GORILLAgrid

Series 2000

2” Ceiling Grid Systems

Heavy Duty, Rod-Suspended, Gasketed Ceilings

Superior Quality, Unparalleled Flexibility

Technical Specifications

▲ Applications

- ▲Semiconductor
- ▲Microelectronic
- ▲Medical Device
- ▲Aerospace
- ▲Pharmaceutical
- ▲Life Sciences
- ▲Biotechnology
- ▲Nano-Technology
- ▲Research Laboratories
- ▲Food & Beverage Processing
- ▲Healthcare
- ▲Data Center Applications

Manufactured by:

1 GM Drive Dr., East Syracuse, NY 13057
Ph: (315) 437-6500

MADE IN THE USA
American Owned & Operated

Series 2000 Ceiling Grid System

Gorilla Grid is the backbone of the NuClimate Ceiling System. It offers the fastest installing, most versatile and strongest system on the market and is available as a “turn key” solution from engineering to installation. NuClimate’s ceiling systems are a proven way to save on installation costs, provide a working platform, mount roomside equipment and add an efficient ceiling system to your work envoironment.

Gorilla Grid’s structural and walkable ceiling grids offer innovative systems that provide cost effective solutions for the proper maintenance of equipment and facility services. Our patented grid system provides the structural integrity required of a truly walkable ceiling grid system while minimizing the hanger rod supports needed during installation. It offers unparalleled flexibility and is reconfigurable and infinitely adjustable. The grid can be supported at any point, not just at junctions further reducing design time. Installation time is minimized. Since the grid members can be supported at any point, secondary support structure design does not need to have load points at grid junctions.

Our Models 2025 thru 2055 are 2” heavy duty ceiling grid systems that are perfect for diverse applications including semiconductor, microelectronics, aerospace, food service, food processing, data centers, and hospital industries.

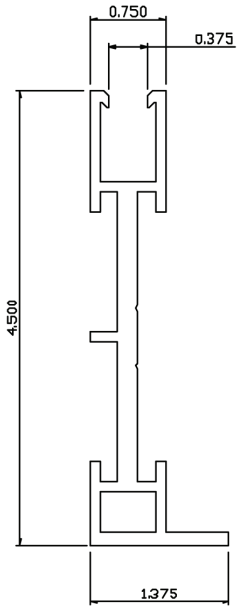
The gasketed grid is designed with a 2” face tee to support HEPA filter systems and light fixtures. Installation is simplified with factory installed interconnecting hardware to the extent possible. The series 2000 grid is flush ceiling system which provides end users and owners with the ability to utilize the area above the ceiling for mechanical services or walk-on capabilities for maintenance access. The use of walkable ceilings for access can minimize the need for catwalks above the room areas, reducing steel costs and installation time. The use of catwalks can then be limited to areas where equipment access is needed for maintenance or replacement of larger pieces of equipment such as AHU motors and heat exchangers.

Models

Model 2025 - 2” wide x 2-1/2” tall
Model 2035 - 2” wide x 3-1/2” tall
Model 2045 - 2” wide x 4-1/2” tall
Model 2055 - 2” wide x 5-1/2” tall

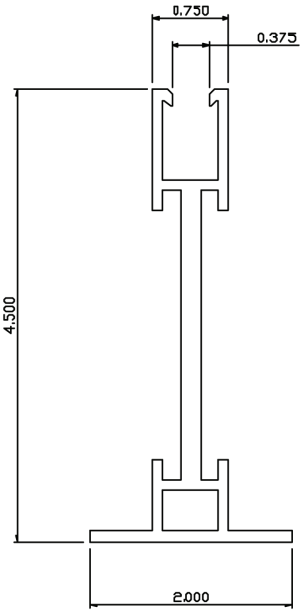
The grid numbering is the bottom web width + the extrusion height. Example: Model 2045 is 2.0” wide by 4 1/2” high. (We do not change name for wall start is a narrower web at the bottom)

Can provide any CEILING TO WALL interface required.



2045 Wall Start

Gasket or silicone seal



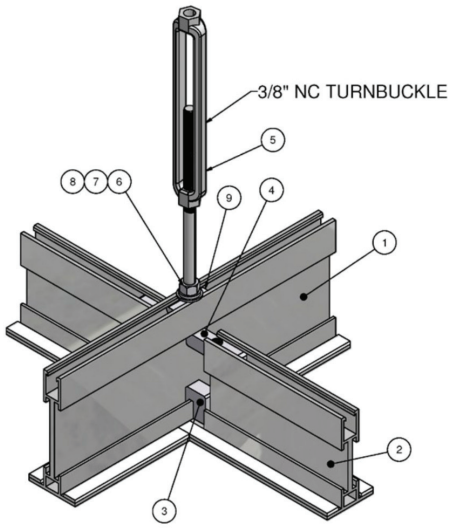
2045 Main Tee & Cross Tee

Powder coated, standard color “Bright White”

Custom colors available

2025/2035/2045/2055 Heavy Duty

The fastest, easiest and most secure system available. Save time, money, materials and create more useable space.



Infinitely adjustable hanging points eliminate sub steel structures.

Sliding barrel nut system means hangers can mount anywhere on length of mains and on the cross tee's.

Standard design is to run grid mains perpendicular to the base building steel allowing the main tees to be supported directly under the building steel on 4' or 8' spacing.

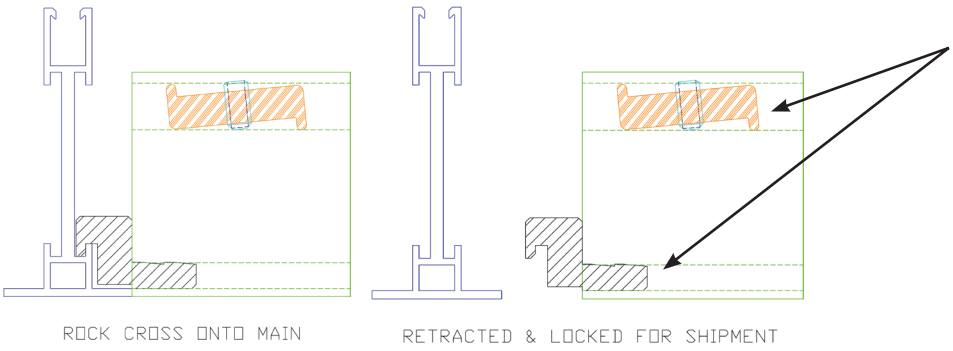
Includes factory installed bottom anchor plus a sliding "rocker arm" top connector.

Simple and secure cross tee connections are only 3 steps.

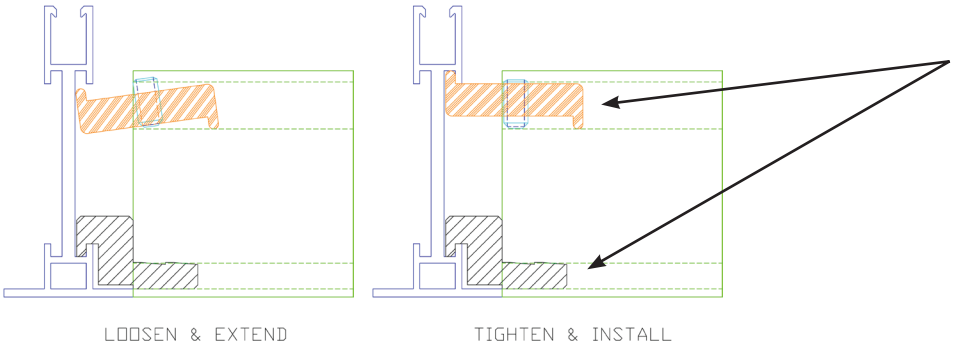
1. Hang the cross tee on the main at the desired position.
2. Slide the rocker connector flush with the main.
3. Tighten the allen screw to secure the cross tee.

The hanging rod is connected at any location with a maximum distance matching the loading requirements. Generally building steel is at 8' centerline. This would be the distance between threaded rod hangers.

Models



Preloaded hardware ships with the grid. It includes a bottom anchor plus a sliding "rocker arm" top connector.

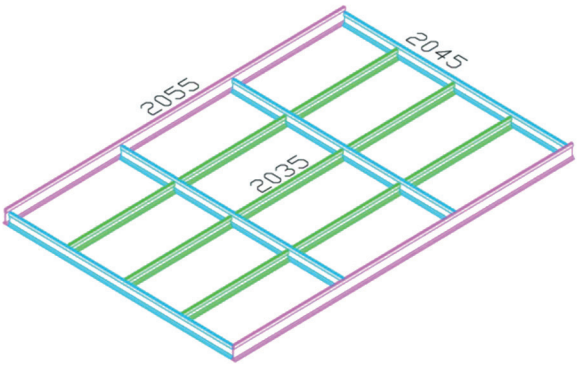


The cross tee's bottom anchor is placed on to the main tee. The grid is adjusted to the correct location and the rocker arm is loosened & slid into the main and tightened for a solid connection.

Preloaded hardware ships with Gorilla Grid. It includes a bottom anchor plus a sliding "rocker arm" top connector. The cross tee's bottom anchor is placed on to the main tee. The grid is adjusted to the correct location and the rocker arm is loosened - and slid into the main and tightened for a solid connection.

Selection Factors

- Structural Requirements
- Style of Fasteners and Hangers
- Style of Grid itself (gel, gasket, caulk)
- Light Fixtures to match grid selection
- Location of Sprinkler Heads



<u>2025</u> - Supports 360 lbs - 4' x 8' Suspension System - Moment of Inertia - .569

<u>2035</u> - Supports 900 lbs - 4' x 8' Suspension System - Moment of Inertia - 1.417

<u>2045</u> - Supports 1100 lbs - 4' x 8' Suspension System - Moment of Inertia 2.923

<u>2055</u> - Supports 1600 lbs - 4' x 8' Suspension System - Moment of Inertia 5.051

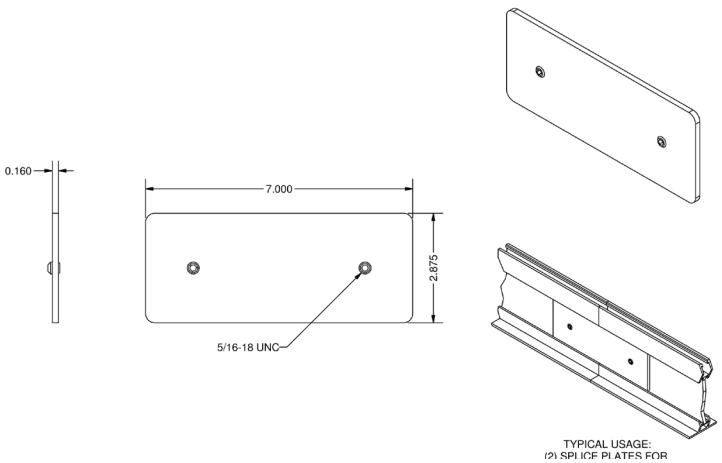
FEA analysis is available upon request

Model 2055 main grid on 8' centerlines (hanging points at 8')

Model 2045 is a major cross tee with the 8' span between mains.

Model 2035 is the minor cross tee to subdivide into the 4' x 4' nominal cells. The main & cross tee's are able to slide any point on the joining grid. So the key is the length of the cross tee to match the FFU's & blanks.

Options & Accessories



Splice Plate Connectors

The main grid is fabricated in 200" lengths (16'8") and the grid connects to itself with surface mounted splice plates. For structural applications, the grid should be installed with a splice plate on both sides of the grid profile (2 splice plates per connection). The splice plate slides into the grid profile and is locked into position with flush set screws.

Options & Accessories

Integrated Sprinkler Connection

FM Approved Sprinkler

The sprinkler heads are designed to be installed in the cross tee.

For flexible heads, the units are shipped as an assembly.

The sprinkler head includes a welded bracket. This maintains the strength of connection.

Flex lines are 3’ to 7’.

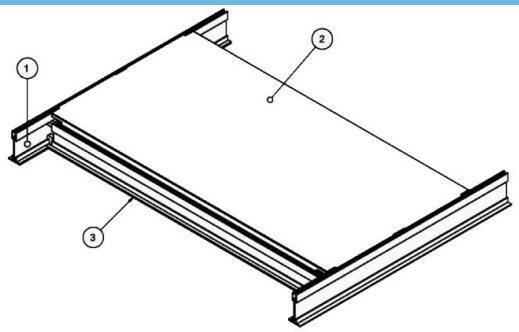
Seismic Restraints

Ceiling grid system shall be isolated at each column with a hydraulic isolation system.

Powder coated steel brackets are fastened to the grid profiles and hold four hydraulic seismic isolation dampers.

These will allow the grid system to be isolated and float in a seismic event.

Blank Panels



SBB can provide the appropriate ceiling blank-off panel regardless of the ceiling system you select.

Some standard options include UL Rated walkable sandwich foam tiles, honey comb tiles, aluminum tiles and clear panels.

Multiple options available up to 5 1/2” thick panel.

Also available is our two panel system (1/4” bottom panel sitting on grid gasket + structural walking deck on top of grid.

Top tile will have traction per OSHA and match the 4’ x 4’ nominal opening.

Top Access Lights

SBB’s grid systems can be supplied for compatibility with typical lay-in light fixtures either supplied by SBB or others.

It is important to specify the correct grid module size to ensure appropriate light fixture and lighting supplier selection. Ensuring the dimensions of the lights is critical as it dictates the cross tee spacing for the ceiling grid.

Integrated Fan Filter Units

SBB’s 48” x 48” Fan Filter Unit (FFU) can be provided as an accessory to the ceiling grid system for cleanroom style applications.

Why Choose Gorilla Grid?

Benefits & Advantages

- Provide the necessary structural integrity required of a weight bearing or walkable ceiling grid system.
- Strongest ceiling grid system on the market.
- Stronger extrusion and mating design means you need less hanger rods.
- Can be installed at any center distance with proper factory engineering support.
- Truly reconfigurable, non-progressive construction, infinitely adjustable.
- Leveled by turnbuckle 3/8” diameter threaded rod not by hanging wire.
- 50% less installation time equals large budget savings
- Cross Tees’s can mount anywhere on the main line.
- Hangers mount anywhere including on the Cross Tee’s.
- Half the hangers compared to the competition saves time during the installation.
- Little to no additional support strut needed.
- Experienced contractor can hang 700 ft/ man day.
- Gasketed at the factory.
- Includes everything up to the turnbuckle.
- Can be used as a pipe rack.
- Diverse selection of panels for all functional and architectural needs.
- Assorted panels are available including UL Rated walkable sandwiched foam tiles and honey comb tiles, thick or thin.
- Lights are available from SBB or can be supplied by another source.
- Walkable, top or bottom serviceable, patented top view “extinguished bulb indicators”
- Filters - HEPA, ULPA, carbon or other as specified.
- Fan Filter Units easily integrate into the grid.
- Grilles, diffuser outlets, terminal devices.
- Sprinkler, integrated in the factory.
- Compatible with most ceiling mounted Material Handling Systems (MHS).
- Hermetically sealed utility interface panels.
- Can provide any interface required.

Technical Information

Materials

- Grid Aluminum 6061-T6
- Bright White Powder coated finish
- Option Anodized
- Wall start aluminum 6061-T6
- Connectors cross to main (extruded aluminum)
- Connectors splice, main to main (aluminum)
- Hanger insert non-progressive (extruded aluminum)
- Mounting hardware 3/8”
- Grid face 2”
- Main tee’s 200”
- Wall profile 200”
- Cross tee’s factory fabricated to meet specified center distance.

Support

Grid shall be supported at the center distances shown on the drawings. The mounting hardware consisting of 3/8” turn buckles and 8” LH/RH threaded rod connecting from the bottom of the turnbuckle to the grid mounting point is furnished by SBB. The grid accommodates field change of mounting location without modification or requirement of additional grid components.

Features

- Powder painted, standard color “Bright White”.
- Custom colors available.
- Factory installed gasket or silicone seal.
- Factory installed connecting hardware, self-aligning.
- Any center distance.
- Maximum mounting locations on 49” by 100” centers.
- Integrated sprinkler heads with flex connectors (optional)
- Mounting hardware utilizes standard available bolts and nuts.
- Integrated blank panels and load bearing walk on panels, powder painted steel 14 gauge.
- Stainless steel hold down clips for panels, lights and filters.
- Fully compliant with Current Good Manufacturing Practices (CGMP) for ISO cleanroom standards.
- 2” grid face.

2025 - 2 1/2” vertical member
2035 - 3 1/2” vertical member
2045 - 4 1/2” vertical member
2055 - 4 1/2” vertical member

2025/2035/2045/2055 Heavy Duty Grid Specifications (Sample)

PART 1 - GENERAL

1.1.1 RELATED DOCUMENTS

1.1.2 Drawings and general provisions of the Contract, including General and Supplementary Conditions apply to thie Section.

1.1.2 SUMMARY

1.2.1 Section Includes

1.2.2 This Section specifies the requirements necessary to design, furnish, and install the gasketed ceiling system. Work shall include the following: gasketed ceiling system with support grid, wall interface grid and seals, fire sprinkler penetrations, sprinkler heads with piping stubs, blank filler panels exposed to space, walkable integral panels supported on top of grid, turnbuckles and starter threaded rod, trim accessories necessary to create the functional assembly.

1.2.3 Work not included

1. Electrical
2. Lighting
3. Fire sprinkler piping to heads
4. Ionization
5. Any accessories that will be suspended from the ceiling grid.
6. Suspension system components and structure above the turnbuckles.

1.3 REFERENCES/PROJECT REQUIREMENTS

1.3.1 Requirements of the following Project Specification Sections apply to this section as specified by the Architect and/or Engineer.

1. Division 0 – Contract Instructions
2. Division 0 – General Requirements
3. Section 01110 – Construction Protocol
4. Section 01111 – Construction and Cleaning Procedures
5. Section 01112 – Certification and Acceptance
6. Section 13019 – Ceiling Grid Support System
7. Section 13036 – Wall Systems
8. Section 15300 – Fire Suppression Master Specification
9. Division 15 – Mechanical
10. Division 16 – Electrical

1.4 DEFINITIONS

1. American Society For Testing And Materials (ASTM).
2. American Iron and Steel Institute (AISI)
3. American Concrete Institute (ACI)

1.5 SYSTEM DESCRIPTION

1.5.1 The gasketed ceiling grid shall be field assembled from factory-prepared and prefinished components:

1. Support grid, shall be 6061-T6 aluminum, 40,000 psi minmum strength, powder coat white finish.
2. Grid bolts for 3/8” thread
3. Threaded rod, 3/8” minimum, from grid to turnbuckle (nominal 10”L)
4. Turnbuckles for 3/8” rod and with minimum 4” adjustment.
5. Blank panels exposed to space, powder coat finished to match the grid finish.
6. Blank walkable panels, color exposed to space to match grid, designed to lay into overhead grid channels. Walkable panels shall be nominal 2’ x 4’ sections, 3-1/4” thickness (basis of design) for flush walking aisle ways, de- signed to be retained by gravity in the grid channels, and provide a flush walking height at cross grid members. Alter native thickness blank panels shall be coordinated with the Owner as required.
7. Accessories needed for installation.

1.5.2 Vertical Design and Deflection Requirements:

1. Applied Grid Suspended Load:
   - A. For 100” span between suspension rod points: 200 pounds per linear foot or a single midpoint grid load of 800 pounds with a resultant 0.1875” maxi mum deflection in either case (L/533), with a mini mum coincident safety factor of 2.0.
   - B. For 48” span between suspension rod points: 200 pounds per linear foot or a single midpoint grid load of 400 pounds with a resultant 0.0625” maxi mum deflection in either case (L/768), with a mini mum coincident safety factor of 2.0.
2. Hangers: shall be suspended from the top of the grid sys tem at locations required to align with the ceiling grid struc tural support system, which is defined as all work above the level of turnbuckles. Coordinate with other contractors and trades as required to position turnbuckles accordingly. The connection point at the top of grid members shall be at ANY position along the length of a main or cross-T member. Sus pension points shall not be restricted to the intersection positions of grid members only.

1.5.3 System and bracing designs shall be in conformance with appli-cable building code.

1.5.4 System design shall accommodate standard ACI 117 construction tolerances, deflection of building structural members and clearance of intended openings in the structure above.

1.5.5 The support systems shall be suspended from the Ceiling Grid Support System defined in Section 13019. Connections shall conform to the requirements of this Section and the following additional re-quirements:

1. The grid hangers and bracing shall be aligned to match the ceiling grid support system structure, which is located above the turnbuckles and provided and installed by others. Maxi mum hanger spacing each way shall not exceed 100 inches. Maximum tributary area to a single horizontal brace shall not exceed 400 square feet.
2. Hangers and bracing shall be furnished by the installer and shall consist of:
   - A. Face load drop-in upper grid track 3/8” nuts.
   - B. Approximate length of Threaded Rods: bottom of turn-buckle shall be level at 12 inches minimum above ceiling height.
   - C. Hangers shall be sized and braced to resist seismic compression loads as required.

2025/2035/2045/2055 Heavy Duty Grid Specifications (Sample)

3. Ceiling supports beyond those identified on the drawings as required for a complete installation of the ceiling system shall be the responsibility of the ceiling installer whose de sign shall be in accordance with Section 13019. Ceiling install er shall coordinate the requirements of the additional sup ports with the mechanical and electrical installations in the ceiling space.

1.5.6 Fire Sprinkler Penetration Placement:

1. Provide penetrations in ceiling grid for sprinkler drop to pass through.
2. Provide and install Factory Mutual Approved sprinkler drops and activation heads (165F or as designated by Archi tect or Engineer). Sprinkler drops shall include a minimum 72" braided 316SS reinforced flexible upper extension with 1" NPT end connection.
3. Seal all piping penetrations for sprinkler drops as required.

1.5.7 Lighting System Support:

1. Lay-in type lighting fixtures shall be coordinated with the ceiling grid system for dimensions, support, weight, and wir ing as required. The grid system shall not impede mainte nance of the lighting system which shall be fully maintained external of the room at the top of grid position. Top access light fixtures shall be optionally capable of full walk on service, and coordinated to the requirements of the Owner.
2. Teardrop type lighting fixtures shall be supported from the ceiling grid system. A fastener type mounting system shall be employed. The mounting method shall be fully coor dinated with the lighting fixtures selected. Wiring of the tear drop light fixtures shall be through the ceiling grid. There shall be no exposed raceways below the surface of the grid and wiring may be routed through the grid to light fixtures if the system is UL listed for such use.

1.5.7 Manufacturing Tolerances – Ceiling Grid

1. Squareness of Grid: plus inch, minus inch, measured across the diagonal of a 24-foot by 24-foot area.
2. Accumulative Gain of Ceiling: plus ½ inch, minus ½ inch, measured over installed length of 100 feet.

1.6 SUBMITTALS

1. Submit the following in accordance with Conditions of Contract and Division 1:
   - A. Shop Drawings: Indicate fabrication details, joint locations, fittings to accommodate lighting equipment, fittings to accommodate sprinkler pen etrations and connection to other work.
   - B. Samples: Submit samples of each component and accessory to be used on the project.
   - C. Submit Test reports certifying entire system complies with the requirements set out in these Specifications. Submit UL certifications and listing information as applicable.

1.7 QUALITY ASSURANCE

1. The owner or its representative shall maintain the right to tour the ceiling manufacturer's plant anytime that fabrication is being performed on components intended for this project.
2. The manufacturer shall notify the owner when production is finished on the first component of each type. Anytime after that date, the Owner or Authorized Representative may exer cise the option (giving 24-hour advance notice) to tour the manufacturing plant and inspect for component assembly, painting, cleaning, or packaging to ensure that quality control is being maintained.
3. Seismic structural framing and support design shall be certified by a licensed professional structural engineer.

1.8 DELIVERY, STORAGE, AND HANDLING

1. Factory requirements for delivery, storage, and handling shall be in accordance with Division 1 of the Specifications.
2. General:
   - A. Deliver materials in their original unopened packages.
   - B. Exercise extreme care in handling components to prevent damage.
   - C. Store materials in such manner as to prevent damage or intrusion of foreign matter. Conspicu ously mark "REJECTED" on materials which have been damaged, and remove from the jobsite.
   - D. The Owner reserves the right to review the method of packaging and shipment prior to the first shipment.
   - E. Any units arriving at the jobsite that have not been adequately protected will be rejected by the Owner and must be returned to the manufacturer for replacement at no additional cost to the Owner.

PART 2 - PRODUCTS

2.1 MANUFACTURER

SBB Inc.
6500 New Venture Gear Dr.
E. Syracuse, NY 13204
http://www.sbbinc.com
Phone: 315-437-6500
FAX: 315-437-6501

2.2 COMPONENTS

1. Ceiling Grid:
   - A. The ceiling grid system shall be a field-assembled (stick-built) 25" x 49" channel grid array constructed of extruded aluminum grid members. The aluminum shall be 6061-T6, 40000 psi allowa ble stress alloy.

2025/2035/2045/2055 Heavy Duty Grid Specifications (Sample)

B. The grid portion of the ceiling support lattice shall be supported with 3/8" minimum threaded rods and turnbuckles connected to the Ceiling Grid Support System (by others) which is above the turnbuckles. The grid system shall include sprinkler penetrations providing airtight seals and escutch eons as required to meet the test and certification requirements of the specified design ISO Clean room classification. Furnish two anodized friction plug caps for each head location to seal unused positions.

C. Sealer plugs, clips, or covers shall be furnished for field installation over all openings in the ceiling assembly left after mounting of all accessories. Reveals to be sealed include air gap next to light fixture frame/lens, sprinkler heads, utility hangers, and empty grid members.

D. Gasket material is to be "closed cell" non-voc (volatile organic compounds) material in dimen sions that will ensure proper operation of the clean ceiling system. Component grid members shall be gasketed at the manufacturer's factory and her metically heat sealed in plastic bags for protection.

E. All grid member interconnecting hardware shall be factory preinstalled in their respective grid extrusion members and hermetically heat sealed in plastic bags for protection.

2. Blank Ceiling Filler Panels:

A. Blank ceiling filler panels shall be non-walkable. The panels shall be constructed of ¼" Alumalite composite panels to match the extrusion grid sys tem finish, or as otherwise coordinate with the Owner.

B. Blank panels shall also be used to accommo date special conditions and penetrations, such as safety equipment and communication hardware. All machining and powder coat finishing operations shall be performed at the factory for such accom modations.

C. Manufacturer shall provide hold-down clips to be used for positive seal of blank panel edge onto the gasket seal. If the weight of the panel is suffi cient to maintain a positive seal under full design room static pressure then hold-down clips can be eliminated.

3. Perimeter Infill System:

A. The manufacturer shall provide sufficient quantity of matching grid, custom filters (if re quired) and blank panels to close the gap between the ceiling modules and the perimeter walls.

B. Infill system pieces shall include full-width ex truded aluminum grid and any other components needed to provide extensions of the grid pattern to the perimeter walls or between module sections.

4. Walkable Blank Panels

A. The manufacturer shall provide a sufficient quantity of panels in the areas shown on drawings as walkable pathways above the ceiling.

B. Walkable panels shall be 3-1/4" thickness, and 24" x 48" precut panels. The rooms exposed interior shall be 0.040" smooth white aluminum with protective film for removal at jobsite. The top walking surface of the panel shall be 0.040" tex tured aluminum for a non-slip walking surface. Panels shall have an expanded polyurethane core. Alternative construction shall be coordinated with the Owner for approval

C. Panels shall be rated for a 500 lb capacity and certified by an independent certified laboratory. Testing shall include dynamic 1000 cycle test at 2- times design capacity.

2.3 ACCESSORIES

1. Sprinkler Piping: provided under separate contract as specified in Section 15300, Sprinkler Systems.

2.4 FABRICATION

1. Grid members shall be attached together to form a struc tural horizontal frame capable of spanning between lateral braces.

2. A plugged and gasket-sealed opening shall be provided through the ceiling grid to permit particle counter probe to be inserted into upstream air to measure filter challenge concentration. This requirement only applies to grid systems used in pressurized plenum air delivery designs.

2.5 FINISHES

1. All grid members shall be provided with a bright white powder coat finish. Submit samples to Architect for approval prior to manufacture.

PART 3 - EXECUTION

3.1 PREPARATION

1. Setting out alignment of ceiling system shall be the based on the building survey points. It is the responsibility of the Manufacturer and installing Contractor to physically visit the installation site and verify existing conditions. All deviations from the design documents shall be coordinated and mitigat ed with the Architect prior to the start of manufacture and/ or site installation.

2. Coordinate setting out and alignment and specific require ments of this section with Section 13019 Ceiling Grid Support System which is work performed by others.

2025/2035/2045/2055 Heavy Duty Grid Specifications (Sample)

3.2 ERECTION

1. All penetrations in the room ceiling grid shall be predrilled and sealed at the factory.
2. No field drilling of the ceiling grid will be permitted.
3. All penetrations through the ceiling plane must be sealed airtight to prevent contaminant migration through the ceiling from the interstitial area into the room.

3.3 INSTALLATION

1. The contractor shall be responsible for the complete in stallation of the ceiling system assembly.
2. The ceiling system shall be installed to line and true level and with due regard to appearance and structural stability.
3. The ceiling system shall be suspended directly from Ceil ing Support System in accordance with ASTM C636 and the manufacturer's current printed instructions for the type of installation used.
4. All field assembly and materials shall be provided by the Contractor.
5. Coordinate ceiling grid installation with other trades, ac commodate installation of equipment by other trades, and protect equipment mounted to the ceiling system as if part of the ceiling grid system.

END OF SECTION 13020

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