

## **PRESCRIPTIVE STANDARDS FOR SUSPENDED CEILING ASSEMBLIES**

### **A. SUSPENDED CEILINGS AND LIGHTING SYSTEMS**

The following prescriptive design may be used for suspended ceilings and lighting systems that are a maximum 4 feet (1829 mm) below the structural deck and weigh no more than 4 pounds per square foot.

### **B. MINIMUM INSTALLATION REQUIREMENTS**

#### **1. Vertical Support**

- a. Hanger wires supporting a maximum tributary ceiling area of 16 square feet shall be a minimum of 12 gauge in diameter. The size of wires supporting a tributary ceiling area of greater than 16 square feet shall be substantiated by design calculations.
- b. Hanger attachment devices used in ceiling systems not exceeding four pounds per square foot shall be capable of supporting a minimum allowable load of 100 pounds.

Hanger attachment devices used in ceiling systems exceeding four pounds per square foot shall be capable of supporting the design load and shall be substantiated by design calculations.

- c. Hangers shall be plumb and shall not attach to or bend around interfering duct pipes or similar obstructions. If hangers must be splayed more than one horizontal to six vertical the resulting horizontal force shall be offset by bracing, counter-splaying or other acceptable means and substantiated by design calculations.
- d. Perimeter Hangers.

The terminal end of each cross runner or main runner shall be independently supported and within eight inches of a wall.

## 2. Lateral Support

Lateral support for the ceiling system may be provided by four wires of minimum No. 12 gauge splayed in four directions 90 degrees apart and connected to the main runner within two inches of the cross runner and to the structure above at an angle not exceeding 45 degrees from the plane of the ceiling. These lateral support points shall be placed 12 feet o.c. in each direction with the first point within four feet from each wall.

## 3. Attachment of Members to the Perimeter

Allowance shall be made for lateral movement of the system. Main runners and cross runners may be attached at two adjacent walls with clearance between the wall and the runners maintained at the other two walls.

## 4. Lighting Fixture and Air Diffuser Supports

Lighting fixtures and air diffusers shall be supported directly by wires to the structure above.

### EXCEPTIONS:

- a. Recessed lighting fixtures not over 56 pounds in weight and suspended and independently hung fixtures not over 20 pounds in weight may be supported and attached directly to the ceiling system runners by a positive attachment such as screws or bolts.
- b. Air diffusers which weigh not more than 20 pounds and which receive no tributary loading from duct work may be positively attached to and supported by the ceiling runners.

## 5. Perimeter Members

A minimum wall angle size of at least a two inch (51 mm) horizontal leg shall be used at perimeter walls and interior full height partitions. The first ceiling tile shall maintain 3/4- inch (19 mm) clear from the finish wall surface. An equivalent alternative detail that will provide sufficient movement due to anticipated lateral building displacement may be used in lieu of the long leg angle subject to the approval of the Superintendent of Building.

### Application:

This provision shall be required only when the span of the proposed suspended ceiling system between perimeter walls exceeds 25 feet in both directions. Perimeter walls shall be considered as those existing/proposed interior partitions that are laterally braced as required by Section 1613.7.1 of the Los Angeles City Building Code.

**6. Bracing at Discontinuity**

Positive bracing to the structure shall be provided at the changes in the ceiling plane elevation or at discontinuities in the ceiling grid system.

**7. Support for Wiring Systems**

Electrical wiring systems, including cable trays, conduits, junction boxes, and other appurtenances shall be independently supported and independently braced from the structure.

**8. Sprinkler Heads**

All sprinkler heads (drops) except floor-ceiling or roof-ceiling fire-resistive assemblies, shall have a 2 inch (50 mm) oversize ring, sleeve, or adaptor through the ceiling tile to allow for free movement of at least 1 inch (25 mm) in all horizontal directions. Alternatively, a swing joint that can accommodate 1 in. (25 mm) of ceiling movement in all horizontal directions is permitted to be provided at the top of the sprinkler head extension.

Sprinkler heads penetrating floor-ceiling or roof-ceiling fire-resistive assemblies shall comply with Section 712.3.1 of the Los Angeles City Building Code.

**C. SPECIAL REQUIREMENT FOR MEANS OF EGRESS**

**1. General**

Ceiling suspension systems shall be connected and braced directly to the structure at the means of egress serving an occupant load of 30 or more and at lobbies accessory to Group A Occupancies. Spacing of vertical hangers shall not exceed 2 feet (610 mm) on center along the entire length of the means of egress or lobby.

Application:

These provisions shall be required only when the distance between the structural deck and the suspended ceiling exceeds 4 feet.

**2. Assembly Device**

All lay-in panels shall be secured to the suspension system with two hold-down clips

minimum for each tile within a 4-foot (1219 mm) radius of the exit lights and exit signs.

Application:

This requirement shall apply only in fire-rated exit corridors and within A, E, and M occupancies. For purposes of this Section, exit strobe lights shall not be considered exit signs.

**3. Emergency Systems**

Independent supports and braces shall be provided for light fixtures required for exit illumination. Power supply for exit illumination shall comply with the requirement of Section 1011.5.3 of the Los Angeles City Building Code.

**4. Supports for Appendage**

Separate support from the structure shall be provided for all appendages, such as light fixtures, air diffusers, exit signs and similar elements.

**D. PLANS AND SPECIFICATIONS**

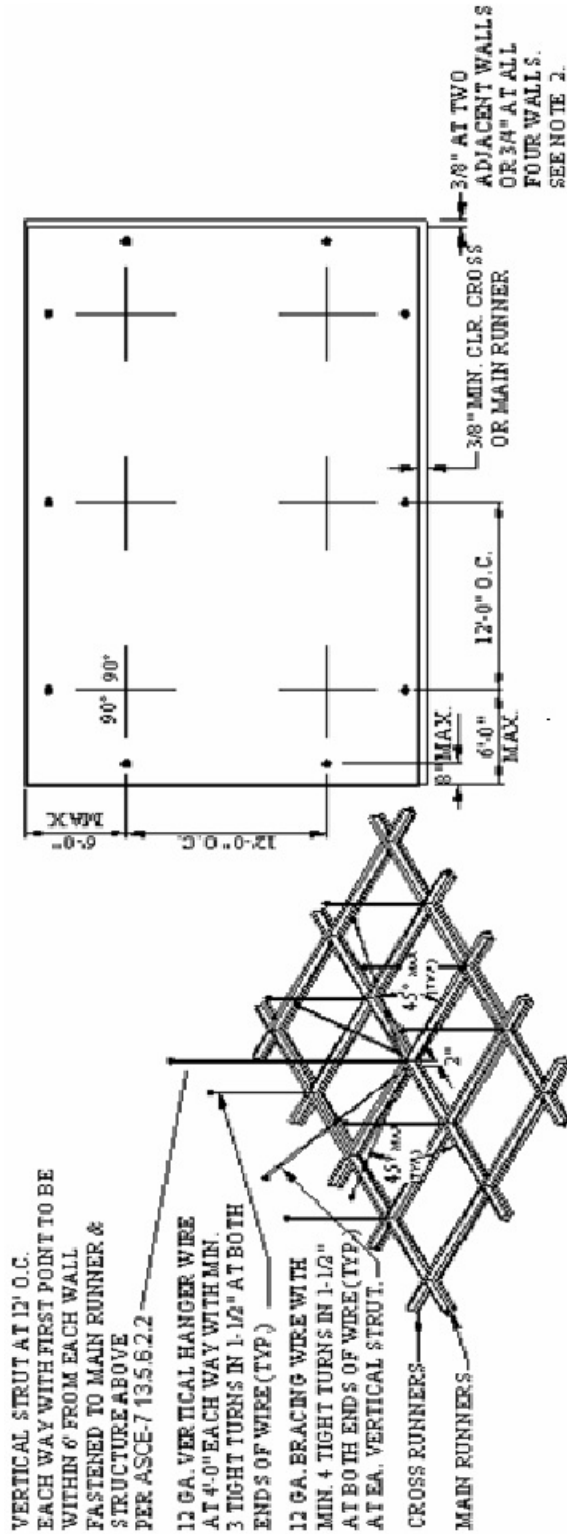
**1. General**

The building plans and specifications submitted to the Department for approval shall clearly identify all suspended ceiling systems and shall define or show all supporting details, light fixture attachments, lateral bracing, partition supports, etc.

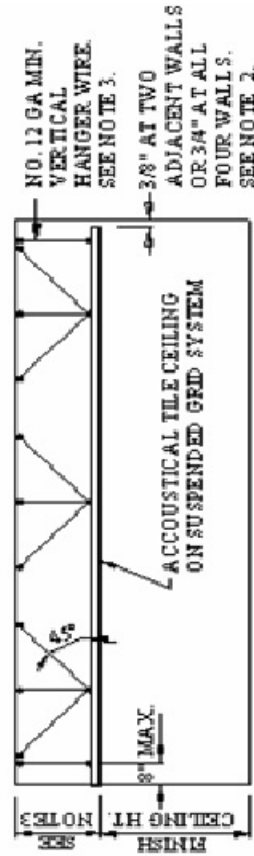
**2. Identification**

All suspended ceiling systems included in a General Approval shall be identified by indentation or by nontransferable decal on main members with letters not less than 1/4-inch high and shall include the following:

- a. Runner designation and permissible spacing if other than 4" o.c.
- b. Adequacy for light fixture.
- c. Special requirements, if any.



**REFLECTED CEILING PLAN**



**SECTION THRU ROOM**

**NOTE:**

- BRACING WIRES SECURED TO MAIN RUNNERS WITHIN 2" OF THE CROSS RUNNER INTERSECTION AND SPLOYED 90° FROM EACH OTHER AT AN ANGLE NOT EXCEEDING 45° FROM THE PLANE OF THE CEILING.
- FOR ROOMS WITH SPAN IN EITHER DIRECTION LESS THAN 25', MAIN RUNNERS AND CROSS RUNNERS MAY BE ATTACHED TO THE PERIMETER OF TWO ADJACENT WALLS WITH 3/8" CLEARANCE BETWEEN THE RUNNERS AND THE OTHER TWO WALLS. WHERE SPAN OF THE CEILING SYSTEM BETWEEN PERIMETER WALLS EXCEED 25' IN BOTH DIRECTIONS, A MINIMUM WALL ANGLE SIZE OF AT LEAST 2" HORIZONTAL LEG SHALL BE USED AT PERIMETER WALLS AND INTERIOR FULL HEIGHT PARTITION. THE FIRST TILE SHALL BE 3/4" CLEAR FROM WALL SURFACE.
- WHEN THE DISTANCE BETWEEN THE STRUCTURAL DECK AND THE CEILING EXCEEDS 4', THE SPACING OF THE VERTICAL HANGERS SHALL NOT EXCEED 2' O.C. ALONG THE ENTIRE LENGTH OF THE MEANS OF EGRESS SERVICING AN OCCUPANT LOAD OF 30 OR MORE, AND AT LOBBIES ACCESSORY TO GROUP A OCCUPANCES.

**TYPICAL SUSPENDED CEILING VERTICAL & LATERAL SUPPORT**