Digital Canal Corporation

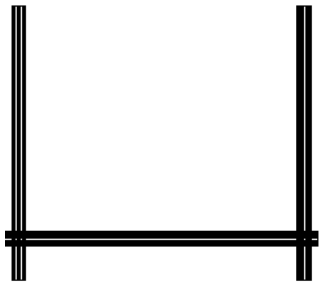
Solution Document

Summary: ***Log Truss***

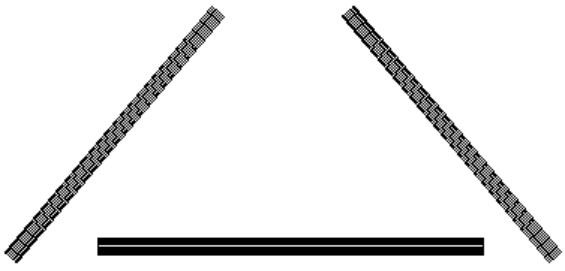
Overview: The following procedures below will accurately take you through the necessary steps to create a log truss.

1. Create a round Girder 12” diameter x 24’ long using the By Centerline option, running from left to right on the screen. This is the base of the truss, or bottom chord.

2. Next we will create the top chords. For this example we will assume a pitch of 10/12 or 39.086 degrees, which we will call 40 degrees. Select Front View. Select Post and set the options to Circular 12”, height 20’ and Draw By Centerline. Create a post on the left end of the horizontal girder. Start the post below and to the right of the left end of the horizontal girder. Create a post on the right end of the horizontal girder. Start the post below and to the left of the right end of the horizontal girder. SAVE YOUR WORK!

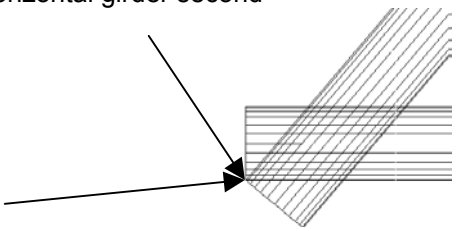


3. We now have to rotate the vertical posts to a 40-degree angle. To do this we will go to File → Cad Menu → Geometry → Rotate → Object. Select the left vertical post. The Rotate dialog box opens. Set it to Base Point and enter –40 for the value. This will rotate the left post to a 10/12 pitch. Repeat this for the right side, entering 40 for the value. SAVE YOUR WORK!



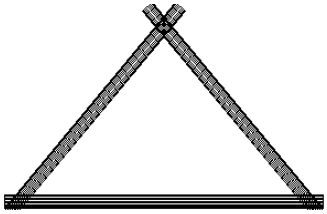
4. Next we need to move the top chord posts into place. Zoom Area and zoom in on the left corner. Select Geometry → Move → Object and select the left top chord post. Hit E and pick the upper edge. Hit E and pick the bottom edge of the left end of the horizontal post.

Pick this corner on the horizontal girder second

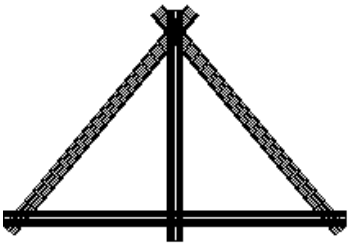


Pick this point on the angled post first.

5. Repeat this process for the right side. SAVE YOUR WORK!



6. Next we will create a center vertical member in SolidBuilder
7. Select Tools→Toolbars→Edit, Select Developer, Click OK.
8. Click Open in the developer toolbar; change Files of Type to EXE. And open sbstart.exe
9. Select Post and set the elevation for the bottom of the new Post to match the bottom of the horizontal girder with a vertical off set of –12". Select Plan view. Select Post → Options and set the Height to 16'.To place the new center post, hit E and jump to the bottom left corner of the horizontal girder. Type x12' y 6". This will create the girder in the center of the horizontal girder.

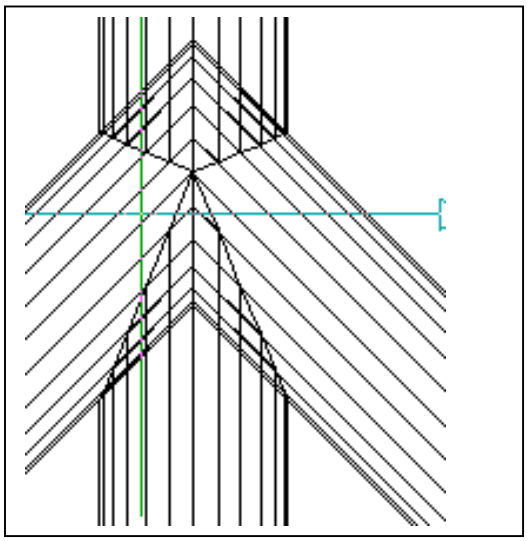


10. Next we need to trim the ends.

The key to the success is all logs must be perfectly in line with one another so that when the trim commands are performed the logs cut cleanly. Otherwise after the trim is performed you may need to perform the Geometry → Solid Modeling → Slice → Object command to cut and remove the tail ends.

11. Geometry → Solid Modeling → Object. Pick log 1. The Slice Object dialog box opens. Set Slice Plane to Yz plane. Re-align the cross hair and decrease the snap interval (hit the delete key) if necessary and move the cross hair to the intersection of log 1 and log 2. Left click. This slices log 1 to the vertical plane. Repeat for log 2 to log 1. Select Structure → Delete → Objects and select the sliced ends.

12. Trim log4 to logs 1 and 2 using the 3D Boolean Trim command. Log 4 will not break free as there will be a small section on the font and back that still connects the two pieces. Select Geometry → Solid Modeling → Slice → Object. Set the Slice plane to Xzplane and pick the point at which the connection occurs.



13. Select Structure → Delete → Objects and select the top portion to delete.

14. Using Geometry → 3D Boolean → Trim, trim log1 to log3. Then trim log 2 to log 3.

15. Next trim log 5 to log 1 and log 6 to log 2.

16. Next trim log 4 to log 3. Log 4 will not break free as there will be a small section on the font and back that still connects the two pieces. Select Geometry → Solid Modeling → Slice → Object. Set the Slice plane to Xzplane and pick the point at which the connection occurs.

17. Next trim log 5 to log 4 and then to log 3 (must be done in this order.)

18. Next trim log 6 to log 4 and then to log 3. Remove the tailpieces.

19. Next you have to rename and validate the shells so that SolidBuilder™ recognizes them as valid girders.

20. Select → Structure → Tree. Click on the first object listed (probably gird1) and click on the def box. If the shell has a number after it such as shell1 , right click, select Rename and remove the number.