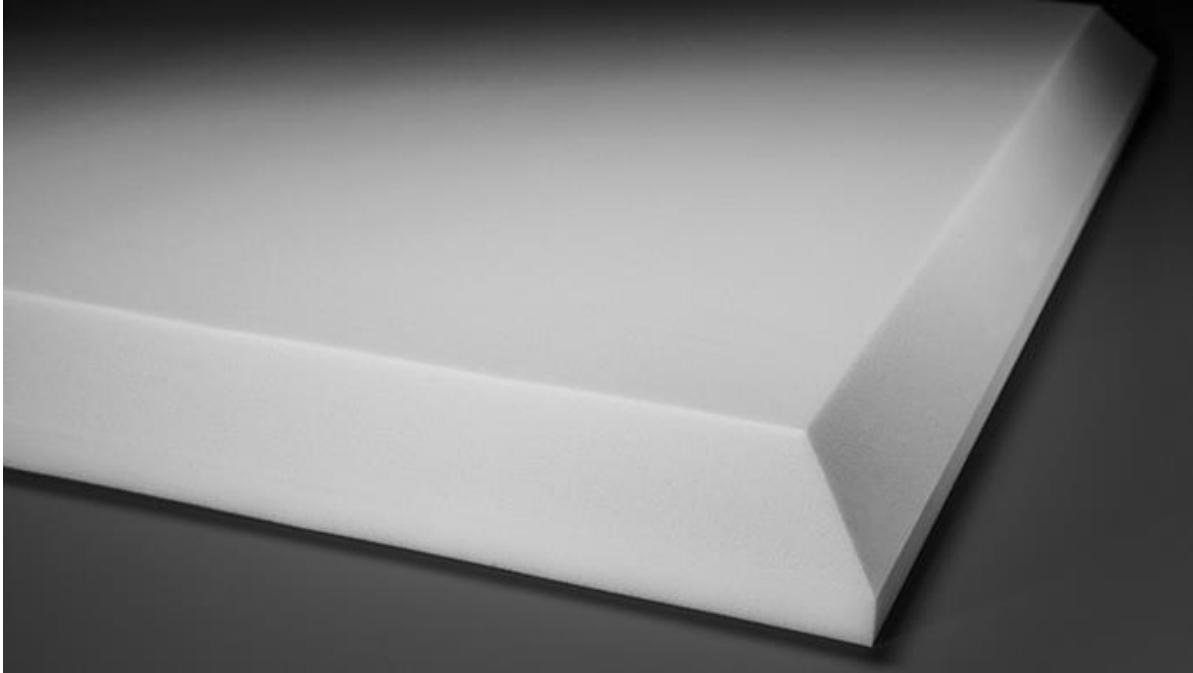


TECHLITE® SILENCER APPLIED CEILING TILE INSTALLATION INSTRUCTIONS



Installation procedures for Applied Ceiling Tile accessories may vary from manufacturer to manufacturer. For specific accessory component information, detail drawings, CAD design assistance, detailed information or other technical services, contact the manufacturer. Note: If significant changes to structure are to be made, such as mounting cables into framing members, such installation impacts appropriately land in the purview of a structural engineer or general contractor licensed in the state where installation occurs.

The following information provides general notes and installation instructions for TECHLITE SILENCER Applied Ceiling Tiles.

Installing applied ceiling tiles using spray adhesive for ceiling application:

- 1) Plot melamine foam positioning, layout, and design before beginning the installation process.
- 2) Prepare a spraying area with drop cloths/newspaper to protect the room.
- 3) Ensure the surface where tiles are applied is smooth, clean, and free of dust.
- 4) Gently wash surface with warm water if necessary, allowing adequate time to dry.
- 5) When mounting, maintain a room temperature around 70° F (21° C) for best adhesive performance. NOTE: Do not attempt to apply ceiling tiles with adhesive on wallpaper or textured ceilings
- 6) Liberally apply adhesive to the back of the ceiling tiles and the ceiling and/or wall where it will be mounted
- 7) Allow 5 to 10 seconds for the adhesive to become tacky. Tack range varies depending on the adhesive, so consult with manufacturer for product-specific tack range.
- 8) Carefully place ceiling tiles against the adhesive-coated ceiling and apply firm pressure
- 9) Hold ceiling tiles in place for approximately 15 seconds to allow the adhesive to bond. Bonding time varies depending on the adhesive, so consult with manufacturer for product-specific adhesive bonding time.
- 10) Maintain a room temperature around 70° F (21° C) for as long as reasonable during curing process

Installing applied ceiling tiles using *Loctite PowerGrab* (or approved equivalent) construction adhesive for ceiling application:

- 1) Handle with care. Do not pick up or handle tiles by the corners.
- 2) Store right side up and flat in a clean, dry area protected from the elements. Do not sit on, or stack anything on top of boxes.

- 3) Work with clean hands on a clean work surface. Wear clean cotton/canvas gloves for installation.
- 4) Overhead Installations may require additional support and cure time until adhesive sets.
- 5) Make sure both the ceiling tiles and surface to which the tiles are being applied are dust free and dirt free. If adhering to a metal surface, use a degreaser.
- 6) Cut end of adhesive tube at 45 degrees to produce a ¼" bead.
- 7) To maximize bonding process, use pressure to apply a ¼" bead of adhesive to back of acoustical panel around the full perimeter of the panel, applied to within 1" of panel edges. Use the diagram shown in Figure 1 below as a guide.
- 8) Using pressure, apply a ¼" bead of adhesive from opposite corners through the center of the panel, forming an "X". Use the diagram shown in Figure 1 below as a guide.
- 9) Press panel into place firmly and hold for 5 seconds. Be sure to apply pressure to all glue-applied areas. If part of the panel comes off the wall or ceiling, remove panel completely, remove and reapply adhesive or use different panel.

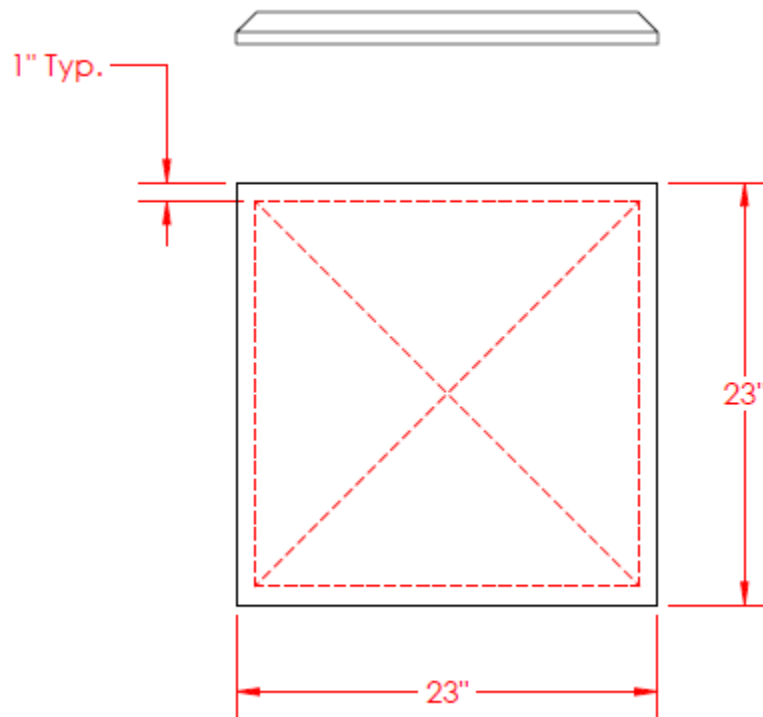


Figure 1: 2'x2' Applied Ceiling Tile

Installing metal corkscrew hangers in applied ceiling tiles:

- 1) For horizontal application to increase acoustical performance, each 2'x2' or 2'x4' applied ceiling tile should be equipped with 4 1-1/4" long corkscrew hangers at each of the 4 corners of the back of the ceiling tile. Use the diagram shown in Figure 2 below as a guide.

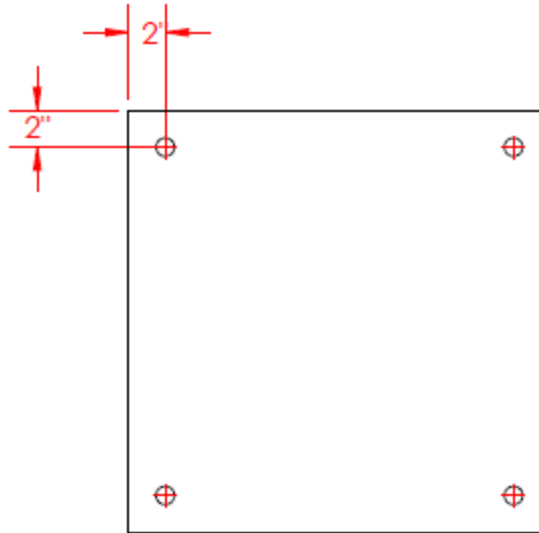


Figure 2: Applied Ceiling Tile

- 2) Corkscrew hangers are to be installed in the field by a licensed contractor. Wire hangers/cables and cable mounts/anchors to be provided by installer.
- 3) Mark an even dispersion of suspension points on ceiling tile as shown in Figures 2 - 7. It is recommended to place 4 corkscrews into the rear of the mini, standard and large ceiling tiles, as shown.
- 4) Hold corkscrew hanger vertically and gently press hanger until the corkscrew hanger penetrates foam, turning in a clockwise motion
- 5) Turn corkscrew hanger clockwise until the top coil in each corkscrew hanger compresses the surface of the foam by approximately 1/16".

Installing horizontally suspended applied ceiling tiles with metal corkscrew hangers direct from underside of structural ceiling:

- 1) To find the approximate distances away from the sides to install the corkscrew hangers, refer to *Installing metal corkscrew hangers in applied ceiling tiles*. Length of corkscrew dependent upon thickness of tile. Please consult with TECHLITE Acoustics Engineering Department for further technical assistance.
- 2) Attach the appropriate anchor to underside of structure.
- 3) Thread tie wire/cable/lightweight chain through grommet or eye hook of the corkscrew hanger.
- 4) Twist the wire/cable/lightweight chain to complete the connection. Note: Do not overtighten the wire/cable or put excessive force on grommet/eye hook to avoid tile failure. Tie wires/cables should be plumb.

Installing applied ceiling tiles in a 15/16" T-bar suspended grid system:

- 1) Locate room center line. Often the room dimensions are not exactly square in dimensions. Determine the room center line which should be perpendicular to the ceiling joists and draw it on the graph paper. Aligning main tees perpendicular to the ceiling joists will make installation easier.
- 2) Set Perimeter Trim Lines. Next, determining the maximum height of the new suspended ceiling is the most important stage prior to installation. Where reasonable, measure down about 4 in. down (minimum recommended plenum height from underside of structural ceiling) from existing ceiling joists and mark the wall. If a drop-in light fixture is to be installed, measure down about 6 in. from existing joists. Measure down from the joists at several locations around the room to ensure that you'll have enough space above the ceiling tile grid at all points across the existing ceiling. If your ceiling joists don't lie on a level plane, make sure to measure down 4 in. from the lowest point on the lowest joist. When the three perimeter lines are level and at the correct height, connect them with a chalk line on the remaining wall. Note: The reference ceiling level should be established by the ceiling contractor with the help of other building service vendors such as light fixtures, HVAC grilles/diffusers, sprinklers, speakers, etc.

- 3) Install wall angles/perimeter trims: Align the top edge of the wall angle with the chalk line, or line laser leveler, and nail wall angles around the entire room. The first and last fasteners on wall angle should be installed at 6in. from the wall. Then, nail at each stud location or at a minimum of 1.5 ft. (450 mm) intervals.
- 4) Inside/outside corners: At inside corners, cut wall angles straight (90°) and butt them together. At outside corners, a mitered joint may be more attractive, so using tin snips, or similar, miter them (45°) and fit snugly together, nails, or use corner caps.
- 5) Locate main tees. Stretch a string across the room at ceiling height to locate each main tee. To do this, pull the string taut around nails that are inserted between the wall and the wall angle at opposite wall locations.
- 6) Locate cross tees: Stretch a string perpendicular to the main tee strings where you want to locate the first row of cross tees. You only need to do this once since pre-punched slots in the main tees ensure spacing of subsequent rows of cross tees.
- 7) Install & bend hanger wires. Use a rotary hammer machine to drill and install the hangers from the concrete ceiling slab. Install screw eyes, with hanger wires attached, every 4 ft. (1220 mm) along main tee string lines. The wires should extend 6 in. (150 mm) below the string line. Note, in the case where installation occurs under ductwork, if HVAC duct is greater than 4ft. (1200mm) in length, ensure you suspend a separate bracket under the duct and from it, a hanger-wire can be suspended for ceiling installation. Use pliers to bend a 90° angle in all hanger wires at a point 3/4 in. (19 mm) above the string. If the nearest hanger hole is not directly below the screw eye, adjust the hanger accordingly.
- 8) Align & hang main tees: In each row, trim the first main tee at the wall so the slot for the first row of cross tees lines up at the string. Rest the cut end of the main tee on the wall angle. Pull each hanger wire through the hanger hole in the tee. After checking the string line to be sure the tee is level, bend the wire up and around itself several times to ensure a good, tight wrap.
- 9) Install cross tees: After main tees are suspended, then install the cross tees. Push cross tee end through the main tee slot until you hear a "click." Where two cross tees intersect in the same slot, be sure to insert the second tee to the left of the first.
- 10) Measuring & cutting ceiling border tiles: Use a straight edge to make perimeter cuts. Cut border tiles by measuring each one individually. If installing tiles in a 9/16" suspension system with modules 4ft. in length, the inclusion of 2ft. stabilizer bars at or adjacent the mid-point of the segment is recommended without inclusion of a tile "backer".
- 11) Lay in the ceiling tiles: Check the level once more using line laser leveler. Ensure that all the services placed on service tiles are tested and confirmed by the ceiling contractor. Only after that can the laying in of ceiling tiles be commenced. It's easiest to begin in one corner of the room and install tiles a single row at a time. Tilt each tile up through the opening and lower it to rest squarely on all four tees. Note, if arrows are printed on the tile backs, install the tiles so that all arrows point in the same direction. Ceiling tiles without arrows may be installed in any direction.

General Notes:

- 1) Applied ceiling tiles can be direct-applied with adhesive or suspended horizontally with corkscrew hangers.
- 2) Applied ceiling tiles come in white or light-grey, and are constructed of open-cell foam made of melamine resin.
- 3) Custom coatings to suit most color palettes available upon request.
- 4) Store ceiling tiles out of direct UV sunlight.
- 5) Avoid suspending ceiling tiles greater than 10 feet below the structural ceiling. Extensive wiring/cabbling/chaining will cause tiles to swing if suspended between HVAC air streams.
- 6) If installing less than 1-3/4" thick ceiling tiles in vertical or horizontal ceiling applications, please consult with TECHLITE Acoustics Engineering Department for technical assistance as it is not recommended to go below 1-3/4" thick.
- 7) Store and protect ceiling tiles from the elements and from damage.
- 8) Suspension hardware is not to be pre-installed.
- 9) Do not subject ceiling tiles to critical edge lighting without first consulting TECHLITE.
- 10) If installing metal hardware in a corrosive environment such as an aquatic center, always use 316 stainless steel corkscrews and hardware.

List of accessories:

For direct-apply installation:

- Loctite General Purpose PowerGrab Adhesive
- 3M Scotch-Grip™ 4550 (or approved equivalent)

- 3M Fastbond™ #49 (or approved equivalent)

For corkscrew hanger/wire hanger installation:

- 2-7/8" 316 Stainless Steel Corkscrew Hangers
- Nominal 1/16" to 3/32" wire hanger, uncoated cable or lightweight chain
- Cable clamps
- 1/4" to 3/8" eyebolts (2 per cable if wall to wall mounted)
- Standard galvanized rope thimble cable protector (if required)
- Turnbuckles
- 1-1/4" 316 Stainless Steel Corkscrew Hangers

Accessories vary from manufacturer to manufacturer for 15/16" T-bar grid ceiling system installation. Please consult with the grid system manufacturer for assistance.

Note: If significant changes to structure are to be made, such as mounting cables into framing members, such installation impacts appropriately land in the purview of a structural engineer or general contractor licensed in the state where installation occurs.

Please consult TECHLITE Acoustics Engineering Department for technical assistance to suit your specific project requirements.