter. Then mark or enter the offset point which is the desired displacement distance away from the base point and the object is then moved.
7. If you want to move the item a known distance, enter a displacement. Doors must remain flush with the wall bottom, so you can only specify a move to the left or right for them, which is on the x (or y) axis. To move a door to the left 6 inches, simply type 'x (or y)-6"'. To move a door to the right 14 inches, simply type in 'x (or y) 14"'. Windows may be moved up and down in addition to left and right. To move a window up 6 inches, type in 'z6"'. To move a window down 3 inches and left 6 inches, type in 'x (or y)-6"z-3"'.

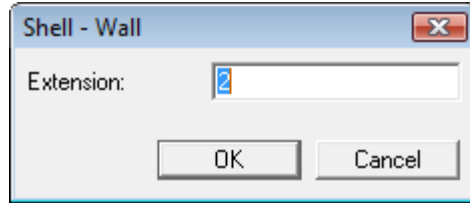
Name

SolidBuilder ➡ Wall ➡ Modify ➡ Name

Icon:  

This command allows you to review and change the names of one or all of the walls.

1. Right click on the wall and select Modify - Name or select the Modify icon and then Name, or select Edit from the main dropdown menus then Modify and select Name.
2. If you selected the Modify icon and then Name, or select Edit from the main dropdown menus then Name you will be prompted to select a wall or walls.
3. Select the wall or walls. The Shell - Wall dialog box opens.



4. After selecting a wall, the current wall name (number) is displayed. You have the option of providing only 4 characters after the required initial term "wall." For example you could rename wall7 to wallback or wall17 or wallred5.
5. Enter the new wall name or number. After renaming one wall, you are prompted to select another wall for renaming. Continue or press Esc to return to the Wall menu.

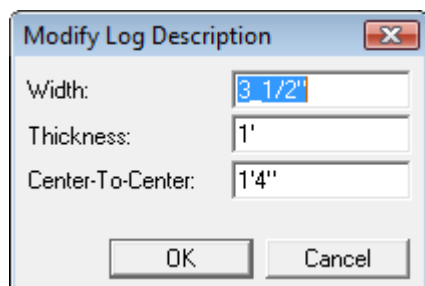
Log Description

SolidBuilder ➔ Wall ➔ Modify ➔ Log Description

Icon:  

This command allows you to modify the width; thickness or center-to-center dimensions of log walls.

1. Select the Modify icon and then Log Description, or select Edit from the main dropdown menus then Modify and select Log Description. This command is not available by right clicking.
2. If you selected the Modify icon and then Log Description, or select Edit from the main dropdown menus then Modify and select Log Description, you will be prompted to select a wall or walls.
3. The Modify Log Description dialog box opens.



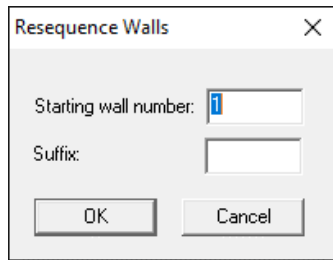
4. Change the values as needed.

Re-sequence Walls

SolidBuilder ➡ Wall ➡ Modify ➡ Re-sequence Walls

Icon:  

This command is useful for panelizers to renumber walls to keep them in sequence.



This dialog allows the user to specify what number they would like to start numbering their walls at. They are also allowed to include a suffix which will show in the production drawing. Once a wall number is specified, the user is able to select the walls in the order they would like them renumbered. When finished, SolidBuilder will renumber all the walls according to the starting number and order assigned.

Stepped down Concrete Walls

SolidBuilder ➡ Wall ➡ Modify ➡ Make Stepdown

This command is used to convert a full concrete wall into a stepped down concrete wall with the top portion a framed wall. There is not an icon for the command, it is launched by right clicking on the desired concrete wall and choosing Modify – Make Step Down.

When Make Step Down is chosen, the following dialog box will appear:

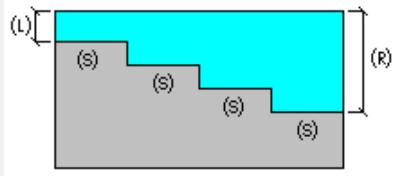
Chapter 21

Walls

Step-Down Concrete Wall

To create your step-down wall, enter the wall dimensions below.
(example values: 4'6_1/2" or 4'6.5")

1. Facing the outside of the wall, enter the drop of the first step-down farthest to the left. (L)
2. Facing the outside of the wall, enter the drop of the last step-down farthest to the right. (R)
3. Enter the total number of steps. (S)



OK Cancel

This dialog box allows you to specify how you want to step down your concrete walls. First, picturing yourself standing outside of your house, enter the drop/step of the first step farthest to the Left of the wall. Example: the original concrete wall height is 8' and 2' is entered for the first step, SolidBuilder will regenerate the wall being 6' tall at that first step. If an full 8' wall is desired at the left, simply enter 0.

Next enter the drop/step at the farthest right edge of the wall using the same principle above. Last, enter the total number of steps desired. Once the information is selected, select OK. SolidBuilder will regenerate the concrete wall into a stepped down concrete wall using the information specified.

If the generated stepped down isn't what was desired, the stepped down concrete wall & framed wall can be modified using standard SolidBuilder tools.

SolidBuilder also has the ability to convert a full concrete wall into a full framed wall. Using similar steps to above, right click on the desired concrete wall and choose Modify – Make Framed. At this point, SolidBuilder will convert the concrete wall into a framed wall with a concrete stem wall and footer below.

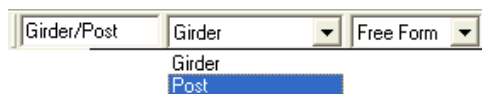


Chapter 22: Girders/Posts

SolidBuilder ➔ **Girders / Posts**

Icon:

This is a dual command. Select girder or post from the drop down menu to activate the commands for that particular shell type.



Girder Options

SolidBuilder ➔ **Girders** ➔ **Options**

Icon:

Chapter 22

Girders

- **Shell Color:** Allows you to select a girder color.
- **Width:** Enter the width or thickness of the girder. If it is a multi-ply girder, this is the thickness of each ply.
- **Depth:** Enter the depth of the girder.
- **Shape:** Select the shape of the girder. The choices are rectangle, I-Beam or round.
- **Number of:** Select the number of ply to be inserted. (If you want 3- 2x12's, you want to enter 1.5" for Width and 3 for the Number of).
- **Draw by Centerline:** Check this box to draw the girder from the center, rather than the edge.
- **Miter:** Check this box to miter the corners of two girders.
- **Material:** This option lets you specify different materials to use in creating the girder.
- **Material Notes:** This option allows you to add material notes to your girders
- **Reports:** Click on this button to display the Girder or Post Report Settings dialog box.

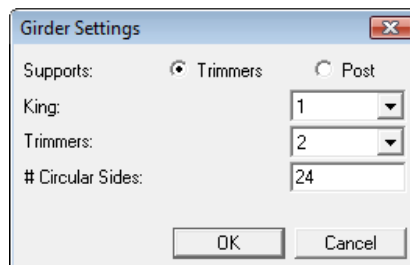
Chapter 22 Girders



The **Girder Report Settings** dialog box is used to configure report parameters. It includes a **Level** dropdown menu, a **User Assigned Name** text field, and two tabs: **WorkStage...** and **Girders**. The **Girders** tab is active, showing three assembly sections: **Core Assembly**, **Outside Assembly**, and **Inside Assembly**. Each section has a **Select Assembly...** button and a list of items (Item 1 through Item 6) and **Notes**, each with **Add...** and **Remove** buttons. At the bottom are **Help...**, **Load Description...**, **OK**, and **Cancel** buttons.

The above box applies to both Girders and Posts. Select a Level. Select a Work Stage, a Core Assembly as needed. You can also add up to 6 individual items for the Core Assembly type to the Girder or Post from the database.

- **Settings:**



The **Girder Settings** dialog box is used to configure girder settings. It includes a **Supports** section with radio buttons for **Trimmers** (selected) and **Post**. Below this are three dropdown menus: **King:** (set to 1), **Trimmers:** (set to 2), and **# Circular Sides:** (set to 24). At the bottom are **OK** and **Cancel** buttons.

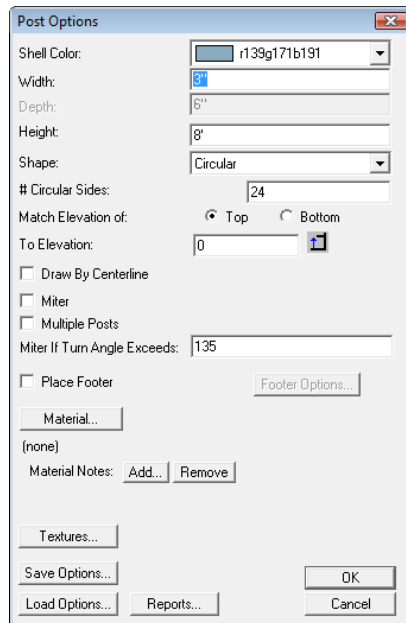
1. Select either Trimmers (studs under the girder) or Post for the girder support.
2. Set the number of King's (the studs that run alongside the header) and the number of trimmer (studs under the header).
3. Set the # of Circular Sides. This is the number of facet sides for circular girders and must be between 6 and 32. If a girder penetrates a wall, then the selected method of support is placed automatically

- **Textures:** Allows you to assign textures for rendering purposes. See the rendering chapter for further explanation.

Post Options

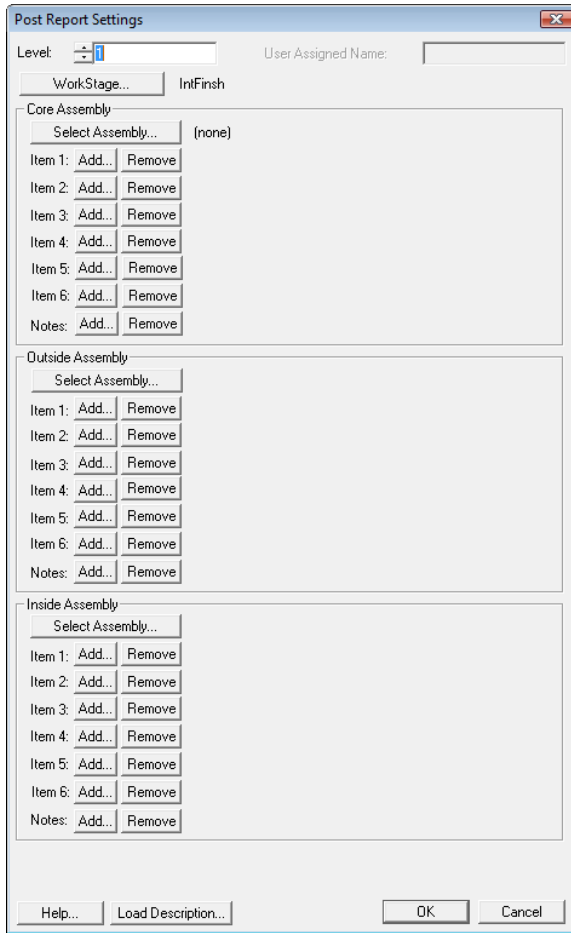
SolidBuilder ➡ Post ➡ Options

Icon:  



- **Shell Color:** Allows you to select a post color.
- **Width:** Enter the width of the post.
- **Depth:** Enter the depth of the post (only for Rectangular).
- **Shape:** Select the shape of the post.
- **# Circular Sides:** This edit field displays the number of sides for circular posts that can be set and must be between six and 32. Typically 8-10 is sufficient.
- **Draw By Centerline:** The Draw By Centerline command is a very powerful tool when creating posts and is used for both rectangular and circular. When used in conjunction with Outline - Rows, you can quickly place posts by jumping to the previously created points.
 1. When Draw By Centerline is selected, you are prompted:
Indicate center of post
 2. Select the desired location (or jump to a previously created point) and press Enter.
 3. When all have been created, the dialog box displays again. Press the Esc key to end the command.

4. When Draw By Centerline is not selected (only used for rectangular posts) you are prompted:
 Indicate corner of post
 5. Select the location of one of the four corners of the post.
 6. The lower left corner of the post (#2) is placed at the cursor location. You are prompted:
 Indicate the diagonal:
 7. If this placement is okay, move the cross hair near corner #4 and press Enter. If you want corner #4 to be at this location, move the cross hair near corner #2 and press Enter and so on. If you continue to place posts, you are not prompted again to mark the diagonal as other posts are placed according to the first unless you press the Esc key and start the command over. When all have been created press the Esc key to end the command
- **Miter:** Not used for posts.
 - **Multiple Posts** - This command will allow you to insert a specified number of posts spaced equal distances in a specified space.
 1. You are prompted to Indicate Center of Post (if you have the centerline option on).
 Select the point for the first post.
 2. You are then prompted to mark location of last post. You are prompted for the number of posts. Enter the number of posts and they are spaced equally between the two points.
 - **Place Footer:** This command will allow you to insert a footer at the same time a post is inserted. If the Place Footer is toggled on you can select footer Options and set the appropriate options for the footer
 - **Material:** This option lets you specify different materials to use in creating the post.
 - **Material Notes:** This option allows you to add material notes to your post
 - **Reports:** Click on this button to display the Post Report Settings dialog box.



The above box applies to both Girders and Posts. Select a Level. Select a Work Stage, a Core Assembly as needed. You can also add up to 6 individual items for the Core Assembly type to the Girder or Post from the database.

- **Textures:** Allows you to assign textures for rendering purposes. See the rendering chapter for further explanation.

Remove

SolidBuilder ➡ **Girders / Post** ➡ **Remove**

Icon:  

This selection allows you to remove girders and posts. The prompt sequence is the same for either selection.

1. Right click on a girder or post to remove, or select the Remove icon, or Edit from the main dropdown menus and select Remove.
2. If you selected the Remove icon, or select Edit from the main dropdown menus then Remove you will be prompted to select a girders or post to remove.

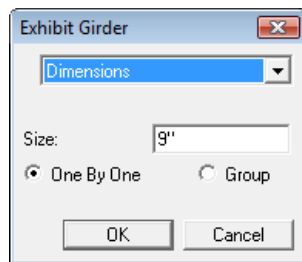
3. Select the desired girders (posts) to remove. Right mouse click and select Finished or press F10

Exhibit

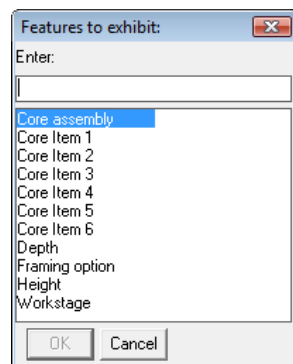
SolidBuilder ➡ Girders / Post ➡ Exhibit

Icon:  

The Exhibit selection allows you to display different information about a girder or post. The available options are the same for both Girders and Post.



- **Dimensions:**
 1. When you select this command, you are prompted:
Size of dimension numerals: 9"
 2. Backspace through the suggested dimension size if you wish to enter a different value. Otherwise press Enter. You are prompted:
Select <shells> to view
 3. The shells selected are displayed with dimensions and top and bottom elevations called out. The displays may be printed.
- **Description:**
 1. When you select this command, the Features to Exhibit dialog box displays.



2. Select one of the choices. The system displays each shell or group of shells that contains a different value for the choice. The first set of shells with a unique value is displayed. Pressing any key then displays subsequent groups with different values. When all have been displayed the dialog box displays. Press the Esc key to end the

command.

Shape

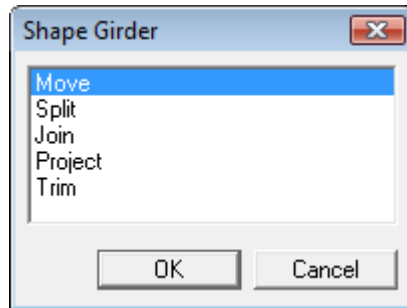
Move

SolidBuilder ➤ **Girders / Post** ➤ **Shape** ➤ **Move**

Icon:  

This command allows you to move girders or posts.

1. Right click on the girder or post and select Shape - Move, or select the Shape icon and then Move, or select Edit from the main dropdown menus then Shape and select Move.
2. If you selected the Shape icon and then Move, or select Edit from the main dropdown menus then Shape and Move, the Shape Girder dialog box opens and select Move.



3. You are prompted:
Select girders/posts to move
4. Select the girders or posts to move. You are prompted:
Enter base point
5. The cursor moves to the layout point of the girder or posts. Either press Enter or left mouse click to select this as the base point for the move or move the cursor to a more convenient location to specify the distance and direction for the move. Press Enter and the system prompts:
Enter offset point
6. Enter or type the desired coordinates indicating the distance and direction. The girders or posts are moved,

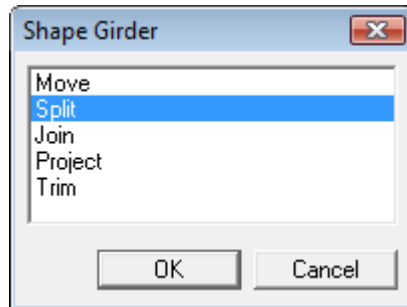
Split

SolidBuilder ➤ **Girders / Post** ➤ **Shape** ➤ **Split**

Icon:  

This command allows you to split girders only. You cannot split a post. Typically when a girder is created, it is created the full length of the span. Very often the length of the span exceeds common material lengths that can be purchased and the girder will have to be split into appropriate lengths.

1. Right click on the girder and select Shape - Split, or select the Shape icon and then Split, or select Edit from the main dropdown menus then Shape and Split.
2. If you selected the Shape icon and then Move, or select Edit from the main dropdown menus then Shape and Move, the Shape Girder dialog box opens and select Split.



3. You are prompted:
Mark or enter location of split
4. The cursor is positioned at one corner of the selected girder. Move the cursor to the location at which the split is to occur and press Enter or you may type the X and Y coordinates. The girder is split into two girders and you are prompted for another girder to split.
5. Press Esc to exit the command.

Join

SolidBuilder ➡ Girders / Post ➡ Shape ➡ Join

Icon:  

This command allows you to join either two girders that were previously split or two girders whose faces lineup.

1. Right click on the girder and select Shape - Join, or select the Shape icon and then Join, or select Edit from the main dropdown menus then Shape and Join.
2. If you selected the Shape icon and then Join, or select Edit from the main dropdown menus then Shape and Join, the Shape Girder dialog box opens and select Join, you will be prompted to select a girder to join. and then select other girder to join. If you right click on a girder you will be prompted to select other girder.

3. Select the other girder to join to the original. The two girders are now joined. Hit ESC to end the command.

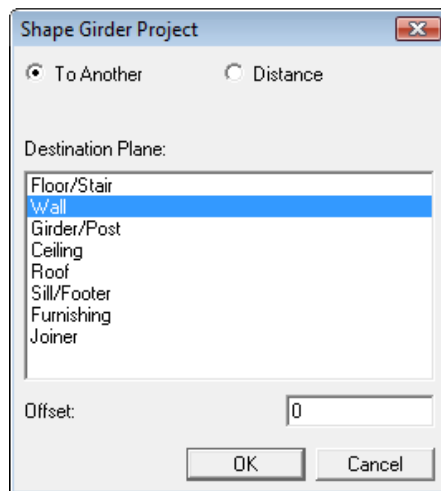
Project

SolidBuilder ➡ Girders / Post ➡ Shape ➡ Project

Icon:  

This command allows you to project the length, thickness or depth of a girder or post in a positive or negative direction. The command sequence for both girders and post is the same.

1. Right click on the girder and select Shape - Project, or select the Shape icon and then Project, or select Edit from the main dropdown menus then Shape and Project.
2. The Shape Project Girder / Post Girder dialog box opens



- **To Another:**
 1. Turn the To Another radio button on.
 2. Select the type of model shell (wall, roof, etc.), which contains the desired destination plane, and indicate any distance you wish to offset the girder or post projection from this plane. A positive value projects the girder or post to increase a dimension; a negative value projects the girder or post face to decrease a dimension. After selection of a shell type, you are prompted:
Select <shell> to project to
 3. Select the appropriate shell. You are prompted:
Select face to project to
 4. Use the left arrow or right arrow key to select the face of the shell to which you wish to project the girder or post to. You are prompted:

Select girder or post to project

5. Select the girder or post to be projected. You are prompted:
Indicate the face to project
6. Use the left arrow or right arrow key to select the face to be projected. The face is projected to the selected plane. You are prompted:
Select next girder or post to project to a plane; ESC to quit
7. If there are other girder or post you wish to project to this same plane, you may select them now using the same procedure. When there are no more girders or posts to project, press the Esc key to exit the command.



Every shell has 6 faces: front, back, top, bottom, left and right. It is extremely important that you pay special attention to what the command line is asking you to do and what shells and faces you select. If you tell **SolidBuilder** to do a projection that cannot possibly be done, **SolidBuilder** tries but you displays an error message about an invalid solid or shell has no definition etc. and this shell has to be removed in the Cad Menu. For example, you tell **SolidBuilder** to project the left face of one wall to the top face of an adjacent wall. This is impossible to do and results in an error message.

- **Distance:**

1. If you choose Distance type in the distance to project, (positive value lengthens the face and negative value shortens the face). You are prompted:
Select girder or post to project a distance
2. Select a girder or post to be projected. You are prompted:
Indicate the face to project
3. Use the left arrow or right arrow key to select the face to be projected. Press Enter once you have the desired face to project. You are prompted:
Select another wall.
4. When there are no more girders or posts to project, Esc to exit the command.

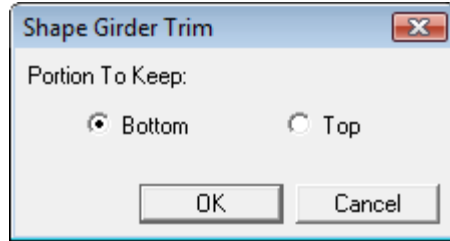
Trim

SolidBuilder ➡ **Girders / Post** ➡ **Shape** ➡ **Trim**

Icon:  

This command allows you to trim a girder or a post to a roof only.

1. Right click on the girder and select Shape - Trim, or select the Shape icon and then Trim, or select Edit from the main dropdown menus then Shape and Trim.
2. The Shape Girder/Post Girder Trim dialog box opens.



3. Select to keep the bottom portion of the girder or post or the top portion of the girder or post. Hit OK.
4. After all desired girders or posts have been selected, right mouse click and select Finished or press F10. You are prompted:
Select shells to be used in trimming
5. You need to select all roof sections that you want to trim the girder or post to. After you select the roofs or ceilings, the girders or posts are trimmed against the roofs with the selected portion discarded.

Description

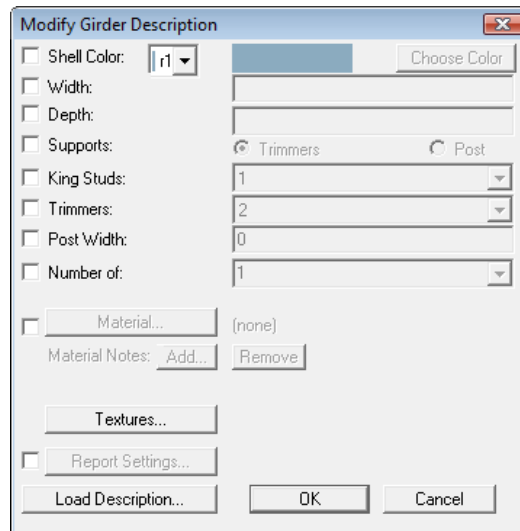
SolidBuilder ➔ Girders / Post ➔ Modify ➔ Description

Icon:  

This command allows you to modify girder supports and girder and post materials and assemblies.

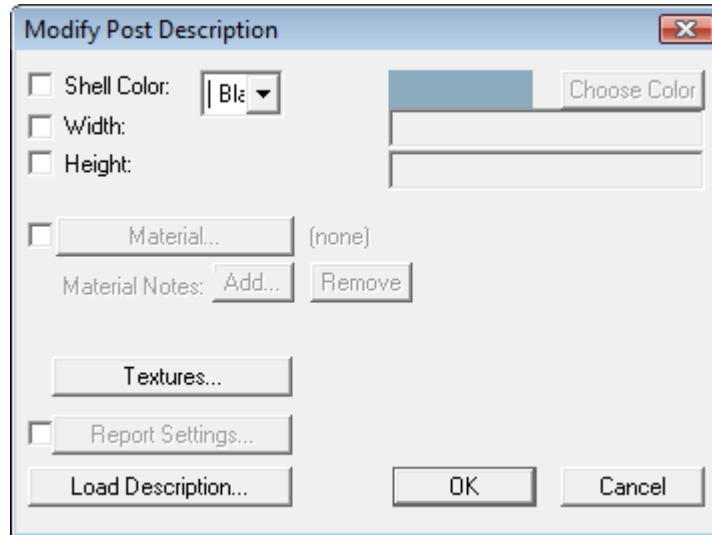
1. Right click on the girder and select Shape - Description, or select the Shape icon and then Modify, or select Edit from the main dropdown menus then Modify

- **Girders:**



The modify girder description options are the same as the Girder Options and Settings fields. Make any needed changes.

- **Posts:**



The modify post description options are the same as the Post Option fields. Make any needed changes.



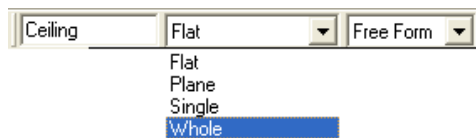
Chapter 23: Ceilings

SolidBuilder ➔ Ceilings

Icon: 

The Ceiling command is used for creating Ceilings. The Ceiling command can be accessed by clicking on the ceiling icon or by selecting Ceiling under the Build pull-down Menu. **SolidBuilder** allows you to create flat and vaulted ceilings. Each type of ceiling has options that are specific to that type.

The following drop list allows a choice of ceiling types:



- **Flat:** Creates a flat ceiling.
- **Plane:** Creates ceiling plane markers.
- **Single:** Creates a single sloped ceiling.
- **Whole:** Creates a set of sloped ceilings.

Ceilings are either flat, like floors or sloped like roofs. The menus for flat ceilings are almost identical with those of floors. However, the ceiling selections provide an option for trimming the top of the ceiling joists to the bottom or top of the roof.

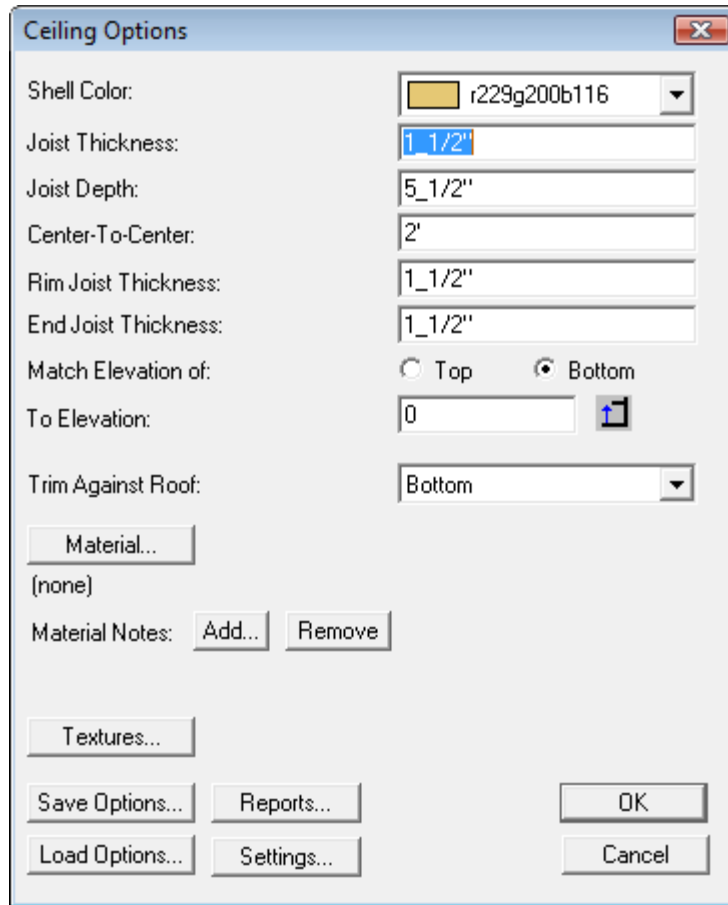
Sloped ceilings are formed in a similar manner to roofs. However, sloped ceilings do not allow for the attachment of eaves and gables.

Ceiling Options

SolidBuilder ➔ Ceilings

Icon:  

The Ceiling Options icon provides the options for creating ceilings. The ceiling elevation may be determined by simply entering a specific height, by referencing an existing wall or girder. The ceiling settings remain as entered until changed. The following dialog box displays when you click on the Option icon

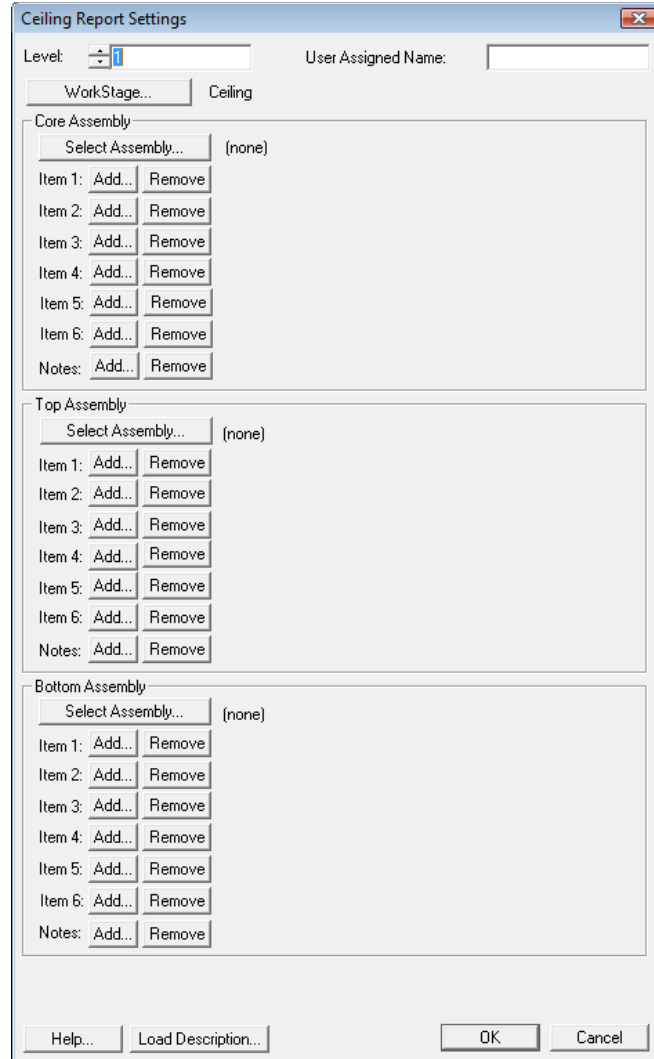


The image shows a software dialog box titled "Ceiling Options". It contains several input fields and buttons. The fields are: "Shell Color" with a color swatch and text "r229g200b116"; "Joist Thickness" with a text field containing "1_1/2\""; "Joist Depth" with a text field containing "5_1/2\""; "Center-To-Center" with a text field containing "2\""; "Rim Joist Thickness" with a text field containing "1_1/2\""; "End Joist Thickness" with a text field containing "1_1/2\""; "Match Elevation of:" with radio buttons for "Top" and "Bottom" (the "Bottom" button is selected); "To Elevation:" with a text field containing "0" and a small icon; and "Trim Against Roof:" with a dropdown menu showing "Bottom". Below these fields are buttons for "Material...", "Textures...", "Save Options...", "Load Options...", "Reports...", "Settings...", "OK", and "Cancel". There is also a "Material Notes:" section with "Add..." and "Remove" buttons.

- **Shell Color:** Allows you to specify a ceiling color.
- **Joist Thickness:** Enter the joist thickness
- **Width:** Enter the joist depth.
- **Center - to- Center:** Enter the center of joist to center of joist distance.
- **Rim Joist Thickness:** A Rim Joist is the outside perpendicular joist. Enter the thickness.
- **End Joists Thickness:** An End Joist is the outside parallel joist. Enter the thickness.
- **Match Elevation To:** This refers to which face of the Ceiling Shell should be used to match to another shell. For example, if you want to set the bottom of the ceiling to be at the top of the wall below it, click on the elevation icon and select wall and top.
- **Trim Against Roof:** Select to trim the ceiling joist end to the top of the roof surface, the bottom of the roof surface or do not trim.
- **Material:** Allows you to specify a material option for ceilings.
- **Material Notes:** Allows you to add material notes to the ceiling

Chapter 23 Ceilings

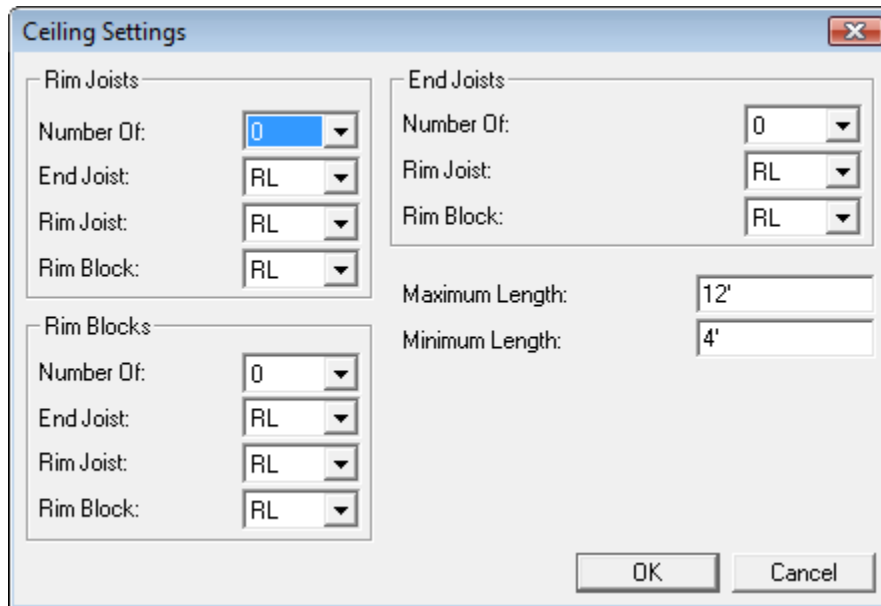
- **Textures:** Allows you to assign textures for rendering purposes. See the rendering chapter for further explanation.
- **Reports:** Assign levels and assemblies. Click on this button to display the Ceiling Report Settings dialog box.



The image shows the 'Ceiling Report Settings' dialog box. It has a title bar with a close button. Inside, there are two input fields at the top: 'Level:' with a dropdown arrow and a text box, and 'User Assigned Name:' with a text box. Below these are two buttons: 'WorkStage...' and 'Ceiling'. The main area is divided into three sections: 'Core Assembly', 'Top Assembly', and 'Bottom Assembly'. Each section has a 'Select Assembly...' button followed by '(none)'. Below each section header are six rows, each with an 'Add...' button and a 'Remove' button. The rows are labeled 'Item 1:', 'Item 2:', 'Item 3:', 'Item 4:', 'Item 5:', and 'Item 6:'. At the bottom of each section is a 'Notes:' label followed by an 'Add...' button and a 'Remove' button. At the very bottom of the dialog are four buttons: 'Help...', 'Load Description...', 'OK', and 'Cancel'.

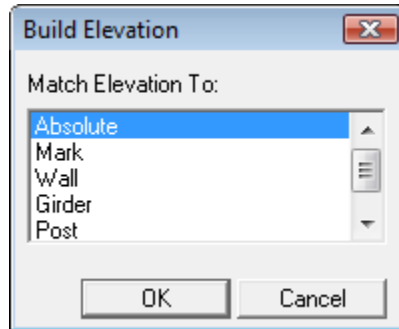
1. Select a Level. Select a Work Stage, a Core Assembly, a Top Assembly and/or a Bottom Assembly as needed.
2. You can also add up to 6 individual items for each of the assembly types to the floor from the database. This can be very useful for getting accurate and complete takeoffs. An example might be to use an assembly for drywall to the bottom of the ceiling. Without having to either make a new assembly or change your existing assembly you could add an item to the ceiling bottom for sound insulation.

- **Settings:** Click on the Setting button. The Ceiling Settings dialog box opens.

The image shows a software dialog box titled "Ceiling Settings". It contains several groups of controls. On the left, there are two sections: "Rim Joists" and "Rim Blocks". Each section has four dropdown menus: "Number Of:" (set to 0), "End Joist:" (set to RL), "Rim Joist:" (set to RL), and "Rim Block:" (set to RL). On the right, there is an "End Joists" section with three dropdown menus: "Number Of:" (set to 0), "Rim Joist:" (set to RL), and "Rim Block:" (set to RL). Below these are two text input fields: "Maximum Length:" (set to 12') and "Minimum Length:" (set to 4'). At the bottom right are "OK" and "Cancel" buttons.

- **Rim Joists:** the outside perpendicular joist
 - **End Joists:** the outside parallel joist.
 - **Rim Blocks:** are individual blocks placed between the joists at the outside edges.
 - **RL:** run long. The joist would "run long" or past the connecting perpendicular joist.
 - **RS:** run short. The joist would "run short" or butt into the connecting perpendicular joist.
 - **MI:** miter the outside joist corners
 - **Maximum Length:** the maximum length of lumber **SolidBuilder** will use for a Rim or End Joist.
 - **Minimum Length:** the minimum length of lumber **SolidBuilder** will use for a Rim or End Joist.
- **Elevation:** Click on the Elevation icon. You may set the ceiling elevation by reference to its top or its bottom. The "to elevation of:" field allows you to pick a shell type which then determines the ceiling elevation (typically a wall).
 1. Click on OK when you are finished entering values and selecting options. You are prompted:
Select <Shell> for elevation

2. Select the appropriate shell. The Model Elevation dialog box (below) displays.



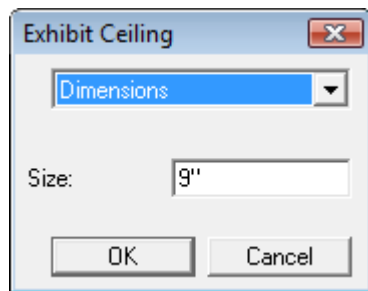
3. Once you have set the elevation to the bottom or top, click on OK or press Enter.
4. This takes you back to the Options dialog box. Click on OK.

Ceiling Exhibit

SolidBuilder ➔ Ceiling ➔ Exhibit

Icon:  

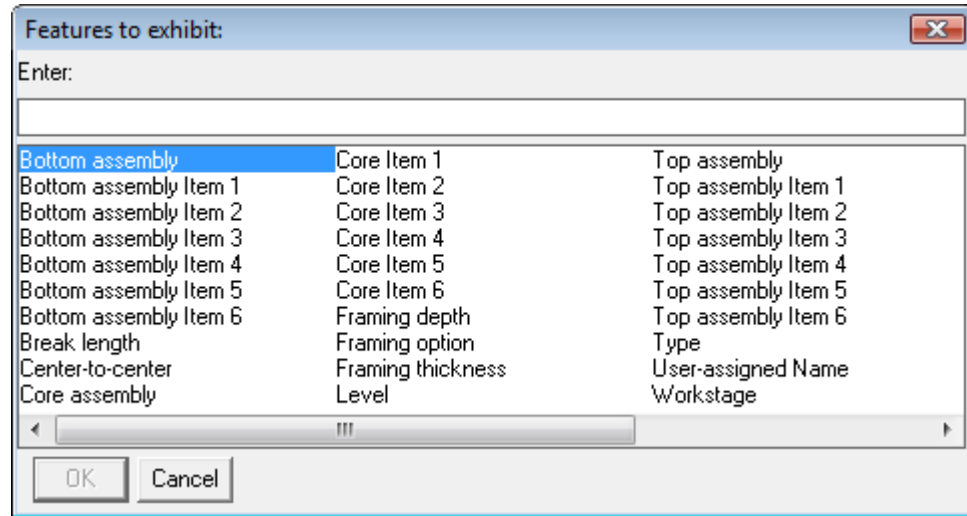
This selection on the View menu allows you to view the dimensions, layout point and work stage of Ceilings. When you select Ceilings from the Build menu and select Exhibit from the View menu, the Exhibit Ceilings dialog box (below) displays.



- **Dimensions**
 1. You are first prompted for the size of the dimension numerals which shows the ceiling dimensions. The system prompts:
Size of dimension numerals: 9"
 2. Backspace through the suggested dimension size if you wish to enter a different value. You must next select the ceiling to dimension. The system prompts:
Select ceilings to view
 3. Select the ceiling, right click and select Finished. Each selected ceiling is dimensioned and displayed on the screen, along with the ceiling number and the top and bottom elevation. You may print this drawing by pressing the letter P.

- **Description**

1. This command allows you to see many of the features associated with a ceiling. To execute this command, click on the Ceiling icon and select Exhibit from the View menu. The Exhibit Ceiling dialog box (above) displays. Finally, select Description from the drop list and click on OK. The Features to Exhibit dialog box (below) displays.



2. Select a feature. The value for the information is displayed in the Command Status window and the ceilings that share that same value are made visible on screen. The system exhibits the selected feature.

- **Layout Points:** Click on the Ceiling icon and select Exhibit from the View menu. In the Exhibit Ceiling dialog box select Layout Points from the drop list. The cursor is moved to the layout point for each ceiling. Pressing the arrow keys moves the cursor to the layout points for other ceilings. Press the Escape key to terminate the command.

Insert

Openings

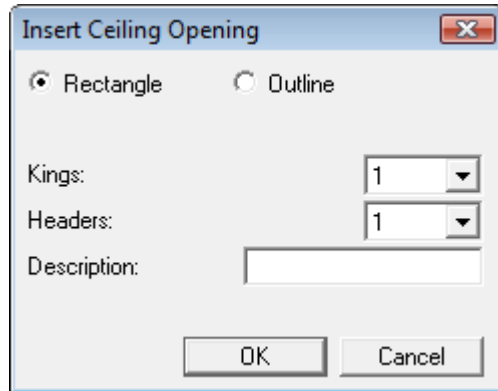
SolidBuilder ➡ Ceilings ➡ Insert ➡ Openings

Icon:  

This is used to insert rectangular openings or openings following a previously created outline in Ceilings. The rectangle is oriented according to the layout direction, so that two sides are parallel to the joists and two sides are perpendicular to the joists.

1. Right click on the ceiling and select Insert - Opening or select the Insert icon and then Opening or select Insert from the main dropdown menu then Opening.
2. If you selected the Insert icon and then Opening, or selected Insert from the main dropdown menu then Opening, you will be prompted to select a ceiling or ceilings.

3. Select the ceiling(s). The Insert Ceiling Opening dialog box opens.



- **Rectangle:** Inserts a rectangular or square opening.
 1. When the desired ceiling is selected, you are prompted:
Mark the first opening corner
 2. Locate the first corner of the rectangle and press Enter. The system prompts:
Mark the opposite diagonal opening corner
 3. Locate the second corner of the rectangle and press Enter. The opening is created and you are returned to the Ceiling menu. The opening is framed as specified when the Frame Ceiling command is given.
 - **Outline:** you are prompted to select ceiling, then the outline and the opening is created to the shape of the outline. The outline must be created previously.
4. Set the number of Kings (ceiling joist that runs parallel along the opening)

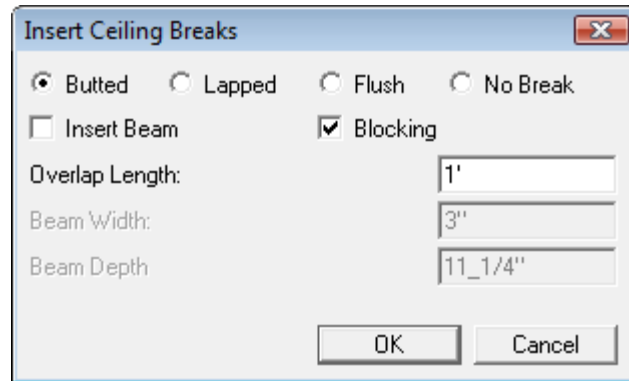
Breaks

SolidBuilder ➡ Ceilings ➡ Insert ➡ Breaks

Icon:  

Use this selection to determine where joists are to be lapped or spliced or where a beam is to be placed in the ceiling. You determine the location by drawing a line.

1. Right click on the ceiling and select Insert - Break or select the Insert icon and then Break or select Insert from the main dropdown menu then Break.
2. If you selected the Insert icon and then Break, or select Insert from the main dropdown menu then Break you will be prompted to select a ceiling or ceilings.



3. Select the ceiling to insert a break.
 - **Butted:** Cuts the joists at the line but will not overlap them.
 - **Lapped:** Cuts the joists and shift one set to overlap the other set.
 - **Overlap Length:** This is either the length of the splice block (for Butted) or the measure of the amount of overlap (for Lapped). If you select the Break type to be Butted or Lapped, you may optionally elect to block the joists at the break line.
 - **Flush:** This option allows you to place a beam in the ceiling so that the joists hang from the beam.
 - **Beam Width:** The width of the beam.
 - **Beam Depth:** This depth is the depth of beam.
4. After selecting the appropriate items in the dialog box, you are prompted:
Select ceiling for joist break line:
5. Select ceiling to insert break line. You are prompted:
Mark the start point of break line
6. Move cursor to the start point with the arrow keys (or the mouse) and press Enter. The system prompts:
Mark the end point of break line
7. Move cursor to the next point with the arrow keys (or the mouse) and press Enter. After the line is marked, you are prompted to select another ceiling. Press Esc to return to the Ceiling menu. The actual break is created when the ceiling is framed.

Joists

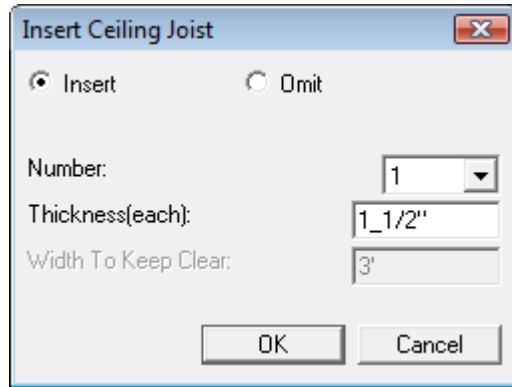
SolidBuilder ➡ Ceilings ➡ Insert ➡ Joists

Icon:  

This command is used to add additional joists, or to omit joists, in a ceiling at points you

designate. You may add one or two joists at each point. Typically you will frame the ceiling first so that the actual ceiling joists are visible.

1. Right click on the ceiling and select Insert - Joist or select the Insert icon and then Joist or select Insert from the main dropdown menus then Joist.
2. If you selected the Insert icon and then Joist, or select Insert from the main dropdown menus then Joist you will be prompted to select a ceiling or ceilings.



3. Select one or two joists and change the width of the joist if you do not want to use the default value.

- **Insert:**

1. You are prompted:
Select ceiling for additional joists;
2. Select a ceiling. You are prompted:
Mark center point of additional joists; ESC to finish
3. Move the cursor to the center point of the joist or pair of joists and click the left mouse button or press Enter. A yellow cross displays to mark the location. Continue marking center points until you have placed all the extra joists. Press Esc to exit the command.
4. The extra joists are placed when the ceiling is framed. If a ceiling has already been framed and you add extra joists with this command, the framing is removed at the completion of the command.

- **Omit:** Is used to mark areas of the ceiling, which are to be kept clear of joists. This allows you to designate an area for HVAC or other reasons, which does not allow the placement of layout joist members.

1. You are prompted:
Select ceiling for omitted joists;
2. Select ceiling to omit joist. You are prompted:
Mark center point of area to omit joists; ESC to finish
3. Move the cursor to the center point of the area to be kept clear of joists and click the left mouse button or press Enter. A red cross displays to show the location. Continue marking the center points until you have denoted all the areas to keep clear. Press Esc to exit the command.

4. The spaces designated have no joists placed when the ceiling is framed. If a ceiling has already been framed, and you mark areas to omit joists with this command, the framing is removed at the completion of the command.

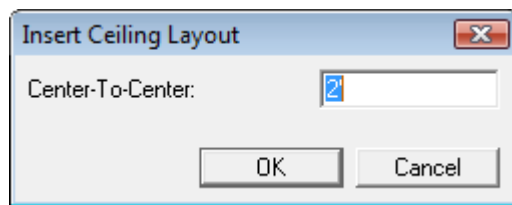
Layout Points

SolidBuilder ➡ Ceilings ➡ Insert ➡ Layout Points

Icon:  

This command is used to mark areas of the ceiling, which are to be laid out with a different center-to-center distance. This allows you to increase or decrease the density of joists within a ceiling.

1. Right click on the ceiling and select Insert - Layout Points or select the Insert icon and then Layout Points or select Insert from the main dropdown menus then Layout Points.
2. The Insert Ceiling Layout dialog box opens.



3. The current center-to-center distance is displayed. Enter the new center-to-center distance for this layout area. The system prompts:
Select ceiling for alternate layout point;
4. Select the desired ceiling. You are prompted:
Mark alternate layout point:
5. This should be the same layout point as the first layout point so that the sheathing falls on the center of the joists. This point is by default, the lower left corner of the ceiling. You are prompted::
Mark the start layout limit
6. Move the cursor to the beginning of the area for alternate layout and click on the left mouse button or press Enter. You are prompted:
Mark the end layout limit
7. Mark the second point of the area. After this point is marked, a group of green lines are drawn to show the alternate range area for the selected ceiling. Press Esc to return to the Ceiling menu.

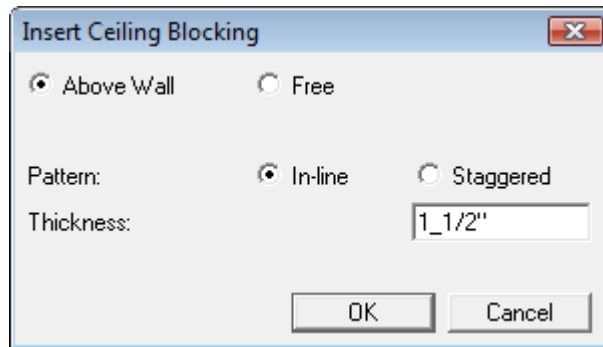
Blocking

SolidBuilder ➡ Ceilings ➡ Insert ➡ Blocking

Icon: 

Use this selection to create blocking between joists.

1. Right click on the ceiling and select Insert - Blocking or select the Insert icon and then Blocking or select Insert from the main dropdown menus then Blocking.



2. You can elect to place a line of blocking in the ceiling directly under an existing wall (Above-wall), or you can choose to mark a line, which represents the location of a line of blocking (Free).

- **Above Wall**

1. Select either the In-Line or the Staggered option. You are prompted:
Select ceiling for wall blocking line;
2. Use the arrow keys to highlight a ceiling or use pick mode and press Enter. The system prompts:
Select walls for blocking line
3. Select the desired walls. The blocking is generated when the ceiling is framed.

- **Free:**

1. When you select Free, you are prompted:
Select ceiling for blocking line;
2. Select either the In-Line or the Staggered option and enter a value for blocking thickness. After clicking on OK, you are prompted:
Mark the start point of blocking line:
3. Locate and mark the start point of blocking line. You are prompted:
Mark the end point of blocking line endpoint
4. This will be a line that runs perpendicular to the joist direction.
5. The blocking line is created. The system prompts for another ceiling. You may continue marking blocking lines until you press Esc.



The Insert Blocking Free command allows you to place blocking at any point or at any angle. **SolidBuilder** also provides for placing blocks at the mid-span of the joists without drawing a line. This is selected with the Ceiling Modify Description command.

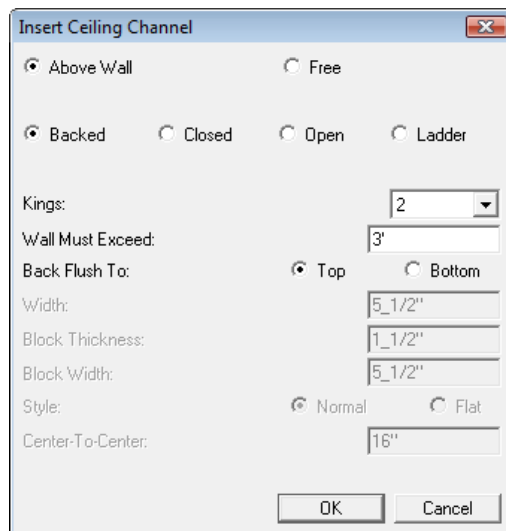
Channels

SolidBuilder ➔ **Ceilings** ➔ **Insert** ➔ **Channel**

Icon:  

Use this selection to insert channels along ceiling joists.

1. Right click on the ceiling and select Insert - Channel or select the Insert icon and then Channel or select Insert from the main dropdown menus then Channel.



- **Above Wall:** Channels are located under the selected walls.
- **Free:** Channels are created along a line you draw.
- **Backed:** This channel includes a flat member between the king joists. The Backed Channel dialog box includes an option (Flush) for setting the flat member to the top or bottom of the ceiling.
- **Closed:** A closed channel places the king members side by side and leaves no gap between them.
- **Open:** An open channel is similar to a backed channel except there is no member generated between the kings, which define the channel.

Chapter 23
Ceilings

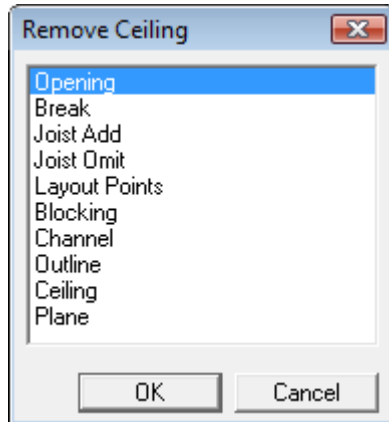
- **Ladder:** A ladder channel generates ladder blocking for the channel. Enter the thickness of the block and (for free members) the width of the block. Enter the center-to-center distance and select the option for style, either flat or normal.
 - **Kings:** This is the number of kings (0, 1, or 2) on either side of the channel.
 - **Wall Must Exceed:** This value is used for all four types of channels, which are placed with the Above Wall option. This is the minimum length of a wall that will have a channel placed beneath it.
 - **Back Flush To:** For backed channels, this sets the flat member to the top or bottom of the ceiling.
 - **Width:** For Backed and Open free channels, this is the width between the kings.
 - **Block Thickness:** This is the thickness of ladder blocks.
 - **Block Width:** This is the width of ladder blocks.
 - **Style:** This determines if the blocks are to be placed flat or vertically.
 - **Center-To-Center:** This is the distance between ladder blocks.
1. If you have selected Above Wall, you are prompted to select the walls for channel installation. After these are selected, press F10 and the channel lines are placed.
 2. If you have selected Free, you are prompted:
Mark the start point of channel line
 3. Mark the beginning of the line to define the channel location. You are Prompted:
Mark the end point of channel line
 4. Mark or enter the end of the line to define the channel location. At this point, Closed and Ladder channel creation is complete. The marked line is always the centerline for Closed channels. Ladder channels always span the existing joists, which lie on either side of the marked line.
 5. For Backed and Open channels, however, you must specify which way the channel is to be widened from your line. You are prompted:
Mark direction to widen channel:
 6. Use the mouse or appropriate keyboard arrow key to mark a point on the side of the marker line to which the channel should be widened. The system returns to the prompt to allow entering additional channels. Press Esc to exit to the Ceiling menu.
 7. For all channels, a line is drawn marking the channel location (in light blue). When the ceiling is framed, the channel is created.

Remove

SolidBuilder ➡ Ceiling ➡ Edit ➡ Remove

Icon: 

1. Right click on the Ceiling and select Remove to remove the entire ceiling. Or for more options select the Remove icon.



2. Select the item to be removed and click OK. The system prompts:
Select (items) to be removed
3. After you select the items, right mouse click and select Finished. Select Yes or No to remove the selected items.

Shape

Move

SolidBuilder ➡ Ceiling ➡ Shape ➡ Move

Icon: 

This command allows you to move a ceiling.

1. Right click on the ceiling and select Shape - Move or select the Shape icon and then Move or select Edit- Shape from the main dropdown menus then Move.
2. If you selected the Shape icon and then Move, or select Edit - Shape from the main dropdown menus then Move you will be prompted:
Select ceiling to move
3. Select the ceiling or ceilings that you want to move. You are prompted:
Enter base point

4. The cursor is located at the ceiling. Either press Enter to select this as the base point for the move or move the cursor to a more convenient location to specify the distance and direction for the move. Press Enter. You are prompted:
Enter offset point
5. After moving the cursor and pressing Enter, and thus entering the move distance, the ceilings are moved the indicated distance and direction.

Split

SolidBuilder ➡ Ceiling ➡ Shape ➡ Split

Icon: 

This command allows you to split a single ceiling into two separate ceilings. You may wish to split a ceiling due to component construction requirements or for specific framing considerations.

1. Right click on the ceiling and select Shape - Split or select the Shape icon and then Split or select Edit- Shape from the main dropdown menus then Split.
2. If you selected the Shape icon and then Move, or select Edit - Shape from the main dropdown menus then Split you will be prompted:
Select ceiling to split
3. After the desired ceiling has been selected, you are prompted:
Mark the first dividing-line point
Mark the next dividing-line point
4. Move the cursor to the location at which the split is to occur, then click the left mouse button. You may split the ceiling with a multi-segmented line. When you finish entering the dividing line points right mouse click to finish.
5. The ceiling is split into two ceilings and the system prompts for another ceiling to split. Continue the command until there are no more ceilings to split. Press Esc to return to end the command.

Join

SolidBuilder ➡ Ceiling ➡ Shape ➡ Join

Icon: 

This command lets you join two ceilings so that they become a single ceiling. Typically, Shape - Join is used to rejoin two ceilings, which were previously Split.

1. Right click on the ceiling and select Shape - Join or select the Shape icon and then Join or select Edit- Shape from the main dropdown menus then Join.
2. If you selected the Shape icon and then Move, or select Edit - Shape from the main

dropdown menus then Join you will be prompted:
Select ceiling to join

3. Select first ceiling to join and then:
4. Select second ceiling to join
5. The ceilings are joined. Press Esc to end the command.

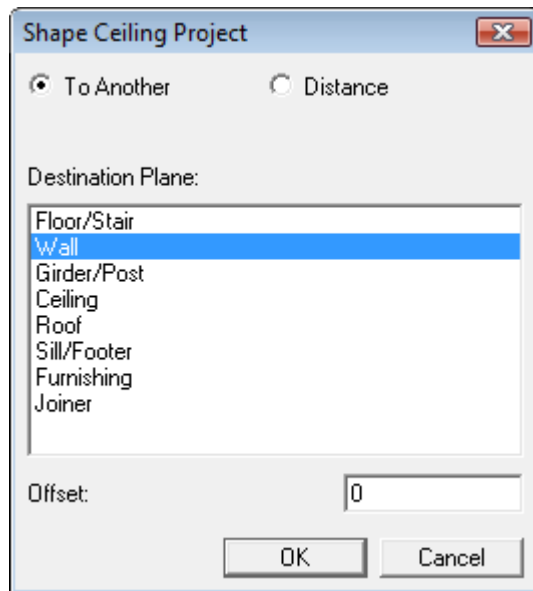
Project

SolidBuilder ➡ Ceiling ➡ Shape ➡ Project

Icon: 

This command allows you to project a ceiling face either to a distance or to a plane defined by one of the faces of a floor, wall, girder, ceiling or roof.

1. Right click on the ceiling and select Shape - Project or select the Shape icon and then Project or select Edit- Shape - Project from the main dropdown menus.
2. If you selected the Shape icon and then Move, or select Edit - Shape from the main dropdown menus then Project. The Shape Ceiling Project dialog box opens.



- **To Another**
 1. Select the type of model shell (wall, roof, etc.), which contains the desired destination plane, and indicate any distance you wish to offset the ceiling projection from this plane. A positive value projects the ceiling to a point beyond the plane; a negative value projects the ceiling face to a point before the plane. After selection of a shell type, you are prompted:
Select <shell> to project to

2. Select the appropriate shell. You are prompted:
Select face to project to
 3. Use the left arrow or right arrow key to select the face of the shell to which you wish to project a ceiling face. You are prompted:
Select ceiling to project:
 4. Select a ceiling to be projected. You are prompted:
Indicate the face to project
 5. Use the left arrow or right arrow key to select the face to be projected. The designated face is projected to the selected plane.
- **Shape Project Distance**
 1. If you choose Distance, enter the desired distance. You are prompted:
Select ceiling to project.
 2. Select a ceiling to be projected. You are prompted:
Indicate the face to project
 3. The ceiling face is projected.

Trim

SolidBuilder ➡ Ceiling ➡ Shape ➡ Trim

Icon: 

Use this command to trim a ceiling to a roof surface.

1. Right click on the ceiling and select Shape - Trim or select the Shape icon and then Trim or select Edit- Shape - Trim from the main dropdown menus.
2. If you selected the Shape icon and then Trim, or select Edit - Shape from the main dropdown menus then Trim, you are prompted:
Select ceiling (s) to be trimmed
3. Select one or more ceilings. You are prompted:
Select roofs to trim against
4. Select one or more roofs and right mouse click to finish the selection process. After you select the roofs, the ceilings are trimmed against the roofs.

Perimeter

SolidBuilder ➡ Ceiling ➡ Shape ➡ Perimeter

Icon: 

Use this command to alter a ceiling's perimeter or boundary.

1. Right click on the ceiling and select Shape - Trim or select the Shape icon and then Trim or select Edit- Shape - Trim from the main dropdown menus.
2. If you selected the Shape icon and then Trim, or select Edit - Shape from the main dropdown menus then Trim, you are prompted:
Select ceiling to change perimeter
3. Select ceiling to change perimeter. After selecting a ceiling, you are prompted:
Select first edge of the portion to replace
4. Select the first ceiling edge to move. You are prompted:
Select the remainder of the portion to replace
5. Use the arrow keys to highlight the last ceiling edge to change and press Enter. You are prompted:
Mark the first new perimeter point
6. Press Enter. You are prompted:
Mark the next new perimeter point
7. Enter the coordinates of the next point or points using either the mouse or keyboard entry. Press F10 when the new perimeter is complete. **SolidBuilder** connects the last entered point of the new perimeter with the original ceiling outline.
8. The select ceiling prompt returns. Select another ceiling to modify or press Esc to end the command.

Modify

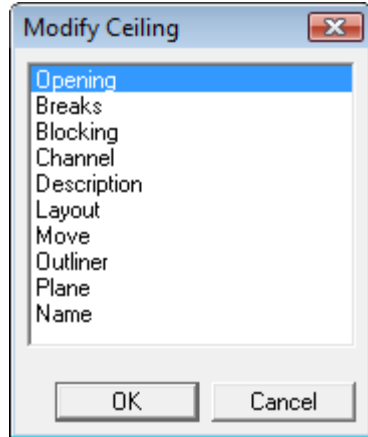
Openings

SolidBuilder ➡ Ceiling ➡ Modify ➡ Opening

Icon: 

This command allows you to change the numbers of joists and headers around a ceiling opening.

1. Select the Shape icon and then Opening or select Edit- Modify - Opening from the main dropdown menus. This command is not available by right clicking.
2. The Modify Ceiling dialog box opens. Select Opening.



3. Click on OK and you are prompted to select an opening.
4. Set the number of Kings and Headers as needed.

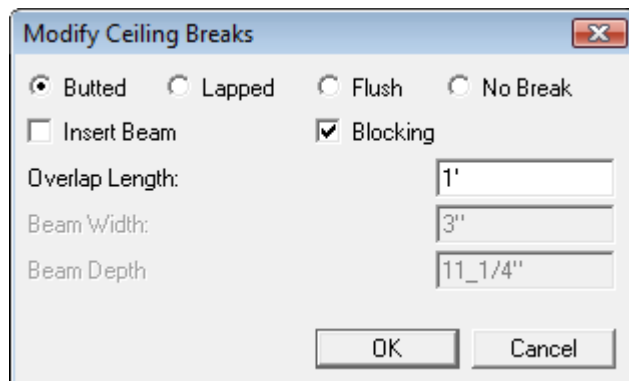
Breaks

SolidBuilder ➔ Ceiling ➔ Modify ➔ Break

Icon: 

Use this selection to change the framing characteristics of all break lines on selected ceilings.

1. Right click on the ceiling break and select Modify - Break or select the Modify icon and then Break or select Edit- Modify - Break from the main dropdown menus.
2. If you selected the Modify icon and then Break, or select Edit - Modify from the main dropdown menus then Break, the Modify Ceiling Breaks dialog box opens.



3. Modify the framing information as desired. The new framing specifications are stored and are used when the ceiling is framed. Press Esc to end the command.

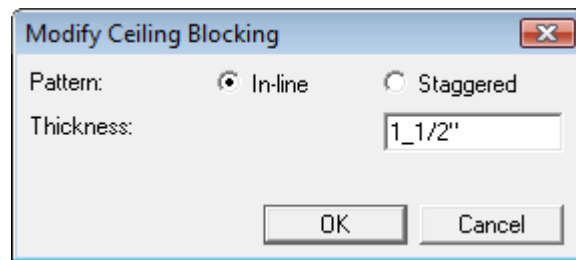
Blocking

SolidBuilder ➡ Ceiling ➡ Modify ➡ Blocking

Icon: 

Use this command to change the framing characteristics of a line of blocking that was inserted previously.

1. Right click on the ceiling blocking line and select Modify or select the Modify icon and then Blocking or select Edit- Modify - Blocking from the main dropdown menus.
2. If you selected the Modify icon and then Blocking, or select Edit - Modify from the main dropdown menus then Blocking, you are prompted to select the ceiling or ceilings to modify the blocking.
3. Select the ceiling to modify.
4. The Modify Ceiling Blocking dialog box opens.



5. Change the blocking options as needed. Hit OK. The new framing specifications are stored and are used when the ceiling is framed. Press Esc to end the command.

Channel

SolidBuilder ➡ Ceiling ➡ Modify ➡ Channel

Icon: 

Use this selection to change the framing characteristics of a ceiling channel.

1. Right click on the ceiling channel line and select Modify or select the Modify icon and then Channel or select Edit- Modify - Channel from the main dropdown menus.
2. If you selected the Modify icon and then Channel, or select Edit - Modify from the main dropdown menus then Channel, you are prompted to select the channel to modify.
3. After the desired channel is selected, one of four dialog boxes display, based upon the channel type being modified:
4. Make the needed changes. Hit OK.

Description

SolidBuilder ➡ Ceiling ➡ Modify ➡ Description

Icon: 

This command allows you to modify the description and framing members of a ceiling. Some options not available in the Create Ceiling command are available here. You may specify Outliner break length, double alternate joists and blocking mid-span for ceiling joists.

1. Right click on the ceiling and select Modify - Description or select the Modify icon and then Description or select Edit- Modify - Description from the main dropdown menus.
2. If you selected the Modify icon and then Description, or select Edit - Modify from the main dropdown menus then Description, you are prompted to select the ceiling to modify description.
3. When you have selected a ceiling, the Modify Ceilings Description dialog box displays.

4. You may modify the fields as desired. Most of these fields are identical to the fields in Ceiling Options and Reports dialog boxes, except for the following fields:

- **Outline Break:** This field is controlled in the Ceiling - Settings section. It is the maximum size of the outliner. This command allows you to change this value for the selected ceiling.
 - **Double Joists:** This option allows you to double every other joist when framing.
 - **Block Mid-Span:** This option provides for automatic blocking at the mid-span of the framed ceiling. If the ceiling has a break line, the automatic blocking applies to each section of the ceiling.
5. Most of the changes in this dialog box result in changes when framing or estimating. However, if you change the value of the Joist width, the thickness of the ceiling is changed. The program changes the shell thickness. You need to determine where the new ceiling is positioned vertically, and turn on either the Top or Bottom radio button on, from the Modify floor width from edit field.
 6. The new ceiling is raised or lowered based on the selection made. Press Esc to end the command.

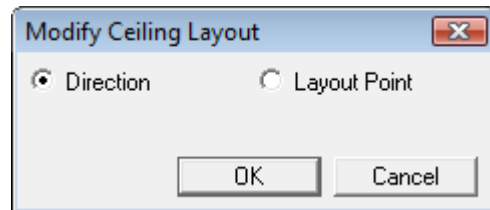
Layout

SolidBuilder ➡ Ceiling ➡ Modify ➡ Layout

Icon: 

This selection allows you to change the joist layout direction and layout start point

1. Right click on the ceiling and select Modify - Layout or select the Modify icon and then Layout or select Edit- Modify - Layout from the main dropdown menus.
2. If you selected the Modify icon and then Layout, or select Edit - Modify from the main dropdown menus then Layout , the Modify Layout dialog box opens.



- **Direction:** Allows you to change the ceiling joist direction.
 1. Select ceiling to change layout direction. You are prompted:
Joist layout direction <R Arrow-Rotate, Up Arrow-Mark>:
 2. Use the left arrow and right arrow keys to rotate the purple line on the screen 90 degrees and press Enter when done. Press Esc to return to the Ceiling menu.
 3. If you press the up arrow to define a custom joist direction, you are prompted:

Mark the start layout line endpoint

4. Mark the first point. You are prompted:
Mark the end layout line endpoint
5. Mark the second point. After entering the directional line, the new joist direction displays again and you are taken to the Set joist direction prompt discussed above.



If you wanted the joists to run at a 45-degree angle, mark the first point say 4' up from a corner. Mark the second point 4' to the left or right of that same corner to draw a 45 degree line.

- **Layout Point:** Allows you to change the joist layout point.
 1. Select one or more ceilings to share the layout point. You are prompted:
Enter layout point:
 2. The cross hair will jump to the current layout point. Using the coordinates commands, mark the new layout point. Press Esc to return to the Ceiling menu.

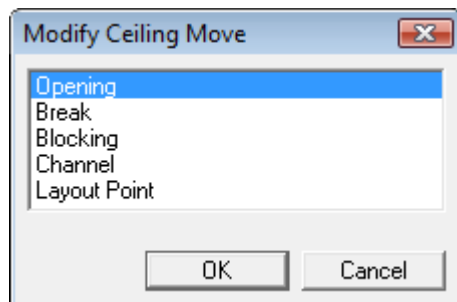
Move

SolidBuilder ➡ Ceiling ➡ Modify ➡ Move

Icon:

This command allows you to move breaks, blocking, channels, openings and the layout point. Note that the layout point can be changed using Modify Framing Layout, also. However, each of these other two options make you locate the absolute position of the layout point, whereas the Move option lets you specify the new layout point relative to the old one.

1. Select the Modify icon and then Move or select Edit- Modify - Move from the main dropdown menus. This command is not available by right clicking.
2. The Modify Ceiling Move dialog box opens.



3. For each of the Move options, the command sequence is the same. You are prompted to select a specific feature to move.
4. Select <item> to move

5. Once the correct feature has been selected, you are prompted to mark a reference point for the move.
Enter base point
6. Use the cursor to locate the base point. Click the left mouse button to enter this base point. You are prompted:
Enter offset point
7. Using the coordinates commands, mark the offset point. The opening is moved the exact relative distance specified by the two marked points.
8. After the second point is entered, the feature is moved and the system prompts for another feature to move. Press Esc to end the command and return to the Ceiling menu.

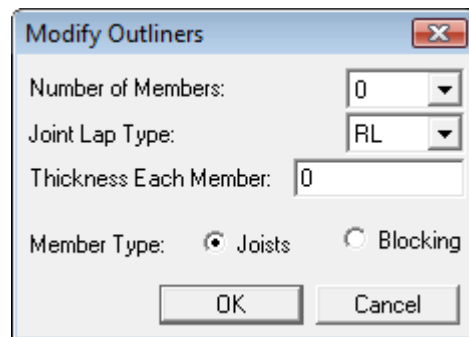
Outliner

SolidBuilder ➔ **Ceiling** ➔ **Modify** ➔ **Outliner**

Icon: 

SolidBuilder offers a powerful mechanism for adjusting the ceiling end and rim joists. You may change the number of members and the thickness of each member for each edge of the ceiling. You may also change the lapping at the ends of the outliner. A green marker at one end of the outliner shows which end is affected by changing the Joint lap type.

1. Right click on the ceiling and select Modify - Outliner or select the Modify icon and then Outliner or select Edit- Modify - Outliner from the main dropdown menus.
2. If you selected the Modify icon and then Outliner, or select Edit - Modify from the main dropdown menus then Outliner, you are prompted to select ceiling to modify.
3. Select the ceiling to modify. The Modify Outliners dialog box opens.



4. After you have selected your ceiling to modify, one edge of the ceiling is highlighted.
5. Modify the fields as needed. The program displays a dialog box for each edge of the selected ceiling, with the appropriate dialog box.

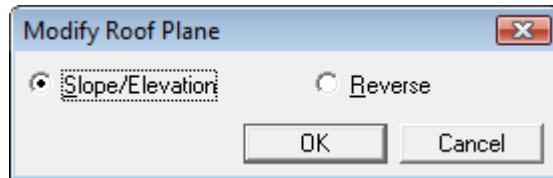
Plane

SolidBuilder ➔ **Ceiling** ➔ **Modify** ➔ **Plane**

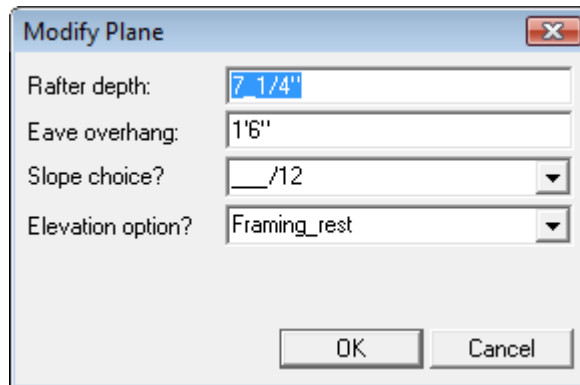
Icon: 

You may change the slope of a ceiling plane as well as the direction.

1. Select the Modify icon and then Plane or select Edit- Modify - Plane from the main dropdown menus. This command is not available by right clicking.
2. The Modify Plane dialog box opens.

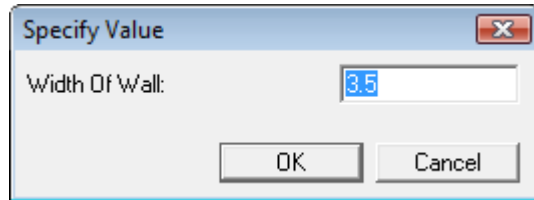


- **Slope/Elevation:**
 1. You are prompted:
Select plane to modify
 2. Select the plane or planes to modify.
 3. The Modify Plane dialog box opens.



4. Make any modifications desired and click on OK. The information and choices available in this dialog box and related dialog boxes are detailed in the Roof Planes section.
- **Reverse:** This command allows reverse the direction of a plane. Modify Plane Reverse is used to change the slope direction of selected planes that point in the opposite direction desired. After reversing the plane, you have the opportunity to adjust the plane so that it sits above the appropriate wall face.
 1. You are prompted:
Select plane to be reversed

2. Use arrow keys to highlight the plane desired and press Enter. The following dialog box displays.



3. Normally, you enter the wall thickness. However, any distance can be entered. After you have entered a value, the plane is rotated around the base line and then shifted the distance entered. Press Esc to end this command.

Name

SolidBuilder ➡ Ceiling ➡ Modify ➡ Name

Icon: 

This command allows you to review and change the names of one or all of the ceilings.

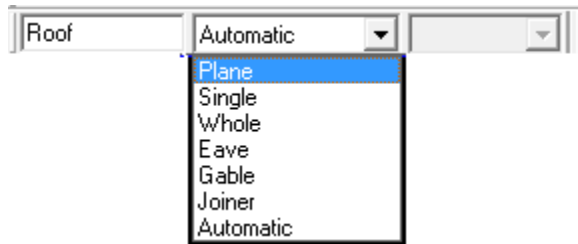
1. Right click on the ceiling and select Modify - Name or select the Modify icon and then Name or select Edit- Modify - Name from the main dropdown menus.
2. If you selected the Modify icon and then Name, or select Edit - Modify from the main dropdown menus then Name, you are prompted to select ceiling to modify.
3. Select a ceiling to rename.
4. After selecting a ceiling, **SolidBuilder** gives you the current name extension (for example ceiling3, where 3 is the extension). You have the option of providing 4 characters after the required initial term roof. For example you could rename ceiling7 to ceilingA7 or ceiling17 or ceilingleft. First press Backspace to clear the number part of the proposed name. Then type in a four-character name or value. After renaming one ceiling, you are prompted to select another ceiling for renaming. Continue or press Esc to return to the Ceiling menu.

Chapter 24: Roofs

Roof Planes

SolidBuilder Roof ➔ Planes

Icon: 



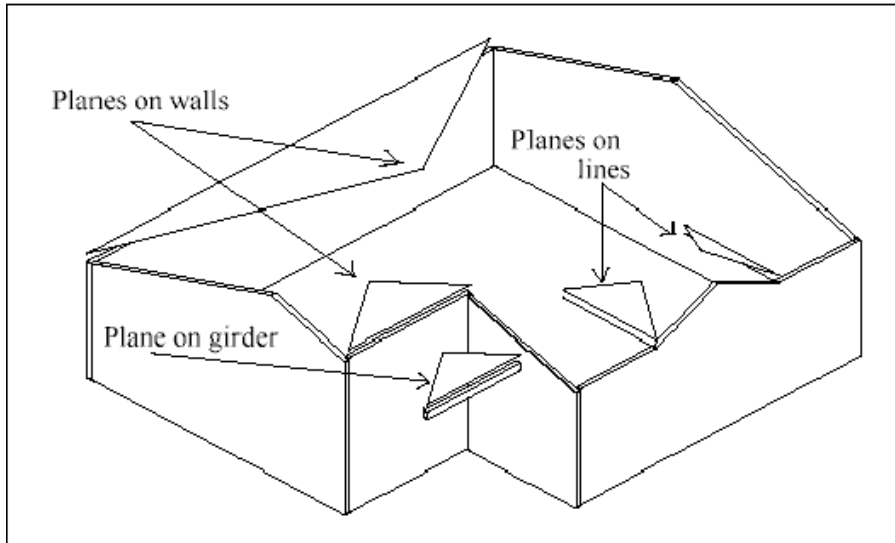
This command provides several methods for creating planes. Planes are represented by orange triangles normally placed on walls. Every roof to be built requires that a plane be created first. The apex of the triangle indicates the upward slope of the roof to be created from the plane. You must create all the necessary planes prior to roof creation. Most planes are created on a wall. However, plane markers can also be created on girders and reference lines.

The Line option is used to create a plane on a line that was previously created using the Outline Create Line command. For purposes of creating a plane, the line is assumed to be the edge of another plane which goes straight down (into the screen from a plan view). You can use this option when no wall or girder exists as the basis for creating a plane.

The first step is to locate the plane of each roof surface in the model. A plane is always defined from a line, either a reference line or a temporary line marked by two points or by a line that represents the top edge of the front face of a wall or girder. Copies of these lines, adjusted for the elevation, form the base of the plane marker (red triangle), which displays on screen when you finish creating the plane. The plane marker is located at the same plane as the top surface of the roof shell. The thickness, the slope and the elevation are determined from the plane, so its location is the key to creating roofs.



Planes extend into infinity. A plane that has a base 5' long will work exactly the same as a plane with a base 100' long.



These are the four steps necessary to create a plane marker:

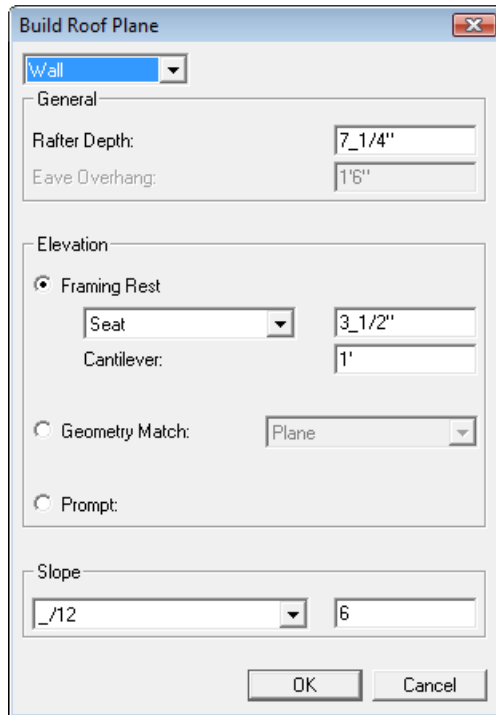
1. Locate the base of the plane marker on the model by selecting a wall, a girder or a reference line. Keep in mind that a wall that is a gable does not need a plane. Also walls that are in line with each other (say exterior walls on both sides of a porch) need only one plane.
2. Indicate the thickness and the overhang of the roof to be created.
3. Specify the slope of the plane marker (and the roof created from it).
4. Set the plane marker at the proper elevation relative to the wall, girder or reference line that was selected.

Roof Plane Options

SolidBuilder ➡ Roof ➡ Plane ➡ Options

Icon:  

In Plane Options, you specify the rafter size, the method for placing the rafter on the Wall/Girder, and the slope.



This dialog box is divided into three sections:

Section 1: General

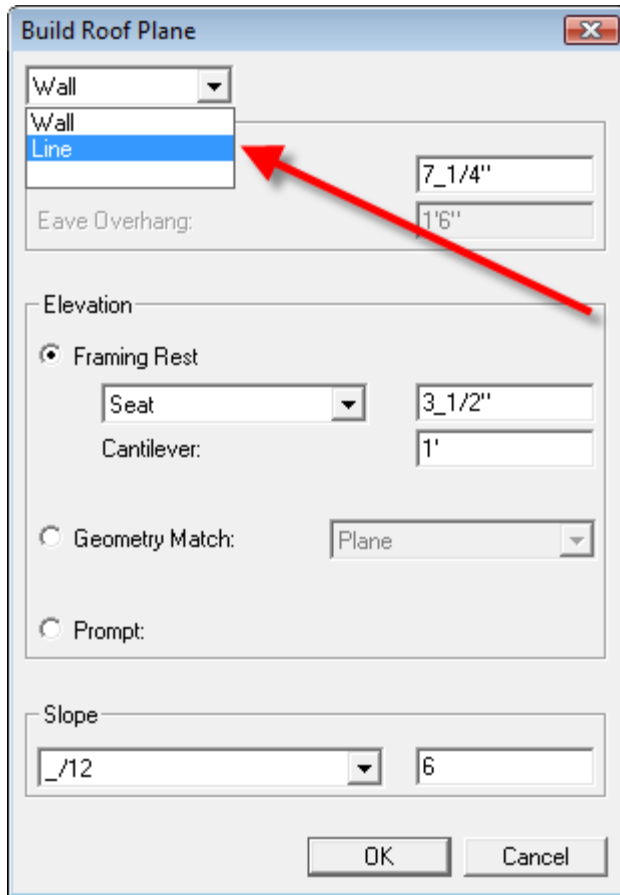
Section 2: Elevation

Section 3: Slope choice

Wall/Line

SolidBuilder ➡ **Roof** ➡ **Plane** ➡ **Options** ➡ **Wall/Line**

Icon:  



- **Wall / Line:** Select to create the roof plane on a wall or on a reference line.

Wall: This command is the most frequently used command for defining plane markers.

1. Upon selection, the following prompt displays:
Select walls or girders to bear planes.
2. Select the appropriate walls and girders. Orange plane markers are created.

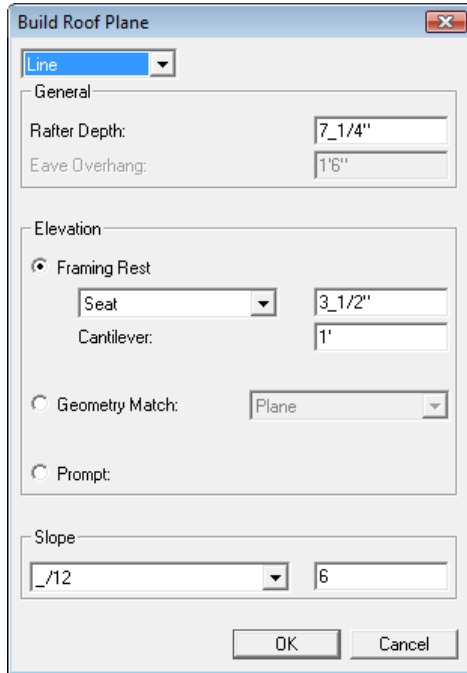
Line: This command allows you to create a plane marker on a single reference line.

1. You are prompted to select a reference line and the direction of slope of the plane as follows.
2. Select lines to locate a plane
3. Select a reference line. **SolidBuilder** prompts you:
Mark a point to indicate the up-slope direction:
4. Move the cursor in the direction that the plane rises and press Enter.
The plane is created.

General

SolidBuilder ➔ **Roof** ➔ **Plane** ➔ **Options** ➔ **General**

Icon:  



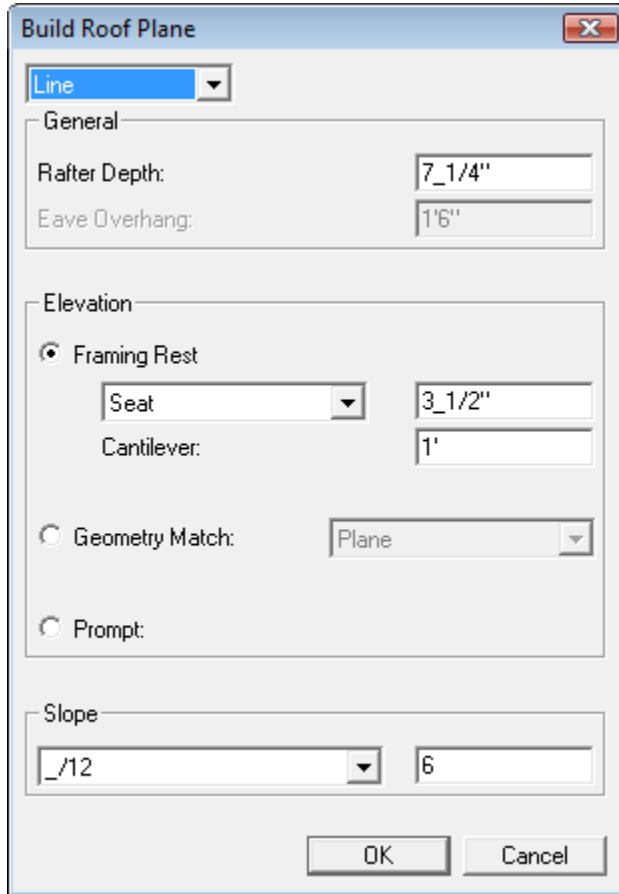
The 'Build Roof Plane' dialog box is shown. It has a title bar with a close button. Below the title bar is a dropdown menu set to 'Line'. The dialog is divided into three main sections: 'General', 'Elevation', and 'Slope'. The 'General' section contains 'Rafter Depth' (7_1/4") and 'Eave Overhang' (1'6"). The 'Elevation' section has three radio buttons: 'Framing Rest' (selected), 'Geometry Match', and 'Prompt'. Under 'Framing Rest' are 'Seat' (3_1/2") and 'Cantilever' (1'). Under 'Geometry Match' is a dropdown set to 'Plane'. The 'Slope' section has a dropdown set to '_/12' and a text box with '6'. At the bottom are 'OK' and 'Cancel' buttons.

- **General:** This includes Rafter Depth and Eave Overhang.
- **Rafter Depth:** You must enter the rafter depth for the plane definition. The orange plane marker displays on the top surface (plane) of the roof shell. The thickness of the roof shell is the depth of the rafters specified.
- **Eave Overhang:** The eave overhang is only required (at this time) if you are using the Geometry Match option of setting the elevation. When creating eaves, you must re-enter the eave overhang value in the Roof Create Eave command dialog box. It is your responsibility to insure that these match, so note the overhang distance if you plan to use Geometry Match.

Elevation

SolidBuilder ➔ **Roof** ➔ **Plane** ➔ **Options** ➔ **Elevation**

Icon:  



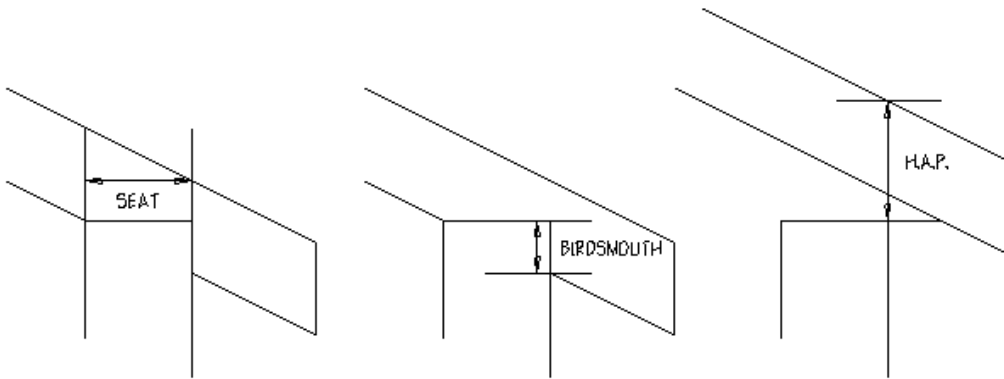
The 'Build Roof Plane' dialog box is shown. It has a title bar with a close button. Below the title bar is a dropdown menu set to 'Line'. The dialog is divided into three main sections: 'General', 'Elevation', and 'Slope'. The 'General' section has two input fields: 'Rafter Depth' with the value '7_1/4"' and 'Eave Overhang' with the value '1'6"'. The 'Elevation' section has three radio button options: 'Framing Rest' (selected), 'Geometry Match', and 'Prompt'. Under 'Framing Rest', there is a dropdown menu set to 'Seat' and an input field with the value '3_1/2"', followed by an input field for 'Cantilever' with the value '1''. Under 'Geometry Match', there is an input field with the value 'Plane'. The 'Slope' section has two input fields: the first contains '_/12' and the second contains '6'. At the bottom are 'OK' and 'Cancel' buttons.

This section is used to set the plane at the proper elevation. The Elevation option field contains three options: Framing Rest, Geometry Match and Prompt.

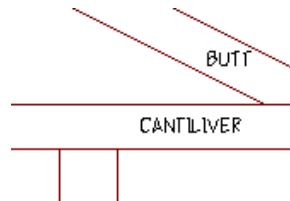
1. **Framing Rest:** The elevation is determined by the way the roof rafter is cut or notched to sit on the wall plate or line.
2. **Geometry Match:** Match to other geometry, including planes, reference points or eave lines.
3. **Prompt:** - Define an elevation by referencing a shell or setting an absolute value or marking with the cursor.

The three methods are described in detail below

- **Framing Rest:** is used to specify how the roof rafter sits on the wall plate or line. There are four options: Seat Cut, Birdsmouth, HAP value or Butt cut. After the option name, a default value displays.



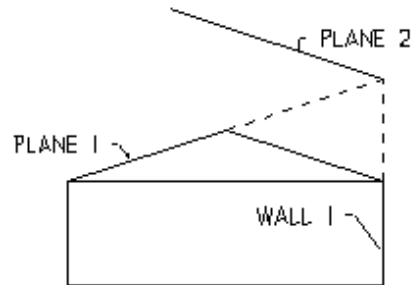
- **Seat:** Seat is the horizontal distance from the front face of the wall to the bottom of the rafter where it meets the top plate.
- **Birdsmouth:** Birdsmouth is the plumb distance from the rafter bottom to the wall top along the front face of the wall.
- **HAP:** HAP (height above plate) is the plumb distance from the rafter top to the wall top measured at the front face of the wall.
- **Butt-Cantilever:** Cantilever is the distance is from the front face of the wall to the rafter plumb cut. Butt is the vertical distance from the bottom of the supporting cantilever member to the rafter. Cantilever option is only when Butt is selected.



Select the option and enter the desired value. The new value becomes the default value for subsequent framing rest value uses.

- **Geometry Match:** This has three options: Plane, Reference Point and Eave Line. Each of these options works in a different way.
 - **Plane:**
 1. If you select Plane, you are prompted: Select plane to meet.
 2. Select an existing plane marker. The base of the new plane marker being created is moved vertically to the intersection line of the two planes. The plane marker does not move except up or down and its slope stays the same.

Chapter 24 Roofs



In the above example plane 1 was created first. Plane 2 was using the Geometry Match - Plane method. Plane 2 base point remains in line with wall 1, but the height is determined by where plane 1 would intersect wall 1 if it continued on.

- **Reference Point:** Allows you to insert a reference point on a roof surface and force another roof section to use this point in calculating the needed pitch to make the new roof section meet at this point. The Solution Paper **Creating a Bay Window Roof** provides a detailed explanation.
- **Eave Line:** Used when you have two intersecting planes at different pitches. A good example is a rectangular house with the front and back planes at 6/12 and the end planes at 8/12. What **SolidBuilder** will do is to automatically adjust the seat height so that the eaves match up.
 1. You are prompted to:
Select plane with eaves that match.
 2. Select the plane to match and the plane being created is placed at the appropriate elevation.

Slope

SolidBuilder ➡ **Roof** ➡ **Plane** ➡ **Options** ➡ **Elevation**

Icon:  

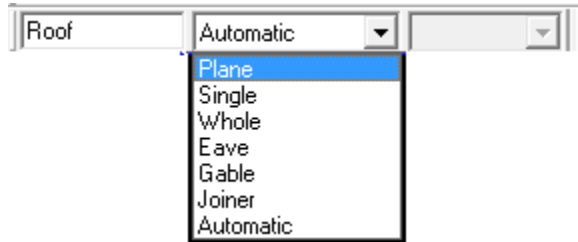
The slope of the plane is determined by selecting one of the five choices found in the Slope drop list.

- **_/12:** Entering the slope in inches per foot. You enter the number which, when divided by 12 gives the slope. This number is entered in the edit field to the right of the Slope drop list. The default value is that of the last plane entered. You may accept the default value or backspace over this number and enter your desired value.
- **_deg:** Entering the slope in degrees. You enter the number, which defines the slope in degrees. This number is entered in the edit field to the right of the Slope drop list. The default value is that of the last plane entered. You may accept the default value or backspace over this number and enter your desired value.
- **Copy:** Copying the slope of another plane.
- **Compute By 3rd Point:** Defining the slope by using a third point with the elevation of the base of the plane marker to determine the slope. In this case, the elevation must be set before the point is defined. After setting the elevation value, the system prompts:
Mark or enter a point that defines this plane
You must define a point, which is combined with the elevation value to form the plane marker.
Move the cursor to the desired point (remembering that you can use the plus and minus keys to move up or down in the z-axis direction) and press Enter. The plane marker displays on screen.
- **Compute By Roof Line:** Use the slope of a temporary line created by the intersection of an existing roof plane with a vertical plane. The vertical plane is defined by marking two points.
 1. If you select this option, you are prompted for another plane. The system prompts:
Select the plane to the other side of the roofline.
 2. You may use the direction keys to select the other plane. The system prompts:
Mark two points that indicate roofline: First point:
 3. Note: The roofline determines plane elevation as well as slope.
 4. Mark two points that indicate roof line: Second point:
 5. Note: The roofline determines plane elevation as well as slope.
 6. The two points define a vertical plane, which is intersected by the selected plane. The slope of the resultant intersect line is the slope desired. Move the cursor to the desired points and press Enter. The plane marker is inserted on the model.
 7. Press Esc to return to the Roof menu. As the note in the prompts indicates, this method of using a roofline for the slope choice also determines the plane elevation.

Roof Single

SolidBuilder ➡ Roof ➡ Single

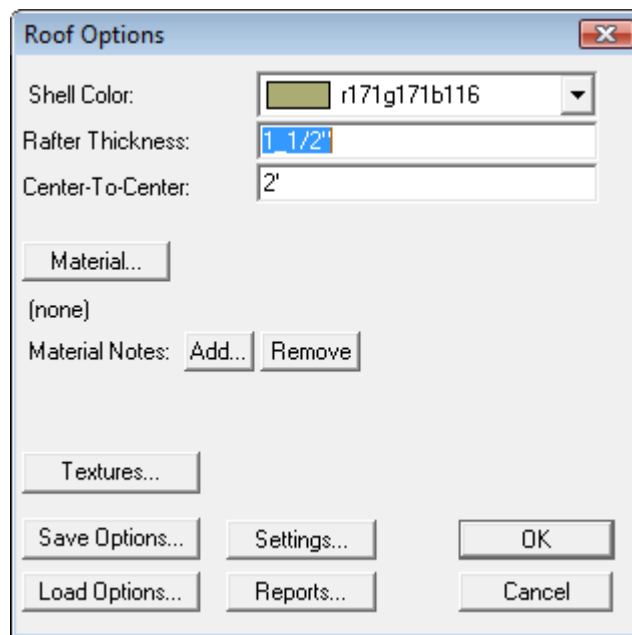
Icon: 



A roof is created from a plane that has been created with the Create Plane command. The program prompts you to select a plane and then assists you in defining the edge boundaries of the roof. Each edge of the roof is defined by selecting a plane, wall, reference, line or base-print. Each selection creates an edge of the roof. A roof may be bounded by another roof plane, a wall plane, a plate-defined plane (based upon projecting the plate straight up) or a line-defined plane (based upon projecting a reference line straight up). Recall that reference lines are created using the Outline menu.

Before you can create a roof, you must have defined the plane that defines the roof, as well as the planes, base-prints, lines and walls that form its boundaries. The roof tutorials help you develop general strategies for defining roof boundaries.

- **Options:**
SolidBuilder ➡ Roof ➡ Single ➡



1. Set the Rafter Thickness.

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Roofs

2. Set the Center-To-Center distance.
3. Set the Material Option.
4. Click on the Reports button. Reports provides for setting level, work stage and assembly information. The Roof Report Settings for Level, Workstage, Core Assembly, Outside Assembly, and Inside Assembly, remain as entered until changed.



The image shows a software dialog box titled "Roof Report Settings". At the top, there is a "Level:" field with a dropdown menu showing "1" and a "User Assigned Name:" field. Below these are two buttons: "WorkStage..." and "Roof". The dialog is divided into three main sections: "Core Assembly", "Top Assembly", and "Bottom Assembly". Each section has a "Select Assembly..." button followed by "(none)". Below each section header are six rows, each with an "Add..." button and a "Remove" button. The rows are labeled "Item 1:" through "Item 6:". At the bottom of each section is a "Notes:" label followed by an "Add..." button and a "Remove" button. At the very bottom of the dialog are four buttons: "Help...", "Load Description...", "OK", and "Cancel".

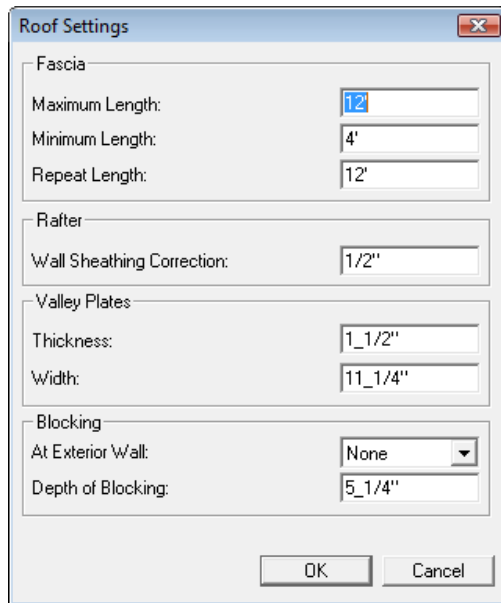
- **Level:** Setting levels is very useful when using the Visibility commands. You are able to isolate, for example, Level 2 roofs only and make everything else invisible with a minimum number of keystrokes.
- **Workstage:** Workstage used for sorting the reports.
- **Assemblies:** There are three types of assemblies. Core is generally thought of as inside the shell, e.g. concrete or insulation. Outside represents the exterior faces of walls and roofs and the top of floors. Inside represents the inside faces of walls and the bottom of floors or ceilings.

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- **Items:** By clicking on any of the Items buttons, you are taken to the Items Database. You can select individual items to attach to the roof without having to modify an assembly to add them. This is very useful when you have a special situation that requires a special item added but you do not want to modify the assembly since it is a one-time occurrence.

5. Click on the Settings button and the Roof Settings dialog box (below) displays.



The image shows a 'Roof Settings' dialog box with a title bar and a close button. It contains four sections: 'Fascia' with input fields for 'Maximum Length' (12), 'Minimum Length' (4'), and 'Repeat Length' (12'); 'Rafters' with a 'Wall Sheathing Correction' field (1/2"); 'Valley Plates' with 'Thickness' (1_1/2") and 'Width' (11_1/4") fields; and 'Blocking' with a dropdown for 'At Exterior Wall' (None) and a 'Depth of Blocking' field (5_1/4"). At the bottom are 'OK' and 'Cancel' buttons.

- **Fascia:**
 - Maximum Length:** the maximum length to use when framing.
 - Minimum Length:** the minimum length to use when framing.
 - Repeat Length:** typically will be the same as the maximum length.
- **Raftsers:**
 - Wall Sheathing Correction:** this is the thickness of the wall sheathing and the horizontal seat cut will be increased by this measurement to allow the sheathing to slide up into the seat cut of the rafter.
- **Valley Plates:** a plate that is laid flat on the main roof upon which the rafters of another roof sit, rather than sitting directly on sheathing.
 - Thickness:** the thickness of the valley plate.
 - Width:** the width or depth of the valley plate.
- **Blocking:**
 - At Exterior Wall:** select None (does not insert any blocking), Frieze (blocking between rafters and flush with the outside edge of the wall) or Shear (blocking between rafters and flush with the inside edge of the wall).
 - Depth of Blocking:** the depth of the blocking.

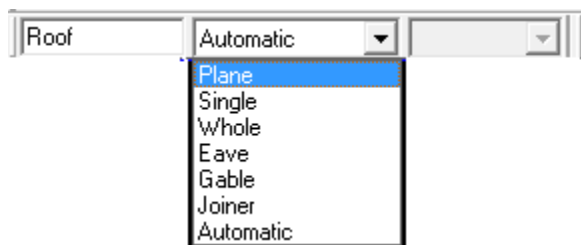
6. Set the values as needed. Click on the roof icon . You are prompted: Select starting PLANE for Roof

7. Select the first plane. After the selection of the first plane, its base boundary edge is highlighted in red. Another plane is highlighted and a magenta line displays on the screen showing the location of the roof edge that is created if that plane is selected as the next plane in the sequence. Use the arrow keys or pick to select the plane (or line or wall). As each item is selected, a new magenta line is drawn connected to the preceding one, which represents the boundary of the roof. Continue the process until all the appropriate geometry has been selected and then right mouse click and select Finished or press F10.
8. You may use either pick or scan mode depending on your preference by right mouse clicking and selecting.
9. Use the right arrow and left arrow keys (or the mouse if in pick mode) to select the appropriate boundary type for the next edge of the roof. Notice that the magenta marker displays on the right side of the front face of the plane marker.
10. Start with the boundary at the magenta line, and then work your way around, choosing each new boundary so that a continuous boundary line is created. If you skip around, the system does not properly recognize the boundary or gives you an error message.
11. After this selection, **SolidBuilder** steps you through the existing elements of the type selected; all existing planes and lines or all existing walls and base-prints. When the correct item is highlighted, press Enter.
12. The system displays a new line, which represents the new boundary. Repeat the process until the entire roof has been properly defined. When the last boundary line has been created, press F10. **SolidBuilder** generates the roof outline.

Roof Whole

SolidBuilder ➡ **Roof** ➡ **Whole**

Icon: 



This command allows you to create a group of roofs, while the preceding command allows you to create a single roof. The whole roof command works in a similar way to single roof. In the single case, you must select a plane, wall, girder, and reference line or base-print that forms the boundary of the roof. This includes selecting items that generate the eaves, gable edges, hips, ridges, valleys and broken hips. In the whole (or multiple) roof mode, you only select the items that form the eave and gable edges; the program automatically locates and places the hips,

ridges, valleys and broken hips. This approach is much faster than creating roofs one at a time.

A Whole roof is created from an initial plane that has been previously created with the Create Plane command. The program prompts you to select a plane. You then use the select mechanism to select planes or edges that represent other roofs. Selection must be done sequentially in a clockwise or counterclockwise direction.

Certain limitations are in effect for this method.

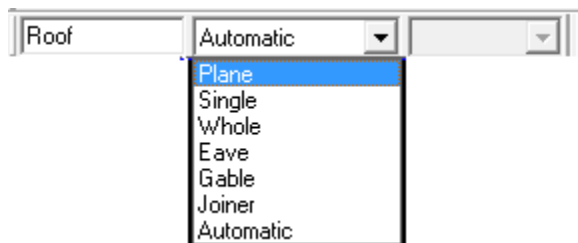
- Each roof must have the same thickness.
- The selection must proceed so that each plane marker selected represents a roof that is adjacent to the roof represented by the previous plane marker selected.
- Each plane can only be selected once. Whole roof does not work on a roof system in which it is necessary to select a plane twice.
- Each wall/girder/reference line can only be selected once. Whole roof does not work on a roof system in which it is necessary to select a wall/girder/reference line twice.

The Whole Roof Material, Reports and Options are exactly the same as those for the Single Roof. Enter any changes and then use the arrow keys to outline the Whole roof perimeter, taking care to select planes or walls/girders/reference lines/base-prints in their proper order. Press F10 when you have completed the whole roof perimeter and the roof is created.

Roof Eave

SolidBuilder ➡ Roof ➡ Eave

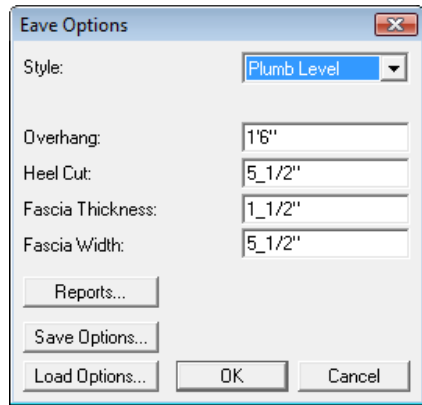
Icon: 



This command provides a way to add overhangs to horizontal roof edges. Use the Gable selection from the Roof menu to create gabled roof overhangs.

- Options 

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Roofs



- **Style:** refers to how the rafter tail is cut. Select from Square, Plumb, or Plumb Level. To create the little returns on gable ends, select Plumb Level.
- **Overhang:** The true horizontal distance from the outside edge of the wall to the end of the rafter, excluding the fascia.
- **Heel Cut:** the vertical height of the cut for the plate.
- **Fascia Thickness:** the thickness of the fascia board when the roof is framed.
- **Fascia Width:** the width of the fascia board when the roof is framed.
- **Reports:** provides for setting level, work stage and assembly information. The Eave Report Settings for Workstage, Core Assembly, Outside Assembly, and Inside Assembly, remain as entered until changed.

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Workstage: Workstage used for sorting the reports.

Assemblies: There are three types of assemblies. Core is generally thought of as inside the shell, e.g. concrete or insulation. Outside represents the exterior faces of walls and roofs and the top of floors. Inside represents the inside faces of walls and the bottom of floors or ceilings.

Items: By clicking on any of the Items buttons, you are taken to the Items Database. You can select individual items to attach to the eave without having to modify an assembly to add them. This is very useful when you have a special situation that requires a special item added but you do not want to modify the assembly since it is a one-time occurrence.

1. Make changes as needed. Select OK or press Enter. You are prompted:
Select eaves to define:
2. Use the left arrow and right arrow keys to step through the available eaves. Press Enter when the desired eaves are highlighted. Keep selecting eaves until finished, and then press F10.

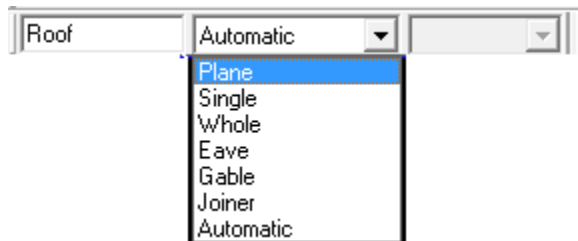


If **SolidBuilder** tries to place an eave on what should be a gable, it is because the roof edge that the gable should be on is skewed and not at 90 degrees to the roof perpendicular to it.

Roof Gable

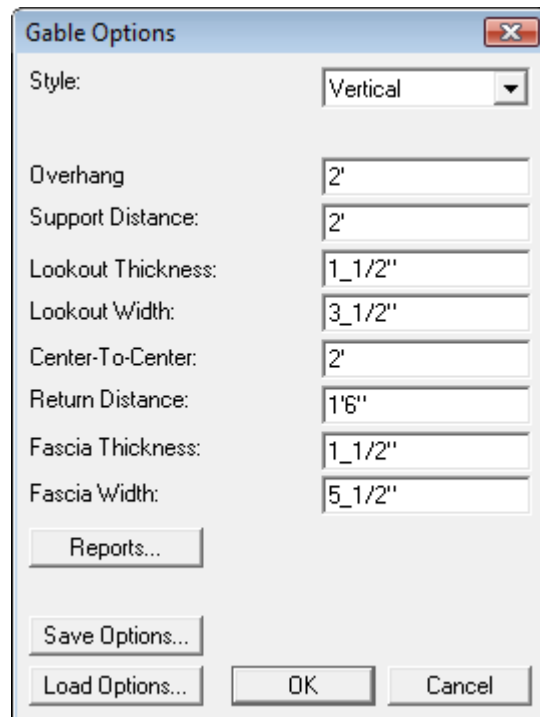
SolidBuilder ➔ **Roof** ➔ **Gable**

Icon:



This command provides a way to add overhangs to vertical roof edges.

- Options:



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Style: The orientation of the lookout or ladder block. Select from Vertical, Flat or no block.

Overhang: the true horizontal distance for the outside wall edge to the outside edge of the outer rafter, excluding the fascia.

Support Distance: the distance the lookout, or ladder, block extends into the roof for support. It will always end at a rafter.

Lookout Thickness: the thickness of the blocking.

Lookout Width: the width or depth of the blocking.

Center-To-Center: the center-to-center distance of the blocking.

Return Distance: the distance the gable overhang will return and come back along the gable end wall. Typically the same as the overhang or the overhang plus any wall corner trim.

Fascia Thickness: the thickness of the fascia when the roof is framed.

Fascia Width: the width or depth of the fascia when the roof is framed.

Reports: provides for setting level, work stage and assembly information. The Gable Report Settings for Core Assembly, Outside Assembly, and Inside Assembly, remain as entered until changed.

Gable Report Settings

Core Assembly

Select Assembly...

Item 1: Add... Remove

Item 2: Add... Remove

Item 3: Add... Remove

Item 4: Add... Remove

Item 5: Add... Remove

Item 6: Add... Remove

Notes: Add... Remove

Top Assembly

Select Assembly...

Item 1: Add... Remove

Item 2: Add... Remove

Item 3: Add... Remove

Item 4: Add... Remove

Item 5: Add... Remove

Item 6: Add... Remove

Notes: Add... Remove

Bottom Assembly

Select Assembly...

Item 1: Add... Remove

Item 2: Add... Remove

Item 3: Add... Remove

Item 4: Add... Remove

Item 5: Add... Remove

Item 6: Add... Remove

Notes: Add... Remove

Help... Load Description... OK Cancel

Workstage: Workstage used for sorting the reports.

Assemblies: There are three types of assemblies. Core is generally thought of as inside the shell, e.g. concrete or insulation. Outside represents the exterior faces of walls and roofs and the top of floors. Inside represents the inside faces of walls and roofs and the bottom of floors or ceilings.

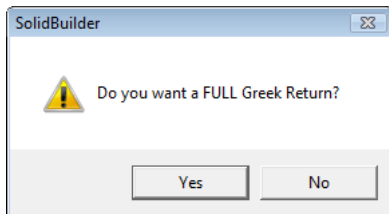
Items: By clicking on any of the Items buttons, you are taken to the Items Database. You can select individual items to attach to the eave without having to modify an assembly to add them. This is very useful when you have a special situation that requires a special item added but you do not want to modify the assembly for a one-time occurrence.

1. Make changes as needed. Click OK or press Enter. You are prompted:
Select gables to define:
2. Use the left arrow and right arrow keys to step through the available gables. Press Enter when the desired gables are highlighted. Keep selecting gables until finished, and then press F10.

Roof Gable – Greek Return

This command allows you to easily place Greek Returns on your gable overhangs. A Greek Return is a decorative return where the gable overhang meets the eave overhang. To place a Greek Return, right click on the desired gable overhang and select Shape – Insert Greek Return.

SolidBuilder will display the following message:



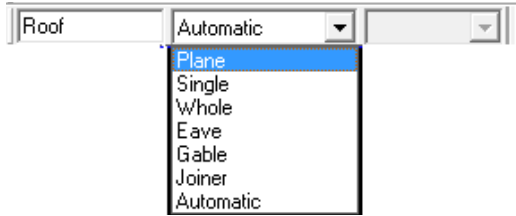
SolidBuilder is capable of inserting a Full or Partial Greek Return. A Full Greek Return will stretch all the way across the front of your gable wall, reaching the opposite eave overhang. A Partial Greek Return is a short 3' return located on the desired gable overhang. If a Full Greek Return is desired, select Yes. If a partial Greek Return is desired, select No. The Greek Return will be placed.

The Greek Return is consist of a small roof section and overhang. The total depth of the Greek Return is 1'. If a different Greek Return size is desired, the automatic Greek Return can be modified with basic SolidBuilder tools.

Roof Joiner

SolidBuilder ➡ Roof ➡ Joiner

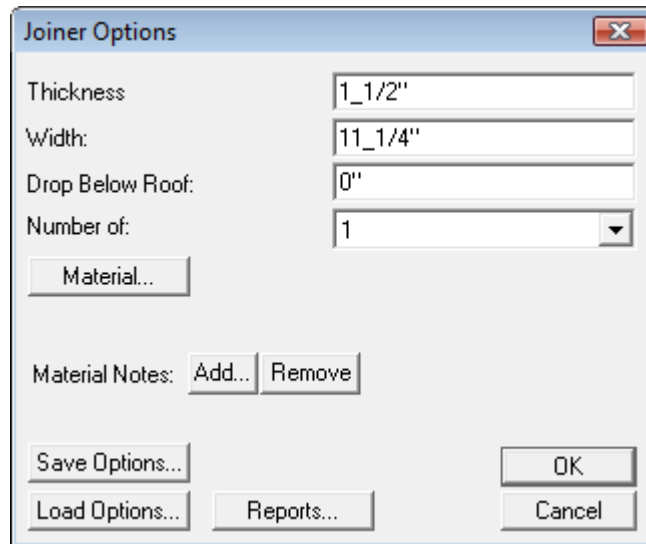
Icon: 



This command allows you to create hip, ridge and valley beams (**SolidBuilder** refers to them as Joiners) at roof intersections.

Joiners should be defined after all gables and eaves have been created. When joiners are created, they run the full length of the join line, causing them to intrude on each other at intersections. After creating the joiners, use Modify Joiner to fit the joiners to each other.

- Options



1. Enter the desired values and click on OK. You are prompted:
Select the join-line or join-lines for which to create joiners.
2. Select location for a roof joiner:
3. Use the left arrow and right arrow keys to step through the available join-lines. Press Enter when the desired join-line is highlighted. Keep selecting join-lines until finished, and then press F10 or right mouse click and select Finished.
- 4.

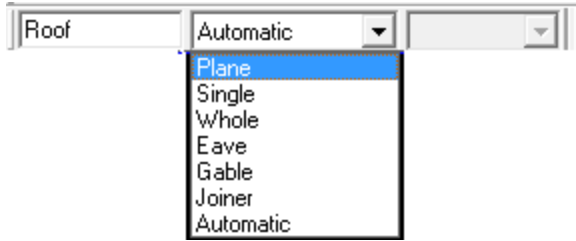
Automatic

SolidBuilder ➔ **Roof** ➔ **Automatic**

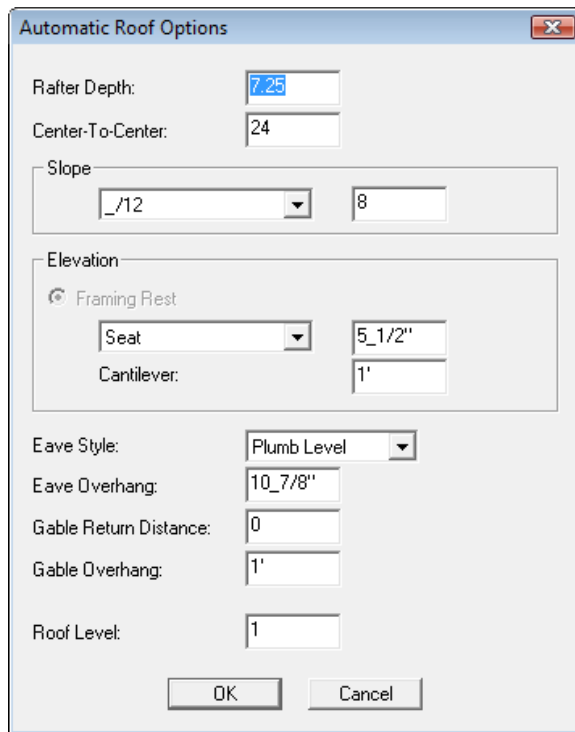
Icon: 

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Roofs



This command allows you to create an 'all hipped' roof automatically by simply tracing an outline around your design where you wish to cover with a roof. When Automatic is selected from the pull down menu, the following dialog box will display:



This dialog box is a combination of important roof options. These roof options are the same roof options found in your plane settings, single/whole roof settings, eave settings, and gable settings. They have just been combined into one dialog box for easy access during this automatic roof routine. For a detailed explanation of these options, please check out those sections of this help file.

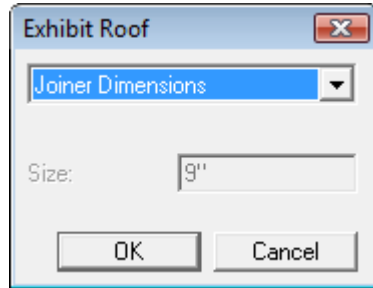
Once your automatic roof options have been set, you will be prompted to draw an outline. This outline must be drawing around the object you wish to cover. For the purpose of accuracy, it is recommended to use the snap commands with tracing this outline over your design. Once your outline is complete, SolidBuilder will generate an 'all-hipped' roof around your design. If the roof generated isn't the desired roof, it can be modified with standard SolidBuilder tools.

Exhibit

SolidBuilder ➡ Roof ➡ Exhibit

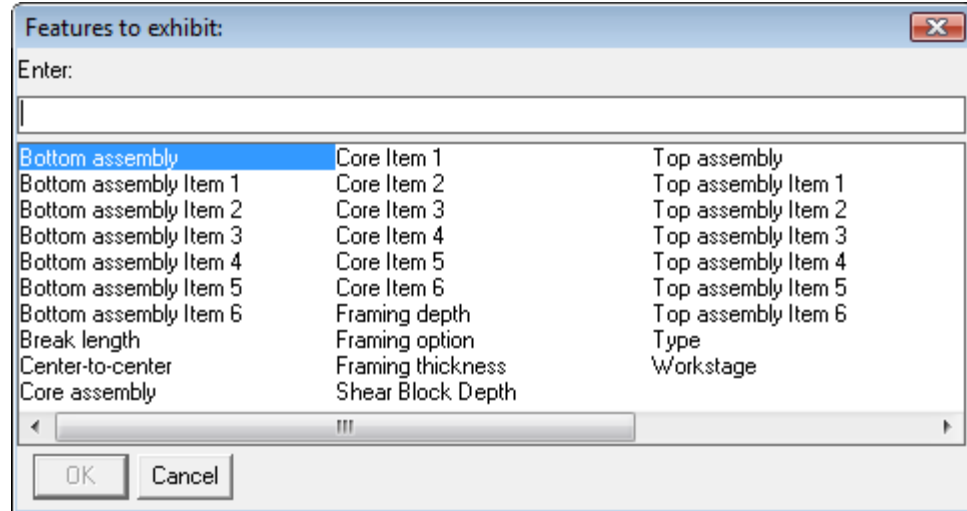
Icon:  

This selection on the View menu allows you to view the dimensions, layout point and work stage of Roofs. When you select Roofs from the Build menu and select Exhibit from the View menu, the Exhibit Roofs dialog box (below) displays.

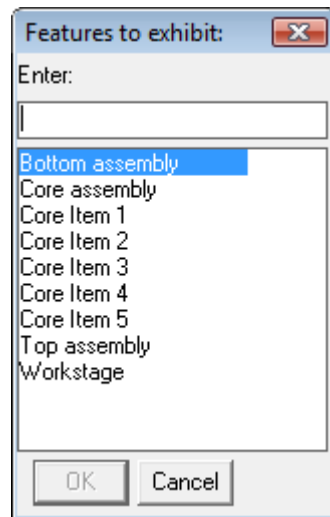


- **Dimensions**
 1. You are first prompted for the size of the dimension numerals, which shows the roof dimensions. The system prompts:
Size of dimension numerals: 9"
 2. Backspace through the suggested dimension size if you wish to enter a different value. You must next select the roof to dimension. The system prompts:
Select roof to view
 3. Select the roof, right click and select Finished. Each selected roof is dimensioned and displayed on the screen, along with the roof number and the top and bottom elevation. You may print this drawing by pressing the letter P.
- **Layout Points:** Click on the Roof icon and select Exhibit from the View menu. In the Exhibit Roof dialog box select Layout Points from the drop list. The cursor is moved to the layout point for each roof. Pressing the arrow keys moves the cursor to the layout points for other roofs. Press the Escape key to terminate the command.
- **Description**
 1. This command allows you to see many of the features associated with a roof. To execute this command, click on the Roof icon and select Exhibit from the View menu. The Exhibit Roof dialog box (above) displays. Finally, select Description from the drop list and click on OK. The Features to Exhibit dialog box (below) displays.

Chapter 24 Roofs



2. Select a feature. The value for the information is displayed in the Command Status window and the roofs that share that same value are made visible on screen. The system exhibits the selected feature.
- **Overhang Description:** This command allows you to see many of the features associated with a roof overhang. The following dialog box displays.



1. Select one of the choices. The system displays each overhang or opening or group of overhangs or openings that contain a different value for the choice. The first set with a unique value is displayed. Pressing any key then displays subsequent groups with different values. When all have been displayed the dialog box displays again. Press Esc to end the command.
- **Joiner Dimensions:**
 1. You are prompted:
Size of dimension numerals: 9"
 2. Select OK. You are prompted:
Select joiners to view

3. The selected joiners are displayed in a plan view. The edges are dimensioned with the absolute elevations displayed. The joiner name is displayed in the upper left corner of the screen. The displays may be printed.

Insert

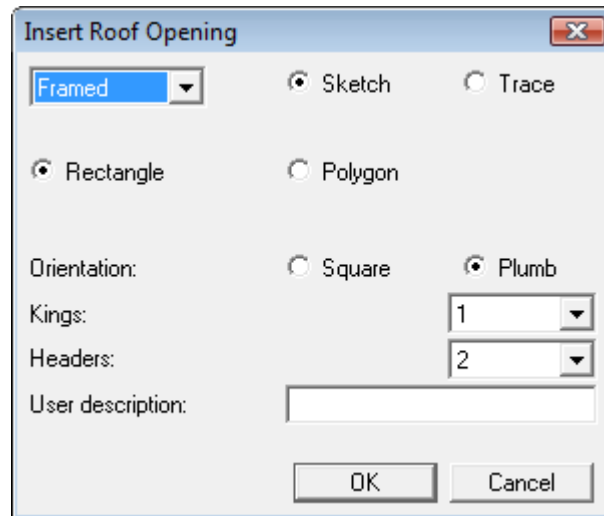
Opening

SolidBuilder ➔ **Roof** ➔ **Insert** ➔ **Opening**

Icon:  

This command allows you to place openings in roofs. The opening may be framed into the roof or may be rimmed with ledgers that are inserted in walls.

1. Right click on a roof and select Insert - Opening (this will allow you to only insert one opening at a time) or select Insert from the main drop down menus along the top and select Opening, or click on the Insert Opening icon.
2. If you selected the Insert Opening icon or the Insert Opening from the drop down menus, you will be prompted to select roof to insert opening. Select the roof. If you right click on a roof the dialog box automatically opens.



2. After you select between Framed and Ledgers, you are presented with a choice of Sketching (drawing) or of Tracing (using the planes of existing walls and roofs) the outline of the opening. If the opening is for a skylight, roof window or vent, then you should Sketch the opening. If the opening is for a dormer or atrium where its outline may be defined by walls or roofs, then you should Trace the opening. Note that the associated walls and roofs must already exist for you to use them in tracing. Also, roofs typically should not have their eaves or gables created and present when the roof is used for tracing, since the opening may extend to the overhang.
3. A Square opening is cut square to the roof; a Plumb opening is cut vertically plumb. The User description is used to enter a user-assigned name for this opening, such as skylite1.

After all the values and options are correct, click on OK or press Enter or F10.

4. If you are Sketching the opening, proceed with the discussion which follows. If you are Tracing the opening, go to the Tracing section (below).
 - **Sketch**
 1. If you choose to sketch the outline of the opening, you can create it as a Rectangle or as a Polygon. If the opening has four sides, all at right angles, then you should select Rectangle. Otherwise, you must select Polygon.
 2. Regardless of which you select, you are prompted for the roof in which to place the opening.
 3. Select roof for opening. Use the right arrow or left arrow key to step through the available roofs. When the desired roof is highlighted, press Enter to select it. If this is to be a Framed opening, enter the desired values.
 4. If you are sketching a rectangle, you see the following prompts:
Mark the first opening corner
Mark the opposite diagonal opening corner
 5. You must indicate the locations of two opposing corners of the opening.
 6. If you are sketching a polygon, you see the following prompts:
Mark the first opening corner
Mark the next opening corner
 7. After the first point of the polygon is located, you continue locating endpoints. After selecting the last one, press Enter and **SolidBuilder** connects this point to the start point, creating the final line segment for you.
 8. If you are creating a framed opening, the sequence is complete and the framed opening displays on the model.
 9. If you are creating a ledger opening, you sketch the outline of the opening. Next, each of the inside faces of the opening are highlighted in succession.
 10. You must choose whether the highlighted side of the opening is to have a ledger and, if so, what its dimensions and placement should be. For the dimension entries, position the mouse arrow on the desired line, key in the value, then press Enter once. After all the values are correct, press F10.
 - **Trace:**
 1. If you select Trace, you are prompted for the roof in which to place the opening.
 2. Select roof for opening
 3. Use the right arrow or left arrow key to step through the available roofs. When the desired roof is highlighted, press Enter to select it.
 4. Select the initial starting boundary.
 5. For both types of openings, you select the initial boundary, which is a wall or a

line and whether the opening is to be square to the roof, vertically plumb or parallel to the boundary selection. For the ledger opening, you have the additional options as to whether the side of the opening is to have a ledger and, if so, what its dimensions and placement should be.

6. When the last boundary has been defined, the opening is inserted.

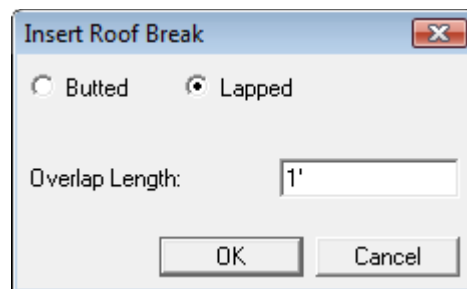
Breaks

SolidBuilder ➔ **Roof** ➔ **Insert** ➔ **Break**

Icon:  

This command allows you to place a break in the roof framing. Breaks are inserted where rafter lengths are split into standard lengths. Without breaks, **SolidBuilder** assumes the joists runs the full length of the roof section.

1. Right click on a roof and select Insert - Break (this will allow you to only insert one break at a time) or select Insert from the main drop down menus along the top and select Break, or click on the Insert Break icon.
2. If you selected the Insert Break icon or the Insert Break from the drop down menus, you will be prompted to select roof to insert break. Select the roof. If you right click on a roof the dialog box automatically opens.



3. Select either the Butted or Lapped option and enter a value for the Overlap Length. After you have made all your changes, click on OK. The system prompts:
Select roof for break line
4. Use the left arrow and right arrow keys to step through the available roofs. Press Enter when the desired roof is highlighted. You are prompted:
Mark the start break line end
5. Mark or enter the start of a line, which represents the break line. After the first point is entered, you are prompted:
Mark the end break line end
6. After the end point is marked, the break line is drawn in green on the roof and the Roof menu displays again. When the roof is framed, the rafters are broken along this line.

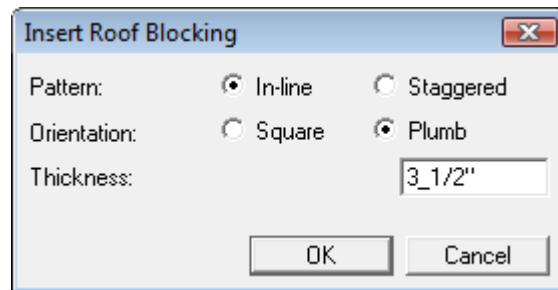
Blocking

SolidBuilder ➔ Roof ➔ Insert ➔ Blocking

Icon:  

This command allows you to place blocking in the roof framing.

1. Right click on a roof and select Insert - Blocking (this will allow you to only insert one blocking line at a time) or select Insert from the main drop down menus along the top and select Blocking, or click on the Insert Blocking icon.
2. If you selected the Insert Blocking icon or the Insert Blocking from the drop down menus, you will be prompted to select roof to insert blocking. Select the roof. If you right click on a roof the dialog box automatically opens.



3. Select either In-line or Staggered and Square or Plumb and set the Thickness. You are prompted:
Select roof for blocking
4. Select the desired roof. You are prompted:
Mark the start blocking line end
5. Mark or enter the start of a line, which represents the blocking line. After the first point is entered, you are prompted:
Mark the end blocking line end
6. After the end point is marked, the blocking line is drawn in red on the roof and the Roof menu displays again. When the roof is framed, blocking is inserted along this line.

Channels

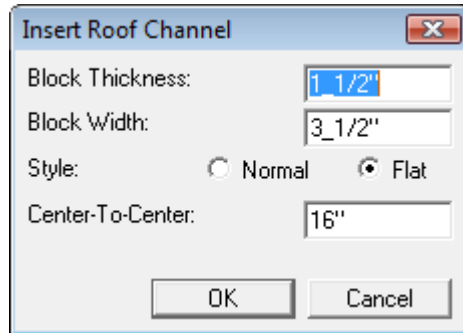
SolidBuilder ➔ Roof ➔ Insert ➔ Channels

Icon:  

This command allows you to place a channel in the roof framing.

1. Right click on a roof and select Insert - Channels (this will allow you to only insert one channel line at a time) or select Insert from the main drop down menus along the top and

- select Channels, or click on the Insert Channels icon.
2. If you selected the Insert Channels icon or the Insert Channels from the drop down menus, you will be prompted to select roof to insert channels. Select the roof. If you right click on a roof the dialog box automatically opens.



3. Make changes as needed. After you have made all your changes, click on OK. You are prompted:
Select roof for channel
4. Select the desired roof. You are prompted:
Mark the start channel line end
5. Mark or enter the start of a line, which represents the channel line. After the first point is entered, you are prompted:
Mark the end channel line end
6. After the end point is marked, the channel line is drawn in blue on the roof and the Roof menu displays again. When the roof is framed, the channel spans the rafters, which lie on either side of the channel line drawn, with the ladder members sized and spaced as defined in the dialog box.

Ledger

SolidBuilder ➡ Roof ➡ Insert ➡ Ledger

Icon:  

This command inserts a ledger in a wall that butts to a roof.

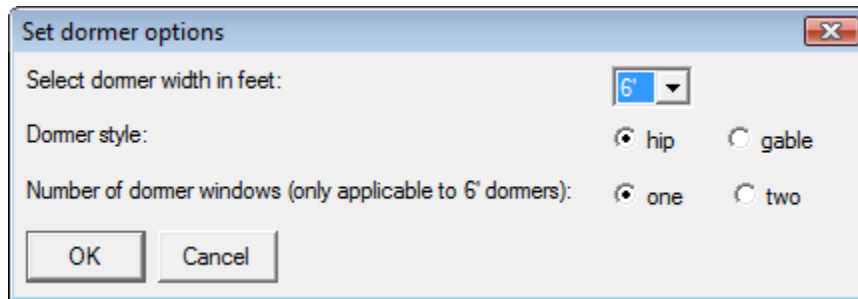
1. Right click on a roof and select Insert - Ledger (this will allow you to only insert one Ledger at a time) or select Insert from the main drop down menus along the top and select Ledger , or click on the Insert Ledger icon.
2. If you selected the Insert Channels icon or the Insert Ledger from the drop down menus, you will be prompted to select roof to insert Ledger.
3. Select roof to insert ledger. Use the left arrow and right arrow keys to step through the available roofs. Press Enter when the desired roof is highlighted.
4. You are prompted to select wall for ledger generation.

5. Select the wall that the roof runs into. Enter a value for the ledger thickness. A ledger is placed in the wall where the roof butts the wall.

Dormer

SolidBuilder ➡ **Roof** ➡ **Insert** ➡ **Dormer**

This command allows you to easily insert basic dormers into your design. There isn't an icon for this command; it is accessed by right clicking on the roof you wish to locate a dormer on, then choosing Insert – Insert Dormer. Your roof must be on your design prior to running the dormer command. Once dormer is chosen from the pull down menu, the following dialog box will appear.



This dialog box allows you to specify your dormer options. First select the dormer width. You can choose between a 4', 5', or 6' dormer. Next choose the dormer roof style, either hip or gable. Finally, choose how many windows you want located in this dormer. If placing a 4' or 5' dormer, SolidBuilder will automatically place one window in the dormer. If placing a 6' dormer, you can choose between one or two windows. After specifying the dormer information, select OK.

Next, you will notice you are dragging around a outline representing your dormer. Simply drag the outline to the desired position for the dormer, and then left click to accept it. At this point, SolidBuilder will generate your dormer.

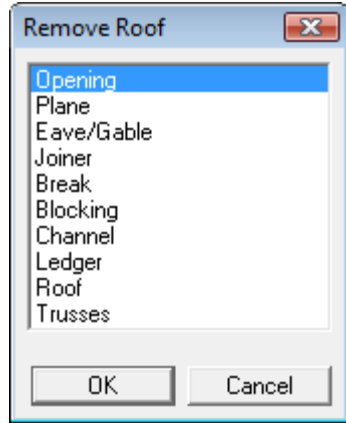
The purpose to this command is to generate quick and basic dormers. If a different sized or more complex dormer is desired, the generated dormer can be modified with standard SolidBuilder tools.

Remove

SolidBuilder ➡ **Roof** ➡ **Remove**

Icon:  

1. Right click on the Roof and select Remove to remove the entire roof. Or for more options select the Remove icon.



2. Select the item to be removed and click OK. The system prompts:
Select (items) to be removed
3. After you select the items, right mouse click and select Finished. Select Yes or No to remove the selected items.

Shape

Move

SolidBuilder ➡ Roof ➡ Shape ➡ Move

Icon:  

This command allows you to move a roof or group of roofs.

1. Right click on a roof and select Move (this will allow you to only Move one roof at a time) or select Edit -Shape from the main drop down menus along the top and select Move, or click on the Shape icon and select Move.
2. If you selected the Shape icon or Edit - Shape - Move from the drop down menus, you will be prompted to select roof to move.
3. Select the roof (s) to move. You are prompted:
Enter base point
4. The cursor is located at a lower point on the roof (s). Either press Enter to select this location as the base point for the move or move the cursor to a more convenient location to specify the distance and direction for the move. Press Enter and you are prompted
Enter offset point
5. Move the cursor and press Enter, thus indicating the move distance. The roofs are moved the indicated distance.

Split

SolidBuilder ➡ Roof ➡ Shape ➡ Split

Icon:  

This command allows you to split a roof into two parts. You must split your roofs prior to creating eaves and gables. The split command only splits roof, and only splits them horizontally. It does not split the eaves or gables.

1. Right click on a roof and select Split (this will allow you to only Split one roof at a time) or select Edit - Shape from the main drop down menus along the top and select Split, or click on the Shape icon and select Split.
2. If you selected the Shape icon or Edit - Shape - Split from the drop down menus, you will be prompted to select roof to Split.
3. Select the roof (s) to split. You are prompted:
Mark the first dividing-line point
Mark the next dividing-line point
4. Right mouse click or press F10 to finish. The roof is split. Press Esc to end the command.

Join

Icon:  

This command allows you to join two adjacent roofs. The system prompts:

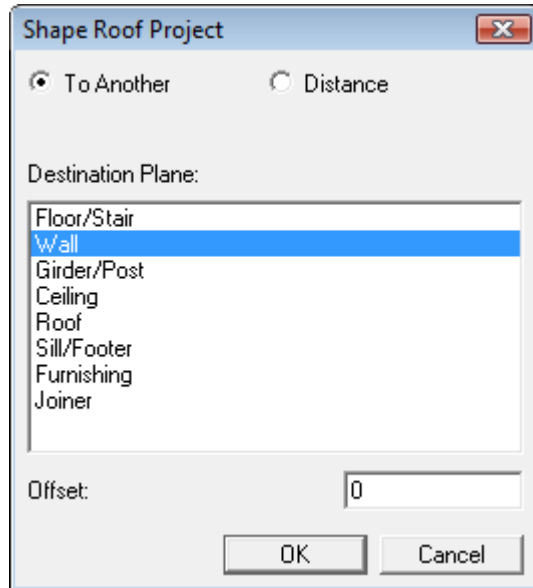
1. Right click on a roof and select Join (this will allow you to only Join two roofs at a time) or select Edit -Shape from the main drop down menus along the top and select Join, or click on the Shape icon and select Join.
2. If you selected the Shape icon or Edit - Shape - Join from the drop down menus, you will be prompted to select roof to Join.
3. Select first roof to join. A roof is highlighted. Select the roof you wish to join. You are prompted:
Select second roof to join
4. Select an adjoining roof. The roofs are joined. Press Esc key to end the command.

Project

Icon:  

This command allows you to move a roof face by projecting a specified distance, or by projecting the selected roof surface to another wall, floor, ceiling, etc.

1. Right click on a roof and select Project (this will allow you to only Project one roof at a time) or select Edit - Shape from the main drop down menus along the top and select Project, or click on the Shape icon and select Project.
2. If you selected the Shape icon or Edit - Shape - Project from the drop down menus, you will be prompted to select roof to Project.



- **To Another**

If you choose To Another, select the type of building feature that contains the desired destination plane, and indicate any distance you wish to offset the roof projection from this plane. A positive value projects the face to a point outside or above the plane; a negative value projects the face to a point inside or below the plane.

1. Select the shell to project to from the list. Hit OK. You are prompted:
Select <shell> to project to
2. Select the shell to project to. Press Enter when the desired item is highlighted. You are prompted:
Select face to project
3. Use the left arrow or right arrow key to select the face of the shell you want to project the roof face to. Press Enter when the desired face is highlighted. You are prompted:
Select roof to project
4. Select the roof to be projected. Press Enter when the desired roof is highlighted. You are prompted:
Indicate the face to project
5. Use the left arrow or right arrow key to select the face to be projected. Press Enter when the desired face is highlighted. The face is projected to the selected plane and you are prompted:
Select another roof to project

6. If there are other roof faces you wish to project to this same plane, you may select them now, using the same procedure. When there are no more to project, hit Esc to return to the Shape Roof Project dialog box.



Be very careful when using the project to another command. It is critical that you have the model in a 3-D isometric view to insure you select the correct face. This is the only way to tell if you are selecting the top face or the bottom face.



Be very careful to select faces that can be projected to each other, otherwise you get error messages about invalid solids or objects having no definitions. For example you cannot project the edge of one roof to the top face of another roof lying in the same plane. You could, however, project one edge to another edge.

- **Distance**
 1. If you select Distance, you need to enter a value. You are prompted:
Select roof to project
 2. Select the roof to be projected. Press Enter when the desired roof is highlighted. You are prompted:
Indicate the face to project
 3. Use the left arrow or right arrow key to select the face to be projected. Press Enter when the desired face is highlighted.
 4. The roof face is projected the indicated distance. Press Esc to end the command.

Roof Trim To Roofs

Icon:  

The Trim option permits you to trim a single roof or group of roofs against another group of roofs.

1. Right click on a roof and select Trim to Roofs (this will allow you to only Trim one roof at a time) or select Edit - Shape from the main drop down menus along the top and select Trim to Roofs, or click on the Shape icon and select Trim to Roofs.
2. If you selected the Shape icon or Edit - Shape - Trim to Roofs from the drop down menus, you will be prompted to select roof to trim.
3. Select the roof to trim. If you are selecting a group of roofs, continue until you have selected all the desired roofs, then right mouse click or press F10.
4. You are prompted to select the roofs to trim against. Select all roofs to trim the initial roof against. After this group has been selected, any areas of the first group, which intersect areas of the second group, are trimmed. The end result is that no member of the first group intrudes into the space of a member of the second group.

Roof Trim To All Shells

Icon:  

The Trim option permits you to trim a single roof or group of roofs against another group of roofs.

1. Right click on a roof and select Trim to All Shells (this will allow you to only Trim one roof at a time) or select Edit - Shape from the main drop down menus along the top and select Trim to All Shells, or click on the Shape icon and select Trim to All Shells.
2. If you selected the Shape icon or Edit - Shape - Trim to All Shells from the drop down menus, you will be prompted to select roof to trim.
3. Select the roof (s) to be trimmed. Press Enter when the desired roof is highlighted. If you are selecting a group of roofs, continue until you have selected all the desired roofs, then right mouse click and select Finished or press F10. You are then prompted:
Select shells to trim against
4. Select the group of roofs or other shells to be used for trimming the roofs. After this group has been selected, any areas of the first group, which intersect areas of the second group, are trimmed. The end result is that no member of the first group intrudes into the space of a member of the second group.

Perimeter

Icon:  

This command allows you to change the perimeter (or shape) of a roof. The cursor is positioned at the beginning of one edge. You may draw any new shape starting at the beginning of one of the edges and ending at the end of the second edge.

1. Right click on a roof and select Trim to All Shells (this will allow you to only Trim one roof at a time) or select Edit - Shape from the main drop down menus along the top and select Trim to All Shells, or click on the Shape icon and select Trim to All Shells.
2. If you selected the Shape icon or Edit - Shape - Trim to All Shells from the drop down menus, you will be prompted to select roof to change perimeter.
3. Select the roof to change. You are prompted to locate two edges that are to be changed. You are prompted:
Start edge <number> stop edge <number>
Followed by:
Start edge <number> stop edge <number>
4. The two prompts above identify **SolidBuilder's** roof start and stop points by edge. Use the arrow keys to highlight edge selections. After you have selected two edges, draw a new outline beginning at the beginning (start) of one edge and ending at the end (stop) of the second edge. The two edges selected can be the same edge. You are prompted:
Mark the first new perimeter point
Mark the next new perimeter point

5. Draw the new shape. You may enter multiple perimeter points. Press F10 to connect the last point entered with the end of the last edge segment. When you have no more perimeters to shape, press Esc to return to the Roof menu.



You must use the E end jump command to select the first starting perimeter point. If you do not, it jumps to somewhere near the middle of the drawing.

Subtract

Icon:  

By default, when a roof is created over top of another roof, the framing on the lower roof is continuous under the upper roof. If you need the framing removed under the upper roof, you can use the roof - subtract command.

1. Right click on a roof and select Subtract (this will allow you to only Subtract one roof at a time) or select Edit- Shape from the main drop down menus along the top and select Subtract, or click on the Shape icon and select Subtract.
2. If you selected the Shape icon or Edit - Shape - Subtract from the drop down menus, you will be prompted to select roof to modify by subtraction.
3. Select the roof to modify. Next select a roof to Subtract from it. One roof is subtracted from another.

When creating a small gable roof that lies on top of another roof, a triangular shaped roof is automatically created at the base of the new roof. This triangular roof can then be used to subtract from the main roof and in doing so, the area underneath the small gable roof is not framed and is open once the small triangular roof is removed

Copy Plane

Icon:  

This command allows you to copy an existing roof plane to use in another location. The benefit does not have to know the pitch.

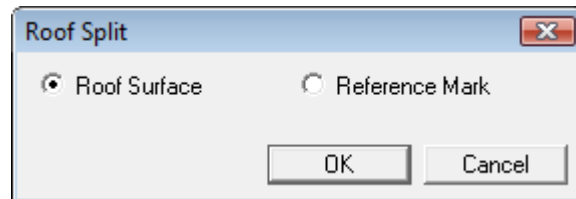
1. Right click on a plane and select Copy (this will allow you to only Copy one plane at a time) or select Edit - Shape from the main drop down menus along the top and select Copy Plane, or click on the Shape icon and select Copy Plane.
2. If you selected the Shape icon or the Edit - Shape - Copy Plane from the drop down menus, you will be prompted to select plane to copy.
3. Select the plane to be copied. You are then prompted:
Enter base point
4. Pick a location on the current plane. You are prompted:
Enter offset point
5. Using the X and Y coordinates edit field, enter a distance and the plane is copied to the new location.

Eave/Gable Split

Icon:  

This command allows you to split Eaves or Gables vertically.

1. Right click on an Eave or Gable and select Split (this will allow you to only Split one eave or gable at a time) or select Edit - Shape from the main drop down menus along the top and select Eave/Gable Split, or click on the Shape icon and select Eave/Gable Split.
2. If you selected the Shape icon or the Edit - Shape - Eave/Gable Split from the drop down menus, you will be prompted to select Eave/Gable to split.
3. Select the eave or gable to split. The Roof Split dialog box opens.



- **Roof Surface:**
 1. If you select Roof Surface, you are prompted:
Select a roof containing the slicing plane
 2. Select the roof containing the edge to use in splitting the eave or gable. Press Enter. One of the roof edges is highlighted.
 3. Use arrow keys to select the correct edge of the roof and press Enter. The eave or gable is cut into two sections along the plane defined by the roof surface selected.
- **Reference Mark:**
 1. If you select Reference Mark, you are prompted:
Mark the start split plane point
Mark the end split plane point
 2. The eave or gable is cut into two sections along a vertical plane defined by the points entered.
 - 3.

Eave/Gable Project

Icon:  

This command allows you to project an eave or a gable face by either referring to a plane represented by one of the faces of a floor, wall, girder, ceiling or roof or by projecting an eave or gable face a measured distance.

1. Right click on an Eave or Gable and select Project (this will allow you to only Project one eave or gable at a time) or select Edit - Shape from the main drop down menus along the top and select Eave/Gable Project, or click on the Shape icon and select Eave/Gable Project.
2. If you selected the Shape icon or the Edit - Shape - Eave/Gable Project from the drop down menus, you will be prompted to select Eave/Gable to project.
3. The Eave/Gable Project command is identical to the Shape - Roof -Project command. Refer to the Shape - Roof - Project command for detailed information.

Eave/Gable Perimeter

Icon:  

This command allows you to change the perimeter of an eave or a gable. The cursor is positioned at the beginning of one edge. You may draw any outline starting at the beginning of one of the edges and ending at the end of the second edge.

1. Right click on an Eave or Gable and select Perimeter (this will allow you to only change the Perimeter of one eave or gable at a time) or select Edit - Shape from the main drop down menus along the top and select Eave/Gable Perimeter, or click on the Shape icon and select Eave/Gable Perimeter.
2. If you selected the Shape icon or the Edit - Shape - Eave/Gable Perimeter from the drop down menus, you will be prompted to select Eave/Gable to modify the perimeter.
3. The Eave/Gable Perimeter command is identical to the Shape - Roof -Perimeter command. Refer to the Shape - Roof - Perimeter command for detailed information.

Joiner Split

Icon:  

This command allows you to split a Joiner. By default joiners are created the full length of the ridge, valley or hip and may need to be split into reasonable lengths.

1. Right click on an Joiner and select Split (this will allow you to only Split the one Joiner at a time) or select Edit - Shape from the main drop down menus along the top and select Joiner Split, or click on the Shape icon and select Joiner Split.
2. If you selected the Shape icon or the Edit - Shape - Joiner Split from the drop down menus, you will be prompted to select Joiner to Split.
3. Select a joiner to split. A joiner is highlighted. Select the joiner you wish to split. You are prompted:
Mark or enter location of split
Mark the split on the joiner and the joiner is split.

Joiner Join

Icon:  

This command allows you to join two adjacent parallel Joiners. This is usually implemented for those joiners that have been split using the Shape Joiner Split command.

1. Right click on an Joiner and select Join (this will allow you to only Join two Joiners at a time) or select Edit - Shape from the main drop down menus along the top and select Joiner Join , or click on the Shape icon and select Joiner Join .
2. If you selected the Shape icon or the Edit - Shape - Joiner Join from the drop down menus, you will be prompted to select Joiner to Join.
3. A joiner is highlighted. Select the joiner you wish to join. The system prompts:
Select second joiner to join
4. Select an adjoining joiner. The joiners are joined. Press Esc to end the command.

Joiner Project

Icon:  

This command allows you to project a Joiner face by to another floor, wall, girder, ceiling or roof or by projecting a joiner face a measured distance.

1. Right click on an Joiner and select Project (this will allow you to only Project one Joiner at a time) or select Edit - Shape from the main drop down menus along the top and select Joiner Project, or click on the Shape icon and select Joiner Project.
2. If you selected the Shape icon or the Edit - Shape - Joiner Project from the drop down menus, you will be prompted to select Joiner to Project.

The Joiner Project command is identical to the Shape - Roof - Project command. Refer to the Shape - Roof - Project command for detailed information.

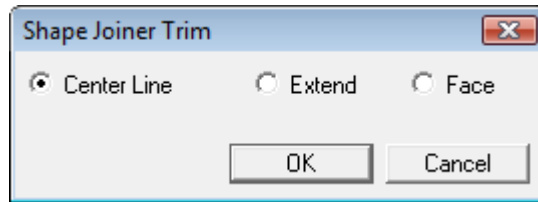
Joiner Trim

Icon:  

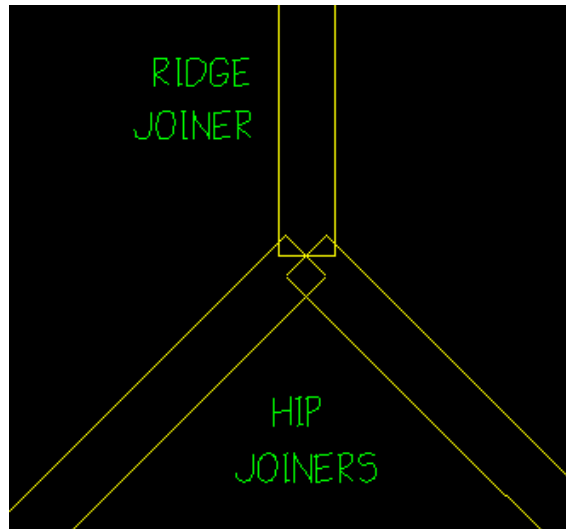
This command allows you to trim Joiner ends.

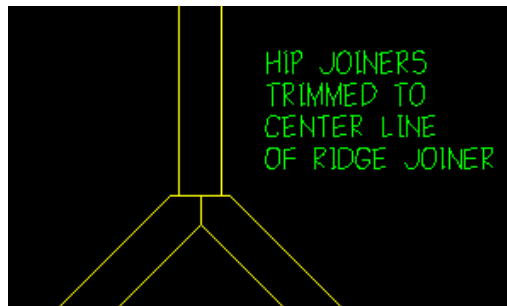
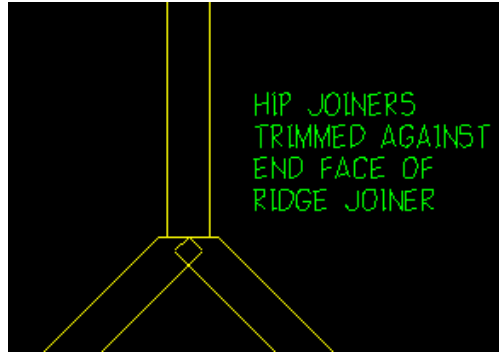
1. Right click on a Joiner and select Trim (this will allow you to only Trim one Joiner at a

- time) or select Edit - Shape from the main drop down menus along the top and select Joiner Trim, or click on the Shape icon and select Joiner Trim.
2. If you selected the Shape icon or the Edit - Shape - Joiner Trim from the drop down menus, you will be prompted:
Select joiner to fit or extend.
 3. Select the joiner. When the joiner you wish to fit or extend is highlighted, press Enter to select it. The Shape Joiner Trim dialog box (below) displays.



- **Center Line:**
 1. If you select the Center Line option, you are prompted:
Select joiner containing centerline that trims:
 2. Select the joiner to trim. **SolidBuilder** zooms in on the intersection of the two joiners and prompts you:
Mark point that indicates the side to discard
 3. The system needs to know which side of the centerline is to be thrown away. Position the cursor on the side of the centerline to discard, then press Enter. The joiner is trimmed and you are given a chance to trim other joiners. Press Esc to return to Roof menu, and press the F5 key to zoom out to your normal view.





- **Extend:**
 1. If you select the Extend option, you are prompted:
Mark a point to indicate end to extend
 2. Position the cursor at the end of the joiner that you wish to extend, and then press Enter. You are prompted:
Enter extension length:
 3. Type the distance that you wish to extend the joiner, and then press Enter. The joiner is extended.
- **Face**
 1. This command allows you to trim a joiner against a face of another joiner. You are prompted:
Select joiner containing the face that trims
 2. Use the right arrow and left arrow keys to step through the available joiners. When the joiner whose edge you wish to use for trimming is highlighted, press Enter to select it. **SolidBuilder** zooms in on the intersection of the two joiners and prompts you:
Select the desired side
 3. Use the arrow keys to select the proper side. The system prompts:
Mark a point that indicates the portion to discard
 4. The system needs to know which side of the edge is to be thrown away. Position the cursor on the side of the edge to discard, and then press Enter. The joiner is trimmed and you are given a chance to trim other joiners. Press Esc to return to the Roof menu, press F5 to zoom out to your normal view.

Joiner Birdsmouth

Icon:  

By default, Joiners are not notched, or cut to sit on the top plate. This command allows you to cut a birdsmouth in the Joiner.

1. Right click on an Joiner and select Birdsmouth (this will allow you to only Birdsmouth one Joiner at a time) or select Edit - Shape from the main drop down menus along the top and select Joiner Birdsmouth, or click on the Shape icon and select Joiner Birdsmouth.
2. If you selected the Shape icon or the Edit - Shape - Joiner Birdsmouth from the drop down menus, you will be prompted:
Select joiners to Birdsmouth.
3. Select the joiners to have a Birdsmouth cut determined by the walls that they rest upon. Press F10 to finish the selection. The joiners are cut to fit the supporting walls.



Typically Joiners are created after the Eaves and Gable overhangs to insure that the Joiner is created to the edge of the overhang.

Modify

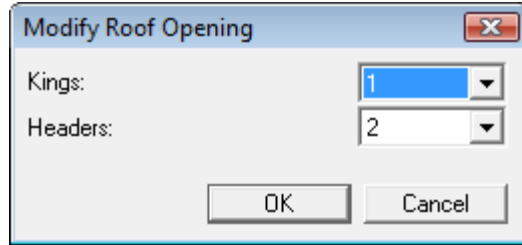
Opening

SolidBuilder ➡ Roof ➡ Modify ➡ Opening

Icon:  

This command allows you to change the number of rafters and headers, which frame the roof opening.

1. Right click on a Roof opening and select Modify (this will allow you to only Modify one opening at a time) or select Edit - Modify from the main drop down menus along the top and select Opening, or click on the Modify icon and select Opening.
2. If you selected the Modify icon or the Edit - Modify - Opening from the drop down menus, you will be prompted:
Select opening to modify
3. The Modify Roof Opening dialog box (below) displays.



4. Change values as needed. If you select an opening that was created with a ledger option, a message displays:
This roof opening is supported by ledgers; press a key.
Press Esc to exit the command.

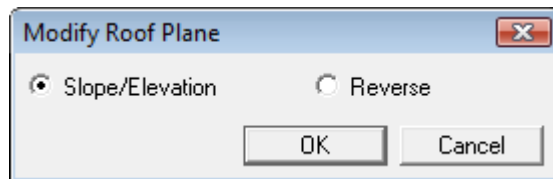
Plane

SolidBuilder ➡ Roof ➡ Modify ➡ Plane

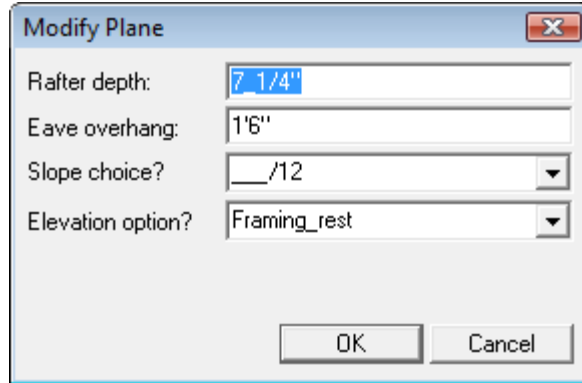
Icon:  

This command allows you to modify the slope and elevation of a plane.

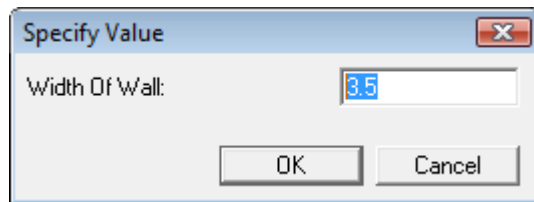
1. Right click on an a Plane and select Modify (this will allow you to only Modify one plane at a time) or select Edit - Modify from the main drop down menus along the top and select Plane, or click on the Modify icon and select Plane.
2. If you selected the Modify icon or the Edit - Modify - Plane from the drop down menus, the Modify Roof Plane dialog box opens



- **Slope/Elevation:**
 1. When you select this command, you are prompted:
Select plane to modify
 2. Select a plane to change the slope or elevation. After selecting the plane, the Modify Plane dialog box (below) displays.



3. Make any modifications desired and click on OK. The information and choices available in this dialog box and related dialog boxes are identical to those in the Roof Plane section.
- **Reverse:**
 1. This command allows you to reverse the direction of a plane.
 2. Select plane to be reversed. The following dialog box displays.



3. Normally, you enter the wall thickness. However, any distance can be entered. After you have entered a value, the plane is rotated around the base line and then shifted the distance entered. Press Esc to end this command.

Eave/Gable

SolidBuilder ➡ Roof ➡ Modify ➡ Eave Gable

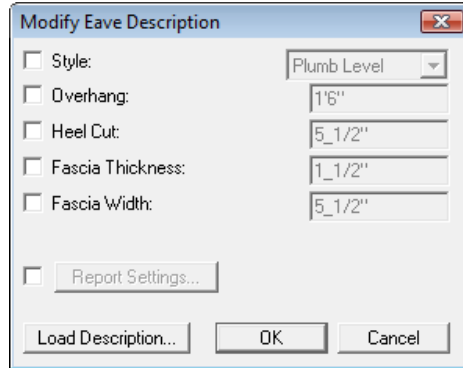
Icon:  

This command allows you to modify the framing and size of Eave or Gable overhangs.

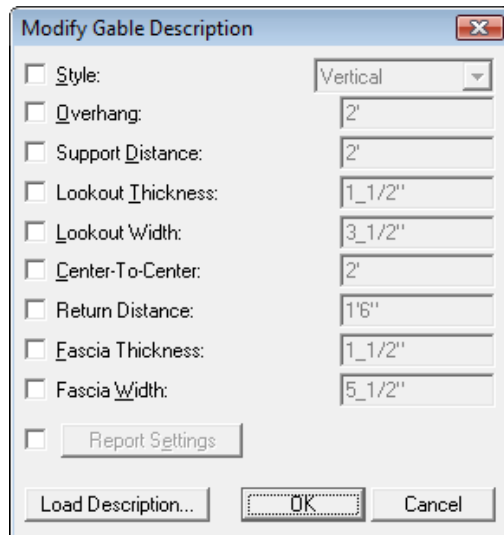
1. Right click on an Eave or Gable and select Modify (this will allow you to only Modify one Eave or Gable at a time) or select Edit - Modify from the main drop down menus along the top and select Eave/Gable, or click on the Modify icon and select Eave/Gable.
2. If you selected the Modify icon or the Edit - Modify - Eave/Gable from the drop down

menus, you are prompted:
Select an eave or a gable to modify:

3. Select the Eave or Gable to modify. If select an eave, the Modify Eave Description dialog box (below) displays.



4. If you select a gable, the Modify Gable Description dialog box (below) displays.



5. The options are the same as those described in detail in the Roof - Eave and Gable section. You may select new options and enter new values in these dialog boxes. The selected eaves and/or gables are changed to the designated values.

Joiner

SolidBuilder ➡ Roof ➡ Modify ➡ Joiner

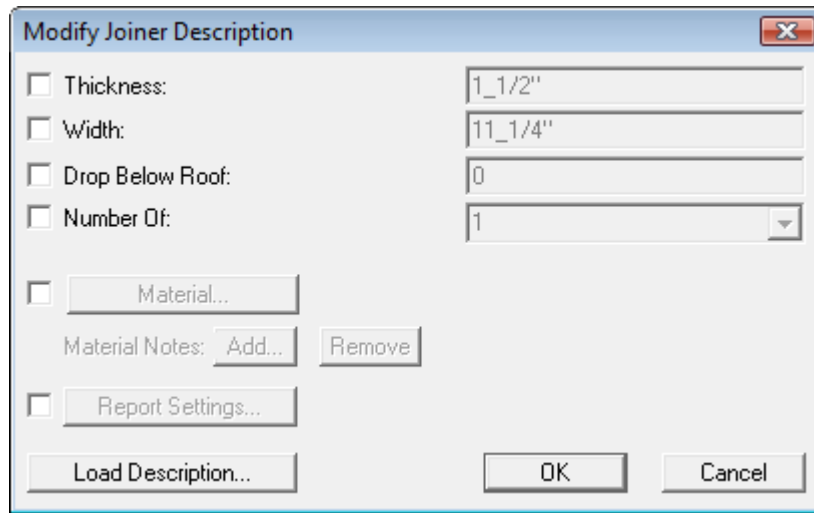
Icon:  

This command allows you to make comprehensive changes to the dimensions, drop distance and work stage of a joiner.

1. Right click on a Joiner and select Modify Joiner (this will allow you to only Modify one

Joiner at a time) or select Edit - Modify from the main drop down menus along the top and select Joiner, or click on the Modify icon and select Joiner.

2. If you selected the Modify icon or the Edit - Modify - Joiner from the drop down menus, you are prompted:
Select a joiner to modify:
3. Select the Joiner (s) to modify. The Modify Joiner dialog box opens.



4. Change any dimensions and options as needed and click on OK.
5. The joiner is generated with the modified values. The system prompts for another joiner to modify. Press Esc to end the command.

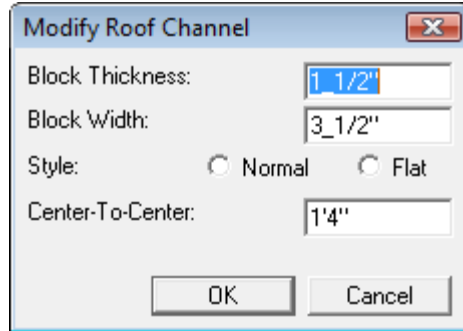
Channel

SolidBuilder ➡ Roof ➡ Modify ➡ Channel

Icon:  

This command allows you to change the thickness, width, style and center to center of existing roof channels.

1. Right click on a Channel Line and select Modify Blocking (this will allow you to only Modify one Channel Line at a time) or select Edit - Modify from the main drop down menus along the top and select Channel, or click on the Modify icon and select Channel.
2. If you selected the Modify icon or the Edit - Modify - Channel from the drop down menus, you are prompted:
Select Channel to modify:
3. Select the channel to modify. The Modify Roof Channel dialog box (below) displays



4. Enter any changes needed and click on OK. Press Esc to exit this command.

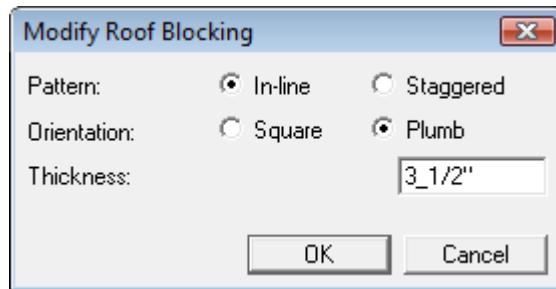
Blocking

SolidBuilder ➔ **Roof** ➔ **Modify** ➔ **Blocking**

Icon:  

This command allows you to change blocking patterns and thickness.

1. The system prompts:
Select blocking to modify
2. Select a line of blocking to modify. The following dialog box displays.



Change the values in the dialog box and press Enter. Press Esc to end this command.

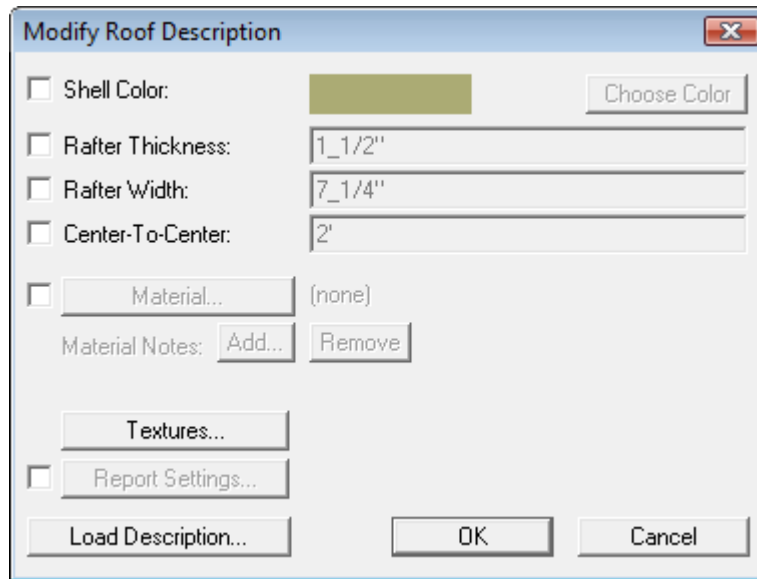
Description

SolidBuilder ➔ **Roof** ➔ **Modify** ➔ **Description**

Icon:  

This command allows you to change the rafter thickness, depth and spacing. You may also modify the framing description of the roof as well as the workstage and level.

1. Right click on a roof edge and select Modify Description (this will allow you to only Modify the Description of one roof at a time) or select Edit - Modify from the main drop down menus along the top and select Description, or click on the Modify icon and select Description.
2. If you selected the Modify icon or the Edit - Modify - Description from the drop down menus, you are prompted:
Select roofs to modify:
3. Select roof to modify. The following dialog box displays.



4. Change the values as needed, click on OK. Press Esc to exit this command.

Layout

SolidBuilder ➡ Roof ➡ Modify ➡ Layout

Icon:  

This command allows you to select multiple roofs to share the same layout point.

1. Right click on a roof edge and select Modify Layout (this will allow you to only Modify the Layout of one roof at a time) or select Edit - Modify from the main drop down menus along the top and select Layout, or click on the Modify icon and select Layout.
2. If you selected the Modify icon or the Edit - Modify - Layout from the drop down menus, you are prompted:
Select roof containing principal layout point
3. After selecting a roof, you are prompted:
Select parallel roof (s) to share layout point or ESCAPE

4. Other parallel roofs are highlighted. Select the roofs to share the layout point. You are prompted:
Enter layout point:
5. Either press Enter to accept the layout point offered by the system or move the cursor to the desired layout point and press Enter. The layout points are aligned. You are prompted:
Select perpendicular roof (s) to align layout or ESCAPE
6. Select perpendicular roofs from the available roofs offered or press Esc to end the command. Other perpendicular roofs are highlighted. Select the roofs to share the layout point. The layout points are aligned and you are prompted:
The layouts were aligned in these perpendicular roof sections; Press a key.
7. The roofs affected are highlighted in dark red. You may select other roofs to align layout points. Press Esc to end the command.

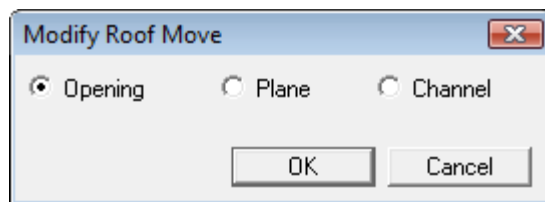
Move

SolidBuilder ➡ Roof ➡ Modify ➡ Move

Icon:  

This command allows you to move Openings, Planes and Channels.

1. Right click on a roof edge and select Modify Move (this will allow you to only Modify the Layout of one roof at a time) or select Edit - Modify from the main drop down menus along the top and select Move, or click on the Modify icon and select Move.
2. If you selected the Modify icon or the Edit - Modify - Move from the drop down menus, the Modify Roof Move dialog box opens.



3. This command allows you to move Openings, Planes and Channels.
4. All three options function exactly the same way. When you select one of the choices, you are prompted:
Select <choice> to move
5. Select the Opening, Plane or Channel to move. You are prompted:
Enter base point
Enter offset point
6. If you want to move the item a known distance, enter a displacement. Openings and

Channels should remain flush with the roof plane, so you should only specify a move to the left or right for them, which is on the x (or y) axis.

7. To mark the move displacement, you must begin by entering a base point. The cursor is positioned on the feature. If you wish to use this point as the base point for moving the feature, simply press Enter. Otherwise, position the cursor at the desired base point and press Enter. Enter the second point and the feature is moved.

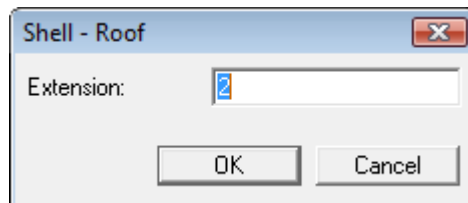
Name

SolidBuilder ➔ **Roof** ➔ **Modify** ➔ **Opening**

Icon:  

This command allows you to review and change the names of one or all of the roofs.

1. Right click on a roof edge and select Modify Name (this will allow you to only Modify the Name of one roof at a time) or select Edit - Modify from the main drop down menus along the top and select Name, or click on the Modify icon and select Name.
2. If you selected the Modify icon or the Edit - Modify - Name from the drop down menus, you are prompted:
Select a roof to rename
3. After selecting a roof, **SolidBuilder** gives you the current name extension (for example roof3, where 3 is the extension) and you are prompted:



4. You have the option of providing 4 characters after the required initial term roof. For example you could rename roof7 to roofback or roof17 or roofred5. First press Backspace to clear the number part of the proposed name. Then type in a four-character name or value. After renaming one roof, you are prompted to select another roof for renaming. Continue or press Esc to return to the Roof menu.

Create Gable End

SolidBuilder ➔ **Roof** ➔ **Modify** ➔ **Create Gable End**

This command is used to quick change a hipped roof into a gable. There isn't an icon for this command; rather it is accessed by right clicking on the hip roof you wish to change into a gabled roof.

The command works on most roofs generated in Building Blocks as well as most basic roof designs. A cut-up roof with multiple plate heights and slopes likely won't accept this command.

Chapter 24
Roofs

Once the desired roof is right clicked one, choose Modify – Create Gable End. SolidBuilder will automatically recreate the roof turning the desired hip into a gable. This command can be ran on as many roofs as necessary. If the roof automatically generated is not the desired roof, it can be modified using standard SolidBuilder tools.



Chapter 25: Stairs

SolidBuilder ➔ Stairs

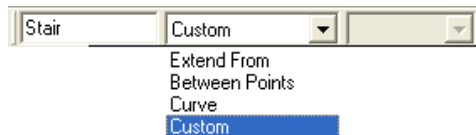
Icon: 

The Stair menu options contain commands for creating and manipulating stairs. Straight, L-shaped, U-shaped and curved runs of stairs can be created, modified and removed. You can change the shape of a stair and move it using the Shape commands. There are four methods of stairs: Extend From, Between Points, Custom and Curved. These selections allow the creation of stairs in reference to a selected elevation, the creation of stairs between two points on two separate elevations and the creation of curved stairs defined by a circle.

Extend From

SolidBuilder ➔ Stairs ➔ Extend From

Icon: 



This command is used to create a run of stairs located at a selected elevation. This command may be used when the stair rise and run determine the specific elevation of a second story floor or a stair landing.



Typically you will create the floor first and then the stairs. To make working with stairs easier, make only the floor that you are using visible and everything else invisible.

- **Options:**

1. Enter values or select options to describe the stairs that you want to create. Reports provides for setting level, work stage and assembly information. The Stair Report Settings for Level, Workstage, Core Assembly, Outside Assembly, and Inside Assembly, remain as entered until changed.

Chapter 25 Stairs

Stair Options

Tread Run: 10" Tread Rise: 7"

Tread Maximum Rise: 8" Tread Minimum Rise: 7"

Bottom Rise Adjustment: 0" Top Rise Adjustment: 0"

Material: ☒ Framed ☐ Concrete

☐ Drop Top Riser

Extend From

Stair Begins At: ☐ Bottom ☒ Top

Number Of Risers: 13

☐ Add Railings Side: None Railing Options...

Framing... Report Settings

Shell Color: Yellow

Elevation: 0

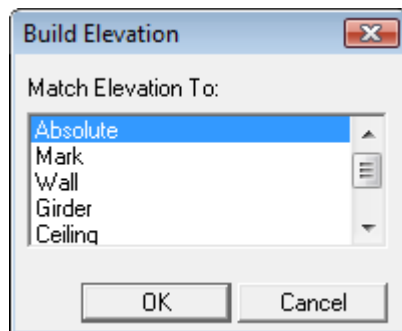
Save Options... Load Options... OK Cancel

- **Tread Run:** the horizontal distance from the face of one riser to the face of the next riser
- **Tread Rise:** the vertical distance from the top of one tread to the top of the next tread
- **Tread Maximum Rise:** maximum rise to be used in calculations
- **Tread Minimum Rise:** minimum rise to be used in calculations
- **Bottom Rise Adjustment:** A positive value in either of the Rise Adjustment fields increases the total stair rise. A negative value decreases the total stair rise. For example: If the stair Tread rise is set to 8", by inserting a value of 1" into the Bottom Rise Adjustment field, the bottom tread has a height of 9".
- **Top Rise Adjustment:** A positive value in either of the Rise Adjustment fields increases the total stair rise. A negative value decreases the total stair rise. For example: If the stair Tread rise is set to 8", by inserting a value of 1" into the Bottom Rise Adjustment field, the bottom tread has a height of 9".
- **Stringer Width:** the width of the lumber used for the stringer.
- **Material:** can be either framed or concrete.
- **Drop Top Riser:** allows for creating a stair so it hangs from the upper floor joist or header. You can drop the top riser instead of entering the riser count minus one from the count indicated on the plans.

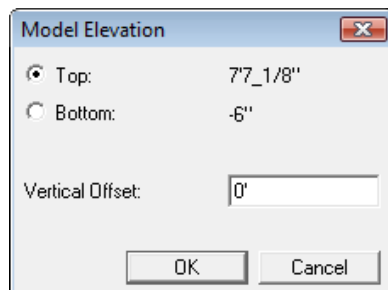
Extend From: this section only applies to the Extend From method.

- **Stair Begins At:** locates the stairs from either the bottom or the top.

- **Number of Risers:** is the total number of risers.
 - **Add Railings:** will automatically create a wall sitting on the treads that can be framed as a railing.
 - **Height:** is the height of the railing above the nose of the tread.
 - **Offset:** when unchecked will place the bottom of the baluster on the tread. When toggled on, the offset distance is the distance from the tread nosing to the bottom of the baluster or bottom plate. Generally when the offset is used the wall setting option is changed to one bottom plate to be used as a shoe rail.
 - **Left Side:** will create a railing on the left side of the stair viewing the stair from the bottom up.
 - **Right Side:** will create a railing on the right side of the stair viewing the stair from the bottom up.
 - **Both Side:** will create a railing on the both sides of the stair viewing the stair.
 - **Railing Options:** allow you to set the baluster width and also allow you to access the Stair Settings button. In Stair Settings you can set the thickness of the baluster, the on center spacing of the balusters and the number of plates for the handrail and or shoe rail. You will also want to set the number of Bottom Step Studs to 0.
 - Report allows you to set the level, workstage and assemblies for the railing.
1. Click on the Elevation icon to set the elevation. The Build Elevation dialog box opens.



2. Select Floor the proper floor. If you selected Stair Begins at top, select the top floor or if you selected Stair Begins at Bottom, select the bottom floor.



3. Select either the top or bottom shell elevation to reference. You may also enter an offset from that elevation. After the elevation has been selected, click on OK. You are prompted:

Mark first corner of stair start point



The key to inserting stairs that run in the correct direction is to have the drawing in plan view. Imagine yourself standing at the top of the stairs walking down. The end point of stair End 1 is on your left side going down.

4. With the model in Plan view  position the cursor and either click the left mouse button or press Enter. This marks either the right or left side of the stair width. You are prompted:

Mark second point for width of stairs

5. Move the cursor along the stair tread direction and mark a point in the same manner as above. The stair width displays on the lower message line and you are prompted:

Indicate the UP direction of the stair:

6. Move the cursor in the up direction and click the left mouse button or press Enter. The stairs are drawn.

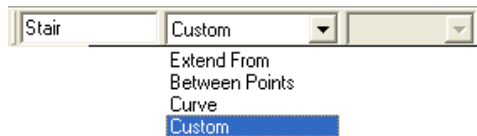


The up direction can be confusing. You move the crosshair in the direction (in plan view) that the stairs increase in height. For example, if your stair is running left to right on the screen and you start the stair from top and on the left side, then you move the crosshair to the left, because moving from right to left, the stair ascends.

Between Points

SolidBuilder ➡ Stairs ➡ Between Points

Icon: 



Between Points is used to create a run of stairs between two elevations by marking the start and stop points for the stair. The system calculates several tread rise and run combinations for the indicated stair run and displays them for your selection. This command is used to create stairs that run between selected elevations when the stair run is known.

You must first have the two floors created.

1. Before you start the Between Points command, place the model in a 3D isometric view



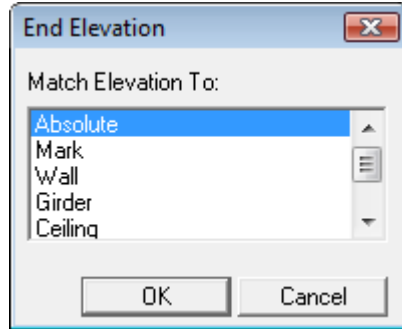
and click on the Elevation icon .

You are prompted.
Build Elevation Dialog Box

2. Select Floor. You are prompted:

Select floor for elevation:

3. Select the top of the floor and toggle on Top.
4. Click on the Stair icon. The End Elevation dialog box (below) displays.



5. Select Floor. You are prompted:
Select Floor for elevation:
6. Select the bottom floor. This is the elevation of the bottom of the stairs. Remember, before we started this command, we set the top elevation to the top of the top floor.
7. The stair options for Between Points are the same as those for Extend From. After you have selected options and entered the desired values, click on OK or press Enter. You are prompted:
Mark first corner of stairs start point



The key to inserting stairs that run in the correct direction is to have the drawing in plan view. Imagine yourself standing at the top of the stairs walking down. The end point of stair End 1 is on your left side going down.

8. It is helpful in locating the stair End points to have the model in Plan view. Move the cursor to the location of the origin of the stairs and click the left mouse button or press Enter to mark the left side of the stair width. You are prompted:
Mark second point for the width of the stairs
9. Move the cursor across the stair width and mark a point in the same manner as above. The stair width displays on the message line. This is the distance measured across the stair tread. You are prompted:
Mark or enter the total run
10. Move the cursor to the location of the other end of the stair run and click the left mouse button or press Enter. This location is usually at a floor rim joist and distance determines the rise/run ratio. The rise/run ratio displays on the message line.
11. Be sure that the maximum and minimum tread rise values set in the Stairs options is set to your particular maximum and minimum values. Depending upon what values are set for the differential between maximum and minimum tread rise.
12. If the riser minimum and maximum tread rise values are set to a close tolerance (7 and 8 inches, respectively), the Riser choice dialog box rarely displays more than a single Riser

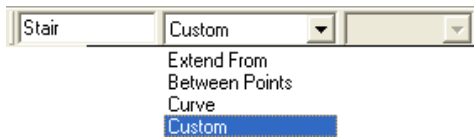
choice. Select a Riser choice from the selections available and click on OK. If none of the choices are within the acceptable values, click on Cancel and restart the command. You may have to adjust the overall stair run to obtain an optimal tread rise/run ratio.

13. The stairs are created with the selected tread rise and run. The total stair rise and run, the rise/run ratio (in parentheses), the number of risers, the tread rise and the tread run are displayed on the message line.

Curve

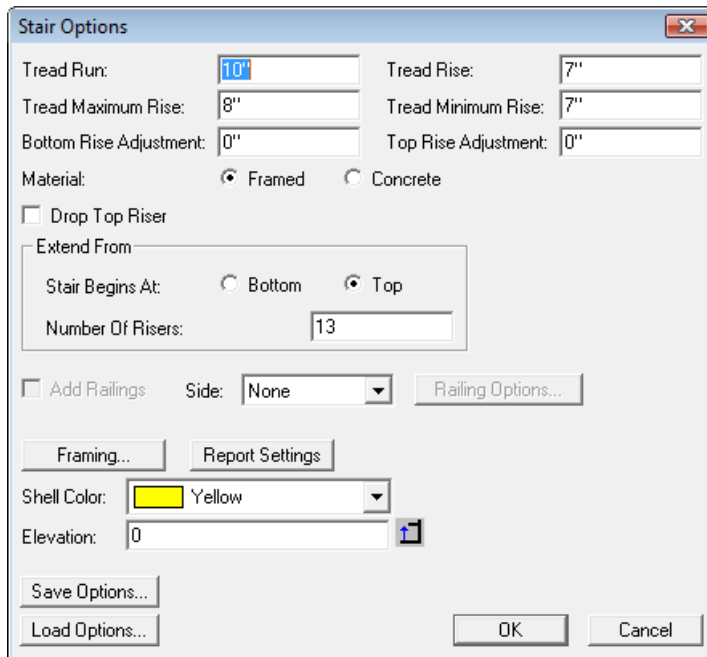
SolidBuilder ➔ **Stairs** ➔ **Curve**

Icon: 

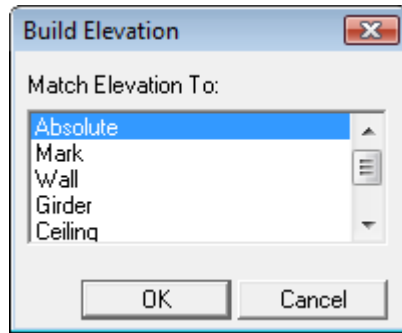


Curve is used to create a run of stairs that is curved around a designated radius. It is used to create circular and curved stairs that curve to the right or the left. Curved stairs are created between two elevations by marking the start and stop points for the stair. As in Between Points, the system calculates the tread rise and run combinations for the indicated stair run, and display them for your selection.

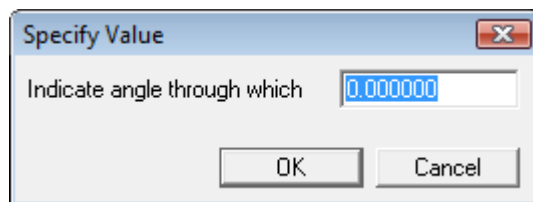
The dialog box options are the same as those for Extend From. Please see this section for descriptions of the dialog box options.

A screenshot of the 'Stair Options' dialog box. The 'Tread Run' is set to 10', 'Tread Rise' to 7", 'Tread Maximum Rise' to 8", 'Tread Minimum Rise' to 7", 'Bottom Rise Adjustment' to 0", and 'Top Rise Adjustment' to 0". The 'Material' is set to 'Framed'. The 'Drop Top Riser' checkbox is unchecked. The 'Extend From' section is expanded, showing 'Stair Begins At' set to 'Top' and 'Number Of Risers' set to 13. The 'Add Railings' checkbox is unchecked, and 'Side' is set to 'None'. There are buttons for 'Framing...', 'Report Settings', 'Railing Options...', 'Save Options...', 'Load Options...', 'OK', and 'Cancel'. The 'Shell Color' is set to 'Yellow' and 'Elevation' is set to 0.

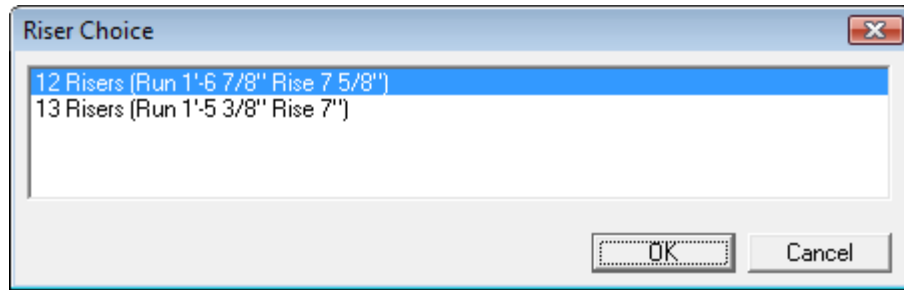
1. Curved stairs are created similar to stairs Extend From. Make sure the Elevation is set to the top of the lower floor. After you have selected options and entered the desired values, click on OK or press Enter. When you select Curve, the End Elevation dialog box opens.



2. Select Floor. Select the top floor and the top of it. Curve stairs start elevation must be the top floor. This is the elevation of the bottom of the stairs. Remember that before we started this command we set the bottom elevation to the top of the bottom floor. Click on OK. You are prompted:
Mark the start point of 1st riser point
3. It is helpful in locating the stair End points to have the model in Plan view. Move the cursor to the location of the origin of the stairs and click the left mouse button or press Enter to mark either the right or left side of the stair width. You are prompted:
Mark the end point of 1st riser point
4. Move the cursor across the stair width and mark a point in the same manner as above. The stair width displays on the message line. This is the distance measured across the stair tread. You are prompted:
Indicate the center of the circle:
5. Move the cursor parallel to the line you just drew, away from one or the other end of the line. The distance from the end of the line to this new point is the inside radius of the circle of the stair. The minimum distance that you can enter from the radius center to the edge of the stair is 3/4". When the cursor is at the desired distance, click the left mouse button or press Enter. You are prompted:
Indicate the UP direction of the stair
6. Move the cursor at right angles from the line you have drawn and click the left mouse button or press Enter. The direction from this line indicates the up direction; the direction the stair is created on one or the other side of the tread and radius line. The Special Value dialog box (below) displays.



7. Type in a value for the angle and click on OK. This is the total radius that defines the stairs from start of first tread to end of last tread. The rise/run ratio displays on the message line and the Riser Choice dialog box (below) displays the number of risers.

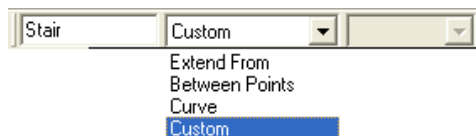


8. Be sure that the maximum and minimum tread rise values set in the Stairs section of Floor/stair Standards are set to your particular maximum and minimum values.
9. If the Riser minimum and maximum tread rise values are set to a close tolerance (7 and 8 inches, respectively), the Riser Choice dialog box rarely displays more than a single Riser choice. Select a Riser choice from the selections available and click on OK. If none of the choices are within the acceptable values, click on Cancel and restart the command. You may have to adjust the overall stair run to obtain an optimal tread rise/run ratio. The stairs are created with the selected tread rise and run, to the indicated angle and pivoted around the indicated radius. The total stair rise and run, the rise/run ratio (in parentheses), the number of risers, the tread rise and tread run, are displayed on the message line.

Custom

SolidBuilder ➡ Stairs ➡ Custom

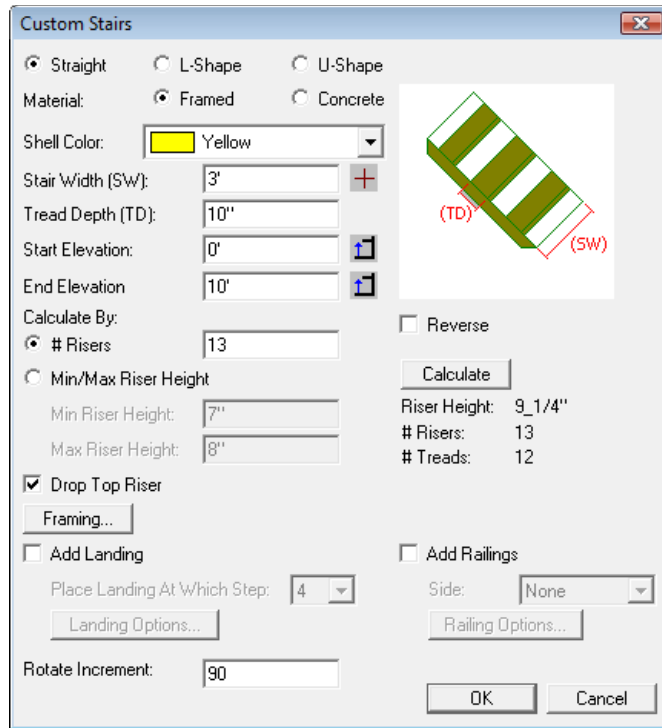
Icon: 



Custom stairs combines the best of Between Points and Extend From along with many more features. It is the most flexible and comprehensive of the stair types. You can create straight, L-shaped or U-shaped Stars with or without landings and/or railings. Custom stairs also allow you specify all of the component sizes and material and framing options. You specify and include in the estimate stringer materials, tread and riser materials, baluster and railing materials as well as framing material and options for landings.

The Custom Stair dialog box appears below.

Chapter 25 Stairs



- **Straight:** will create a straight set of stairs.
- **L-Shape:** will create a L-Shape set of stairs when used with a landing.
- **U-Shape:** will create a U-Shaped set of stairs when used with a landing.
- **Material:** You can create either Framed or Concrete stairs.
- **Stair Width:** is the width or the sided to side measurement of the stair.
- **Tread Width:** is the depth of the tread (front to back measurement)
- **Start Elevation:** is typically the elevation for the bottom of the stair. Click on the Elevation icon and set the elevation to the top of the bottom floor.
- **End Elevation:** is typically the elevation for the top of the stair. Click on the elevation icon and set the elevation to the top of the top floor. You can create the stair starting at the top. Once the stair is place in the model right mouse click and set the base point to the top of the stairs.
- **Calculate By:** allows you to either specify the number of risers or enter a min/max height for the riser
 - **#Risers:** enter the total number of risers desired. Hit the Calculated button and the calculated Riser Height will be displayed.
 - **Min/Max Riser Height:** enter a minimum and a maximum riser height (many use code minimums and maximums). Hit the Calculate button. A window will open displaying the possible choices. Select one and hit OK. The greater the spread between the minimum and maximum riser height, the more choices will be listed.

- **Reverse:** will reverse the side used for inserting the stair. By default if Reverse is unchecked the stairs are inserted by the lower left direction the stairs are inserted.
- **Drop Top Riser:** starts the first riser on the stair one riser height down.
- **Framing:** allows you set the framing options for the stairs.
- **Add Landing:** when toggled on, allows you set the step at which to place the landing and set the framing options for the landing.
- **Add Railings:** When toggled on allows you to create railings on one or both sides and set the railing options. The Offset in the Railing options is used to set the height of the bottom rail above the tread nosing.
- **Rotate Increment:** determines the angle the stairs can be rotated once inserted.

Once you have the settings enter and hit OK, the stairs appear on the screen. You are prompted to Enter offset point. The stairs by default are inserted by the lower left corner of the left stringer. If you selected Reverse in the Stair Options, the stair is inserted by the lower right corner of the right stringer. You can reset the insertion point by right mouse clicking at this point and selecting Reset Base Point from the menu. Place the model in an isometric view and using the E endpoint jump command pick the desired insertion point. You are then prompted to enter the offset point, pick the desired location and left click. You are prompted to Rotate Stairs using the arrow keys or enter.

Remove

SolidBuilder ➡ Stairs ➡ Remove

Icon:  

1. Right click on the Stair and select Remove, or select the Remove icon.
2. Select the Stair to remove, right mouse click and select Finished. Select Yes or No to remove the selected Stair.

Shape Move

SolidBuilder ➡ Stairs ➡ Shape ➡ Move

Icon:  

This command is used to move stairs. Stairs may be moved in any direction.

1. Right click on a Stair and select Move (this will allow you to only Move one Stair at a time) or select Edit -Shape from the main drop down menus along the top and select Move, or click on the Shape icon and select Move.
2. If you selected the Shape icon or Edit - Shape - Move from the drop down menus, you

will be prompted to select Stair to move.

3. Select stair to move, and press Enter. You are prompted:
Enter base point
4. The cursor is located at the lower left outer face of the stair. Either press Enter to select this as the base point for the move or move the cursor to a more convenient location to specify the distance and direction for the move. Press Enter and you are prompted:
Enter offset point
5. After moving the cursor and pressing Enter and thus entering the move distance, the stair is moved the indicated distance and direction. Press Esc to exit the command.

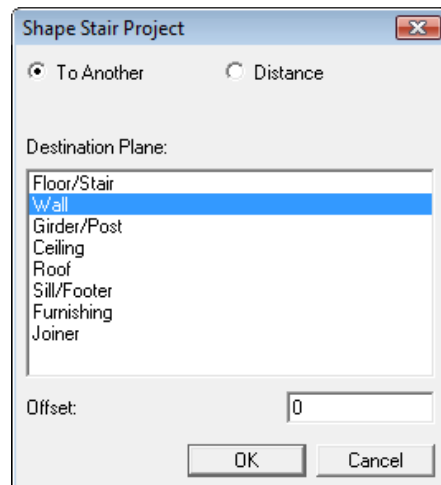
Shape Project

SolidBuilder ➡ Stairs ➡ Shape ➡ Project

Icon:  

This command allows you to project a stair face to another stairs, wall, girder, etc. or a specified distance.

1. Right click on a Stair and select Project (this will allow you to only Project one Stair at a time) or select Edit -Shape from the main drop down menus along the top and select Project, or click on the Shape icon and select Project.
2. If you selected the Shape icon or Edit - Shape - Project from the drop down menus, the Stair Project dialog box opens.



- **To Another**
 1. Select the shell type, which contains the desired destination plane. You may indicate an offset distance from the selected shell type. A positive offset value projects the face to a distance beyond or above the destination plane; a negative value projects the face to a distance before or below the destination plane.

2. When you have selected a shell type, press Enter. You are prompted:
Select <shell> to project to
 3. Use the right arrow or left arrow key to select to the shell that contains the desired plane. Press Enter to select the shell. You are prompted:
Select face to project to
 4. Highlight the face that defines the destination plane and press Enter. You are prompted:
Select stair to project or trim
 5. Select a stair to project. You are prompted:
Indicate the face to project
 6. Use the right arrow or left arrow key to select the desired face. Press Enter. The stair face is projected to the selected shell face.
- **Distance**
 1. If you select Distance, enter the desired distance to project. Click on OK and you are prompted:
Select stair to project or trim
 2. Use the left arrow or right arrow key to select the stair to be projected and press Enter. You are prompted:
Indicate the face to project
 3. Use the left arrow or right arrow key to select the face. Press Enter.
 4. The stair face is projected the indicated distance.

Modify Description

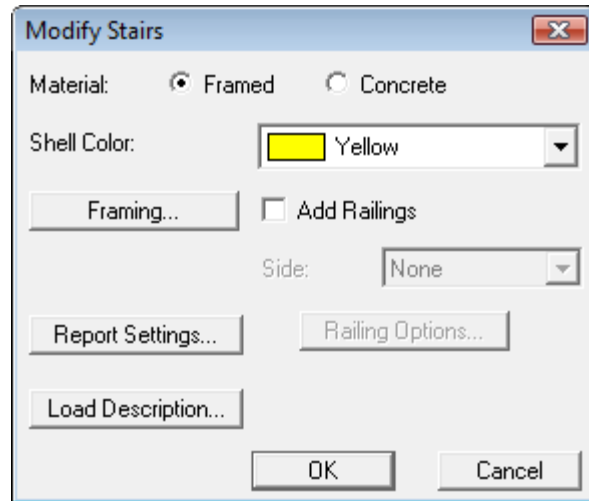
SolidBuilder ➡ Stairs ➡ Modify ➡

Icon:  

This command allows you to modify the framing, railings and materials of a stair.

1. Right click on a Stair and select Modify (this will allow you to only Modify one Stair at a time) or select Edit -Modify from the main drop down menus along the top, or click on the Modify icon.
2. If you selected the Modify icon or Edit - Modify from the drop down menus, you are prompted to select a stair to modify.
3. Select the stair to modify. The Modify Stair dialog box opens.

Chapter 25
Stairs



4. Make changes as need. Re-frame if necessary.



Chapter 26: Symbols

SolidBuilder ➔ Symbols

Icon: 

One of **SolidBuilder's** most valuable features is the large set of unique and attractive symbols provided with the program. A symbol is a pre-made model component that can be placed directly into the model without using drawing commands. This capability allows more rapid development of 3-D models that are realistic and easy for a client to see. Symbols can also be placed in 2-D drawings, which simplify the process of generating accurate sections, floor plans and elevations.

Symbol Types

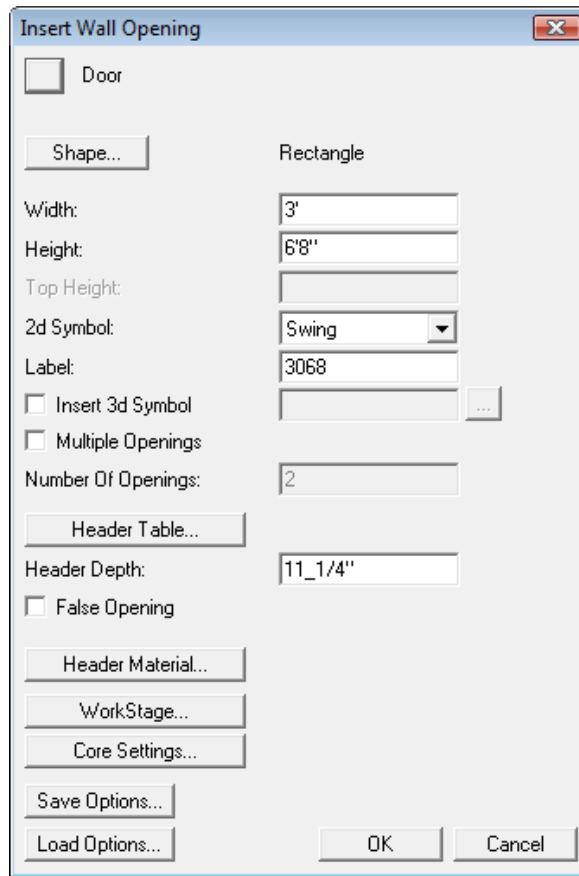
SolidBuilder ➔ Symbols

Icon: 

SolidBuilder provides three types of symbols: Plan symbols, Furnishing symbols, Landscaping symbols and Opening Trim symbols.

1. **Plan Symbols:** Plan symbols are 2D symbols typically placed on a floor plan generated in the Working Drawing mode. These symbols are available from the PLANSYM library, which is part of **SolidBuilder**. You may also create your own plan symbols using the Working Drawing Linework commands and saving the symbol to a library.

A special subset of plan symbols are automatically created, that is, they are not symbols in a plan library but are generated as required. These special symbols are limited to Plan opening symbols (for doors and windows) on plans created in the Working Drawing mode. The actual Plan symbol that is inserted into an opening is selected at the time that a door or window is inserted into the model using the Wall Insert Opening command as shown below.



The Plan symbols for doors are: none, bifold, dcafe, dpocket, dslide, dswing, dswing45, garage, pair, pair45 and sbifold. The plan symbols for windows are none, wfixed, wgenerc, wslide, bow and bay. These symbols cannot be deleted or modified.

These special symbols can be inserted automatically onto a floor plan created from the model using the Working Drawing - Insert - Symbols - Auto Openings command.

SolidBuilder analyzes the model and determines which symbols were selected at the time the opening was created; these symbols are then placed on the working drawing. You may also insert Plan symbols individually by using the Working drawing Insert symbols One-by-one command.

2. **Furnishing Symbols:** Furnishing symbols are solid symbols that include furniture, cabinets, appliances, plumbing fixtures, electrical fixtures and HVAC units and are inserted in the Model Mode. **SolidBuilder** provides hundreds of such symbols as part of the program, organized by library and category. These symbols are easily placed using the Symbols - Insert - Furnishing command. Once a furnishing is placed in the model from a Furnishing Symbol library, it can be shaped using commands available in the Symbols Shape menu.

The Symbols Shape menu allows you to join, trim or otherwise modify the Furnishing symbol to easily obtain the desired shape

The symbols library now includes a recently used symbols category for easy retrieval of the symbols that you use most

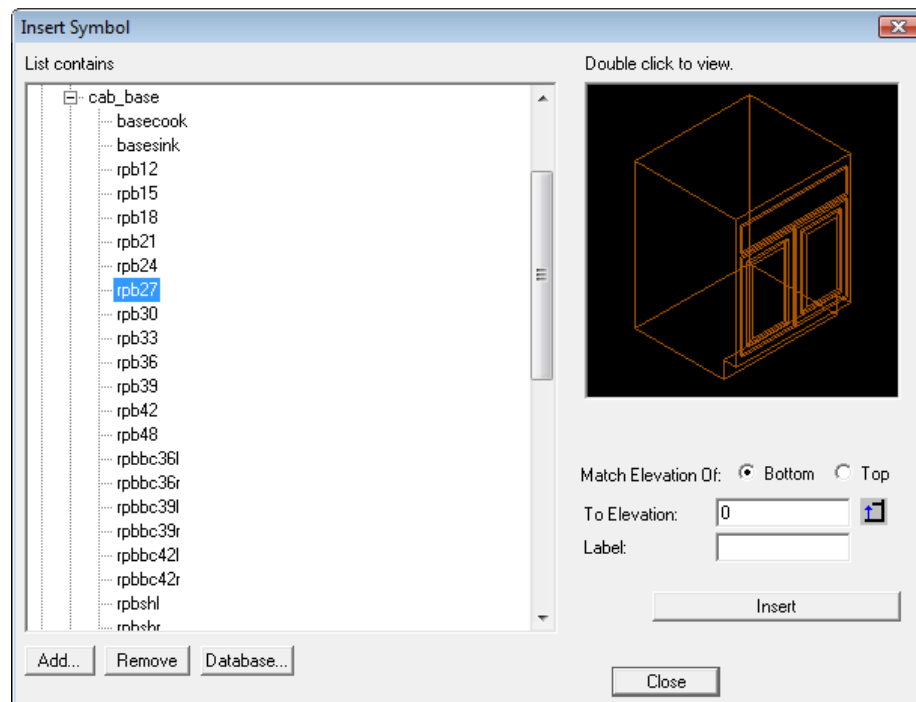
3. **Landscaping Item:** Landscaping items are used to add landscaping to your model. These symbols can be inserted anywhere in your model and will rotate with your model so that you can always see your trees, shrubs, bushes, etc.
4. **Opening/Trim Symbols:** Opening/trim symbols are used to represent doors and windows as well as trim for these openings and are inserted in the Model mode. These symbols can only be inserted into or around wall openings. There are several libraries of such symbols including plain and paneled doors and windows with and without grilles. These symbols cannot be shaped after they are placed. Once you have selected the desired symbol, you can double click on the preview window to view

Symbol Viewer

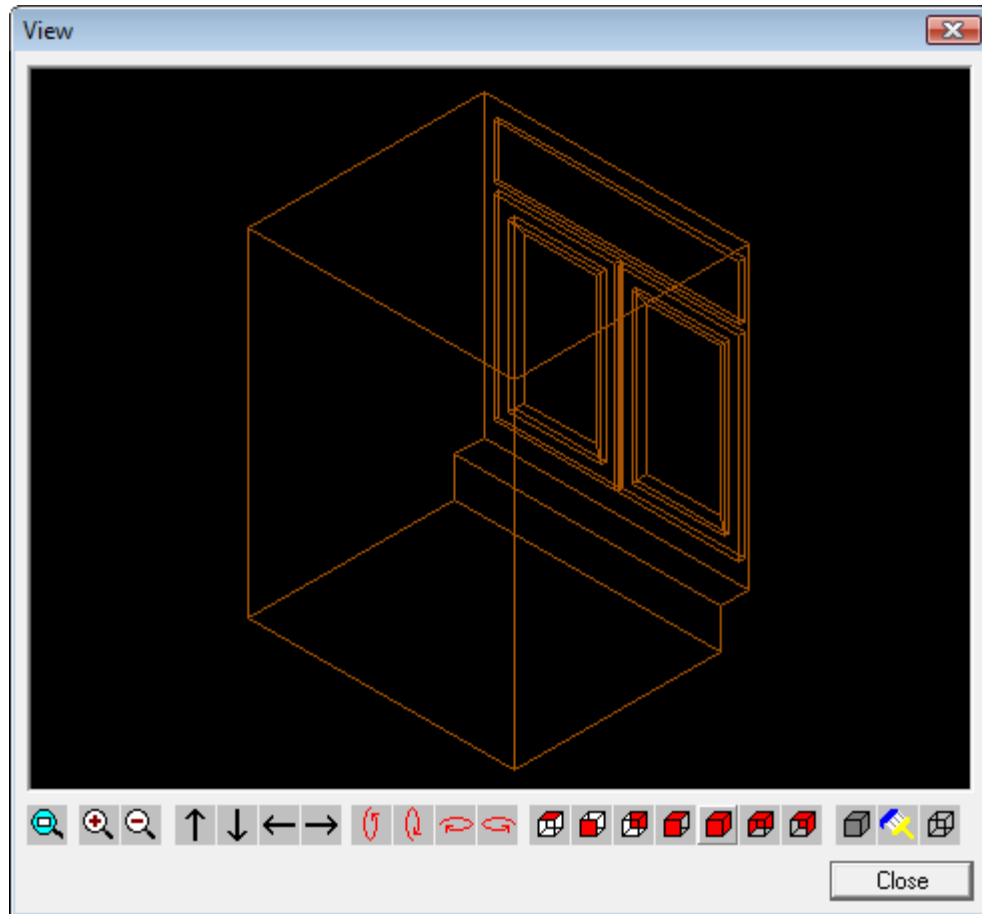
SolidBuilder ➡ **Symbols** ➡ **Insert**

Icon: 

The Symbol Viewer allows you to select symbols from Libraries and subsequent categories and insert them in the model. A preview of the selected symbol is displayed in the right window.

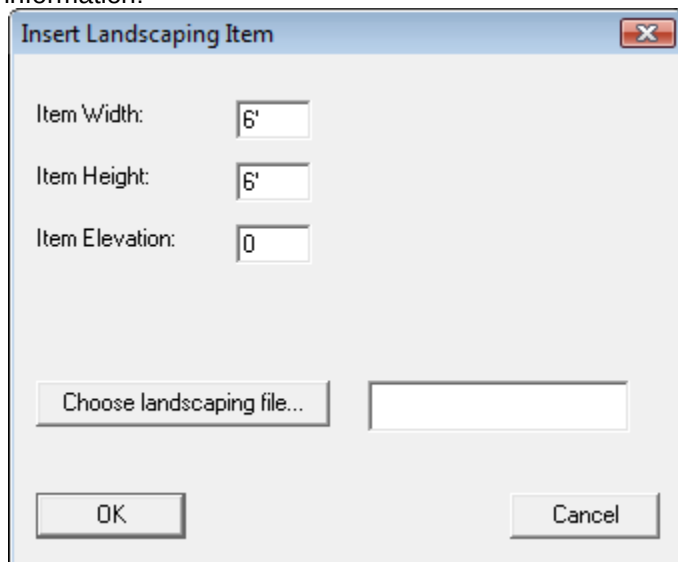


Once you have selected the desired symbol, you can double click on the preview window to view.



Many of **SolidBuilder's** view commands are available. You can zoom, pan, rotate, and select view and paint. To return to the Insert Symbol dialog box, click on Close.

When choosing to insert a landscaping item you will first get a dialog box prompting you for some information:



- Item Width**- This allows you to choose the width of the particular landscaping item you are going to choose
- Item Height**- This allows you to choose the height of the particular landscaping item you are going to choose
- Item Elevation**- This allows you to choose the elevation in the model of the particular landscaping item you are going to choose
- Choose Landscaping File**- This allows you to choose the landscaping symbol that you would like to place in your model

Symbol Organization

SolidBuilder ➡ **Symbols** ➡

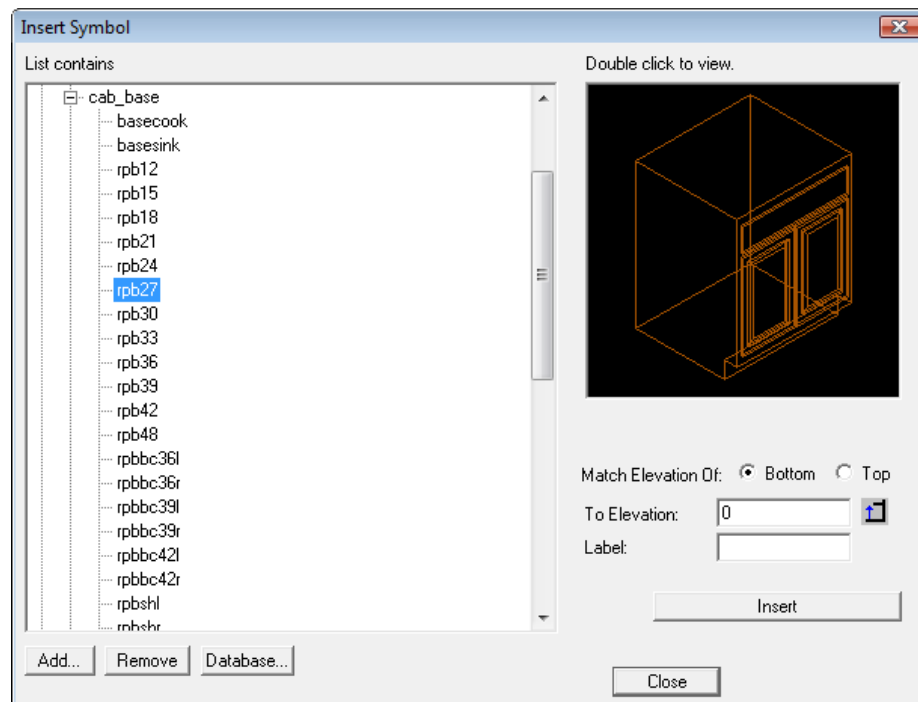
Icon: 

- **Symbol Libraries**

Libraries organize all symbols. Each symbol library entry includes the Symbol Name, the Location Option, the Symbol Type (plan, opening/trim or furnishing), the Category (from the list of options in the Symbols Category list) and a Default Assembly. This library format is detailed in the Database portion of the manual. Only symbols of the same Symbol type should be included in any one library.

Each time a symbol is created, it must be placed in a library. The command sequence that saves a symbol into a library is as follows.

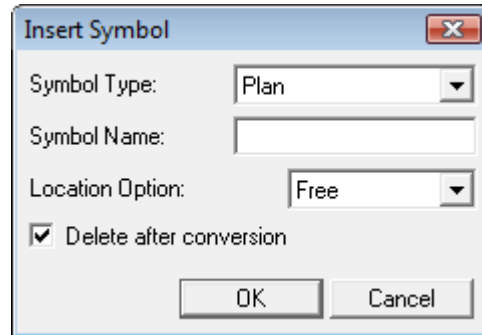
1. For 3D symbols in the Model mode: Select Symbol - Insert - Furnishing or Opening.



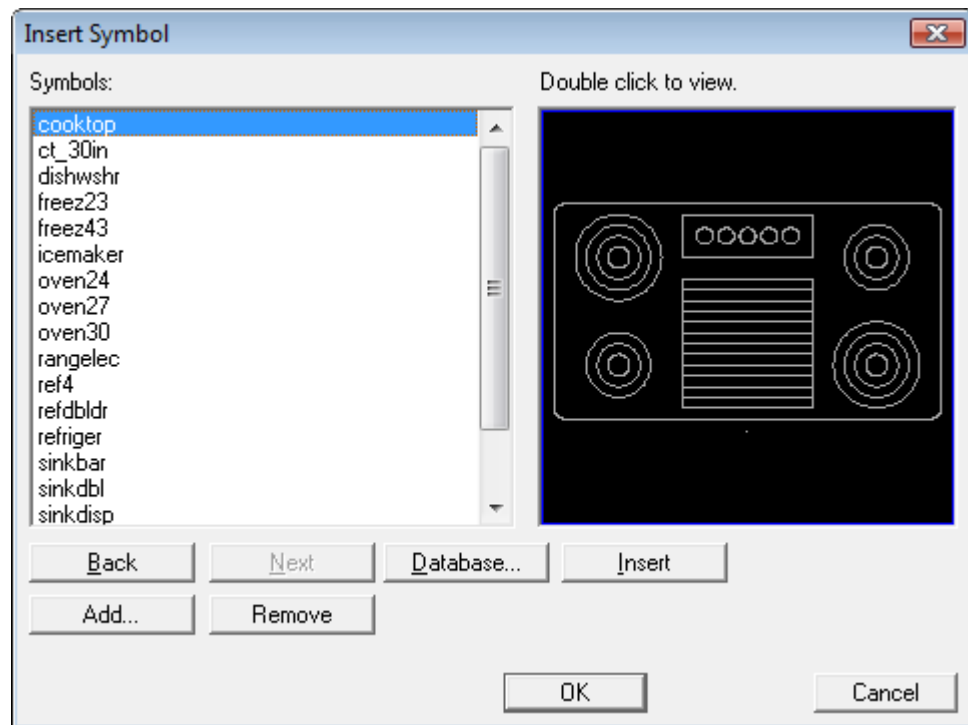
2. Select the appropriate Symbol Library by clicking on the + sign. Select the

Chapter 26
Symbols

appropriate Symbol Category by clicking on the + sign. Click on the Add button. The Insert Symbol dialog box (below) displays.



1. For 2D Plan Symbols in the Working Drawing Mode: Select Symbol - Insert - One by One. The Insert Symbol dialog box opens.

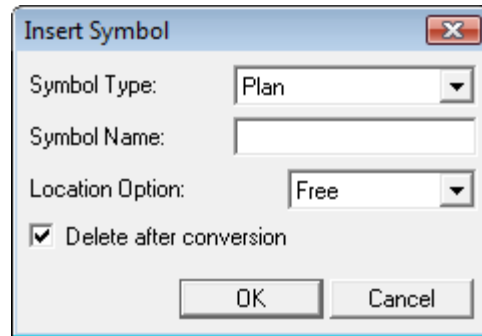


2. Select the Plan Symbol Category. Click on Next. Click on the Add button. The Insert Symbol-Add dialog box above opens.

- **Symbol Categories:**

Symbols are organized by categories within the libraries. This provides a way to organize a large number of symbols by libraries and then by categories within the libraries. Use the Database symbols Categories command to display or add to the list of symbol categories.

The following dialog box is displayed when saving a Plan or Opening/trim symbol.



Note that this dialog box lets you:

1. Select a library that contains the symbol.
2. Specify the symbol's name.
3. Select a location option for the symbol.

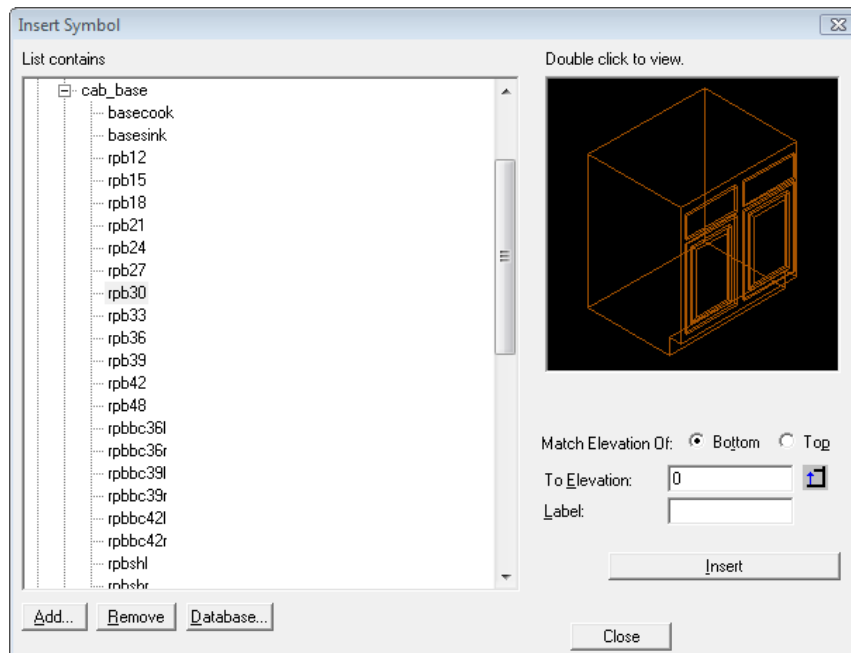
The Library and Location options serve to organize the symbols for ease of selection and placement.

Symbol - Database

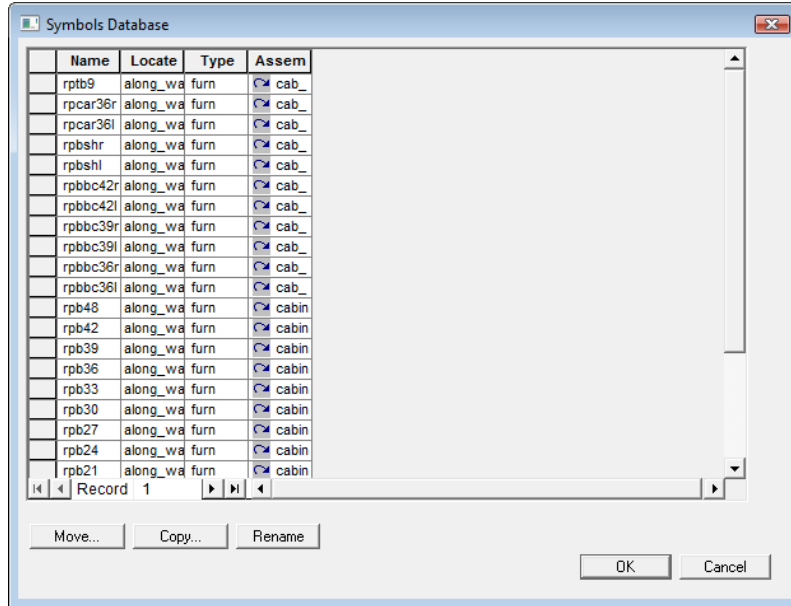
SolidBuilder ➔ **Symbols** ➔ **Database**

Icon: 

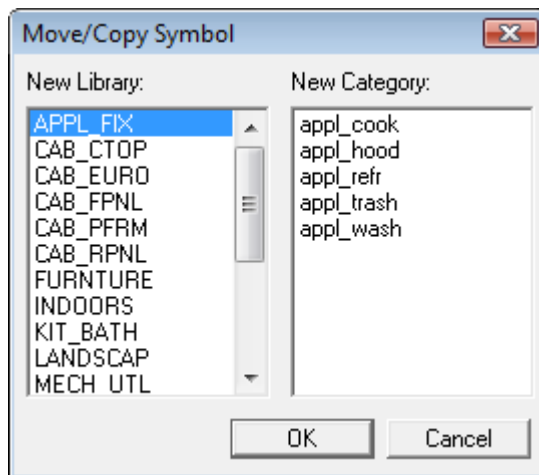
Selecting Symbol -Insert - Furnishing or One Opening/Trim from the main dropdown menus along the top accesses the Symbols Database. Next select a Symbol Library. Then select a Symbol Category by clicking on the Database button.



Chapter 26 Symbols



- **Name:** You are not allowed to change the name of a symbol here. You must use the Rename command explained later.
- **Locate:** You may change the Location of a symbol by clicking on the Locate cell for the particular symbol and select from the drop list.
- **Type:** You are not allowed to change the Type, as this is set when the symbol is created.
- **Assembly:** You can attach an assembly to the symbol by clicking on the curved arrow. This opens the Assemblies Database. Select the assembly to attach. This command is used to assign assemblies to symbols categories. The Symbol database is used to connect assemblies to symbol types, not shells or sides.
- **Move:** This command allows you to move symbols from one library to another. Select the desired symbol from the Symbol Database and highlight it. When you click on the Move button, the Move/Copy Symbol dialog box (below) displays.



Select symbol from the New library and the New Category. The selected symbols are moved from the source library to the destination library. You are prompted to repeat the command sequence. Press Esc to exit the command.

- **Copy:** This command is similar to the command described above. Refer to it for steps. This command allows you to copy symbols from one library to another.
- **Rename:** This command allows you to rename a symbol in a library

Symbol Location

SolidBuilder ➡ Symbols ➡ Location

Icon: 

SolidBuilder provides a powerful and easy to use method of placing the symbols. Symbols by their nature, are associated with different types of shells and location options. Window and door symbols are placed in openings located in walls. Furnishings are typically placed somewhere on a floor at a distance from a wall. Other symbols, such as cabinets, are normally placed along a wall.

To facilitate symbol placement, each Symbol type also has a set of Location options associated with it. The location options are set in the Symbols Database. These location options function for the different symbol types as follows.

- **Plan Symbol Options:**
All Plan symbols for door and window openings on plan drawings are automatically created to fit the door or window opening and they cannot be exhibited or modified by the user. All other Plan symbols can be modified using commands available in the Working Drawing Create Symbols Plan menu and exhibited using the Exhibit command in the same menu.

Along Wall: You may place a Plan symbol along any wall on a plan drawing. You are allowed to move the symbol both along the wall and a distance from the wall.

Offset Wall: You may place a Plan symbol along any wall on a plan drawing. You are allowed to specify the offset from the wall. This is especially useful for toilet and tub symbols.

Free: You may place a Plan symbol on a plan drawing at any location.

- **Furnishing Symbol Options:**

All Furnishing symbols are placed in the model at a specific location and at a specific elevation indicated by the user and are set in the Symbols Database.

Along Wall: You are prompted to select an elevation in a similar way that you select elevations when creating the model. The symbol is placed in reference to a wall. You are prompted to insert the symbol in relation to the wall.

Offset Wall: You may place a Plan symbol along any wall on a plan drawing. You are allowed to specify the offset from the wall. This is especially useful for toilet and tub symbols.

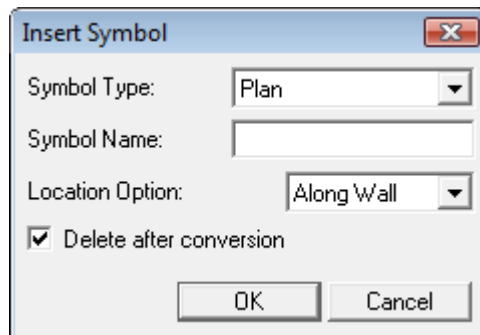
Free: You are prompted to select an elevation in a similar way that you select elevations when creating the model. Once you have selected an elevation, you position the symbol with reference to an elevation in the model.



If you are trying to place a symbol away from a wall and **SolidBuilder** keeps moving it to the nearest wall, check the location option of that symbol and change it to Free.

- **Opening/Trim Symbol Options:**

Most Opening/trim symbols are placed on or around windows and doors and are set at the time the symbol is created.

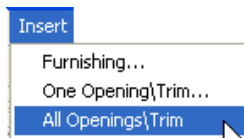


The symbol is scaled to fit the opening.

Insert - Furnishing

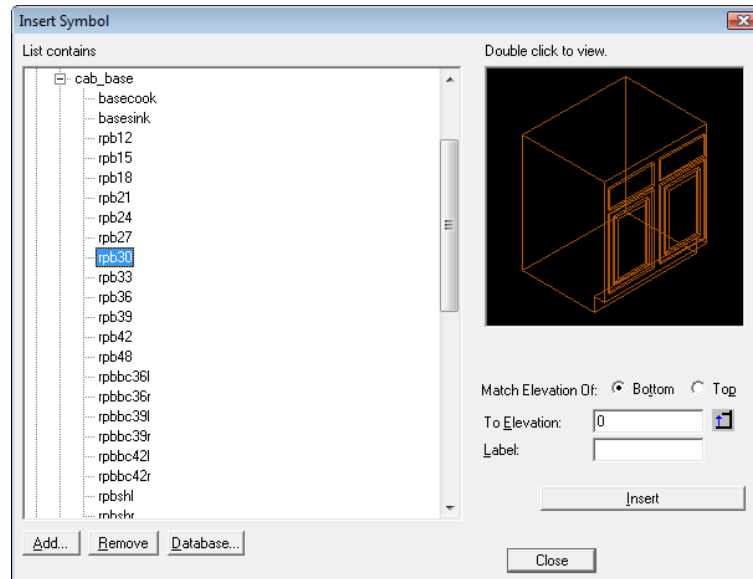
SolidBuilder ➡ **Symbols** ➡ **Insert** ➡ **Furnishings**

Icon:



The Insert menu includes options for inserting both Furnishing symbols and Opening/trim symbols from libraries. After selecting Insert - Furnishing, the Insert Symbol dialog box (below)

displays.



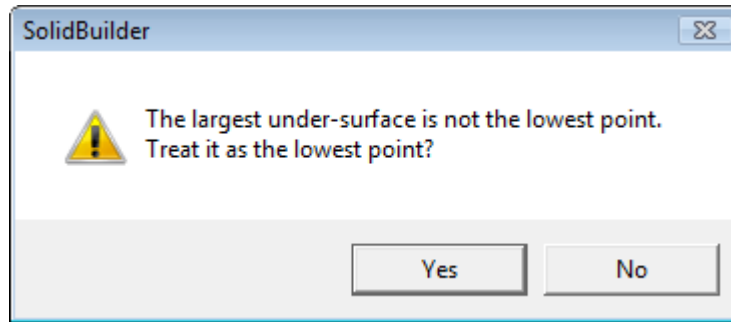
- **Match Elevation To:** Turn the Bottom radio button on if you want to insert the symbol by referring to its bottom face. This is appropriate when inserting symbols that are located on the top of a floor (such as furniture or lower cabinets) or another shell. Turn the Top radio button on when you want to insert a symbol and refer to its top face. This is appropriate when inserting symbols that are located at the bottom of a ceiling (such as uppers or hanging kitchen cabinets) or another shell.
- **Auto Measure:** After you have selected a library, a category and finally an individual symbol, you may toggle on the Auto Measure option. This allows you to get a measurement between two points.
- **Add:** This button allows you to add new Symbol Libraries, Categories and individual symbols.
- **Remove:** This button allows you to remove Symbol Libraries, Categories and individual symbols.
- **Elevation icon:** This icon set's the elevation to the appropriate shell. For base cabinets and other furnishings such as appliances, you may choose either the top of a floor or the bottom of a wall since they both represent the same elevation height.
- **Label:** Enter a Label for the furnishing. This will be inserted in the Working Drawings using the Label Symbol toggle in the Label command.



Be very careful when using the remove command as it permanently removes the selected library, category or symbol and you will have to copy the symbol library from the backup file.

1. Select the desired symbol and click on Insert. You are prompted:
Mark location of (symbol name)
2. Select a starting point for the run. You are prompted:
Mark end point for auto-measure

3. Select the end point. You are prompted:
Mark location of (symbol name)
4. Select the location for the symbol. The along-wall distance from the specified point to the furnishing symbol being placed is continuously displayed on the message line.
5. Whether you choose auto measure or not, the inserting of symbols is the same.
6. Select Plan View . This view enables you to move the cursor and select an appropriate location for the symbol. Use the cursor to mark the location and click the left mouse button or press Enter. You may see the following dialog box.



7. This dialog box typically displays if the Furnishing symbol either has legs or its bottom surface is relatively small compared to another surface that should be used to locate the symbol. Click on No if you want the Furnishing symbol to be located with its “legs” on top of the selected shell. Click Yes if you want the Furnishing symbol to be located with its “drain” lower than the top surface of a selected cabinet or counter top Furnishing symbol.



When placing sinks and lavatories, set the elevation to the top of the cabinet or counter top and Insert the symbol by Bottom. When asked if you want to treat the largest under-surface as lowest point, select yes. This places the bottom of the sink or lavatory rim at the top of the cabinet or counter top.

8. If a symbol is a free symbol, then the command is complete after the location is marked. The Furnishing symbol is inserted and the Insert Symbol box displays again.
9. If the Furnishing symbol is positioned with the along wall location option, is inserted at the closest wall and the following prompt displays.
ENTER-accept; ESCAPE-erase; Arrows-half width shift; R-Reverse Ctrl-R/L to move off-
10. You can adjust the placement of the symbol at this point. The arrow keys move the symbol half its width. The control-right and left arrow key combination (Ctrl-R/L) moves the symbol away from and back toward the wall the off-wall distance. You can double or halve the off-wall distance by pressing the Insert or Delete keys. Pressing the R key reverses the symbol, so that, for example, a right-handled refrigerator becomes a left-handled one. If you have designated an end point for auto measuring purposes, the distance from the point to the Furnishing symbol displays at the end of the lower message line.

11. After each symbol is placed, the list of symbols in the selected library and category is re-displayed. You may select another symbol in the selected category or click on Back and return to the list of categories. Select a new category and a new set of symbols is displayed. If you click on Back, you return to the list of libraries where you may select another library. Click on Close to end the command.



Note that the elevation and vertical offset option display in a slightly different manner after you insert the first symbol at the designated elevation. This prompt allows you to offset the symbol placement vertically from the initial elevation.

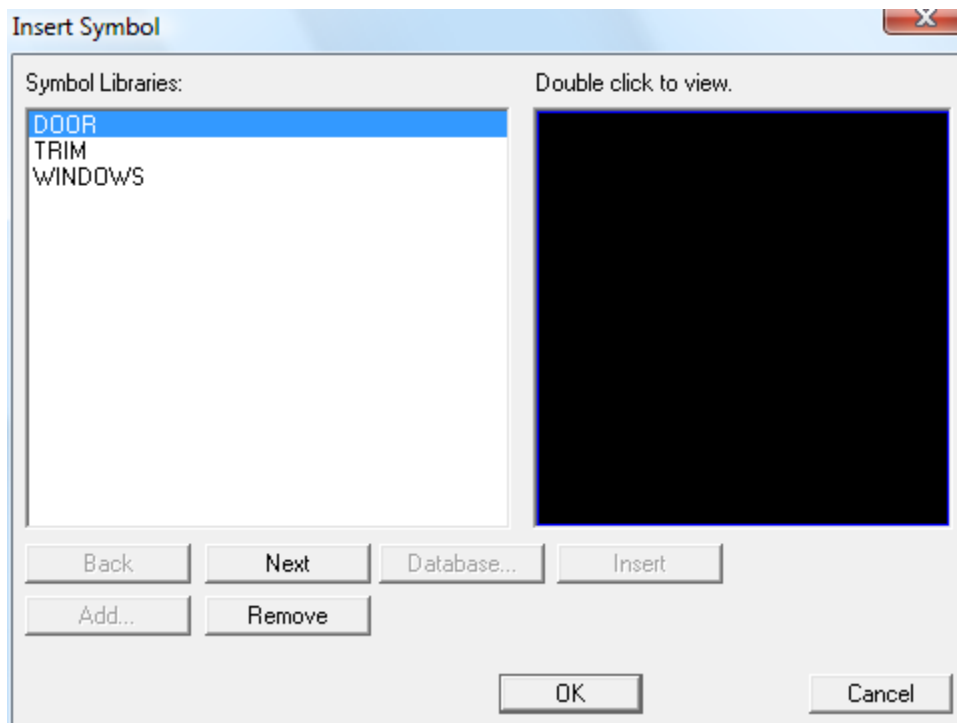
Note that once you select an elevation, all symbols you place are relative to that elevation. To designate a new elevation, you must exit the Symbol Insert command sequence.

Insert One Opening/Trim

SolidBuilder ➡ Symbols ➡ Insert ➡ One Opening/Trim

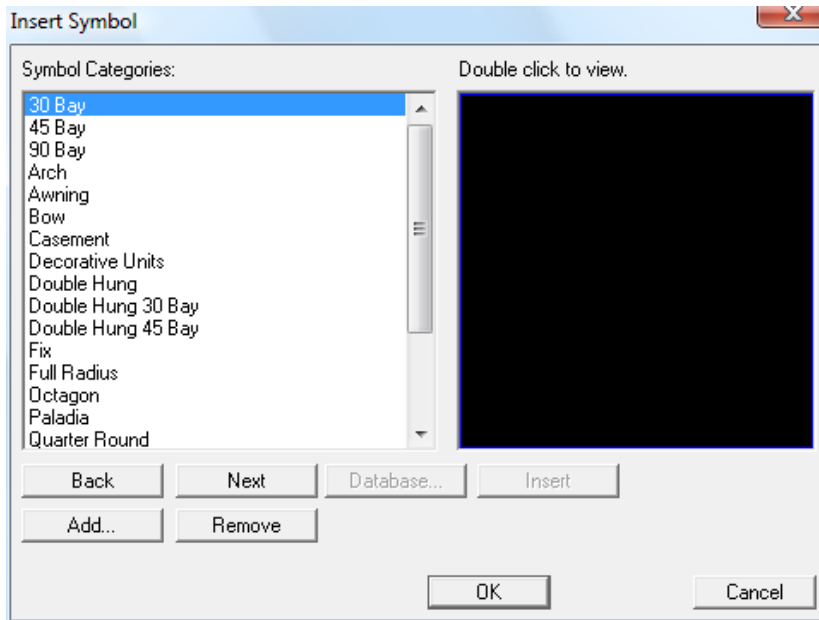
Icon: 

This command allows you to insert Opening (doors and windows) and Trim symbols one at a time. A list of the One Opening/Trim libraries is displayed in the Insert Symbol dialog box – Symbol Libraries.



1. Select an Opening/trim symbol library.

2. Select the library containing the symbols that you want to insert. After you select a library, click on Next to display the Insert Symbol dialog box – Symbol Categories.



3. Select a category from the list and click on Next. The symbols within that category are displayed in the Insert Symbol dialog box – Symbol.
4. Select a symbol for placement and click on Insert. You are prompted:
Select (door/window) openings to locate symbol <symbol name>
5. If you are inserting Window symbols, you may select from the window openings available in the model.
6. If you are inserting Door symbols, door openings may be available for these symbols depending on the wall type (interior or exterior) and the location option of the Opening/trim symbol. Remember that the location options for Door symbols are door_any, door_ext, door_garage and door_int. The location option of the Door symbol that you want to insert may prevent the symbol from being inserted into a dissimilar door opening. The following message may appear.
Window or door has symbol or location option does not match. Press a key

This message informs you that the opening either already has a symbol or that the location option of the selected symbol does not permit insertion in the available openings. You may either select another location option for the selected symbol by using the Database Symbols Symbol_list command or elect to insert a different symbol with the appropriate location option.
7. The symbol you select may or may not be of a size to fit exactly within the opening. If not, you are prompted:
Extend beyond wall by: <size>
9. If the symbol thickness exceeds the wall thickness plus the plywood thickness, you are prompted to enter a value, which is used to extend the symbol beyond the face of the

wall by the amount entered. If the symbol thickness is less than the sum of the wall and plywood thickness, then a window symbol is extended beyond the wall face by a distance equal to the wall plywood thickness. In the case of a door, it is set flush to the back face of the wall.

10. If you select a trim library you are offered a selection of trim.

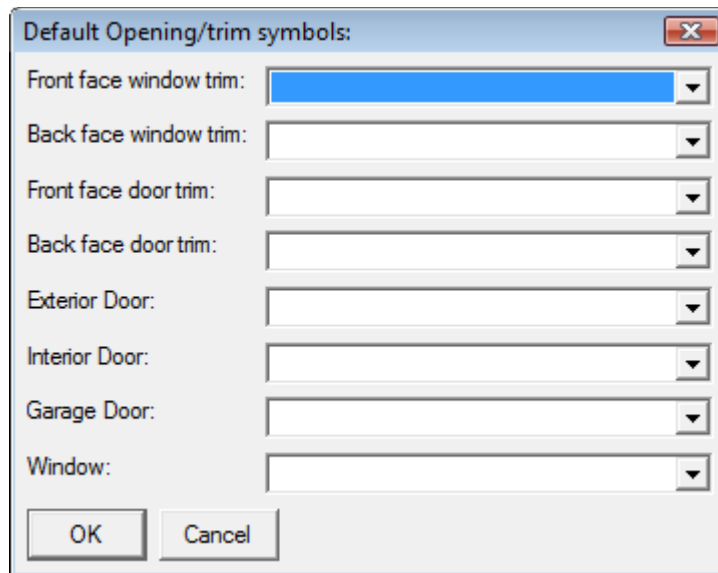
Insert - All Openings/Trim

SolidBuilder ➡ Symbols ➡ Insert ➡ All Openings/Trim

Icon: 

This command allows you to insert Opening/trim symbols for all the openings with one command. With this command you may only insert a particular symbol in each type of opening. You may only insert a particular trim style for the doors and windows as well. This provides you a quick look at the model with symbols.

There are eight symbols that can be selected. Each of the symbols is scaled to fit the size of the opening. There is a unique symbol for each of the window, exterior door, interior door, garage door, front face window trim, back face window trim, front face door trim and back face door trim types. The choice of symbols to be used is set with the Symbols - Modify - Opening Default command. The Default Opening/Trim Symbols dialog box displays.



If any openings have symbols that have been pre-assigned, these symbols are first installed. Symbols for the remaining openings are assigned based on the defaults described above. Pre-assigning symbols to openings is possible by using the List option when installing the opening, or by using the Wall Modify Openings opening_sym command after an opening has been placed with the prompt option.

The symbols are placed and scaled or spliced to fit the opening.

Remove

SolidBuilder ➡ Symbols ➡ Remove

Icon: 

1. Right click on the Symbol and select Remove to remove the Symbol or select the Remove Icon.
2. Select the Symbol to remove, right mouse click and select Finished. Select Yes or No to remove the selected Symbol.

Shape

Move Furnishing

SolidBuilder ➡ Symbols ➡ Shape ➡ Move Furnishing

Icon:  

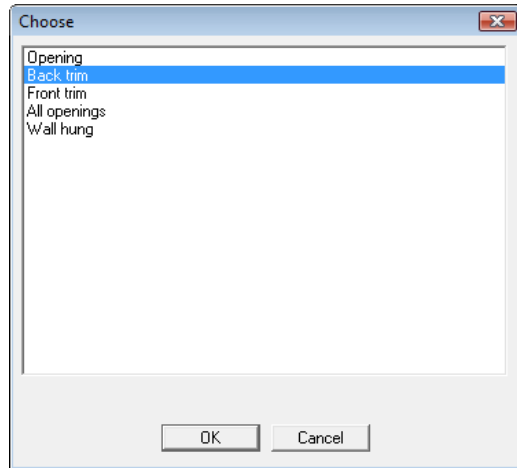
1. You are prompted to first select an object. You are then prompted for the displacement by first locating a base point and then an offset point. You are prompted:
Select furnishing to move
2. Select one or more Furnishing symbols to move. You are prompted:
Enter base point
3. The cursor is located at the Furnishing symbol. Either press Enter to select this as the base point for the move or move the cursor to a more convenient location to specify the distance and direction for the move. Press Enter. You are prompted:
Enter offset point
4. Mark or enter the distance to be moved. After moving the cursor and pressing Enter, and thus entering the move distance, the Furnishing symbol set is moved.

Move Opening

SolidBuilder ➡ Symbols ➡ Shape ➡ Move Opening

Icon:  

1. When you select this command, the Choose dialog box (below) displays.



2. Select from the symbol types.
 - **Opening:** Allows you to move Door and Window symbols.
 - **Back trim:** Allows you to move opening trim symbols.
 - **Front trim:** Allows you to move opening trim symbols.
 - **All openings:** Allows you to move opening, back and front symbols at the same time
 - **Wall hung:** Allows you to select from symbols that are positioned using the wall_hung location option.
3. You may move any selected symbol set any distance in any direction. You are returned to the Symbol menu.

Split

SolidBuilder ➡ Symbols ➡ Shape ➡ Split

Icon:  

This command allows you to split a Furnishing symbol to create two or more symbols. A symbol can only be split from front to back. It cannot be split from side to side. The Shape - Split command only works with furnishings. You cannot split opening symbols.

1. When you select the Split option, you are prompted:
Select furnishing to split
2. Select a Furnishing symbol. The system then prompts:
Mark or enter location of split:
3. Select the location of the split. The Furnishing symbol is split and the original item is discarded.

The symbols are often placed along walls so their axis may or may not be in the normal axes. In some cases, the cursor may not be aligned as you wish. Use the Align Cursor icon  or press

the Alt and F6 function keys to change the cursor orientation.

Join

SolidBuilder ➔ **Symbols** ➔ **Shape** ➔ **Join**

Icon:  

This command lets you join two Furnishing symbols so that they become a single symbol. Typically, Shape - Join is used to rejoin two symbols, which were previously Split.

1. The system prompts you to select each of the Furnishing symbols to be joined.
Select first furnishing to join; ESC to quit.
Select second furnishing to join
2. After the second symbol is selected, the two symbols are joined. Press Esc to return to the Symbols menu.

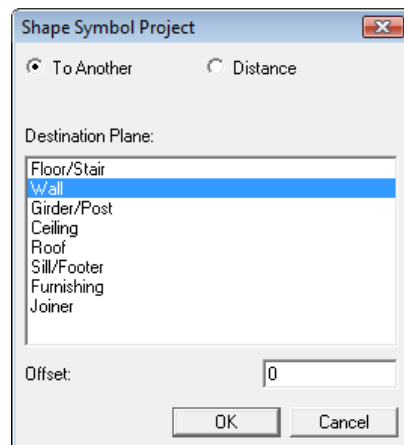
Project

SolidBuilder ➔ **Symbols** ➔ **Shape** ➔ **Project**

Icon:  

This command allows you to project or move a symbol face by projecting either to another shell (wall, floor, roof, etc.), or to a specified distance.

When you select Shape Project, the following dialog box displays



- **Project To Another:**
 1. Select the type of model shell (wall, roof, etc.) or furnishing which contains the desired destination plane and indicate any distance you wish to offset the Furnishing symbol projection from this plane. A positive value projects the symbol to a point beyond the plane; a negative value projects the symbol face to a point before the plane. After you click on OK. You are prompted:
Select <object> containing the destination plane

2. Select the appropriate object. You are prompted:
Select face for destination plane
 3. Use the left arrow or right arrow key to select the face of the object to which you wish to project a Furnishing symbol face. You are prompted:
Select furnishings to project:
 4. Select a Furnishing symbol or symbols to be projected. You are prompted:
Indicate the face to project
 5. Use the left arrow or right arrow key to select the face to be projected. The face is projected to the selected plane. If you select more than one Furnishing symbol to project, you are again prompted for each symbol.
Indicate the face to project
 6. After all specified faces of all symbols chosen have been projected, you are given the chance to choose other Furnishing symbols you may wish to project to this same plane. When there are no more Furnishing symbols to project, press Esc to return to the Symbols menu.
- **Project Distance:**
 1. If you select Distance, enter a distance. You are prompted:
Select furnishings to project:
 2. Select a Furnishing symbol or symbols to be projected. You are prompted:
Indicate the face to project
 3. Use the left arrow or right arrow key to select the face on each symbol to be projected. You are prompted to select another Furnishing symbol. When there are no more symbols to project, press Esc to return to the Symbol menu.

Rotate

SolidBuilder ➡ Symbols ➡ Shape ➡ Rotate

Icon:  

The Shape - Rotate command only works with furnishings. You cannot rotate opening symbols.

1. Right click on the furnishing symbol and select Shape - Rotate or select the Shape icon and then Rotate, or select Edit from the main dropdown menus then Shape and select Rotate.
2. You are prompted for a furnishing. Select the furnishing and mark its pivot point and type in the angle of rotation. Then use the arrow keys to control rotation. You are prompted:
Select furnishing to rotate
3. Select the Furnishing symbol to be rotated. The system then prompts for the rotation pivot point:
Mark or enter pivot point:

4. Move the cursor to the appropriate pivot point and press Enter. The system then prompts for the angle of rotation:
5. Type a value such as 30. This value represents the angular increment of rotation. You are prompted:
Arrow keys to rotate, Ins/Del change angle, or F10 to finish.
6. Press the up, down, right or left arrow keys to rotate the symbol. Press the Insert and Delete keys to either double or halve the angular increment of rotation, respectively. Press F10 or Enter when you are finished rotating the symbol. The Furnishing symbol is rotated around the designated pivot point.

Trim Furnishings

SolidBuilder ➡ Symbols ➡ Shape ➡ Trim Furnishings

Icon:  

1. Right click on the furnishing symbol and select Shape - Trim Furnishing or select the Shape icon and then Trim Furnishing, or select Edit from the main dropdown menus then Shape and select Trim Furnishing.
2. When you select Shape - Trim Furnishing, you are prompted:
Select furnishings to modify by trimming
3. Select the Furnishing symbol or symbols. After all desired symbols have been selected, right mouse click and select Finish or press F10. The following prompt is displayed:
Trim against: Furnishings All Shells
4. This allows you to select either Furnishings or Shells. Depending on your selection, you are prompted to select Furnishings or Shells. The following prompts are displayed:
Select shells (or Furnishings) to trim against
5. You must select from other Furnishing symbols if you picked Furnishings or Shells if you choose All_shells. The symbols selected originally are trimmed against the selected furnishings or shells with the smaller portion discarded.

Trim All Shells

SolidBuilder ➡ Symbols ➡ Shape ➡ Trim All Shells

Icon:  

1. Right click on the furnishing symbol and select Shape - Trim All Shells or select the Shape icon and then Trim All Shells, or select Edit from the main dropdown menus then Shape and select Trim All Shells.

2. When you select Shape Trim, you are prompted:
Select furnishings to modify by trimming
3. Select the Furnishing symbol or symbols. After all desired symbols have been selected, right mouse click and Finish or press F10. The following prompt is displayed:
Trim against: Furnishings All Shells
4. This allows you to select either Furnishings or Shells. Depending on your selection you will be prompted to select Furnishings or Shells. The following prompts are displayed:
Select shells (or Furnishings) to trim against
5. You must select from other Furnishing symbols if you picked Furnishings or Shells if you choose All_shells. The symbols selected originally are trimmed against the Furnishing symbols or Shells selected indicated in the latter part of the command, with the smaller portions discarded

Creep

SolidBuilder ➡ **Symbols** ➡ **Shape** ➡ **Creep**

Icon:  

1. Right click on the furnishing symbol and select Shape - Creep or select the Shape icon and then Creep, or select Edit from the main dropdown menus then Shape and select Creep.
2. When you select Shape - Creep, you are prompted:
Select furnishing to creep
3. This command is commonly used to move furniture in the model until it looks appropriate. Select the desired Furnishing symbol and press Enter. You are prompted:
Distance to move- or Arrow keys, Ins, Del, F10 to finish.
4. Press the up, down, right or left arrow keys to move the symbol on the x and y plane. Press the Insert and Delete keys to either double or halve the increment of movement. Press F10 or Enter when you are finished moving the symbol. Alternatively you can key in a distance to move, such as x2 and the furnishing is displaced by that value.

Orientation

SolidBuilder ➡ **Symbols** ➡ **Shape** ➡ **Orientation**

Icon:  

Orientation allows you to change how a 2D symbol is placed in a Working Drawing. For example if you insert the opening symbols and notice that a door swing is wrong, you can use the Orientation command to correct it.

1. Right click on the furnishing symbol is not available for Orientation. Select the Shape icon and then Orientation, or select Edit from the main dropdown menus then Shape and select Orientation.
2. When you select Shape Orient, you are prompted:
Select opening symbols to reorient
3. Select the desired Opening symbol. When all openings symbols you wish to reorient have been selected, right mouse click and Finished or press F10. You are prompted:
Arrow keys to change orientation; ENTER to accept;
4. By using the left arrow and right arrow keys you can change the orientation of the set of opening symbols you have selected. The conditions in addition to the Rotated 180, which indicates that the set has been rotated 180 degrees in the plan view, are:
Reversed inside-outside
Rotated 180 Reversed inside-outside
5. No text on the message line indicates that the symbol set is in their original rotation. This command can be used for changing the orientation of bifold doors so that they fold into instead of out of the closet or the look of an interior window or any other situation where you wish a symbol to be pivoted through a mirror plane of symmetry.

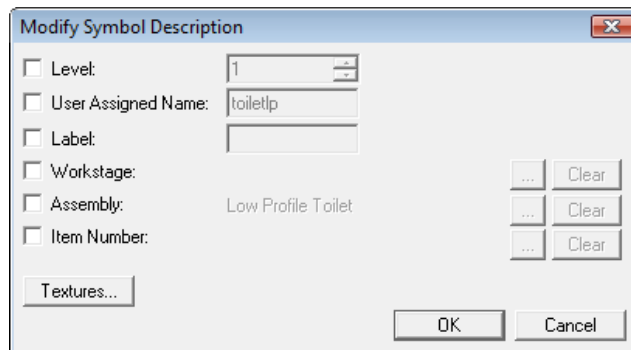
Modify

Description

SolidBuilder ➡ **Symbols** ➡ **Modify** ➡ **Description**

Icon: 

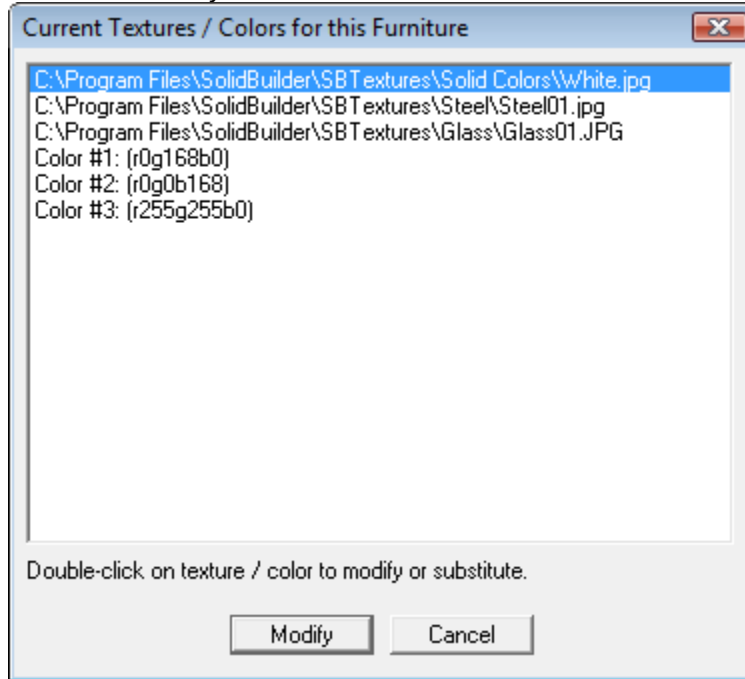
1. Right click on the furnishing symbol and select Modify - Description or select the Modify icon and then Description, or select Edit from the main dropdown menus then Modify and select Description.
2. When you select this command, the following dialog box displays.



3. You may select new Level, User Assigned Name, Label, Workstage, Assemblies, Item Number, and Texture. You may change the user-assigned name and level. You are warned if not all the Furnishing symbols you desire to modify are the same. A message:

Not all are equal displays in blue in the dialog box and in red on the upper message line.

4. The options you select are applied to all the Furnishing symbols selected. Be sure you want the same change to apply to all selections.
5. Press Esc to leave the command.
6. When choosing texture a box will display showing all of the textures that are currently attached to that symbol:



In this case I have chosen to modify the textures on a shower. You can see that it lists out the textures that are currently attached to this shower and where those textures are located. This particular shower has a solid color of white, a steel texture and a glass texture.

To change any of the textures just click on the desired texture and choose modify. This will bring you to the texture selection box where you can choose your new texture. The texture selected will only appear where the previous texture was applied.

Item Number Furnishing

SolidBuilder ➡ Symbols ➡ Modify ➡ Item Number Furnishing

Icon:  

At the time a symbol is inserted, no item number is assigned to the symbol. The Modify Item Number command allows you to select an item from the item database. This allows you to assign an item number to a symbol, which is not part of an assembly assigned to the symbol.

This command is used to attach an item number from the database directly to a selected Furnishing symbol without the necessity of creating a special assembly for that symbol. This option is available to Furnishing symbols and Plan symbols.

Toilet example: You create a toilet assembly with all components except the toilet itself. Insert the toilet symbol, and then use the Modify Item Number command to select one of the toilet models in the item database. Your assembly would not contain the toilet itself. This command avoids the need to make an assembly for each manufacturer's toilet.

1. Right click on the furnishing symbol and select Modify - Item Number Furnishing or select the Modify icon and then Item Number Furnishing, or select Edit from the main dropdown menus then Modify and select Item Number Furnishing.
2. When you select this command, you are prompted to:
Select furnishings to modify item number
3. Select the desired Furnishing symbol (s). The Items Database displays and you can select a new item number.
4. The selected Furnishing symbol (or set of symbols) has a new item number. Press Esc to end the command.

Item Number Opening/Trim

SolidBuilder ➡ Symbols ➡ Modify ➡ Item Number Opening/Trim

Icon: 

You may also attach an item number to an opening/trim symbol. This works in the same manner as the furnishings option.

It is also possible to assign an item number to an opening, rather than the symbol in the opening. You can attach item numbers to Opening/trim symbols by using the Wall - Modify Openings - Item Number command.

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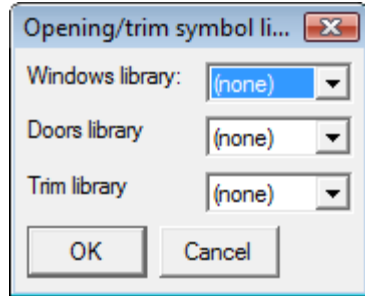
Opening Defaults

SolidBuilder ➡ Symbols ➡ Modify ➡ Opening Defaults

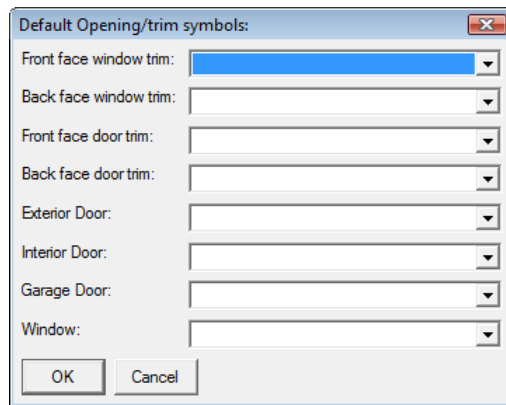
Icon: 

This symbol provides for the setting of the default symbols to be used in the Symbols - Insert - All Opening/Trim command. When you click on these icons, the Opening/Trim Symbol Library dialog box (below) is displayed. Select the desired libraries containing the defaults.

1. Select a library containing the Opening/trim symbols that you want to insert.



2. The Default Opening/trim symbols dialog box displays. You may select from available Opening/trim symbols for doors and windows in this dialog box. The options presented in this dialog box are determined by the Opening/trim Symbol Library you selected in the first dialog box.



Label

SolidBuilder ➤ **Symbols** ➤ **Modify** ➤ **Label**

Icon:  

1. Right click on the furnishing symbol and select Modify - Label or select the Modify icon and then Label, or select Edit from the main dropdown menus then Modify and select Label.
2. The Symbol Label dialog box opens displaying the current Label, (if any). Enter a new label for the symbol.



Chapter 27: Framing

SolidBuilder ➔ Framing

Icon: 

SolidBuilder frames all shells and members for you based on how you have created and described your model. Before getting into the Framing menu particulars, this introduction provides some general considerations and techniques.

This menu allows you to frame a single shell, a group of shells or all shells. As a general rule, it is best to save the framing operation until all other functions are completed, then select Frame All visible. However, there are times when you must abandon the framing of one or more walls in order to make modifications in the model. The Model Wall Modify commands automatically remove the framing of any modified walls.

Prior to framing the model, all information that affects the framing should be defined. Check the model to see if the following framing information has been specified or entered.

Chapter 27

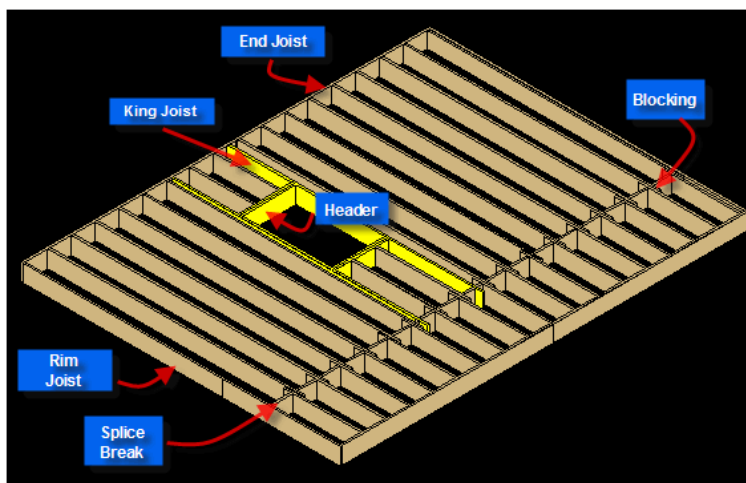
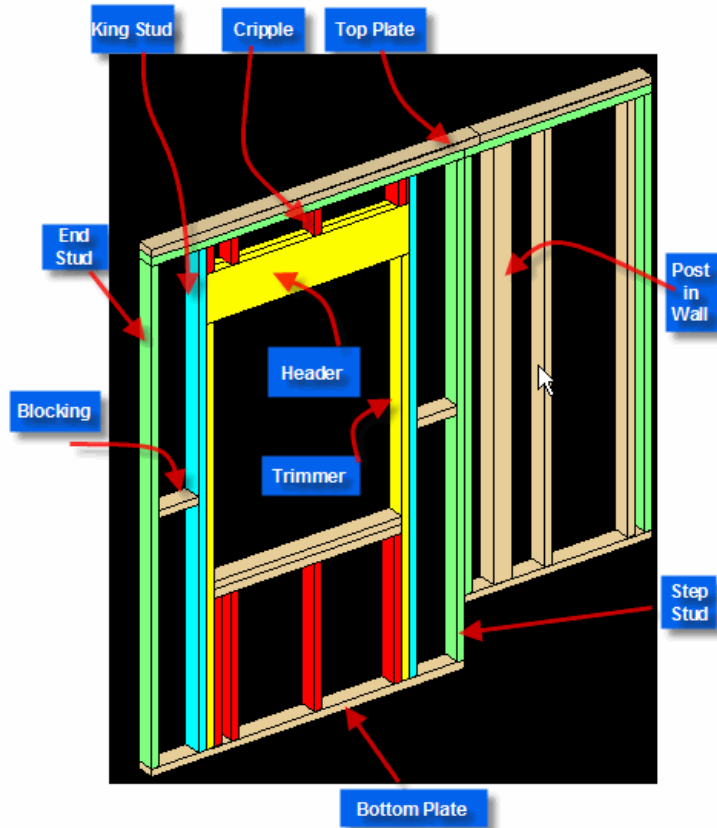
Framing

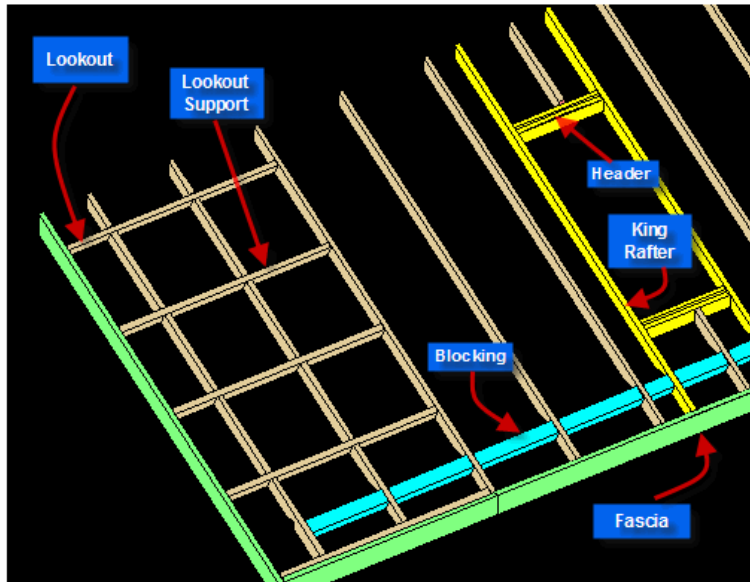
1. For roofs, you must have created any eaves, gables, joiners and openings and inserted appropriate channels for rake walls, blocking and break lines. Also, you must have modified the joiners so that they fit together properly. Check the layout of the rafters so that they fall on wall studs. Check to see if frieze or shear blocking is set in Roof Standards.
2. For floors and ceilings, you should make certain that all breaks, blocking, channels and openings have been defined. Check the layout direction and be sure that the layout point is set to correctly locate the joists. Check to see that all second layout point information is correct. Check the rim and end joist conditions. Check to see that flush beams are located correctly in reference to other shells. Check for plumbing channels, channels under walls and joist bays. Ceilings may need to be split to accommodate the end layout for hip roofs. Check the layout adjustment for ceiling joists so that they lie next to rafters rather than cut to the bottom face of the rafters.
3. For walls, check the layout points, the layout distance, corner conditions and the number of top plates for runs of walls. These conditions are either set in the Wall Standards or in the Create Wall process. Check to see if the interior walls have been correctly called out as load or non-load bearing. Check for ledgers where roofs, ceilings or floors butt against walls. Check where shear walls are specified and whether girders are set into walls so as to create pockets and supporting members. Check the various kinds of blocking set: blocking at standard line heights, sheet rock blocking, sheet rock backing and blocking in gable style walls.
4. Check all the openings—verify the header height, header type (single or double) and size and header extension conditions. Check trimmers, kings and posts at wide openings. Check for post-in-wall conditions. See that the number of plates and the framing option of the bottom plate are appropriate for the wall location. Check your Sill Plates for specified maximum length.

The Framing menu provides commands to frame floors, walls, ceilings, roofs, fascia, sill plates, girders and posts. These shells can be framed individually, as groups of various types of shells or as groups of shells visible on the screen. Framing members within the shells can be edited using the Modify command. The framing menu also provides for the exhibition of the framed shells and for their removal, as well as the ability to visibly isolate framed or unframed shells.

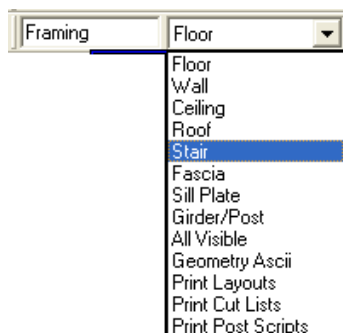
Below, **SolidBuilder** framing members are identified.

Chapter 27
Framing



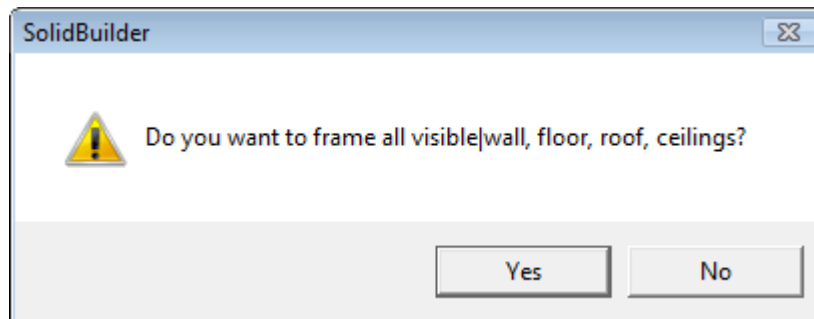


Framing Menu

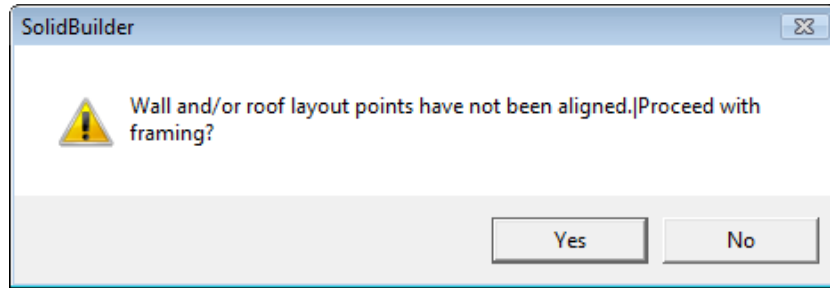


- **Wall:** only frames walls
- **Ceiling:** only frames ceilings

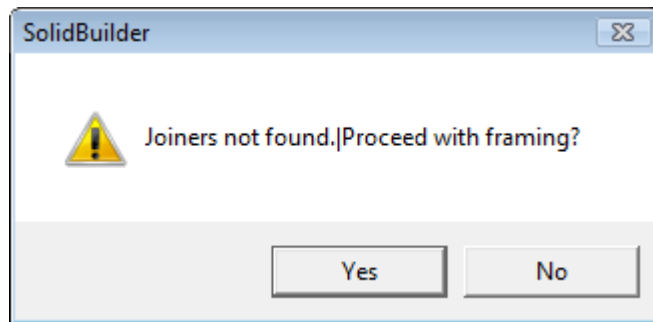
- **Roof:** only frames roofs and fascia
 - **Fascia:** only frames fascia. If the adjacent roofs have been framed, framing only fascia removes the roof framing
 - **Sill Plate:** only frames sill plates
 - **Girder/Post:** only frames girders and posts
 - **All Visible:** frames all visible shells
 - **Geometry ASCII:** prompts you to select shells to draw. After you select the shells, you are prompted for a file name. **SolidBuilder** creates an ASCII file with the framing geometry defined by vertex points.
 - **Print Layouts:** prints a Layout list of sheathing and/or framing created from Production Drawings. In the Production Drawing options for Layout List, turn on the Report toggle. The reports are stored in the Sbout subfolder of the **SolidBuilder** directory.
 - **Print Cut Lists:** prints a Cut List of sheathing and/or framing created from Production Drawings. In the Production Drawing options for Cut List, turn on the Report toggle. The difference between this cut list and a Lumber Cutting Report, is that this list is for individual shells and the Lumber cutting is for the entire model. The reports are stored in the SBOUT folder.
1. You can either select the Framing icon to select the shells to frame or you can left click on a shell, hold the shift key down and select other shells of the same type, right click and select Frame.
 2. Select a shell type to frame. You are prompted:
Select <shell (s)> to frame:
 3. Select the shells to be framed. After pressing Enter, the system frames the shells one at a time.
 4. When the framing process begins, the program makes various checks. If you select All Visible, the Message dialog box opens.



5. Click on Yes or No. If you have not aligned layout point in the roofs or walls, the second Message dialog box opens.



7. You may proceed with the framing or escape from the command and go to the appropriate shell menu to align the layout points using the Modify Layout Point command.
8. If you selected roofs to frame, the above dialog box displays.
9. The system checks for the presence of joiners if roofs are to be framed. If joiners have not been created, the Message dialog box displays.



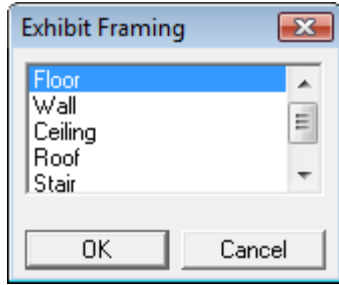
10. You may proceed with the framing by clicking on Yes or click on No and create the Joiners by using the appropriate commands in the Roof command.

Exhibit

SolidBuilder ➡ Framing

Icon: 

This command provides for reviewing the framing of any shell or inspecting Framing output text files on screen. When you select Exhibit the Exhibit Framing dialog box displays.



1. Select a shell type and click on OK. You are prompted:
Select framed <shell>> to view
2. Select the shell to be exhibited. After clicking on OK, the system displays the framing of each selected shell consecutively. The shell level, type and number are displayed in the command window. Example: Wall W2-X9 represents Wall Level 2 - Exterior wall number 9.
3. Press Enter to move from the display of one shell to another. When exhibiting framing, turn on the double click and the Info tool bar. With these two options on, as you scan through the framing members of the shell, the member name, number, location, size and elevation are displayed in the info window.

Isolate Framed

SolidBuilder ➡ Framing

Icon: 

This command is accessed from the main menu under View. This command is used to isolate all the framed shells. All framed shells are visible. Unframed shells are not visible.

Isolate Unframed

SolidBuilder ➡ Framing

Icon: 

This command is accessed from the main menu under View. This command is used to isolate all the unframed shells. All unframed shells are visible. Framed shells are not visible. This is a very useful tool to insure that all shells are framed before production drawings and estimates are created, thus insuring accurate takeoffs.

Isolate Reset

SolidBuilder ➔ **Framing**

Icon: 

This command is accessed from the main menu under View. All framed shells and unframed shells are made visible. Other geometry that was visible before either the isolate Framed or isolate Unframed command was used becomes visible.

Framing Remove

SolidBuilder ➔ **Framing Remove**

Icon: 

1. Right click on a shell and select Remove to remove the framing or select the Remove icon.
2. Select the shell with the framing to remove, right mouse click and select Finished. Select Yes or No to remove the selected framing.

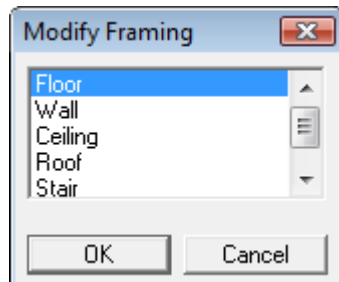
Modify

SolidBuilder ➔ **Framing** ➔ **Modify**

Icon: 

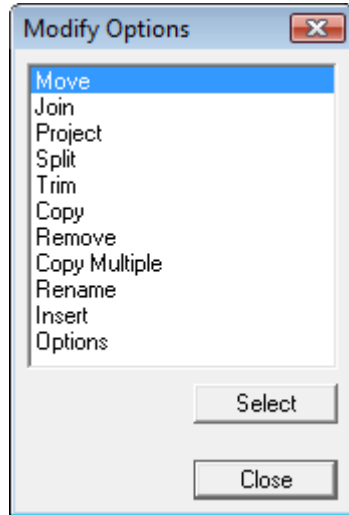
This command provides for the modification of the framing of individual shells. The shells must be framed first.

1. When you select Modify, the following dialog box displays.



2. Select a shell type (floor, wall, ceiling or roof) to modify and the system prompts:
Select <shell> with framing to modify

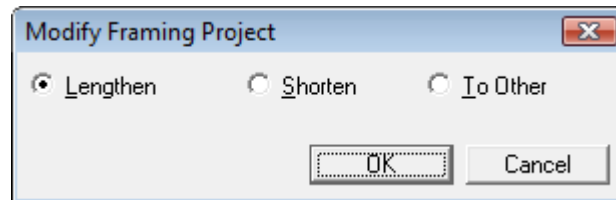
3. Select a shell to modify. If the selected shell is not in an appropriate view (a view in which the framing members can be easily viewed and selected), the shell is displayed in an appropriate Elevation or Plan view. If the selected shell is in an appropriate view, the view does not change. You may choose another view using either the View icons. The Modify Options dialog box (below) displays.



4. This is the Framing Editor. If the view is not sufficiently clear, you may use Isolate to display only the selected shell. The Framing Editor commands behave like the shape commands in the Model menu. The Copy, Copy Multiple and Rename commands are unique to the Framing Editor command options. You may use the function keys to change the view during these commands.
5. Select one of the Framing Edit options and you are prompted:
Select member to <option>
6. The name of the shell, the name of the shell member, the dimensions of the member, and the elevation of the member appear on the message line. The member is highlighted and the system prompts in the following manner for each command.
 - **Move:** This command is used to move framing members an indicated distance.
 1. When you select Move, you are prompted:
Select member to move
 2. Multiple members can be selected. Select the framing members that you want to move and press F10 to finish. The system prompts for base and offset point.
Mark displacement for move
Enter base point
 3. The cursor is located at one of the selected framing members. Either press Enter to select this location as the base point for the move or move the cursor to a more convenient location to specify the distance and direction for the move. Press Enter and you are prompted:
Enter offset point
 4. After moving the cursor and pressing Enter, thus entering the move distance, the

selected framing members are moved the indicated distance. You are returned to the Framing Editor command selection.

- **Join:** This command lets you join two framing members so that they become a single member. Framing members must be adjacent for Join to work.
 1. When you select Join, you are prompted:
Select member to join
 2. Select the framing member that you want to join to another and either click the left mouse button or press Enter. You are prompted:
Select other member to join
 3. Members that are adjacent to the selected member are available to be selected. When the second framing member is selected, the two are joined. You are returned to the Framing Editor command selection.
- **Project:** This command is used to project faces of framing members a distance or to another member.
 1. When you select Project, you are prompted:
Select member to project
 2. Multiple members can be selected. After finishing the selection, a face of the initial framing member chosen is highlighted. You are prompted:
Select face to project
 3. Use the arrow keys to move the highlight to the desired face and press Enter. The Modify Framing Project dialog box (below) displays.



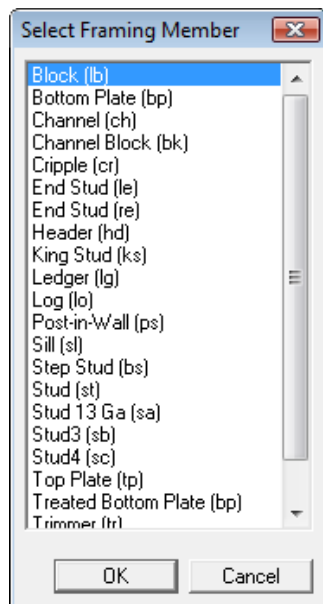
4. Select one of the three options.
 - **Lengthen:**
 2. The system prompts:
Mark displacement for project
Enter base point
 2. The cursor is located at the face of the first framing member selected. Either press Enter to select this location as the base point for the lengthening or move the cursor to a more convenient location to specify the distance and direction for the projection. Press Enter and the system prompts:
Enter offset point
 3. After moving the cursor and pressing Enter, thus entering the projection distance, the selected framing members are lengthened the indicated distance.

- **Shorten:**
 1. The system prompts:
Enter base point
 2. The cursor is located at the face of the first framing member selected. Either press Enter to select this location as the base point for the shortening or move the cursor to a more convenient location to specify the distance and direction for the projection. Press Enter and the system prompts:
Enter offset point
 3. After moving the cursor and pressing Enter, thus entering the move distance, the selected framing members are shortened the indicated distance.
- **To other:**
 1. The system prompts:
Select piece containing face to project to
 2. Select the framing member that contains the face defining the destination plane. The system then prompts for a destination face of that member.
 3. Select face to project to: Use the arrow keys to select a face and press Enter. The framing members are projected to another member. You are returned to the Framing Editor command selection.
- **Split:** This command is used to split framing members at an indicated point.
 1. When you select Split, you are prompted:
Select member to split
 2. Multiple members can be selected. After finishing the selection, the cursor is positioned at the first framing member chosen. You are prompted:
Mark the start split line end
 3. Use the arrow keys or the mouse to move the cursor to the desired point and press Enter. You are prompted for the location of the other point.
Mark the end split line end
 4. Move the cursor to the end of the line defining the split desired and press Enter. The framing members are split at the indicated line. You are returned to the Framing Editor command selection.
- **Trim:** This command is typically used to trim members to another member that has been moved. An example is moving a top plate into the stud area and trimming the studs to the top plate.
 1. When you select Trim, you are prompted:
Select member to trim
 2. Multiple members can be selected. After finishing the selection, you are prompted:
Select member to trim against

3. Use the arrow keys to select an intersecting framing member. Press Enter and the framing members first selected are trimmed to it.
- **Copy:** This command is typically used to copy selected framing members. An example is selecting a stud, cripple, rafter or joist to create a duplicate member of the same size in another location.
 1. When you select Copy, you are prompted:
Select member to copy
 2. Multiple members can be selected. After finishing the selection, you are prompted:
Enter base point
 3. The cursor is located at the first framing member selected. Either press Enter to select this location as the base point for the move or move the cursor to a more convenient location to specify the distance and direction for the move. Press Enter and you are prompted:
Enter offset point
 4. Move the cursor the distance desired and press Enter, thus indicating the Copy distance. The selected framing members are copied at the indicated distance. You are returned to the Framing Editor command selection.
 - **Remove:** This command is typically used to remove selected framing members. An example is removing undersized or unneeded framing members.
 1. When you select Remove, you are prompted:
Select member to remove
 2. Multiple members may be selected. After finishing the selection and pressing F10, the selections are highlighted in dark purple and you are asked if you want to delete this. You may click on Yes or No. If you click Yes, the indicated framing members are removed. You are then returned to the Framing Editor command selection.
 - **Copy Multiple:** This command is used to copy a framing member a designated number of times at specified intervals. You select a framing member to duplicate, indicate how many copies and indicate the distance from the original member that the copies are to be created.
 1. When you select Copy Multiple, you are prompted:
Select member to copy repeatedly
 2. Only one framing member can be selected at a time. After the selection, the system prompts for the number of copies.
Number of copies-
 3. Type any number and press Enter. The system then prompts for the base point.
Enter base point
 4. The cursor is located at the framing member to be copied. Either press Enter to select this location as the base point for the copy or move the cursor to a more convenient location to specify the distance, interval and direction for the copy.

Press Enter. You are prompted:
Enter offset point

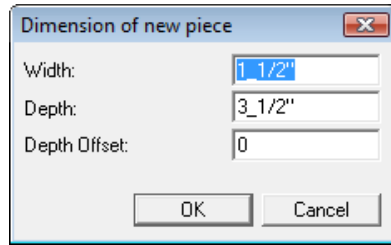
5. Move the cursor the distance desired and press Enter, thus indicating the distance and the interval for the Copy. The selected framing member is copied at the indicated distance. Multiple copies are generated at the same interval from each other. You are returned to the Framing Editor command selection.
- **Rename:** This command is used to rename framing members. You may rename shell members to another name available from the shell type member names.
 1. When you select Modify - Rename, a dialog box list of shell component member names is displayed. You are prompted:
Select new name
 2. Select a framing member name from the dialog box and click on OK. The system displays the selected shell and prompts:
Select member to rename <framing member choice>
 3. Multiple members can be selected. Use the arrow keys to move the highlight from one member to another or pick with the mouse. If you use the scan method, the framing member names appear on the message line as each member is highlighted. Press F10 to finish the selection process. The selected members are renamed to the name chosen in the dialog box.
 - **Insert:** This command is used to insert named members into a framed shell. An example is inserting an extra stud or piece of blocking into a wall. You select a framing member to insert, specify the dimensions of the member and then indicate the start and end points for the member.
 1. When you select Insert, you are prompted:
Select piece to insert
 2. A dialog box displays that shows the member names appropriate to the shell type that you are working on.



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3. Select the member name that you wish to insert and click on OK. The following dialog box displays.



4. The dimensions displayed are the dimensions that were specified when the shell was created or modified. You may change the dimensions if desired and click on OK when done. You are prompted:
Mark the start <Piece Name> endpoint
 5. Move the cursor to the point where you want the new piece to begin. Click the left mouse button or press Enter to mark this point. You are prompted:
Mark the end <Piece Name> endpoint
 6. Move the cursor to the point where you want the new piece to end. Click the left mouse button or press Enter to mark that point. You are prompted:
Indicate side for width; ENTER for centered
 7. Either press Enter to insert the new piece centered on the line you have drawn, or move the cursor to one side using the mouse or click the left mouse button.
- **Options:** This command is used to save and insert framing assemblies into other shells. Once you insert a common framing assembly, you can click on Options and create a new option. **SolidBuilder** will prompt you to select framing members and then select an Insertion point. Once saved, you may place the option into other framed shells.
 - **Lock:** This command allows you lock in framing member so when a wall is reframed these framing members will not be change. In wall by default any framing member that had been modiyed will be locked.
 - **Unlock:** This will prompt you it select previous loked framing members
 - **Show locked:** This command will hightlight framing members that have been locked.
 - **Insert Locked Region:** This command allows you draw and rectangle in an area the you want to framing to be locked. Any framing member that intersects the rectangle will be locked.
 -

Unique to Floors

SolidBuilder ➡ **Settings** ➡ **Model**

Every shell that can be framed has a different setting allowing you to specify how you want the shell to be framed. Listed below are the different settings. You may access these settings by selecting Settings - Model.

Common to All Shells

SolidBuilder ➡ Settings ➡ Model

Common to All Shells:

- **Layout Members** – These are standard framing members for studs, joists and rafters. These are typically laid out with a given center-to-center distance between each.
- **Layout Point** – Each wall, floor, ceiling or roof shell has a layout point which defines the starting point for the center-to-center measurements for the layout members. This location, combined with the layout distance, places the layout members. Walls are laid out from one end (the left end when observing the walls from the front face). Floors and ceilings are laid out from the lower left most point as seen from above. Roofs are laid out from the left most lowest point. You may adjust the layout point to any location. Wall and roof shells can be modified so their layout points coincide with other wall and roof shells. Sill plates, posts and girders do not have layout points.
- **Layout Distance** – This is the distance between layout members, typically 16", 19.2" or 24". You may enter any value for this option.
- **Framing Member Thickness** – This is the thickness of the standard framing members (studs, joists, rafters), normally 1_1/2". You may enter any values up to 8' in floors and ceilings. Rafters can be up to 2' thick.
- **Framing Member Depth** – This is the width or depth of the standard framing members, normally 3_1/2", 5_1/2", 7_1/2", 9_1/4", etc. You may enter any value up to 8' deep in most shells; walls can be up to 10' thick.

Any values used in the Framing Member Thickness or Depth field must have a corresponding size of framing member entered in a lumber database. If you specify 1_9/16" and you want the material specified as 1_9/16" on the material reports, then the framing database must contain material of that thickness. (This applies to dimensioned sizing usage. See the chapter on Databases on page 475 in the Reference Manual for nominal size usage.)

Center to Center – This is the distance between layout members.

- **Channels** – are extra framing members inserted into the shells. They are typically used where two wall shells intersect or where wall shells intersect roofs, floors or ceilings. They may be below a wall (doubled floor joists to support a wall) or above a wall (to serve as sheet rock backing.) Channel framing members are placed in pairs (2, 4, and 6). The pairs may be placed side by side or separated by a distance. If separated by a distance, they may have a member between the innermost pair, or there may be no member placed between them. A final channel option is the use of a row of blocks at right angles between the layout members on either side of the channel. Some channels are placed automatically. Intersecting walls will have channels placed automatically. Floor channels can be placed automatically to bear walls above using the Floor Insert Channel Below-wall command.
- **Blocking** – Lines of blocking can be placed in wall, ceiling, floors and roofs by drawing a line at the desired position of the blocking. An option in Wall Standards places wall blocks

at a specified height automatically. In this case, you do not have to draw a line.

- **Openings** – Openings of various sizes and shapes can be placed in walls, floors, ceilings and roofs. Floor, roof and ceiling openings are located and sized by drawing a rectangle in the desired position. Wall openings are specified by giving the size and marking the location. The software draws the opening.

Unique to Walls

SolidBuilder ➡ **Settings** ➡ **Model**

The following settings in **SolidBuilder** are unique to walls.

Plates

- **Plate thickness** – For wall top and bottom plates, this is the least dimension of the plate material. For 2x4 material, this is typically 1_1/2".
- **Plate number** – For wall top and bottom plates, this is the number of plates. You may have 0, 1, 2 or 3 top or bottom plates. The default is two top plates and one bottom plate.
- **Plate repeat length** – This is the maximum length of plate stock material you want to use before it repeats itself. All plate lengths are equal to or less than this value.
- **Minimum length and break stagger** – The minimum length of plate you want to use in a wall. This value is also the minimum distance between the break of one plate and the break of the plate above or below it.
- **Very top plate lap** – This is the minimum length of a break between Very Top Plate and Top Plate.
- **Lap top plate** – This toggle allows the user to control if the top plates lap each other. If this option is unchecked, the top plates will run flush.



End, Corner and Step Studs

- **End Stud number** – This is the number of studs placed at the end of a wall. You may have 0, 1, 2 or 3 end studs.
- **Corners** – Select California or Normal. This setting controls the placement of the second stud in a wall corner. When set to Normal, this stud is placed to one side of the inside of the intersecting wall. Specifying California, the stud is rotated 90 degrees and placed along the edge of the plate, butting the first stud with its edge and the end of the intersecting wall with its face.
- **Bottom-step studs** – This is the number of studs placed on the side of a step in the bottom of a wall. You may have 0, 1, 2 or 3 step studs. The step stud runs between the two bottom plates. You may select treated material for these members when the steps represent a foundation change of elevation.
- **Studs at wall peak** – You have the option to place extra studs on either side of the peak of a gable wall. If you place an odd number of studs, the middle member is centered on the peak, resulting in a double bevel end cut on this member.



Wall Openings

- **Rough-in delta width** – This is the difference in size between the width of the finished opening and the width of the rough opening. The finished opening is centered within the rough opening. This must be a positive number – you cannot make a rough opening smaller than the corresponding finished opening.
- **Rough-in delta height** – This is the difference in size between the height of the finished opening and the height of the rough opening. For the opening height, the top of the finished opening is placed at the height of the rough opening. The value of this field is subtracted from the bottom of the finished opening and locates the bottom of the rough opening.
- **Top of finished window opening** – This is the height of the finished window opening from the base point of the wall. This default value can be changed at the time the opening is inserted. This is used for windows only.
- **Number Headers** – Select from 0-5 ply. The thickness you define in the Wall Standards. Each of the members is set flush to the outside of the wall. If the number of headers x the thickness exceeds the wall thickness, the inside header is trimmed in width.
- **Header to Top Plate** – This option allows the user to bump the header directly under the top plates. If this option is checked, SolidBuilder will place a header sill under the header with cripples in between.
- **Header depth** – This is the vertical measurement of the header, typically the most commonly used size.
- **King Studs** – These are the studs against which the header typically butts. You may have 0, 1, 2 or 3 members. Increasing the number of King Studs from 1 to 2 or 3, could provide extra material for siding backing.
- **Trimmers** – This is the shortened stud that supports the header. This is sometimes called a jack stud or cripple. You may have 0, 1, 2 or 3 trimmer members. Typically, you would use multiple trimmers when openings are greater than 7' in width.
- **Floating trimmers** – This is a trimmer that runs between the header and the sill. If you select the floating trimmer option, a piece of material is created that could be used to adjust the drywall reveal at window edges. If you select the floating trimmer option, the sill is longer than if a non-floating trimmer were specified.
- **Cripple number** – Cripples are the members that are placed between the header and top plate and between the sill and bottom plate. They are on layout. This option provides for placing extra cripples at the end of the sills. These extra cripples are placed next to the trimmers.
- **Sill number** – This is the amount of sills for a window. There can be 0, 1, 2 or 3 sills. Typically, you use multiple sills when openings are greater than 7' in width.
- **Base point** – This is the point from which an opening is measured. Note that it can be

moved. It is normally placed at the wall bottom. Moving the base point allows for proper placement of a garage opening, whose bottom is typically lower than the wall bottom.

- **# Circular Sides** – This edit field is the number of facets, or flat sides, that **SolidBuilder** uses to create any window or door opening involving an arch or circle. You must enter a value between six and 32 facets.



Wall Channels, Posts and Blocking

- **Ladder channel** – Ladder channels can be placed by marking their location. You set the blocking member size (width and depth) and if it is to be oriented vertically or horizontally. You also specify the center-to-center distance between the blocks.
- **Blocking pattern** - You may place blocks in line or staggered in order to make nailing easier.
- **Blocking bays** - The number specified is the number of stud bays that are blocked. This option places the extra blocking for the specified amount of stud bays midway between top and bottom plate. This extra blocking can be located at the sides of openings, of channels and from the ends of the walls.
- **Blocking at a fixed height** - You specify a height for blocking. Blocking is then placed automatically at that height for all walls, which exceed the height specified.
- **Post** - A post can be placed in a wall by marking its position and entering its size. This post extends from the top plate to the bottom plate.

Unique to Floors

SolidBuilder ➡ **Settings** ➡ **Model**

The following settings in **SolidBuilder** are unique to floors.

- **Sheathing Depth** – Floors include a depth for the sheathing thickness.
- **Automatic Channel Placement** – A command allows you to automatically place a channel underneath or above selected walls that run parallel to the joists.

Unique to Ceilings

SolidBuilder ➡ **Settings** ➡ **Model**

The following settings in **SolidBuilder** are unique to ceilings.

- **Trim** - The end of ceiling joists may be trimmed to the top or bottom of a roof

Unique to Roofs

SolidBuilder ➡ **Settings** ➡ **Model**

The following settings in **SolidBuilder** are unique to roofs.

- **Gables** - **SolidBuilder** allows for the placement of gables with or without lookouts. You enter the lookout size and the layout distance. If you choose no lookouts, the barge rafter is placed on the edge of the roof. Gables also include a feature to form a triangular piece at the bottom of the gable. This visually represents the flat soffit trim pieces, which finish the end of a gable and eave.
- **Eaves** - Eaves are placed on the horizontal edges of roofs. You may select one of three cut styles as well as the overhang distance of the eave. The eave distance is measured horizontally from the outside edge of the eave to the outside edge of the wall.
- **Joiners** - Joiner is the **SolidBuilder** term for hip, ridge, valley and broken hip members. You set the size of the member and the distance down from the top of the intersecting roofs to the top of the joiner.

Unique to Sill Plates

SolidBuilder ➡ **Settings** ➡ **Model**

The following settings in **SolidBuilder** are unique to sill plates.

- **Sill plates** - Sill plates are framed by entering a maximum length. All sill plates that are longer are divided into members that are equal to or shorter than this given length.

Unique to Girders

SolidBuilder ➡ **Settings** ➡ **Model**

The following settings in **SolidBuilder** are unique to girders.

- **Girders and Posts** - Girders and posts are framed to the length and height entered.

Framing Definitions

Wall

Walls have the widest variety of framing options due to the complexity of openings and corner conditions.

Plans often designate walls as 8' or 8'1". However, this is often an approximation, with the actual height of the wall intended to be the length of the precut standard stud (typically 92_ 5/8") plus the total thickness of three plates (4 1/2", typically). This would result in a wall height of 8' 1_1/8".

You must insure that the number you use for the height of your standard wall is the sum of your

pre-cut standard stud length and the thickness of three of your standard thickness plates. You must also insure that the pre-cut standard stud with the appropriate length is in the database. Otherwise, you may cut the (pre-cut) studs from longer members in the material database.

- **Stud width:** This is the least dimension of the stud material, typically 1_1/2" for a 2x4 stud. This is measured across the face of the wall.
- **Stud Thickness:** This is the depth of the stud, typically 3_1/2" or 5_1/2" for 2x4 or 2x6 walls.
- **Stud Center to Center:** This is the distance between common points on studs, typically 16 or 24 inches.
- **Standard Wall height:** This value sets the default wall height. This is the exact height of the stud plus all plates.
- **Studs at wall peak:** For gable walls, this determines the number of studs to be placed at the peak, either 0, 1, 2 or 3. If an odd number is selected, the middle stud is double beveled cut.
- **Bottom Plates and Top Plates:** This is the number of plates (0, 1, 2, or 3). Usually this is set to 1 for bottom plates and 2 for top plates. It may be set to 0 for gable walls where the studs run from the top of another wall to the rafter bottom.
- **End Studs:** This is the number of studs to be placed at the ends of a wall.
- **Bottom-step Studs:** This is the number of studs to be placed between two bottom plates at a bottom wall step or change in elevation. Step studs would also be used on a stepped foundation wall.
- **Plate repeat length:** This is the longest piece of plate stock that you use.
- **Minimum Plate length and break stagger:** This is the minimum length of plate you want to use in a wall. This is also the minimum distance between the break of one plate and the break of the plate above or below it.
- **Very top plate lap:** This is the minimum length of a break between the Very Top Plate and the Top Plate.
- **Top plate thickness:** This is the vertical dimension of the top plates, typically 1_1/2".
- **Bottom plate thickness:** This is the vertical dimension of the bottom plates, typically 1_1/2".
- **Shear wall bottom thickness:** This is the vertical dimension of the bottom plates if a wall has been designated as a shear wall.
- **Header table to use:** This allows you to choose one of three header tables. These are designated as none, 1 story_ above, 2 story_ above, or no_story above. Values for these tables are set by the Database - Header command in **SolidBuilder**.
- **Thick trimmer thickness:** This is the thickness of the trimmer selected as a thick

trimmer at the time the opening is inserted.

- **Add trimmer if width exceeds:** This is the distance of the opening width, which determines if an extra trimmer is to be added automatically at the opening sides.
- **Add sill if width exceeds:** This is the distance of the opening width, which determines if an extra sill is added at a window opening.
- **Extend header if gap less than:** This value determines if a header spans two openings. If two openings are closer than this value, a single header is automatically placed across both openings.
- **# Circular Sides:** This is the number of facets, or flat sides that **SolidBuilder** uses to create any window or door opening having an arch or circle. You must enter a value between six and 32 facets.
- **Rough in delta width:** This is the value that equals the rough in value to be added to the finished width.
- **Rough in delta height:** This is the value that equals the amount to be added vertically to the opening.
- **Top of finished opening:** This is the height of the top of the finished opening from the bottom of the wall. If you want your header tight to the top plate, you calculate the value that is equal to the stud length plus bottom plate thickness minus your header depth.
- **Number Headers:** You can select from 0-5 ply headers.
- **Header width (ea):** This is the dimension across the top of the header when you have selected the double-header option. If you select a single header, the header width is the same as the wall thickness.
- **Header depth:** This is the vertical dimension of the header.
- **Header Sill Thickness:** This is the vertical dimension of the header sill. The header sill is only valid when Header to Top Plate is checked on.
- **King Studs:** The stud that runs from the bottom of the top plate to the top of the bottom plate next to a header. You may have 0, 1, 2 or 3 king studs.
- **Trimmers:** The stud that runs from the bottom of the header to the top of the bottom plate. You may have 0, 1, 2 or 3 trimmer studs.
- **Floating trimmers:** A stud placed vertically inside a window opening that runs from the bottom of the header to the top of the windowsill. You may have 0, 1, 2 or 3 floating trimmer studs.
- **Floating trimmer thickness:** This is the thickness of a floating trimmer.
- **Cripples:** The short studs that run from the bottom of the top plate to the header and the studs that run from the bottom of a windowsill to the top of the bottom plate. You may have 0, 1, 2 or 3 cripple studs.

- **Sills:** The horizontal member forming the bottom of a window opening. You may have 0, 1, 2 or 3 windowsill plates.
- **Sill thickness:** This is the default sill thickness.
- **Perimeter trim thickness:** This is the default thickness of a concentric trim symbol.
- **Perimeter trim width:** This is the default width of a concentric trim symbol.
- **Backed Channels - Use Adjoining Wall Width:** This toggle allows you to set **SolidBuilder** so that the size of the channel is determined automatically based on the width of the adjoining wall. For example, if the adjoining wall is created as 2x4 construction element and this is toggled on, **SolidBuilder** automatically creates the backed channel as a 2x4.
- **Backed channels - Width:** This option allows you to specify what size you want the width of the channel to be created without consideration to the size of the adjoining wall. In order for this option to work the Use Adjoining Wall toggle is toggled off.
- **Backed channels - King Studs:** This is the number of king studs you may have on either side of a backed channel. You may have 0, 1, 2 or 3 on either side. You might select 0 king studs if you were using framing clips for sheet rock backing.
- **Backed Channels - Type:** Within **SolidBuilder** you have the option to select between two different corners on walls that create a T intersection. These two options are Regular and Stud Block.

Regular - Generates a channel for the entire height of the wall - from top plate to the bottom plate. The width is determined by the settings mentioned earlier in this section.

Stud Block - This option places three blocks in place of the complete stud. These blocks are generated as one at the top, one at the bottom, and one centered. The width of the blocks is determined by the settings defined earlier in this section, and the lengths are defined by the settings in the blocking tab - Length of Corner and Channel Blocks.

- **Blocking - Line block Pattern:** Blocking can be in line or staggered.
- **Blocking - Block bays beside channel & openings:** You may block 0, 1, 2 or 3 bays from a channel or opening.
- **Blocking - Block bays at each end of wall:** You may block 0, 1, 2 or 3 bays from the end of a wall.
- **Blocking - Length of Corner & Channel blocks:** This setting determines the length of the blocks used when the option Type – Stud Block is toggled on in the backed channels section. This measurement is the length of each separate block placed within the channel.
- **Blocking - Place a line at height of:** This is the vertical distance at which a line of blocking is placed. If you do not want blocking, set this to a higher value than your average wall height.

- **Blocking - Thickness of blocks:** This sets the default thickness of blocks.
- **Shear wall - Linestyle of designation:** This is the default style for shear walls.
- **Sheathing - Extension at bottom:** This is the default value to extend sheathing past the bottom edge of the sheathing template.
- **Sheathing - Extension at top:** This is this is the default value to extend sheathing above the top edge of the sheathing template.
- **Sheathing - Holdback around openings:** This is the default value to hold sheathing back from the rough opening.
- **Sheathing - Stagger successive rows:** This is the default value for staggering sheathing.
- **Sheathing - Default sheathing choice:** This is the default material choice.
- **Log Walls - Wall Width:** This is the Width of the Log.
- **Log Walls - Log Thickness:** This is the Height of the Log.
- **Log Walls - Log center-to-center:** This is the default value for the spacing of logs, usually set to the same value as the thickness.
- **Log Walls - Whole Log at Bottom:** This will place a whole log at bottom of the wall if checked. If not checked, **SolidBuilder** will place a half log.
- **Log Walls - Circular Logs:** This will frame in round logs if checked. If not then **SolidBuilder** will frame square logs.
- **Log Walls - # of Circular Sides:** Enter number of edges for circular logs. The maximum is 32 sides.
- **Log Walls - Saddle Notch:** This will frame a notch in the logs at the corners. Every other wall needs to have a half or full log.
- **Log Walls - Lap Corners:** This will extend the walls at the corners. Enter the distance for the length of overhang.
- **Skin selection option:** This is the default option to select or de-select skins choices.
- **Layout Points - Visibility:** This sets the visibility of layout points.

Floors

Floor framing settings include the sizing and layout distance of the joists as well as the corner lapping of the rim and end joists. Openings and channel framing options are set here.

- **Joist Thickness:** This value is the thickness of the joist as measured across the top edge.
- **Joist Depth:** This value is the depth of the joist as measured vertically.
- **Joist Center-to-center:** This value is the center-to-center layout distance between joists.
- **Slab Thickness:** When you create a slab floor, this value is the default thickness of that slab.
- **Outliners Rim Joists:** Outliners are the outer framing of the floor or ceiling. They include the end joists and rim joists. You may select rim blocking rather than rim joists. You may select 0, 1, 2 or 3 members (end/rim joists or rim blocking).
- **Outliner Max. Length:** This is the maximum length of the member that is used for the rim joists.
- **Outline Min. length:** This is the smallest member that is generated by the program.
- **Outline Joint Types:** This option allows you to determine the intersection of combinations of end joists, rim joists or rim blocks. You may select RL for run long, RS for run short or MI for miter.
- **Openings Kings:** You may have 1, 2 or 3 kings placed on each side of an opening.
- **Openings Headers:** You may have 1, 2 or 3 headers placed at each end of the opening.
- **Open Channels Width:** This is the width of an open channel.
- **Open Channels Kings:** You may have 1, 2 or 3 king members on either side of a channel.
- **Closed Channels King joist:** You may have 1, 2 or 3 king joists placed side by side to form a closed channel. This is often used to insert extra framing members.
- **Backed Channels Width:** This is the width of a backed channel. The difference between an open channel and a backed channel is that a framing member is placed flat between the channel kings.
- **Backed Channels King Joists:** You may select 0, 1, 2 or 3 king members to be placed on either side of a backed channel.
- **Backed Channels Channel back flush:** You have the option of placing a backed channel at the top or the bottom of the floor. A 2 x 6 backed channel with no kings placed at the bottom of a floor along the line of a wall located beneath the floor would serve as sheet rock backing.
- **Ladder Channels - Ladder block thickness:** This is the thickness of the ladder block member. You must have this size in a lumber database.
- **Ladder Channels - Ladder block width:** This is the width of the ladder block member.

You must have this size in a lumber database.

- **Ladder Channels - Center-to-center:** This is the distance between ladder channels.
- **Ladder Channels - Style:** Ladder channels may be flat or vertical.
- **Breaks - Break type:** You may elect to butt the joists at a break line or lap the joists.
- **Breaks - Blocking:** You may elect to automatically block a break line.
- **Breaks - Splice/overlap length:** This is either the size of the splice block (if you chose butt in the preceding option) or the amount of overlap of the joists (if you chose overlap in the preceding option).
- **Breaks - Beam width:** If the breaks are to be supported by an in floor beam, this sets the width of the beam. The beam thickness is the same as the floor thickness.
- **Blocking Pattern - In line or staggered:** Blocking may be in line or staggered for easier nailing.
- **Blocking - Thickness:** This sets the thickness of the blocks.
- **Outliner Joint Types:** This determines the method of lapping for floor outliners.
- **Sheathing:** - Sheathing Material can either be Sheet or Planking.
- **Sheathing - Stagger successive rows:** This is the stagger value for alternate rows when laying plywood.

Ceilings

The ceiling framing conditions are almost identical to floors. However, a ceiling does not include sheathing. In addition, a ceiling can be trimmed to a roof, resulting in notches at the top of the ceiling joists typically at the line where the ceiling and roof intersect.

Roofs

The roof section includes framing conditions as well as the placement of planes, which determine the position of the roof, and how it intersects with bearing walls.

- **Roof Slope:** This is a numerical value, which sets the slope of the roof.
- **Planes - Rest Type:** This is the method of placing the plane. Seat is the horizontal measurement of the rafter cut. Birdsmouth is the vertical distance of the top of the cut to the bottom of the rafter; HAP is the vertical distance from the top of the cut to the top of the rafter. Butt is used for rafters that are supported by extended ceiling joists and which are not notched for the wall. See Roofs on page 271 for more in-depth explanations.

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- **Rafters - Width:** This is the least rafter dimension, measured across the top of the rafter, typically 1_1/2" for 2x material.
- **Rafters - Depth:** This is the rafter dimension that is measured vertically down the side of the rafter, i.e. 7_1/2" for a 2x8 rafter.
- **Rafters - Center-to-center:** This is the layout distance between center points on rafters.
- **Rafters - Wall sheathing correction:** This is the default value for adjusting the birdsmouth cut for wall sheathing.
- **Openings Kings:** You may have 1, 2 or 3 kings placed on each side of a roof opening.
- **Openings Headers:** You may have 1, 2 or 3 headers placed at each end of a roof opening.
- **Ladder Channels - Ladder block thickness:** This is the thickness of the ladder block member. You must have this size in a lumber database.
- **Ladder Channels - Ladder block width:** This is the width of the ladder block member. You must have this size in a lumber database.
- **Ladder Channels - Center-to-center:** This is the distance between ladder channels.
- **Ladder Channels - Style:** Ladder channels may be flat or vertical.
- **Breaks - Break type:** You may elect to butt the joists at a break line or lap the joists.
- **Breaks - Splice/overlap length:** This is either the size of the splice block (if you have chosen butt in the preceding option) or the amount of overlap of the joists (if you chose overlap in the preceding option).
- **Gables - Style:** Gable lookouts may be normal or flat or you may have no lookout.
- **Gables - Overhang Distance:** This is the distance from the gable edge of the roof to the wall.
- **Gables - Support Distance:** This is the distance that the lookout is extended back into the roof for support. It is extended to the next rafter beyond this distance. You may enter 0 and the lookouts will be framed to the outside edge of the end rafter.
- **Gables - Lookout width:** This is the width of the lookout as measured across the top (if in normal position). It is typically 1_1/2".
- **Gables - Lookout depth:** This is the depth of the lookout, as measured at right angles to the top (if in normal position). It is typically 3_1/2".
- **Gables - Center-to-center:** This is the layout distance between the lookout blocks.
- **Gables - Return Distance:** This is the distance from the lower end of the gable intersection with an eave to which a triangular filler piece is added. This is to give a better

visual appearance before fascia is added.

- **Eaves - Style:** This is the cut on the end of the rafter. This may be square cut, plumb cut or a plumb cut and level cut combination.
- **Eaves - Overhang:** This is the horizontal distance of the eave overhang.
- **Eaves - Heel cut:** This is the vertical dimension on the eave edge that determines where the level cut is placed on a plumb eave. The default is 4".
- **Eaves - Fascia width:** This is the dimension of the fascia as measured across the top, typically 3/4" or 1_1/2".
- **Eaves - Fascia depth:** This is the dimension of the fascia as measured vertically.
- **Joiners - Join member Width:** This is the width of the joiner member as measured across the top, typically 1_1/2".
- **Joiners - Join member Depth:** This is the vertical dimension of the joiner.
- **Joiners - Drop below roof:** This is the distance from the top of the joiner to the top edge of the intersection of the two roofs above the joiner.
- **Fascia length - Maximum fascia length:** This is the maximum length of framing material for the fascia.
- **Fascia length - Fascia repeat length:** This is the maximum length of framing material for the fascia.
- **Fascia length - Fascia min length:** This is the minimum length of the fascia material to be used.
- **Blocking - Depth of Blocking:** This is the depth or height of the blocking.
- **Blocking - Blocking at exterior wall:** You may select automatic blocking, either frieze or shear at an exterior wall.

Sill Plates

Sill plates are defined by their thickness (vertical measurement) and width (horizontal measurement). They are optimized to the best length prior to being framed while not exceeding the minimum or maximum stock size.

- **Sill-plates - Thickness:** This is the default dimension of the sill plate material, typically 1_1/2". This represents the vertical measurement at the side of the sill plate.
- **Sill-plates - Width:** This is the default width of the sill plate, typically 3_1/2" or 5_1/2". This dimension is measured horizontally across the sill plate.
- **Sill-plates - Standard length:** This is the default length for the longest piece of material

that is used.

- **Sill-plates - Minimum Length:** This is the smallest sill plate that is used.
- **Footers - Thickness:** This represents the vertical measurement at the side of the footer.
- **Footers - Width:** This is the default width of the footer.
- **Footers - Depth:** This is the default depth of the footer.
- **Footers - # Circular Sides:** This is the number of facets, or flat sides, that **SolidBuilder** uses to create a circular footer.

Girders and Posts

The girder post capabilities of **SolidBuilder** allow you to define the framing support for girders that penetrate walls.

- **Girders - Width:** This is the dimension measured across the top of the girder, typically 3_1/2".
- **Girders - Depth:** This is the vertical dimension of the girder. The pocket preferences are only used when a girder projects into a wall.
- **Pockets - King Studs:** You may have 0, 1, 2 or 3 king studs that are placed along the sides of the girder.
- **Pockets - Trimmers:** You may have 0, 1, 2 or 3 trimmers placed under the girder.
- **Pockets - Supports:** You may support the girder with trimmers, in which case the preceding value for the number of trimmers is used, or you may elect to use a post, in which case the next two preferences are used.
- **Posts - Width1:** This is the width of the post used to support the girder, typically 3_1/2".
- **Posts - Width2:** This is the other cross section dimensions of the post used to support the girder, typically 3_1/2".
- **Posts - Height:** This is the height of the post used to support the girder.



Chapter 28: Sheathing

SolidBuilder ➔ Sheathing

Icon: 



There are two methods of calculating sheathing. One is to include the sheathing in an assembly and attach that assembly to a shell. This method will calculate the square footage, divide it by the square feet per sheet and give a total. The second method is to use the sheathing command as described here. This command will actually layout and place each sheet and show how to cut it. Typically if you do not need the cutting drawings, using the assembly method is much faster.



Use one method or the other but not both as you will get double the quantity in the estimate.

Framing Verses Sheathing

In the framing part of **SolidBuilder**, each individual shell is framed independently. With a few exceptions, there is little dependency on other shells. The main exception is walls, where the intersection of other walls necessitates the insertion of channels and blocking members.

With sheathing, there is often a relationship to other shells so that individual shells may not be sheathed individually. For example, the sheathing of a typical wall requires you to sheath the ends of the walls that intersect the end of the wall being sheathed, if the wall runs short relative to the intersecting walls. In addition, it is common for the sheathing of some walls to cover the floor's/floors' edges above or below the wall.

With framing, each shell is individually framed. **SolidBuilder** does not sheath an individual shell but rather places sheathing on Sheathing Templates. A sheathing template consists of a group of surfaces from different shells. The surfaces that make up an individual template are each from a separate shell and all lie in the same plane. For example, a sheathing template for a wall that runs short on both ends that rests on a floor includes:

- The face of the wall
- The ends of the two adjoining walls
- The edge of the floor plywood
- The edge of the floor
- Sheathing is then applied to this template



The Sheathing Process

Sheathing is a straightforward process. The steps include:

- Describing the sheathing material
- Creating the sheathing template

Positioning and staggering the sheathing material
Creating the sheathing
Producing the sheathing output

Each of these steps is summarized in the following sections. The **SolidBuilder** commands used to achieve the results are listed.



Describing the Sheathing Material – The Database and Standards

Before you can sheath the structure, you must have information placed in the Items Database. Some sheathing material is supplied with **SolidBuilder**. To add more sheathing material or to change the database supplied with the software, use the Database Items command.

Once the sheathing items are in the Items Database, they must also be entered in the Sheathing Database. This list is accessed through the Database - Sheathing command. This list describes the sheathing materials including fields for the Sheathing (name), Thickness, Width, Length, ItemNo, Color Pallet (color) and Styles (linestyle). This list is linked to the item database through the Item No field.

The Sheathing field must contain a name from the Sheathing Materials Choices List described in the above paragraph exactly as it displays in that list.

Templates

SolidBuilder ➔ Sheathing ➔ Template ➔

Icon: 

Templates

The sheathing template consists of a set of surfaces that have been combined into a single polygon. The surfaces that form a template come from:

- Roof, ceiling and floor tops.
- Eave and gable tops.
- Wall faces.
- Wall ends.
- Floor, floor sheathing, ceiling and sill plate edges.

A Sheathing Template is created by selecting a shell (called the Master Template Shell) when prompted. **SolidBuilder** locates all the surfaces that are in the plane of the face of the selected shell. You select the ones to be combined for the template.

Walls operate in a slightly different manner for combining surfaces. For floors, ceilings and roofs you select the surfaces in the same plane and add them to the face of the master template shell. For walls, all available surfaces in the same plane of the Master wall are first automatically added to the master template wall face. You then select the surfaces that are to be removed from the group of surfaces. This is done because in most cases, surfaces are added to a master template wall while the opposite occurs for Floors, Ceilings and Roofs. Once a wall-sheathing template is formed, adjustments are made to its shape. For walls, the top

and bottom horizontal edges are raised or lowered by a distance equal to the values in the Extension at bottom and Extension at top fields of the Create Sheathing Template dialog box. In addition, the edges of the sheathing around the openings are adjusted based on the value of Hold-back around openings field.



Positioning and Staggering the Sheathing Material

Once the Sheathing Template is created, you must position a rectangle representing the particular sheathing material you select. Immediately after the Sheathing Template is created, the red orientation rectangle is displayed within or near the Sheathing Template. Using the right arrow and left arrow keys, you can reorient the orientation rectangle by 90 degrees. The orientation rectangle has only two possible positions.

After the orientation rectangle is placed, the Layout is displayed. The right arrow and left arrow keys allow you to move this rectangle at right angles to the layout of the framing materials. The distance moved each time you press the arrow keys is equal to the center-to-center distance of the master template shell.

You may also move the layout rectangle in a direction parallel to the layout of the framing members by pressing the right arrow or left arrow keys. You can move this to a selected number of possible positions. These positions include the top and bottom of the sheathing template as well as intermediate locations. The locations are:

- Top of template
- Bottom of template
- For roofs, top and bottom of eave or gable
- Any step change in template top or bottom



Creating the Sheathing

Sheets of sheathing are placed and trimmed to the edges of the sheathing template and the openings. The sheathing is placed so that a full sheet falls on the layout rectangle and other sheets are laid out from the layout rectangle.

Adjustments are made to the vertical edges of wall sheathing templates so that the sheathing material overlaps. For walls that run long, the edge-sheathing sheet comes to the edge of the wall. For walls that run short, the edge sheathing is extended past the wall edge and past the end of the adjoining wall to the outer face of the adjoining sheet.

Adjustments are also made to openings based on the Hold Back at Opening field. This allows windows and doors to be installed directly against the framing members.

Sheathing appearance is under control of the Database - Sheathing command. You may select different colors or line styles in this menu.

The sheathing wall lapping is visible in a plan view. Note that the sheathing is displayed as a single polygon rather than a shell with thickness. As a result, the corner lapping at walls shows one line extending past the end of the wall to a point where it will intersect the outside of the adjoining sheets.



Producing the Sheathing Output

Once the sheathing has been created, you can produce output for use in ordering materials and cutting the sheathing. There are three commands for producing output. Two of these commands are part of the sheathing menu. These are Sheathing - Cutting Drawing and Prod Drawing. The third command used to produce sheathing output is the Quantities - Reports command.

Sheathing - Cutting Drawing: This command produces a drawing of the sheathing material with dimensions. Each individual full size-sheathing sheet is displayed along with the pieces that are to be cut from that sheet. The names of the pieces are displayed on each piece. Below the sheathing sheet, the number of pieces of sheathing sheet required is listed along with the dimensions of each of the pieces on the particular sheet.

SolidBuilder prints the sheathing material by Sheathing Material Option and by Batch. If you have one Sheathing Material Option and two batch numbers, two reports are printed. If you have two Sheathing Material Options and two batches, then four reports are printed.

If the same sheathing material (as distinguished by its unique division, subdivision and item number) is used for sheathing in this part of the program as well as an item in an assembly, then the item appears twice in the estimate.

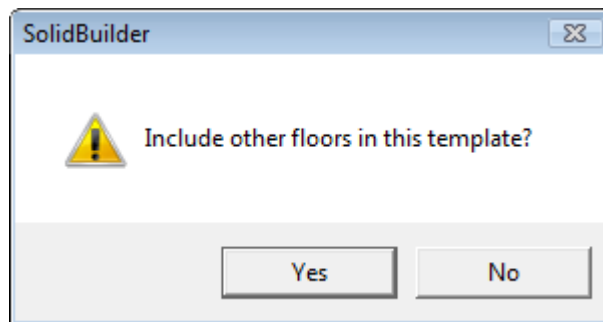
Floor Templates

SolidBuilder ➔ Sheathing ➔ Template ➔ Floor

Icon: 

Floor Sheathing

1. You are prompted:
Select a floor for <sheathing choice> - Template <number>
2. Select a floor. The first floor selected for the template is called the master template floor.
3. If there are other floors whose tops are at the same elevation as the floor you select, the following dialog box displays.



4. If you choose the Yes option, you are prompted:
Select all floors of <sheathing choice> - Template <number>
5. Select the other floors, which are to be part of this template.
6. After you have selected a single floor or a group of floors (if you chose the Yes option in the preceding dialog box) or if you chose No in the preceding pop-up, you are prompted:
Press arrow key to rotate <sheathing choice> sheathing. ENTER to select.
7. A red rectangle (called the orientation rectangle) is displayed on the floor. Typically, this is in the lower left hand corner of the floor, viewing a floor in plan view with a vertical layout direction. However, it may be placed at some other position or even outside the floor if the floor has edges that are not horizontal or vertical. Press the right arrow or left arrow keys to rotate the orientation rectangle by 90 degrees. There are only two positions for the orientation rectangle. Once you have oriented it to your satisfaction, press Enter.
8. The red orientation rectangle is replaced by a red layout rectangle. A diamond shaped polygon is located in one corner of the layout rectangle. This represents the sheathing Start Point (layout point), which is the initial location from which all sheathing is laid out. You are prompted:
Press arrow keys to locate START POINT. ENTER to select
9. You may shift the start point of the sheathing using the four arrow keys. The left arrow and right arrow keys move the layout rectangle at a 90-degree angle to the layout direction. The left arrow and right arrow keys move the layout rectangle in a direction parallel to the layout direction.
10. Each time you press the left arrow and right arrow keys the layout rectangle moves by an amount equal to the center-to-center distance of the shell being sheathed.
11. The up arrow and down arrow keys move the sheathing polygon to the topmost edge (or point) of the shell, to its bottom most edge or point and also to intermediate points where the top or bottom of the shell steps or changes angles.
12. Once you have positioned the start point, press Enter. The prompts are repeated until sheathing templates have been created for all the selected floors or until you press Esc.
13. When all the visible floors have been laid out, the following message is displayed:
Place Sheathing-
14. Select Yes or No.

You may wish to change certain parameters in the Sheathing Template dialog box as you lay out the floor shells. At any point in the sequence, press Esc until the Sheathing Template dialog box displays and make your changes – you do not have to return to the Sheathing Template menu.

Wall Templates

SolidBuilder ➡ Sheathing ➡ Template ➡ Wall

Icon: 

Wall Templates

4. After selecting the wall shell type, you are prompted:
Select a wall for <sheathing choice> - Template <number>
5. Select a wall. **SolidBuilder** collects all the faces or edges of shells that are in the same plane as the wall and group them. You are then prompted to de-select the polygons that are not to be part of this template.
De-Select surfaces of <Sheathing Material Option> - Template <number>
6. To select the items to be de-selected, click the left mouse button or press Enter. When all the surfaces to be de-selected have been selected, press the right mouse button or the F10 key. You are prompted:
Press arrow key to rotate <sheathing choice> sheathing. ENTER to select.
7. The red orientation rectangle is displayed on the sheathing template at the lower left hand corner of the wall template. Press the right arrow or left arrow keys to rotate the sheathing rectangle by 90 degrees. Once in the desired orientation, press Enter to select the orientation for the template. The red layout rectangle displays and you are prompted:
Press arrow keys to locate START POINT. ENTER to select
7. You may shift the Start Point and layout rectangle horizontally with the left arrow and right arrow keys and vertically with the up arrow and down arrow keys. The horizontal distance moves are equal to the center-to-center stud spacing of the master template wall. The vertical movement is determined by the top and bottom edges of the template. The vertical movement of the layout rectangle is to the topmost edge (or point) of the shell and to its bottom most edge or point and also to intermediate points where the top or bottom of the wall steps or changes angles.
7. After all the visible walls are laid out, you are prompted:
Place Sheathing -
8. Select Yes or No.

Remember that wall templates require you to de-select surfaces. Wall sheathing surfaces used to create the sheathing template include the wall face, floor edges, floor sheathing edges and sill plate edges.

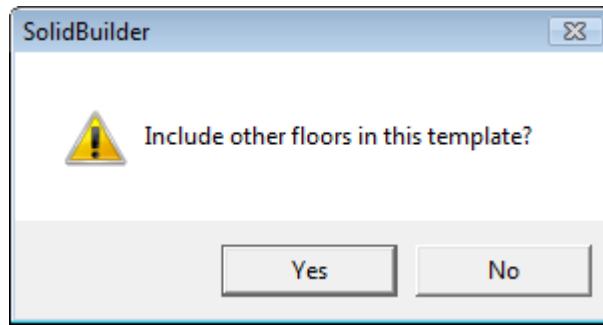
Ceiling Templates

SolidBuilder ➡ Sheathing ➡ Template ➡ Ceiling

Icon: 

Ceiling Templates

1. After selecting the ceiling shell type, you are prompted:
Select a ceiling for <sheathing choice> - Template <number>
2. Select a ceiling. The first ceiling selected for the template is called the master template ceiling.
3. If there are other ceilings whose tops are at the same elevation as the floor you select, the following dialog box displays.



4. If you choose the Yes option, you are prompted:
Select all ceilings of <sheathing choice> - Template <number>
5. Select the other ceilings which are to be part of this template.
6. After you have selected a single ceiling or a group of ceilings (if you chose the Yes option in the preceding dialog box) or if you chose No in the preceding pop-up, you are prompted:
Press arrow key to rotate <sheathing choice> sheathing. ENTER to select.
7. A red rectangle (called the orientation rectangle) is displayed on the ceiling. Typically, this is in the lower left hand corner of the ceiling, viewing a floor in plan view with a vertical layout direction. However, it may be placed at some other position or even outside the ceiling if the floor has edges that are not horizontal or vertical. Press the right arrow or left arrow keys to rotate the orientation rectangle by 90 degrees. There are only two positions for the orientation rectangle. Once you have oriented it to your satisfaction, press Enter.
8. The red orientation rectangle is replaced by a red layout rectangle. A diamond shaped polygon is located in one corner of the layout rectangle. This represents the sheathing Start Point (layout point), which is the initial location from which all sheathing is laid out. You are prompted:
Press arrow keys to locate START POINT. ENTER to select
9. You may shift the start point of the sheathing using the four arrow keys. The left arrow and right arrow keys move the layout rectangle at a 90-degree angle to the layout direction. The left arrow and right arrow keys move the layout rectangle in a direction parallel to the layout direction.
10. Each time you press the left arrow and right arrow keys the layout rectangle moves by an amount equal to the center-to-center distance of the shell being sheathed.
11. The up arrow and down arrow keys move the sheathing polygon to the topmost edge (or point) of the shell, to its bottom most edge or point and also to intermediate points where

- the top or bottom of the shell steps or changes angles.
12. Once you have positioned the start point, press Enter. The prompts are repeated until sheathing templates have been created for all the selected ceilings or until you press Esc.
 13. When all the visible ceilings have been laid out, the following message is displayed:
Place Sheathing-
 14. Select Yes or No.

You may wish to change certain parameters in the Sheathing Template dialog box as you lay out the ceiling shells. At any point in the sequence, press Esc until the Sheathing Template dialog box displays and make your changes – you do not have to return to the Sheathing Template menu.

Roof Templates

SolidBuilder ➡ Sheathing ➡ Template ➡ Roof

Icon: 

Roof Templates

1. After selecting the roof shell type, you are prompted:
Select a roof for <sheathing choice> - Template <number>
2. Select a roof. If there are other roofs whose tops are in the same plane, you are prompted:
Select all roofs and overhangs of <Sheathing Material Option>-Template <Number>
3. You are prompted:
Press arrow key to rotate <sheathing choice> sheathing. ENTER to select.
4. The red orientation rectangle is displayed outside the perimeter of the roof or overhang. Press the right arrow or left arrow keys to rotate the sheathing rectangle by 90 degrees. Once in the desired orientation, press Enter to set the orientation for the template.
5. The layout rectangle displays. Use the arrow keys to position this rectangle. You are prompted for a start point.
Press arrow keys to locate START POINT. ENTER to select
6. Just as with floors and walls, the arrow keys position the rectangle. The command proceeds until all shells selected are provided a sheathing layout or until you press Esc. The system then displays the message:
Place Sheathing-
7. Select Yes or No.

Cutting Drawings

SolidBuilder ➡ Sheathing ➡ Cutting Drawings

Icon: 

Producing the Sheathing Output

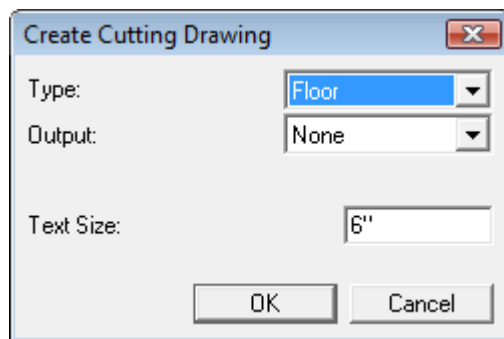
Once the sheathing has been created, you can produce output for use in ordering materials and cutting the sheathing. There are two commands for producing output. One of these commands is Sheathing - Cutting Drawing. The second command is the Quantities - Reports command to actually create the estimate.

- **Sheathing - Cutting Drawing:** This command produces a drawing of the sheathing material with dimensions. Each individual full size-sheathing sheet is displayed along with the pieces that are to be cut from that sheet. The names of the pieces are displayed on each piece. Below the sheathing sheet, the number of pieces of sheathing sheet required is listed along with the dimensions of each of the pieces on the particular sheet.

SolidBuilder prints the sheathing material by Sheathing Material Option and by Batch. If you have one Sheathing Material Option and two batch numbers, two reports are printed. If you have two Sheathing Material Options and two batches, then four reports are printed.

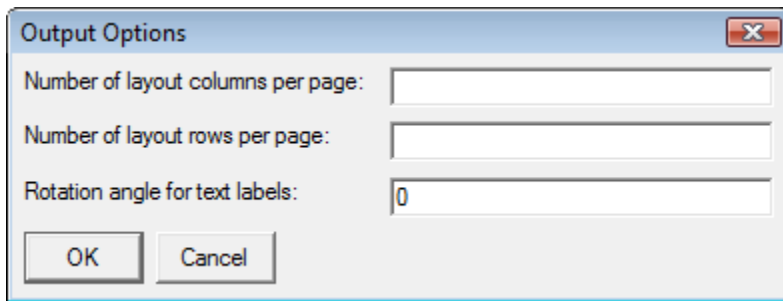
If the same sheathing material (as distinguished by its unique division, subdivision and item number) is used for sheathing in this part of the program as well as an item in an assembly, then the item appears twice in the estimate.

1. Sheathing templates and sheathing must be created prior to creating the cutting drawings. The Create Cutting Drawing dialog box (below) displays.



2. Select a shell type (floor, wall, ceiling or roof) from this dialog box. The command works in the same manner for all the shell types.
3. The Cutting drawings Output option are:
 - **None:** This option does not create sheathing cutting drawings. Although this option does not create any sheathing cutting drawings, by running the option, the sheathing is included in the estimate.
 - **Screen:** This option creates and views a sheathing cutting drawing but does not print it.
 - **Print:** This option creates and prints a sheathing cutting drawing.
 - **Save:** This option creates and saves a sheathing cutting drawing to a file. The first five characters of the file name are obtained from the file name in the bottom of this dialog box. A number is added to each drawing normally beginning with the number

1. If drawings with the same name and number exist, the number begins with the last number used. These drawings are saved in the...\SolidBuilder sub-directory.
4. Once you hit ok you will prompt you with this dialog box:



You can now customize your sheathing layouts by choosing the number of layout columns per page, the number of layout rows per page and the rotation angle of text labels.



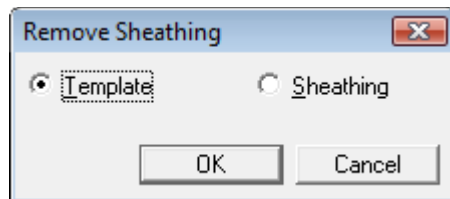
You must create cutting drawings to have the sheathing included in estimate if you are using the sheathing command rather than the assembly method.

Sheathing Remove

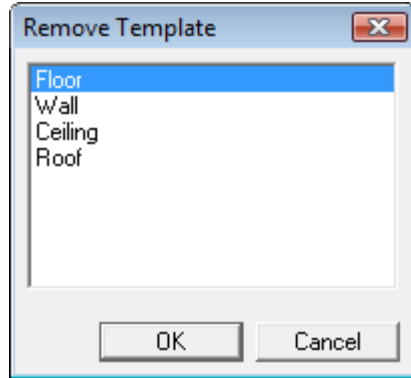
SolidBuilder ➡ **Sheathing** ➡ **Remove**

Icon:  

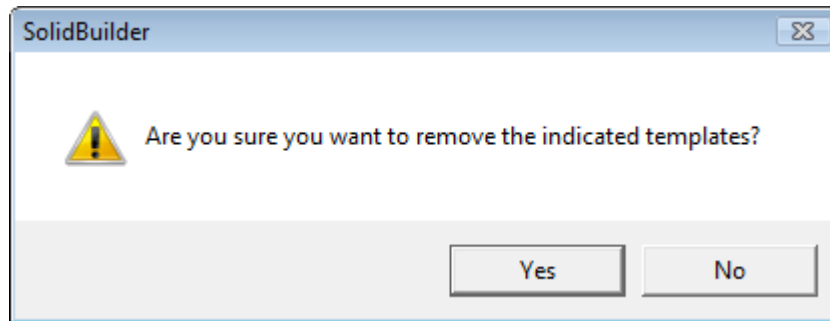
This dialog box provides for the removal of sheathing, sheathing layouts and sheathing from selected shells.



- **Template:** This selection provides for the removal of sheathing layouts from selected shells.



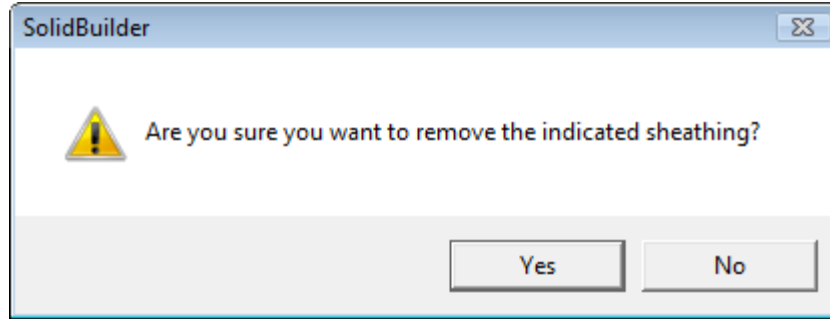
1. After selection of a shell type, you are prompted
Select templates to remove
2. The sheathing templates for the selected shell type are displayed one by one. The template name displays on the message line as the template is highlighted. Select the templates to remove. Press the F10 key to finish.
3. The Message dialog box (below) displays.



4. If you click on Yes, the templates are removed.



- **Sheathing:** This command provides for the removal of sheathing from selected shells.
 1. After selecting the shell type, you are prompted::
Select <shells> from which sheathing is to be removed
 2. Select the shells from which you want to remove all sheathing. After finishing the selection, the Message dialog box (below) displays.



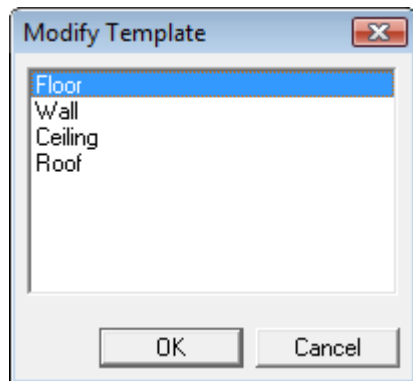
3. Click on Yes or No. Yes removes all sheathing from the selected shells. No leaves the sheathing intact.

Modify

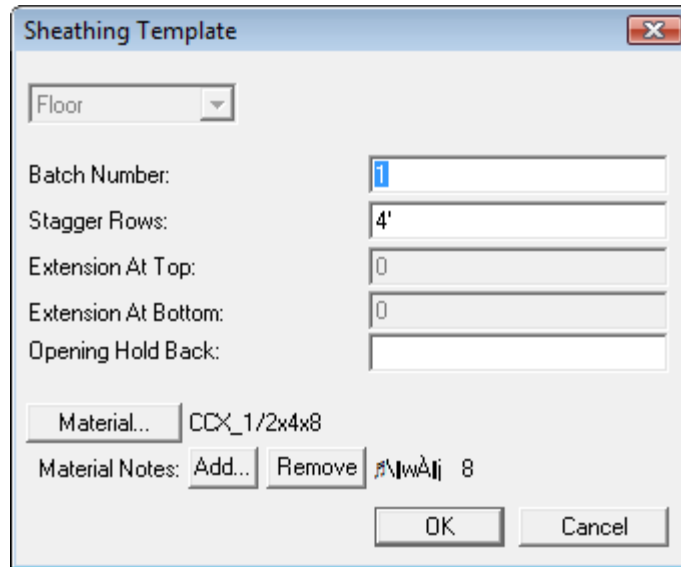
SolidBuilder ➡ Sheathing ➡ Modify

Icon:  

This command provides for modifying sheathing templates. When you select Modify the Modify Template dialog box below displays.



1. Select a shell type. You are prompted:
Select template to modify
2. Select templates to modify. The Sheathing Template box opens. This is identical to the box where you originally created the template.



3. You may modify the fields and change the Start Point.
4. Press Enter to move from the display of one shell to another.



Chapter 29: Skins

*****Skins have now been replaced with Rendering*****



Chapter 30: Quantities

SolidBuilder ➔ Quantities

Icon: 

The Quantities menu is used to takeoff and calculates estimating, ordering and cutting information from the model. The Quantities command also provides the ability to generating a variety of reports that can be printed from **SolidBuilder**. Versions of these reports can be prepared for export to other software programs such as spreadsheets, databases and even word processors. All information in the estimate and other quantity takeoffs is taken from the model with the exception of the Plan Symbols list. The Plan Symbols list is derived from the working drawings associated with the model.

To determine the lumber sizes and quantities to be ordered, **SolidBuilder** must compare all the pieces of the framed building to the available stock grades and lengths. The available lumber

stock (species and grade) is located in the item database. The database must contain a subdivision corresponding to each species/grade of lumber. Lumber subdivisions are distinguished from others by a Lumber Option of `dim_lum` or `nom_lum` listed in the fourth field of the Subdivision dialog box, (the second dialog box that displays after selecting the Database Items command). See Databases on page 475 for more information on the lumber database. Each lumber subdivision must contain all pieces of stock—Width x Depth x Length—which are available for framing the building.

The lumber needed to frame the building can be organized in packages or breakouts. The breakouts correspond, for example, to materials for level 1 walls, level 2 walls, roof, etc. There are four (fixed) choices of breakout: None, Level-Shell type, Shell type, and Workstage. A breakout of None causes the lumber for the entire building to be processed as a single package. (See also Lumber Break-out and Workstage Values, in the following section).

SolidBuilder first divides all the framing members into the selected breakout. The next steps are repeated for each breakout. The pieces of each breakout are first sorted. The pieces are processed in order of length, from longest to shortest. Each piece is first compared to the scrap pile, a list of leftover pieces created from preceding cutting. The piece is cut from scrap if possible. If a piece cannot be cut from scrap, it is compared to the stock lengths of the item database. The piece is cut from the shortest possible stock length of appropriate species/grade. The remainder, if any, is added to the scrap pile. For example, a 10'9" piece is cut from 12' stock (assuming there is no 11' stock), contributing a 1' 3" piece to the scrap pile.

Multiple pieces of the same length are handled differently. After first comparing them to scrap, they are cut in multiples of the same length from the stock that yields the least waste. For example, four 3' 6" pieces which cannot be cut from scraps are cut from a 14' stock length. The maximum length of stock, which may be cut up into multiples, is limited. This is the Stock not to exceed- item on the Create Estimate dialog box. A typical limit is 16'. This prevents, for example, 24' stock from being cut up into blocking.

If the database contains stock equaling the cut length that is not a nominal length (a multiple of two feet), it is used. This typically applies to pre cut studs. The database may contain stud grade of appropriate length, such as 92_1/4". This special length stock is not cut into shorter lengths.

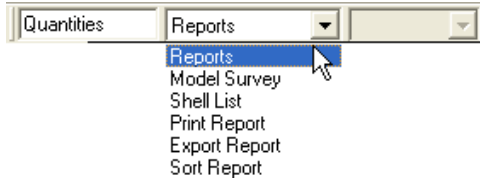
This is a summary of the cutting optimization logic. The key to its operation is that it processes the pieces in order of descending length with the intention to minimize waste whenever possible.

Reports

SolidBuilder ➡ Quantities ➡ Reports

Icon:





If you click on Reports and click on OK a list of reports, arranged alphabetically, are displayed for selection. The kinds of possible reports displayed are listed alphabetically by file suffix in the following table. (All of these file types are located in the sbbom directory).

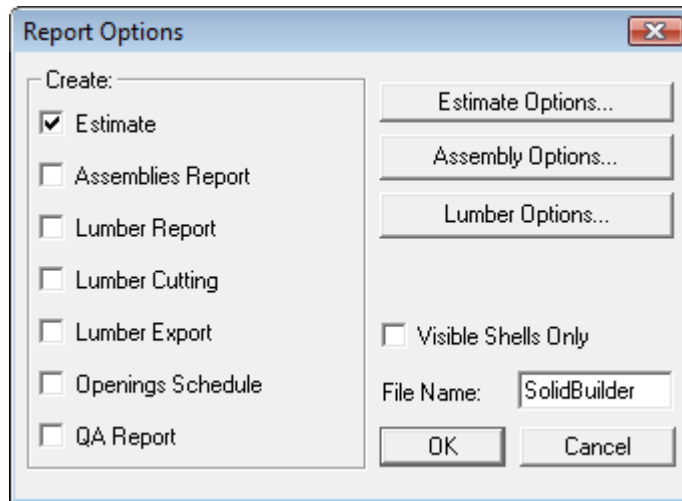
File Suffix	Name of Report	Generated by Command
.ait	Assembly Item Report	Create Reports
.csc	Lumber Cutting Export	Export
.cse	Estimate Export	Export
.csh	Shell List Export	Create Shell List
.csl	Lumber Export	Create Reports
.css	Model Survey Export	Create Model Survey
.cst	Takeoff Export	Export
.est	Estimate	Create Reports
.lct	Lumber Cutting	Create Reports
.lum	Lumber Report	Create Reports
.opn	Opening Schedule	Create Reports
.suc	Foundation Report	Create Model Survey
.suf	Floor Report	Create Model Survey
.sum	Model Survey Report	Create Model Survey
.suw	Wall Report	Create Model Survey
.lct	Takeoff	Lumber Cutting

Options

SolidBuilder ➡ Quantities ➡ Reports ➡ Options

Icon:  

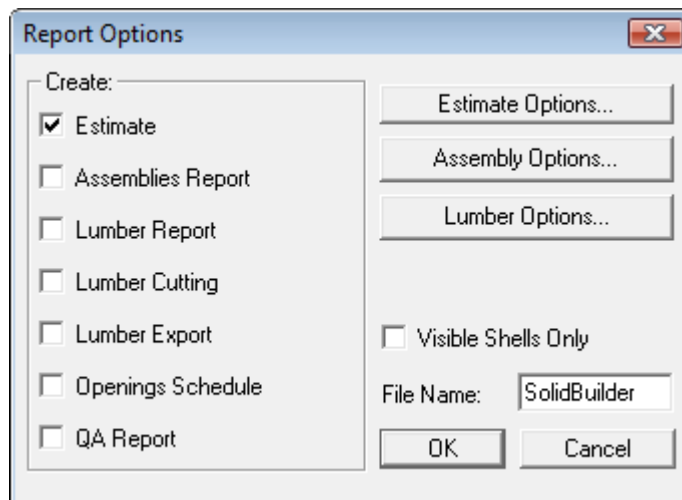
A variety of reports and options are available. Refer to the corresponding help files for detailed information on each.



Create

SolidBuilder ➔ **Quantities** ➔ **Reports** ➔ **Options** ➔ **Create**

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Create

- **Estimate:** The Estimate is a modifiable report generated from the Takeoff. It includes the lumber, sheathing, other materials, labor, equipment and sub contractor information. Using the Sort, Modify and Print functions, you can generate specific

reports for different uses. You can print all fields in the estimate or only selected fields and save your customized reports as templates.

- **Assembly Item Report:** This report is used to order all non-framing materials from the concrete in the foundation to the shingles on the roof. The information in this report is derived from items (in the Items database) that have been grouped into assemblies, which were attached to shells during the modeling process. (For more information on assemblies see Databases on page 475 in this manual). This report lists all assemblies that were used in the model, including assemblies and items assigned to model symbols and to plan symbols. Additionally, the Assembly Item report provides the takeoff of plan symbols that have been inserted on working drawings—not in the model. (This is an alternative to placing furnishing symbols in the model. It is especially useful for counting electrical materials, since it is rare to model electrical outlets and switches.) This report cannot be edited.

The plan symbols option allows you to takeoff items without placing a 3D Furnishing in the building model. The electrical outlet symbols are an example of this technique. You might also place Furnishings in the model and, using the flatten command in Working Drawings; display these on the working drawing. In this case, the cabinets would be linework rather than symbols.

It is important that you exercise care in using both Plan and Furnishing Symbols and attaching assemblies or items to these symbols to avoid double counting in the estimate.

- **Lumber Report:** This file contains a detailed breakdown of all lumber including sizes, species and grade. This report is generated from a framed model. It contains the pull lengths and is typically sent to the lumberyard. It contains only framing members. It does not contain cutting information. This report cannot be edited.

This report (*.lum) is titled "LUMBER REPORT" (left side of report) and has a heading on the right side. The heading includes the Name, Comment and Date from the New Model dialog box, which appears when you first begin to build a model. The date and time that the Lumber Report is prepared is also part of this heading.

This report is affected by the Lumber Break-out Option of the Estimate Reports and Options dialog box. (This dialog box displays when you select Quantities Create Reports). The List shells in totals field of this dialog box do not affect it.

The report is subdivided into sections controlled by the Lumber breakout option.

Within each breakout option, the materials are further sub divided into division. Within the division name, each lumber item is listed, along with the quantity, the Each order designation and the number of board feet. Also listed is the total number of cuts to be made on each particular member size.

- **Lumber Cutting:** The Lumber Cutting list is generated from a framed model. This list is used by field personnel in framing or by a lumberyard when pre cutting lumber. The list includes the members to be cut, their lengths and the stock length from which they are to be cut. The Lumber Cutting list is a modifiable report similar to the Estimate. Lumber Cutting (*.lct) may be sorted, printed and exported according to the builder's needs. Lumber can be called out by shell and by wall opening if desired. The lumber can also be called out per cut full piece, allowing a per piece cutting list to be generated. The

Lumber Cutting list is a production tool used to sort and organize the lumber into lists suitable for (1) the lumberyard, (2) the production lumber cutter and (3) the layout crew. This list may be re optimized, yielding new lumber order quantities that appear in subtotals, both on the lumber report and in the estimate.

- Field 1 – Species/grade (Species/grade): This field is the same as the Subdivision field in the item database for this framing member.
 - Field 2 – Dimension (Dimension): This field is the same as the Items Description field in a lumber subdivision of the item database.
 - Field 3 – Cut quantity (CutQty): This is the number of pieces of this stock length.
 - Field 4 – Length to cut (CutLength): This is the maximum size of the piece to cut from this item.
 - Field 5 – Use (Use): This is the framing member name.
 - Field 6 – Opening Name (OpenNm): This is the name of the door or window. This name is only shown for headers, sills and cripples cut for the opening.
 - Field 7 – Shell Name (ShellNm): This is the name of the shell to which this member belongs. This helps you organize the lumber and locate it properly on the job site. The names of the shells are typically placed on a floor plan using the Work_drw Insert labels Shell/opngs command. This labeled floor plan is used to match Production drawings to specific shells when framing the building.
 - Field 8 – Order unit (OrUn): This field contains either Ea (for Each) or Bf (for R/L).
 - Field 9 – Breakout (Breakout): This is the breakout to which this member is assigned. This is set by the option in the Estimate Reports and Options dialog box. See the Lumber and Workstage values section in this chapter.
 - Field 10 – Board Feet (Bf): The total board feet for the cut quantity of members.
 - Field 11 – Linear Feet (LF): The total linear feet for the cut quantity of members.
 - Field 12 – Piece index (PI): This field is the sequential count of pieces.
 - Field 13 – Decimal _Length (DecLen): The size of this member in a decimal format. This field is used for the initial sorting of the report.
- **Lumber Export:** This is an export file derived from the Lumber Report. It is used to incorporate the information from the Lumber Report in other reporting software or databases. The Modify Lumber Export command allows you to determine what information from the more comprehensive Lumber Report you want to export in Lumber Export—you select which fields to export and in what order these fields are to be arranged. The Lumber Export file (*.csl) is a comma separated value file, which contains all the lumber to be ordered. It is derived from the Lumber Report. Using the Modify Lumber Export command enables you to choose what information from the more comprehensive Lumber Report is to be exported in the Lumber Export file—you select which fields to export and in what order these fields are to be arranged. **SolidBuilder** provides a default report style, which uses only 7 of the 17 fixed field choices for the export file. You may modify this default report, but it is important to remember that **SolidBuilder** retains and uses your last modification or customization of the Lumber Export format to generate this report. The field format of the **SolidBuilder's** default Lumber Export report is as follows.
 - Field 1 – (blank): This is a blank field.
 - Field 2 – qty: This is the number of pieces of this particular material.
 - Field 3 – units: This is set either to Ea (each) or to Bf (board feet).
 - Field 4 – part no.: This is the width, thickness and depth of the lumber stock.
 - Field 5 – description: This is the subdivision name or number.
 - Field 6 – material: This is the specie and grade of lumber.
 - Field 7 – break out: This contains the shell_type, level and shell_type, workstage or no value.
 - **Opening Schedule:** The Opening Schedule consists of all Door and Window openings

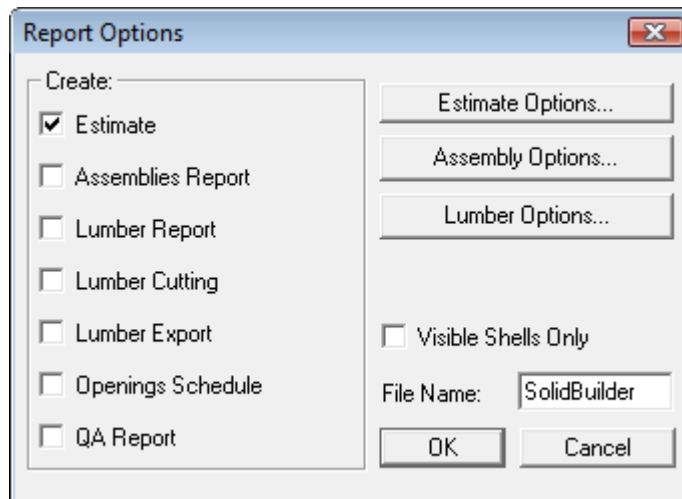
inserted in the model (using the Model Wall Insert Opening command). The Opening Schedule serves for the ordering of Doors and Windows. It also facilitates verifying the rough openings in the framing. The Openings Schedule (*.opn) is an editable list of openings in the model. The Opening Schedule may be added to working drawings via the Working Drawing ± Insert Text Table command.

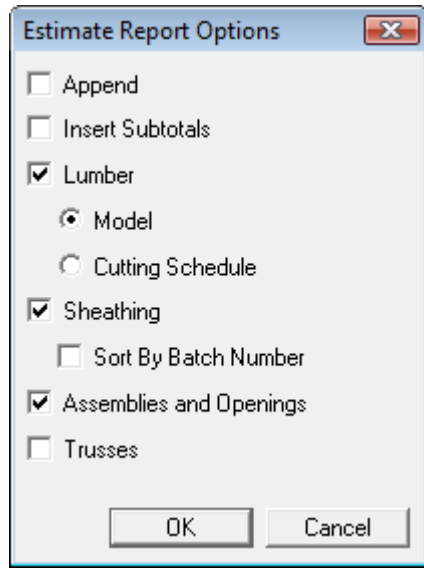
- Field 1 – Quantity (Qty): This field contains the number of units of this type to be ordered.
- Field 2 – Label (Label): This is the label that is placed on the model when you insert an opening.
- Field 3 – Item Number (ItemNo): This is the opening item number from the database set using the Wall Modify Openings Item_no command.
- Field 4 – Manufacturer (Mfr): This is the manufacturer of the opening. Manufacturer is set in the Database Openings list.
- Field 5 – Item Description (Item Description): This is the description from the item database.
- Field 6 – Rough Width (RoWid): This is the rough width of the opening.
- Field 7 – Rough Height (RoHgt): This is the rough height of the opening.
- Field 8 – Wall Thickness (WalThk): This is the thickness of the wall containing this opening.
- Field 9 – Shape (Shape): This is the shape of the opening selected at the time the opening was created.
- Field 10 – Plan Symbol (PlanSym): This is the symbol for the floor plan.
- Field 11 – Finished Width (FinWid): This is the finished opening width.
- Field 12 – Finished Height (FinHgt): This is the finished opening height.
- Field 13 – Header Height (HdHgt): This is the height of the header from the floor.
- Field 14 – Workstage (Workstage): This is the workstage of the opening.
- Field 15 – Type (Type): This is the opening type, either window or door.
- Field 16 - Hinge (Hinge): This is the hinge side designation from the front face of the wall.

Estimate Options

SolidBuilder ➔ Quantities ➔ Reports ➔ Options ➔ Estimate Options

Icon:  





- **Append:** If this option is toggled on when a new estimate is run after changes have been made, instead of updating the original estimate and creating a new estimate, an appendage is created with the changes.
- **Insert Subtotals:** This option inserts subtotals for each category in the estimate. For example, a subtotal for all 2x4 and one for all 2x6, etc.
- **Lumber:** If this option is toggled on dimensioned framing lumber is calculated from the framed model. If you select Model or Cutting Schedule, the lumber material list is included in the Estimate. If you select Model, a Lumber Cutting List is also created. The Lumber Cutting List summarizes the members to be cut, their lengths and the stock length from which they are to be cut. If you select Cutting Schedule, the lumber material is pulled from a previously generated Lumber Cutting List instead of from the model.
- **Sheathing:** Dimensioned sheathing material is calculated from the sheathing cut list generated by commands in the Sheathing menu. This material is shown on the estimate as plywood (or whatever material you sheath with) and is called out as Sheathing in the Workstage field.

Sort By Batch Number: Sheathing is sorted in the estimate by batch number (set in Sheathing - Templates).

- **Assemblies and Openings:** This provides the option to include the takeoff quantities and pricing for the material items assigned to shells when the shells were created. Remember that items are grouped into assemblies for assignment to shells.

If this option is selected, the list of openings is included in the Estimate and a separate Openings Schedule is also created. Assemblies attached to the openings are included in the Estimate and Takeoff.

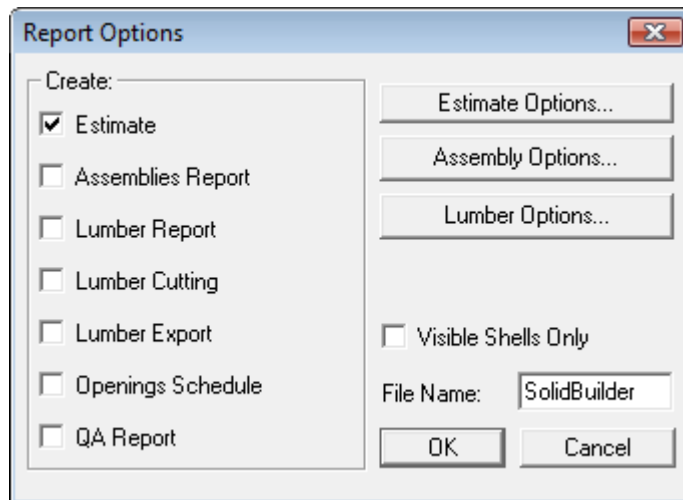
This report also includes symbol assemblies that are attached to plan symbols and furnishings. Note that the symbols are not automatically assigned an assembly when the symbols are placed. If assemblies or items have been attached to the symbols, they are

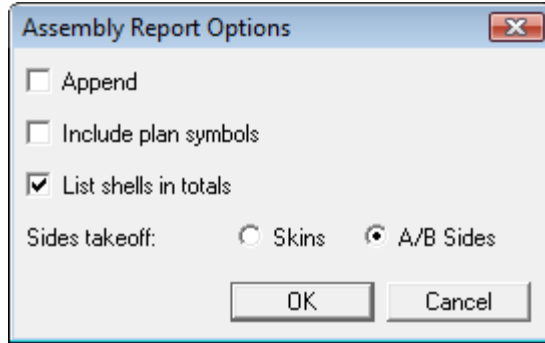
included in the estimate. Note that visibility does not affect the plan symbols.

Assembly Options

SolidBuilder ➔ **Quantities** ➔ **Reports** ➔ **Options** ➔ **Assembly Options**

Icon:  



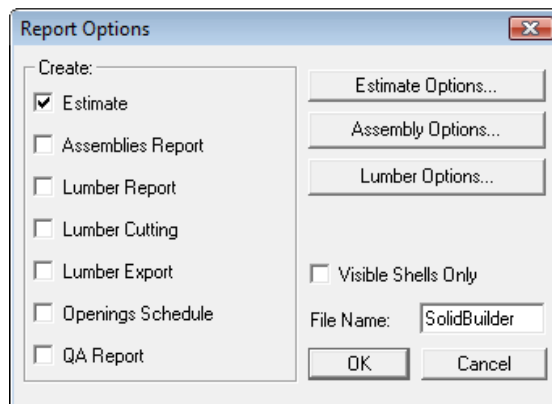


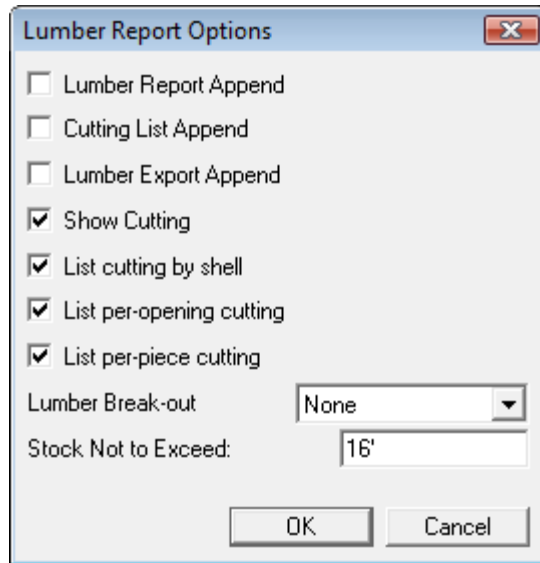
- **Append:** This option generates a new report and attaches it to the existing Assemblies report of the same name.
- **Include plan symbols:** This field allows you to list the Plan Symbols from working drawings on the estimate. The Visibility option does not apply in this option – the symbols are counted regardless of visibility.
- **List shells in totals:** This field affects only the Assemblies Report. If toggled off, the shells are not listed. If toggled on, the shells and their measurement that contribute to the total measurement of an item are listed.
- **Sides Takeoff:** This field allows you to either choose the A and B Side Assemblies of shells (assigned at the time the shell is created) or to choose Skins Assemblies for the Estimate. Core assemblies are not affected.

Lumber Options

SolidBuilder ➡ Quantities ➡ Reports ➡ Options ➡ Lumber Options

Icon:  





- **Lumber Report Append:** Toggle this option on to generate a new report and attach it to the existing report of the same name.
- **Cutting List Append:** Toggle this option on to generate a new report and attach it to the existing Lumber Cutting list of the same name.
- **Lumber Export Append:** Toggle this option on to generate a new report and attach it to the existing report of the same name.
- **Show Cutting:** This option creates a new Lumber Cutting list (Cutting Schedule).
- **List cutting by shell:** This selection affects the Shell Name field of the Lumber Cutting report. If you select No, this field is blank. If you select Yes, the name of the shell, which contains the piece of lumber, is placed in that column; for example W1-X.
- **List per-opening cutting:** This selection affects the Opening Name field of the Lumber Cutting Report. If toggled off, this field is blank. If toggled on, the Opening Label of the opening, which contains the framing member, is placed in that column; for example 3040. The framing members labeled with the opening name are the header, sills, king studs, trimmers and cripples.
- **List per-piece cutting:** This selection affects the Piece Index (PI) field of the Lumber Cutting Report. If toggled off, this field is set to zero. If toggled on, the piece ID number is entered. Note that the same number may appear in that field on different framing items.
- **Lumber Breakout:** The format of the Estimate and the Takeoff reports are determined by this option. The Lumber Break-out option selected determines the content of the Workstage field. This field includes the following options:

None: Do not break out the lumber.
Level-Shell_type: Break out the lumber by level and shell type.
Shell_type: Break out the lumber by shell type.
Workstage: Break out the lumber by work stage.

The break-out field position in the estimate is the same as the field position of workstage in the item database. For all items except lumber, the contents of the break-out field is always the same as the contents of the workstage field. For lumber stock, this column may contain a different designation; the user can designate this to contain (1) the Workstage, (2) the Shell type containing the lumber, (3) the Level and the Shell type within that level containing the lumber or (4) None.

For lumber, the content of the breakout field determines how the lumber is divided into packages. If None is selected, for example, the lumber is not divided into packages; all lumber of the entire building is combined. Thus a particular 2x4 may be cut into blocking for a stem wall and blocking for the roof. Selecting a breakout of Level - Shell type, on the other hand, insures that a particular 2x4 is used only for pieces of Level 1 Walls and another 2x4 is used only for pieces of the Roof.

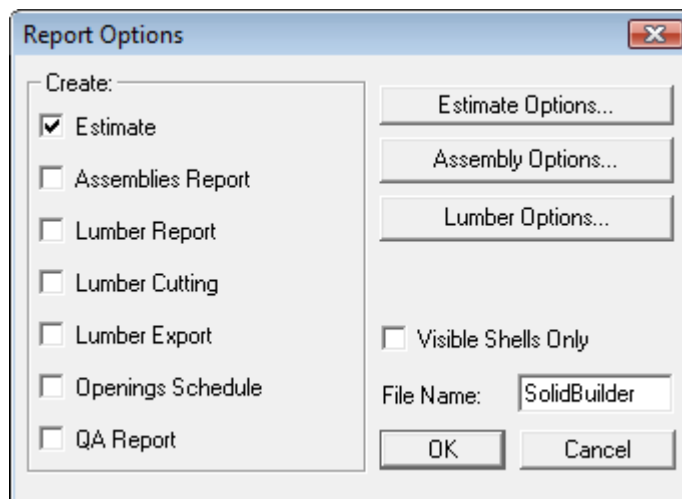
If the breakout option is set to Workstage, the lumber pieces breakout field is set to the Workstage of the shell, which contains this piece. In this case, the lumber packages are organized by the Workstages assigned to the shells.

- **Stock not to exceed:** This is the maximum length of stock (in feet) that is used as stock material for short pieces. Even if there are members in the database, which are longer than this length, they are not used.

Visible Shells Only

SolidBuilder ➔ **Quantities** ➔ **Reports** ➔ **Options** ➔ **Visible Shells Only**

Icon:  



If you toggle the Visible Shells Only option on, the report limits the takeoff to the shells presently visible on-screen. If toggled off, all shells, framing and assemblies are used to create the

estimate. You must have the model framing visible for the lumber to be taken off. The Plan working drawing symbols are taken off regardless of the Visible Shells selection if the Include Plan Symbols option is toggled on in the Assembly Options section.

File Name

SolidBuilder ➔ Quantities ➔ Reports ➔ Options ➔ File Name

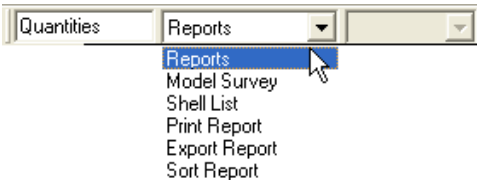
Icon:  

This is the primary component of the names to be assigned to the files created. The various file names are comprised of this primary component, which defaults to the name of the current model, combined with the varying DOS extensions (.csl,.ait,.to, etc.). You can choose a different name and enter that into this field. Note that the next dialog box allows assigning a different name to the Estimate and Takeoff. You may enter a new name in this field. The Estimate and Takeoff use this name (with the appropriate extension) and the other reports use the name designated in the preceding dialog box.

Creating an Estimate

SolidBuilder ➔ Quantities ➔ Reports

Icon: 



After you have set the report options, set the drop down to Reports, **SolidBuilder** generates the selected reports.

After the reports are generated, **SolidBuilder** displays the model framing check notes. Check Notes are notes that appear at the time of framing or when quantities are computed. They provide information to insure accurate takeoff and to warn if an assembly you may have initially used but later deleted cannot be found, certain lumber lengths cannot be found etc. Check Notes can be ignored, saved or printed.



If you ignore the check notes, that material will not be included in the estimate.

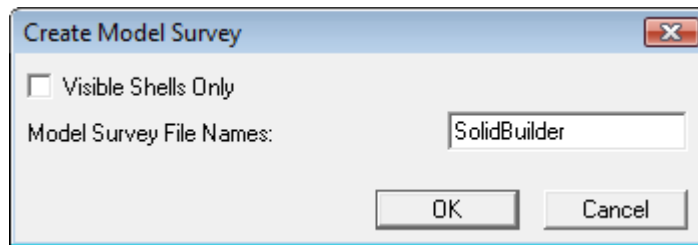
Model Survey

SolidBuilder ➔ **Quantities** ➔ **Reports** ➔ **Model Survey**

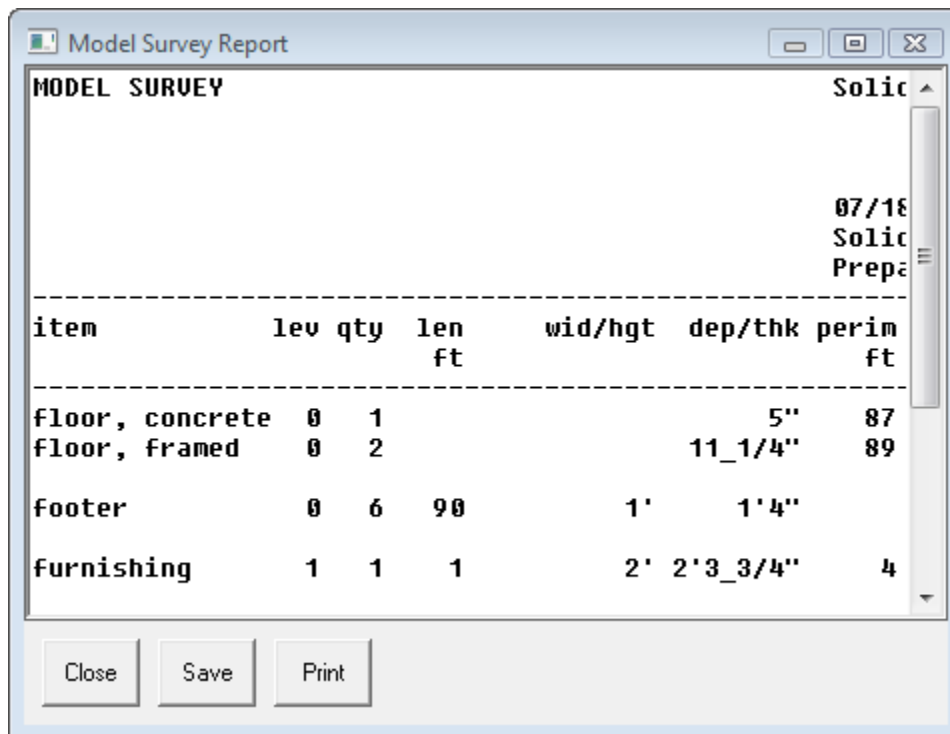
Icon:



When you select Model Survey from the drop down list, the dialog box below appears.



The following reports are created with the Create Model Survey command and can be accessed through either the Print Report or Exhibit Report commands.



- Model Survey Report (*.SUM)
- Floor Report (*.SUF)
- Wall Report (*.SUW)

- Roof Report (*.SUR)
- Foundation Report (*.SUC)

Each of these reports utilizes the same fields and has the same format. The headings used are the same as the Lumber Report and the Assembly Item Report described above. The fields of these survey reports are:

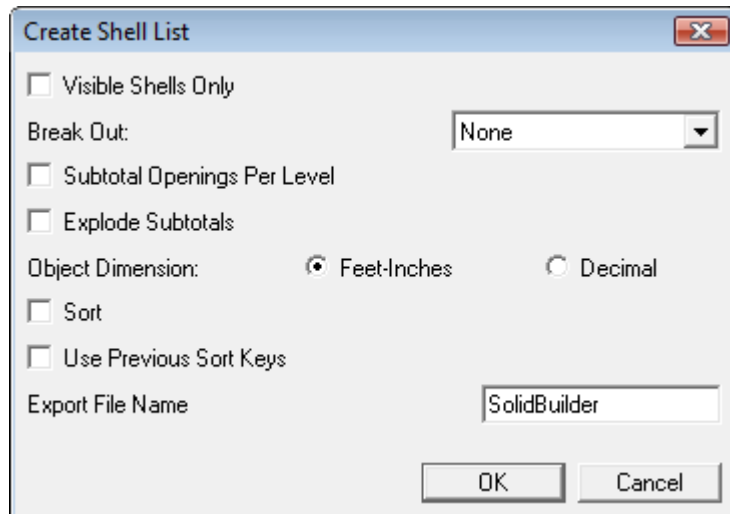
- Field 1 – item: This is the type of shell.
- Field 2 – lev: This is the level number of the shell.
- Field 3 – qty: This is the number of shells of this type.
- Field 4 – len: This is the length of all shells of this type in feet.
- Field 5 – wid/hgt: This is the width (floors, roofs, ceilings) or height (walls) of the shells.
- Field 6 – dep/thk: This is the depth or thickness of the shell.
- Field 7 – perim: This is the total perimeter of the shell in feet.
- Field 8 – area: This is the total sum of the gross area of the shells in square feet.
- Field 9 – net_ar: This is the total sum of the area of the shells minus the opening areas in square feet.
- Field 10 – vol: This is the total sum of the volumes of the shells in cubic feet.

Shells with similar characteristics are grouped and the values in the preceding list are calculated. Groups include walls (subdivided into type), which have the same thickness and height. Floors, ceilings and roofs are grouped also by thickness. These are further divided into levels.

Shell List

SolidBuilder ➔ Quantities ➔ Reports ➔ Shell List

Icon: 



The files generated by Shell List are located in the C:\Program Files\SolidBuilder\sbdbom

directory. Shell List summarizes takeoff information about each shell in the model and saves it in a comma separated value file (*.csh). This type of file can be exported to a database, spreadsheet or word processor.

1. If a Shell List has been previously created with the same name, you are prompted:
File <name.csh> already exists: Append Erase
2. You can either add the new Shell List to the previously generated list or create a new Shell List that replaces the previously generated list.
 - **Visible Shells Only:** If you toggle the Visible Only option on, the Shell List limits the report to the shells presently visible on-screen. If toggled off, all shells are used to create the Shell List.
 - **Break out:** The format of the Shell List report is determined by this option. This drop list includes the following options:
 - None:** No break out for the shells
 - Level-Shell type:** Break out the shells by level and shell type.
 - Shell type:** Break out the shells by shell type.
 - Workstage:** Break out the shells by work stage.
 - **Subtotal Openings Per Level:** When toggled on this option counts openings of the same type and size by level.
 - **Explode the subtotals:** When toggled on, this option lists subtotals and lists their components. This has the effect of listing every shell and opening.
 - **Object dimension in:** You may call out dimensions in either feet and inches or decimal notation of feet.
 - **Sort:** You may sort this list before it is output. If you elect to sort, the next option in this dialog box allows you to use either a new sort order or to use the sort order that was used last time this report was sorted. If you toggle Use previous sort keys off, **SolidBuilder** prompts:
Select sort key # <number>; (Done) when finished

A dialog box displays that lists the fields in this report. (See the field list of the 8 Shell List Export report in the Quantities Report Descriptions section of this chapter.) Select the fields in the order you wish to have this report sorted. Often only a primary sort key is chosen; for example, sorting by shell type, work stage or breakout. **SolidBuilder** allows you to make as complicated a sort, as you may desire. After you have established your sort order keys, click on Done at the bottom of the list to execute the sort. It is important to keep in mind that this Shell List Export file is usually created to be taken into a spreadsheet or database and that the various sorts you might want to use can also be created in these programs.
 - **Use previous sort keys:** The system allows you to use the previously selected sort or design a new sort order.
 - **Name of export file:** This is the name that is assigned to the export file created.

This report (*.CSH) is created from the model using the Shell List command. It is a comma separated value file. In the creation of this export file you can determine the

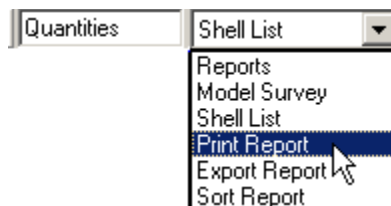
sort from among the following fields:

- Field 1 – breakout: This is the field for dividing shells into their types and subtypes.
- Field 2 – shell: This is the shell type.
- Field 3 – subitem: This is the subitem.
- Field 4 – level: This is the level number of the shell (entered when the shell was created).
- Field 5 – stage: This is the work stage of the shell.
- Field 6 – count: This establishes the count of the item.
- Field 7 – len: This is the length of shell.
- Field 8 – wid: This is the width of shell.
- Field 9 – dep: This is the depth of shell.
- Field 10 – perim: This is the perimeter of shell.
- Field 11 – ff area: This is the area of shell.
- Field 12 – net ff area: This is the area excluding openings.
- Field 13 – gross vol: This is the volume of shell.
- Field 14 – run id: ID number.
- (Done): Select this option when you are finished creating the sort order.

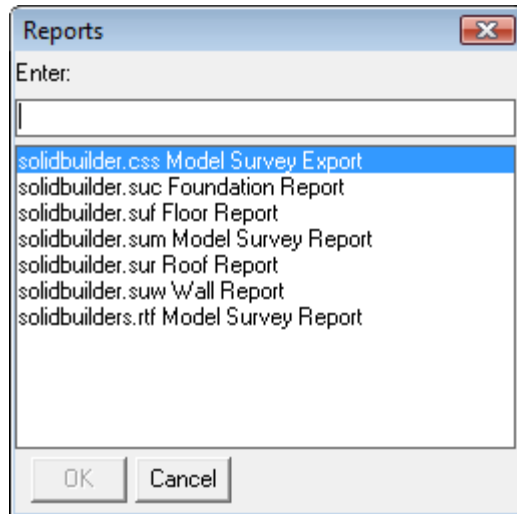
Print Report

SolidBuilder ➔ Quantities ➔ Reports ➔ Print Report

Icon: 



1. This menu allows you to print the various reports. After selecting the Print Report command, you are prompted to:
Select report to print

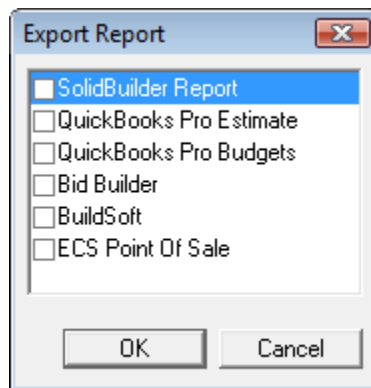
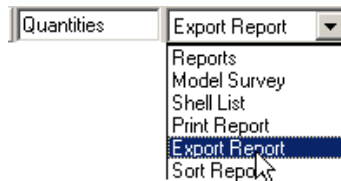


2. After choosing the report you would like to print the report will show on your screen and you will have the option to close, save, or print

Export Report

SolidBuilder ➔ **Quantities** ➔ **Reports** ➔ **Export Report**

Icon:



- **SolidBuilder Report:** The following reports are available for export report. The difference between an export report and a standard report is an export report includes the column headings.

.cse Estimate Export
.csh Shell List Export
.csl Lumber Export
.css Model Survey Export
.cst Takeoff Export
.cut Lumber Cutting Export

- **QuickBooks Pro Estimate:** This creates an estimate export file, with a .iif file extension, that includes the **SolidBuilder** Item Number, Description, Quantity, Unit Cost, and Total Cost. This file may then be imported in Quick Books Pro using the File ➤ Import command in the Customer Jobs section of QuickBooks Pro. When selected you are prompted for a file name. This is the name for the **SolidBuilder** Estimate you exports into QuickBooks Pro. The Reports dialog box opens. Select the estimate file use wish to export. This has a .EST file extension. The Export Report opens in Note Pad and you can either close it, which saves it to the **SolidBuilder** - sbbom folder, or you may select save and save it to a folder of your choice. For detailed instructions, refer to the Export to QuickBooks Solution Paper available from our web site www.digitalcanal.com
- **QuickBooks Pro Budgets Only:** This creates an estimate export file with an .iif file extension that will include the **SolidBuilder** Cost Family, Budget, Quantity, Unit Cost, and Total Cost. This file may then be imported in Quick Books Pro using the File ➤ Import command in the Customer Jobs section of QuickBooks Pro. When selected you will be prompted for a file name. This is the name for the **SolidBuilder** Estimate you will export into QuickBooks Pro. The Reports dialog box opens. Select the estimate file use wish to export. This has a .EST file extension. The Export Report opens in Note Pad and you can either close it, which saves it to the **SolidBuilder** - sbbom folder or you may select save and save it to a folder of your choice. For detailed instructions, refer to the Export to QuickBooks Solution Paper available from our web site <http://www.digitalcanal.com/>
- **Bid-Builder:** This creates an estimate export file to link with our Bid-Builder Estimating software. When selected you are prompted for a name. This file is created in the **SolidBuilder** - sbbom folder. To import the file into Bid-Builder, select the estimate, and select File - Import. The BidBuilder Import Utility dialog box opens. Select the desired fields as they relate to **SolidBuilder** estimate fields. Select the file you wish to import.

BuildSoft: This creates an estimate export file based on Workstages. The workstages in **SolidBuilder** and in Build Soft must match. When selected, you are prompted for a name. This file will be created in the **SolidBuilder** - sbbom folder with a .bst file extension. To import the file into BuildSoft, select Estimating - Other Takeoff Packages - **SolidBuilder**. Select the job the import is for. Enter the drive and path where **SolidBuilder** is loaded as well as entering \sbbom after the **SolidBuilder** path followed by the file name. For more detailed instructions, refer to the Export to BuildSoft Solution Paper available from our web site <http://www.digitalcanal.com/>

- **ECS Point Of Sale:** This creates a link to Enterprise Computer Systems Point of Sale software.

Sort Report

SolidBuilder ➤ Quantities ➤ Reports ➤ Sort Report

Icon:

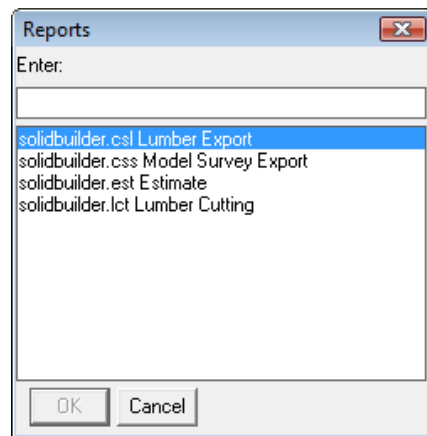




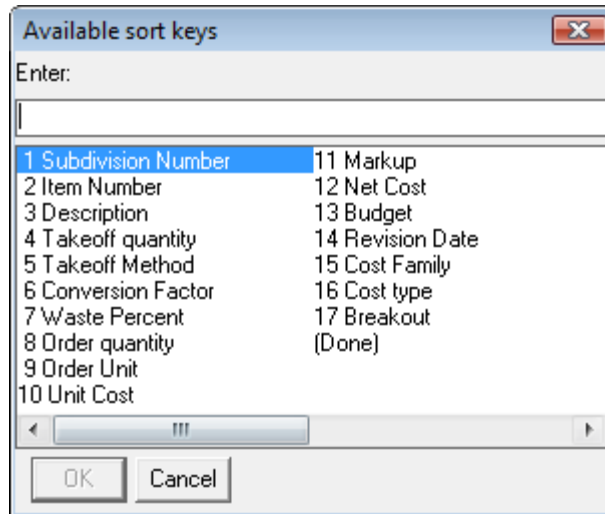
This command allows the sorting of eight types of report and export files. The files, which can be sorted, are listed below, arranged alphabetically by the file extension suffix.

- .csc Lumber Cutting Export
- .cse Estimate Export
- .csh Shell List Export
- .csl Lumber Export
- .css Model Survey Export
- .cst Takeoff Export
- .est Estimate
- .lct Lumber Cutting

1. The sort procedure for all these file types is the same. Upon selecting the command a Reports dialog box displays and you are prompted:
Select report to sort



2. After selecting a file an Available Sort Keys dialog box displays that shows all the available fields in the report that can be used to perform a sort.



3. You are prompted:
Select sort key #1; (Done) when finished
4. Select the fields in the order you wish to have this report sorted. After making the selection, the message bar on the side lists under sort keys the selection you just made and the message line changes to ask you to select sort key #2. Notice that the field chosen for the first sort key is no longer in the list of available sort keys. Each sort field can only be used once in a sort, so after a field is chosen as a sort key, it is removed from the list of those available.
5. Continue constructing your sort, selecting all the fields you want as sort fields and monitoring what you have selected in the growing list in the message bar to the side. When you have finished selecting all the sort keys you want to use, choose the (Done) option at the bottom to tell **SolidBuilder** that you are finished.
6. For most typical sorts, usually only one or two sort keys are required; for example, sorting by shell type, or sorting by level and then shell type. But **SolidBuilder** allows you to make as complicated a sort as you need. It is important to keep in mind that **SolidBuilder** retains your report file in the form of the last sort you imposed upon the data. If you forget this it can be disconcerting because you may have been used to seeing a report look one way for a long time and then re-sorted it to have a very different look. **SolidBuilder** creates each report with an initial default sort. You may want to note how this initial sort has been organized prior to setting up a new sort for a report. If you find that you have sorted your data beyond all recognition, you always have the option to recreate the report, which puts the updated information in a more conventional format.
7. The list that appears in the Available sort keys dialog box varies from report to report. In general the list is a concise listing of all available fields in a report. See the Quantities Report Descriptions section at the beginning of this chapter for a detailed listing and description of the fields in all of the sort able reports. Some types of reports, such as those created by the Quantities Export command, allow you to select which subset of columns or fields is to be used to construct the export file. In cases such as these, the list of available sort keys and the order in which they are listed is completely dependent upon what columns or fields you selected to include in your original report.
8. After you have chosen all the sort keys you want to use in your new sort and then double clicked on (Done) to let **SolidBuilder** know that you are finished constructing your sort,

you see Preparing to sort... appear on the top message line. You are returned to the Quantities menu. Use the Exhibit command to view the results of your sort.

Exhibit

Report

SolidBuilder ➔ Quantities ➔ Exhibit ➔ Report

Icon: 

If you click on Reports and then OK a list of reports arranged alphabetically is displayed for selection. The types of possible reports displayed are listed alphabetically by file suffix in the following table. (All of these file types are located in the sbom directory).

Several reports are created both in a Notepad format and in rtf (Rich Text Format) which can be opened in Microsoft Word. Once opened in Word the reports can be modified as needed.

If a file does not appear as expected, it is possible that it has not been created. Review the Quantities Create procedures to see what needs to be done to create the report you want to review. It is important to bear in mind that the most recent sort performed on a sortable report drastically affects how the data is displayed on the screen. **SolidBuilder**, when creating reports, uses a default sort that always appears unless at some point in time you have created a different sort order for a report. In that case, the most recent sort order used is what appears in Exhibit Reports. If the display of data is not to your liking, you may need to apply a different sort, using the Quantities Sort command. Also the contouring of the reports that can be done while creating them, such as using Column Selection Templates, also affects what is seen in Exhibit mode.

Description

SolidBuilder ➔ Quantities ➔ Exhibit ➔ Description

Icon: 

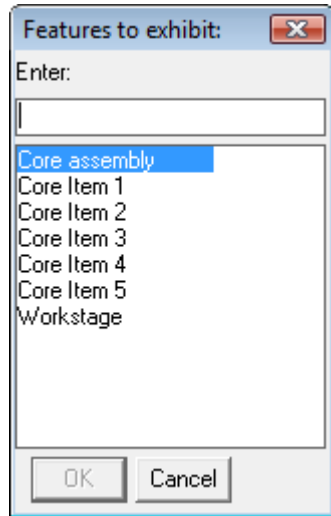
1. If you select Description this command displays a list of shell features for selection. After you select a feature, the shells are grouped and presented so that all shells having a common value for that feature are presented together, either highlighted or isolated from all other shells. The message line informs you which feature and which value the displayed shells have in common with the prompt:
<Exhibited feature> <common value> - Press a key to continue
2. Press any key to cycle through all shell presentation for that feature. Press Esc to return to the Quantities menu.

Opening Description

SolidBuilder ➔ **Quantities** ➔ **Exhibit** ➔ **Opening Description**

Icon:  

1. If you select Opening Description from the dialog box a list of opening features is displayed for selection.



2. This command works in the same fashion as. Exhibit Description except it deals with openings instead of shells. After you select a feature opening with common features, values are highlighted or isolated for display with the feature and value in the message line.

Grand Total

SolidBuilder ➔ **Quantities** ➔ **Exhibit** ➔ **Grand Total**

Icon:  

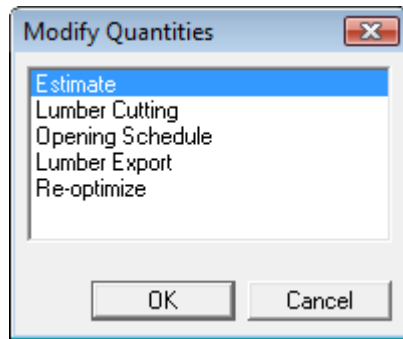
The grand total from the estimate is displayed on the message line. If you have run several estimates, the grand total from the most recently reviewed estimate is displayed.

Modify Reports

SolidBuilder ➡ Quantities ➡ Modify ➡ Estimate

Icon: 

When you click on the Modify icon the following dialog box (below) displays allowing you to modify the Estimate and the Opening Schedule, Modify and Re-optimize the Lumber Cutting list and restructure the Lumber Export file.



- **Estimate:** This option allows you to edit your estimate in a variety of ways. You can add items to the estimate, change records already in the estimate, such as changing unit cost or markups on a certain class of items, or delete items. Upon selecting this command, a list of estimate reports is displayed and you are prompted:

Select report to modify

After being selected, an Estimate is displayed organized by its most recent sort order. You can add or delete rows, change pricing or quantities, etc.

- **Lumber Cutting:** A list of Lumber Cutting reports is displayed. You are prompted:

Select report to modify

Select a Lumber Cutting report. The Lumber Cutting report is displayed.

You may modify many of the fields in the Lumber Cutting report. This allows you to further optimize lumber cutting or to group materials in different ways. Three of the last four fields of the Lumber Cutting report (Bf, LF and DecLen) cannot be modified.

Note that if two or more items have the same Cut Length, Use, Opening Name and Shell Name, then these are added together to form a single line item. This facilitates ordering and managing. By editing these fields so the values are the same, the original Lumber Cutting report, which has a very detailed breakdown, can be consolidated for ordering and cutting.

The Use field originally contains the member identification. You may change this field to some other name. It can then be used to do more than simply record the member type.

- **Opening Schedule:** When this item is selected a list of Opening Schedule reports is displayed. You are prompted:

Select report to modify

Select an Opening Schedule. The Opening Schedule is displayed and you can modify it as

needed.

- **Lumber Export:** The Lumber Export File Contents dialog box appears displaying the current setup for the Lumber Export file in the following format:

Field 1 – Column Contents (Column Contents): These are the columns (or fields) that are to be exported in the Lumber Export file. The available column contents or field names are displayed in the lower Fixed Choices dialog box. The fields to be exported can be selected by the user in a number of ways. The use of the Mark, Delete, Insert, OK and Cancel command buttons is explained in great detail in the Modify Estimate section on page 459. The message line prompts, depending on where the cursor is located:

<Space> to Column Contents choices [or]
Select Column Contents /<Space>> to Lumber ExportFile Contents

This indicates that the space bar can be used to move between the upper and lower windows. When the desired window is selected, the arrow keys can be used to select an option, which is executed by pressing Enter. Or the mouse can be used with the command keys to select, delete or insert a different array of field choices. The top down order of fields is how the fields are laid out from left to right in the export file.

Field 2 – In Quotes (“”): This option allows for placing quotes around the values for each field in the export file. This decision is dependent upon the format expected by the spreadsheet or database you are planning to export this file into. Quotes are often placed around values to inform a spreadsheet program that the numeric value is a text string, not a number to be converted. The yes or no option is chosen by clicking on either yes or no in the Fixed Choices dialog box.

Once you have chosen a new selection of fields and the column order, it remains in effect for every Lumber Export file generated by **SolidBuilder** until changes are made again using this command.

- **Re-optimize:** When selected this command is used after you have edited a Lumber Cutting Report. It re-optimizes and recalculates the lumber cutting list. When this command is chosen, a list of Lumber Cutting Reports is displayed and you are prompted:
Select report to re-optimize

Select a Lumber Cutting report. The system prompts:
To save old lumber cutting, provide file name: <name>

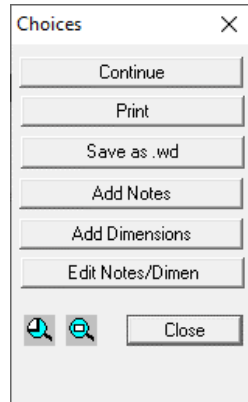
Enter a file name. The old lumber cutting is saved under that name. The reorganized lumber cutting is saved under the originally selected name from the Lumber Cutting dialog box.



Chapter 31
Production Drawings

To the right of the elevation is the Layout List showing the distance from the layout point to the location of each member. The layout list may sometimes appear on the second page depending on the size of the shell. In the box below the cut list are the wall identifier (W2 - X9 meaning wall number 2, exterior, level 9), the drawing page number and the type of wall (non load interior). To the right of this dialog box is some of the job information entered when the model was created.

The Choices dialog box is asking what you want to do.



- **Continue:** Show the next page (if any), or else returns to the drawing.
- **Print:** Print (or plot) the drawing.
- **Save as .wd:** Save this drawing as a working drawing.
- **Save as .drw:** Save this drawing as a **SolidBuilder** drawing.
- **Add notes:** This function allows the user you to add notes
- **Add dimension:** This function allows the user to add dimension to the production drawings.
- **Notes/Dimen:** Edit notes/dimensions. Click on a note or dimension to move.

To edit this drawing more click on Save as .wd and the Save As dialog box opens. You may then save the drawing and to open select File/Open/2d Drawing. This will open the drawing in 2d mode for you to edit whatever you like.

- **Zoom All:** To zoom all a production drawing, you must use this icon rather than the standard zoom all icon in the main tool bar.
- **Zoom Area:** To zoom area in a production drawing, you must use this icon rather than the standard zoom area icon in the main tool bar.

This command allows the creation of production drawings for walls, roofs, floors, ceilings and joiners that are framed.

Options

Production Drawing Options

SolidBuilder ➔ **Production Drawings** ➔ **Options**

Icon: 

The dialog box provides a variety of production output formats useful for construction in the edit field. They allow the creation of production output using the following options.



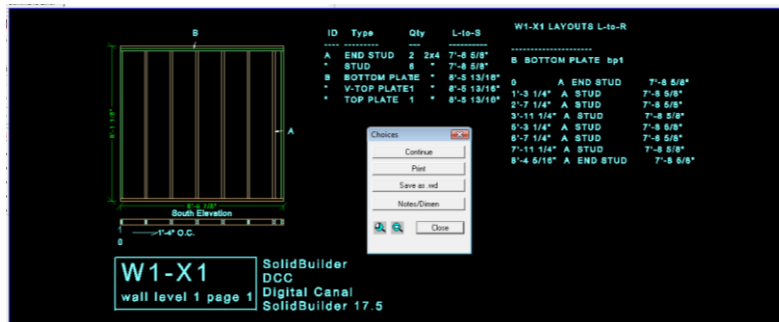
- **Framing Drawings:** The Framing Drawings option allows you to create framing production drawings.

The first five characters of the file name are obtained from the file name in the bottom of this dialog box. A number is added to each drawing normally beginning with the number 1. If drawings with the same name and number exist, the number begins with the last number used. These drawings are saved in the \DRW sub directory. These drawings are not editable unless saved as a *.wd file (Working Drawing).

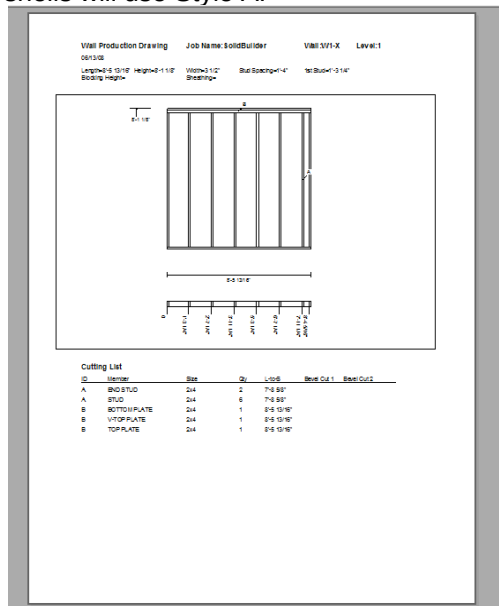
- **Print Continuous:** The Print Continuous option allows you to print all production drawings at one time.

Chapter 31 Production Drawings

- **Save as PDF:** This feature will allow all the selected walls to be save to a single PDF.
- **Style A:** Below is an example of the format for Style A.

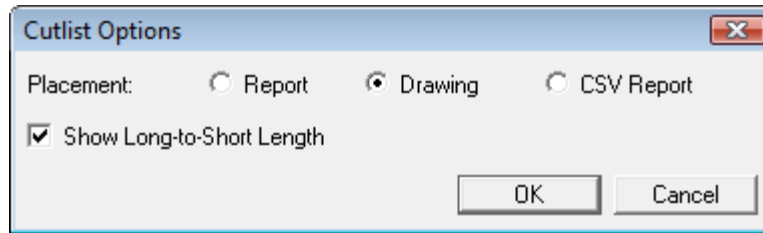


- **Style B:** Below is an example of the format for Style B. This style only works with walls. If you un-check Include End View, only critical dimensions are displayed. All other framed shells will use Style A.



- **Cut List:** The Cut List option allows you to create cut lists. If the cut list has been saved to a report file, it can be viewed with the Exhibit command. It may also be printed with the Print command. These files are stored in the \sabout sub directory with the extension of .cl for cut list. If you elect to place cut layout lists on the framing drawing, they are not saved files.

Cut list Options: You may create a report file that can be viewed from Production Drawings- Framing - Print Cut List, view it on the screen or create a comma separated value report to export to another software application.



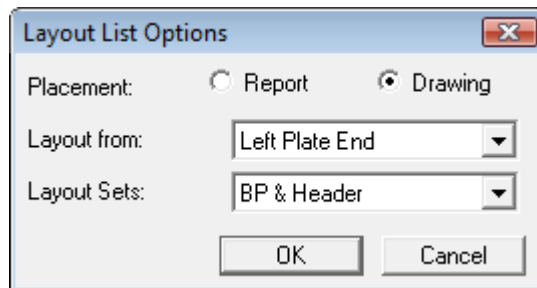
- **Layout List:** The Layouts List option allows you to create layout lists and place them on the framing production drawing. If the layout list has been saved to a report file, it can be viewed with the Exhibit command. It may also be printed with the Print command. These files are stored in the c:\program files\SolidBuilder\sbout folder with the extension of .lo for lay out. If you elect to place cut lists on the framing drawing, they are not saved as a file.

Layout List Options:

Placement: You can select Report to create a text file of the layout list or Drawing to include the layout list on the drawing.

Layout from: This option allows you to select a layout from left or right plate ends, a layout from left or right shell ends or to layout from a single layout point. When used for walls, plate end gives layout distances for each bottom plate, shell end gives layout distances from the end of the wall, and layout point gives distances from the wall reference layout point.

Layout sets: This option allows you to print the layouts for the bottom plate and headers or the top plate and sills. You may choose both.



- **Include End View:** The Include End View option creates a view from the top or bottom plate and places it on the production drawing below the shell.



If you are using style B and un-check Include End View, only critical dimensions are displayed.

- **Show Other Shells:** The Show Other Shells command allows you to group and produce production drawings according to level and type and shell.
- **Combined:** The Combined option is used to place more than one shell on a production drawing page.
- **Display Actual Sizes:** Check this box if you want the cut list to display the dimensional

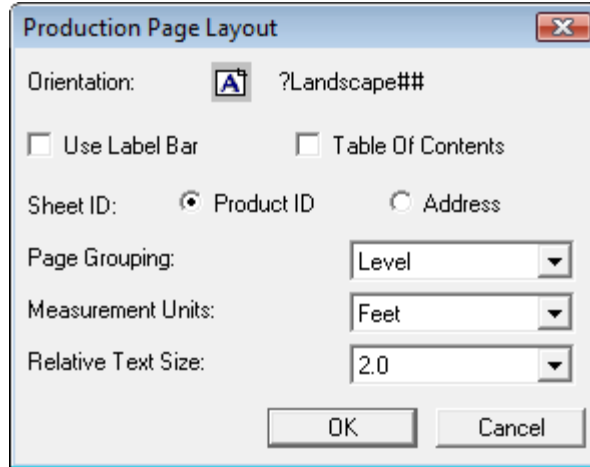
Chapter 31
Production Drawings

size of the lumber rather than the nominal size.

- **Dimension Each Stud:** If checked each stud in plan view will be dimensioned. If unchecked only critical studs will be dimensioned. Example: King Studs, Trimmers, Channel studs.
- **Dimension Openings:** This will put a dimension for the height and width of the opening.
- **Show Adjoining Wall:** This will show the wall that butts into the wall in the production drawing. There will be a wall label and portion of the wall showing.
- **Include:** The Include option allows you to generate production drawings for framing or sheathing or both. In order to create a framing drawing, you must have the shell framed. Likewise for sheathing, you must create sheathing and cut drawings (see Chapter on Sheathing).
- **File Prefix:** The File prefix option names the production drawings output files sequentially (name1, name2, name3...) if they are saved to file. The first five characters of the file name are obtained from the file name in the bottom of this dialog box. A number is added to each drawing normally beginning with the number 1. If drawings with the same name and number exist, the number begins with the last number used. You may also select the option to use the first two characters of the file name and the wall level and type designators.
- **Report Filename:** There are two options for labeling the production output. Assume you have entered smithjob in the File Prefix field. When the first production drawing of a group is ready, you are prompted:
Choose filename format: smw1_x1 smith1

The first naming option takes the first two characters of the File Prefix name and combines it with part of the wall designation. This allows you to determine partially from that name, the type and level of the shell. The second naming option takes the first five characters of the File Prefix name and combines it with a number beginning at 1 and incrementing for each shell. You may choose either one of these naming schemes, which is applied to all the subsequent shells you have selected for production drawings.

- **Profile Drawings:** Profile drawings are optionally generated for any framing member that does not have either a square cut or beveled end cut on one end. The Profile drawings option is used for complex cuts of framing members. Check this box to create and view, print and save a framing profile drawing.
- **Page Layout:**



Orientation: This option allows you to print either in portrait or landscape mode.

Use Label Bar: This option creates a label bar or drawing information area on the production drawing.

Table of Contents: This option inserts a table of contents on the production drawing.

Product ID: This option inserts the word **SolidBuilder** as an identifier on the production drawing.

Address: This option inserts the specific job information entered at the beginning of the project for Model Information.

Page Grouping: This option allows you to generate production drawings by level or by type of shell or both.

Measurement units: This option allow you to show measurements on the framing drawing, cut list and layout list in inches, feet and inches or in meters.

Relative Text size: This option allows you to modify the size of the text on the framing drawings. Five options are available. The maximum range available is a factor of 2.

CHAPTER 32: STACKING

SolidBuilder ➔ Stacking

Icon:

The Stacking menu provides the mechanisms for generating bundles of wall panels. The user sets perimeters of the stack such as Height, Width and Depth. The Stacking command will then optimize the selected wall panels to fit is the perimeter. The Stacking command will then create a document showing the bundled walls, each wall panels properties, calculate the weight of each panel, and total weight of the stack. There are also options to include the production draws for individual wall panels and working drawings.

SolidBuilder ➔ Stacking ➔ Select



When Select is chosen for the drop down the following dialog box appears.

A screenshot of the 'Stack Options' dialog box. It contains the following fields and options: 'Job Name' (SolidBuilder), 'Stack Number' (1), 'Stack Name' (zone5), 'Max Height (H)' (6'), 'Max Length (L)' (30'), 'Max Width (W)' (12'), 'Include Sheathing' (checked), 'From Sheathing Command' (selected), and 'Add Sheathing Thickness' (empty). A 3D diagram of a rectangular box with dimensions L, W, and H is shown on the right. 'Save' and 'Cancel' buttons are at the bottom right.

- **Job Name:** This is a user defined name. A new name can be entered or selected from the drop down.
- **Stack Number:** This is a user defined stack number.
- **Stack Name:** This is a user defined name for the stack.
- **Max Height(H):** This is Maximum height of the stack.
- **Max Length(L):** This is Maximum length of the stack.
- **Max Width(W):** This is Maximum Height of the stack.
- **Include Sheathing:** This will include the sheathing thickness.
 - **From Sheathing Command:** If the sheathing command is run on the walls the sheathing thickness and weight will be added to the wall framing.
 - **Add Sheathing Thickness:** This user defined field allows the user to enter a sheathing thickness that will be added to wall framing
 - **Note:** Using this option will not include the weight of the Sheathing.

Once Save is selected you prompted to select walls for stacking. When done selecting walls press F10 or right click and select finished. When done selecting walls the Stack window will appear with the walls stacked in the order they were selected.

Note: If weight hasn't been assigned to framing members in the Items and Assemblies database or to sheathing in the Sheathing database. A warning message will appear stating that weight for those members will not be calculated.

Chapter 33: Stacking Commands

SolidBuilder ➔ Stacks ➔ Edit ➔ Optimize

Icon: 

Optimize will reorganize the panels to best fill up the rows. **Example:** If Max width is set 20" and you have 11' and 9' panels selected, it would put both panels in one row. It will try to put as many wall panels as it can on the bottom row. It will then move to the next row and fill it the best it can.

SolidBuilder ➡ Stacks ➡ Edit ➡ Add Panel

Icon: 

This will allow the user to add additional panels to the stack. When selected the Edit Stack Dialog box will minimize allowing the users to select more walls. After selecting the walls, the walls will be added to the top of the stack in the Edit Stack Dialog box.

SolidBuilder ➡ Stacks ➡ Edit ➡ Remove Panel

Icon: 

After selecting the user will be allowed to select a panel or panels. When selected they will get highlighted. When the user is done selecting, they will either right click and select finished or F10.

SolidBuilder ➡ Stacks ➡ Edit ➡ Move Panel

Icon: 

When the Move Panel button is selected a list with the different Move commands (Up row- would move the wall panel (or panels if multiple are selected) up a row.

- **Down row-** would move the wall panel (or panels if multiple are selected) up a row.
- **Left and Right-** This will allow the user to use the arrow keys to the panel move Left or right. Or use the base point and offset point.
- **To Bottom-** This will move the panel(s) to the bottom row.
- **To Top-** This will move panel(s) to the top walls
- **Align Left-** This would align the panel(s) to the left
- **Align Center-** This would center the panel(s)
- **Align Right-** This would align the panel(s) to the Right

SolidBuilder ➡ Stacks ➡ Edit ➡ Rotate Panel

Icon: 

This allow tall wall panels to be rotated 90 degrees. Or hold down shift, select multiple panels, right click and select rotate.

SolidBuilder ➡ Stacks ➡ Edit ➡ Edit Options

This allows the user to go back and change the Stack options. The Stack Option dialog box will appear, and options can be changed. After Ok is selected the Edit Stack Dialog box will update. If walls are outside of the new parameters, they will highlight in red.

SolidBuilder ➔ Stacks ➔ Edit ➔ Show Grid

Icon: 

This command will activate the Stack Grid dialog box. This dialog box lists the walls and their properties. The Move, delete and optimize commands are also active in the Stack Grid dialog box.

Stack Grid

Job Number: test Stack Number: 2 Stack name: zone2

	Row #	Wall #	Length	Thickness	Height	Weight	Sheathed
1	1	wall11	28'-5 3/8"	5 1/2"	8'-1 1/8"	0.00 Lb	No
2	2	wall12	31'-6 7/8"	5 1/2"	8'-1 1/8"	0.00 Lb	No
3	3	wall10	32'-0-3/8"	5 1/2"	8'-1 1/8"	0.00 Lb	No

Record 0

Move Wall Up Move Wall Down Delete Wall Move Wall Left Move Wall Right

Optimize Move Row Up Move Row Down Delete Row **OK** Cancel

SolidBuilder ➔ Stacks ➔ Edit ➔ Delete Stack

This command will pull up a list stacks created for the current Job. The user can 1 or multiple by holding down shift. After Ok is selected the stack(s) will be deleted.

SolidBuilder ➔ Stacks ➔ Edit ➔ Align Stack

Icon: 

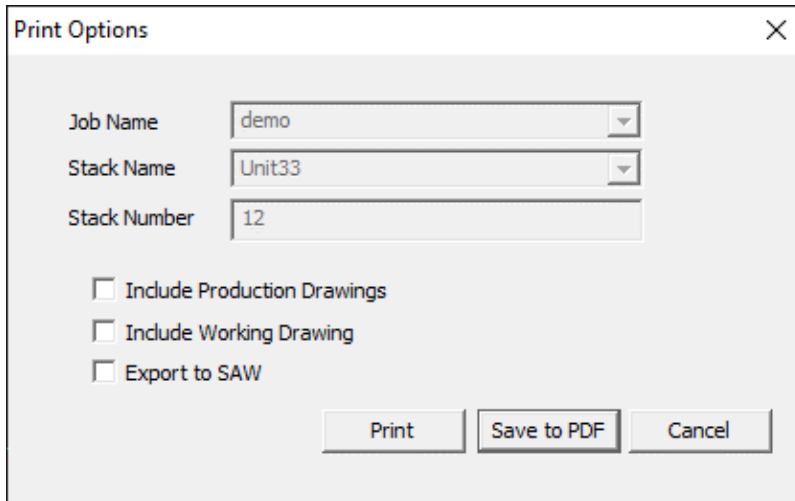
This command will justify the walls panels left, right or centered.

SolidBuilder ➔ Stacks ➔ File ➔ Print

Icon: 

When the print Icon is selected the following Print Option dialog box appears. A stack document will be created with a preview of the stack and a grid with the wall panel and their properties.

Chapter 33
Stacking Commands



The image shows a 'Print Options' dialog box with a close button (X) in the top right corner. It contains three input fields: 'Job Name' with the value 'demo', 'Stack Name' with the value 'Unit33', and 'Stack Number' with the value '12'. Below these fields are three unchecked checkboxes: 'Include Production Drawings', 'Include Working Drawing', and 'Export to SAW'. At the bottom right are three buttons: 'Print', 'Save to PDF', and 'Cancel'.

The Job name, Stack name, and Stack number of the current stack will display.

Include Production Drawings: This will include the Style B production drawings.

Include Working Drawings: This will pull up a list of working drawing to be selected. You can select one or more to be included in with Stack Document.

Export to Saw: This will save the file for the saw selected under Production Drawings->Export Generators.

SECTION FOUR: RENDERING

CHAPTER 34: RENDERING OPTIONS

CHAPTER 35: MODIFY RENDER SETTINGS

CHAPTER 36: MODIFY TEXTURE FILE

CHAPTER 37: SET BACKGROUND IMAGE & OUTLINE/GROUND TEXTURE

CHAPTER 38: RENDER

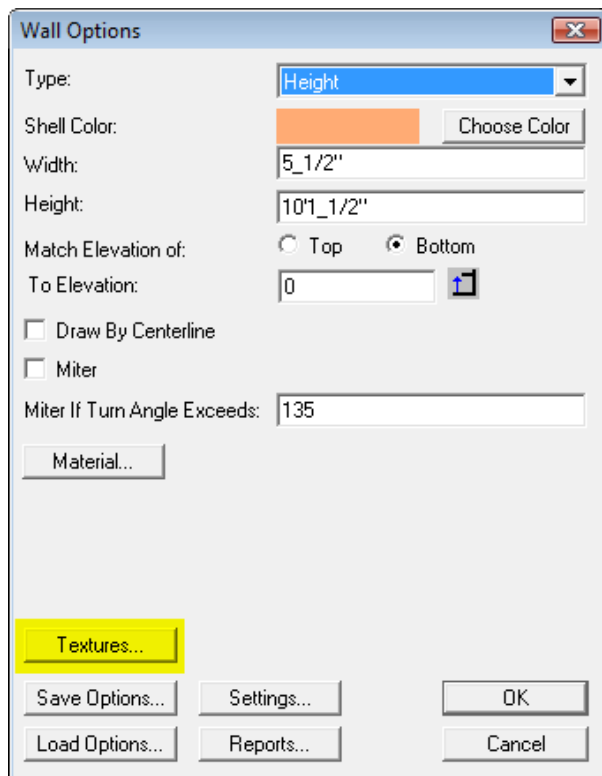
Section 4 Rendering

Chapter 34: Rendering Options

SolidBuilder ➔ **Select Command** ➔ **Options**

SolidBuilder has recently been enhanced with photo realistic rendering. What this means to you is that you can apply textures to each component of your SolidBuilder model, then simply click a button to see your model fully rendered.

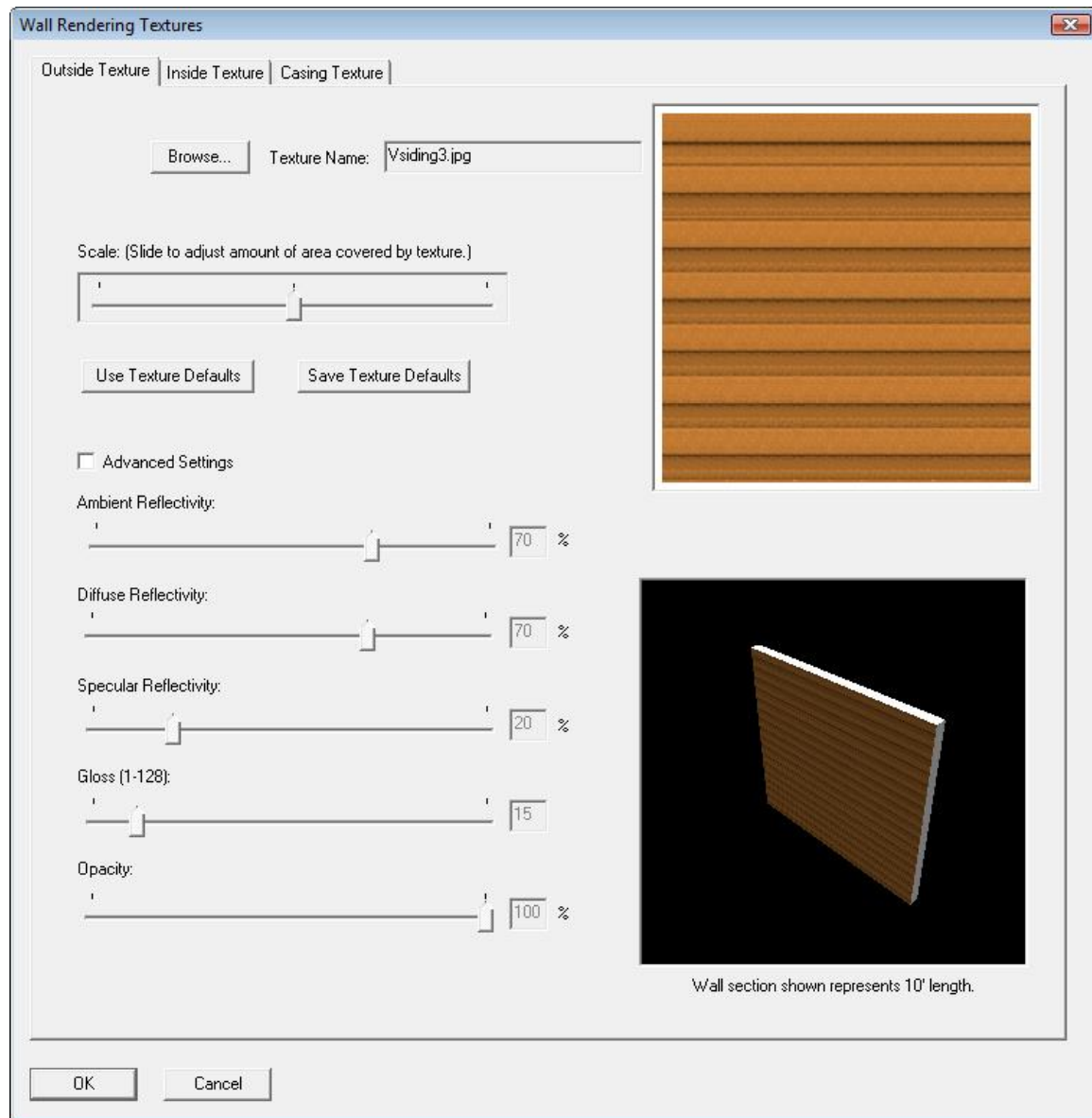
The rendering portion of SolidBuilder was designed to flow with the current process of modeling. As you know, before you start modeling any shell in your design, you always set the shells options to the way you frame. For example, when drawing a wall, you set your wall options to specify the wall height, width, material, how you plan to frame it, a level, etc. So we simply added a 'Texture' button inside each shell's option. Using the wall example, below is an image of the wall option dialog box. Notice the Texture button.



Again, this 'Textures' button will be located in each shells option. Regardless of the type of shell, the Texture options will be similar. A shell such as a floor, wall, ceiling, roof, etc will have multiple faces available for a texture simply because the texture on the outside of a wall won't always be the same as the texture on the inside of the wall (vinyl siding on the outside, drywall on the inside). Or outside face of a floor probably won't have the same texture as the top of the floor (vinyl siding on the outside, carpet on the top). You will notice on simpler shells such as footers, posts, girders, and sill plates, you will have the option to assign one texture because the shell will likely contain only one texture (sill plate would be all wood or a footer would be all concrete). Regardless if the shell has multiple faces for textures, or just one face for a texture, the process is the same. Once you click the 'Textures' button from any shells options, a dialog box similar to

Chapter 34 Render Options

this will appear.



The first thing you will notice in this dialog box is the different tabs located at the top. This particular dialog box has three tabs (outside, inside, casing), which indicates that three different textures can be applied to this wall. Each tab is exactly like the others. The only different is the face of the shell it affects. In this example, the texture applied to the outside tab will be applied to the outside of the wall. The texture applied to the inside tab will be applied to the inside of the wall. The textures applied to the casing tab will be applied to the perimeter of any openings. But all settings & options are the same with each tab.

The first thing to do is add a texture. To add a texture, simply click the Browse button. When the browse button is selected, an 'open' dialog box appears, allowing you to browse your computer for any image files. When SolidBuilder is installed, it automatically loads hundreds of textures for you to use with rendering. These files are located at the following path. C://Program Files/SolidBuilder/SBTextures. You will notice there are multiple categories to choose from. To choose a texture, simply browse through these files, once you find the texture you wish to apply,

select it, and click open. The dialog box above will display the path to the texture as well as a 2D & 3D preview of the selected texture. The texture has been selected.

The next thing to do is make sure the texture is scaled and sized to your liking. To do this, use the Scale slide bar. You will notice as you slide the scale bar, your texture preview will update. As you slide the bar to the left, the scale will get smaller, or the image will get smaller. As you slide the bar to the right, the scale will get larger, or the image will get larger. The 3D preview represents a 10'-0" wall, so you can use this to determine the desired size of the texture.

Each texture is loaded with default options. If you don't like the default options, you have the option to change them. To take this one step farther, you may save your texture changes and load them at a later date. That is what the 'Use Texture Defaults' and 'Save Texture Defaults' buttons are for. After you have modified a texture setting, you may click the 'Save Texture Defaults' button. SolidBuilder will save your settings in a separate file for that particular texture. At a later date or a later model, if you choose to use that texture again and wish to use the same settings as earlier when you saved the settings, simply click the 'Use Texture Defaults'.

If you wish to tweak the appearance of the texture, SolidBuilder provides Advanced Settings for you to modify. You will notice that each of these options will make minor changes to the texture, but combined together, they can make a big difference. Typically with these advanced settings, it is best to just start sliding the options and visually noticing the difference. As you slide each option, the 3D preview will update with the adjusted setting.

Below is a more detailed description of each setting.

Ambient Reflection – The ambient reflection is the surface reflection of ambient light. It determines how much of the ambient light is absorbed by a surface.

Diffuse Reflection – The diffuse reflection determines the amount of non-ambient light that is absorbed by a surface.

Specular Reflection – Reflection is a mirror-like reflection that can be observed on any shiny surface. The relationship between the viewer, the light source, and the surface alters the lights intensity. A common example is the shiny spot you may encounter when viewing a polished apple.

Gloss – Determines the degree to which the light falls off on non-perfect reflecting surfaces. A low gloss means the light is broadly reflected resulting in a gentle fall off, whereas high gloss indicates the reflection is a sharp, focused highlight.

Opacity – Determines how transparent or opaque the object is. Transparent can be seen through, opaque is solid.

Once the above settings are set, simply select OK to accept them. From this point, every wall (or shell) you model will include the selected textures.

Chapter 36

Modify Texture File

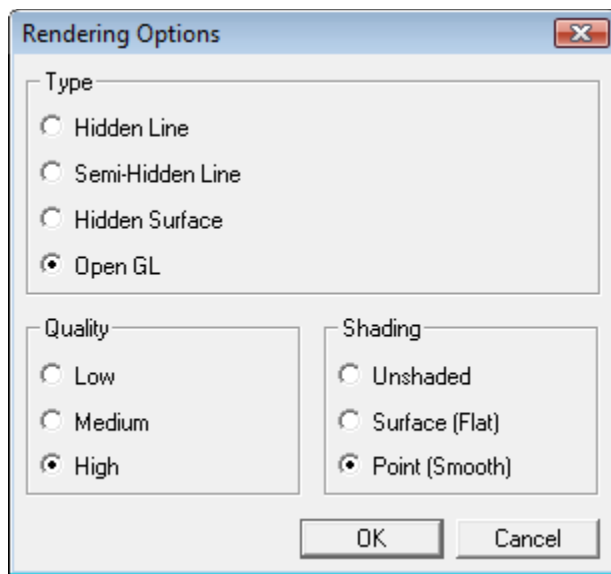
If you choose to apply textures after your design has been modeled, or if you choose to modify an existing texture on your model, this dialog box can be accessed through the right click menu. Simply right click on the desired shell and choose to Modify – Description. In the shell description dialog box, you will notice the same 'Textures' button.



Chapter 35: Modify Render Settings

SolidBuilder ➔ **Render** ➔ **Modify Render Settings**

Each time you choose to render your model, SolidBuilder combines the texture settings (in previous chapter) with rendering settings. SolidBuilder is loaded with default render settings, but of course these settings can be modified. It is recommended that you start with the default settings and modify them as needed. When Modify Render Settings is selected, the following dialog box will appear.



Type

Hidden Line – When rendered with this option, SolidBuilder will remove lines from the drawing that are normally not visible in the current view. Removing the hidden lines of a wire frame model provides far less complication when the viewing the model.

Semi-Hidden Line - When rendered with this option, SolidBuilder will change the lines in the drawing that are normally not visible in the current view to a hidden/dashed format.

Hidden Surface - When rendered with this option, SolidBuilder will shade the model as a solid object, making surfaces in the drawing that are normally not visible in the current view invisible.

Chapter 35

Modify Render Settings

Rendering the surfaces of a wire frame model provides far less complication when the viewing the model.

Open GL – When rendered with this option, SolidBuilder will display the assigned textures to the model, resulting in a fully rendered model.

Quality

Low – The model is rendered a the lowest quality setting.

Medium – The model is rendered at a medium quality setting.

High – The model is rendered at a high quality setting.

Shading

The color displayed on a shaded surface is based on the color of the surface, the reflectance of the surface, and the light striking the surface. Since shading surfaces accounts for several variables, it represents a shade in the most realistic manner. For best quality, it is recommended that Point shading is always used for rendering.

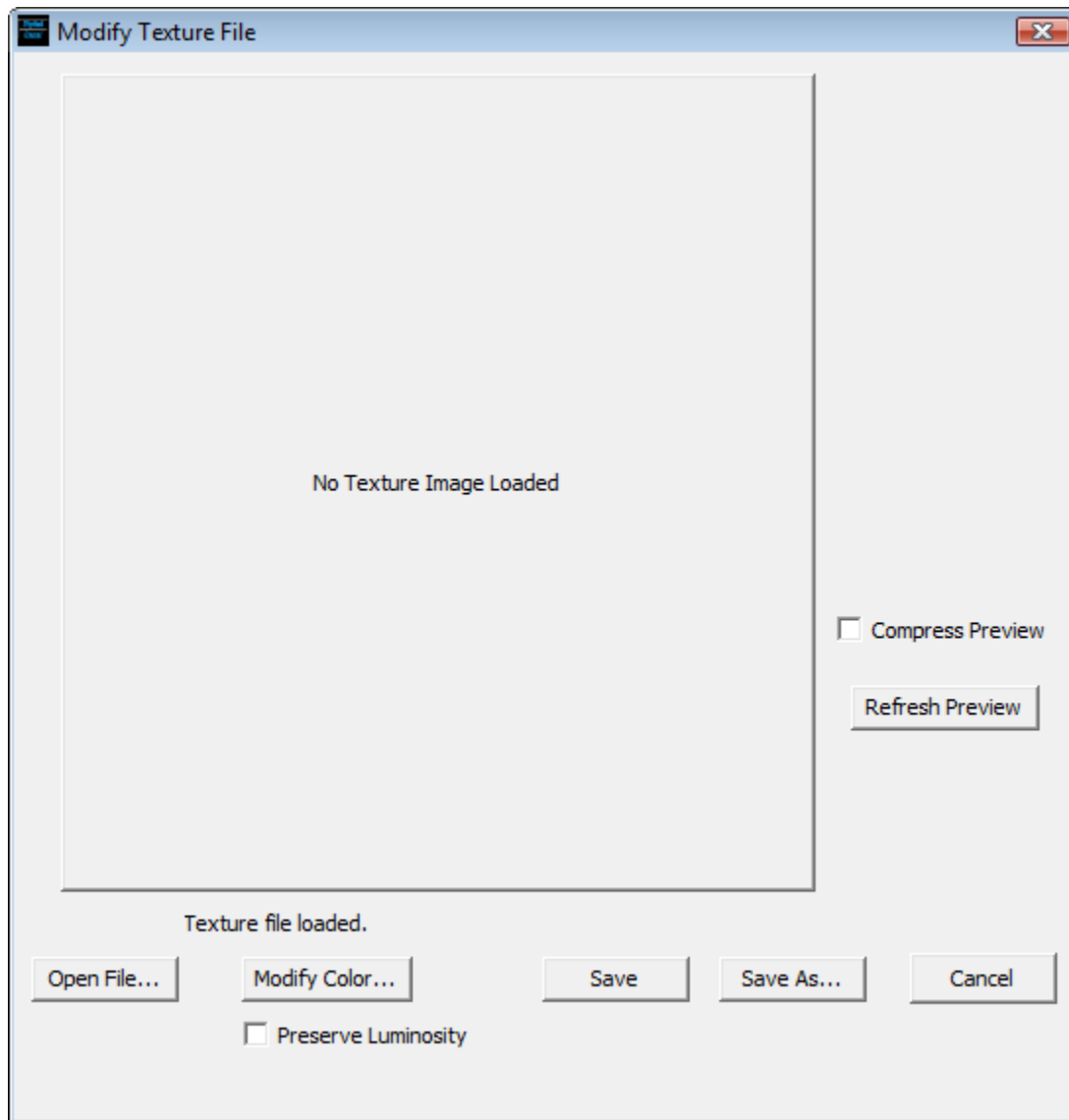
Chapter 36
Modify Texture File



Chapter 36: Modify Texture File

SolidBuilder ➔ **Render** ➔ **Modify Texture File**

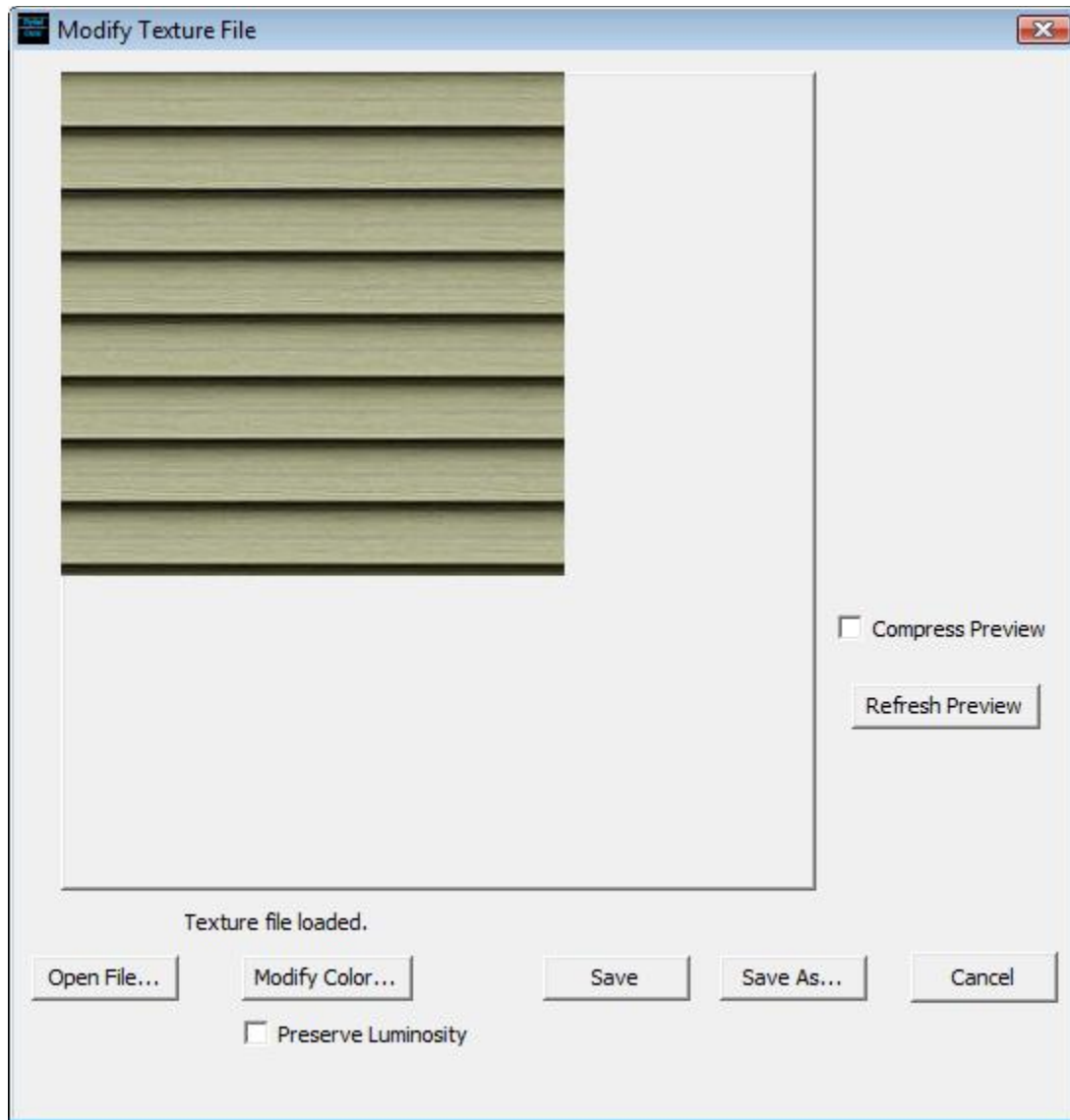
When SolidBuilder installs, it loads hundreds of texture files to use for rendering. However, we understand that not every possible texture can be provided, or there may be different styles of a certain texture. Therefore, we have added the ability to modify the appearance of a texture using the Texture Modifier. When you choose to modify a texture, the following dialog box appears.



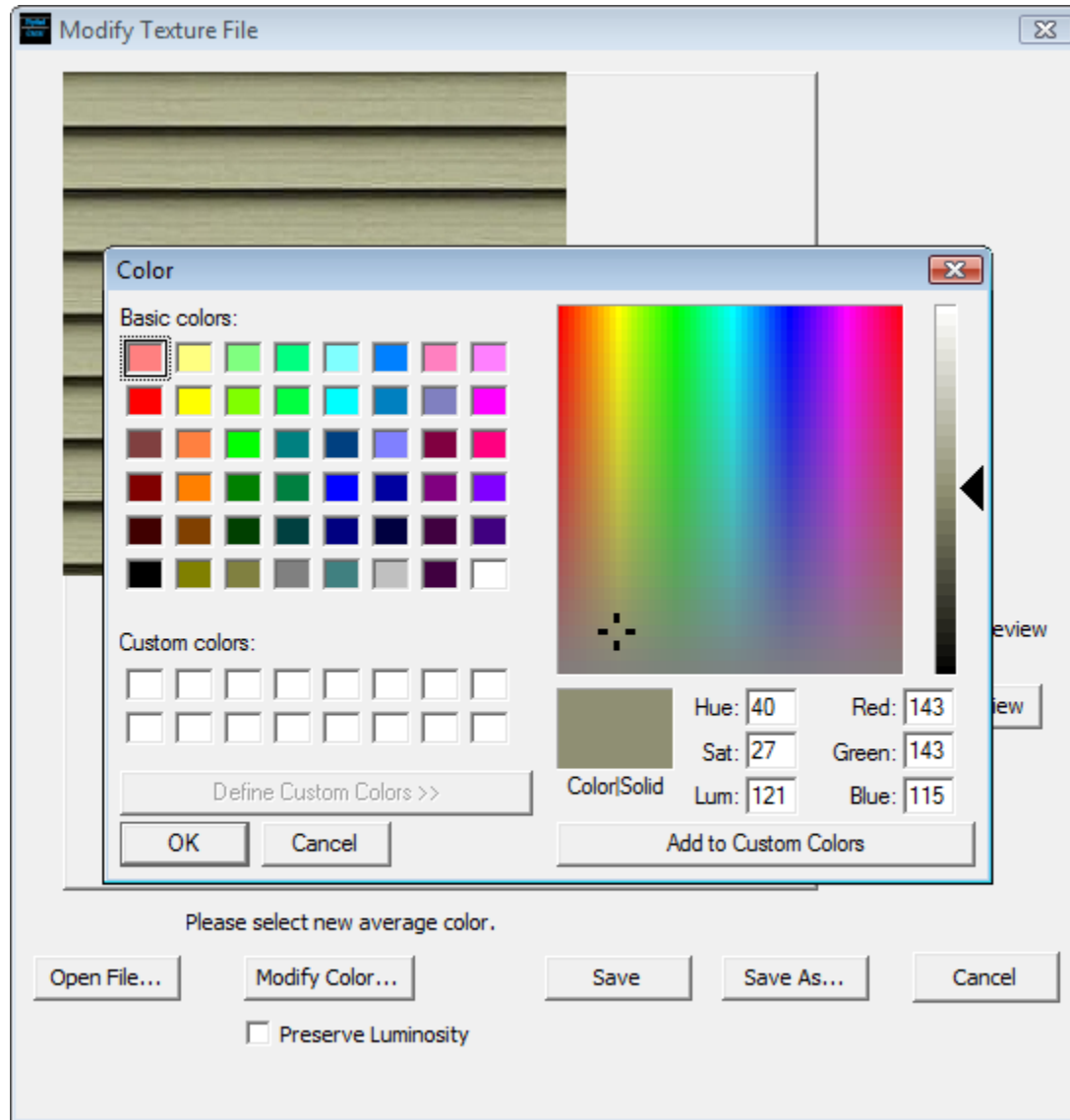
First start off by opening the texture you wish to modify. To do so, click the Open File button and browse to the texture you wish to open. The SolidBuilder default textures are located in C://Program Files/SolidBuilder/SBTextures. Simply select the texture you wish to modify and

Chapter 36
Modify Texture File

select to open it.

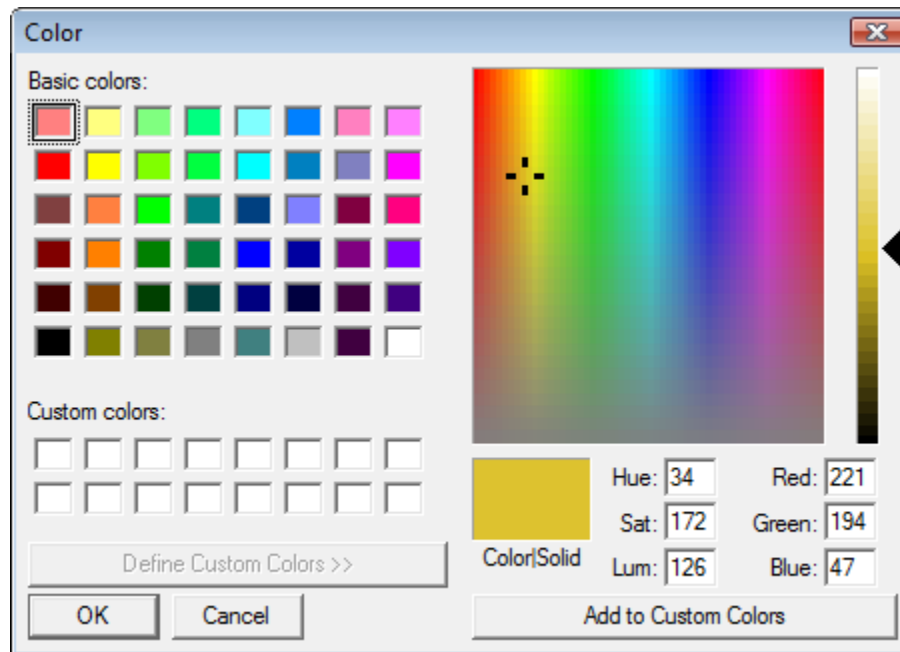


With the image open, we can now change the shade of the texture. To do so, click the modify color button. When the modify button is selected, the following dialog box will appear.

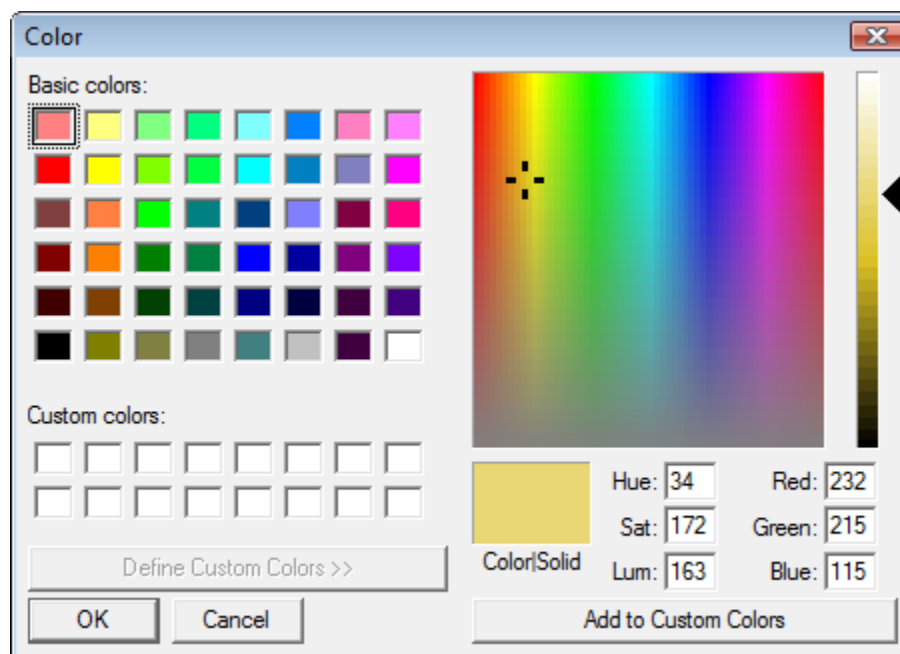


This dialog box allows us to select a new shade for our texture. First we must select a new average color. This is done by clicking the 'cross hairs' in the general area of the desired shade. For example, if we wish to make our texture a yellow-orange color, I will click in that general area such as this picture.

Chapter 36
Modify Texture File

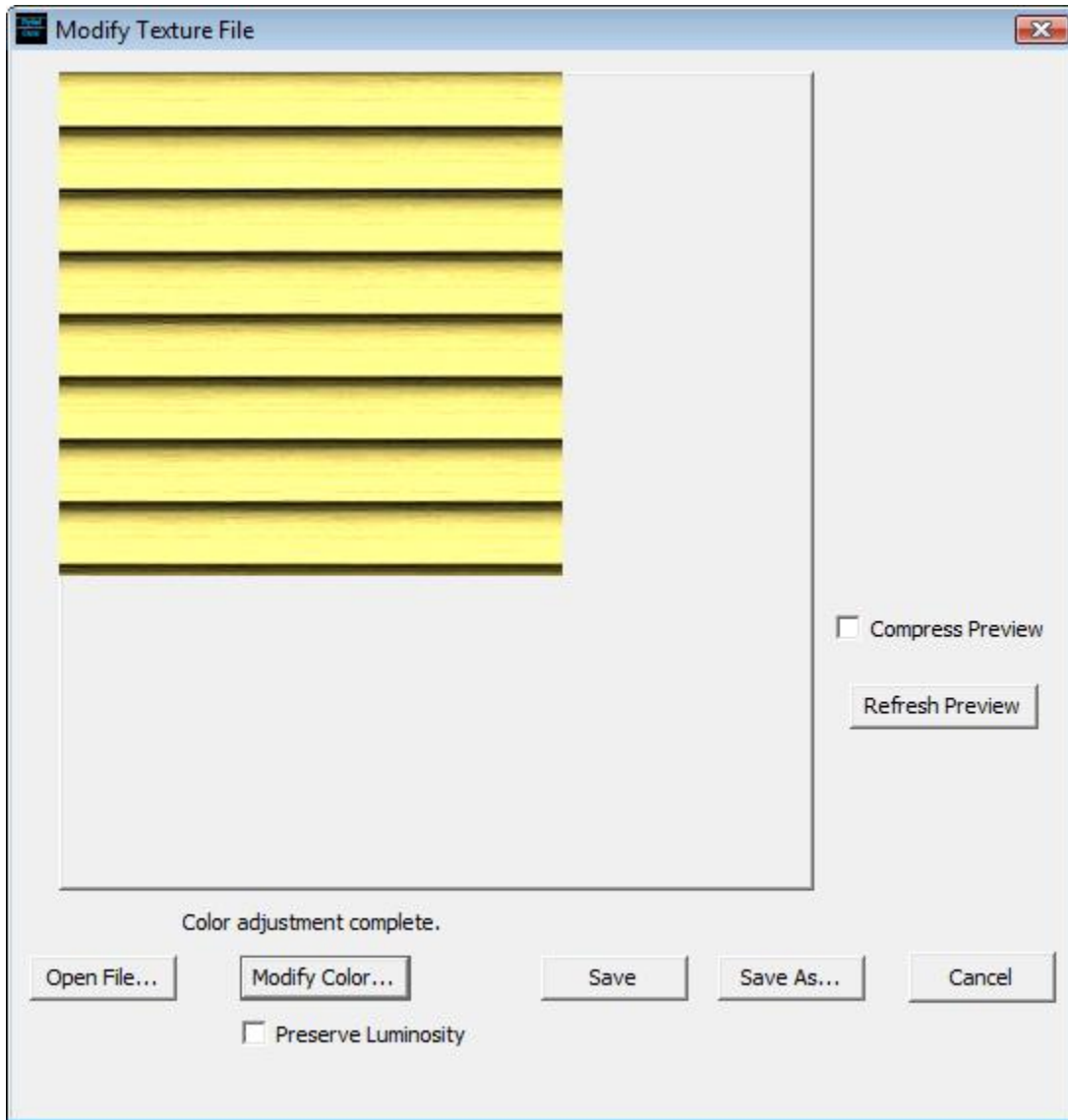


Next, I will use the slide bar on the right to 'fine tune' my exact floor. By sliding the arrow up, the color will appear lighter, but sliding the arrow down, the color will appear darker. In this example, I would like a slightly lighter color, so I will slide the arrow up.



Now that I have my color/shade selected, I will simply select OK to accept it. As you can see, the shade/appearance of the original texture has been changed to the selected shade.

Chapter 36
Modify Texture File



At this point, you may choose to save the modified texture OVERTOP of the original texture by selecting the Save button. If you wish to keep the original texture and save the modified texture, select Save As, and then simply specify a name. If you wish to ignore the changes, select cancel.

Because SolidBuilder allows any image file to be used as a texture, you may choose to bring in your own. If your texture is a large file, you may need to select 'Compress Preview' in order to see the image well enough to modify. If you notice as you modify textures, the textures become washed out, check the Preserve Luminosity option. If you notice an image doesn't reflect the changes you made, simply select Refresh Image.



Chapter 37: Set Background Image & Outline/Ground Texture

SolidBuilder ➡ Render ➡ Set Background Image

Set Background Image

As mentioned earlier, the textures you applied to your model will appear on your model when you choose to render it. Since the background isn't part of the model, you can't assign one in the typical shell settings. Instead, choose Set Background Image from the Render pull down menu. When chosen, SolidBuilder will open a dialog box allowing you to browse to a texture. Once the desired texture is selected, the texture will fill the background. It is recommended to choose a Sky texture to make the model look realistic. The default SolidBuilder textures are loaded in C://Program Files/SolidBuilder/SBTextures.

Outline/Ground Texture

Similar to the shells in a model, you are able to apply textures to an outline. Since outlines don't have any options like other shells, it must be done through the right click menu. After an outline is drawn in place, simply right click on the outline and choose to Apply Texture to Outline. When this is chosen, you will be prompted to select a texture. The texture will fill the outline.

Applying textures to outlines is ideal for adding a ground. Simply make your outline as large as needed to create a ground plane for your model. Place the outline elevation at the desired elevation of the ground. Once the outline is drawn in place, simply attach a ground texture to it. The outline texture has many advantages.



Chapter 38: Render

SolidBuilder ➡ Render ➡ Render

Icon: 

To render your model, simply click the Render icon (or choose it from the pull down menu). When Render is selected, the chosen textures will be applied to your model. Whichever shells are visible in your model will be the shells in your rendering. You may rotate and use your model as usual when it is rendered. To return back to the standard hidden line view, simply click the render icon again.

SECTION FIVE: 2D DRAWINGS

CHAPTER 39: 2D WORKING DRAWINGS

CHAPTER 40: WORKING DRAWING COMMANDS

CHAPTER 41: MODIFYING WORKING DRAWINGS

CHAPTER 42: SHAPE

CHAPTER 43: REMOVE – VIEWS – WINDOW & SAVING DRAWINGS

Section 5 2D Drawings



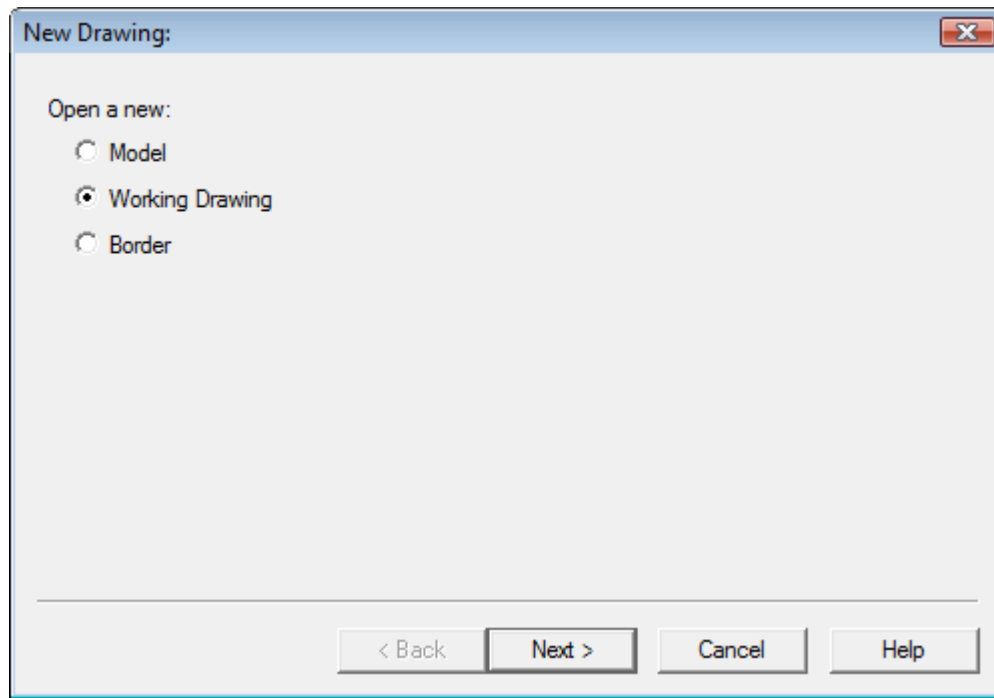
Chapter 39: 2D Working Drawings

SolidBuilder ➔ File ➔ New ➔ Working Drawings

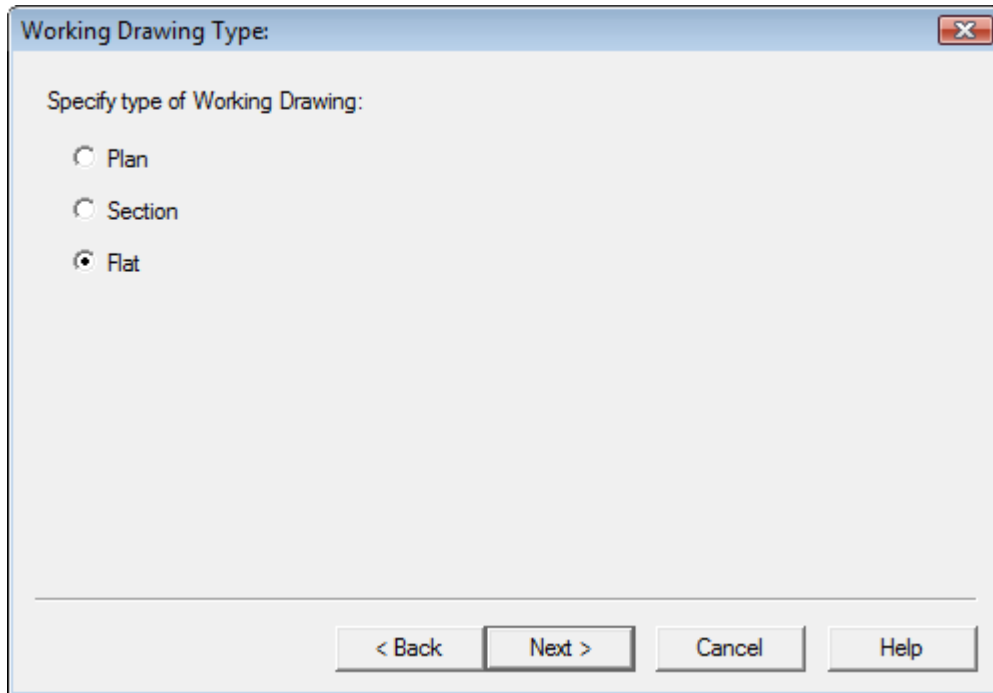
Working Drawings provides you with the tools to create 2-D construction drawings. These drawings may include floor plans, elevations, framing plans and sections. Notes, symbols, dimensions and linework can be placed on the working drawings. Each working drawing is created from the 3-D model and has a unique name. If you change the model, the changes can be entered automatically in the working drawings, but not the other way around. If you change the working drawing, the model is not affected. The working drawings are always saved with the **SolidBuilder** model file but may also be saved as separate files.

SolidBuilder automatically generates 2-D working drawings from the model, eliminating much of the drafting task. This automatic generation leaves the model unchanged. To generate a 2-D drawing, you select shells and symbols visible from the model, which are to be part of a 2-D drawing. **SolidBuilder** generates the Model-image Linework, which are 2-D lines or polygon projections of the selected 3-D shells. This eliminates many of the errors and omissions, which are a part of conventional drafting.

SolidBuilder creates these drawings by clicking on the New icon or selecting File - New - Working Drawing. The following dialog box displays



Toggle on Working Drawing and choose Next. The Working Drawing Type dialog box opens.



- **Plan:** This creates a floor plan from selected shells and symbols of the model. You need walls visible to create this type of drawing.
- **Section:** The model is cross-sectioned and a 2-D drawing is generated showing the interior of the model.
- **Flat:** The view of the model on the screen is first hidden and then converted into a 2-D drawing. This is used for elevations, roof plans and floor/ceiling/roof framing plans. You can also create perspective view Flat drawings.

Section and flat plans allow you to choose two techniques of converting to 2-D, Regular or Lines Only. The Regular method creates 2-D polygons from the model, while the Lines Only method generates a series of 2-D lines. Both methods result in an identical 2-D drawing. The Regular method takes more time, but is easier to edit since you can operate on polygons. Lines Only is much faster and if you want polygons, you draw them by tracing over the lines.

You must uniquely name each drawing that you create and reference it by that name when accessing it. The name must contain no blank spaces. The working drawings are automatically saved with the model when you save. When you load the model file (.DRW), the working drawings are loaded with it. The viewing of existing working drawings or model can be selected by choosing the Window drop list menu. If you do not save your model after creating a working drawing or performing work in a working drawing, none of your work in the model, including working drawings, is saved.

Plan

SolidBuilder ➡ File ➡ New ➡ Working Drawings ➡ Plan

1. After you have selected File - New - Working Drawing - Plan, you will be asked for a file name. This file name is limited to 8 characters. Hit Next.
2. A dialog box will open and ask for the following:

Height of plan cut above bottom of wall: 5'

Type a dimension so that the cut height includes all your openings.

Show Overhead Items: Dashed Line Solid Line Exclude

You can have the visible overhead items displayed on the plan as dashed or solid lines. Overhead items include girders, ceilings and roofs. These items are stored in separate Model Image Linework layers. If you do not want them to show, then select Exclude.

3. Then it prompts you:
Select wall that determines cut height
4. The wall selected determines the cut height used to generate the plan. The resulting 2-D drawing is now ready for adding additional linework, symbols, notes and dimensions.

Section

SolidBuilder ➡ File ➡ New ➡ Working Drawings ➡ Section

A section drawing vertically cuts all shells or framing visible in the building at that plane and flatten the sectioned result to a 2-D drawing. If you want to show some framing in the section, make sure only the framing is visible in the model and not the shells. Then you must insure that the model is in the appropriate view for slicing, normally a plan view.

1. After you have selected File - New - Working Drawing - Section , you will be asked for a file name. This file name is limited to 8 characters. Hit Next.
2. The Flatten Method dialog box opens. You will need to:
Specify Flatten Method: Regular Lines Only

Regular - The regular method converts the 3-D model to a set of 2-D polygons. This provides the most flexible approach to drawing, since the 2-D linework is based on polygons, which can more easily be edited or which can be filled with a pattern. This method takes longer than the Lines Only method. To save time, show only the shells or framing and symbols visible in the 3-D model that you would see in a hidden line view of that working drawing.

Lines Only - This method converts the 3-D model to a set of discrete 2-D lines. You have the option of creating a detail working drawing from a portion of the current view. This is the faster method of generating a 2-D drawing. Polygons can then be drawn using linework commands and tracing the discrete lines to insert patterns.

3. You are prompted:
Mark the start section cut endpoint
4. Draw a line through the model for the desired section. You are prompted:
Mark a point on the side to discard
5. Move the cursor to the side of the model that is not to be visible and click the left mouse button. The model is cut and the section view is created.
6. If you selected the Lines Only method, you are prompted:
Mark opposite corners of area to include or ESC to include all
7. If the current flattened drawing is acceptable, press Esc. The working drawing is generated. If you desire to create a detail working drawing from this flattened view, move the cursor to one of the corners of the desired detail drawing and click the left mouse button. You are prompted:
Mark opposite corner of area -
8. Move the cursor to the diagonal opposite corner and click the left mouse button. A box is drawn around the area selected and the detail drawing is created.

Flat

SolidBuilder ➡ File ➡ New ➡ Working Drawings ➡ Flat

Flat drawings are 2-D drawings in a hidden line view. Typically any drawing that is not a floor plan or a section drawing is a flat drawing. Examples would be the front, back, left and right elevations, maybe a roof plan etc.

1. You want to make the shells and symbols visible in the 3-D model that you want to appear on the working drawing. You also need to set the correct view of the model. For a Front elevation, you want to click on the Front view icon.
2. When you create the working drawing you have the same options as a Section drawing (see the previous section):
Specify Flatten Method: Regular Lines Only
3. After you enter a name and select a method, a 2-D drawing is generated from the hidden view of the model displayed on the screen at the time you execute this command. Remember if you choose Regular for the method; make sure you only have the shells and symbols visible that you would see in a hidden line view to speed up the creation of the drawing. If you selected the Lines Only method, you are prompted:
Mark opposite corners of area to mask or ESC
4. If the current flattened drawing is acceptable, press Esc. The working drawing is generated. If you desire to create a detail working drawing from this flattened view, move the cursor to one of the corners of the desired detail drawing and click to specify a rectangle.

Block Options

SolidBuilder ➡ **File** ➡ **New** ➡ **Working Drawings** ➡ **Tools** ➡ **Options**

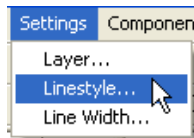
The Option command in Working Drawings functions the same as with 3D shells. Instead of creating Blocks of 3D shells, you create Blocks of 2D linework, symbols and/or text.



Chapter 40: Working Drawing Commands

SolidBuilder ➔ **Working Drawings** ➔ **Settings**

The Settings menu (below) allows you to set layers, linestyles, line widths, notes and dimension options.



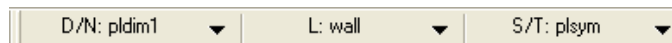
- **Layer:** **SolidBuilder** organizes the information on 2-D drawings by assigning all geometry, text, symbols, notes, etc, to layers. Each entity is placed in a layer. Some of the layers are defined and named by **SolidBuilder**; others may be created and defined by the user. **SolidBuilder** groups each entity into one of three categories:

Symbol/Text layers for symbols and text.

Linework layers for linework.

Note/Dimension for notes dimensions and labels.

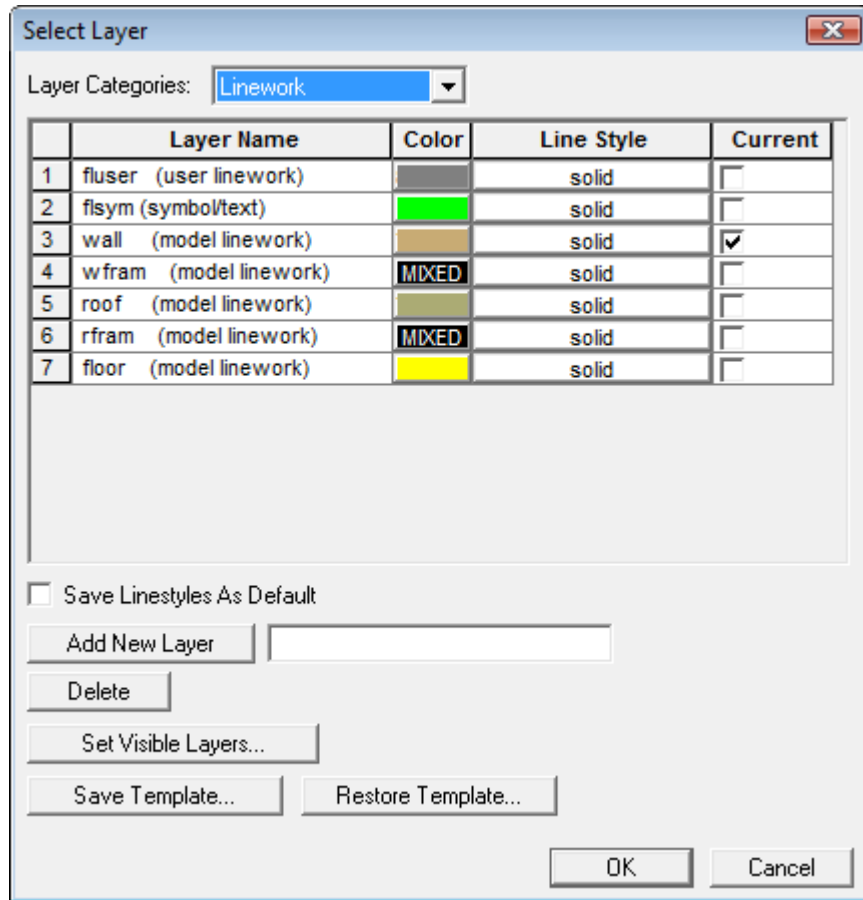
When you create a working drawing, **SolidBuilder** converts the lines you see in the model into 2-D linework on a work drawing. As it creates the drawing, it places each different shell on its own linework layer, so linework for walls is on its own layer; linework for floors is on its own layer and so on. You may insert linework on one of these layers or create your own layer. You may also modify or erase any linework created on the drawing. **SolidBuilder** also creates one layer for the symbol/text category and is named plsym for the first plan (flsym for a flat drawing). Any symbols visible prior to creating the drawing are placed on this layer. **SolidBuilder** also creates one layer for the note/dimension category and is named pldim1 for the first plan (fldim1 for a flat drawing). To distinguish between layers, the following toolbar appears when a working drawing is created displaying the current layers:



You can draw lines, polygons and other geometry on the working drawing. These elements are placed in the current Linework Layer. In addition to 2-D geometry, you may add symbols, notes, dimensions, legends, text files and text tables from **SolidBuilder** Quantities reports, each of which is placed in the current layer.

Layers are a convenient way of grouping similar items together. For example, you want to group together all the information for the layout of an electrical plan. To do this, you can create a new layer for each category and then place all the electrical lines, symbols and notes on those layers. Then the layers can be made visible or invisible to ease the process of modifying and printing of other layers.

You can select one of the categories to change the current layer using the Current Layers tool bar (above) or you can access them by selecting Settings/Layer from the menu and the following dialog box displays (below).



Layer Categories: Displays a category with a list of the layers in that category. The layer with a check mark is the current layer for that category. You may click on the drop list to select another category and it will list all its layers.

Add New Layer: You may type a name for a new layer (leaving no spaces) and then click on the Add New Layer button. It will place the layer in that category with a default color. You may change the color of a layer by clicking on that specific color button.

Delete: You may delete a layer by clicking on the gray box next to the name so it is highlighted and then clicking on the Delete button. It deletes that layer and everything that was created or inserted on that layer. It does not allow you to delete all the layers in a category.

Set Visible Layers: This lists all of the layers in that working drawing. You can click on which layers that you want to make visible on the screen. You can hold the Shift or Cutler key down and left click if you only want certain ones visible or select All to have all the layers visible.

Save Template: This creates a template based upon your current layer names and colors for those layers to be used for other drawings. When this button is clicked on, you are prompted for a Template Name.

Restore Template: To use the template when in another drawing, click on this button, and select the desired template from the list. This creates all of the layers in

the template with the correct colors for the current drawing.

The use of the Layer Template eliminates the need to manually set all of the colors to match the Output Color Table for printing purposes for each drawing.

- **Linestyle:** This command allows you to select from available linestyles from the Select Linestyle dialog box.
- **Line Width:** This command allows you to specify line widths from the Select Line Width dialog box.

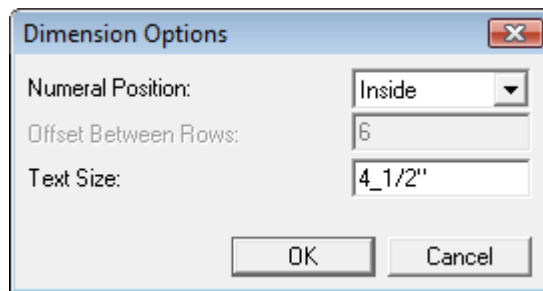
Dimensions

SolidBuilder ➡ Working Drawings ➡ Component ➡ Dimensions



Icon:

You can insert dimensions by clicking on the Component pull-down menu or clicking on the Dimension icon. Then select the Insert menu or use the Model Information tool bar to choose what method of dimensioning. The options are the same for all types of dimensions



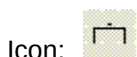
Numeral Position: The Numeral Position allows the dimension value to be placed at the Inside, Right, Left, Above, Below or Parallel to the witness lines.

Offset Between Rows: The Offset Factor is used to calculate the desired distance between dimension rows when using the Automatic method. Each row is placed the same distance apart. The distance between rows is computed by multiplying the Text Size by the Offset.

Text Size: Text Size is given in Drawing Feet. You must determine this number by deciding the actual size of the text that you want to appear on the drawing relative to the scale of the drawing. If you want the text size on the drawing to be 1/4" and the scale of the drawing is 1/4" then you would set your Text Size to 1 foot.

Single Dimension

SolidBuilder ➡ Working Drawings ➡ Settings



Icon:

- **Insert Single:** This command is used to define a dimension line between two points or between a set of points along a line.

1. When you select Single, you are prompted:
Mark 1st point for dimension (ESC to quit)
Mark 2nd point for dimension
Mark offset for Dimension Line (ENTER if same offset)
2. You first locate the two points to be dimensioned by using the Jump commands. Next you mark or locate a point, which determines the location of the dimension line. Only the perpendicular distance between this point and a line between the two dimension points is pertinent relative to the placement of the dimension line.
3. A dimension line and witness lines are drawn. The Modify Dimension menu can modify the position and style.
4. After placing one dimension, a row of dimensions can be placed along the same dimension line. Locate the two points and press Enter when the Mark offset... prompt is given. The command returns the cursor to the second point located. This is to facilitate placement of the first point of subsequent pairs of points along a line.
5. After the line is drawn, the command checks to see if it is a horizontal or vertical line. A default value is set to determine this so that any line within the number of degrees of the default value is determined to be a horizontal or vertical line.
6. If the line is not horizontal or vertical (within the default deviation value), the following message appears:
Line should be: Skew Horizontal Vertical Skew per User

Select one of the three options. If you select Skew, the dimension line is drawn along and parallel to the line defined by the two points. If you select Horizontal, then the horizontal component is measured. If you select Vertical, then the vertical component is measured. If Skew per user is selected the user is prompted to Mark Referecne point for skew angle

Single Modify Dimension

SolidBuilder ➡ Working Drawings ➡ Component ➡ Dimensions

Icon: 

This command is the same as the Insert Dimensions Single command but after inserting each dimension, you are presented with the opportunity to immediately modify the inserted dimension notation using the Linear dialog box options. These are discussed in the Modify section.

Cumulative Dimension

SolidBuilder ➡ Working Drawings ➡ Component ➡ Dimensions

Icon: 

This is the same as the Insert Dimensions Single command, except a series of measurements are given along a set of multiple lines, beginning at a common starting point. Each dimension line is placed beyond the preceding one creating a stacked effect. You are prompted:

Mark Base Point for Cumulative Dimension Set (ESC to Quit)
Using the Jump commands select the base or starting point.

Mark Next Point to Dimension (ESC to Quit)
Using the Jump commands, select the second point.

Mark Offset for Dimension Line (ENTER if same offset)
Move the mouse away from the line the distance you want the first dimension line to be placed.

Mark Next Point to Dimension (ESC to Quit)
Using the Jump commands select the third point.

Mark Offset for Dimension Line (ENTER if same offset)
Move the mouse away from the line the distance you want the second dimension line to be placed making sure that it is beyond the first dimension line.

Continue this process until all points have been selected.

Continuous Dimension

SolidBuilder ➡ Working Drawings ➡ Component ➡ Dimensions

Icon: 

This is similar to Automatic in that all dimensions are in the same line but like Cumulative they are all pulled from the one base or starting point. You select a series of points to dimension to. Set the offset for the dimension line and the dimensions are inserted. Continuous allows you to specify the length of the dimension line. Typically it is rather short and serves only to show the direction of the dimension.

Mark Base Point for Continuous Dimension Set (ESC to Quit)

Mark Next Point to Dimension (ESC to Quit)

Mark Offset for Dimension Line (ENTER if same offset)

Automatic Dimension

SolidBuilder ➡ Working Drawings ➡ Component ➡ Dimensions

Icon: 

Insert Dimensions Automatic allows you to place multiple rows of dimensions between any two locations on the drawing. Rows of dimensions placed in this manner have the same offset between them as well as the same Numeral Position (relative to the dimension line) and the same text size. You are first prompted for the orientation of the dimension lines. Next you are prompted to enter the points for the beginning point, the intermediate points and the ending point of the nearest dimension row to the linework. Once these have been entered, subsequent rows of dimensions require that you enter only the intermediate points – the beginning and ending points are set with the first row. As each row is completed (by pressing the F10 key) it is automatically placed at the offset distance from its preceding line.

Pressing the F10 key to complete the next to the last line and then pressing the F10 key again without entering intermediate values places the last dimension row. This last row

contains only the beginning and end points.

1. The command prompts:
Insert dimension rows along the: Top Bottom Left Right Parallel
2. Select either top, bottom, left or right depending on which side you dimension. This places the dimension line at the proper angle (typically vertical or horizontal) and generates the additional rows in the right direction relative to the first row. Parallel allows the user to select an angle that the dimensions should follow.
3. The next prompt is:
Mark point 1 along Top row 1; F10 to finish
(If you select Bottom, Left or Right, that selection replaces the word Top in this message.)
4. As you select each point, the point number in the message is increased by one in the subsequent prompts. Select all the points until you have located the last point and press the F10 key. The command prompts:
Mark offset to nearest (1st) row of dimensions
5. Move the cursor to the desired location and left click or press Enter. The first row of dimensions is placed. The command prompts:
Mark point 3 along Top row 2; F10 to finish
6. If parallel is the user prompted to Mark a Reference point for Skew Angle. This point works with the first point selected to create the angle at which the Dimension are placed or the user can select ESC to select two points for the angle
7. Note that the first point displayed is point 3. This is because the first two points are the beginning and end points. Note also that the row number in the message has been increased by 1. As you place each row, the row number in the message is increased
8. Continue the process until you have placed the next to last dimension line (by pressing the F10 key after you have indicated the intermediate points). Press the F10 key again and the last row, containing only the beginning and end points, is placed. You are then prompted to adjust the dimensions or press Esc to quit.

Line Dimension

SolidBuilder ➡ Working Drawings ➡ Component ➡ Dimensions

Icon: 

Insert Dimensions by the Line method allows you to select a line on the current layer and have it automatically dimensioned.

Quick Dimension

SolidBuilder ➡ Working Drawings ➡ Component ➡ Dimensions

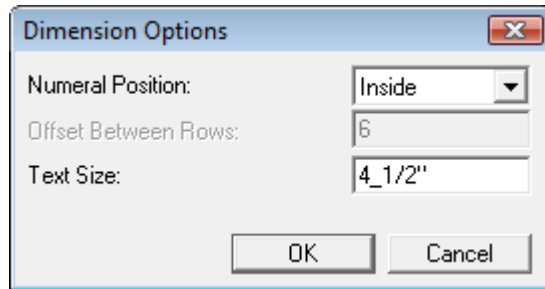
Icon: 

Insert Dimensions by the Quick method places dimensions from wall to wall. The following dialog

box displays when you click on the Quick icon or select from the Insert pull-down menu.

Numeral Position: Select from above, below or parallel to position the dimension in relation to the witness line.

Text Size: Set the size of the dimension numerals.



Extension Line Location At Wall: The option can be toggled to either edge or center for the location that the dimension intersects on the wall.

Dimension Wall: This option can be toggled on or off, if toggled on, the walls that the line crosses automatically receives a dimension for the wall width.

Click on OK when you have the desired settings. You will draw a line outside of the first wall, continue through and past all wall to dimension. You do not have to use a snap command to locate an exact start or stop location. The line you draw must cross the wall line and if you go through a window or door opening, it does not recognize that wall.

Notes

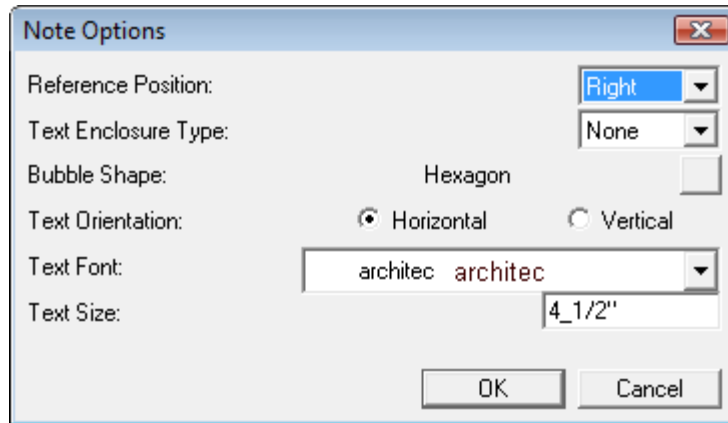
SolidBuilder ➡ Working Drawings ➡ Component ➡ Notes

Icon: 

There two methods of inserting text or information into a working drawing. One is Notes and the other is Text. Notes typically have a leader line with an arrow attached while Text does not. As a general rule, Notes is used when you need the leader arrow and Text is used at all others times. Text is much more flexible than Notes.

There are two types of Notes: **Single** and **Quick**. These are described in detail in the Pull Down Menus Components section.

You can insert Notes by clicking on the Notes icon or selecting Notes from the Component menu. Then you may select Insert to insert a Single note or a Quick note. The following dialog box displays.



Reference Position: (Right-Left-Above-Below) this selection determines which side of the note the leader line and arrow are placed.

Text Enclosure Type: (None-Box-Bar-Bubble) this selection provides for boxes, bubbles, sidebars or nothing around the text.

Bubble shape: This option offers the following choices for your text bubble by clicking on the gray box: Circle - Triangle -I-triangle-Square-Diamond-Pentagon-Hexagon-Octagon.

Text Orientation: (Horizontal-Vertical) the text is written either in a horizontal or vertical line.

Text font: Choose a text font by clicking on the gray box.

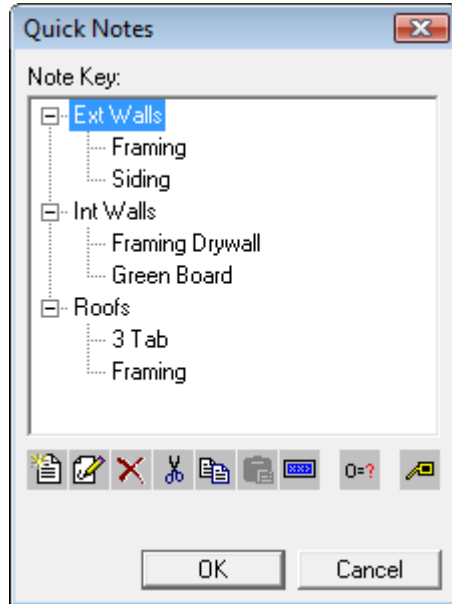
Text Size: This sets the size of the text. Note that the Text Size is given in Drawing Feet. You must determine this number by deciding the actual size of the text that you want to appear on the drawing relative to the scale of the drawing. If you want the text size on the drawing to be 1/4" and the scale of the drawing is 1/4" then you would set your Text Size to 1 foot.



- **Insert Single:** This option allows you to place in a note at specified location with a leader line attached to it. After you have set the proper values in the dialog box, the command prompts for a line of notes. Each note is entered as a one-line entry. Hit Enter or Ok to go to the next line. You may have up to 10 lines in any note.
 1. The first prompt is for the location.
Mark Location for <Reference Position value>> of Note; (ESC to quit)
 2. Move the cursor to the desired location. You are prompted:
Enter Text Line
 3. Type in the text for the first line. To add multiple lines hit the Enter key. After all lines of text have been added (maximum of 10) hit OK. You are prompted:
Mark location for Tag Line Origin (<Enter>> if No Tagline)
 4. The user is given the opportunity to modify the note. See the Modify section for a

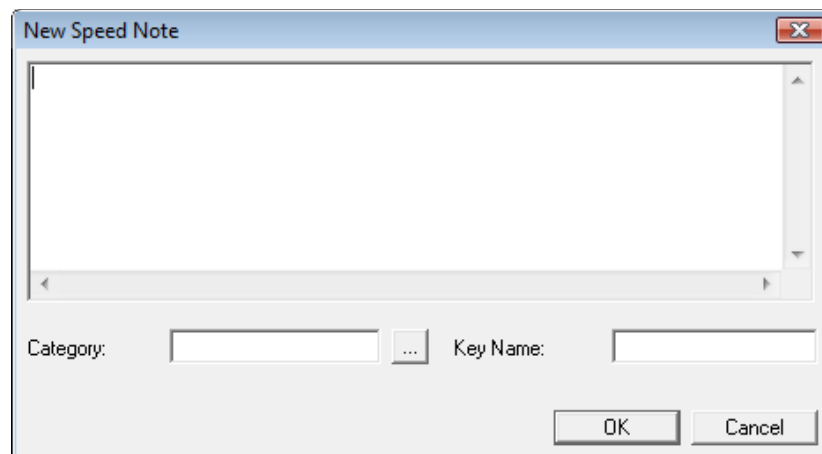
description of the Modify Function Key options. The sequence is repeated until the user presses Esc.

- **Insert Quick:** Inserting quick notes allows you to create a list of commonly used notes, store them in a library and insert into your working drawings for any project. Quick Notes can be accessed by either clicking on the icon or by selecting Insert - Quick. The following Quick Notes dialog box displays.



You can also right click on any note and save it as a Quick Note.

- **New:**  Click this icon to create a new quick note (the following dialog box displays). After you type the note, you need to type or select an existing Category and type a Key Name (heading for the note).



Large edit field – Within this field the user can type the desired notes. It can be any length and use any characters. Multiple lines can be achieved by pressing Enter key on the keyboard to advance down one line.

Category – A new category name can be typed into the edit field; this name then is displayed in the quick notes dialog box. Once a category name is entered, the existing names can be accessed by clicking on the button to the right of the edit field. and a list of existing category names is displayed.

Key Name – You can type the name of the quick note. This name appears in the Quick Notes dialog box. This key name will be the identifier for the contents of the note.

- **Edit:**  Allows you to edit an existing Quick Note.
- **Remove:**  Click this icon to remove the selected Category or Key Name.
- **Cut:**  Click this icon to cut the selected Key Name in a Category.
- **Copy:**  Click this icon to copy the selected Key Name in a Category.
- **Paste:**  Click this icon to paste a Key Name into a Category.
- **Rename:**  Click this icon to rename the selected Key Name or Category.
- **Options:**  Click this button to change the settings of your notes.
- **Insert:**  Click on this button to insert the selected Note.

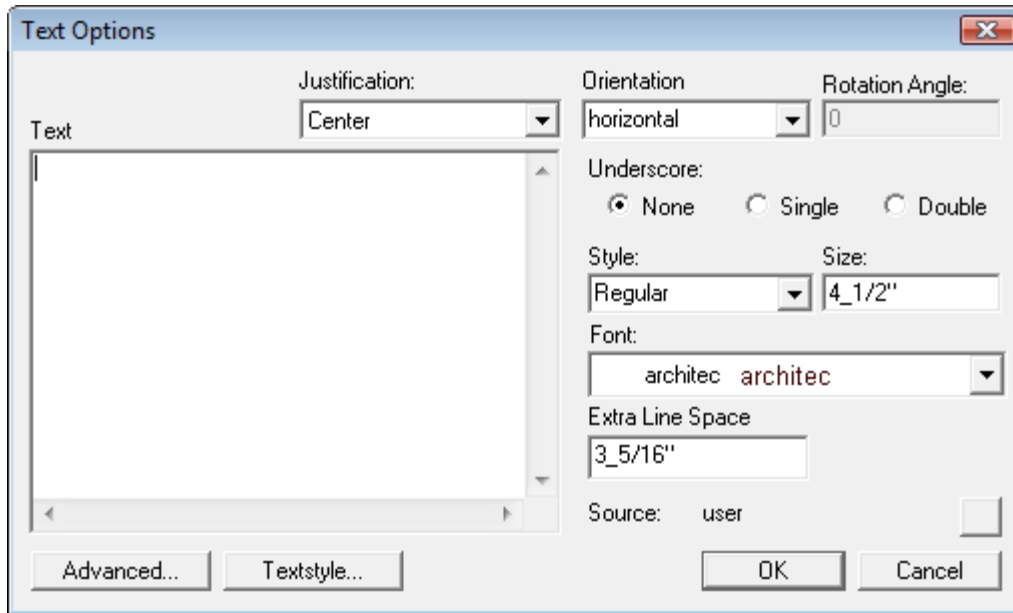
Text Options

SolidBuilder ➡ Working Drawings ➡ Component ➡ Text

Icon: 

There two methods of inserting text or information into a working drawing. One is Notes and the other is Text. Notes typically have a leader line with an arrow attached while Text does not. As a general rule, Notes is used when you need the leader arrow and Text is used at all others times. Text is much more flexible than Notes. Text allows multiple lines with up to 225 characters per line.

You can insert text by clicking on the Text icon or selecting Text from the Component menu. There are four methods for inserting Text: **Line, File, Table and Quick**. These are described in detail in the Pull Down Menu's Component section. Then click on the Insert menu to select the method of inserting text. The following dialog box displays.



Justification: (Left-Center-Right). This selection determines the justification of the text.

Orientation: **Align to an Angle** inserts the text at the angle entered in the Rotation Angle field.

Diagonal inserts the text so that each character of the text is inserted diagonal to the previous character at the angle entered in the Rotation Angle Field.

DIAGONAL

Horizontal inserts the text horizontal to the X - axis.

Vertical inserts the text vertical to the Y -axis

Rotation Angle: enter the angel of rotation for the text line. The range is from -89 degrees to +89 degrees.

Font: Choose a text font by clicking on the down arrow button.

Style: Choose from Regular, Bold, Italic or Italic Bold.

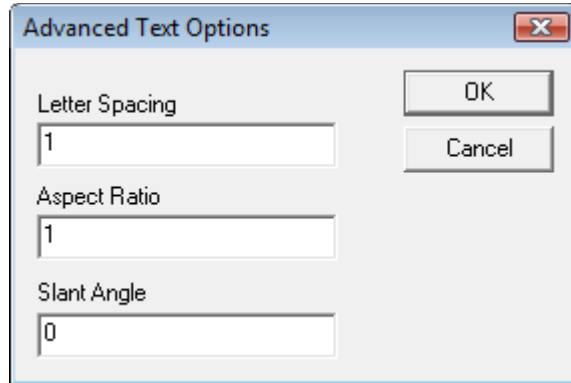
Size: Note that the Text Size is given in Drawing Feet. You must determine this number by deciding the actual size of the text that you want to appear on the drawing relative to the scale of the drawing. If you want the text size on the drawing to be 1/4" and the scale of the drawing is 1/4" then you would set your Text Size to 1 foot.

Underscore: allows inserting a single or double striking underscore or no underscore.

Extra Line Spacing: this is the distance between multiple lines of text.

Source: This allows the user to enter text (if User is selected) otherwise you can select a field from the Model Information. This information can be changed by selecting: Settings - Model Information in Model mode.

Advanced: offers several additional text features

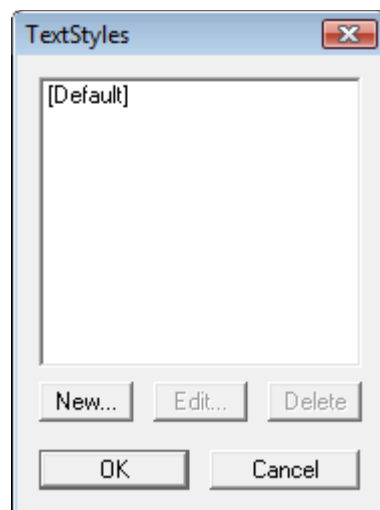


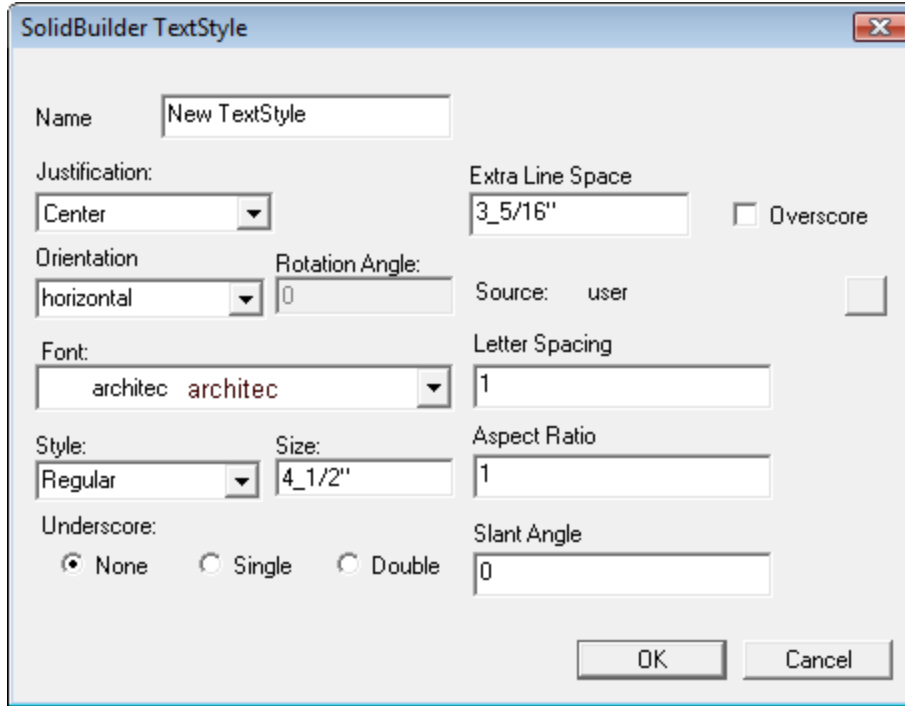
Letter Spacing: the amount of space between the text characters in a text line. A spacing of 1 is the default. A spacing of 2 would be double the spacing between the characters.

Aspect Ratio: establishes the relationship between the text character width and height. A value of 1 is the default. A value of .5 sets the width of the text to 1/2 of its height.

Slant Angle: determines the slant (italic) of the text. A Slant Angle of 20 degrees would slant the text forward 20 degrees, while a Slant Angle of -20 degrees would slant the text backwards 20 degrees.

Text Style: defines the settings of font, slant, height, aspect ratio and spacing ratio of a style. These definitions can be named, saved and recalled, eliminating the need to enter all of the parameters each time.



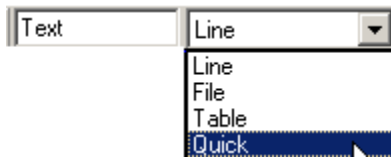


Inserting Text

Line

SolidBuilder ➔ **Working Drawings** ➔ **Component** ➔ **Text**

Icon:



There are 4 types or methods of inserting text; Line, File, Table and Quick.

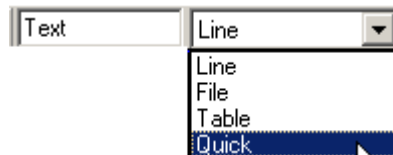
- **Line:** Inserts single or multiple lines of text.
 1. After you have set the proper values in the Text Options dialog box, the command prompts for a line of text if you selected User for the Text Source option. Otherwise the text from the Text Source is inserted (for example, the Company, Job Name or the Address2 line from the original Model information you entered). If you choose User, the first prompt is for the location.
Mark location for right edge [or] center [or] left edge of text line; (ESC to quit)
 2. Move the cursor to the desired location. The command then prompts for the text.
Enter Text Line
 3. This prompt is repeatedly displayed—you may enter more than one line of text; click

on OK or press Enter once to define each line of text.

File

SolidBuilder ➡ Working Drawings ➡ Component ➡ Text

Icon: 



There are 4 types or methods of inserting text; Line, File, Table and Quick.

- **File:** Inserts a text file that has been previously created.

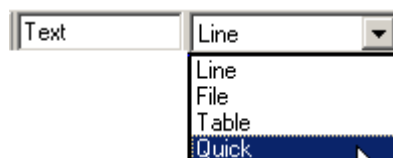
One way to use this command is to write all your general notes with your word processor and save them as an ASCII file or a text file with a .txt extension rather than the typical .doc extension. Then use this command to place them on the drawing.

1. The command prompts:
Mark location for right edge [or] center [or] left edge of text file; (ESC to quit)
2. Rather than typing the text after you have located its placement, you place already prepared text. This text file must be in an ASCII format. The Select File dialog box displays where you can choose which file to insert.

Table

SolidBuilder ➡ Working Drawings ➡ Component ➡ Text

Icon: 



There are 4 types or methods of inserting text; Line, File, Table and Quick.

- **Table:** This command is similar to Insert Text. It allows you to place a table on a working drawing. You may also place information generated from the Quantity Reports. In combination with the editable Openings Schedule described in the chapter on Quantities, this command allows the Openings Schedule to be added to a working drawing.
1. The command prompts:
Mark location for right edge [or] center [or] left edge of text file; (ESC to quit)

2. Rather than typing the text after you have located its insertion point, you insert an already prepared table. This table must be in an ASCII or text file format.
SolidBuilder's export tables are of this type.
3. Select one of the files. If you select a **SolidBuilder** generated file, you are prompted for the format of the table. Typically this is used to insert the Openings Schedule, which has a .opn extension. You may select particular columns from the report and the order of the column in the table. You may place some or all of the columns from the report in the table.

Quick

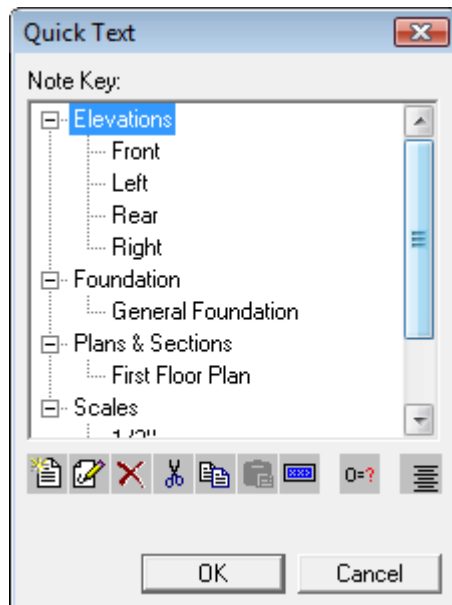
SolidBuilder ➔ **Working Drawings** ➔ **Component** ➔ **Text**

Icon: 



There are 4 types or methods of inserting text; Line, File, Table and Quick.

- **Quick:** Inserting quick text allows you to create a list of commonly used text, save it in a library, and insert onto your working drawings for any project.
1. You can click on the Quick Text icon or select Insert Quick to display the following dialog box.



The icons and options are exactly the same as those for Quick Notes.

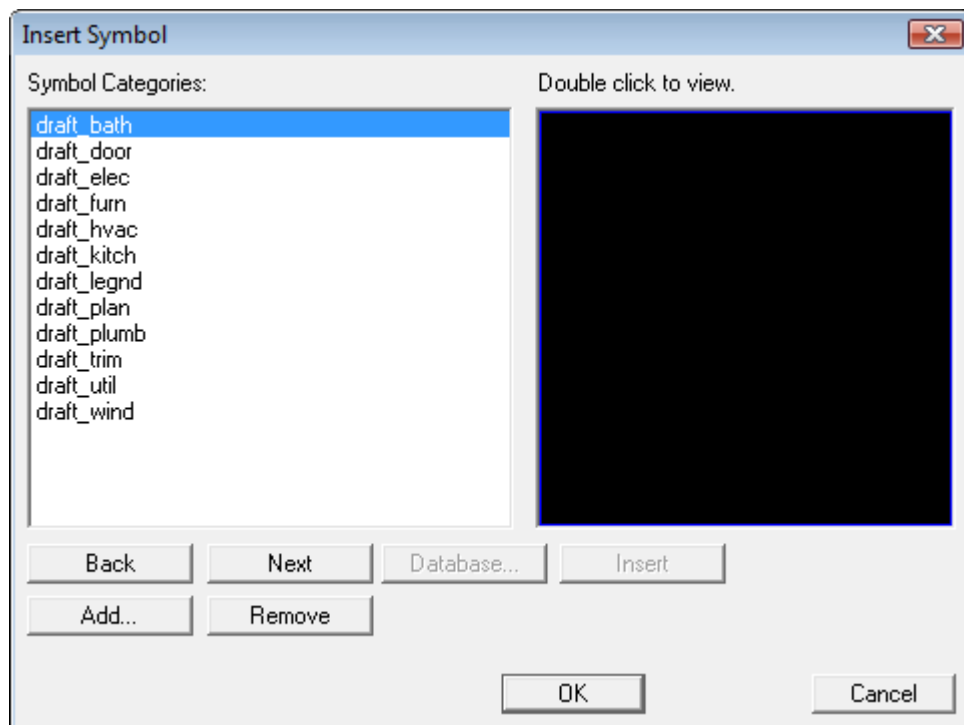
Symbols

SolidBuilder ➔ Working Drawings ➔ Component ➔ Symbols

Icon: 

To insert symbols, click on the Symbols icon or select Component - Symbols from the menu. This command provides for applying 2D symbols to the Working Drawings. Note that assemblies are not automatically attached to 2-D symbols inserted on working drawings. There are two options for inserting symbols. One is Automatic, which is used to insert the door and window symbols. The other is One by One which is used to insert all other 2D symbols such as electrical, HVAC etc.

- **Insert Automatic Openings:** This command automatically places the door and window symbols upon the Working Drawing. The symbols placed are those selected at the time the openings were placed in the model.
- **Insert One by One:** This command is used to place individual symbols on the plan. Note that the symbols are placed based on the Location Options choice in the Symbol Database. The Insert Symbol dialog box (below) displays and then you can pick and choose which symbols you want to insert. First select a Symbol Category and then click on Next. Then you may choose a symbol and click on Insert.



Openings

SolidBuilder ➡ Working Drawings ➡ Component ➡ Openings

Icon: 

Typically a house is cut horizontally at 5' when creating a Plan drawing. However, some openings (typically a bathroom window above a shower) are above the 5' line. Use this command to call out those openings. Another situation may be on a split-level with two floors and you want both floors to appear on the same floor plan. If you select 5' above the lower floor, you slice the upper floor below the bottom (s) of the windows. This command can then be used to place those windows by clicking on the Openings icon or selecting Component - Openings.

5. The command prompts:
Select openings to copy to plan
6. If the model is not visible, it becomes visible. Each opening is highlighted in the original model for selection. After selecting an opening, the wall linework is cut and the opening is placed.
7. This allows you to change openings in the model and add the openings to the plan drawing without regenerating the model.
8. To add a symbol to the opening, use the Insert Symbols command.

Linework

SolidBuilder ➡ Working Drawings ➡ Component ➡ Linework

Icon: 

You can insert any type of linework into your workings drawing just like any other CAD program by clicking on the Linework icon or selecting Component - Linework from the pull-down menu. You are prompted to place and define the parameters for the various kinds of linework. Most of these figures are simple geometric shapes.

Lines

SolidBuilder ➡ Working Drawings ➡ Component ➡ Linework

Icon: 

- **Lines** – You are prompted to draw a set of lines. The command prompts:
Mark the first point of line
and
Mark the next point
This command operates in the same manner as the Model Outline command.

Circles

SolidBuilder ➡ Working Drawings ➡ Component ➡ Linework

Icon: 

- **Circle** – There are 3 ways to enter a circle: Diameter, Points or Radius.
 1. If you select Diameter, you are prompted:
Indicate a point of a circle
and
Indicate other end of circle diameter
A circle is drawn using the two points as the diameter.
 2. If you select Points, you are prompted to locate three points. A circle is drawn touching on these three points.
 3. If you select radius, you are prompted to indicate the center of the circle and then a point on the circle. The circle is then drawn.

Arcs

SolidBuilder ➡ Working Drawings ➡ Component ➡ Linework

Icon: 

- **Arcs:** There are 3 ways to enter an arc: Angles, Points or Chord.
 1. If you select Angles, you are prompted to indicate center of arc, Start angle, End Angle and Radius. An arc is drawn.
 2. If you select Points, you are prompted to locate three points. An arc is drawn touching on these three points and ending on two of them.
 3. If you select Chord, you are prompted to indicate the two end points and a third point between them. This sets the arc.

Rectangles

SolidBuilder ➡ Working Drawings ➡ Component ➡ Linework

Icon: 

- **Rectangle** - This is used to draw rectangles. You are prompted:
Mark the first corner of rectangle
and
Mark the opposite diagonal corner

Ellipse

SolidBuilder ➡ Working Drawings ➡ Component ➡ Linework

Icon: 

- **Ellipse** - You are first prompted:
Indicate center of ellipse

Next you are prompted to:

Indicate major axis and Indicate minor axis.

The ellipse is centered on the first point and the other two points locate the two axes.

Equilateral

SolidBuilder ➡ Working Drawings ➡ Component ➡ Linework

Icon: 

- **Equilateral** - This is used to draw equilateral polygons.
 1. You are prompted for “Number of edges in equilateral”.
 2. Enter the number.
 3. Next you choose either “vertex” or “edge”.
 4. You then “Indicate center of equilateral”. Mark the center.
 5. Next you are prompted to either “Indicate vertex of equilateral” or “Indicate edge of equilateral”, based on the choice of vertex or edge before. The equilateral polygon is drawn.

Polygon

SolidBuilder ➡ Working Drawings ➡ Component ➡ Linework

Icon: 

- **Polygon** - This is used to draw closed polygons.
 1. You are prompted to
Mark first point.
and

Mark next point.

2. Pressing the F10 key or clicking your right mouse button completes the last leg of the polygon.

Bezier

SolidBuilder ➡ **Working Drawings** ➡ **Component** ➡ **Linework**

Icon: 

- **Bezier** - You are prompted to locate a series of points. A curve is drawn along the series of points.

Polyline

SolidBuilder ➡ **Working Drawings** ➡ **Component** ➡ **Linework**

Icon: 

- **Polyline** - You are prompted to draw a set of lines, which may be open rather than closed like a polygon. But unlike drawing several individual lines, all line segments are connected. The command will prompt:
Mark first point
and
Mark next point

Point

SolidBuilder ➡ **Working Drawings** ➡ **Component** ➡ **Linework**

Icon: 

1. You are prompted:
Mark a point
2. A cross hair point is inserted.

Registry Point

SolidBuilder ➡ **Working Drawings** ➡ **Component** ➡ **Linework**

Icon: 

- **Registry Point:** **SolidBuilder** uses Registry Points for automatic splicing of the symbol to the opening. This is a unique command typically used when creating trim and shutter symbols. This command is used twice to locate two points, one at the upper right and one at the lower left of the Opening/trim symbol, or vice versa. You are prompted:
Mark a point

If you create a symbol that only has a horizontal or vertical attachment to the opening, insert a Registry point at one end of the edge that aligns to the opening. Locate the other point out in space immediately in line with the other end of the symbol but at a 45-degree angle from the first point on the symbol. The symbol splices between the Registry point locations. Set the points with this in mind. Note that this capability is for Opening/trim symbols that are inserted around openings.

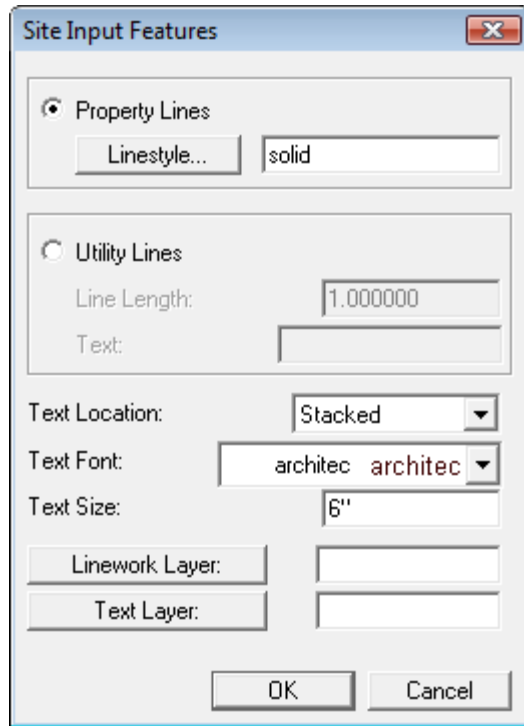
Site Input

SolidBuilder ➡ **Working Drawings** ➡ **Component** ➡ **Linework**

Icon: 

Site Input: For detailed step-by-step instructions on how to input a sample site input, refer the **SolidBuilder** Solution Paper: Site Plan.

1. When you select Site Input from the Linework Information drop list, the Site Input Features dialog box displays.



- **Property Lines** – Toggling this option on allows you to create property lines. After this is toggled on, click on OK and you are prompted to select a point to start. Then various other dialogs boxes open to help you input the property lines.
- **Linestyle** – Clicking on the Linestyle button opens the Select A Linestyle dialog box, in which the desired line style for the property line can be selected.
- **Utility Line** – Toggling this option on allows you to create utility lines. When this option is toggled on, the Line Length, and Text options allow you to select different options.
- **Line Length** - This edit field allows you to specify the desired length of the lines that create the utility line. When a utility line is created, it is created as a line segment, then the specified text. This option allows you to specify the line length before the text.
- **Text** – This edit field allows you to specify the desired text that you would like to have display in the drawing when a utility line is created.
- **Text Location** – When creating property lines there are four options for how the text is placed on the actual property line. When **SolidBuilder** places the text, it places both the bearing and distance for that line.
 - Stacked places the bearing above the line and the distance below the property line
 - Above places both the bearing and distance above the line
 - Below places both the bearing and distance below the line
 - None omits any text

When creating utility lines, there are four options for the placement of the text. The text that is going to be placed is that specified in the text section within utility line function.

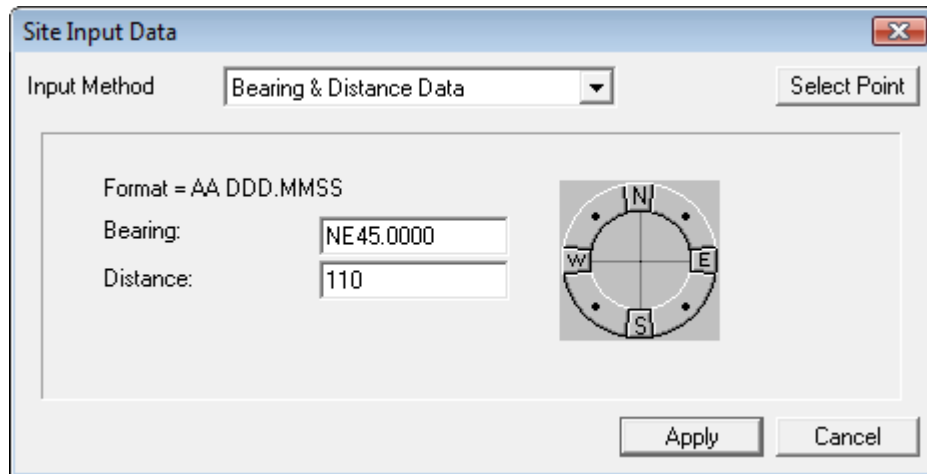
Inside - breaks the line at the specified segments and places the desired text within the line.

Above - places the specified text above the line

Below - places the specified text below the line

None - omits any text

- **Text Font** – Clicking on this button allows you to select the desired text font from the Fonts dialog box.
 - **Text Size** – This allows the user to specify the desired size of the text that appears in the drawing.
 - **Linework Layer** – Clicking on this button allows you to select a layer from the Linework Layer dialog box. Within this box you can also create a new linework layer.
 - **Text Layer** – Clicking on this button allows you to select a text layer for the Text Layers dialog box. Within this box they can also create a new text layer.
2. After clicking on OK in the Site Input Features dialog box for creating property lines, the program prompts to select a starting point for the property line. After the starting point is specified, the Site Input Data dialog box (below) displays

The image shows a software dialog box titled "Site Input Data". At the top, there is a tab labeled "Input Method" with a dropdown menu currently set to "Bearing & Distance Data". To the right of the dropdown is a button labeled "Select Point". Below the dropdown, the text "Format = AA.DDD.MMSS" is displayed. Underneath, there are two input fields: "Bearing:" with the value "NE45.0000" and "Distance:" with the value "110". To the right of these fields is a circular compass rose with cardinal directions labeled: N (North) at the top, S (South) at the bottom, E (East) on the right, and W (West) on the left. At the bottom of the dialog box are two buttons: "Apply" and "Cancel".

- **Input Method** – Within this drop list there are two options for inputting property line segments; Bearing & Distance Data (box shown above) and Curve Data (box shown below).
- **Close** – This button only appears after at least two-property line segments have been created in the drawing. Clicking on this button automatically closes the property line, connecting the last point selected and the very first point selected. Bearing and distance are automatically generated for this closed line segment. You are then returned to the Site Input Feature dialog box.
- **Select Point** – Clicking on this button allows you to return to the drawing and select the next desired point. The bearing and distance between the first point and second point automatically generated.
- **Bearing** – Within this edit field, the user can type the bearing for the desired property line segment. These should be entered with the direction, the degrees, minutes and seconds. Using the direction compass you can automatically specify the direction.

- **Distance** – Within this edit field the user can specify the distance of the property line. The distance is specified in decimal feet, and not feet and inches.
- **Direction Compass** – This option allows you to click on the desired direction and it is automatically added to the bearing edit field.
- **Undo** – This option allows you to undo the last property line segment created, taking you back one step at a time.
- **Done** - This option returns you to the Site Input Feature dialog box. It does not close the property line however just stops the property line at the last point selected.
- **Apply** – This button creates the property line segment for the information that has been entered in the box, and return you back to the Site Input Data dialog box.
- **Cancel** – This option cancels the command and does not create any property line segment. You are returned to the Site Input Feature dialog box automatically.



Site Input – Curve Data

Site Input Data

Input Method: **Curve Data** [Select Point]

Enter at least one of these:

Radius: []

Delta Angle: []

Clockwise

And then one of these values:

Arc Length: []

Chord Length: []

Tangent Length: []

Tangent Direction: [NE90.0000] [Update]

[Apply] [Cancel]

- **Input Method** – Within this drop down list there are two options for inputting property line segments. Bearing & Distance Data (Figure 20-16 on page 392), and Curve Data (above).
- **Close** – This button only appears after at least two-property line segments have been created in the drawing. Pressing this button automatically closes the property line, connecting the last point selected and the very first point selected. Bearing and distance automatically generated for this closed line segment. You are then returned to the Site Input Feature dialog box.
- **Select Point** – Clicking this button will allow you to return to the drawing and select the next desired point. The bearing and distance between the first point and second point will automatically be generated.
- **Radius** – The user can enter the radius of the curve into this field. The radius or the delta angle value needs to be entered for the curve to be created. The field that is left

- blank will automatically calculate after clicking on the Update button.
- **Delta Angle** – The user can enter the delta angle of the curve into this field. The delta angle or the radius needs to be entered for the curve to be created. The field that is left blank automatically is calculated after clicking on the Update button.
 - **Arc Length** – The user can enter the arc length of the curve into this field. The arc length, the chord length or the tangent length needs to be entered for the curve to be created. The fields that are left blank are automatically calculated after clicking on the Update button.
 - **Chord Length** – The user can enter the chord length of the curve into this field. The arc length, the chord length or the tangent length needs to be entered for the curve to be created. The fields that are left blank are automatically calculated after clicking on the Update button.
 - **Tangent Length** – The user can enter the tangent length of the curve into this field. The arc length, the chord length or the tangent length needs to be entered for the curve to be created. The fields that are left blank are automatically calculated after clicking on the Update button.
 - **Clockwise/Counter Clockwise** – This toggle specifies if the arc is created in a clockwise or counterclockwise direction.
 - **Tangent, Radial or Chord Direction Drop List** – One of these three choices can be selected from the drop list and the corresponding value can be entered into the following edit field.
 - **Update** – Clicking on this button automatically generates all the values that have been left blank in the various edit fields. These calculations are performed using the numbers that you specified in the other edit fields.
 - **Undo** – This option allows you to undo the last property line arc that was created taking you back one step at a time.
 - **Done** - This option returns you to the Site Input Feature dialog box. It does not close the property line, however, just stops the property line at the last point selected.
 - **Apply** – This button creates the property line arc for the information that has been entered in the dialog box and return you back to the Site Input Data dialog box.
 - **Cancel** – Will cancel the command and does not create any property line segment. You are returned to the Site Input Feature dialog box automatically.

Spline Curve

SolidBuilder ➡ Working Drawings ➡ Component ➡ Linework

Icon: 

- **Spline Curve** – Spline Curve allows you to create a closed polyline by specifying a series of points within the polyline. The command will prompt:
 Indicate first point of spline curve
 and
 Indicate another point of spline curve
After the point have been specified, SolidBuilder will create a polyline connecting

the selected points.

Linework Hole

SolidBuilder ➤ Working Drawings ➤ Component ➤ Linework Hole

Icon: 

This command is used for cutting holes in polygons that will have a pattern so that the pattern does not cover the windows or doors. Click on the Linework Hole icon or select Component - Linework Hole to run this command.

The command prompts you for an existing linework polygon in which to place a hole.

Select linework item to contain hole:

After selecting the existing closed linework, you are prompted with a list of geometry options, which can be drawn to represent the hole. These options are a subset of the Insert Linework geometry types described above. After the hole is drawn, it is subtracted from the polygon linework that you selected.

Legend

SolidBuilder ➤ Working Drawings ➤ Component ➤ Legend

Icon: 

A legend may be group of text and linework commonly used on a drawing such as general notes enclosed in a box. After a legend is created and saved in a library, it may be inserted into any drawing in the future.

- **Creating a Legend**

To create a legend, first you need to create a layer in the Symbol/Text category (see section on Layers for creating new layers). Once you create the new layer, **SolidBuilder** creates a linework layer simultaneously.

Make sure these new layers are current when you insert the text and linework for the legend. When you are finished, select File - Save Legend. **SolidBuilder** highlights everything on the current Symbol/Text layer (including linework) displays Message Dialog Box.

- **Inserting Legends**

To insert Legends, click on the Legend icon or select Component - Legend from the pull-down menu.

Select a legend from the list in the dialog box. After selecting one, click OK and then the command prompts:

Locate the base point of legend <name>

Click the left mouse button to place the legend in the drawing. After inserting a legend, it automatically creates layers in the Symbol/Text and Linework categories. To move the legend, these layers need to be current. To remove a legend from a drawing, you may delete these layers.

Pattern

SolidBuilder ➡ Working Drawings ➡ Component ➡ Pattern

Icon: 

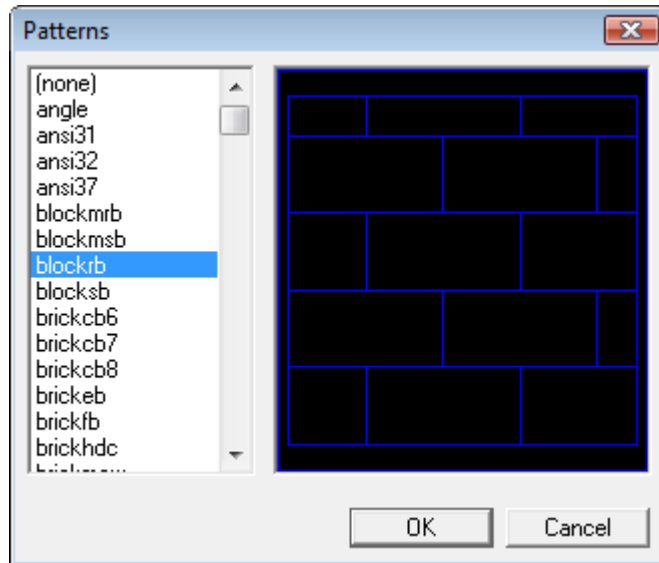
You may insert patterns into your working drawing using closed (only polygons and rectangles are considered closed linework) 2-D linework.

You must first draw the polygon or rectangle around the perimeter of the area for the pattern. Click on the Pattern icon or select Component - Pattern. The command prompts:
Select closed 2-D items insert patterns

Select closed 2-D polygons by moving your mouse or pressing your arrow keys to scan through the linework and then click your left mouse button or press Enter to select.

It only highlights closed linework that is on the current layer. Once you have selected the polygon(s), click your right mouse button or press F10 to finish.

A dialog box displays (below) displays with a list of patterns to choose from and a preview of the pattern. Click on OK when you have selected one and the pattern will then be placed inside the polygons and around the Linework holes. You also have the capability of turning on or off the patterns by selecting Tools/Pattern from the pull-down menus.



Labels

SolidBuilder ➔ Working Drawings ➔ Component ➔ Labels

Icon: 

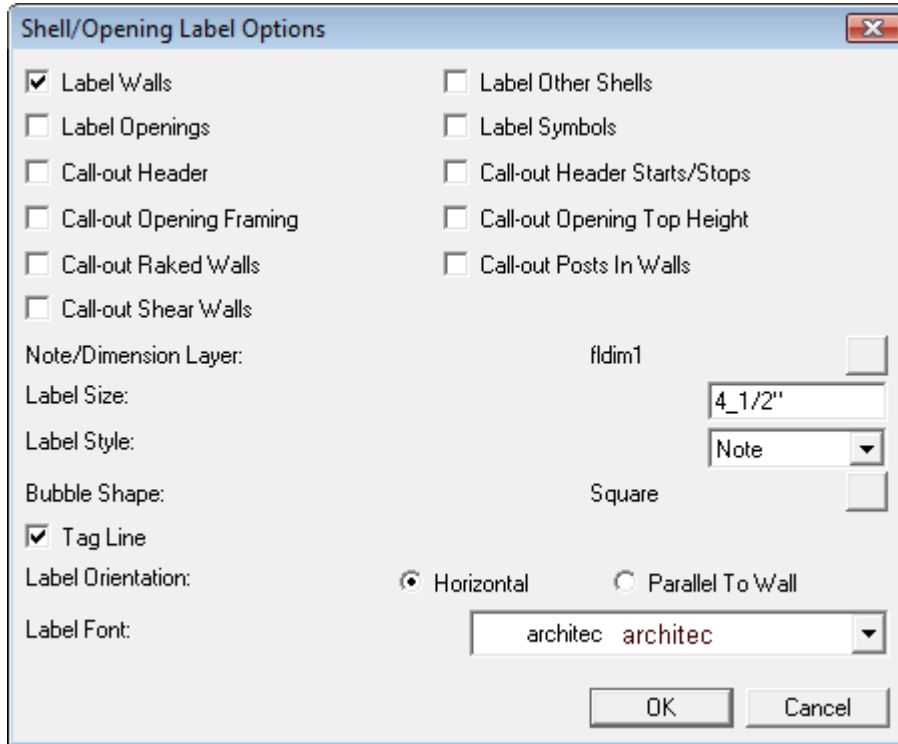
This command is used to place shell labels on drawings, which acts as a guide to the framing of the building. It also provides labels for openings as well as for rooms. Click on the Labels icon or select Component - Label. Then you may select Shell/Opening or Room names from the Insert menu.



Shell and Opening Labels

This command allows the labeling of visible shells, openings and framing features. The names of the shells are typically placed on a floor plan, which is then used in framing the shells. This helps organize lumber and locate it properly on the job site. The shell label information can also be included in the Lumber Cutting list. See the chapter on Quantities for more information.

Labels include names and production information. The following dialog box is displayed.



- **Label walls** – This command creates a label for each wall visible on the drawing and places the label near the wall. The label is of the form "W2 - X3" where the first letter (W) designates the label as a wall, the first digit (2) is the number of the wall, the second letter (X) notes the wall type (X for exterior, I for interior) and the second number (3) designates the level. This label is typically placed on a plan drawing created. Wall labels are placed in plan view. The purpose of the Label Wall option is to provide a map for the placement

of walls. The labels are the same labels as those printed on production drawings. The same labels are used in generating lumber reports—this allows you to see which framing members are associated with which wall. If you elect to place the labels on a plan view of the model, the visibility of this layer can be controlled through the Visibility command.

- **Label Other Shells** – This option works the same as the Label Walls option. It labels roofs, floors and ceilings.
- **Label Openings** – This option is typically used to place the opening labels on a plan drawing. The labels placed are those defined in the Plan Label field at the time you insert the opening in the 3-D model.
- **Label Symbols** – This option will place furnishing symbol labels on a drawing. The labels placed are those defined in the Symbol Label field at the time you insert the furnishing symbol in the 3-D model.
- **Call-out Header** – This option enters the size of the header (hd) and the length for each opening.
- **Call-out Opening Top Height** – This option enters the top height of each opening. You do not need to frame the walls to use this command.
- **Call-out Opening Framing** – This option lists the number and length of the king studs (ks), trimmers (tr), cripples (cr) and sills (sl). You must first frame the walls to use this command.

If you select Yes for the Header, Opening Top Height and Opening Framing, they are listed with the Header information first, the framing information second and the Opening Top Height third.

- **Call-out Header Start/Stops** – This option shows the ends of the header in a plan view and the measurements from the wall end to the header. You must first frame the walls to use this command. The header ends are drawn and placed in a linework layer; the measurements to the header end are placed in a note–dim layer. Note that to remove the header start and stops requires two remove commands—one for the linework and one for the measurements.
- **Call-out Posts in walls** – All posts in the walls are labeled along with their heights. An X is drawn in the wall at the position of the post. The height and size of the post is noted next to the wall. You must first frame the wall to use this command. Note that with the X visible in the drawing, you can easily add a dimension line to indicate the post location for accurate post installation in the field.
- **Call-out Raked walls** – This option draws a dimension line between the long point and the short point of the raked wall. It also lists the height of the wall at the long point and short point. The height is preceded by the code SP for short point and LP for long point. An arrow is drawn from each to the proper end of the rake section. You do not need to frame the walls to use this command.
- **Call-out Shear walls** – This option locates the ends of a shear panel. Indicate the shear wall with a line and insert the note entered at the time the Shear wall was inserted in the model. You do not need to frame the walls to use this command.
- **Note/Dimension Layer** – The labels are placed on this layer. You may change the layer by clicking on the gray box.

- **Label Size** – This is the size of the note.
- **Label Style** – Note inserts just the label. Target puts a circle around each label with the wall number and the opening label. Bubble allows you to put a geometry shape around the label.
- **Bubble Shape** – You may select the shape to put around the notes if you have select Bubble for the label style.
- **Tag Line** – If this is toggled on, the label has a leader line attached to it.
- **Label Orientation** – Horizontal places the labels on the horizontal axis. Parallel places the labels parallel to the walls.
- **Label Font** – This is the type of font that is going to be used for the label. You may select a different font by clicking on the gray box.



Insert Room Labels

This command allows you to select names of rooms for insertion. The command prompts you for the location of the midpoint of the room name and displays a list of names in the message area for placement. So then you may choose one or add a new one. You may also add to or change the room names by selecting Database - Room names.

Angle

SolidBuilder ➡ Working Drawings ➡ Component ➡ Angle

Icon:

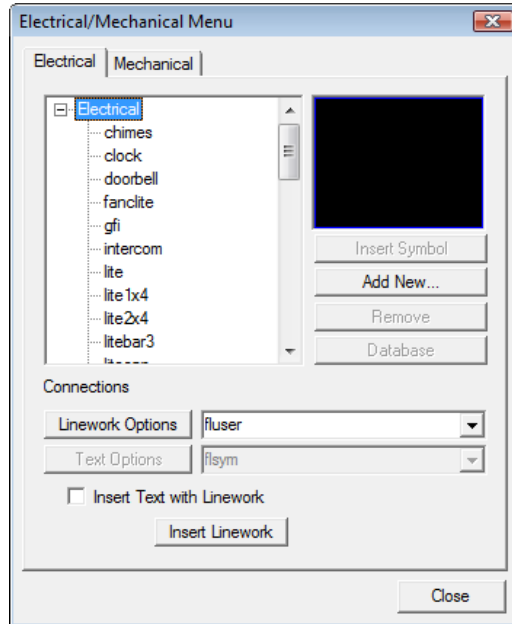
1. You may insert an angle measurement by clicking on the Angle icon or select Angle from the menu. The command prompts:
Mark location for pivot point of angle notation; (ESC to quit)
2. Use the cursor to select a point and click the left mouse button. The command prompts:
Mark location for 1st leg of angle; ESC to quit
Mark location for 2nd leg of angle; ESC to quit
3. Use the cursor to locate the legs of the intended angle. The angle and numerical degree notation is generated on the working drawing.

Electrical and Mechanical

SolidBuilder ➔ Component ➔ Electrical/Mechanical

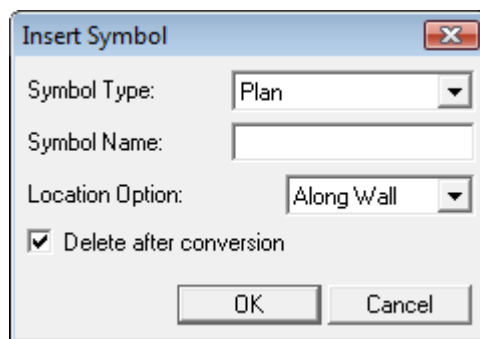
Icon: 

1. When you select the Electrical/Mechanical icon, the dialog box below opens.



Select either the Electrical or the Mechanical tab. The 2D symbols for that category are displayed and listed.

- **Insert Symbol:** Select a symbol from the list. Click on Insert Symbol. Place the selected symbol in the drawing.
- **Add New:** Click on the Add New button. The Insert Symbol dialog box opens.



Symbol Type: Since these are 2D working drawing symbols, this must be set to Plan.

Symbol Name:

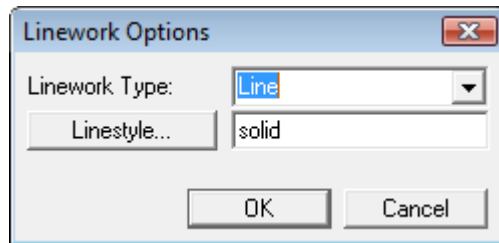


This must be a unique name, with a maximum of 8 letters and/or numbers. Do not use any special characters, ONLY LETTERS AND/OR NUMBERS!

Location Option: Typically this will be set to Free. This will allow you to place the symbol anywhere on the drawing.

Delete after conversion: Typically you will leave this un-checked.

- **Remove:** This will permanently remove the selected symbol from the list and the program.
- **Database:** Allows you to attach an assembly to the symbol as well as set how the symbol is located in the drawing.
- **Linework Options:** The Linework Options dialog box opens.

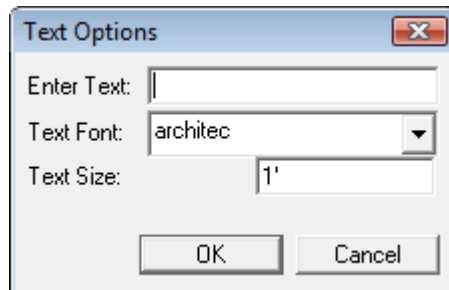


Linework Type: Select the type of linework from the list.

Linestyle: Select the linework style from the list.

Layer: Select the layer, or create a new layer, to place the symbol linework on.

- **Text Options:** The Text Options dialog box opens.



Text: Enter text to be included with the linework.

Text Font: Select the Font.

Text Size: Set the text size.

Text Layer: Select the layer, or create a new layer, to place the symbol text on.

- **Insert Text with Linework:** If this is toggled on, it will insert the text with the linework.
- **Insert Text:** Toggle on to insert the text and linework selected.

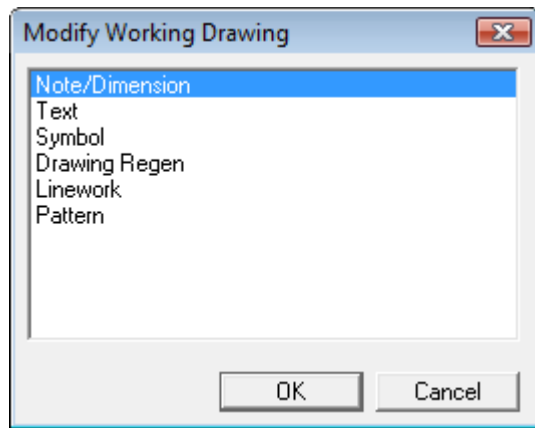


Chapter 41: Modify Working Drawings

SolidBuilder ➤ **Working Drawings** ➤ **Edit** ➤ **Modify**

Icon:

To modify any part of a working drawing, click on the Modify icon or select Edit - Modify. The following dialog box displays. Or right click on the item to modify and select from the abbreviated list.

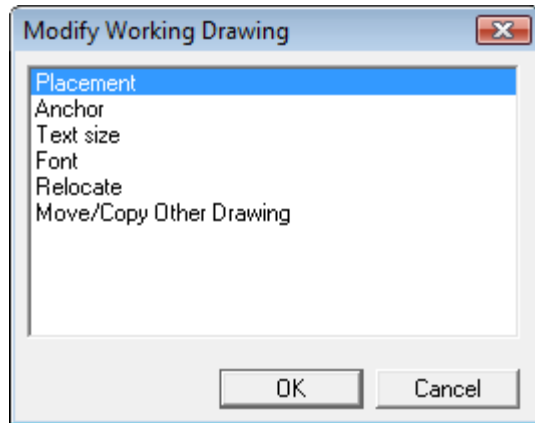


Modify Note or Dimension

SolidBuilder ➤ **Working Drawings** ➤ **Edit** ➤ **Modify**

Icon:

This menu provides for the modification of notes and dimension lines. The following dialog box displays.



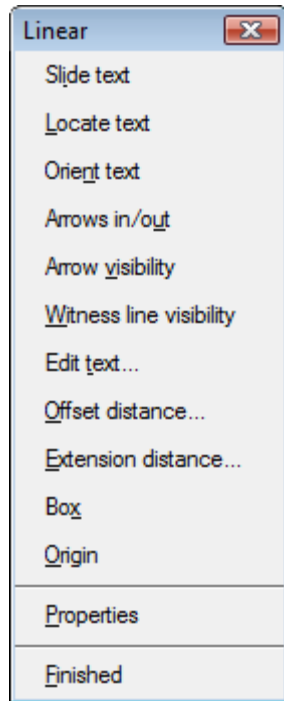
Placement

SolidBuilder ➡ Working Drawings ➡ Edit ➡ Modify ➡ Note/Dimension

Icon:

To modify any part of a working drawing, click on the Modify icon or select Edit - Modify. The following dialog box displays. Or right click on the item to modify and select from the abbreviated list.

1. This command allows for the modification of notes, labels and dimensions. The command prompts:
Select Labels to Modify - ESC to quit
2. Select labels, notes or dimensions to modify and then right click and select Finished or press F10, and the following options for modifications displays. (Depending on what you selected to modify, this dialog box may vary.)



3. To move a Dimension line or Note, hold the left mouse down while moving the mouse (or use the arrow keys). You may adjust your cursor interval to change the movement of the mouse. The list of options are defined as follows:
 - **Slide Text (Dimension Only)** – This option moves the text in any direction by holding the left mouse down and moving the mouse to the desired location. You may also use your arrow keys to move the text. The same works for Notes.
 - **Locate text** – This option moves the selected dimension text or note to another relative position by clicking your left mouse once for each new location.
 - **Orient text** – This option rotates the dimension text or note vertical or horizontal by clicking your left mouse button. If the text is at an angle, it moves between the angle and a horizontal or vertical position. This works the same for dimensions and notes.
 - **Arrows In/Out (Dimension only)** – This option alternates between placing the dimension line inside or outside the witness lines.
 - **Box/Bar (Note only)** - This option provides the option of a box around the note, a bar on one side of the note or nothing around the note.
 - **Arrow Visibility** - This option allows you to place or delete an arrow on either end of the tag line or dimension line.
 - **Witness line visibility (Dimension only)** – This option determines the display of witness lines (the vertical lines at each end of the dimension) by clicking your left mouse button. The choices are both, first, second or neither witness line.
 - **Edit Text** – This option loads the note into a text editor for modification. For dimensions, this option allows you to replace the current dimension text.

- **Justify (Note only)** – This option allows you to left, right or center justify the text of the note.
- **Offset distance** – This option offsets the reference line end. The program prompts
Enter offset distance
Enter a value and the end is moved.
- **Extension distance** – This option allows you to move the text with its box or bar some distance from the original point. The command prompts:
Enter offset distance
Enter a value and the text is moved. Note that extend creates a hinge point in the tag line.
- **Box (Dimension only)** – This option allows you to place a box around the dimension text.
- **Origin (Dimension only)** – This option allows you to place an origin point at the endpoint of the dimension. The diameter of the origin is equal to the text size.
- **Properties** – This option allows you to view the properties of the dimension/note.
- **Finished** – This option exits out of the edit command.

When you right click note or dimension, you will find similar options as above. You will also see the option to:

- **Shape Move:** The option allows you to move the note/dimension to a new location by left clicking to select a base point, then left clicking to select an offset point (where you want to locate your base point). The whole note or dimension will move.
- **Shape Copy** – This option allows you to copy the selected note/dimension by left clicking to select a base point, then left clicking to select an offset point (where you want to locate your base point). The whole note or dimension will copy.
- **Shape Position** – This option allows you to change the position of the note or dimension. This command is similar to move, but instead of the whole note or dimension moving, only part moves. With notes, the arrow will stay anchored, the text will move. With dimensions, the witness lines will stay anchored, the dimension text will move.

Anchor

SolidBuilder ➡ Working Drawings ➡ Edit ➡ Modify ➡ Note/Dimension

Icon: 

To modify any part of a working drawing, click on the Modify icon or select Edit - Modify. The following dialog box displays. Or right click on the item to modify and select from the abbreviated list.

1. This command allows for the movement of the anchor point of the label. The command prompts:
Select Labels to Move anchor - ESC to quit

2. Select the items to change anchor point. The command prompts:
New anchor point for the indicated Label-
3. Move the cursor to the desired point and press Enter or click the left mouse button. The label and arrow are shifted to the new point. The end of the dimension that is moved is the first point you picked when you created the dimension. If you selected more than one item to change, you are prompted for successive new anchor points.

Text Size

SolidBuilder ➡ Working Drawings ➡ Edit ➡ Modify ➡ Note/Dimension

Icon: 

To modify any part of a working drawing, click on the Modify icon or select Edit - Modify. The following dialog box displays. Or right click on the item to modify and select from the abbreviated list.

This command allows for the modification of the text size of notes, labels and dimensions.

1. A dialog box opens displaying the default text size..
2. Set the text size to match that above, and click on OK. You are prompted:
Select Labels to Modify - ESC to quit
3. After selection, the text is changed to the new size.

Font

SolidBuilder ➡ Working Drawings ➡ Edit ➡ Modify ➡ Note/Dimension

Icon: 

To modify any part of a working drawing, click on the Modify icon or select Edit - Modify. The following dialog box displays. Or right click on the item to modify and select from the abbreviated list.

This command allows you to change the font (typeface) of notes, dimensions and labels.

1. Upon selection, the Fonts dialog box displays with a listing of all **SolidBuilder** fonts. Select a different font from this list. You are prompted:
Select Labels to change font - ESC to quit

2. When you have finished selecting, press F10 or right click and select Finished and the text appears in the new font.

Relocate

SolidBuilder ➔ **Working Drawings** ➔ **Edit** ➔ **Modify** ➔ **Note/Dimension**

Icon: 

To modify any part of a working drawing, click on the Modify icon or select Edit - Modify. The following dialog box displays. Or right click on the item to modify and select from the abbreviated list.

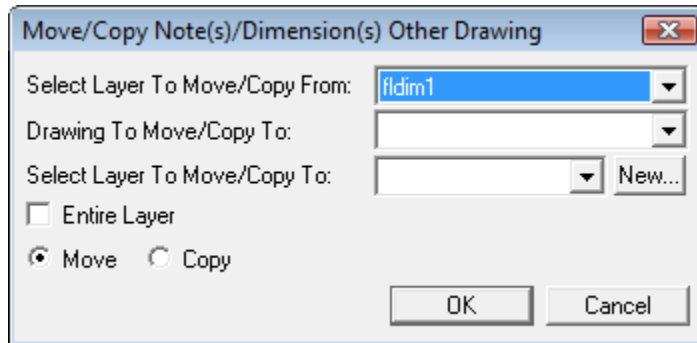
1. This command allows you to move notes/dimensions to other layers within the current drawing. You are prompted:
Select notes and dimensions to move.
2. When you have finished selecting, press F10 or right click and select Finished and the Note/Dimension Layer box opens. You can either select an existing layer or enter a new layer name and hit the New button to move it to that layer.

Move/Copy Other Drawing

SolidBuilder ➔ **Working Drawings** ➔ **Edit** ➔ **Modify** ➔ **Note/Dimension**

Icon: 

This command allows you so copy or move dimensions from one working drawing to another. When this option is selected, the following dialog box will appear.



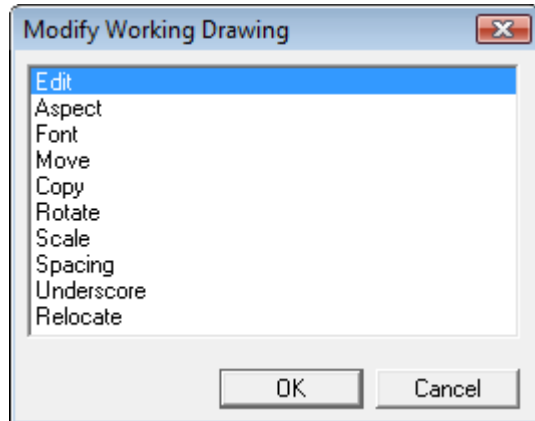
This dialog box allows you to select which dimension layer you want to copy, select the drawing to copy to, and also select the layer you would like the new dimensions to copy to. At this point, the user can also select to copy an entire layer or select certain dimensions to copy/move.

Modify Text

SolidBuilder ➔ **Working Drawings** ➔ **Edit** ➔ **Modify** ➔ **Text**

Icon: 

To modify any part of a working drawing, click on the Modify icon or select Edit - Modify. The following dialog box displays. Or right click on the item to modify and select from the abbreviated list.



- **Edit:** This command allows the modification of text. The command prompts:
Select text to edit
Select the text. Press F10 or right click and select Finished to finish the selection. You may edit this line by backspacing or using the left and right arrow keys.
- **Aspect:** This command allows the modification of the relationship between the width and height of the text font. The command prompts:
Select text to change aspect
New aspect ratio
Select text and type a new value, which would be entered as one or two numbers separated by a space, slash or colon.
- **Font:** This command allows the modification of text fonts. The command prompts:
Select text to change font
Select the text. The command prompts:
Select new font
A dialog box displays with the available fonts. Select the font desired.
- **Move:** This command allows the movement of text. The command prompts:
Select text to move
Select the text. The command prompts:
Indicate distance to move
Enter base point for move. The command prompts:
Indicate distance to move
Enter offset point. Enter the distance you wish to move the text. This command operates similar to all **SolidBuilder** Move commands.
Text can also be moved using drag and drop. If wishing to move text in a working drawing, simply left click and HOLD on the desired text. While holding your left mouse button, move/drag the text to the desired location. Then simply let go of the left mouse button.
- **Rotate:** This command allows rotation of text. The command prompts:

- Select text to rotate
Select the text. The command prompts:
Rotation angle
Enter an angle and the text is rotated.
- **Scale:** This command allows scaling of text. The command prompts:
Select text to scale
Select the text. The command prompts:
Scale factor:
Enter a scale factor and the text is scaled. A value of 0.5 makes the text half the size that it originally was and a value of 2 makes the text twice the size.
 - **Spacing:** This command allows changing the spacing of text. The command prompts:
Select text to change spacing
Select the text. The command will prompt:
New spacing:
Enter a new spacing factor and the text is adjusted. The value of 1 is identical with the original spacing before the text was scaled; larger values than 1.0 increase the spacing between letters and values, smaller than 1.0 decrease the spacing.
 - **Underscore:** This command allows the underscoring of text. The command prompts:
Select text to change underscore
Select the text. The command prompts:
Underscore: Remove Insert Double
Select the desired option and text underscore is adjusted. Insert puts in a single underline, Double places two underlines and Remove removes any inserted underscoring.
 - **Relocate:** This command allows relocation of text from one text layer to another text layer or to a new text layer. The command prompts:
Select text to relocate:
Select the desired text.

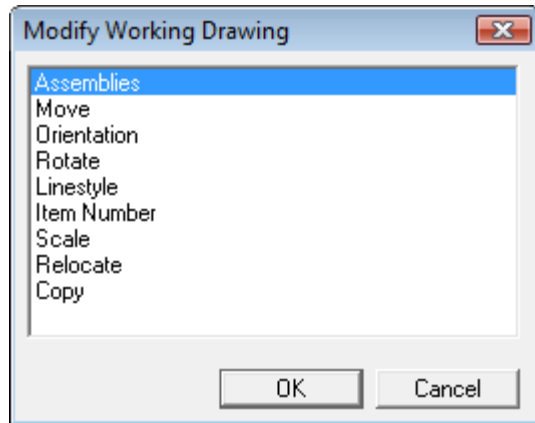
The Symbol/Text Layer dialog box displays. Select a layer from the list or create a new one.

Modify Symbol

SolidBuilder ➡ **Working Drawings** ➡ **Edit** ➡ **Modify** ➡ **Symbol**

Icon: 

This menu provides for the modification of a symbol. The following dialog box displays.



- **Assemblies:** This selection provides for the modification of assemblies attached to symbols. The command prompts:
Select opening symbols to modify assembly
Select the symbol (s) and then click your right mouse and select Finished. The Assembly dialog box displays. You can select an Assembly to attach to the symbols. It only lists the assemblies that have Symbol for the type.
- **Move:** The command prompts:
Select symbol to move; ESC to quit
Select the symbol. The command prompts:
Enter base point for move
Enter offset point
- **Orientation:** This command is used to change the orientation of door swings and hinge points. The command prompts:
Select symbol to re-orient; ESC to quit
Select the symbol. The command prompts:
Arrow keys to change orientation; ENTER to accept;
Use the arrow keys to change the symbol's orientation. Press Enter when the symbol is at the desired orientation.
- **Rotate:** This command is used to rotate a symbol. The command prompts:
Select symbol to rotate; ESC to quit
Select the symbol. The command prompts:
Mark or enter pivot point:
Locate and select the pivot point. The command prompts:

You may also rotate 2D symbols by using the arrow keys on your keyboard. Simply select the 2D symbol by left clicking on it twice. Then use the arrow keys to rotate the symbol in 5 degree increments until the desired orientation is reached.
- **Angle of rotation:** Type a value for the angle and press Enter. The symbol is rotated by the indicated angle around the pivot point.
- **Linestyle:** The command prompts:
Select symbol to change linestyle; ESC to quit
Select the symbol. The linestyle dialog box is displayed with the linestyle available. Select a linestyle from this list.

- **Item Number:** This command is used to attach an item number from the database directly to a selected Plan symbol without the necessity of creating a special assembly for that symbol. This option is available to Furnishing symbols and Plan symbols. You may attach an item number to a selected Opening also. See the Wall/Modify/Opening/Item Number command.

At the time a symbol is inserted, a special item number field is assigned to the symbol. This special item number field does not contain an item number when the symbol is placed. The Modify Symbol Item number command allows you to place an item from the item database into this special item number field. This allows you to assign an item number to a symbol, which is not part of an assembly assigned to the symbol.

Example: Sink—You create a sink assembly with all components except the sink itself. Insert the sink Plan symbol, and then use the Modify Symbol Item number command to select one of the sinks available in the item database. Your assembly would not contain the sink itself. This command avoids the need to make an assembly for each manufacturer's sink. The command prompts:

Select symbols to modify item number:

The database dialog box displays the divisions. You can select a division, subdivision and an item number from the item database. A prompt the displays when you have selected more than one kind of symbol or part number. You must be sure that you want to apply the new choice of item number to all the symbols in your selection. Once you have selected the new item number, click on OK.

- **Scale:** This command is used to change the scale of a symbol. You are prompted to select a symbol. The program then prompts:
Scale factor:
Enter a value. The symbol is scaled. Press Esc to quit.
- **Relocate:** This command allows you to relocate symbols from one symbol layer to another symbol layer or to a new text layer. The command prompts:
Select the desired symbols:
Select the desired symbols.
The Symbol/Text Layer dialog box displays. Select a layer from the list or create a new one.
- **Copy:** This command allows you to copy a 2D symbol within the working drawing. The command will allow you to select a symbol, specify a base point, and an offset point.

Drawing Regen

SolidBuilder ➡ Working Drawings ➡ Edit ➡ Modify ➡ Drawing Regen

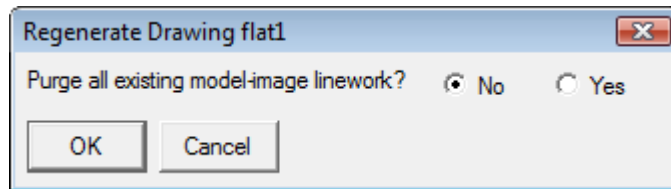
Icon: 

Click on the Modify icon or select Edit - Modify. The following dialog box displays. Or right click on the item to modify and select from the abbreviated list.

1. Selecting this command allows you to automatically regenerate a working drawing to reflect changes in the model. Since each command has a cut plane associated with it, the model is re-cut with the same plane.
2. You typically remove the linework from the working drawing, which is to be modified. This

should reflect the shells that have been modified in the 3-D model. Select the Front-Right view. This allows you to see the flat drawing and the 3-D shells in the next step.

3. Next, use the Visibility commands to render visible the shells of the model, which have been modified. Executing the Modify Drawing Regen command generates new linework from the visible model shells. When these shells are made visible, they are automatically positioned appropriately on the working drawing. Remember to remove the linework first, since the program can place linework over existing linework.
4. Notes, dimensions, symbols and user-defined linework are undisturbed. You may have to adjust dimension lines – the software does not do this automatically.
5. You may remove all existing Model Linework and regenerate new Model Linework without affecting the user linework of the working drawing.
6. The following dialog box displays.



7. This provides for the regeneration of a drawing from a changed model. Select No and then click on OK.

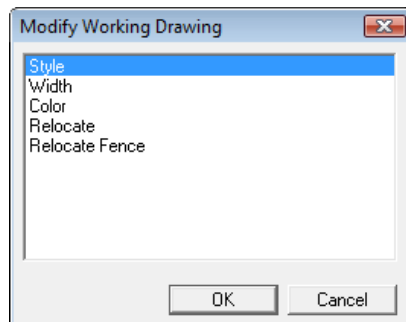
Modify Linework

SolidBuilder ➔ Working Drawings ➔ Edit ➔ Modify ➔ Linework

Icon: 

To modify any part of a working drawing, click on the Modify icon or select Edit - Modify. The following dialog box displays. Or right click on the item to modify and select from the abbreviated list.

1. The dialog box below opens.



Chapter 41
Modify Working Drawings

- **Style:** This command allows you to select different linestyles before inserting user linework. The command prompts:
Select linework items to change linestyle
Select the linework to be changed. The Styles dialog box displays line styles for selection.
- **Width:** The command prompts:
Select linework items to change width
Select the linework to be changed. The command prompts:
Width choice- 1 2 3 4 5 6 7 8 9
Select the width of the line. The linework line width is changed to the new width.
- **Color:** The command prompts:
Select linework items to change color
Select the linework to be changed. The Select new color dialog box displays for selection. You may then choose to select from a color or define a custom color.
- **Relocate:** This command allows you to relocate symbols from one symbol layer to another symbol layer or to a new text layer. The command prompts:
Select the desired symbols:
Select the desired symbols.
The Symbol/Text Layer dialog box displays. Select a layer from the list or create a new one.
- **Relocate Fence:** This command allows you to relocate linework from one linework layer to another linework layer or to a new linework layer. The command prompts:
Select linework to relocate:
A full screen yellow cross hair appears. Draw a fence around the desired linework. The selected linework is highlighted in red. Click the left mouse to accept. The Line Work Layer dialog box displays. Select a layer from the list or create a new one.

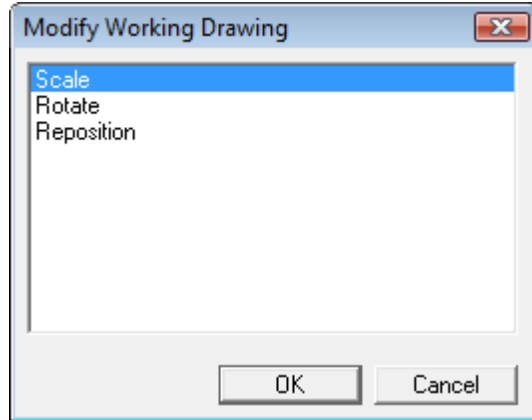
Modify Pattern

SolidBuilder ➡ Working Drawings ➡ Edit ➡ Modify ➡ Pattern

Icon: 

To modify any part of a working drawing, click on the Modify icon or select Edit - Modify. The following dialog box displays. Or right click on the item to modify and select from the abbreviated list.

Selecting this command allows you to change the pattern scale, angle and starting point on a layer. The following dialog box displays.



- **Scale:** Select linework layer to scale pattern:
Select the linework layer. The command prompts:
Enter scale factor: 1.0
Backspace and enter a new value and the pattern is scaled.
- **Rotate:** You are prompted:
Select linework layer to rotate pattern:
Select the linework layer. The command prompts:
Enter rotation angle:
Enter a value and the pattern is rotated.
- **Reposition:** Insulation patterns commonly need to be repositioned in order to see them. Depending on the starting point of the polygon created for the pattern, typically you can reposition the pattern to the lower left corner. You are prompted:
Select linework layer to reposition pattern:
Select the linework layer. The command prompts:
Indicate new pattern anchor point:
Use either the mouse or the keyboard navigation keys to select a new anchor point and the pattern is repositioned.

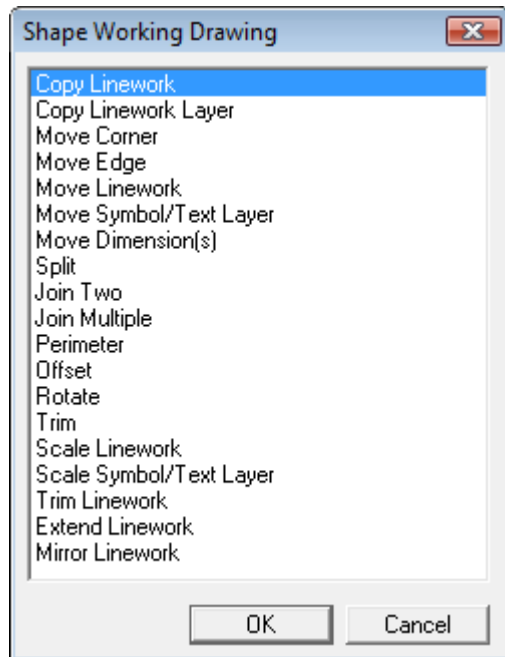
Chapter 42: Shape

SolidBuilder ➔ Working Drawings ➔ Edit ➔ Shape

Icon: 

To Shape any part of a working drawing, click on the Shape icon or select Edit - Shape. The following dialog box displays. Or right click on the item to Shape and select from the abbreviated list. Not all shape commands are available in the right mouse menu.

You can edit linework by clicking on the Shape icon or selecting Edit - Shape. These commands are provided to help you adjust existing 2-D items



Shape Working Drawing

Copy Linework

SolidBuilder ➔ Working Drawings ➔ Edit ➔ Shape ➔ Copy Linework

Icon: 

To Shape any part of a working drawing, click on the Shape icon or select Edit - Shape. Or right click on the item to Shape and select from the abbreviated list. Not all shape commands are available in the right mouse menu.

The Copy command allows you to duplicate 2-D items. The command prompts:
Select 2d_items to copy

After you have made your selection, the command prompts:
Enter base point:

Enter offset point:

The 2-D items are copied at the indicated distance.

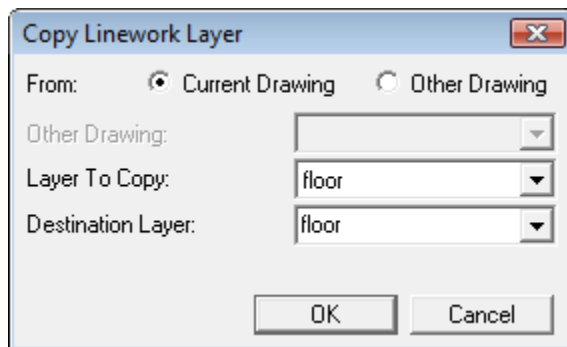
Copy Linework Layer

SolidBuilder ➡ Working Drawings ➡ Edit ➡ Shape ➡ Copy Linework Layer

Icon: 

To Shape any part of a working drawing, click on the Shape icon or select Edit - Shape. Or right click on the item to Shape and select from the abbreviated list. Not all shape commands are available in the right mouse menu.

This command is used to copy linework from another one working drawing to another. When this command is selected, the following dialog box will display



- **From:** This allows you to select if you want to copy a linework layer from the current working drawing or from another working drawing within the model.
- **Other Drawing:** This allows you to select which drawing you want to copy from
- **Layer to Copy:** This allows you to select which layer you want to copy.
- **Destination Layer:** This allows you to select which layer you would like the linework to be copied to.

Move Corner

SolidBuilder ➡ Working Drawings ➡ Edit ➡ Shape ➡ Move Corner

Icon: 

To Shape any part of a working drawing, click on the Shape icon or select Edit - Shape. Or right click on the item to Shape and select from the abbreviated list. Not all shape commands are available in the right click mouse menu.

This command allows you to move a corner of a polygon. SolidBuilder allows you to first select the corner you would like to move, then allows you to select a base point and offset point to move the desired corner.

Move Linework

SolidBuilder ➡ Working Drawings ➡ Edit ➡ Shape ➡ Move Linework

Icon: 

To Shape any part of a working drawing, click on the Shape icon or select Edit - Shape. Or right click on the item to Shape and select from the abbreviated list. Not all shape commands are available in the right mouse menu.

1. If you are moving an entire 2-D item, the command prompts:
Select primary 2d_item
2. You are allowed to select one or more than one object. After you select the 2-D items to be moved, the command prompts:
Enter base point:
3. Select a reference start point for the move and press Enter. The command prompts:
Enter offset point:
4. Mark or enter the distance to be moved. After entering the offset distance, the set of 2-D items is moved.

Move Symbol/Text Layer

SolidBuilder ➡ Working Drawings ➡ Edit ➡ Shape ➡ Move Symbol/Text Layer

Icon: 

To Shape any part of a working drawing, click on the Shape icon or select Edit - Shape. Or right click on the item to Shape and select from the abbreviated list. Not all shape commands are available in the right click mouse menu.

This command is mainly used for moving legends. The move follows the sequence of other Move commands. The command prompts:

Enter base point for move

Enter offset point

Move Dimensions

SolidBuilder ➡ Working Drawings ➡ Edit ➡ Shape ➡ Move Dimensions

Icon: 

To Shape any part of a working drawing, click on the Shape icon or select Edit - Shape. Or right click on the item to Shape and select from the abbreviated list. Not all shape commands are available in the right mouse menu.

This command allows you to move a dimension within the drawing. SolidBuilder will first allow you to select the dimension you want to move. After specifying a base point and offset point, SolidBuilder will move the desired dimension.

Split

SolidBuilder ➡ Working Drawings ➡ Edit ➡ Shape ➡ Split

Icon: 

To Shape any part of a working drawing, click on the Shape icon or select Edit - Shape. The dialog box displays. Or right click on the item to Shape and select from the abbreviated list.

1. This command allows you to divide a 2-D linework item (a closed polygon or rectangle) to create two or more items. When you select the Split option, the command prompts:
Select a 2d_item to split
2. Select a closed linework item. The command prompts:
Mark the start dividing-line end-point
Mark the end dividing-line end-point
3. Select the line end-points. The 2-D item is split and the original item is discarded. The line that is drawn does not need to run completely through the item.

Join Two

SolidBuilder ➡ Working Drawings ➡ Edit ➡ Shape ➡ Join Two

Icon: 

To Shape any part of a working drawing, click on the Shape icon or select Edit - Shape. Or right click on the item to Shape and select from the abbreviated list. Not all shape commands are available in the right mouse menu.

This selection allows you to join two closed 2-D polygons or rectangles to create a single one. One primary use for this command is to join wall segments in a plan drawing to remove the corner lap joints.

When you select the Join Two option, the command prompts:

- Select primary 2d_item
- 2. Select a 2d_item. The command prompts:
Select 2d_item to add
- 3. Select another item to be added to (joined with) the first item. Press Enter. A third 2-D item is created. You can keep or delete the two original items, each of which is highlighted in turn. The command prompts:
Delete the first 2d_item- (y/n)
Delete the second 2d_item- (y/n)

Join Multiple

SolidBuilder ➡ **Working Drawings** ➡ **Edit** ➡ **Shape** ➡ **Join Multiple**

Icon: 

To Shape any part of a working drawing, click on the Shape icon or select Edit - Shape. Or right click on the item to Shape and select from the abbreviated list. Not all shape commands are available in the right click mouse menu.

This is similar to Join Two except that you can select as many polygons and rectangles to join as you want.

1. When you select the Multiple option, the command prompts:
Select 2d_items to join
2. Select the closed 2-D item to join. Select other closed 2-D items to be added to (joined with) the first item. Press the F10 key to finish selection. Pressing A for All joins all the closed 2-D items on the selected layer. This command is typically used when joining wall linework to represent continuous walls on a floor plan.

Perimeter

SolidBuilder ➡ **Working Drawings** ➡ **Edit** ➡ **Shape** ➡ **Perimeter**

Icon: 

To Shape any part of a working drawing, click on the Shape icon or select Edit - Shape. Or right click on the item to Shape and select from the abbreviated list. Not all shape commands are

available in the right mouse menu.

This option allows you to modify the shape of a 2-D closed polygon or rectangle.

1. You first select an edge and then an adjacent set of edges (either clockwise or counterclockwise) that are to be replaced. You then redraw the selected edges, which are connected to the unmodified part of the original item. When you select Perimeter, the command prompts:
Select a 2d_item to modify
2. Followed by two messages that prompt for selection of the first and last edge to be changed.
3. Select first edge of the portion to replace
4. Select the remainder of the portion to replace.
5. After the selection, the command prompts:
Mark the first new perimeter point
and
Mark the next new perimeter point
6. You may draw the selected 2-D item outline with a new perimeter edge or as you drew it originally. Pressing connects the last entered point of the new perimeter with the original outline.

Offset

SolidBuilder ➡ Working Drawings ➡ Edit ➡ Shape ➡ Offset

Icon: 

To Shape any part of a working drawing, click on the Shape icon or select Edit - Shape. Or right click on the item to Shape and select from the abbreviated list. Not all shape commands are available in the right mouse menu.

1. This option allows you to modify a closed 2-D polygon or rectangle by expanding or shrinking it. When you select Offset, the command prompts:
Select 2d_item to offset
2. Followed by the prompt:
Offset: Inside Outside
3. Select inside to shrink the item and outside to expand the item. The command prompts:
Offset distance-
4. Type the value and press Enter. A new expanded or contracted item is drawn. The original 2-D item remains.

Rotate

SolidBuilder ➡ Working Drawings ➡ Edit ➡ Shape ➡ Rotate

Icon: 

To Shape any part of a working drawing, click on the Shape icon or select Edit - Shape. Or right click on the item to Shape and select from the abbreviated list. Not all shape commands are available in the right mouse menu.

1. This option allows you to rotate an item about a pivot point. When you select Rotate, the command prompts:
Select 2d_items to rotate:
2. Select one or more 2-D items. The command prompts:
Mark or enter pivot point:
3. Mark or enter the point about which the items are to be rotated. Typically, one of the corner points is chosen. The command prompts:
Angle of rotation:
4. Rotation occurs in a counterclockwise manner about the pivot point. Enter the value of the angle of rotation. The selection is rotated.

Trim

SolidBuilder ➡ Working Drawings ➡ Edit ➡ Shape ➡ Trim

Icon: 

To Shape any part of a working drawing, click on the Shape icon or select Edit - Shape. Or right click on the item to Shape and select from the abbreviated list. Not all shape commands are available in the right mouse menu.

This command allows you to use one closed 2-D item to trim another. The area where the second item overlaps the first item is subtracted from the first, creating a third item.

1. When you select the Trim option, the command prompts:
Select primary 2d_item
2. Select an outline. The command prompts:
Select 2d_item to subtract
3. The second item is subtracted from the primary creating a third item, which represents a difference of the two items selected.
4. You can choose to keep or delete the original primary 2-D item.

You may also trim & extend lines using the right click intelligence. The process can be used to trim or extend an individual line, or multiple lines. If wanting to trim/extend an individual line, right click on the desired line, and choose trim or extend. Next, select the line you wish to trim or extend to. If trimming a line, you will be asked to select a line on the side of the line you are

trimming to. After left clicking to specify which part you wish to discard, the line will be trimmed back.

If wanting to trim/extend multiple lines, hold the Shift key on the keyboard and left click to select multiple lines. Once the lines are selected, then right click and choose trim or extend. Then follow the same steps as above.

Scale Linework

SolidBuilder ➡ Working Drawings ➡ Edit ➡ Shape ➡ Scale Linework

Icon: 

To Shape any part of a working drawing, click on the Shape icon or select Edit - Shape. Or right click on the item to Shape and select from the abbreviated list. Not all shape commands are available in the right mouse menu.

1. This selection allows scaling of 2-D linework and symbol/text layers. The command prompts:
Select 2d_items to scale:
2. Select one or more linework items. The command prompts:
Mark or enter the base point for scaling:
3. Enter the scale factor (s):
4. The linework is scaled from the selected base point. This command acts to increase or decrease the size of a 2-D item.

Scale Symbol/Text Layer

SolidBuilder ➡ Working Drawings ➡ Edit ➡ Shape ➡ Scale Symbol/Text Layer

Icon: 

To Shape any part of a working drawing, click on the Shape icon or select Edit - Shape. Or right click on the item to Shape and select from the abbreviated list. Not all shape command are available in the right mouse menu.

1. When you select this command, the command prompts:
Scale factor-
2. Type a value and press Enter. The layer is scaled. This command is especially useful for legends.

Trim Linework

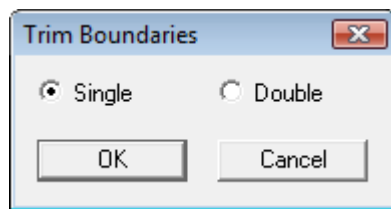
SolidBuilder ➡ Working Drawings ➡ Edit ➡ Shape ➡ Trim Linework

Icon: 

To Shape any part of a working drawing, click on the Shape icon or select Edit - Shape. The dialog box displays. Or right click on the item to Shape and select from the abbreviated list.

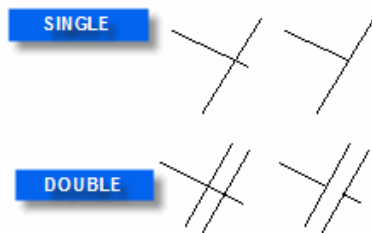
Trim Linework allows you to trim lines to lines, polygons and arcs. You can select the Shape icon - Trim Linework, right click on a line to trim or left click and hold the shift key down and select multiple lines to trim.

1. When you select the Shape - Trim Linework, the Trim Boundaries dialog box opens.



Single will trim a line to a single line

Double will allow you to trim a line crossing two other lines and remove the section between the two lines.



- **Single:**
 1. You are prompted:
Select Linework item to trim:
 2. Select the line you want to trim. It must be on the current layer. When all linework items have been selected, right click and select finish. You are then prompted to:
Select linework item to trim to.
 3. Select the line to be used to trim the first line to. You are then prompted to:
Indicate the side of line to discard.
 4. Move the cross hair near the end of the line to remove.
 5. If you either left or right click (and then right click select and shape) on a line, you can trim multiple lines at once and trim to polygons and rectangles. The command

prompts:

Select Linework item to trim to:

6. Select the line or polygon to trim to. You are prompted to indicate the side to discard.
 7. Move the cross hair to the side of the line you want to remove.
- **Double:**
 1. You are prompted:
Select Linework item to trim:
 2. Select the line you want to trim. It must be on the current layer. When all linework items have been selected, right click and select finish. You are then prompted to:
Select the First linework item to trim to.
 3. Select the first line to be used to trim to. You are then prompted to:
Select the Second linework item to trim to.
 4. Select the second line to be used to trim to. You are then prompted to:
Indicate segment of linework to discard.
 4. Move the cross hair near the segment of the line to remove.

Extend Linework

SolidBuilder ➡ Working Drawings ➡ Edit ➡ Shape ➡ Extend Linework

Icon: 

To Shape any part of a working drawing, click on the Shape icon or select Edit - Shape. Or right click on the item to Shape and select from the abbreviated list. Not all shape commands are available in the right mouse menu.

1. Extend Linework allows you to extend lines to lines, polygons and arcs. You can select the Shape icon - Extend Linework, right click on a line to extend or left click and hold the shift key down and select multiple lines to extend. When you select the Shape - Extend Linework you cannot extend multiple lines at once and you cannot extend to rectangles or polygons. The command prompts:
Select Linework item to extend:
2. Select the line you want to extend. It must be on the current layer. You are then prompted to:
Select linework item to extend to.
3. Select the line to be used to extend the first line to.
4. If you either left or right click (and then right click select and shape) on a line, you can

extend multiple lines at once and extend to polygons and rectangles. The command prompts:

Select Linework item to extend to:

5. Select the line or polygon to extend to:

You may also trim & extend lines using the right click intelligence. The process can be used to trim or extend an individual line, or multiple lines. If wanting to trim/extend an individual line, right click on the desired line, and choose trim or extend. Next, select the line you wish to trim or extend to. If trimming a line, you will be asked to select a line on the side of the line you are trimming to. After left clicking to specify which part you wish to discard, the line will be trimmed back.

If wanting to trim/extend multiple lines, hold the Shift key on the keyboard and left click to select multiple lines. Once the lines are selected, then right click and choose trim or extend. Then follow the same steps as above

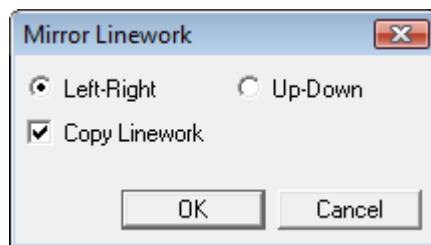
Mirror Linework

SolidBuilder ➡ Working Drawings ➡ Edit ➡ Shape ➡ Mirror Linework

Icon: 

To Shape any part of a working drawing, click on the Shape icon or select Edit - Shape. Or right click on the item to Shape and select from the abbreviated list. Not all shape command are available in the right mouse menu.

1. This command allows you to mirror multiple lines, polygons, arcs, etc. and also make a copy.



- **Left-Right:** This will mirror the selected linework from left to right.
- **Up-Down:** This will flip the selected linework from top to bottom.
- **Copy Linework:** This will not only mirror the selected linework but also make a copy of it producing a butterfly effect.

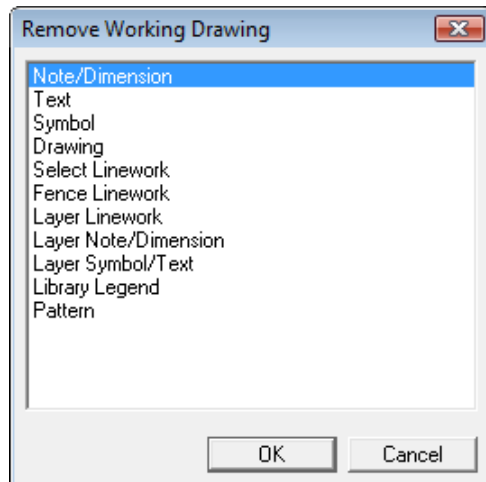
Chapter 43: Remove - Views - Window - Saving

Remove

SolidBuilder ➡ **Working Drawings** ➡ **Edit** ➡ **Remove**

Icon: 

You may remove any item in a working drawing by clicking on the Remove icon or selecting Edit - Remove. You may also right click on any linework item and remove it. The following dialog box displays.

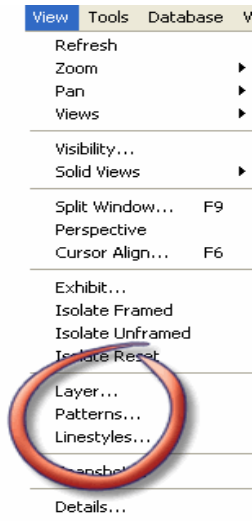


6. After selecting what you want to remove, click your right mouse button or press the F10 key. The command always prompts you,
Are you sure-
7. Select Yes or No. It is only going to let you select something that is in the Current Layer. If it does not allow you to select an entity to remove, you need to change you current layer. You can also right click on any linework regardless of the current layer and select remove. If you left mouse click, hold the Shift key down you can select multiple lines to remove. All remove functions operate the same way and will not be discussed separately.

Views

SolidBuilder ➡ **Working Drawings** ➡ **Views**

Under the View menu, there are some options to view in only Working Drawing mode.



- **Layers:** Each layer is highlighted on the drawing and displays the layer in the command line. This is very useful in determining on which layer a particular note, dimension, label, symbol or linework is.
- **Patterns:** Available patterns are displayed on the screen. Pressing the P key will print the display.
- **Linestyles:** Available linestyles are displayed.

Window

SolidBuilder ➡ Working Drawings ➡ Window

Under the Window menu, the 3-D model and the working drawings you have created are listed. The one with a check mark next to it is active on your screen. You can click on the other drawing to open it. If you click on a working drawing, select which layers you want visible or select All to include all the layers in the drawing

Saving

SolidBuilder ➡ Working Drawings ➡ File ➡ Save / Save As / Disconnect 2D Drawing

In **SolidBuilder**, working drawings are stored together with the model file, although each working drawing can be saved and stored separately.

- **Save:** If you click on the Save icon or select File/Save, the working drawings are always stored in the same file as the 3-D model which is how you want to save them.
- **Disconnect 2D Drawing:** However, you may select File- Disconnect 2-D Drawing which will save the active working drawing as a separate file or as a *.wd file type, but the drawing will still be attached with the model drawing. This disconnecting allows the current working drawing to be saved as an independent drawing so you can create Overlay Drawings for printing purposes or it may be a general detail that you use on other projects.

To open disconnected Working Drawing files (*.wd), you may select File - Open - 2d Drawing and browse for the file. This will open the drawing into Working Drawing mode.

SECTION SIX: BORDERS & PRINTING

CHAPTER 44: BORDER DRAWINGS

CHAPTER 45: PRINTING

Section 6 Borders



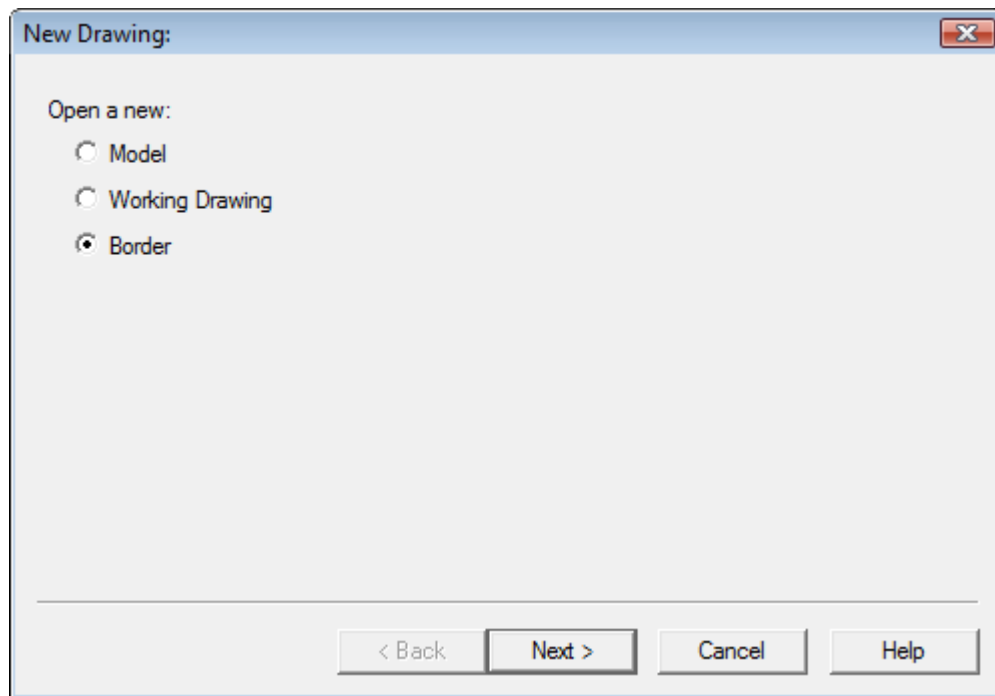
Chapter 44: Border Drawings

Border Drawings

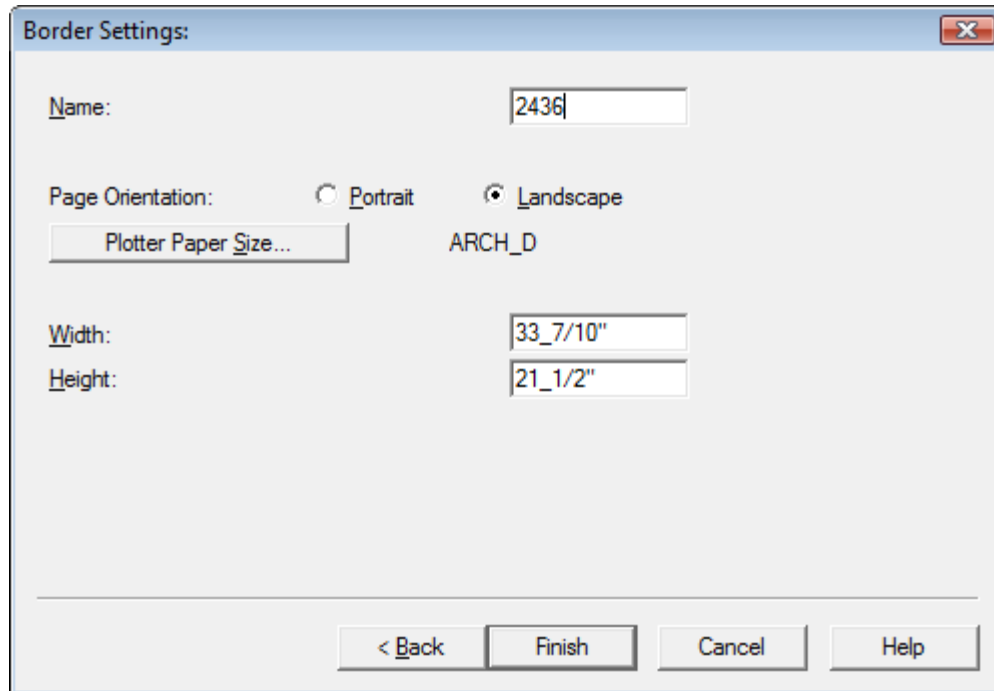
SolidBuilder ➔ **File** ➔ **New** ➔ **Border**

Borders, or title blocks, are a separate type of drawing that is used to place your model and working drawings into. It creates a frame around the drawings and typically contain information such as a company logo, company address phone, etc., job name, customer name, date, etc. You will need to create a separate Border for each size of paper you use and also for portrait and landscape.

1. When you select File - New, the New Drawing dialog box opens. Toggle on Border and choose Next.



2. The Border Setting dialog box opens.



- **Name:** Enter a Name to call the Border drawing (Ex.- D size).
 - **Page Orientation:** Select the correct Page Orientation Select the correct Paper Size (the default of the border size appears, you can change the dimensions to fit you particular printer or plotter according to your manufacturers maximum allowable drawing size). Select Finish2)
3. Now you will see the border extents (as a single rectangle) on your screen (you will also notice some different icons). The first step is to click on the Save icon and save this rectangle. You will be prompted:
Mark first corner of drawing window point
 4. Using the E Jump command select the upper left corner of the rectangle and left click once. This moves the cross hair to that corner. Hit the X key and enter .125" in the X field and in the Y field .125". You are prompted:
Mark opposite diagonal corner of drawing window point (the opposite corner)
 5. Using the E Jump command, select the lower right corner of the rectangle and left click once. This moves the cross hair to that corner. Hit the X key and enter. -125" in the X field and in the Y field .125". This creates a second rectangle 1/8" inside the first.
 6. The Save As dialog box opens. Click the Save button.
 7. Now you are ready to add linework and text to your Border drawing.
 8. Select Insert/Linework or Text to run these commands.
- **Insert Linework:** You can insert line work by clicking on the Linework icon or selecting Insert - Linework. This command works the same as inserting line work in a working drawing.

- **Insert Text:** You can insert text by clicking on the Text icon or selecting Insert - Text.
 - This command works the same as inserting Text in a working drawing.
 - **Insert Text File:** You can insert a text file by clicking on the Text File icon or selecting Insert - Text file. This command works the same as inserting a text file in a working drawing.
 - **Insert Quick Text:** You can also insert text by clicking on the Quick Text icon or select Insert - Quick Text. This is the same dialog box that is used for inserting quick text in a working drawing. You may select one the existing keynotes or create a new one to insert.
9. Once you have finished inserting the linework and text, save the Border Drawing again. Use the same step as outlined above with the exception: when you select the opposite diagonal corner, pick the corner of the title block you made. You do not want to include any of the linework or text in this second rectangle. This is what prevents any drawing from covering your title block.

Then after these entities have been inserted, you can use the Modify, Remove, or Shape command to edit the text or linework as a separate file. You can print out the border with any Model or 2d drawing by selecting the border in Print Options. Using a border is required when creating overlay drawings (overlays refers to printing more than one drawing on one page). You also need to create a new border for each different size of paper that you may use.

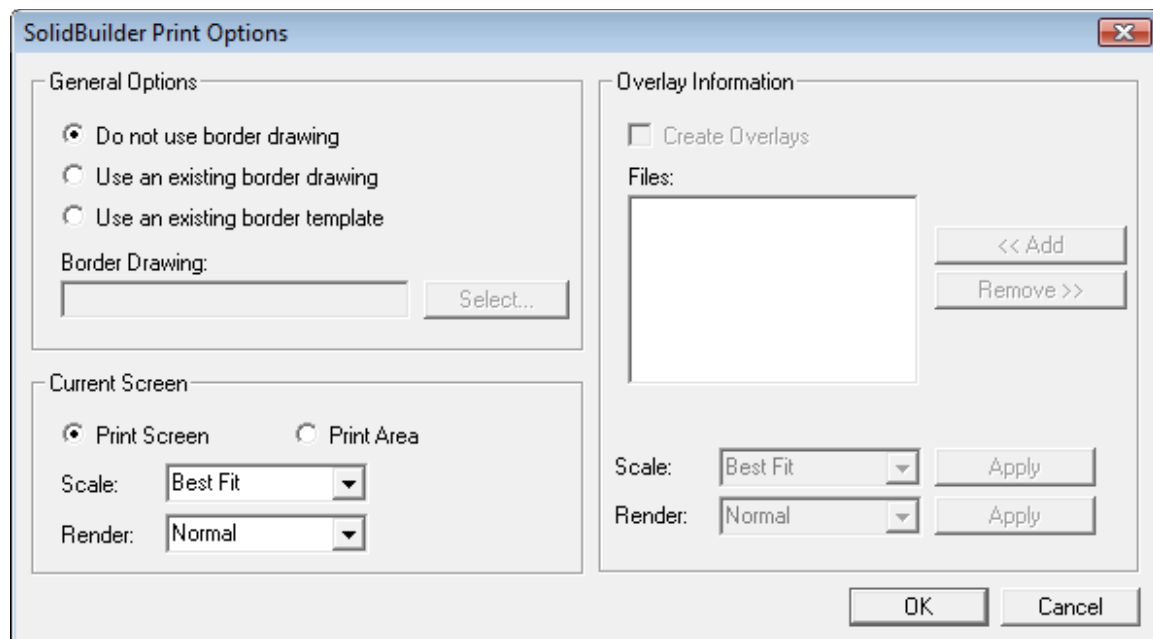
Chapter 45: Printing

SolidBuilder ➔ File ➔ Print

Icon: 

SolidBuilder can produce drawings on printers as well as plotters and supports all Windows based printers and plotters. **SolidBuilder** provides a variety of printing features as explained below. You may print the current **SolidBuilder** screen at any time and/or stage of the model process.

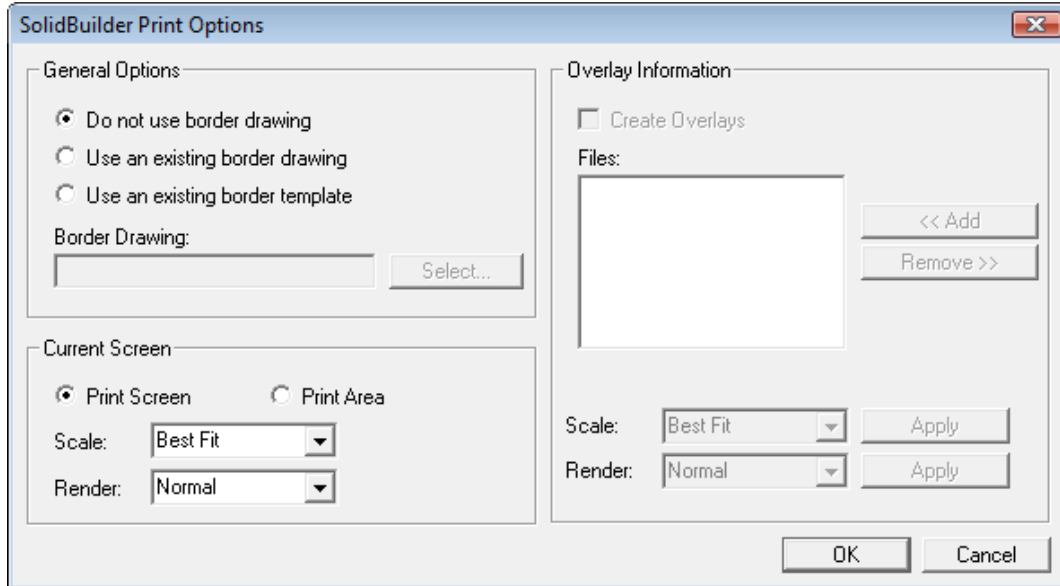
Printing in **SolidBuilder** is very similar to printing in any other Windows application except you have a few more options. To Print, click on the Print icon or select File-Print and the dialog box below will open. The **SolidBuilder** Print Options dialog box is divided into three specific areas: General Options, Current Screen and Overlay Information.



General Options

SolidBuilder ➔ File ➔ Print

Icon: 



- **Do not use border drawing:** You must select to use or not use a border drawing. Border Drawings are a separate type of drawing that serves as your title block. To print either the current screen or a saved drawing, choose to not use a border drawing. If you choose not to use a border drawing, proceed to the Current Screen Area of the **SolidBuilder** Print Options dialog box (above).



To place multiple drawings on one page, otherwise called Overlay Drawings, you must use a border drawing.

- **Use an existing Border Drawing:** If you choose to use a Border Drawing, you need to select one from the list of previously created Border Drawings. Click on the Select button to the right of the window area under the words Border Drawing. This opens the Select File dialog box (below). Select the desired border drawing. Click on Open and the path to the border drawing is displayed in the border drawing window.

You can use a Border Drawing with a single drawing or you can place multiple drawings on one Border Drawing using the Overlay option. Notice that when you choose to use a border drawing and Overlay, the Current Screen area is grayed out because the Overlay information becomes active.

- **Use an Existing Border Template:** Creating a Border Template can be very useful if you print your working drawings in the same fashion for each project. For example, if you always print the Front and Right elevations of each design on the same page in the same order. In the past, you had to select these files for each drawing in the print options every time you wanted to print and then place them on the border. Now you only have to select the files and placement once, which you do when you create a border.
- Before creating a template, you should set up subfolders to keep all your drawings organized. You might have a folder called Drawings and then have subfolders for each project. You might name these subfolders Jones and Smith for client's names. Under these subfolders, you might want to save each working drawing with the same file name for each project. So, in the Jones file, you can name your elevations - Front, Right, etc.

Then you name Smith working drawings- Front, Right, etc. but save them in the Smith sub folder. When you are ready to print, you select your border template and all you have to do is change the directory from Jones to Smith to print out the working drawings for that client.

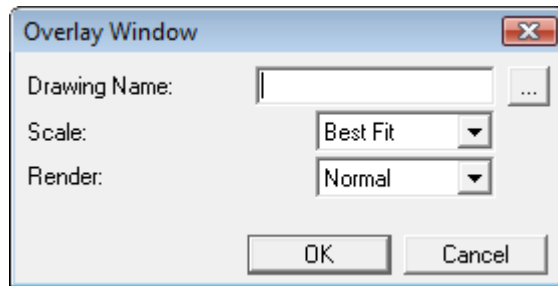


The steps below will explain how to setup a Border Template.



Any working drawing that you want to print must first be saved as a disconnected 2D drawing. This in essence makes a copy of it just for printing. Do this for all the working drawings that you want to print as an overlay.

1. First, open an existing border or create a new border. Select File - Open - Border or File - New Border.
2. Once you have a border open, select Insert - Overlay Window.



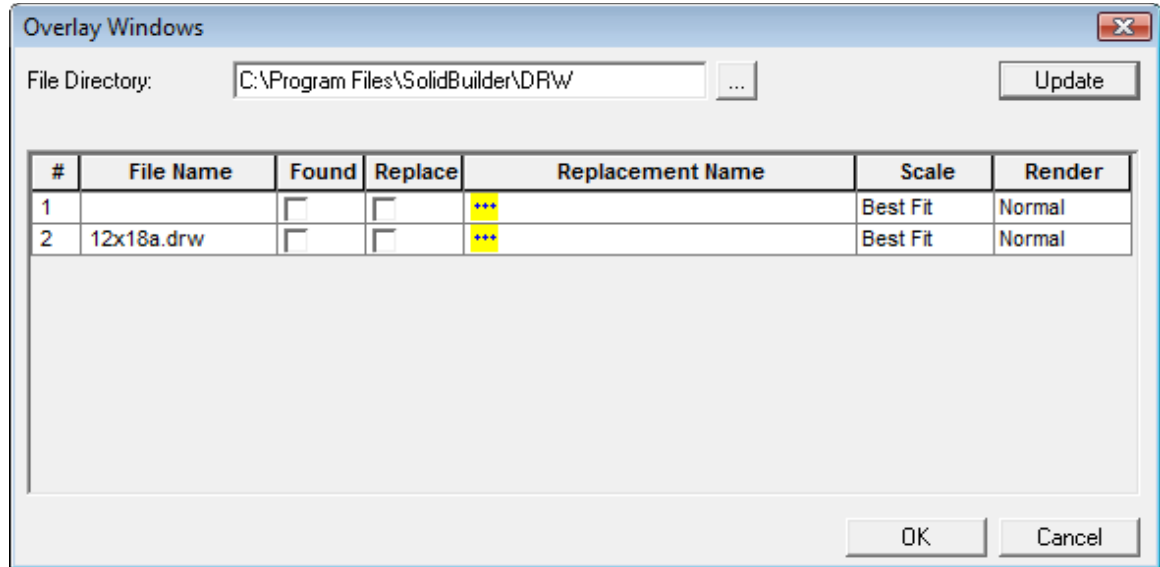
Drawing Name: Find the file you would like to print for the first drawing (i.e. Front elevation)

Scale: Scale the drawing and click on OK. Draw a window (inside the border lines) where you would like the drawing to be placed.

Render: Set the desired Render Option. Remember this will over ride the render option of the drawing on the screen.

3. You are prompted to mark first corner of rectangle. Move to one of the corners inside the Border lines and left click. You are the prompted:
Mark opposite diagonal corner
4. Move the mouse to create a rectangle roughly the size you want for that particular drawing. Repeat these steps for each drawing you would like to print on this border template. If the drawing will not fit inside the box you drew at the scale you selected, you will be prompted to re-size the drawing (included less of it) or re-scale it.
4. Once you have all Overlay Windows created, select File - Save. Draw a box around all the overlay windows but inside the border lines.
5. Once you have it created and saved, open a drawing file.
6. Select File - Print to display the Print Options dialog box.

7. To use your Border template, click on Use an existing border template.
8. Click on Select and find the border template that you just created. Click on OK.
9. Click on OK in the Print Options dialog box.
10. The Model Information displays and you can edit the fields to update your Titleblock or else click on OK.
The following dialog box displays.

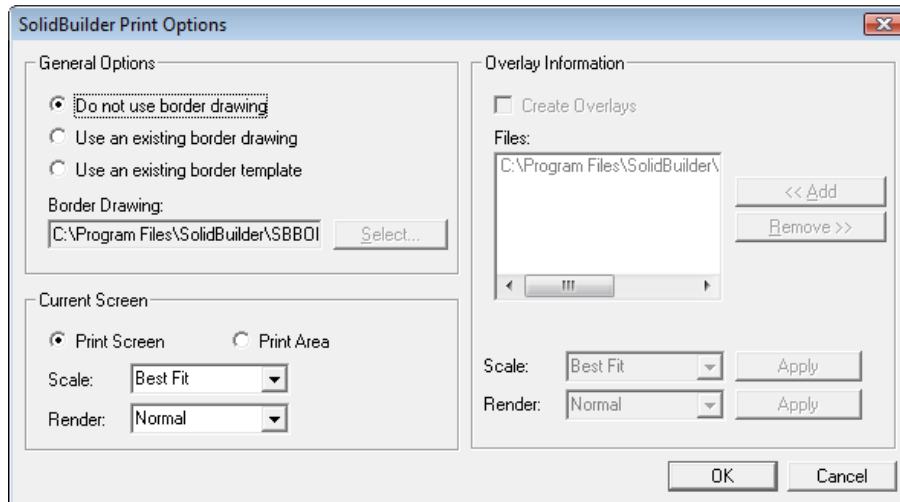


This dialog box lists the files that you selected when you created the border template. If you want to print these files, click on OK. If you want to print the same type of working drawings but you saved them in a different directory, click on the Browse icon. Locate the folder you saved the working drawings in and click on Update. **SolidBuilder** then tells you if it found those files in that directory or not by placing a check mark under the Found heading. Once it has found the files, click on OK and then the drawings are placed into your border. If you want to replace the file with a different name, click on the yellow button to select a different file. You may also change the scale at this point. Once you click on OK, it gives you a preview of the layout. From there you will get the Overlay Options.

Current Screen Options

SolidBuilder ➔ File ➔ Print

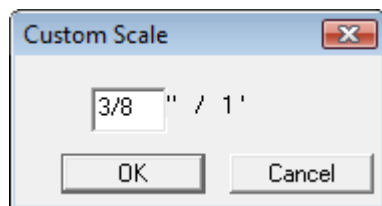
Icon: 



This option allows you to print whatever is displayed on the screen. You can determine what gets printed, the scale and how it is to be rendered.

- **Print Screen** - This includes the entire **SolidBuilder** black drawing area.
- **Print Area** - This allows you to draw a box around what is to be printed, excluding everything else.
SolidBuilder considers all black area around a model as part of the screen. When using Best Fit, to get the largest possible drawing, either use the Print Area function, or zoom all and resize the size of the **SolidBuilder** program window to get as tight around the drawing as possible.
- **Scale** - This allows you to scale your drawing. There are preset scales or you can a custom scale. The preset scales are: Best Fit, 1/16", 1/8", 1/4", 1, 1/10, 1/50, 1/100, 1/500 and Other.

To enter a scale other than the preset ones, select Other and click on OK in the lower right corner of the dialog box. The Custom Scale dialog box displays. Enter the desired scale. Click on OK. When you have all options set, click on OK to continue.



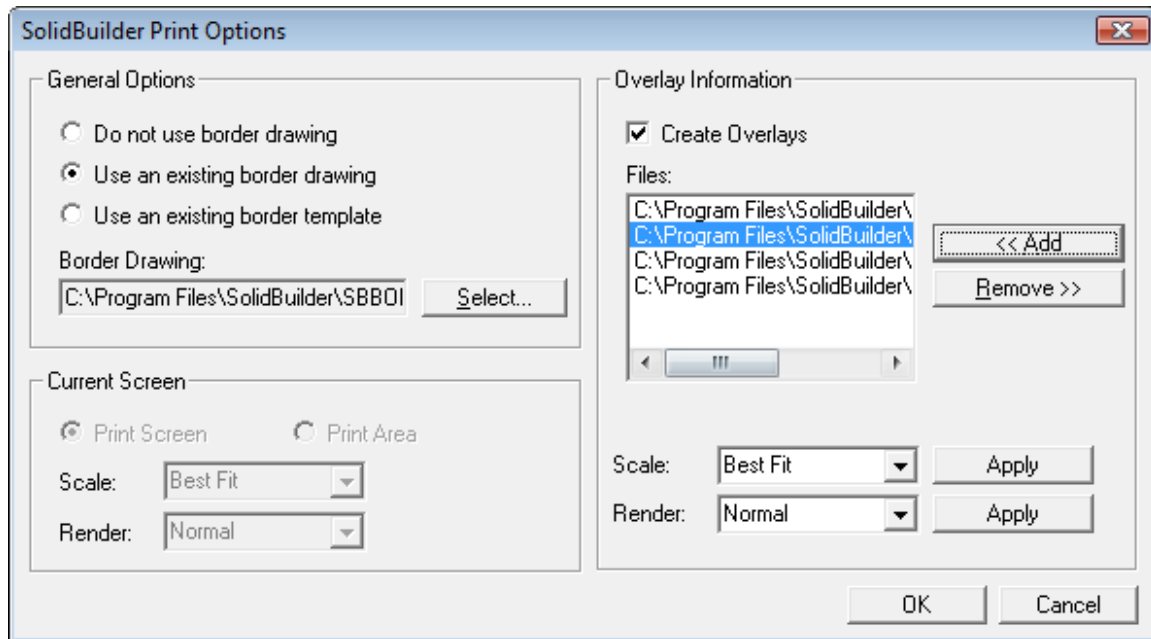
- **Render** - This allows you to select from the rendering options for printing. The choices are Normal, Hidden Line or Painted. Even if you set the desired rendering for the model,

you must also set it here. This setting overrides all other rendering settings.

Overlay Options

SolidBuilder ➔ **File** ➔ **Print**

Icon: 



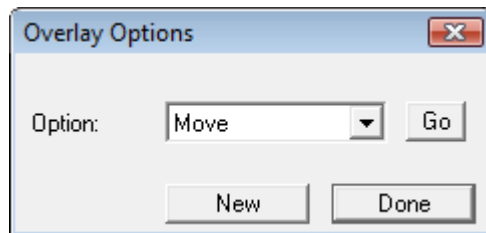
An overlay drawing is a single sheet with more than one drawing on it. Individual drawings that you want to print need to be saved as separate files. If you want to print two different working drawings, you must save those working drawings as separate files, which then have a .wd, file extension. Before creating an overlay, save the working drawings by selecting File - Disconnected 2D drawing.



To Set Up the Overlay Information

1. Click on the Print icon or select File - Print or the Print icon. The dialog box above opens. To create an Overlay drawing, you must have a border selected. Select the Use an existing border drawing radio button and click the Select button. A dialog box displays with borders that you created previously. Select which one you want to use and then click Open. There also are borders that come with the software that you may use (the names of the borders describe the paper size they will fit within).
2. Turn on the Create Overlays toggle and then click on Add. The Select Files dialog box displays with a list of all your drawings in that folder. (You may have your drawings stored in a different folder so you can click on the Up one level icon to locate the drawing that you want to print). You can select a 3-D model (.DRW file) or a working drawing (.WD file) and then click Open.

3. **SolidBuilder** takes you back to the Print Options dialog box and the drawing is highlighted. Select the Scale and the Render option for that drawing and then click on Apply. If the drawing is 2-D, leave Render to Normal (this only applies to your 3-D models). Then you may click on Add again and select another drawing that you want to print with the first drawing you selected. Select a Scale and Render option and then click Apply. You may continue adding drawings or click on OK if you are done selecting.
4. The Model Information appears for your border so you may edit the fields or click on OK. Then it asks you where you want the drawings positioned on you paper in the command line. If you used Best Fit for one of the drawings, draw a rectangle box to where you want that drawing placed and the space you want that drawing to cover. If you scaled the drawing, the rectangle box is predefined, so move the box to where you want that drawing placed and left click. When you are positioning the drawings, make sure you are within the drawing area represented by a blue box or else it will say, Invalid Area. It also throws a flag up if the scale that you choose does not fit on the paper size or border size selected so you can Rescale or Resize the drawing.
5. After positioning the overlays, you will have the chance to modify them using the Overlay Options dialog box (below).



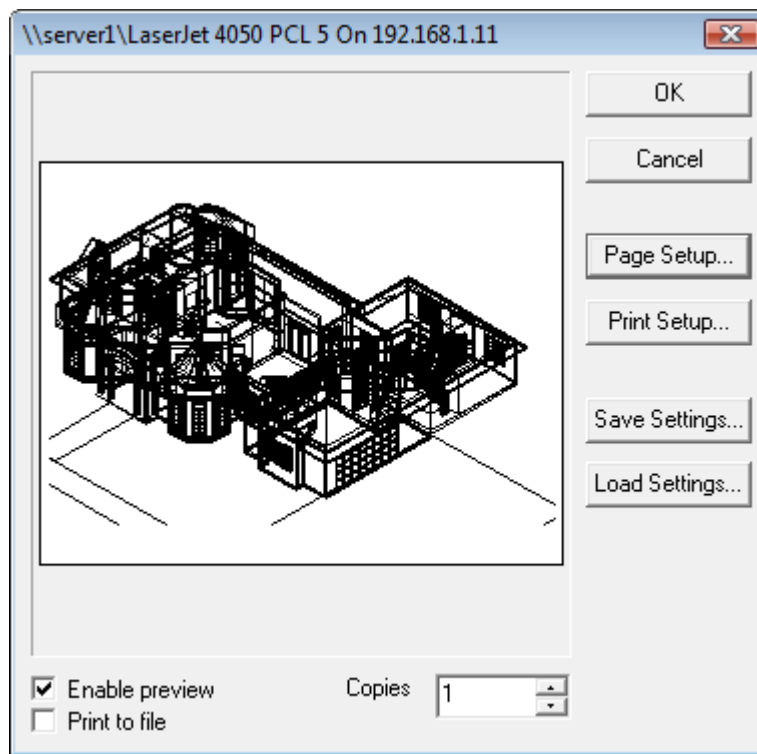
- **Move** - This allows you to drag the overlay to another position on the screen. Click Go and then select the drawing you wish to move.
 - **Resize** - This allows you to change the size or amount of paper the overlay takes up by dragging one of the corners. Click Go to execute the command.
 - **Opaque** - This option makes the overlay drawing opaque so you cannot see any other geometry or drawings that may lie underneath it. Click on the Go button to execute the command.
 - **Transparent** - This option makes the overlay drawing transparent so that you can see other geometry or drawings that may lie underneath it. Click on the Go button to execute the command.
 - **Front** - This option will prompt you to select an overlay to bring to the “front” or top layer. Click on the Go button to execute the command. This only applies to opaque drawings.
 - **Exchange** - This option will prompt you to exchange one overlay’s contents for another. Click on the Go button to execute the command. You will be prompted for each drawing.
6. Click on Done if everything is in the correct place or you can select an option to reposition views. After you click Done the Print Preview dialog box will open.

Print Preview

SolidBuilder ➔ **File** ➔ **Print**

Icon: 

After you click OK on the Print Options, you will get the print preview (below) if you did not select a border. If you did select a border then see previous sections on Use Border Drawing and Overlays.



This is the preview window. All that is visible in this preview and how it is displayed is what will be printed.

- **OK** - Click this button to send print to printer.
- **Cancel** - Click this button to cancel the print.
- **Enable Preview** - Check this box to view the print.
- **Print to File** - Check this box to create a Print file (*.PRN). This will allow you to have a printing service print your drawings for you. First you need to find out the type of printer driver the service will be using. Then you need to install that driver and select that driver in the Print Setup dialog box.

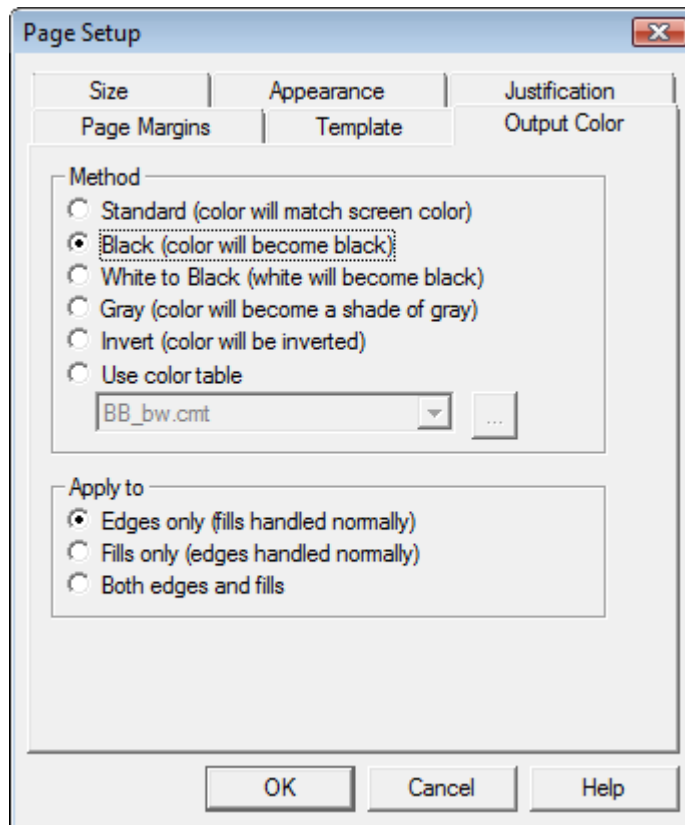
The following options are briefly discussed here and in depth in their respective sections.

- **Page Setup** - Click this button to open the Page Setup dialog box. This allows you to set some different printing preferences. See next section for more detailed information.
- **Print Setup** - Click this button to open the Print Setup dialog box. You can select which printer and paper size to use. See section on Print Setup for more detailed information.
- **Save Settings** - Click this button to save your settings from the Page and Print Setup options. Select a folder and a filename to save the settings file.
- **Load Settings** - Click this button to load a saved setting file.

Page Setup

SolidBuilder ➔ **File** ➔ **Print**

Icon: 



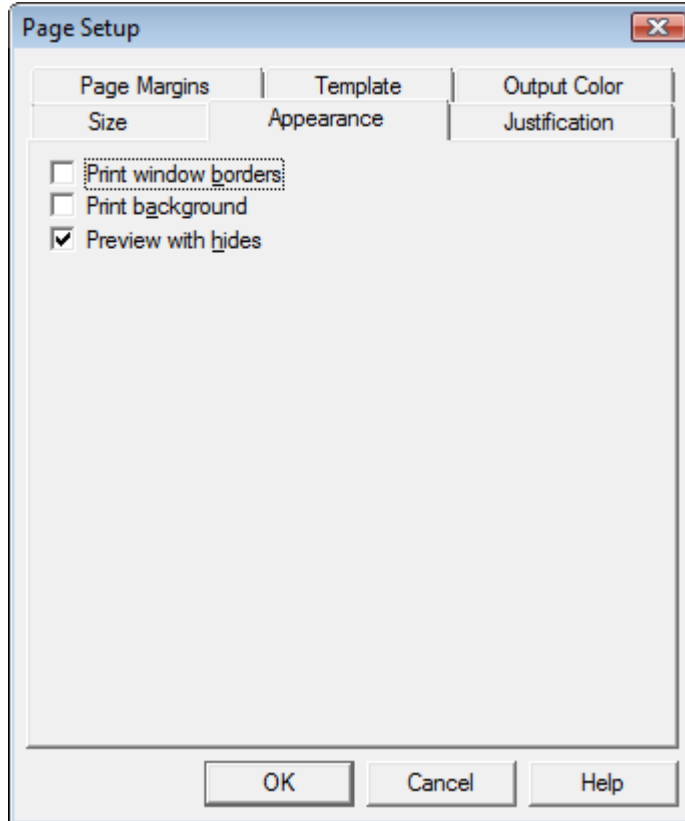
Page Setup allows you to set the justification, margins and allows you to set up color and

line weight characteristics.

Appearance

SolidBuilder ➡ File ➡ Print

Icon: 



Page Setup Dialog Box – Appearance Tab

Print window borders - This option draws a borderline around the drawing representing the screen window.

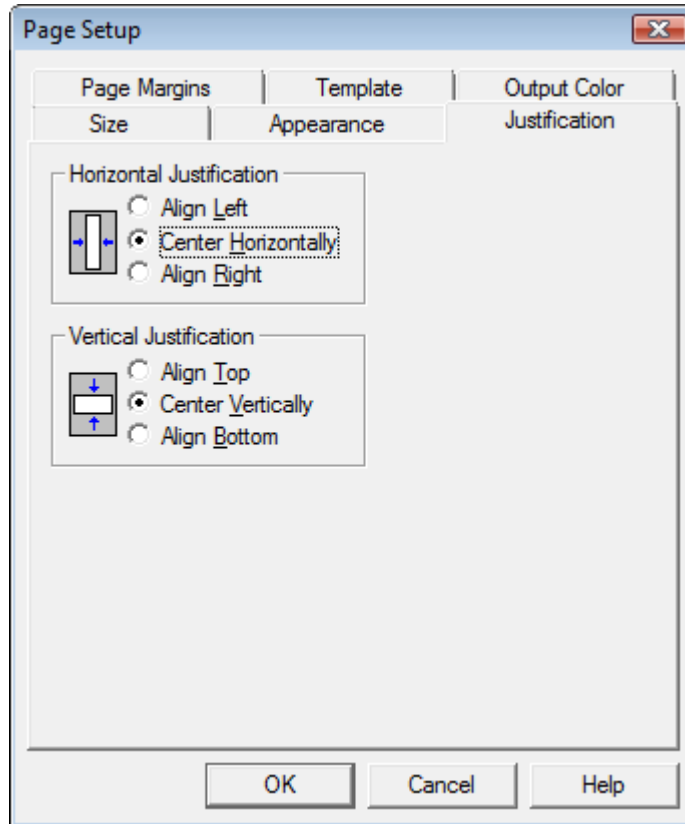
Print background - This option prints the screen color of **SolidBuilder**. If your **SolidBuilder** screen is black, then the drawing prints with a black background.

Preview with hides - This option allows the preview to show hidden line and painted options.

Justification

SolidBuilder ➔ **File** ➔ **Print**

Icon: 



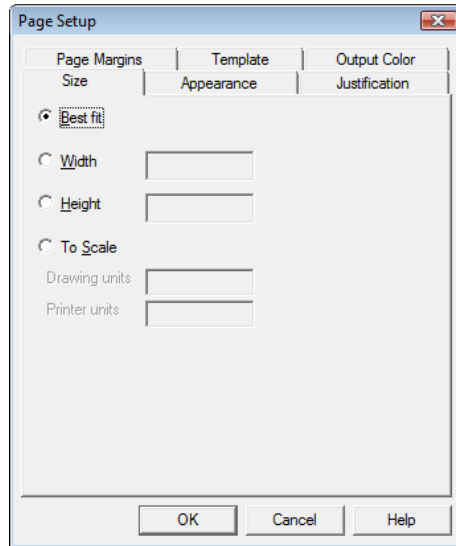
Horizontal - Allows you to align to the left, right or center the drawing horizontally.

Vertical - Allows you to align to the left, right or center the drawing vertically.

Size

SolidBuilder ➔ **File** ➔ **Print**

Icon: 



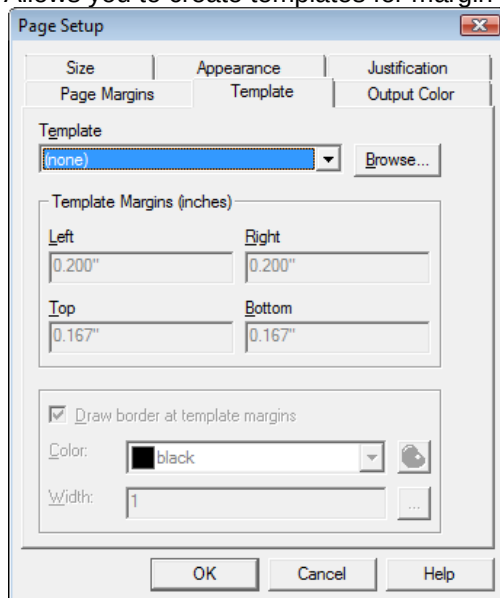
SolidBuilder will display what you previously selected in the Print Options. You may change the size and scale. Values entered here override all previous settings. If you forgot to select a scale, it is recommended that you Cancel out and start the print again.

Template

SolidBuilder ➔ **File** ➔ **Print**

Icon: 

Allows you to create templates for margin settings and name them.

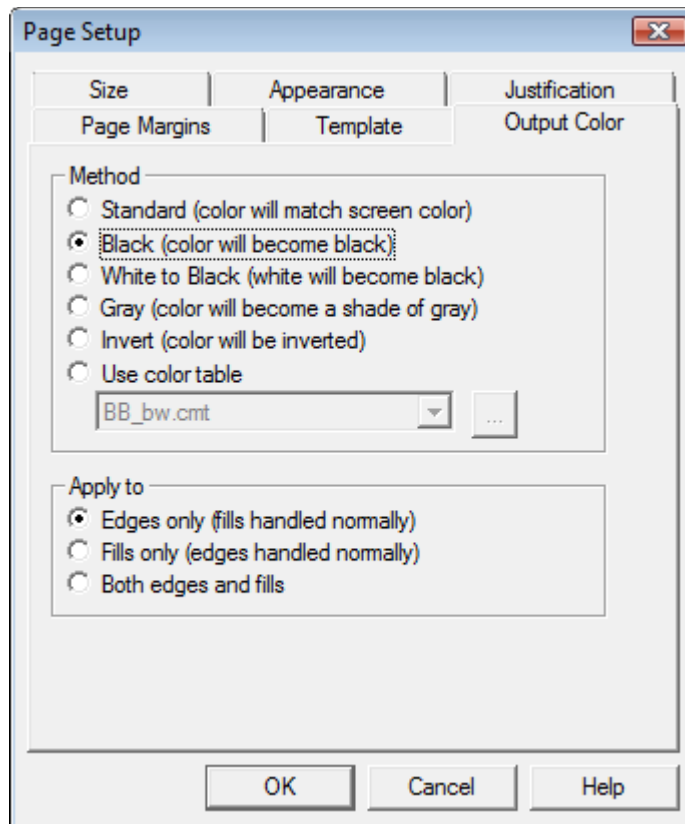


Output Color

SolidBuilder ➔ **File** ➔ **Print**

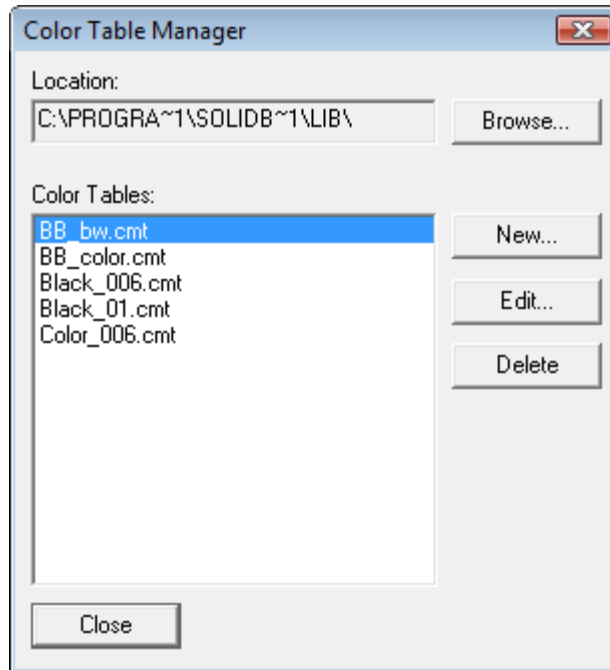
Icon: 

The Output Color option allows you to specify line weights and how **SolidBuilder** model colors are printed either in black or in color.

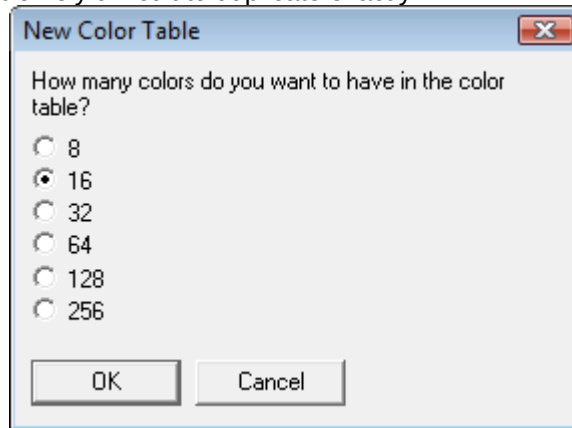


- **Method:** Select the desired result. For color printing, select Standard and the printed color matches the screen color. For black only printers select Black and all colors print as black. To set up line weights and custom color output, select Use color table.

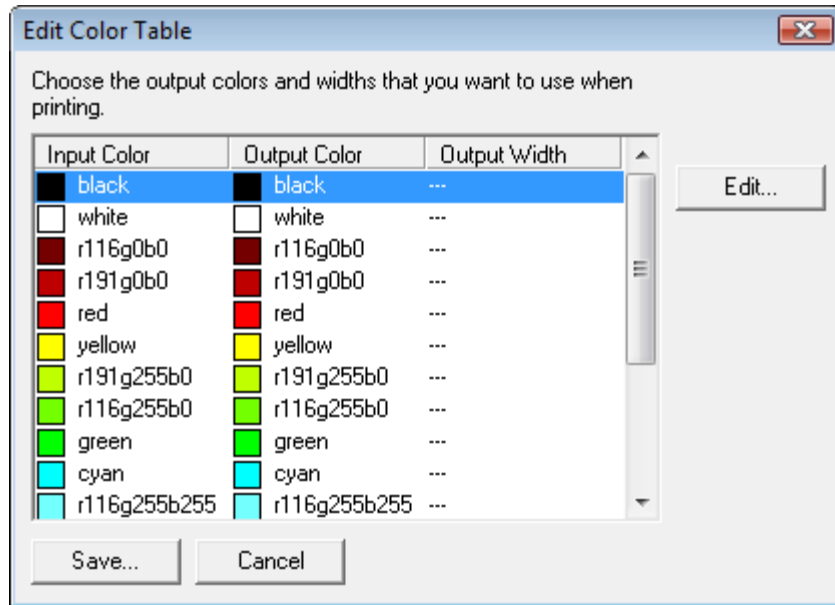
Color table: This window lists all color tables that have been set up. You may create as many color tables as you wish. To create a color table, click on the button to the right of the window. This opens the Color Table Manager.



1. Click on the New button. This opens the New Color Table dialog box (below). Keep the number of colors to either 8 or 16 because 32 and up are non standard and extremely difficult to duplicate exactly.



2. Click on OK. The Edit Color Table dialog box (below) displays.



There are three columns, Input Color, Output Color and Output Width.

Input Color: This is the color of the linework on the screen.

Output Color: This is the color that is printed. This allows you to print all colors as black or you may change the output color of, for example, any linework in the model that is red to print out green. You simply click on the color square to open the color chart and select the desired output color.

Output Width: This allows you to select the line width by color. You may use as many different settings as you wish. You could make all red linework print slightly heavier than all the rest, for example. Simply click on the line in this column to edit the width. The width is expressed in inches or you may enter millimeters and **SolidBuilder** automatically converts it for you. The larger the paper size you are using, the heavier the line weight. You want to try several settings to find the combinations that work best for you.

When you finish the settings, click on Save. You are asked for a name and location to save the Color Table Settings. The saved color table and name you gave it displays in the Color Table Manager dialog box and remains on until you turn it off. Click on OK to return to the print preview window.

- **Apply to:** typically this will always be set to Both edges and fills.

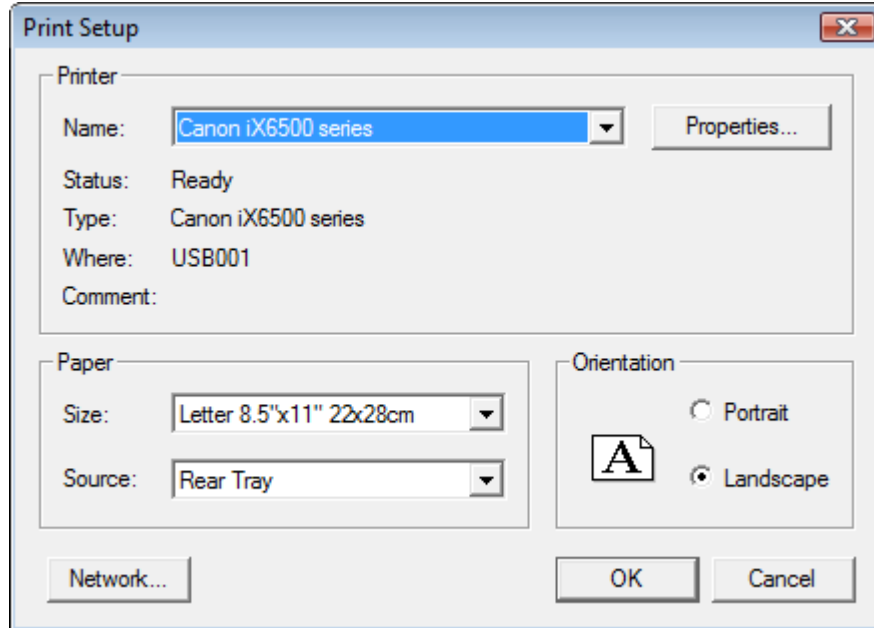
Print Setup

SolidBuilder ➔ File ➔ Print Setup

Icon: 

The Print Setup dialog box displays. You may select the printer, paper size, orientation, etc. that

you will be using to print in **SolidBuilder**. This dialog box and settings is controlled through Windows and is not associated with **SolidBuilder**. At your Windows Desktop, you may select Start-Settings-Printers to setup more defaults to be used for that particular printer. Refer to your printer/plotter documentation for more information.



Save Settings

SolidBuilder ➔ File ➔ Print ➔ Print Preview

Icon: 

- **Save Settings** - Click this button to save your settings from the Page and Print Setup options. Select a folder and a filename to save the settings file.

Load Settings

SolidBuilder ➔ File ➔ Print ➔ Print Preview

Icon: 

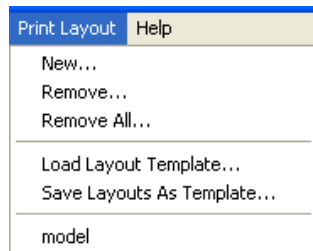
- **Load Settings** - Click this button to open a saved setting file.

Print Layouts

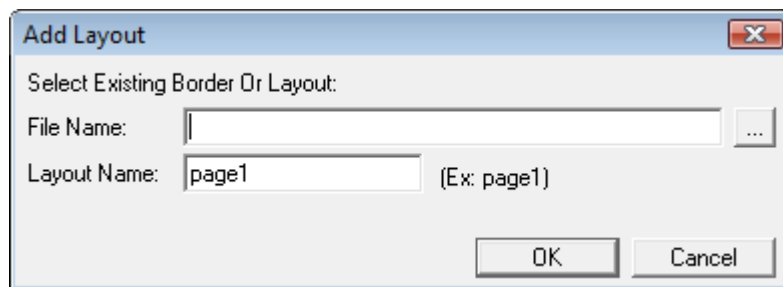
SolidBuilder ➔ Print Layout

Print Layout is accessed from the main pull down menus. The Print Layout allows you to create layout sheets with a Border and selected drawing or drawings that are maintained with the model. If any of drawings that are included in any of the Print Layout sheets are changed, the Print Layout sheets are automatically updated.

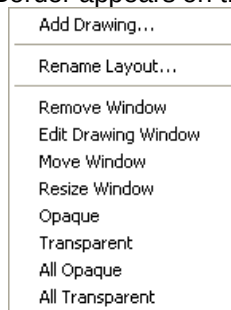
Another benefit from using the Print Layout is the ability to reprint any of the Print Layout sheets at any time in the future without having to go through the setup.



- **New:** Creates a new Print Layout sheet.
 1. Click the button to select a Border. Enter a name. Click OK.



2. The Border appears on the screen. Right click. The dialog box below opens.



3. Here you can add a drawing, rename the Layout and remove a window. The rest of the options are the same as in a Border. Refer to the Border chapter for more information.

- **Remove:** will remove a Print Layout
- **Remove All:** will remove all Print Layouts
- **Load Layout Template:** will load a Layout Template
- **Save Layout Template:** will save the current layout as a template that can be used for

future drawings. An example would be if you always have one sheet with the front and back elevation at 1/4" scale. You could create this layout and save it as a template.

- **Model:** will take you back to the Model or to any one of the Print Layouts in the list.

You can also select and use the tabs in the lower left corner to create and modify Print Layouts and move between the Model and the Print Layouts. Right click on the tabs to access the menus.

- **Adding Drawing to a Print Layout:**

1. Open the model drawing you are going to print.
2. Click on Print Layout/Load Layout Template. Select the previously saved Template.
3. The pages will be loaded, prompting for Wildcards if the text was in the borders originally.
4. Once you have them loaded, click on the Page or Sheet you want to insert a drawing into. Click on Print Layout menu or from the tabs at the bottom of the screen.
5. Click on Insert/Drawing or you can right click and select Add Drawing or Connected working drawing.
6. Draw a window inside the border to where you want a drawing placed.
7. If Drawing is selected click on Browse and select a drawing to insert (browse to where you saved your disconnected wds). You may need to change files of type to 'working drawings'

If Connected working drawing is selected chose the drawing you wish to insert from the drop down list.
8. Select a scale and hit Ok. The drawing is now inserted.
9. You may need to click on Edit/Resize to resize the window if part of the drawing is not showing or if you have a lot of empty space
10. Repeat steps 5-9 to insert other drawings onto the same layout.
11. Then repeat the steps for each page layout, inserting drawings into each layout.

If you have a Print layout active on your screen, you may click on the Print icon to print the page. You may also click on Print Layout/Model to go back to your model drawing (or click on the 'Model' tab located at the bottom of the screen). For each layout you create, another tab is added for quick access to that page.

- **Notes:**

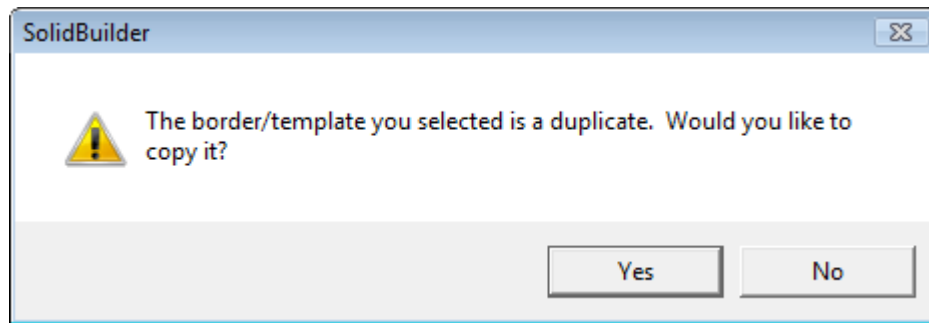
1. The Print Layout files are created and stored in the same folder as your drawing file is saved. The file format is *.sdf. If these are moved or deleted, the layouts will not be loaded when you open the drawing. If you move the drawing file, be sure to include this subfolder. The print layout "templates" are saved as 'C:\Program

Files\SolidBuilder\SavedTemplates'.

2. When you are in Print Layout mode, there are other commands under the Edit menu that allow you to modify the Windows and Text in the border. If you want to Edit Text, be sure to click on the main border window before doing so. You cannot edit text inside a working drawing. If you need to edit the working drawing, click back on the Model and open the working drawing. Make the changes and then Disconnect the drawing again. The print layout will be updated automatically.
3. If you update your working drawings, you just need to Disconnect the drawing again and the Print Layout will be automatically updated.
4. If you need update your model information (File/Preferences), do this before inserting any drawings into the layout. If you have drawings inserted, you will need to remove them to update the info. Or you may go to Edit/Text menu.



When you create the second page, select the border, select the same border, the following message will appear:



Select Yes. This will make a copy of the original Border for each Print Layout page. If you create 6 Print Layout pages for a model, it will create 6 borders in your **SolidBuilder** - sbborder with the same name as the original with the added numbers on the end of the name 1-6. Example: if the border name was 2436a it would create 2436a1, 2436a2, 2436a3 etc.

SECTION SEVEN: FAQ'S/USER TIPS

CHAPTER 46: FREQUENTLY ASKED QUESTIONS

CHAPTER 47: USER TIPS



Chapter 46: Frequently Asked Questions

Q. What is the Cad Menu-

A. The CAD solid modeling engine, which provides tools for the implementation of **SolidBuilder**.

Q. How do I activate the Cad Menu from **SolidBuilder** and how do I activate **SolidBuilder** from the Cad Menu-

A. Select File – Cad Menu. To get back to **SolidBuilder** from CAD, click on the Tools pull-down and choose Execute. Find and click the file "sbstart.ex." Now you are back to **SolidBuilder**.

Q. How do I find the online documentation-

A. Click on your Start button, then to Programs and there is a **SolidBuilder** for Windows program group. Select either the **SolidBuilder** User's Guide or the **SolidBuilder** Tutorial Manual.

Q. How do I authorize **SolidBuilder**-

A. Double click on the SolidBuilder shortcut or click on your Start button, then to Programs and there is a **SolidBuilder** program group. Select **SolidBuilder** again. If you have not requested an authorization code, click on the request button, and fill in your company information. Fax or email the request to Digital Canal. We will then send back a code for you to enter into the License dialog box.

Q. How do I find my drawings-

A. By default, **SolidBuilder** places drawings in C:\Program Files\SolidBuilder\DRW (if **SolidBuilder** was installed by default). To physically find a drawing use the Windows file find procedure, click on the Start button in the lower left corner of your screen and select Search or Find. In the Named window, type the name of your drawing. If you are not sure of the exact name, you can type the first portion. In the Look in window type C:\ and or D:\ if you have two drives. Click on the Find Now button. Windows searches your hard drives and locates the drawing if it exists and tells you where it is located.

Q. How do I make a copy of a drawing-

Chapter 46
Frequently Asked Questions

A. Open Windows Explorer. Open the folder where the drawing is stored. Move your mouse pointer over the drawing name. Right mouse click and select Copy. Select the folder where you want to place the copy. Right mouse click and select paste.

Q. How do I load a model without exiting the program-

A. From the main **SolidBuilder** menu, select File → Open → Model.

Q. My printer produces 1/4 sized drawings. What should be done-

A. This is a symptom of insufficient memory in a laser printer. Select File → Printer Setup and change your printer resolution from high to medium or low.

Q. Where is the SolidBuilder database located-

A. In the **SolidBuilder** directory. It is a file called SBITEMS.MDB

Q. The cursor does not seem to move in the right direction or is locked up.

A. Press the F6 key or select the Cursor Align icon. Select View and press the Align Button to realign your cross hair.

Q. What do I do if the cursor won't move – it just flickers-

A. You need to increase the snap interval by pressing the Insert key. The cursor is moving but the snap interval is so low that it appears to be flickering.

Q. Why can't I see the "bulls eye" to pick a shell, I just see red lines flickering-

A. You are in scan mode. Right mouse click and select pick mode.

Q. How can I print the painted view of my model-

A. When in the Print Options dialog box, set the render function to painted or hidden.

Q. How do I see the entire model-

A. Click on the Zoom All icon.

Q. The sinks located on top of my cabinets appear to be filled with some substance.

A. You are seeing a part of the cabinet, which contains the sink. Trim the cabinet to the sink symbol with the Symbols Shape Trim command.

Q. What does the <Shelltype> layout points have not been aligned. Proceed with framing- message mean-

A. Under each shell type's menu, you find a Modify Layout Point command. This allows you to set the layout point at any location you desire. The message prior to framing is just a reminder. You are not required to align the layout points before you frame.

Q. How do I measure things in the model-

A. Click on the Distance Measure icon (looks like a tape measure). Select the first point and then move to the second point and read the measurements in the coordinates dialog box.

Q. When I save a working drawing, is it with the model or separate-

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Frequently Asked Questions

A. When you finish a working drawing and click on Save, you save the working drawing with the model. However, if you choose the Save as.wd or the Disconnect 2D drawing command from the working drawing menu, you save the working drawing as an independent drawing. Usually you save working drawings as independent drawings prior to plotting multiple working drawings on one page.

Q. How do I know what the pattern names represent-

A. From the Working Drawing main menu select View → Patterns.

Q. What is the Floating Trimmer that is referred to in Wall Settings-

A. This is a trimmer that runs between the header and windowsill. It is positioned next to the king stud and can be moved to adjust the rough opening.

Q. What is the difference between Normal and California corners-

A. California corners have one member rotated 90 degrees in reference to Normal corners.

Q. In Roof Standards, what does Flat or Vertical refer to-

A. This refers to the position of the lookout support members with reference to the roof plane.

Q. What is a Joiner-

A. Joiner is a **SolidBuilder** term for all Hip, Ridge and Valley members.

Q. What are Rim joists and End Joists-

A. Rim joists are members that run parallel to joists. End joists are members that run perpendicular to the joists.

Q. Do the colors for the walls, roofs, etc. have any significance-

A. The colors used for the various shells do have a significance in that the color allows for easily identifying the shell type. They are:

Yellow: floors, stairs, railing walls, ceilings or joiners

Cyan (light blue): framed walls

Dark Blue: masonry walls, girders or posts

Light Gray: any concrete shell

Green: roofs or outlines

Dark Brown: sill plates

Q. Can the shell colors be changed-

A. Yes, they can be changed, but only those that have been already created, and only for the current model. The default cannot be changed. Any new shells created are created with the default colors. To change the color, select Edit → Drawing → Color, select the shells you wish to change the color to, and click on the color you desire.



Chapter 47: User Tips

Model

Listed below are some tips for creating and editing different shells in Model, Production, and Working Drawing modes.

Outline

1. **Automatic outline creation** – An outline is automatically created when you create a floor or ceiling. The sequence of steps and the prompts for creating floors, slabs and flat ceilings is the same as the steps used to create a closed free-form outline.
2. **Optional creation of outlines before floors** – You do not need to make an outline before creating floor or ceiling shells. This is an option. Sometimes it is easier to make the outlines and edit them before you make the shell.
3. **Angle direction in Polar entry** – When creating outlines or drawing the edges of floors, ceilings or walls, you may use the polar entry method by pressing the letter "d". The degrees value you enter is an absolute value. This means that on a clock face with the cursor at the center, 0 degrees is 3:00 o'clock, 45 degrees is 1:30, 90 degrees is 12:00 o'clock, 180 degrees is 9:00 o'clock and 270 degrees is 6:00 o'clock.
4. **Entering complex outlines in steps** – It is often easier to create a complex outline by first entering a simple outline and then creating several smaller simpler outlines and subtracting (choosing the Outline- Shape- Trim command) or adding (choosing the Outline- Shape- Join command). For example, to enter an outline in a house with multiple 45-degree exterior walls, first create a rectangular outline containing the house. Then create triangular outlines and choose the Shape Trim command to remove them from the rectangle to get the desired outline. You are asked if you wish to remove the original outlines: in this case you would. However, there may be instances where you want to retain all of the outlines as originally drawn.
5. **Modifying the C-space for angular buildings** – Sometimes part of a building is not oriented to the up and down x, y plane. In such cases the D_L_ mode of entry can be used. An alternative method is available, which allows you to use the x, y coordinates. This is done by reorienting the construction space so that the x, y directions on the screen are not up and down, but rather at an angle. To do so, press F6. Align the C space by selecting an edge of some part of the model that is not vertical or horizontal or by entering an angle. The cursor is rotated. As you press the Up/Down- arrow or Right/Left arrow keys, the cursor moves at an angle to the screen rather than up/down or across.

6. **Circular outline facet limitations** – You may create a faceted circle outline with the Outline- Create- Closed- Circle/equal command. A circle is represented by a number of line segments. You are asked for the number of sides for the circle. The maximum amount of sides **SolidBuilder** draws to represent a circle is 32. The number of individual wall segments in the circle equals the number of segments you choose.
7. **Half circular outlines** – To make a half circle outline along the edge of a polygon, first draw a closed outline. Then create the circle with its diameter along one edge of the closed outline. Choose the Outline- Shape- Join command to combine the circle outline and the polygon outline.
8. **Tracing partial circular outlines** – Rather than joining circular and polygon outlines, as above, you may elect to create a new free form outline by tracing over the two outlines. As you sketch the outline, press the E key to jump to the segments of the circle, polygon or partial circle outline. This tracing over other outlines is useful in many circumstances.
9. **Circular outline vertex or edge choice** – When choosing the Outline- Closed- Circle/equilateral command, you are prompted to choose either vertex or edge. You are then prompted to locate a center point and prompted again to locate a second point. The circle is drawn with the first point at the center and the distance between the first and second point as a radius. If you selected vertex, then the second point lies at the intersection of two edges of the faceted circle. If you selected edge, then the second point lies at the midpoint of one edge of the faceted circle.
10. **Copying and offsetting an outline** – A common T foundation might include a six inch stem wall resting on a 12 inch footer. This requires two outlines. First create the outline for the stem wall. Next create the outline for the footers by choosing the Outline- Shape- Offset command. Enter a value of 3 at the prompt. This generates a second outline for the footer 3 inches outside the stem wall outline. (For an 8 inch wide stem wall and a 16 inch wide footer, use a value of 4 inches.) Note that the offset command is under Outline- Shape, not Outline Create.
11. **Verifying and printing outline's dimensions** – Outlines can be dimensioned and printed.
Choose the Outline- Exhibit command and click on the Print icon to print the dimensioned outline.
12. **Automatically drawing the last line of an outline** – F10 or a right click may be used to finish the sequence of entering an open or closed outline. If you are drawing a closed outline, F10 connects the last end of the line you are drawing with the initial end of the first line drawn – you do not have to draw the last line segment. If you draw the last line connecting the last line end to the end of the first line and the press F10 to complete, the message, Outline crosses itself – trying to correct appears. The command completes correctly. Ignore the error message.
13. **Outline removal** – When you remove a floor or ceiling, its outline is not automatically removed. It must be removed with the Outline- Remove command.
14. **Outline visibility** – Normally outlines are invisible. They become temporarily visible when commands to create floors, slabs, walls and ceilings are selected or when you specifically make them visible with the Visibility- Outline command. After the shell is created, they become invisible again.
15. **Rotating outlines** – The angle you enter in the Outline- Shape- Rotate command, rotates the outline in a counterclockwise direction if the angle is positive and a clockwise direction if the angle is negative.

16. **Inch mark entry** – It is not necessary to type the " (inch mark) character for a value being entered in feet and inches if the ' (foot mark) character is typed. For example you may type 16'3_1/2 or 16'3.5

Floor

1. **Entering an L shaped floor opening** – Draw two openings that makes the L shaped opening. One or more rim joists are created that run between the L shaped openings. Use the framing editor in the Framing- Modify- Floor command to remove extra members and trim others.
2. **Putting a girder inside a floor** – For girders parallel to the joist, select the Floor- Insert- Joist add command. For girders that run across the joist, select the Floor Insert Break command and select the Flush-beam option.
3. **Inserting a LVL** – To insert a LVL into a floor parallel to its joists, chose the Floor- Insert- Joist add command. After inserting the joist, choose the Framing- Modify command to change the name of the inserted joist member to beam.
4. **Creating multiple flush beams using framing material** - For a single flush beam, choose Floor- Insert- Break and toggle on Flush.

For double beams, insert an opening with one dimension (at right angles to the layout) equal to the length of the beam and the other dimension (parallel to the layout) equal to 1/8". The framing of the opening inserts headers and footers to bound that opening.

For triple flush beams, insert an opening with one dimension (at right angles to the layout) equal to the length of the beam and the other dimension (parallel to the layout) equal to 1_5/8". Frame the opening. Then, use Framing - Modify to copy one of the headers to fill the void.

5. **Representing deck joists and plank decking** – For deck joists with no sheathing and plank decking, create the floor for the deck as a ceiling rather than a floor. Floors have a sheathing thickness. Ceilings have no sheathing. Then create a second ceiling on top of the first one, which represents the decking. Create the first ceiling in the normal manner out of 2x material with the center-to-center distance equal to 16" or 24". This ceiling forms the deck girders. Create the second ceiling on top of the first ceiling with the joist thickness of 5_1/2" and a depth of 1_1/2" and the center-to-center = 5_5/8" or 5_3/4". Note that you have specified the thickness of the joists to be the width of the planks and the depth of the joists to be the thickness of the planks.
6. **Standard floor-slab configuration** – A common house configuration is a rectangular garage cutting out a corner of a rectangular house. This should be entered as two floors, framed and slab. The slab outline may not be a rectangle because on one or two sides of the rectangle there will be 3.5" jog where it meets the wall of the main house.
7. **Floor channels** – The Floor- Insert Channel- Free Closed command allows you to select Number of Kings, 1 or 2. This refers to the number of kings on either side of the channel. For example if you choose 1, 2 members appear; if you choose 2, 4 members appear.

8. **Floor area calculation** – Floor Report – You can determine the area of a floor by either choosing the Outline- Exhibit command and selecting the floor outline or by choosing the Quantities Create Model Survey command and then choosing Quantities- Exhibit- Report and exhibiting the floor report. The Floor report has a .SUF file extension.
9. **Butting floors** – If two floors butt end to end and you want to drop the extra rim joists, select Floor- Modify- Outliner to modify the number of rim joists on each of the floors at the floor intersection.
10. **Projecting floor edge to roof** – You can project a floor edge to a roof. The edge of the floor and the plywood, which intersects the roof, are both beveled.
11. **Finish floor material takeoffs** – To obtain finished floor material takeoffs in the model, create 1/4" thick floor slabs representing the finish materials. Assign finish assemblies on the A-side of the slab. When doing this, do not place finish assemblies on the A-side of the framed floor or slab, which is to be covered by the finished floor.
12. **Inserting floor-framing member under a wall** – To insert a framing member into a floor located under a wall, choose the Floor- Insert- Channel Below-wall Closed command. Select the floor and enter the appropriate information at the dialog box.
13. **Inserting Break lines** – To break and lap joists, select Floor- Insert- Break and draw a line across the floor where you want the joist to break. If you want the joist to be an exact length, for example 12', you must locate the break line at a distance of 12' minus the thickness of the outliner and half of the lap distance.
14. **Creating a second floor** – To create a second floor, follow the same steps as creating a first floor, except use the first floor walls for the elevation choice, rather than an absolute value. In the Floor options dialog box, set the Match floor elevation field to bottom and set the elevation to the Top of the wall.
15. **Quick floor dimensions** – To quickly determine a floor's dimensions, select the Floor- Exhibit- Dimensions command. You may also use Outline- Exhibit- Dimensions and select the outline of the floor. This second option displays the area of the outline.
16. **RL, RS, MI terminology** – For floor and ceiling outliners, the code RL equals Long, RS equals Run Short and MI equals to miter the joint.

Sill Plate/ Footer

1. **Creating pier footers, piers, mudsill pads and post** – Sometimes several square objects are placed on top of each other such as a pad, pier and post. Typically there are rows or grids of these items. To speed up the entry process, create a set of points to which you can jump when drawing the shells. Use the Outline - Rows or Prompt command to create rows or sets of rows of points. Once you have the points located, you can easily jump to them by pressing P for Point when creating shells. Remember that the shell option needs to be set to Centerline.

Wall

1. **Moving walls up and down** – To move walls up or down, select the Wall - Shape - Move command. After entering a base point, type a z value. You cannot ordinarily move in the z direction with the cursor.

2. **Use of wall type "Other" for remodeling** – For remodeling, it may be advantageous to model the existing walls of the house as wall type Other, and choose Exterior, Load Interior and Non Load Interior for the addition itself.
3. **Use of work stages for remodeling** – You may also use workstages to separate the existing building from the addition. Use workstages such as Existing, Removal and Change. Choosing the Database - Items and then click on the Field Values button, can create new workstage names.
4. **Layout point placement** - The layout point is always placed at the lower left front face when you create a wall
5. **Front and back face conflict** – If two walls are created separately and their ends butt, the walls cannot be joined unless the front faces are in the same plane. If this is the case, select Wall - Shape - Reverse. Select one of the walls and then the A/B side will be reversed. Then they should join together.
6. **Girder pockets** – Often a girder intersects with a wall and is supported by framing within that wall. A pocket to support that girder consists of optional trimmers beneath the girder and kings on the sides of the girder. This framing is automatically generated at the time the wall that is intersected by the girder is framed. It is controlled by the Settings - Girder - Settings Trimmer command.
7. **Creating beam pockets in concrete walls** – To create a beam pocket in a concrete wall you must create a notch for the girder. To create the notch, split the wall on each side of the girder. Next, using the Project command, project the top face of the center wall section down to the bottom face of the girder. After the wall is projected, join the walls back together. Next create a small wall in the back of the notch. Join this narrow wall to the thicker wall.
8. **Wall recreate with multiple rake tops** – In recreating a wall to the lower faces of multiple roofs, you may need to split the walls at each plate change if the wall has many top edges.
9. **Changing a group of wall heights** – If all your walls were created at the wrong height, then select Wall - Shape - Re-create - Height to recreate the walls to a new height. This does not change the opening elevations.
10. **Bottom step studs** – Bottom step studs in the Wall Settings is the number of vertical framing members that are generated at a step in the bottom of the wall.
11. **Create wall elevation, sloped** – You may wish to change the elevation of one end of a wall so that it slopes. If you then attempt to create a wall to an elevation and the elevation selected is between the highest and lowest point of the wall, you get an error, Object [wall name] is not a valid solid [E192] and the wall is not created.
12. **Create gable walls between two roofs Option 1** – Create the wall on the floor below the location you want the gable wall. Then create the wall to the high roof above. Next trim the wall to the roof below and keep the top portion of the wall.
13. **Create gable walls between two roofs Option 2** – Create the wall on the floor below the location you want the gable wall. Move the wall to the lower roof. Once the wall is moved, create the wall to the upper roof.

14. **Creating and framing a gable end** – Create a gable end by first creating a wall using the Wall - To roof command on top of the flat wall of the gable end. When prompted, change the inset value from flush to inset if you want the studs to go to the bottom of the rafter. If prompted, select the roofs over the wall. To frame this wall, modify its description to change the number of top and bottom plates to 0.

Do not set the plate thickness to zero as this causes errors when framing.

15. **Skewed wall messages** – Occasionally the message: these walls are skewed appears when **SolidBuilder** senses walls that does not run up and down or left and right and which have their ends mitered. If the walls appear properly aligned, disregard this message.
16. **Creating a blocked out wall** – Typically, the stem wall for a garage door has the middle section of the stem wall lowered to meet the bottom of the slab. Select the Wall - Points command to create this kind of wall. You may also split the stem wall on both sides of the opening and then project the middle portion down to give it the correct height.
17. **Brick ledges for exterior walls:** Brick ledges can be created by selecting Brick Ledge from the Wall – Shape command.
18. **Creating round walls in SolidBuilder** – To model a round wall, create a circular outline. Join it with a rectangle outline. Then create walls from this outline and make sure you have Miter checked in the options. If the round walls need appear only on working drawings, you can use the Working Drawing - Insert - Linework command to insert appropriate line work on the working drawing.
19. **Center to center distance on a log home** – The center-to-center distance may be greater than the height of the logs to allow for a chink strip. If the logs are T&G, set the center-to-center distance equal to your log height.
20. **Partial wall creation** – Sometimes the error message: wall15 \def not found is displayed. This means that the wall creation began but did not complete or it has been corrupted through using a Shape command. Use the Wall - Remove Wall command to select walls and determine the erroneous wall. Remove the wall and then create it again. If no wall is visible, note the wall number and activate the CAD Menu by selecting File/Cad Menu. Select the Structure - Tree and find the wall number (if you cannot find the wall, go back to **SolidBuilder** and make everything visible). Right click on it and select Delete.

Openings

1. **Multiple door and window insertion** – Often door and window locations are given as dimensions between the openings. When entering multiple doors and windows in the same wall, move the cursor near one end or the other of the opening, press E (select the corner of the opening), type in the distance between openings and indicate the direction of the opening.
2. **Cursor placement first opening** – When inserting an opening for the first time in a wall, the cursor is set to one end of the wall. This is the same as the first layout point.
3. **Gable peak window** – In order to create a window opening for a peaked window, you must place two raked windows side by side. Then choose the Wall - Modify – One side Opening command. Select an opening side adjacent to the other opening. At the Special Window Side Framing dialog box, set the king and trimmer value to 0, and set Extend the header field to Yes.

4. **Modifying openings and visibility** – To modify openings, the shells must be visible, not just the framing.
5. **Setting window opening heights** – Tops of window openings should be carefully set in order to avoid small cripples between the header and the top plate. There are four factors to consider in setting the height.
 - Wall height
 - Header depth
 - Number of plates and thickness (normally 1.5")
 - Opening deltaFinish Window height is: Wall height - Number of plates x 1.5" - Header depth - Opening delta. If the Opening delta is negative (that is the window is smaller than the size called out), then add rather than subtract this delta.

For example, assume Wall height = 8' $\frac{3}{4}$ ", two top plates (1.5" thick), Header depth = 11 $\frac{1}{4}$ ", Opening delta = 1".

Top of finish window opening is 8' $\frac{3}{4}$ " - 3" - 11 $\frac{1}{4}$ " - 1" = 6'9 $\frac{1}{2}$ ".

The opening delta height is added or subtracted from the top of the opening. The opening delta width is split and 1/2 of it added or subtracted to each side of the opening.
6. **Modeling a transom window** – This implies inserting one window above another. Set the header depth in the lower window to zero and set the delta top window opening setting to zero. This allows you to place two openings as close as 1 $\frac{1}{2}$ " apart.
7. **Closet walls with no end studs** – Sometimes a sliding closet door closes against an intersecting wall. **SolidBuilder** does not currently provide a mechanism to extend the header past the end of the wall containing the closet door. To get the appropriate material takeoff, project the wall 3" longer, penetrating the adjoining wall. It frames with a king and a trimmer overlapping the adjacent wall. The plates are 3" too long. Use the Framing Editor to correct both the walls.
8. **Multiple Ply headers** – In the Wall Standards, set the number of headers to 2 for both doors and windows. Also make sure the value in the header width each field is 1.5". If the value is 3.5", there is only a single header in a 3.5" thick wall.
9. **Entering arched top openings** – When inserting an arched topped opening using Prompt, change the shape from rectangle to arch. You then select the desired shape with the Up and Down arrow keys or the mouse. You can also set the shape on the openings list. Select Database Openings. Scroll to the last panel. The Shape field allows you to select a shape for the opening in the list.
10. **Obtaining mulled openings on the takeoff, symbol, and opening list** – For the symbol, represent the mulled units by selecting a symbol from the symbol library or create new ones. See Solution Papers. To place the mulled opening in the opening list, create an item that describes the unit, and select a symbol that graphically represents the unit. In the opening list, insert a new line and under each column add the information defining the mulled opening. Create the walls and insert the mulled openings from List, not Prompt. Rerun the reports – the takeoff now shows (2) 3050-mulled unit instead of a 6050.

Girder / Post

1. **Girders as Rafters** – Use girders to create rafters at a 90-degree slope to the roof.

2. **Girders bearing roofs** – It sometimes appears as if a roof plane on a girder is pointing in the wrong direction. This occurs when a girder supports the eave line of a roof. All walls, girders, etc. have a front face (A-side) that is set when it is created. The front face of the girder may be on the wrong side. Select Roof/Modify/Plane and then Reverse. Enter the width of the girder and then the plane will be mirrored.

Ceiling

1. **Ceiling error message** – The Group contains only one valid object. The No Operation performed message appears sometimes when a ceiling is trimmed to a roof in a fashion that affects its geometry. Typically, the ceiling is created successfully in spite of the message.
2. **Ceiling Layout** – To change a layout direction, select the Ceiling - Modify - Layout direction command. Press the Right arrow and then Enter.
3. **Floor/ceiling relationships** – Floors and ceilings share most of the same commands. The main difference between floors and ceilings is that ceilings do not have sheathing. Sometimes you may use a ceiling for a floor, when you require a floor with no sheathing.

Roof

1. **Roof creation description** – To create roofs, first create plane markers on the bearing walls. These plane markers represent infinite planes that extend beyond the house. Then cut out the roof from the infinite plane like a cookie cutter cuts a cookie out of a sheet of dough, choosing the Roof - Single command. Note the behavior of the magenta line. The line goes away from the line to be formed if you go in a clockwise direction and toward the line to be formed if you go in a counterclockwise direction.
2. **Forming roofs** – Walls, girders and reference lines are used to make roof boundaries, which are eaves, gables and ledgers. You must select a wall, girder, or reference line to define each roof edge (not a hip, ridge or valley) when creating a roof section from a plane marker. Select an opposing plane (from the initial plane) to define the roof ridge. Select adjacent planes (from the initial plane) to define roof hip and valley edges. Observe the roofs already formed as you select planes or edges to make boundaries. You may select the Roof - Whole command to form multiple roof sections, some of which may not be accurate. You can then remove the inaccurate roofs and select the Roof - Single command to complete the model roofs. Pressing F10 completes the roof boundary selection. The system does not draw the final boundary before the roof is formed. The last boundary you see is the boundary Start Line. Sometimes the roof sections may not form correctly based on your choice of clockwise or counterclockwise boundary selection. If so, remove the roof and recreate it in the opposite direction.
3. **Roof formation** – There are situations where forming a roof seems to require that you select the initial plane again as you go around the roof edge. In this situation, you are advised to select a wall rather than selecting the initial plane again.
4. **Roof checking** – After creating roofs, select Roof - Remove - Roof, highlighting each roof to check that you have indeed put roofs wherever needed. Another checking method is to put the model in Plan view and click on the paint icon. The roofs display as solids.

5. **Creating gambrel roofs** – To create a gambrel roof, draw a line on the floor, which represents the bottom edge of the upper roof. Place a plane on that line. Use the geometry match option to move that plane to another elevation, typically on a lower wall that represents the lower roof of the gambrel.
6. **Placing a girder at a roof elevation** – If you need a girder to bear a roof with a full seat cut, you need to find the elevation to set the girder. In Plan view, draw a horizontal line locating the edge of the girder that is closest to the ridge. The elevation of this line is unimportant. Draw a second line at a right angle to the first one.

Select Outline - Intersect to create a point by intersecting

- (1) The bottom of the roof,
- (2) The horizontal line locating the edge for the girder and
- (3) The other line just created.

A point is created at the correct elevation.

Select the Girder command. In the dialog box, select Mark for the elevation. Jump to the just created point. This sets the elevation. Draw the girder in line with the first reference line created above. When prompted for the side of the girder, choose the side toward the eave edge of the roof

7. **Lapping ridge rafters** – Sometimes a gable roof is framed so that the top end of the rafters of one roof, instead of being plumb, are extended to the top face of the other roof. The second roof is framed the same way and the rafters then lap each other above the ridge.

This may be accomplished by projecting the top edge of each roof to the top face of the other roof. The layout points must be different by 1.5" so that the rafters lap.

You cannot choose Shape/Project for the top end face of one roof shell to the top face of the other. If you do so, the error message, Points do not define a polygon appears. You must first select Shape Project Distance and move the top end face back 6". Then select Shape Project to Other and choose the top of the opposite roof. Repeat with the other roof. This is because the Shape Project command requires that all edges of a face move. In this case, the top edge would not move.

This does not notch the rafters for the ridge. However, if you place a girder in the same spot as the joiner, the roof members do notch.

8. **Plane marker size** – The size of a plane marker is not related to the size of the roof section it represents. Its size is based on the wall, girder or reference line on which it is placed.
9. **Plane marker visibility** – The program normally keeps the plane markers invisible. They become visible automatically when planes or roofs are being created or modified.
10. **Planes on girder** – All walls and girders have a front face and it is set when you create them. Redraw the girder from the opposite direction if you want the plane located on the girder to go the other direction. This is critical when you are using girders as the basis for a plane. You may also use the Roof - Modify - Plane - Reverse command to reverse the plane direction.

11. **Planes on lines** – You can always create a line and place a plane on it. You may also create a wall, place the plane on it and then remove or recreate the wall to the roof. This procedure is used for planes that need to be defined at the normal wall elevation in line with a gable wall. It is frequently used for inside corners where a roof section begins at a point rather than an eave line.
12. **Option to creating a plane on a reference line** – Instead of creating a reference line to locate a roof plane, create a temporary wall and use it to locate the plane. This is useful for creating planes for roofs whose lower edge is a point, typically found on inside wall corners.
13. **Solid not clipped by specified plane** – To work around this, create eaves and gables in different order.
14. **Exhibiting slope** – To exhibit the slope of the roof planes, select Roof - Modify Slope/elev. The slope displays on the message line.
15. **Eaves formed at valleys and walls** – A California valley or a ledger edge of a roof where it intersects a wall are both considered as eaves to **SolidBuilder**.
16. **Eave formation problem 1** – At times the system does not create an eave on an inside corner if another roof intersects the first roof and runs over part of it. To solve this problem, remove the other roof, create the eave and then recreate the other roof.
17. **Eave formation problem 2** – In the case of a T shaped house where the roof on the leg of the T is on top of the roof on the horizontal part of the T, the eave of the horizontal part does not create properly. Only one side of the eave is formed. Select the Roof - Shape - Eave/Gable Perimeter command and reshape the eave so that it runs across the horizontal roof edge. Divide the eave into three parts defined by the leg of the T by selecting the Roof - Shape - Eave / Gable Split command. Remove the central eave by selecting Roof - Remove - Eave/Gable. Then reshape or project each of the two other eaves by selecting the Roof - Shape --Eave/Gable --Perimeter or Project commands.
18. **Eaves not created properly Case 1** – In some cases, an eave line is broken by a gable end along the eave or by the intersection of another roof. In such cases, the eave should be divided into two or more sections. Sometimes the eave is not formed correctly and a section is missing. In this case, choose Roof - Shape - Eave/Gable --Project and project one end of the eave across the roof edge. Then choose Roof - Shape - Eave/Gable --Split - Reference Mark to divide the eave into two parts. Use Project again to trim the eaves to the proper roof.
19. **Eaves not created properly Case 2** – Sometimes an L shaped house with a gable on the end may not correctly form the eave if one roof runs under another. In this case, make the upper roof invisible and form the eave. Then select Roof - Shape - Eave/Gable - Project to project that part of the gable that runs under the upper roof back to the proper location.
20. **Middle eave not created** – When a roof edge is intersected by another roof, its eave is broken. Sometimes the middle eave may not be created. In this case, project the eave across the building and split it where desired.
21. **Placing decorative (Greek Returns) eaves on gable ends** – Eave returns are created by creating small roofs that typically run from the edge of the gable wall. In the case where the eaves are just returns for the two sides, draw two reference lines on the outside of the wall on which to rest the plane and two lines perpendicular to the wall to be

the boundary of the two small eave roofs. Where the eave desired runs the full length between the two roofs, draw a single line and use the two adjoining roofs as boundaries.

22. **Creating eaves at different slopes** – To create eaves at a different slope than the roof (Faux eaves), create a separate roof for the eave. A faux eave is a narrow roof resting on the same walls as the regular roofs. Create the differently sloped planes for the faux eaves on the same walls as the regular roof planes. Create lines to select as boundaries for the faux eave. Project the upper edge face of the faux eave to the bottom edge face of the roof.
23. **Matching the eaves of different sloped roofs** – For different slope roofs, when creating the planes, use the Roof - Plane - Geometry Match choice for the elevation option. For instance, create a 5/12 roof first, then create a 7/12 plane, Click on the Elevation Option button, select Geometry Match. Choose Eave Line from the drop down menu and select the plane for the 5/12 roof when prompted.
24. **Roof layout modifications** - The Roof - Modify - Layout command is used to lay out roof framing. After roofs are created, you typically select the Roof -Modify - Layout command in order to assure that the rafters of intersecting roofs line up on the hips, ridges and valleys.
25. **Trimming joiners before framing** – Zoom in on the joiners where they meet the eave-gables and trim their ends. Do this before the model is framed.
26. **Roof skylight** – You cannot insert a roof skylight opening by drawing an outline on the floor beneath and tracing it on the roof with the Roof - Insert - Opening - Framed - Sketch Polygon command sequence. This causes the opening to be created at some distance from the desired opening.

Press Alt-F6 key combination and select world reset just before drawing the polygon. You may now trace the outline on the floor and the roof opening is properly placed.

An alternate method is to create walls on the floor, project them to the roof and trace the outline choosing Insert - Opening - Sketch.

27. **Roof trimming** – When an eave or gable intersects with another roof, the other roof trims it. You may use the command Roof - Shape - Roof Trim to Roofs. This allows you to trim a roof to another one and the section where they intersect is removed. The eaves will then be placed correctly.
28. **Joiner vertical drop** – The joiner vertical drop is the distance from the joiner top to the top of the roofs it is supporting.
29. **Return distance on Create Gable dialog box** – The return distance is the distance on the gable fascia tail that is flat. It is for modeling only and gives the look of a flat soffit.
30. **Support distance on Create Gable dialog box** – This is the distance used to determine the rafter to which the lookouts connect. The rafter selected is the rafter that is farther into the roof shell than the support distance. The support distance is the minimum distance the lookout protrudes into the roof before it looks for the next rafter on which to stop.
31. **Modeling a truss** – To represent the bottom chord if a truss, create a ceiling with the same depth as the bottom cord. For the top chord, create a roof with the rafter depth equal to the top chord's depth.

If the truss has a scissors section, set the planes so the framing rest field is seat and the seat value is the same depth as the wall bearing it. When creating the planes for the

roofs, which represent the top chord, set the framing rest field to Butt or HAP. For most trussed roofs you can use Butt. Butt allows you to specify .25" for the butt portion and 0" for the cantilever, the way most trusses are made.

32. **Combined truss and stick roofs** – Some roof sections are built with a truss and stick framing. In such cases, the top of the 2 x 4 top chord of the truss must lie in the same plane as the top of the 2 x 6 or 2 x 8 (or other) stick framed roof. Use the HAP option when you have a combination of trussed and conventional stick framed roofs on the same house. HAP allows you to specify the height above plate for the roof's top face. This is important because the top of a 2x4 roof should be in the same plane with the top of a 2x6 or 2x8 roof. HAP is the only framing rest option that forces the roof shell to maintain the top face to wall top distance. All other framing rests move the roof's top face up or down depending on the relationship between wall top and either the seat, birdsmouth or butt cut.

To determine the HAP value, create a temporary plane that has the Seat, Birds-mouth or Butt value and rafter thickness for the truss roof. Use distance measure command to measure the distance from the top of the wall to the endpoint on the horizontal portion of the plane. Note this value. Remove the temporary plane and then create new planes with a different rafter thickness (because the stick roof rafter depth typically not a 2 x 4) and a HAP equal to the noted value. Once you have the planes established, you can create roofs for the different sections that represent trusses.

Framing

1. **Production drawing modifications** – To modify any notes or dimensions on the production drawings before printing, click on the Note/Dimension button. Select the Note/Dimension to edit and right mouse click. The Detail Linear dialog box displays.
2. **Girders pockets** – Girders that intersect with a wall automatically generate a pocket when the wall is framed.
3. **Close openings** – Openings that are less than three inches apart generates a header that spans both openings. This is controlled in Settings - Wall - Settings.
4. **Production output** – The bevel measurement on gable production drawings is always to the long point of the angled end cut. Gable and rake plates measurements are also to the long point.
5. **Framing member codes** – Each framing member has a two-character designation. The Database - Framing Member Assignment dialog box displays the list of member names and codes.
6. **Changing framing member colors** – To change the color of different framing members, select Database/Framing Member Assignments for framing member color alterations.
7. **Aligning layout points** – Each shell type's menu includes the commands Modify Layout Point. This allows you to set the layout point at any location on the shell. The message warning you that the layout points have not been aligned prior to framing is a reminder. You are not required to align the layout points before you frame.
8. **Double headers** – To obtain double headers, choose the Settings - Walls command and set the header type to double for both doors and windows. Make sure the value in the header width each field is 1.5". If the value is 3.5", there is only a single header in a 3.5" thick wall.

9. **Rafter error message** – A rafter may not be a solid if its rests partially on a wall and partially on a girder. You may need to lengthen or shorten the girder or move the roof's layout point so the rafter does not rest on the transition.
10. **Error message Roof number xx trimmed on wall18 no longer solid** – This message implies geometrical difficulty at the roof/wall intersection. Project the wall top down an eighth of an inch.
11. **Lookouts and their positioning (Vertical, flat or none)** – Lookouts are the supports for the gable fascia. They are at right angles to the roof rafters and extend past the edge of the last gable roof rafter. Boxed gable soffits, which extend out from the building line normally no more than 1', are supported by the roof sheathing and nailed to the wall. In this case either set the lookouts to none or the support distance to 0. Choose the Vertical lookout choice so that the lookout is oriented the same as the rafter (2x8 rafter, 2x8 lookout). Choose the Flat lookout choice so that the lookout is oriented perpendicular to the rafter (2x8 rafter, 8x2 lookout).
12. **Creating a drop beam at the ridge for lapping rafters** – Create a girder using the elevation choice mark. The mark or elevation point is the bottom of the roof at the ridge line with a vertical offset value. If the roof slope is 6:12 and beam is 5-1/2" wide, the vertical offset is 1-3/8".
13. **Obtaining a Soffit cut on rafters** – When creating the eaves, use the plumb level for the end cut. The heel height is the soffit cut value.
14. **Error message Solid not clipped on plane** – This may occur when the gables have a return distance less than the eave distance or the eaves have not been created before the gable is created.
15. **Light blue lines on rafters** – These lines represent the frieze blocks, which are perpendicular to the rafter's slope. Settings in Roof Settings also permit selecting shear blocking, which places the blocks in a plumb position, parallel to the walls front face.

Quantities

1. **Lumber takeoff** – To get lumber takeoffs for sill plates they must be framed.
2. **Floor/Ceiling joists** – When floor and ceiling joists are not in the Estimate or Lumber Report, the options in the Database - Framing Member Assignment table may have been changed or new entries may be needed.
3. **Cut count** – The column to the right on the Lumber Report contains the number of cuts.
4. **Check note not locating symbols** – If the check notes unable to locate symbol – appears, this means you chose to include symbols on an estimate. You did this by setting the Include Plan Symbols in the Report Options. To include these assemblies, you must first attach assemblies to these symbols in the working drawings. This is done by placing an assembly with the symbol using the Symbol - Insert - Database command.

5. **Take off accuracy for remodeling** – To insure the takeoff for an addition is accurate, make sure the existing structure has no assemblies attached to its shells. Choose the command Wall/Modify/Description to see that the core and side assembly fields contain (none). Do not frame the shells of the existing structure. You may also make the existing invisible.
6. **Unable to locate message** – The quantity check note Unable to locate 2 x 12 x 28'in stock means you do not have stock that long in the database. In the case of floor or ceiling joists, you must insert a break line to lap or butt the joists.
7. **Doubled estimates** – If you have the same species/grade in the first choice and second choice in the framing assign table, you may get doubled estimates. These entries in the table should be different.
8. **Interfacing with estimating programs** – **SolidBuilder** can import and export Comma Separated/Delimited ASCII format. If the estimating software can write and read this format, estimating information can be transferred by selecting the Export Report command.
9. **Showing cutting for each shell** – To show the cutting for each individual shell, sort the lumber cutting list for the desired format. A typical sort order is by Shell, Shell number, Use, and Length to cut.
10. **Sheathing takeoff errors** – Be careful not to place sheathing assemblies on concrete or masonry walls.
11. **Estimate message referring to inability to find material** – Update the Database - Framing Member Assignment table to reflect any lumber sub division changes and deletions made to the database.
12. **Locating the number of framing members** – This information is found in the lumber cutting list obtained by selecting Quantities - Reports. You can sort the list to group all the members by shell number.
13. **Lumber missing from the estimate** – Make sure that the framing member types are assigned to a lumber sub division. Select the Database - Framing Member Assignment command to accomplish this task.
14. **Workstage and breakout organization of the lumber list** – The Quantities Create Reports command displays the Estimate Reports and Options dialog box, which includes a Lumber breakout field. If you select Shell Type, all the framing members show the shell type of which they are members in the last column (Breakout) of the estimate. If you select Workstage, all the framing items have the workstage of their respective shells in the Breakout column.

An example is a floor used to create a deck. When creating this floor, the workstage deck was assigned. When you run the estimate using Shell Type as the Lumber breakout option, the material for this floor shows floor in the breakout column. If you choose Workstage as the Lumber break-out option, the breakout column will show deck.
15. **Creating lumber cutting lists by model section** – Use Visibility commands to divide the model into sections. Generate each lumber list separately. This allows lumber ordering for different phases of the construction. This avoids cutting roof and cripple blocks at the same time.

Working Drawings

1. **Editing and regenerating working drawings – moving walls** – After creating working drawings from a model, it may be desired to move walls or openings. You typically use the Wall - Shape - Move or Move Group command or the Wall - Modify - Move - Window command to make these changes to the model. The working drawing must be modified to reflect the changed walls or openings using the Modify - Draw Regen command. Your working drawing does not represent the model with the moved walls or openings.

After making changes to the model, you must modify the working drawings. Select the working drawing to be modified. Next select Visibility - Wall - Shells - Visible to make the walls visible that have been moved or that contain moved or changed openings.

Exit the Visibility menu. At this point, the working drawing (floor plan) and the selected wall shells (the ones that have been moved or modified) are visible. From the working drawing menu, select Remove Linework Select and remove the linework that was generated by the walls that have been moved or modified. Now select Modify - Draw Regen. At the Purge all existing model-image linework- dialog box, select No, and then Click on OK. The new linework is created for that wall.

You do not need to use the procedure if walls are moved by selecting Edit/Drawing/Stretch. Stretch automatically transfers all modifications made to the model to the working drawings.

2. **Notes orientation on the model** – Sometimes when placing notes on a model, after the note is entered, it displays backwards so it reads as if it were in a mirror. This typically occurs if you are in a different view than when you created the current layer (usually this would only be if you were using a layer created in a different working drawing). Create a new layer for the notes you desire to insert.
3. **Text and Note Differences** – Notes and text, while containing similar information, differ in **SolidBuilder**. Following are the main differences:
 - Editing is different.
 - Text can be rotated. Notes cannot be rotated.
 - Text is placed on a symbol text layer. Notes are placed on a note layer.
 - Text is used to create a legend. Notes cannot be used.
 - Containment shapes and leader lines can be automatically inserted around notes. Text requires the drawing of separate linework.
 - Multiple lines of notes are treated as a unit. Text is treated on a line by line basis.
4. **Entering dimensions tips** –
 - You can jump to centers of lines and then pick vertical or horizontal (not skew) to find the vertical or horizontal dimension.

You may place the last dimension line in line with the one just entered. This is implied in the message line.

SolidBuilder sets the first point of the next dimension to the last point located.

5. **Multiple tag lines from the same location** – To have multiple tag lines converge at the same spot, locate each new note at the same location as the first note. For the second, third and fourth notes, press the Spacebar once. This inserts a black character that does not print. The software assumes there is a one character (blank) note and completes the

function. If you want multiple tag lines to converge in the same spot, you need to remember the location of the first note and locate each new tag line to the location. To get only a tagline when prompted for text, just press the Spacebar once, then press Enter twice.

6. **Text that is rendered black** – Select a symbol text layer and use the Remove Text command. As you scan through the available text, black text becomes visible. Do not remove the text. Change the color of the text by selecting Settings/Layer.
7. **Remodeling: separation of old and new walls** – Model the existing house walls as type Other. When creating the Plan working drawing, have the existing walls visible. After creating the Plan working drawing, select the Modify - Linework Style command to change the linework of the existing walls to dotted lines.
8. **Border drawings** – You can choose the Insert Text command and add text to the border drawing. The dialog box uses some reserved names as fields. For example, text source user allows the user to type text. Picking other text source names places a variable controlled by the Model Modify Job info command into the border drawing. These text source names are reserved words. They include all the data types in the Model Modify Job info command as well as the words Scale and Page no.
9. **Flattened framing drawings** – To flatten framing, you must first make the shells invisible and make the framing only visible before creating a flattened framing working drawing.
10. **Scaling** – Linework and entire symbol/text layers are scaled by choosing the Shape - Scale Linework, or Symbol/text layer commands. This increases or decreases the size of an object. These commands are useful for scaling legends.
11. **High windows on plan** – In a plan working drawing, the user must insert any opening that is above the cut line on the affected wall linework. The software automatically inserts only the openings located within the cut line elevation.
12. **Borders rectangle placement** – When you choose Borders - Save command, the system prompts you: Mark the first corner of drawing window and Mark the opposite diagonal corner of drawing window. You are to draw the rectangle representing the boundary for the drawings that are plotted within the border drawing.
13. **Floor framing** – You must make the floor shells invisible and the floor framing visible before creating a flat or section working drawing of the floor framing.
14. **Decimal form for dimensions** – If decimal forms of notation appear, this means that the Notation field under Measurement Notation in the Standard Environment was set to decimal. Use the Settings - Note-Dimension command to access the Standard Environment and change this field to architectural.
15. **Changing erroneous decimal forms** – Use CAD Menu to change model units configuration by selecting the Annotate - Environment - Edit Standard - Secondary Units command. In the dialog box, set Notation to architectural, Measure to feet, Precision to 3, and Denominator to 16.
16. **Feet, dash, inches representation for dimensions** – To display a "-" between the feet and inches when dimensioning, you must select Settings - Hyphen Enable.
17. **Viewing patterns** – To view a pattern select View Patterns. Print or plot the result so you can match the pattern and the name.

18. **Error message cannot retrieve the working drawing index.** - A visibility template is made for each working drawing you create. Whenever that drawing is active and you select the model, the visibility of the model is set to appear as it was when the working drawing was created.

There is a limit of 24 visibility templates. If you create more than 24 working drawings, some of the working drawings cannot display the original model visibility when they are selected. You must delete some workings by selecting Remove Drawings when a working drawing is active on the screen.

19. **Border drawings locations** – Border drawings are stored in the C:\Program Files\SolidBuilder\SBBORDER directory.

Database

1. **Assembly options missing on dialog boxes** – If an assembly is created but does not appear on the proper dialog box, this means a necessary step was overlooked in creating an assembly. This step is to assign a shell type to the assembly using the Database - Assign Shell Assembly command.
2. **General requirements on estimate** – To obtain General Requirements type of items on the estimate, either make them a part of an assembly, which is assigned, to a shell or symbol or insert them into the estimate as extra items after you have created the estimate.
3. **Estimating gutters or flashing** – You may wish to calculate takeoffs for the gutter, valley flashing, ridge cap and roof to wall or step shingles. (Thermal/Moisture Division – Flashing/Sheet subdivision) An assembly for gutters, ridge caps, and valley flashing is included with the program. These assemblies can be assigned to joiners and eaves.

Step shingles where a roof butts a wall must be applied to the wall shell – you cannot place these items in a roof assembly because they apply only to a few segments of the perimeter. The results may not be accurate since only part of the wall may require flashing and the length of the wall does not account for roof slope for step flashing.

4. **Standard stud lengths** – If you have standard studs in a lumber subdivision of the database, you must make sure that the wall height and plate thickness are set so that the length of the framed studs are the length of the standard studs in the database. For example, if the standard studs are 92_5/8" and the plates are 1.5" thick, then the wall height should be 92_5/8" + 1.5" + 1.5" + 1.5" or 8'1_1/8".
5. **Species/grade option (frame assign list)** – The options in Database - Framing Member Assignments are not species and grade. Spec/grade 1 and Spec/grade 2 are the first and second choice of lumber materials and contain Lumber Subdivision names. You must not have the same Lumber Subdivisions in both fields.
6. **Actual versus nominal dimensions in a lumber subdivision** – All subdivisions have an optional Lumber Option field (Lumopt) that determines how the cross section of materials is used. The choices are (none), in which case the subdivision is not a lumber subdivision, nom_lum or dim_lum.

If you want your materials to be shown by their actual size, for example, 1_1/2" x 3_1/2", then enter these values in the database and set the lumber option field to dim_lum. If you want to use nominal sizes, then set up the database with the nominal size, for example, 2 x 4 or 4 x 8. SolidBuilder rounds up the actual framing sizes for these materials, that is, a 1_1/2" x 3_1/2" or a 1_5/8" x 3_5/8" framing member is rounded up to a 2 x 4 member.

Remember that each framing member type is assigned to a particular Lumber Subdivision of the database using the Database - Framing Member Assignments command.

7. **Different metal gauge framing members** – To set up the database with different metal gauges for different wall types, you must make separate Lumber Subdivisions for the different types of metal you plan to use. You must also create a new framing material option name for the different gauge databases in the Database - Framing Member Assign Table, and then assign the material to the necessary framing members. Once assigned, select the Material button in the Wall options to select the material to be used.

Visibility

1. **Faster redraw speeds** – When changing exterior views of the model, use Visibility commands to make interior walls, furnishing symbols and ceilings invisible. This helps speed the redrawing of the model.
2. **Plane marker visibility** – Note that if you turn visibility of planes on and create a roof, at the end of the command the planes become invisible automatically. The planes also become visible automatically when you select one of the Create Roof commands.
3. **Making a few items visible** – Choose Visibility - All - Combination - Invisible to remove the model from the screen, then make visible the parts of the model that you wish to work on.

Cursor, Snap, Dialog Boxes, Selection

1. **Cursor orientation** – The Cursor Align icon, or F6 key, is used to retrieve the standard cursor orientation or set a desired cursor orientation. Select View and then Align to orient the cursor to the current view of the model.
2. **Cursor flickering** – When the cursor seems to flicker but not move when you are using arrow keys or the mouse to move it, this means that the Snap Interval is set to a low value. Increase the interval by pressing the Insert key.
3. **Snap interval change** – As the snap interval is changed using the Insert and Delete keys, the cursor takes larger or smaller leaps. The SI field in the menu area identifies the current Snap Interval setting.
4. **Color usage** – Magenta is used for selection, red for planes, green for reference lines and points, green for roofs, yellow for floors and ceilings, medium blue for exterior walls, light blue for interior walls, dark blue for girders and posts, and gray for foundations, slabs and concrete walls.
5. **Seeing the entire model** – To see the complete model, click on the Zoom All icon.

6. **Drawing disappeared and only a dot is left** – Occasionally an element is created in the model, which is at a very far distance from the main part of the model. This is apparent when the model seems to be the size of a dot or pixel on the screen. This normally means there is some other element that has been created, which is represented by another dot across the screen.

Typically this requires the user to activate the CAD Menu and delete the object that is distant from the model. Sometimes this object appears as a line in space. In this case use the CAD Menu command Structure - Delete - Block. Right click and select Scan mode. Using the arrow keys, scan until the cursor jumps away from the drawing. Press Enter to delete and then click on Zoom All.

General Usage

1. **Shell projection** – Projecting shell face walls back before projecting them to a surface resolves a variety of problems associated with projection of one shell to another. This is helpful in the case of creating a wall between stair flights as well as in the case of overlapping roofs for framing.
2. **Railings** – create a wall and frame it using 2 x 2 studs with a single top and bottom plate.
3. **Locating points** – Lines do not need to be in the same plane when using the Intersect function. The view determines the intersect point.
4. **Locating a wall** – If you have a model where it takes a long time to step through the walls, create hardcopies of the wall shell labels by level. Having a pictorial diagram of the wall shell labels helps you to locate walls in a complex model.
5. **Exhibit commands** – The exhibit commands aid in determining that the model is accurate.
6. **Changing views** – You can change views during command processes to make things easier to see.
7. **Projecting faces** – You cannot use the Shape Project command to project a face if all the vertices of the face being projected are not relocated. You receive the error message Points do not define a polygon. This situation occurs when one of the lines of the face is still in the same place after projection. The solution is to first project the face a distance away from the target shell by choosing the Shape Project Distance command and entering a negative distance. Then choose Shape Project To_other to project the first face to the desired face without error.
8. **Erroneous Shell** – To remove a floor, roof, wall, ceiling or other shell or object that cannot be removed with a Shell type Remove command, go to the CAD Menu. Choose Structure - Delete - Object and select the appropriately named object at the dialog box.
9. **Sheathing flush with foundation** – To represent a building where the sheathing is flush with the foundation, create an outline that represents the exterior of the wrapped building. Use this outline to create the stem walls. Use the Outline - Shape - Offset command to create a second outline whose edges is at a distance from the original outline equal to the board thickness. Use this second outline for the framed walls. Show the measurement on foundation and floor plans when creating the appropriate working drawings.

Error Messages

1. **Zero dimension member detected** – \join4\def\shell – Indicates that a null shell has been somehow created. Go to the part of the program dealing with the shell type (in this case, roof joiners) and delete the shell indicated.
2. **Found at least one unframed floor:** – This is a courtesy warning to the user that not all of the building has been framed. In this case, the software didn't frame a slab floor.
3. **Unable to find any 1x2 DF #2 stock** – wallfrm1 W70-I This message indicates that a Lumber Subdivision contains no framing members of the indicated dimensions. wallfrm1 is the list breakout – in this case, a workstage. W70-I is the shell in which the stock was required.

The error message is emitted only once. Even if the stock is required in more than one shell, the error message is emitted only once. Rerun the Quantities Create Reports command and check for new error messages.
4. **Unable to find 2x4 x 24'6' wallfrm1 W35-X** – This message indicates that the indicated board exceeds the length of any available stock. Either the indicated shell is invalid or the stock file is incomplete.
5. **Zero base-print** – Zero dimension base-print discarded.
6. **Invalid Extents [E45]** – Occurs when clicking twice while selecting an F7 zoom view. (There is no defined rectangular view.)
7. **System error - splitting polygon [E41]** – Occurs in the Roof Shape Trim command when trimming one roof against another.
8. **Serious error - load Node Mode [E6]** – Model is corrupted and cannot be loaded.
9. **Missing roof/ceilings** – No roof or ceilings above this base-print. This occurs when the roof is invisible.
10. **Incomplete polygon** – Points do not define a polygon.
11. **An invalid solid will result** – This occurs when using the Wall - Shape - Project command.
12. **No openings are visible** – This occurs when inserting opening labels or openings on flattened drawing.
13. **Symbols may be applied only to plan** – This occurs when trying to insert symbols on flattened drawing.
14. **May not close window number one** – This occurs when trying to close top window on a 3 way screen split.

15. **The shape of the desired wall could not be computed** – Occurs when the Wall, Shape, Recreate, To roof/ceiling command is selected and the wall is located under a gable but not completely.
16. **Invalid name [E1]** – Occurs when creating layer linework and naming the layer with a name that begins with a number.
17. **Object { } not found – [E46]** – This occurs when trying to modify roof layout points.
18. **Invalid shells** – Object \roof\def\bface not found E46, some invalid roofs have been formed. Use the Remove Roofs command and select all the roofs that do not highlight.
19. **Roof formation error** – When forming a roof, got a message Object \wall3\def\shell not found after selecting the initial plane. Pressed Enter twice and it went away. The next message appeared in the Roof Create sequence, select another plane. Then selected the wall that makes the gable.

The wall is not a valid solid. You must erase the wall in the CAD Menu. To do so, activate the CAD Menu. Choose the Structure - Delete - Block command. Right mouse click to see the shells listed in a dialog box. You are prompted to select block. Select \wall3 and press Enter. The wall is purged from the model. Activate SolidBuilder by selecting File - **SolidBuilder**.

20. **Create wall elevation, sloped** – You may wish to change the elevation of one end of a wall so that it slopes. If you then attempt to create a wall to an elevation and the elevation selected is between the highest and lowest point of the base-print, you get an error, Object [wall name] is not a valid solid [E192] and the wall is not created.
21. **Partial wall creation** – Sometimes the error message wall15 \def not found is displayed. This means that the wall creation began but did not complete. Use the Wall - Remove Wall command to select walls and determine the erroneous wall. Remove the wall and then create it again.

If no wall is visible but the name is still displayed when scanning, select Wall - Remove and when the invisible wall's identification appears on the first command line, press Enter and then press F10.

If this does not remove the wall, activate the CAD Menu and select the Structure - Delete Block command. Press F2 and the block names displays. Select the erroneous wall name from the dialog box.

22. **Ceiling error message** - The Group contains only one valid object. No operation-performed message appears sometimes when a ceiling is trimmed to a roof in a fashion that affects its geometry. Typically, the ceiling is created successfully in spite of the message.
23. **Solid not clipped by specified plane** – To work around this, create eaves and gables in different order.
24. **Roof Solid not clipped by specified plane** – To work around this, create eaves and gables in different order.
25. **Roof number xx trimmed on wall18 no longer solid** – This message implies geometrical difficulty at the roof/wall intersection. Project the wall top down an eighth of an inch.

26. **Solid not clipped on plane** – This may occur when the gables have a return distance less than the eave distance or the eaves have not been created before the gable is created.
27. **Points do not define a polygon** – Projecting faces – You cannot use the Shape Project command to project a face if all the vertices of the face being projected are not relocated. You receive the error message; Points do not define a polygon. This situation occurs when one of the lines of the face is still in the same place after projection. The solution is to first project the face a distance away from the target shell by selecting the Shape Project Distance command and entering a negative distance. Then choose Shape Project To_other to project the first face to the desired face without error.
28. **Erroneous Shell** - To remove a floor, roof, wall, ceiling or other shell or object that cannot be removed with a Shell-type Remove command, go to the CAD Menu. Select Structure - Delete - Object and select the appropriately named object at the dialog box.

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