



Clark County Building and Fire Prevention Field Inspection Division FIELD INSPECTION GUIDELINE

Division:	Inspections	Policy & Procedure:	FIG-B-005
Subject:	Acoustic Tile Grid Ceiling Requirements	Effective Date:	10/01/2020
Code:	2018 IBC 808.1	Revised Date:	
Proposed:	Matthew Brewer	Approved:	Sam Palmer

General Requirements for All Ceilings:

The following suspended ceilings are exempted from these requirements: Screw or Nail attached gypsum board ceilings of one level, surrounded by walls that connect to the building structure.

- Ceilings less than 144 square feet that are surrounded by walls that connect to the structure above.
- Island ceilings (suspended by chains ASTM E580)
- **Note:** The less than 144 square feet exemption is a blanket exemption for all seismic requirements: runners, wall angle size, and lateral force bracing.
- Suspended ceiling inspections shall be performed after all rough inspections above the ceiling area have been approved.

- Suspended ceiling installations shall meet the requirements of Seismic Category D unless specifically noted as Category C on the structural and/or architectural general notes page(s).
- Approved architectural plans shall reflect compression strut construction when struts are required.
- Tee sections 6 inches or less in length along the wall angle do not require perimeter wires.
- Trapeze suspensions shall be a minimum of back-to-back 1¼-inch cold-formed channels for spans exceeding 48 inches.
- Suspension hanger wires shall be a minimum 12-gauge, spaced 4 feet on center.
- Suspension hanger wires shall have three full turns within 3 inches of connection points.
- Suspension wires shall not hang more than 1 in 6 out-of-plumb unless counter sloping wires are provided.
- All conduit, MC cable and plenum-rated cable shall have their own support system and shall not use the ceiling support wires. The electrical support wires can be connected to the ceiling system. Electrical support wires shall be identified.
- Lighting fixtures must be positively attached to the grid by at least two connections, each capable of supporting the weight of the light fixture.
- Surface mounted lighting fixtures shall be positively attached to the grid.
- Lighting fixtures and attachments weighing 10 lbs. or less require one number 12 gauge hanger connected from the housing to the structure above except that fixtures 4'-0" or greater in length will require (2) slack wires on opposite ends no matter the weight of the fixture. These wires may be slack.
- Lighting fixtures and attachments weighing greater than 10 lbs. but less than 56 lbs. require two number 12 gauge hanger wires connected from the housing to the structure above. These wires may be slack.

- Lighting fixtures and attachments weighing 56 lbs. or more require independent support from the structure above.
- Pendant-hung light fixtures shall be supported by a minimum 9 gauge wire.
- Rigid conduit is not permitted for the attachment of fixtures.
- Flexibly mounted mechanical services weighing less than or equal to 20 lbs. must be positively attached to main runners or cross runners with the same load carrying capacity as the main runners (slack wires not required)
- Flexibly mounted mechanical services weighing more than 20 lbs. but less than 56 lbs. require two number 12 gauge hanger connected from the housing to the structure above. These wires may be slack.
- Flexibly mounted mechanical services weighing 56 lbs. or more require independent support from the structure above.

Seismic Category “C” Requirements:

Intermediate or Heavy Duty Load Rated grid as defined by ASTM C635.

Minimum main runner splices and cross runner intersections must have a strength of 60 lbs.

Lateral force bracing is not permitted.

Perimeter closure angle (molding) width must be a minimum of 7/8”. When a closure angle (molding) with a supporting shelf less than 7/8” is used, perimeter runners must be supported by vertical hanger wires not more than 8” from the wall.

Perimeter runner ends must be tied together to prevent spreading.

A minimum clearance of 3/8” must be maintained between the ceiling runners and wall on all 4 sides.

Note: Proprietary solutions may utilize approved attachments e.g. BERCS (beam end restrain clips) may modify or satisfy items above. These items must be installed per the manufacture installation instructions.

Lighting fixtures must be positively attached to the grid by at least two connections, each capable of supporting the weight of the light fixture.

Surface mounted lighting fixtures shall be positively clamped to the grid.

Lighting fixtures and attachments weighing 10 lbs. or less require one number 12 gauge hanger connected from the housing to the structure above. These wires may be slack.

Lighting fixtures and attachments weighing greater than 10 lbs. but less than 56 lbs. require two number 12 gauge hanger wires connected from the housing to the structure above. These wires may be slack.

Lighting fixtures and attachments weighing 56 lbs. or more require independent support from the structure above.

Pendant-hung light fixtures shall be supported by a minimum 9 gauge wire.

Rigid conduit is not permitted for the attachment of fixtures.

Flexibly mounted mechanical services weighing less than or equal to 20 lbs. must be positively attached to main runners or cross runners with the same load carrying capacity as the main runners.

Flexibly mounted mechanical services weighing more than 20 lbs. but less than 56 lbs. require two number 12 gauge hanger wires connected from the housing to the structure above. These wires may be slack.

Flexibly mounted mechanical services weighing 56 lbs. or more require independent support from the structure above.

All ceiling penetrations must have a minimum of 3/8" clearance on all sides.

The ceiling may not provide lateral support to partitions. Partitions attached to the ceiling must use flexible connections to avoid transferring force to the ceiling.

For seismic design category C, the ceiling weight must not exceed 2.5 lbs. per square foot. If over 2.5 lbs./sqft then seismic design category D, E, and F must be used.

Seismic Category "D, E and F" Requirements:

Heavy Duty Load Rating as defined in ASTM C635 is required.

Minimum main runner splices and cross runner intersections must have a strength of 180 lbs.

A device used to secure the hanger wire to the structure above must sustain a minimum load of 90 lbs.

Power actuated fasteners are permitted for loads that do not exceed 90 lbs. in concrete or 250 lbs. in steel.

Lateral force bracing is required for all ceilings greater than 1000 square feet.

Where required, lateral force bracing (splay wires or rigid bracing and a compression post) must be located within 2 inches of the main runner/Cross runner intersection and be splayed approximately 90° apart in the plan view, at a maximum 45° angle from the horizontal. The bracing must be located 12 feet on center in both directions, starting 6 feet from two adjacent walls. Lateral force bracing must be spaced a minimum of 6 inches from unbraced horizontal piping or ductwork. This bracing shall be attached to the structure above.

Table 1: Maximum Recommended Lengths for Vertical Struts

1/2" EMT conduit up to 6 feet, 0 inches

3/4" EMT conduit up to 8 feet, 6 inches

1" EMT conduit up to 10 feet, 0 inches

1-5/8" metal stud (25 gage) up to 6 feet, 2 inches

2-1/2" metal stud (25 gage) up to 10 feet, 6 inches

Back-to-Back 2 1/2" (25 gage) up to 15 feet

Note: Clear span areas above the ceiling greater than 11 feet require engineering calculations.

Lateral force bracing connection strength must be a minimum of 250 lbs.

Rigid bracing must be designed to limit deflection to less than 1/4".

Unless rigid bracing is used, or calculations have shown that the lateral deflection is less than 1/4", sprinkler heads and other penetrations shall have a minimum of 1" clear space in all directions.

As an Alternative to providing large clearances around sprinkler system penetrations through the ceilings, the sprinkler system and ceiling grid are permitted to be designed by a design professional and tied together as an integral unit.

Perimeter closure (molding) width must have a supporting shelf of a minimum of 2".

The grid must be connected to the perimeter on two adjacent sides, and not attached (free floating) on the other adjacent sides.

Unattached perimeter runner ends must be tied together to prevent spreading.

Note: Propriety solutions may utilize approved attachments i.e. BERCS (beam end restrain clips) may modify or satisfy requirements of items above. These items must be installed per the manufacture installation instructions.

Seismic separation joints, bulkheads braced to the structure, or full-height partitions are required to break the ceiling into area less than or equal to 2,500 square feet.

Areas divided into 2,500 square foot sections, must have a ratio of the long side to the short side of less than or equal to 4:1.

All ceiling penetrations and independently supported fixtures or services must have closures which allow for 1" movement.

Partition wall bracing must be independent of the grid ceiling.