

CEILINGS & REFLECTED CEILING PLANS

A TUTORIAL



INTRODUCTION

In residential work, the ceiling is often included as part of the floor system of the floor above. However, for commercial work and to maintain more control over both the model as well as the drawings created from it, it is recommended that the ceiling be modeled as a separate object.

Additionally, an argument could also be made that in the case of reflected ceiling plans, your file structure, and specifically your layer set-up should include a layer for spaces that is placed “at the top of the stack” in each story.

Furthermore, when using the Space tool to create room names, consider taking advantage of its ability to create multiple labels placing them in classes such that they can be toggled on or off to get the look you need. See the document “Space Label Tool” for more information.

LAY-IN CEILINGS W/ THE CEILING GRID TOOL



“Lay-In” or “Drop-In” ceilings are created with the Ceiling Grid Tool located in the “Furn/Fixtures” toolset.

The Ceiling Grid tool can be used directly to create a ceiling grid object. It works similarly to the Polygon tool’s Vertex Mode, letting you click to create vertices. A quicker way is to use the “Paint Bucket” mode of the Polygon tool to create the initial shape. The “Create Objects from Shapes” contextual menu command is then used to create a ceiling grid object. The grid spacing (and angle) can be set at creation and/or changed at a later date.

Quick Tip: The “K” key can help “close” a polygonal shape.

The ceiling grid object can be classed but currently there is no ability to differentiate between the grid lines and the panels. In plan view, the grid is displayed as a line, the thickness can be set to be controlled “by Class.” Additionally, the grid object cannot be “Auto-Bound.”

In section, the grid is drawn with a height of 1 3/8” (grid lines do not cut through panel(s), the panels are drawn with a height (thickness) of 1” and are continuous (not broken by the grid). This is NOT adjustable. See Fig. 1 for sectional representation.

The ceiling object can be given a “Z” height measured to the underside of the panel(s).

Grid lines can be relocated as a unit by

selecting the grid object and moving the single blue control node. (Single-click to select the ceiling object, a blue node will appear).

The overall size (area) can be reported to a worksheet.

Since the Ceiling Grid tool is a hybrid object, hatches, textures and colors can be applied as expected. Additionally, since the object is a hybrid object it does limit it to a horizontal orientation.

Penetrations can be created and deleted using the “Clip Surface/Add Surface” sequence similar to modifying 2D elements. The overall shape of the ceiling object can be altered using the Reshape tool. The grid pattern is associative.

Currently, objects such as light fixtures, diffusers, etc. are “placed” on the ceiling grid. For a reflected ceiling plan, this might be all that is required. For a true “modeled” rendering, a penetration needs to be cut allowing the light source to project down.

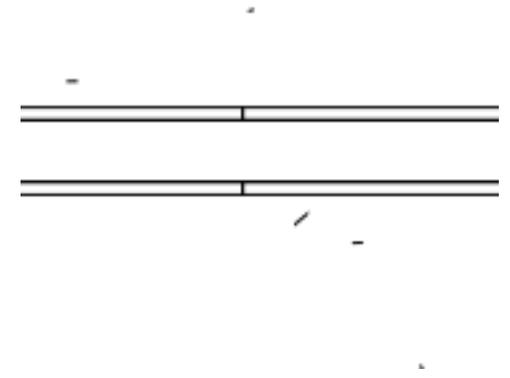


Fig. 1 Sectional Representation

“HARD” OR DRYWALL CEILINGS W/ THE CEILING GRID TOOL

Drywall ceilings can also be created with the Ceiling Grid tool. Currently, since the grid cannot be “toggled off”, the solution is to input a large number (like 200’) into the “Tile Width” and “Tile Length” fields, thus “forcing” the grid lines “off the page.”

Keep in mind, the thickness (in section) is limited to 1” and currently cannot be changed. Since the Ceiling Grid is a hybrid object, stippling (or color) in plan is possible. (See Fig. 2)

If a higher level of control over the thickness of the ceiling is required or if many changes to the shape of rooms are anticipated resulting in the need for an “auto-bound” object, exploring the Slab Tool as a means of creating a ceiling might be appropriate. Keep in mind the Slab tool does NOT create a hybrid 2D appearance, therefore an additional step is necessary if a stippled or colored look is desired in plan view.

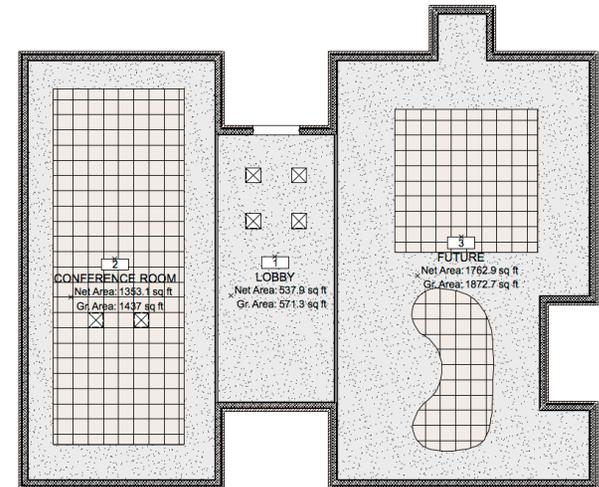


Fig. 2

VAULTED CEILINGS

Both pitched and barrel vaulted ceilings will require a little extra time to model properly.

Vaulted or “Cathedral” ceilings

An option for the creation of vaulted ceilings is to use the roof tool to create a “roof” the thickness of drywall (or whatever finish material is anticipated). The roof tool creates a hybrid object letting the designer apply hatches, colors and textures to the various surfaces including a Top/Plan view where a stipple might be applied to simulate drywall.

Additionally, an extruded element can be used to create the geometry. If this is the case, then if hatches or colors are required for the Top/Plan view, an additional step using a polygon is required.

Barrel Vaults, Groins and Beyond

These elements will require modeling using extruded elements or in some situations where a free-form sculpted design is desired, NURBS based elements or even the Subdivision tool can help you explore a solution.

Several 2D tools, like the Offset tool, with its ability to offset and close a shape, can help develop a shape that will become the extruded form. Other tools like Push/Pull can also be used to help explore a design alternative.

