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Solution Papers

Summary: *Modifying Stair/Deck Railing Symbols*

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Overview: This solution paper contains some helpful hints to create railings to match your deck and/or stairs. It will step you through changing the height of a railing and sloping a railing to match a set of the stairs.

Solution:

NOTE: anytime you switch views or you cannot move the cross hair, you must realign your cursor to View and click the Align button.

Shorten/Lengthen the height of railing

1. Start with a new drawing in SolidBuilder. Then click on **File/Cad Menu**.
2. Click on the Front View icon and press F6. Click on View and then click Align.
3. Click on **Structure/Model/Insert**.
4. Select the handrail that you want to modify. Select object and type in X0, Y0, Z0 for rotation angle, click OK. Left click on your screen to insert.
5. Click on the Zoom All icon.
6. Select **Geometry/Splice** and select the railing. Type in the distance to shorten/lengthen the railing. Select the **ZX-plane** for the Slice plane and One-sided.
7. Then move your cursor near the center of the symbol (about 1' up from the bottom edge of the rail) and left click. Then move the cursor up and left click. This will change the height of the railing.
8. Select Tools→Toolbars→Edit, Select Developer, Click OK.
9. Click Open in the developer toolbar; change Files of Type to EX. And open sbstart.ex
10. Click on Execute File (!). This will open Solid Builder back up
11. Now you can add the symbol to the libraries.
12. Select the **Symbol** icon and then **Insert/Furnishing**. Choose a Library and a category to add your new symbol. Then click on Add and choose Furnishing, type in a name for the symbol (no spaces and maximum of 8 characters), and choose Free.

Sloping a Stair Railing:

1. Insert the railing symbol for the style of rail you want on each side of the stairs (you may have to rotate the symbol so it is parallel with the stairs). Click on an elevation view so you can see the profile of the railing. (If you stairs are running vertical in plan view with top tread starting at the bottom side of the screen then you would click on Right View).

2. Click on **Tools/Calculate Slope** to find the angle of the stairs (if the angle of your stairs is unknown). Type in the riser height for the Rise, and type in the tread width for the Run and then hit Calculate. Write down the Slope Angle that it calculates for you.
3. Click on **File/Cad Menu**, this will take you into the Cad Menu.
4. **Press F6 to realign cursor to view.** Click on **Geometry/Shear/Block**. Using the Shear command, you will shear the railings to the slope angle of the stairs. Using Scan Mode highlight the railing, in the bottom right corner you will see what it is highlighting. Make sure that says \Furn1 (the number may vary) and press Enter. Type z42.5 (for a 42.5 degree angle) and make sure 'Space for Shear' is set to C-Space.
5. Click on **Geometry/Rotate/Block**. Select Base Point and for Rotation Angle type z-42.5 (this is the angle used to shear) or the same you sheared the railing. (i.e.: if the shear was z42.5, rotate it z-42.5 using the Base Point). Now your railing should be raked with the slope of your stairs.
6. Click on Execute File (!). This will open Solid Builder back up, then you can use the **Symbols/Shape** command to properly place the railings.