# Tips and Tricks – The S-FRAME Grid System

Introduction

Most projects start with a grid – often several - so that's what you want to start with in your modeling software. S-FRAME has a powerful and flexible grid system tool for simple and efficient entry of elements and editing of set-out points. In conjunction with S-FRAME's unique User Coordinate System (UCS) tool, grid systems can be located at any point and orientation. The grid can be used at any time with confidence since, unlike some programs, it imposes no limitations: the grid does not lock the model extents or set-out points and any number of grid systems can be used in a project and activated/deactivated as needed. To see the content of this edition of Tips and Tricks in a demonstration video, click here.

S-FRAME's Grid tool has some great features that make it powerful and easy to use:

- ✓ Create rectangular or circular grid systems
- ✓ Quickly switch between any number of user-defined grids for one project
- ✓ Grids can be of any extent, location or orientation
- ✓ Auto-generate grids from existing geometry
- ✓ Save grids from one project to file and use them in a new project
- ✓ Click-and-drag resizing of rectangular grids and all structural components on that grid line
- ✓ Grid lines can be precisely located graphically and added and erased as needed
- ✓ Grid Member Patterns to quickly define frames, trusses, and bracing systems by just clicking-and-dragging


Circular Grid for Roof Truss

Rectangular Grid for Column Placement
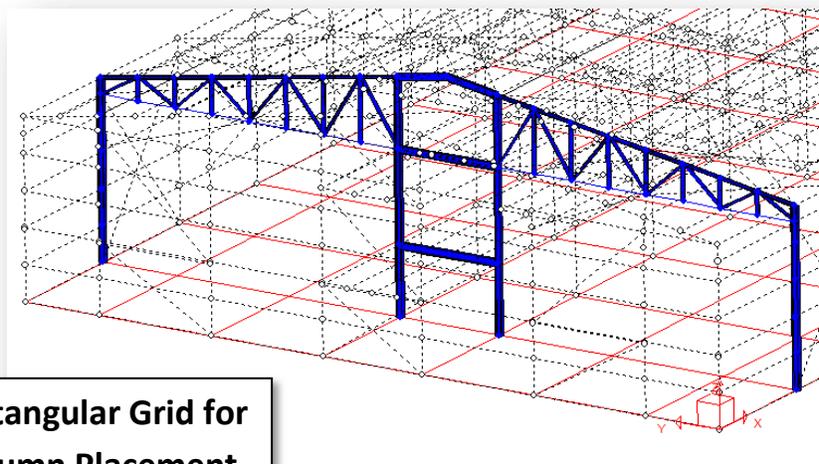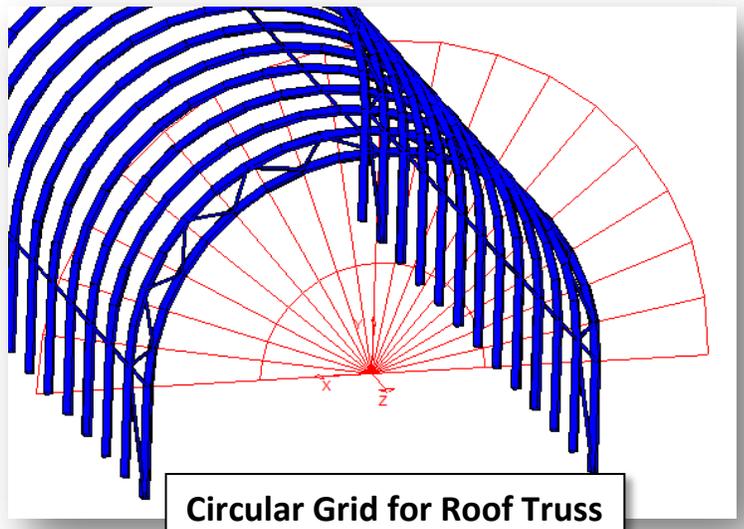
Defining Your Own Grid

The Grid Definitions dialog box is your starting point for defining a new grid or altering an existing grid. Here you can:

- Create and name a new grid
- Choose X and Y spacing
- Choose between Cartesian and cylindrical grids
- Lock model joints to the grid so that the model moves with any changes to the grid
- Lock the grid to prevent accidentally modifying it
- Choose the increments for click-and-drag grid adjustments
- Hide or show a grid
- Select a colour to make your grid stand out or stay in the background
- Open a previous grid, or save this grid for future use
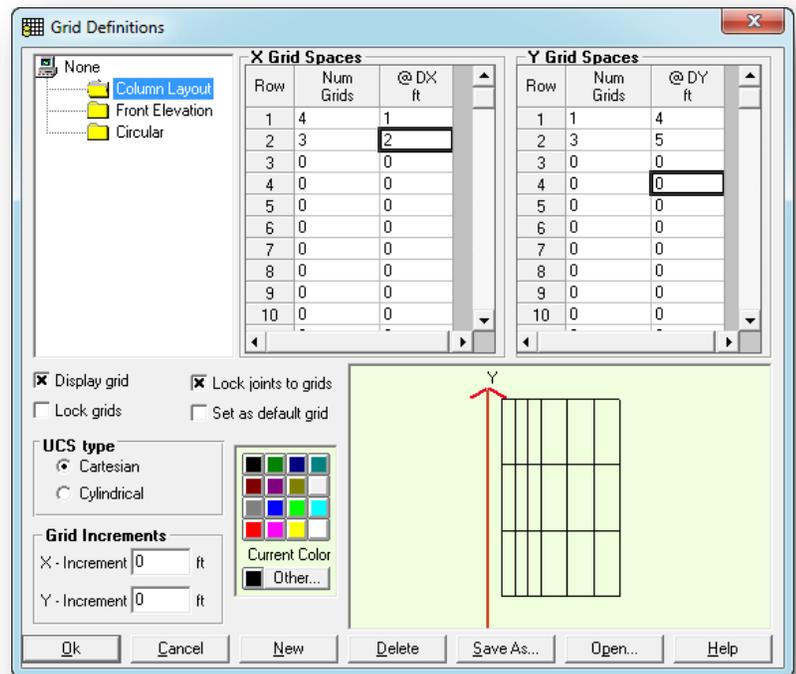
Activating and Deactivating Grids
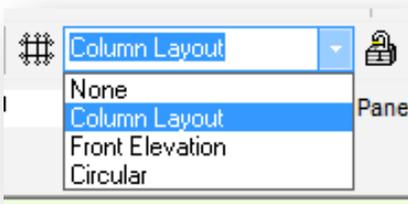
As mentioned, activating and deactivating grids can be performed in the Grid Definitions dialog as shown above. However, similar to many of S-FRAME's features, there is a shortcut for this located on the Properties toolbar. Here you can also lock and un-lock the current grid.

Adjusting a Grid

The Grid Definitions dialog allows large scale changes, as well as colour and other options. Shifting a grid line, however, can be done graphically. Simply click on the grid line you wish to adjust and drag it as desired. Alternatively, you can click on the gridline and enter the new coordinate in the small 'Grid Coordinate' window that opens. Don't forget to unlock your grid first. If you have the 'Lock Joints to Grid' option on, joints and members on the grid line that was moved will move with it.
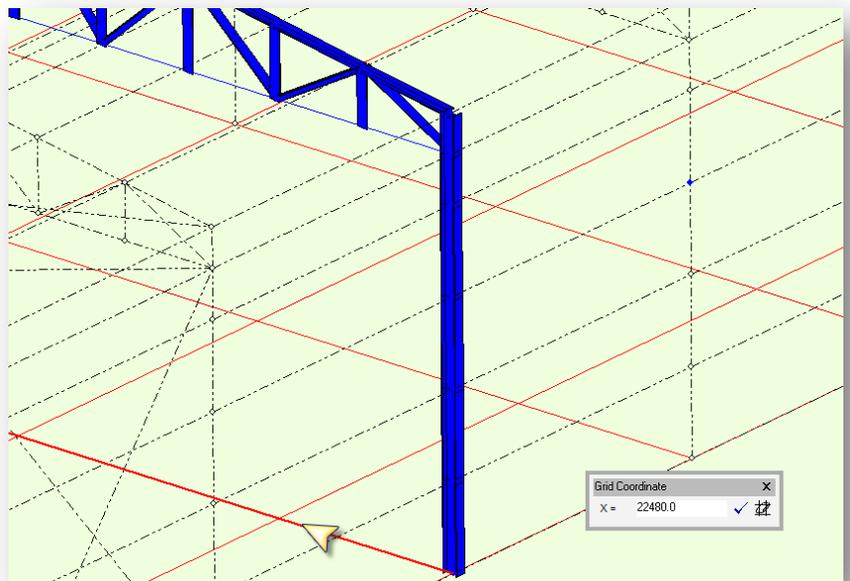
Grids and UCS

Grids are closely linked to UCS (User Coordinate Systems). Grids always fall in the X-Y plane of the current UCS and start at the origin. So to place a grid on the elevation of a structure, you should first modify the UCS such that the new X-Y plane coincides with your desired grid.

Automatically Generating a Grid

From the Grid Definitions dialog, S-FRAME can automatically generate a grid. Simply right click on a grid folder and choose 'Auto Generate Grid Set.' S-FRAME will create a grid with lines on all nodes in the current X-Y plane. This can save a lot of time for structures with irregular geometry