USG Ceilings™

Ceiling System

Suspended System

Tools and Materials Needed

- ◯ Lag Screws to attach wire hangers to wood joists every 4ft. o.c.
- ◯ 18-gauge steel wire (residential installation) or 12-gauge steel wire (commercial installation)
- ◯ Screws to attach wall angles
- ◯ Metal snips to cut tees and wall angles
- ◯ Chalk line
- ◯ Level
- ◯ Pliers
- ◯ Utility knife
- ◯ Safety glasses

Planning and Installation Guide

Terms You Should Know:

Wall Angle or Wall Molding—Refers to the L-shaped metal strips that provide a continuous finished edge around the perimeter of the ceiling, where the ceiling meets the wall.

Main Tees—The metal, primary support member for the ceiling's weight that run from wall to wall between wall angle, in one direction. They come in 12-ft. lengths, and are hung by hanger wire from joists or other overhead supports.

Cross Tees—Snap into main tees as secondary support members to lock individual ceiling panels in place. They come in two lengths.

4-ft. cross tees—Used for 2x4-ft. grid patterns and 2x2-ft. grid patterns

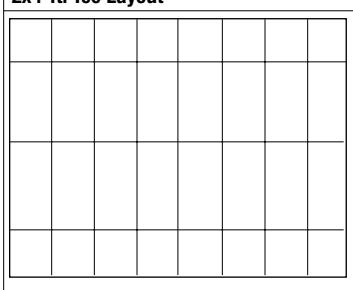
2-ft. cross tees—Used for 2x2-ft. grid patterns

On Center, or o.c.—Is the method of measurement between tees, from the center of one tee to the center of the next.

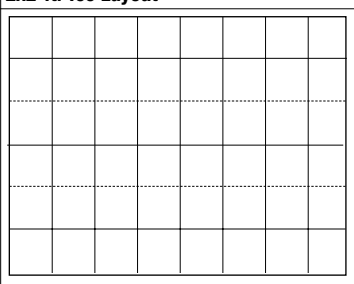
Selecting a Tee Pattern

Shown below are the two types of tee patterns you can use for your ceiling.

2x4-ft. Tee Layout



2x2-ft. Tee Layout

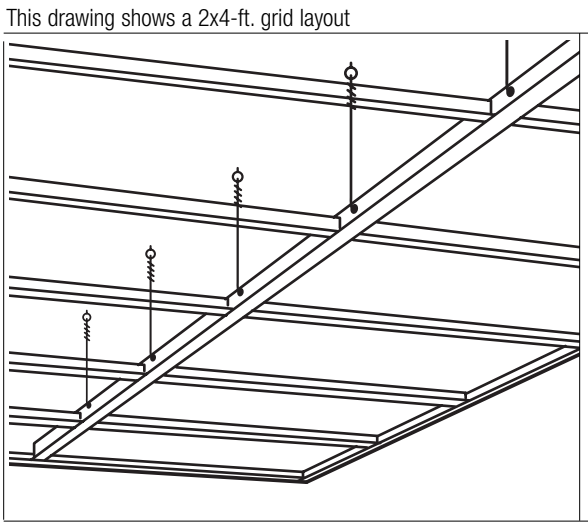


2x4-ft. Tee Layout—for 2x4-ft. acoustical panels. Full length main tee sections are spaced 4-ft. o.c., with 4-ft. cross tees at 2-ft. o.c. spanning between them. The 2x4-ft. pattern is more economical, easier to plan and faster to install.

2x2-ft. Tee Layout—for 2x2-ft. acoustical panels. 2-ft. cross tees (broken black lines) are added to above 2x4-ft. grid, spanning between centers of the 4-ft. cross tees. The 2x2-ft. patterns give the room a more elegant look.

Typical Installation

This drawing shows a 2x4-ft. grid layout



Before You Begin:

Careful planning helps you to estimate accurately the materials required, and to eliminate time-consuming errors. Here's an easy guide to follow in planning any space for a suspended ceiling installation.

1 Draw the room to scale. Use the graph sheet printed on the back. Choose a convenient scale, like one square equals one foot. For large spaces, use one square for every four feet. Measure around all walls at ceiling level, including any irregular areas like bays, alcoves, columns, beams and stairwells. Note each dimension on the drawing.

2 Locate room centerline of the ceiling plan. If joists are visible, draw the room centerline perpendicular to the ceiling joists.

3 Locate main tees. On the graph, beginning with the centerline and going toward each side wall, mark 4-ft. intervals across the room width. If more than 2-ft. remain between the last mark and the side wall, locate the main tees at these marks. If less than 2-ft. remain, locate the main tees at 4-ft. intervals beginning 2-ft. on either side of the centerline. The location of light fixtures and air diffusers in the room should also be considered here.

4 Locate cross tees. Locate the cross tees by drawing lines 2-ft. o.c., perpendicular to the main tees. For economy and appearance, and to obtain border panels of equal size, begin at the center of the room, using the same procedure as in step 3, above.

5 For a 2x2-ft. grid pattern: To modify your drawing for a 2x2-ft. grid, simply divide each 2x4-ft. module and indicate the additional 2-ft. cross tees with a broken line.

Estimating

1 Wall angles—Add lineal feet of wall perimeter and divide by 10 . In "Bill of Materials" (see below), enter the number of 10-ft. sections of wall angles required. If necessary, balance cut lengths between walls, e.g., along an 11-ft. wall, avoid taking a short 1-ft. length from a full 10-ft. section by figuring on more equal lengths, like 6-ft. and 4-ft. or 7-ft. and 3-ft. Be sure to adjust quantity.

2 Donn® Brand main tees—Divide the total lineal feet of Donn Brand main tees required by 12. Round off to next higher whole number and enter total in "Bill of Materials" table.

3 Donn® Brand cross tees—Count the number of Donn cross tees required from your Ceiling Layout Grid and enter total in table.

4 Donn® Brand hanger wires—Divide the lineal feet of Donn main tees in one row by 4 and round off to the next lower number. Multiply this by number of rows and enter total in "Bill of Materials" table as Donn hanger wires. Remember on commercial projects to use 12-ga. steel wire.

5 Ceiling Panels—Count the full-length panel in the layout and determine how many extra whole panels will be needed to meet partial or perimeter needs. Enter number of these panels in the "Bill of Materials" table as ceiling panels.

6 Check quantities for "reasonableness."

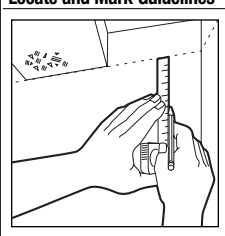
5 Finally, check to see that order quantities allow a minimum of 5% more than actual required quantities to allow for waste.

Bill of Materials

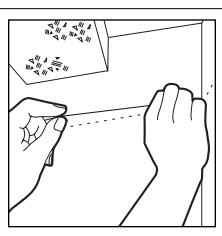
1 Wall Angles	_____ft., or _____-10′ or 12′ sections	@$ _____	=$_____
2 Donn Brand Main Tees	_____ft., or _____-10′ or 12′ sections	@$ _____	=$_____
3 Donn Brand Cross Tees (2′x2′)	_____ft., or _____-10′ or 12′ sections	@$ _____	=$_____
4 Donn Brand Cross Tees (2′x4′)	_____ft., or _____-10′ or 12′ sections	@$ _____	=$_____
5 Donn Brand Hanger Wires	_____	@$ _____	=$_____
6 Ceiling Panels (2′x2′)	_____ + _____	@$ _____	=$_____
7 Ceiling Panels (2′x4′)	_____ + _____	@$ _____	=$_____

Installing Your Suspended Ceiling, Step by Step

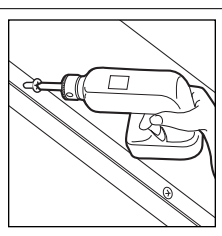
Locate and Mark Guidelines



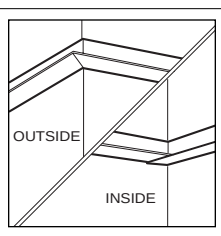
1 Choose a ceiling height. Leave at least a 4-in. minimum clearance below the lowest air duct, pipe or beam to allow for installing ceiling panels. Then measure and mark the desired height at each room corner.



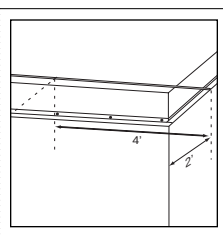
2 Mark the perimeter of the entire room. Snap a chalk line 3/4-in. above your desired ceiling height. Check it with a level to be sure the ceiling will be level all around.



3 Install wall angles. Place the top of the wall angle along the chalk line and screw it into the wall. Space fasteners every 2 ft. on center or closer.



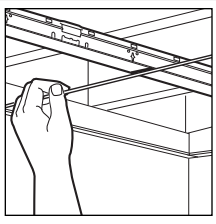
4 Cut the corners. At outside corners, cut wall angles at 90 degrees and butt them together. At inside corners, miter them 45 degrees and fit them snugly together.



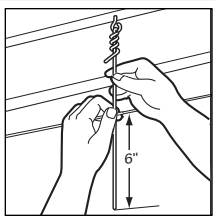
5 Mark main tees. Stretch a string across the room at ceiling height to locate each main tee. To do this, pull a string taut around fasteners you inserted in Step 3. Mark main tees every 4ft. o.c.

Installing Your Suspended Ceiling, Step by Step

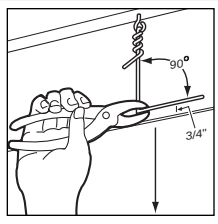
Locate and Mark Guidelines (continued)



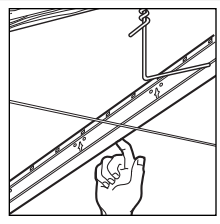
6 Mark cross tees. Stretch a string perpendicular to the main tee strings to mark the first row of cross tees only. Main tees are equipped with pre-punched slots for aligning the remaining cross tees.



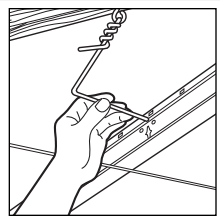
7 Install hanger wires. Install lag screws at 4-ft. intervals along the main tee string lines. Then, attach the hanger wire and cut it at 6-in. below the string line.



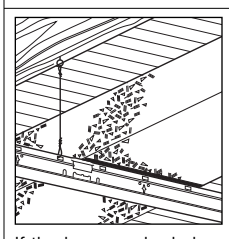
8 Bend hanger wires. Use pliers to bend each hanger wire at a 90 degree angle 3/4-in. above the sting line.



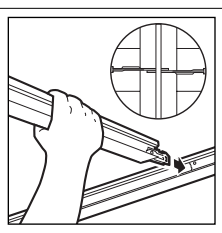
9 Align main tees. In each row trim the main tee so that the slot for the first row of cross tees lines up at the string. Rest the end of the main tee on the wall angle.



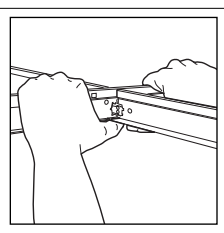
10 Hang main tees. Pull each hanger wire through the lower, round hole in the main tee. After checking the string line to be sure the tee is level, bend the wire up and around, twisting the end 3-1/2 full turns (within a 2-in. span) to secure it.



If the hanger wire holes are not accessible, due to duct work, lighting, etc., use the convenience holes for the hanger wire



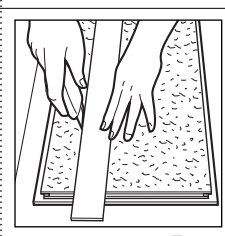
11 Install cross tees. Install cross tees carefully to prevent damage to the main tee. Hold the cross tee above the main tee and insert down into the main tee. On the opposite end, push the cross tee through the main tee slot until you hear it click. Continue to insert, click and go until all cross tees are in place for the entire system.



To remove a cross tee, simply push up on the main tee. Then, with a quick snap, rotate it away from the cross tee until the cross tee pops out.

12 Lay in ceiling panels. To install full tiles into the grid system, first check the back side of the tile for the printed arrows. If it's a directional panel, all panels must be inserted so the arrows point in the same direction. If it's a non-directional panel, no arrows will appear on the back, and panels may be inserted in any direction.

To slide the panel into place, simply angle the tile up through the opening. Then, straighten and lower it until it rests evenly on the tee.

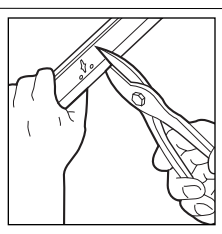


13 Cutting panels. To cut panels to fit border rows, first measure the border row opening at both ends and in the center to be sure the measurement is consistent throughout. Then, lay the panel on a flat cutting surface, face side up, and mark the measurement on the tile. Line a straight edge up with the measurement, and use a utility knife to cut through the panel.

Installing Light Fixtures

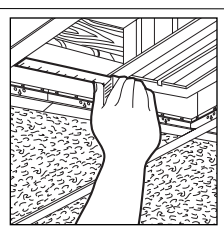
Install all light fixtures and fixture wiring before you install the ceiling. Suspend florescent light fixtures form the joists of other structural members, never from the new ceiling grid.

Cutting Tees

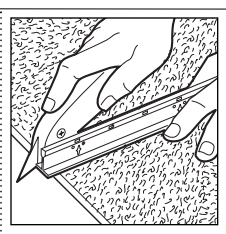


Cutting tees is easiest with metal snips. First cut the stem, then bend the tee away from the cut and snip the flanges. Snip or file off burrs and rough edges. If metal snips are not available, use a hacksaw to saw down from the top of the stem, then file burrs smooth.

Installing around Obstructions

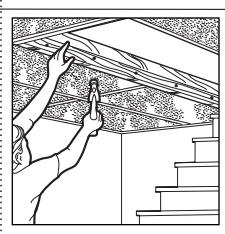


To install panels around obstructions such as posts or vents, draw the obstructions exact location on the panel and make the cutout with a utility knife. To slide a panel over pipes or posts, cut from the hole to one side. If necessary, cut to opposite sides and install panel in two pieces.



Place panel, finished side up, on a flat surface. With your utility knife, cut panel 3/4-in. larger than the opening between the tees. To trim for shadowline edge, after cutting panel to size, fit it into grid with cut edge against the wall and factory edge tight against opposite tee. Draw line of face of panel where it intersects edge of wall angle. Remove and make a face cut on line to match depth of shadowline recess. Then cut in from panel edge to complete shadowline edge.

Building a Valance



If a window or stairwell extends above the ceiling plan, build a valance with 3/4-in. lumber. Fasten it to walls and joists, or to other suitable surfaces. Attach wall angles to the valance in the same way as you would to walls.

Ceiling Layout Grid

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Safety First!
Follow good safety and industrial hygiene practices during handling and installing of all products and systems. Take necessary precautions and wear the appropriate personal protective equipment as needed. Read material safety data sheets and related literature on products before specification and/or installation.

USG Corporation

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WL576/8-02