Installing TruProtect RF Shielded Ceiling Tiles

A drop down or suspended RF shielded ceiling is composed of a **metal grid** (non-metallic grid systems will not work) and TruProtect ceiling panels that are placed in that grid. The two sizes that are available: 2 feet by 4 feet and 2 feet by 2 feet. RF Shielded LED Light fixtures with metallic housings should be used in the drop ceilings.

TruProtect RF shielded ceiling tiles are design to be inserted into a metallic grid that is electrically grounded

PLANNING FOR A RF SHIELDED SUSPENDED CEILING First, get the exact measurements of the room where the suspended ceiling will be installed. Use special care in measuring any odd-shaped alcoves, bays, etc.

You can choose from either a 2x2 or a 2x4 pattern (Fig. 1). The pattern you pick will determine the material requirements for your ceiling.

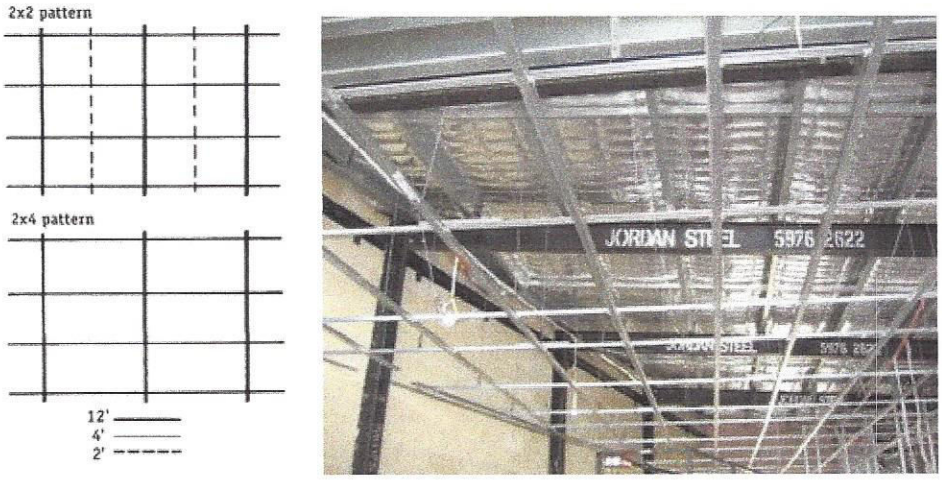


FIG. 1 - Select the grid pattern you want to use.

It is important to space the cross tees so the border panels at the ends of the room are equal and as large as possible. If you are using a 2'x4' pattern, space the 4' cross tees 2' apart. For a 2'x2' pattern, add 2' cross tees between the midpoints of the 4' cross tees (Fig. 1).

The grid system, must be metallic, most common is aluminum or steel. Non-metallic grid systems will create gaps in the shielding, effectively making the shield useless. The best type of metallic grid system, only has the portion facing into the room coated or painted.

Only the portion facing into the room is coated or painted

The metallic ceiling grid will sit right on top the top aluminum flashing. Allow a minimum of 8" clearance between the parent room ceiling and the new ceiling for installation of the ceiling panels. The TruProtect ceiling panels are very rigid, unlike standard acoustic tiles. Additional clearance will be required if you are using recessed lighting (Fig.2).

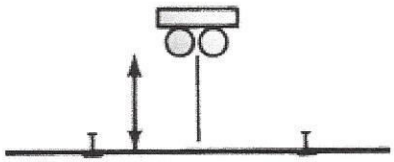


FIG. 2 - Allow a minimum of 8" space between the ceilings if you're using recessed lights.

After locating the exact position for the suspended ceiling, use a laser level to draw a line completely around the room indicating where the wall angle will be applied (Fig. 3). Don't assume the original ceiling is level–use a laser level for accuracy. Set the wall angle low enough to conceal as many pipes, ducts, etc., as possible.

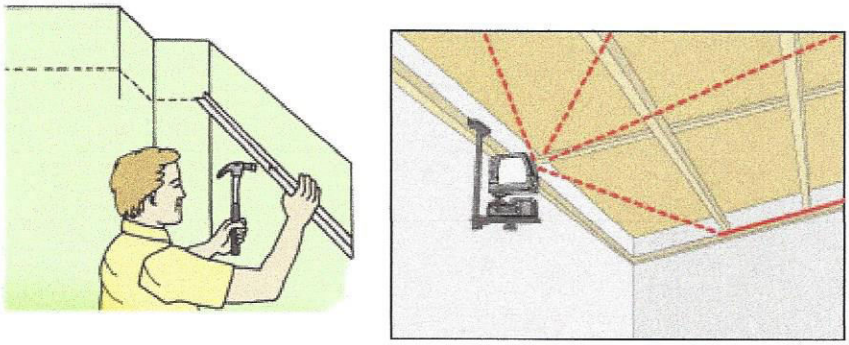


FIG. 3 - Use a level to apply the wall angle at a proper height around the room.

For RF shielded walls, you must maintain the shielding integrity of the wall system you are attaching or anchoring through. The outer ceiling grid perimeter will set right on top of the top aluminum flashing. The grid will be anchored through the sheet rock into the structural metal stud wall.

Position the wall angle so that the bottom flange rests on the level line you have drawn on the wall. Take the time to do this right!

Overlap the wall angle on inside corners and miter the wall angle on outside corners (Fig. 5). Make a temporary wooden miter box if you don't have one. Cut any needed angles with metal cutting snips or a saw. Tape the top of the joint seems with foil tape with conductive adhesive.

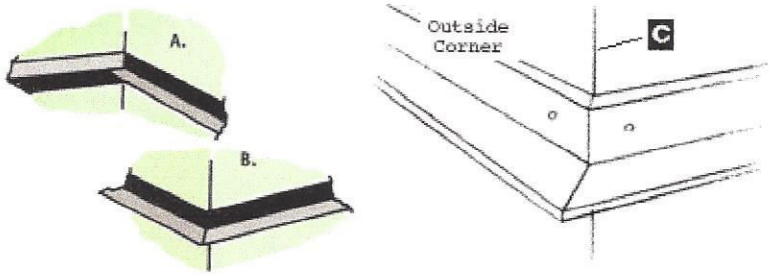


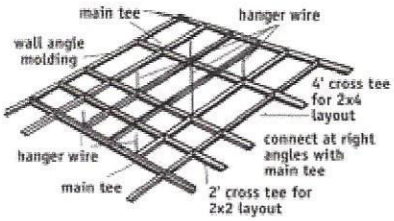
FIG. 5 - Overlap the inside corners and miter the outside corners.

BEFORE INSTALLING CEILING PANELS

Your need to make sure that every grid component is connected electrically to earth or electric ground. You might have to make more than one connection from the metallic grid to a good ground. Verify that all grid components are grounded by continuity checking them using an ohmmeter or multimeter.

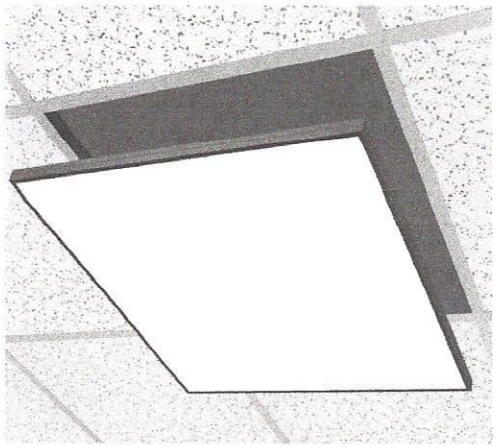
If there are any pieces that must be cut down or an irregular size, the TruProtect ceiling panels can be cut down. Panels that need to be cut, should be done with a fine tooth metal blade, via table saw, circular saw or reciprocating saw. The cut edges need to be sealed up using 3" ECPSA tape. Cut through all the layers of foil except for the painted layer, do not cut through the final layer of foil. Peel off the layers that have been cut through and remove from the panel. Then fold the remaining foil layer with the paint coating up along the freshly cut exposed area and fold it over the panel and tape into place. You can trim off any extra foil with paint if needed. Seal the vertical seems with foil tape with conductive adhesive.

Your final main and cross tee arrangement will look similar to below. The top part of the illustration shows an arrangement of a 2'x4' layout, while the lower half shows main and cross tees arranged for a 2'x2' layout.

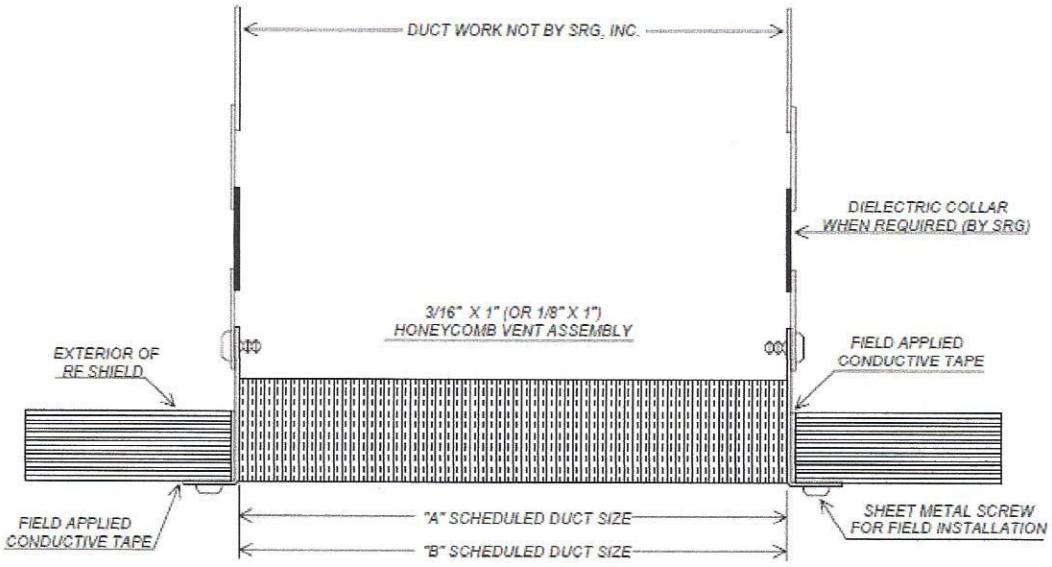


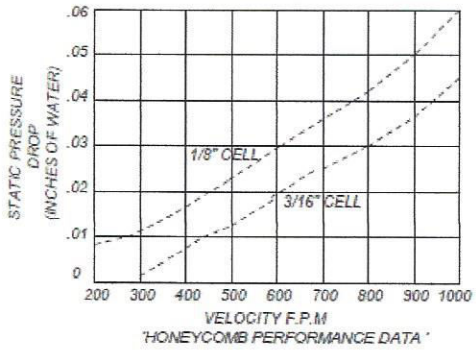
Your final tee arrangement will look similar to this.

Install the RF Shielded LED light fixtures, the electrical contractor can connect the conduit and wiring.



Install the RF Shielded air vents into the ceiling grid, HVAC Contractor can hook up the adapter and ductwork.





"DIRECT ATTACHMENT VENT ASSEMBLY"

If there are going to be sprinklers installed in the ceiling, use a fine toothed hole saw to drill a hole in the ceiling panel that matches up with the sprinkler down pipe. The hole is usually larger than the pipe but smaller than the surround flange, that is up against the ceiling. Use multiple 2" wide ECPSA tape pieces and on the top side, seal the pipe to ceiling hole gap.

Drop the ceiling panels into position by tilting them slightly, lifting them above the framework and letting them fall into place. You might have to work from an open area and push the panels down if they are a tight fit. Be careful not to tear the foil on the TruProtect panels. If you have done everything correctly there will be no visible gaps between the grid and panels.

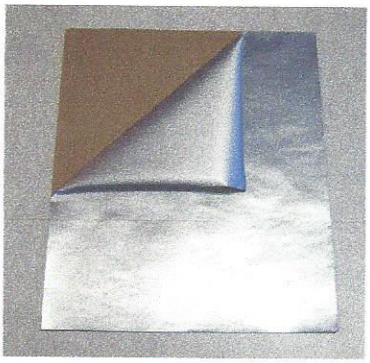
Aluminum Foil Floor Installation

Do Not Install the aluminum foil floor, until you are ready to put in the final floor, be it wood, ESD tile, vinyl tile, etc.

Thoroughly clean the floor of all dust, debris, oil, water, etc. If the concrete floor is very porous you might have to apply a sealer first.

There should be a 2" or more aluminum foil flashing around the floor perimeter of the room.

Remove the paper support backing from the aluminum foil as the foil is applied to the surface. Keep the foil tight and avoid entrapped air bubbles. Using a rubber roller to smooth the foil as you would traditional wallpaper. Be careful not to rip or tear the foil. The foil should be as flat and smooth as possible.



Start at one wall corner and overlap the 48" wide foil end so 1" of the flashing is not covered and overlap the flashing leaving 1" along the adjacent wall. Butt joint the 48" wide aluminum foil, until the entire floor is covered, leaving a 1" perimeter of the aluminum flashing.

The final step is to apply 4" wide ECPSA tape, over every butt join seam.

Then go around the room perimeter with the same 4" wide ECPSA tape and tape over the 1" exposed aluminum flashing, 3" onto the foil floor.

4" Electrically Conductive Tape (Seal butt joints)