Tate Grid+ LEC Structural Ceiling Grid Specification
SECTION 09 54 00 - SPECIALTY CEILINGS

PART 1. GENERAL

1.1 WORK INCLUDED

A. Section Includes: Extruded aluminum suspended ceiling grid system including:
   1. Extruded Aluminum Structural Suspension System
   2. Steel Connectors, fasteners, washers and turnbuckle assembly with starter rod
   3. Wall angle and edge trim.

B. Related Sections:
   1. Section 09 51 00 – Acoustical Ceilings
   2. Section 09 51 13 – Acoustical Fabric-Faced Panel Ceilings
   3. Section 09 53 00 – Acoustical Ceiling Suspension Assemblies
   4. Section 09 20 00 – Plaster and Gypsum Board
   5. Section 02 42 00 – Removal and Salvage of Construction Materials
   6. Divisions 23 – HVAC Air Distribution
   7. Division 26 – Electrical

1.2 DESIGN REQUIREMENTS

A. Ceiling system shall be capable of directly supporting cable trays, electrical busways utilities, manifolds, light fixtures, HVAC registers and other accessories as indicated per area of work.

B. All components of the Tate Grid+ LEC aluminum structural grid system shall be provided by one (1) manufacturer to ensure single source responsibility, testing and quality.

1.3 REFERENCES

A. GENERAL
   1. Comply with applicable requirements of the following, except where more stringent requirements are indicated by Building Codes.

B. ASTM (American Society for Testing and Materials)
   1. Aluminum Standards and Data by The Aluminum Association

C. International Building Code

D. ASHRAE Standard 62 1 2004 Ventilation for Acceptable Indoor Air Quality

E. NFPA 70 National Electrical Code

F. ASCE 7 American Society of Civil Engineers, Minimum Design Loads for Buildings and Other Structures

G. LEED – Leadership in Energy and Environmental Design is a set of rating systems for the design, construction, operation, and maintenance of green buildings.

H. CISCA – Test Procedures for Aluminum Structural Ceiling Grids

1.4 WARRANTY

A. Structural ceiling grid shall be warranted against defects in materials and workmanship for a period of ten (10) years from shipment.

PART 2. PRODUCTS

2.1 MANUFACTURERS

A. Acceptable System: Tate Grid+ LEC, Aluminum Structural Ceiling Grid System containing minimum 75% high recycled content aluminum with steel connectors as described below and manufactured by Tate Access Floors, Inc.

2.2 DESIGN FEATURES: Tate Grid+ LEC Structural Ceiling Grid shall include the following features:

A. Ceiling Grid layout to match a **hard module of 24" x 24", 24" x 48" or 48" x 48" on center spacing** or to be installed in an **oversized layout to fit standard sized 24 "x 24", 24" x 48" or 48" x 48" acoustical ceiling tiles.**

B. Nominal 2´ x 2´ , 2´ x 4´, or 4' x 4' Structural Ceiling grid system shall be provided with continuous 5/16˝- 18 top threaded slot and a 3/8˝- 16 bottom threaded slot for connection of equipment & services.

C. 12´ Main Runners shall be notched on 24˝centers for precise locating and positive positioning and connection of 48˝ coped Structural Tees.

D. 48" Structural Tees used in 2'x2' ceiling layouts will be notched on 24˝centers for precise locating and positive positioning and connection of the 24˝Structural Tees.

E. Connectors to include ribs to align connectors with the notched Structural Ceiling Grid on the 24" or 48" centers, engaging with the grid and preventing the system from racking.

F. **Hard module 24" x 24", 24" x 48" or 48" x 48" on center spaced grid** system is capable of fitting 23 – 7/32" x 23 – 7/32", 23 – 7/32" x 47 – 7/32" or 47 – 7/32" x 47 – 7/32" ceiling tiles, light fixtures and HVAC registers.

G. **Oversized module layout designed for standard 24" x 24", 24" x 48", or 48" x 48" acoustical ceiling tiles** is capable of fitting 23 – 3/4" x 23 – 3/4", 23 –3/4" x 47 – 3/4" or 47 – 3/4" x 47-3/4" ceiling tiles, light fixtures and HVAC registers.

H. All Structural Tees shall be coped to have bearing surface on main flange.

I. All Connectors can accept 3/8˝-16 threaded turnbuckle with provided starter rod.

J. Field, XL, Straight and Corner Connectors shall be constructed of QT450-10 Ductile Cast Iron and powder coated to a RAL 9005 semi glass black finish.

K. XL Connector shall be utilized for Main Beam to Main Beam splice locations.

L. Field Connectors shall be utilized for the connection between a main beam and 48" structural tee and for the connection between 48" structural tees and 24" structural tees.

M. Perimeter Connectors shall be utilized for the connection of structural ceiling grid members to a perimeter main beam.

N. All bolt connections to the top slot or bottom slot of the grid should be tightened flush to a washer with a torque value between 20 in-lbs. and 30 in-lbs.

O. Grid End Insert shall be utilized when a perimeter structural tee is cut to size in the field. The cut end of the perimeter structural tee goes against the perimeter main beam and a grid end insert along with a Perimeter Connector is installed to maintain the product strength.

P. 5/16˝- 18 button head Philips head screws with pre-installed lock washer shall be utilized to secure connectors to Main Runners, Structural Tees, and Perimeter Mains.

Q. System Weight:
   a. 2'x2' Grid: 0.9 lb./ft^2
   b. 2'x4' Grid: 0.7 lb./ft^2

R. Manufacturer shall provide EPD with LEC product data.

2.3 OPTIONAL ACCESSORIES:

A. Optional **White** or **Black** Factory-Applied Gasketing made of 1/8" x 3/8" Polyethylene
B. Optional Hold Down Clips for **Acoustical Ceiling tiles** or **Poly Carbonate panels**
C. Optional Ceiling Tiles compatible with any ceiling tile manufacturer
D. Optional Tate LED Lights

2.4 STRUCTURAL

A. Structural Ceiling grid shall be provided with **a Fixed** OR **a Floating** perimeter condition and on a **2 ´ x 2´ , 2 ´ x 4 ´or 4' x 4'** grid supported with hanger spacing of **4 ´ x 4 ´** connection to structure above.
B. Main Runners, Structural Tees, and Perimeter Angles shall be constructed of 6063-extruded aluminum made from minimum 75% High Recycled Content Aluminum and have **white, black or custom** painted aluminum finish.
C. Ceiling system shall be capable of supporting a maximum uniform load up to 75lbs/ft^2
D. Ceiling system shall be capable of a maximum safe working load (Point Load) of 475 lbs. This is a working point load and can be achieved at any point (or anywhere) along the grid system (main or tee).
E. Turnbuckle connection shall be capable of a maximum point load connection to building structure of 1200 lbs.
F. Ceiling system load capacity shall be designed to provide a 2x safety factor

PART 3. EXECUTION

3.1 EXAMINATION

A. Verify ceiling support rod anchors are properly installed in the structure above.
B. Do not proceed until all wet work such as slab flooring, concrete, plastering, painting, etc. has been completed and dried out.
C. Ensure structural ceiling system is delivered to site protected against damage from moisture, exposure to exterior outdoor conditions.
D. Before installation allow structural ceiling system to reach room temperature and stabilized conditions.

3.2 MANUFACTURER SUPPORT

A. Prior to installation, the manufacturer shall make training available upon request to the installer.
B. Manufacturer to provide online training modules upon request.
C. Manufacturer to review structural ceiling installation safety methods and techniques

3.3 STRUCTURAL CEILING INSTALLATION

A. Structural Ceiling grid shall be installed on a **2´ x 2´, 2´ x 4´ or 4' x 4'** grid supported with spacing of **4´ x 4´** connection to decking.
B. Grid spacing shall be defined by installation of 48˝or 24" Structural Tees.
C. Support Spacing shall be defined by positioning of turnbuckle connections offset from one another and spaced evenly throughout. Additional supports shall be provided as required along the perimeter and at any critical areas or as per seismic or local code requirements or considerations.

D. All Main Beams shall be installed on 48˝centers and all Main Beams shall be installed parallel to one another. Structural Tees shall be installed perpendicular to Main Beams to create a 2'x4' ceiling layout. For a 2'x2' ceiling layout a 24" Structural tee shall be installed perpendicular to the 48" Structural tee.
E. All bolt connections to the top slot or bottom slot of the grid should be tightened flush to a washer with a torque value between 20 in-lbs. and 30 in-lbs.
F. All work shall be coordinated with all other trades including but not limited to electrical, mechanical, fire protection and furniture.
G. Seismic Bracing as required by local code.
H. Structural Ceiling Systems shall be analyzed and designed to local codes by a qualified third-party engineer.

3.4 PERIMETER INSTALLATION

A. Structural Ceiling grid shall be installed with **a Fixed** OR **a Floating** perimeter condition option.
B. Fixed perimeter installation: The perimeter extrusion shall be mounted at level height to interior ceiling grid and be fastened to the ceiling's main beams and structural tees via the perimeter connector and grid end inserts and suspended from structure above. The Perimeter Extrusion shall be fastened to perimeter wall with appropriate wall type fasteners every 16" or 24". Perimeter Angles can be field cut with non-ferrous carbide tipped blade.
C. Floating perimeter installation: A Main extrusion shall be installed at the perimeter of the room and be fastened to the ceiling's main beams and structural tees via the perimeter connector and suspended from structure above. The main extrusions shall be field cut with non-ferrous carbide tipped blade.

3.5. CLEANING

A. Inspect above and below installed ceiling system. Remove paint splatters and other spots, dirt, and debris. Touch-up scratches and mars of finish to match original finish.

END OF SECTION

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