



## 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. Light fixtures with metallic housings (preferably RF shielded) can also 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.

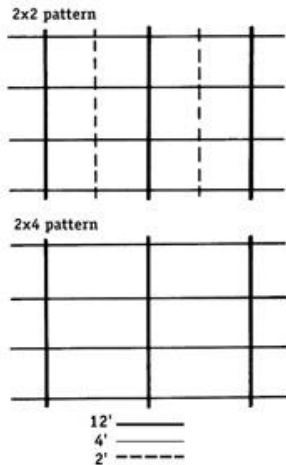


FIG. 1 - Select the grid pattern you want to use.

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

## INSTALLING WALL ANGLES

Determine the exact height at which the suspended ceiling will be installed. 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).

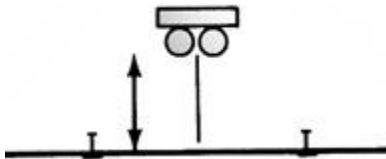


FIG. 2 - Allow a minimum of 8" space between the ceilings if you're using recessed lights.

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.

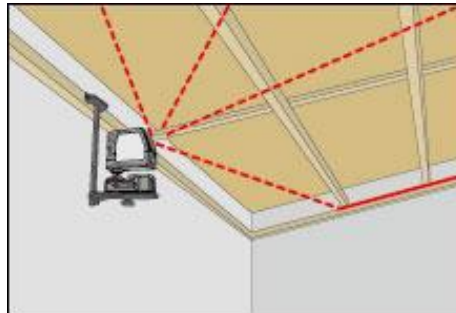
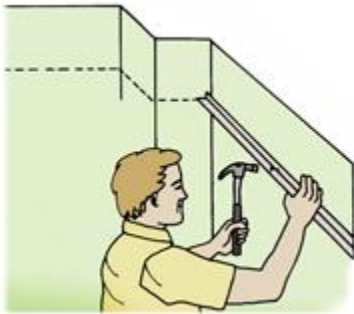


FIG. 3 - Use a level to apply the wall angle at a proper height around the room.

For non-shielded walls, fasten the wall angles securely to the wall at all points. Screw them firmly to metal or wood studs, or use screw anchors or other masonry fasteners on brick or masonry walls (Fig. 4).

For RF shielded walls, you must maintain the shielding integrity of the wall system you are attaching or anchoring through. Due to the many different shielded wall systems, it will be left to the installer. Usually with a combination of flashing and foil tape with conductive adhesive.

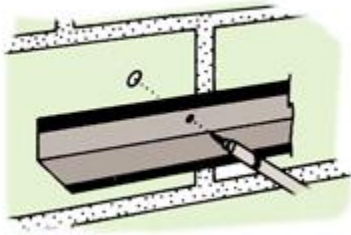


FIG. 4 - Fasten the wall angles securely to the wall at all points.

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 seams with foil tape with conductive adhesive.

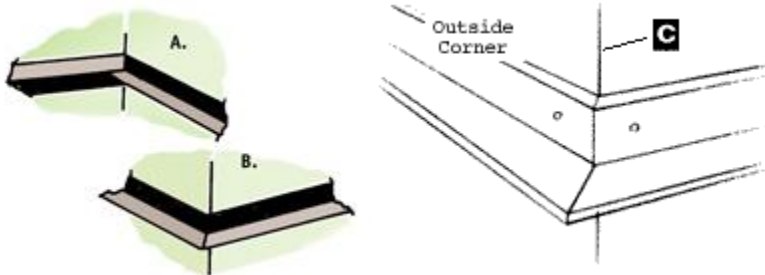


FIG. 5 - Overlap the inside corners and miter the outside corners.

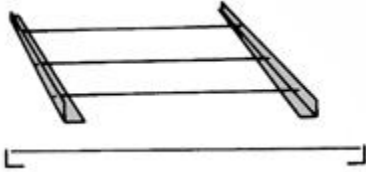
## LOCATING & HANGING SUSPENSION WIRES FOR MAIN TEES

For recessed lighting, you can use 2x 2 or 2x 4 drop-in lighting fixtures, which are specially RF shielded designed for this purpose. You can also center fluorescent light fixtures over the panels and use a RF shielded luminous lay-in panel.



Main tees should run at right angles to the joists in the room.

Locate the position of each main tee by stretching a tight line from the top edge of the wall angle on all sides of the room at each position where the main tees are to be placed (Fig. 6).

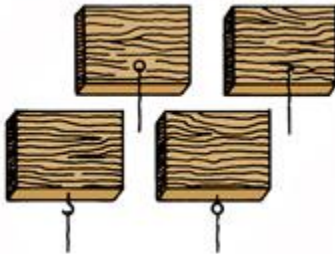


**FIG. 6** - Stretch a tight line from the top edge of the wall angle on all sides of the room at each position where the main tees are to be placed.

Now, cut the suspension wires to the proper length. The wires should be 12" longer than the distance between the parent ceiling and the new guideline string you have stretched to indicate the position of each main tee.

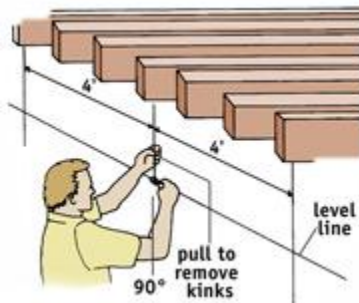
Locate the first suspension wire for each main tee directly above the point where the first cross tee meets the main tee. Check your original sketch of the room to determine this location.

Be sure the suspension wires are securely fastened. Apply them to the ceiling with screw eyes, screw hooks, nails, or drilling (Fig. 7).



**FIG. 7** - Be sure the suspension wires are securely fastened.

Attach a suspension wire every 4' along the level guideline (Fig. 8). Stretch each wire to remove any kinks and make a 90° bend where the suspension wire crosses the level line.



**FIG. 8** - Add a suspension wire every 4' along the level line.

## INSTALLING MAIN TEES

Most main tees are 12' long and have cross tee slots punched every 12" beginning 6" from each end (Fig. 9).

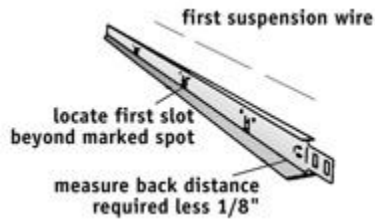


FIG. 9 - Main tees generally have cross tee slots every 12".

Refer to your layout sheet to determine the distance from the wall to the first cross tee. Now measure this distance along the top flange of the main tee and locate the slot just beyond this point.

From this slot, measure back the same distance, subtract 1/8" and saw the main tee at that point. The 1/8" subtraction is for the thickness of the wall angle.

If the wall angles are not square, position the cross tee slots accordingly.

When main tees are installed in rooms less than 12' across, cut the main tee to the exact measurement of the room, allowing 1/8" for the thickness of the wall angle (Fig. 10).

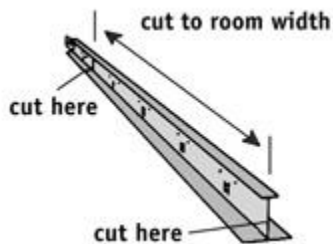


FIG. 10 - If the room is less than 12' across, cut the main tee to the width of the room less 1/8" for the thickness of the wall angle.

For rooms wider than 12', the main tee can be spliced (Fig. 11). Be sure to align the splice so that the suspension wires are correctly positioned. Splice carefully, or all the main tees will be thrown off.

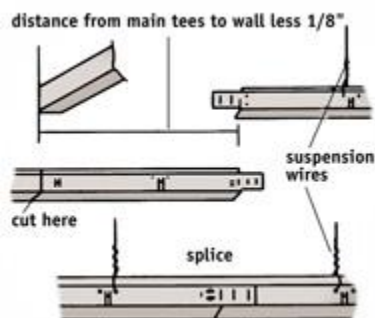


FIG. 11 - Main tees can be spliced for rooms wider than 12'.

Install the main tees so that they are all level with the wall angle already mounted. Use a long level for this.



## INSTALLING CROSS TEES & BORDER CROSS TEES

Install the cross tees by inserting the ends of the cross tees into the slots in the main tees (Fig. 12). Use the manufacturer's instructions for fitting the cross tees into position.

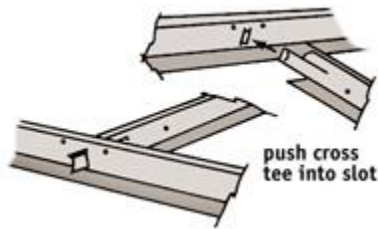


FIG. 12 - Insert the cross tees into the slots in the main cross tees.

Determine the location of the cross tees by the pattern you selected—either 2'x2' or 2'x4' (Fig. 2).

Be sure the lock tab on the cross tee is on the outside of the slot (Fig. 15). This attachment is slightly different in some types of tees.

You can remove most cross tees by depressing the lock tab with a screwdriver.

Border cross tees are installed between the wall angle and the last main tee.

Measure from the last tee to the wall angle, allowing 1/8" for the thickness of the wall angle. Cut the cross tees and install them by inserting the connector in the main tee and resting the cut edge on the wall angle.

## 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 panels can be cut down with a razor or utility knife. Lay the TruProtect panel, with the vinyl coating, face down and mark your cut on the opposite side (shiny aluminum). Cut through the two layers of foil and acoustic board, 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 vinyl 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 vinyl if needed. Seal the vertical seems with foil tape with conductive adhesive.

## INSTALLING CEILING PANELS

Your final main and cross tee arrangement will look similar to Fig. 13. 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.

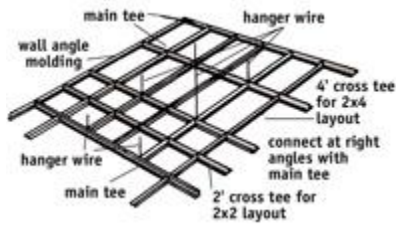


FIG. 13 - Your final tee arrangement will look similar to this.

Drop the ceiling panels into position by tilting them slightly, lifting them above the framework and letting them fall into place (Fig. 14).



FIG. 14 - Tilt the ceiling panels slightly and drop them into position.

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.

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