



STRUCTURAL CEILING GRID SOLUTION

# ENGINEERED STRUCTURAL CEILING SYSTEM

Overhead Infrastructure Solution for Futureproofing  
Data Centers & Critical Applications



## From the Makers of Unitile

For nearly three decades, **India's No. 1 Raised Access Floor Brand and the Prestigious Rising Brand in Asia** - Unitile has been recognised as the most innovative and solution driven company in the raised access floor and accessories domain for various commercial and industrial applications.

A ceiling system that combines

## Engineering with Flexibility, Resilience and Responsiveness

Specially designed and manufactured for white spaces like data centers, pharmaceuticals, healthcare, infrastructure, and industrial applications. Suspension of services and utilities is a challenging process for such white spaces, in addition to environmental issues like rust and zinc whiskers.

U-Flex engineered ceiling grid system provides a flexible overhead structure that can be tailored to meet complex project-specific requirements concerning design load, grid size, ceiling plenum height and ceiling tile selection. It provides an industrial-grade yet aesthetically appealing suspended scalable platform to anchor and support cable trays, equipment partitions, caging, hot and cold aisle containment barriers from the structure to below the ceiling plane while eliminating penetrations through the ceiling.

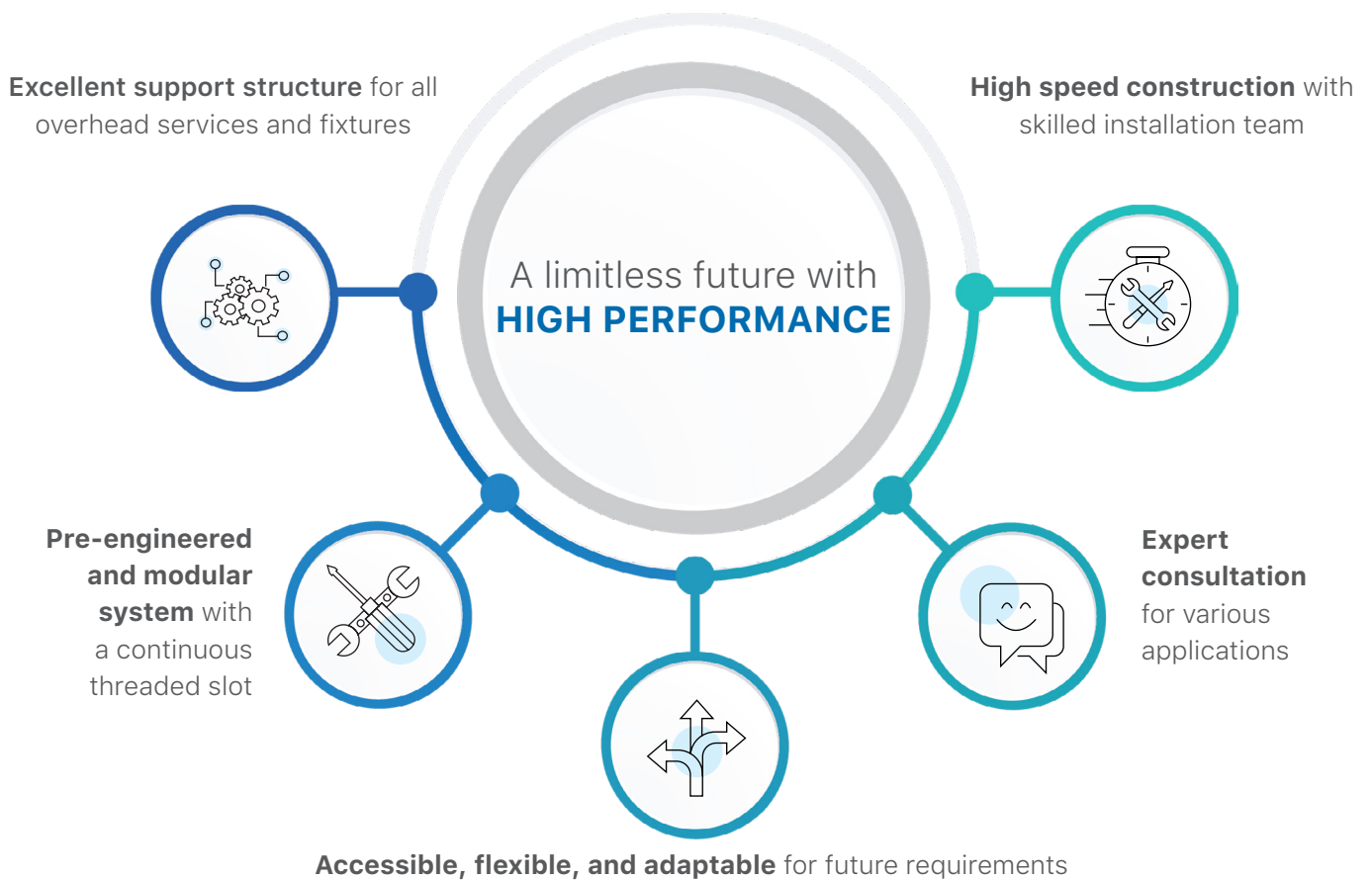
A structural ceiling system that allows you to design and specify the support solution in advance and is faster to install. It replaces and offers many advantages over custom-built on-site structural systems, such as Unistrut/C-strut. It is also an ideal suspension solution for small to large applications and lighter to heavier equipments/services.

# Beyond Conventional Limitations

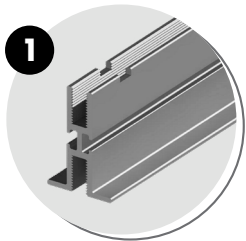
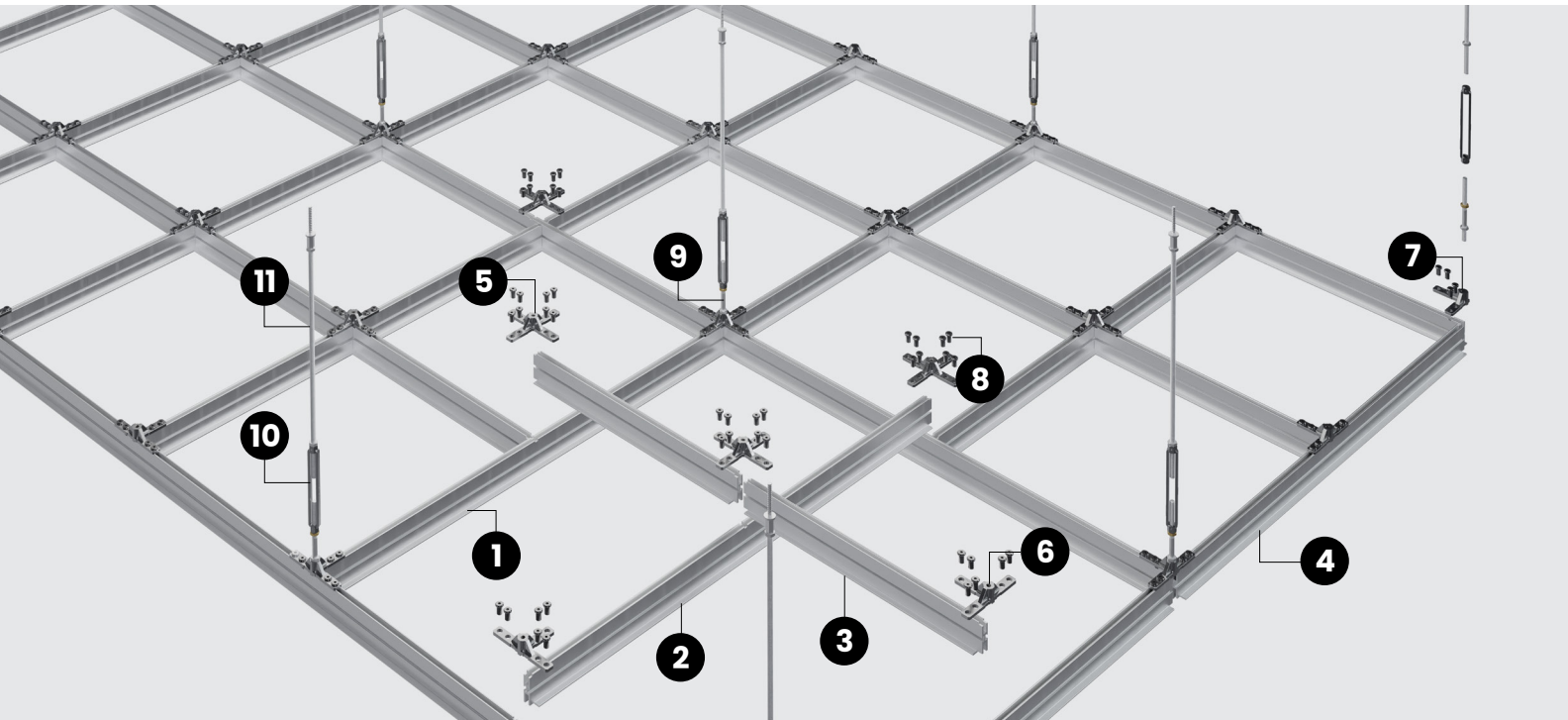
For decades data centres and other critical spaces adopted a standard method of utilizing direct fasteners, or C-strut, attached to the main building structure to provide both plenum and infrastructure services. In such instances, the heavy equipment/services needed to be supported on a roof slab or grid using C-struts and penetrate the ceiling panels to connect to the support grid. This creates a potential risk of penetration of dust/debris/air/smoke penetration, excess usage of tools and tackles, increasing the time involved in coordinating with the facility team for any required changes or modifications.

## Switch to U-Flex Engineered Structural Ceiling System

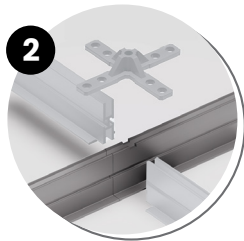
U-Flex Ceiling is the most advanced and modular solution for data centers, an architectural and industrial solution that allows you to combine the structural grid and ceiling into one unitized space which is easy to install and flexible for future changes. Combination of the above parameters for a purpose-built application system ensures improved installation flexibility in the present as well as future needs of your facility leading to reduced operational cost.



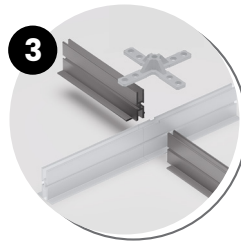
# System Design



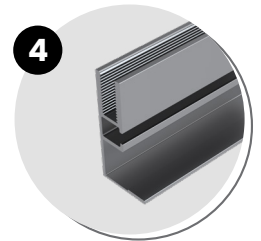
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Main Runner  
3600



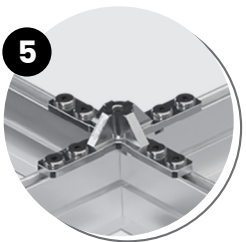
**2**  
Cross Runner  
1200



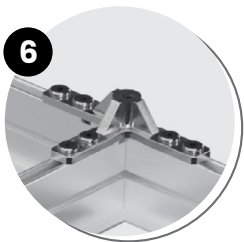
**3**  
Cross Runner  
600



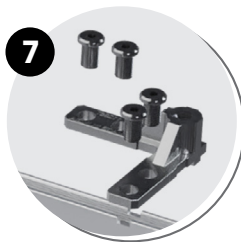
**4**  
Perimeter Cross  
Runner 3600



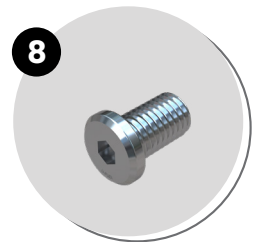
**5**  
X Connector



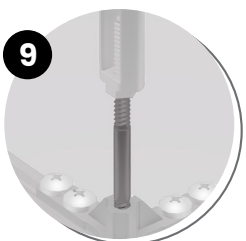
**6**  
T Connector  
(Perimeter Connector)



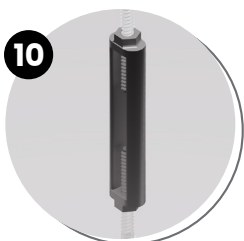
**7**  
L Connector



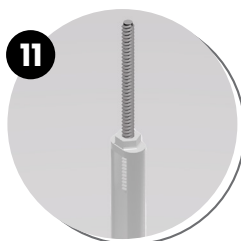
**8**  
M10x1.5x25  
mm Screws



**9**  
Turnbuckle stud  
M10x1.5



**10**  
Turnbuckle  
M10x1.5



**11**  
M10x1.5  
Threaded stud/rod

## Distinctive Design Features



Lightweight system is made up of special grade structural aluminum alloy extrusions and aluminum die-casting components.



90% of the components used in the manufacturing process are made of aluminium, minimizing the possibility of zinc whiskers, thereby reducing the risk of potential hazards.



The suspensions are precisely positioned at a 90-degree angle to ensure optimal alignment between the room void and ceiling void.



The maximum grid point load is 4.0 kN/ 400 kgs based on a building connection spacing of 1200mm on center.



The suspension system layouts are available in 600x600mm, 600x1200mm, and 1200x1200mm.



It provides the advantage of drop ceiling and overhead utility distribution, all in one system.



This system is designed as an attachment platform or suspension system for hot and cold aisle containment barriers, partitions, and surface-mounted service equipment.



The continuous threaded slot serves as a support structure for all overhead services and fixtures, allowing for the easy installation of firefighting systems, LV tray, and HV tray (busbars, sensors and detectors, lights, CCTV camera, and other such utilities) at any location.



The overhead plenum is easily accessible with openable panels without compromising the structural integrity of the structural grid and the services supported below.

## Key Performance Characteristics



Non-combustible and 100% green and recyclable product offers rapid installation with quick and easy assembly on-site



The entire construction is pre-engineered off-site at the manufacturer's location, ensuring no future design limitations and facilitating the ease of expansion or upgradation of the project.



Furthermore, with the elimination of the need to penetrate the ceiling tiles, there is no risk of harmful debris, air or smoke penetrating the data center environment and potentially compromising its integrity.



The grid system is modular and completely relocatable, offering high flexibility in busbars, cable tray distribution systems, and seamless transition for airtight containment system.




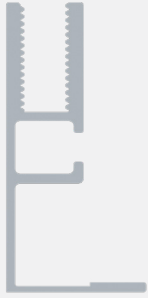
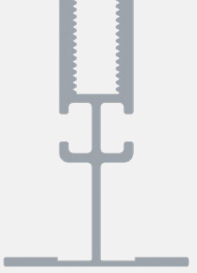



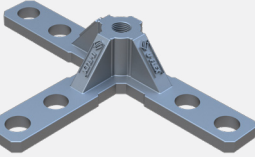
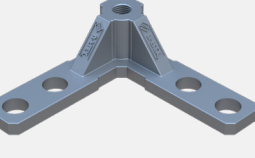
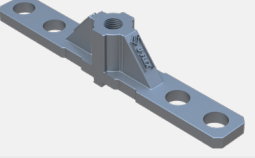
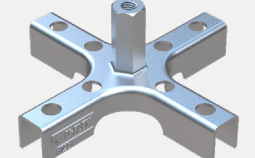
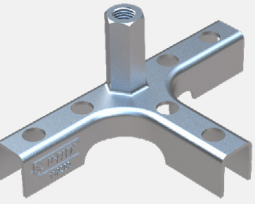
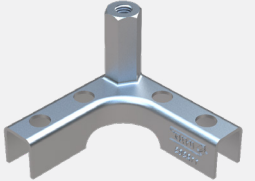
Flexibility to customize the grid span into larger and smaller grids as per project requirements/conditions, and accommodate ceiling tiles in the future if needed.

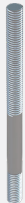

## Applications

Data Centers | Laboratories | Pharmaceutical and Healthcare | Cleanrooms | Hospitals | Retail/  
Convenience Stores | Industrial Warehouses/Distribution Centers | Infrastructure

# Structural Ceiling Component Details

Components	Section Views	Component Description / Size (All dimensions in mm)	Features
<p><b>Main Runner</b> 3600 Product code 112540</p>		<p>3600 40 (W) x 60 (H)</p> <ul style="list-style-type: none"> <li>Continuous threaded M10x1.5 - 20mm deep top slot</li> <li>Continuous threaded M10x1.5 - 20mm deep bottom slot</li> </ul>	<p>Main runner composed of aluminium is the primary load bearing runner section (3600 mm) that utilizes standard hardware connectors as per U-Flex structural ceiling grid system.</p>
<p><b>Cross Runner</b> 1200 Product code 112540</p>		<p>1183 40 (W) x 60 (H)</p> <ul style="list-style-type: none"> <li>Continuous threaded M10x1.5 - 20mm deep top slot</li> <li>Continuous threaded M10x1.5 - 20mm deep bottom slot</li> </ul>	<p>Cross runner composed of aluminium is the secondary load bearing runner section (1200 mm) that utilizes standard hardware connectors as per U-Flex structural ceiling grid system.</p>
<p><b>Cross Runner</b> 600 Product code 112540</p>		<p>583 40 (W) x 60 (H)</p> <ul style="list-style-type: none"> <li>Continuous threaded M10x1.5 - 20mm deep top slot</li> <li>Continuous threaded M10x1.5 - 20mm deep bottom slot</li> </ul>	<p>Cross runner composed of aluminium is the secondary load bearing runner section (600 mm) that utilizes standard hardware connectors as per U-Flex structural ceiling grid system.</p>
<p><b>Perimeter Light Duty Extrusion</b> 3600 Product code 112543</p>		<p>3600 29 (W) x 60 (H)</p> <ul style="list-style-type: none"> <li>Continuous threaded M10x1.5 - 20mm deep top slot</li> </ul>	<p>The perimeter light-duty extrusion is a light-duty load-bearing runner section (3600mm) directly screwed to the wall or perimeter where there is no need for complete ceiling mounting flexibility.</p>
<p><b>Light Duty Extrusion</b> 1200/600 Product code 112541</p>		<p>1200/600 40 (W) x 60 (H)</p> <ul style="list-style-type: none"> <li>Continuous threaded M10x1.5 - 20mm deep top slot</li> </ul>	<p>Light-duty extrusions are light-duty load-bearing runner sections (1200/600mm) for infill applications where complete mounting flexibility across the ceiling is not required.</p>

Components	Section Views	Component Description / Size (All dimensions in mm)	Features
<b>X Connector</b> Product code 112357		144 (L) x 144 (W) x 29 (H) x 6 (T)	X connectors are high strength and corrosion-resistant cast aluminium construction used to interlock all cross tees for rigid connection.
<b>T Connector</b> (perimeter connector) Product code 112536		82 (W) x 144 (L) x 29 (H) x 6 (T)	T connector also known as perimeter connectors, composed of high-strength and corrosion-resistant cast aluminium construction, are primarily used for installation along the walls/ columns or any other space interface. They are therefore designed to be customized on-site during installation.
<b>L Connector</b> Product code 112537		82 (W) x 82 (L) x 29 (H) x 6 (T)	L connectors are high strength and corrosion resistant die cast aluminium construction used to interlock perimeter extrusion corners together.
<b>I Connector</b> Product code 112538		20 (W) x 144 (L) x 29 (H) x 6 (T)	I connectors are high strength and corrosion resistant die cast aluminium construction used to interlock the main beam ends.
<b>X Connector</b> Product code 112361		147 (L) x 147 (W) x 23 (H) x 2 (T)	X connectors are high strength and corrosion-resistant steel construction used to interlock all cross tees for rigid connection.
<b>T Connector</b> (perimeter connector) Product code 112362		84 (W) x 147 (L) x 23 (H) x 2 (T)	Perimeter connectors, composed of high-strength and corrosion-resistant steel construction, are primarily used for installation along the walls/ columns or any other space interface. They are therefore designed to be customized on-site during installation.
<b>L Connector</b> Product code 112363		84 (W) x 84 (L) x 23 (H) x 2 (T)	L connectors are high strength and corrosion resistant steel construction used to interlock perimeter extrusion corners together.

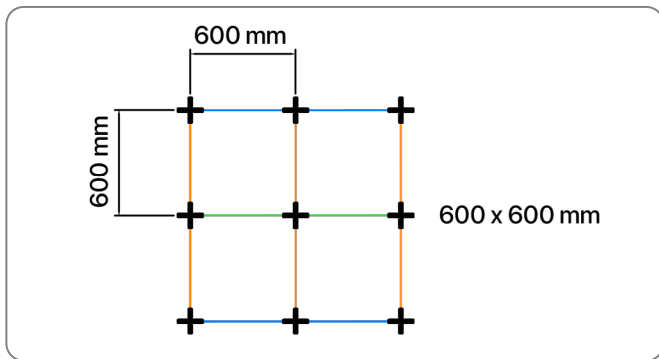
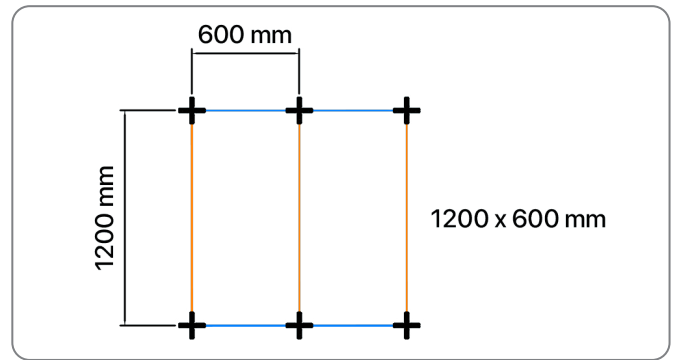
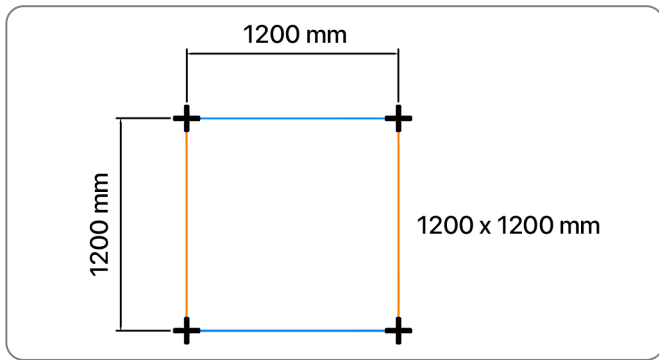
Components	Section Views	Component Description / Size (All dimensions in mm)	Features
<b>I Connector</b> Product code 112360		23 (W) x 147 (L) x 23 (H) x 2 (T)	I connectors are high strength and corrosion resistant steel construction used to interlock the main beam ends.
<b>Flat Head Hexagonal Allen Screws</b> Product code 112544		M10 x 1.5 X 25 (L)	Philips Socket screws for fixing connectors and services.
<b>Lock Nut RH</b> Product code 112545		M10 x 1.5 x 5.00 (T)	Lock nut is made of zinc electroplated acts as a connector to fasten and lock the turnbuckle to the structural grid.
<b>Lock Nut LH</b> Product code 112669		M10 x 1.5 x 5.00 (T)	
<b>Beam Clamp</b> Product code 112547		M10 x 1.5	Beam clamp is made of cast steel alloy zinc plated.
<b>Mechanical Anchor</b> Product code 112546		7.5 (D) x 55 (L) with M10 x 1.5 boss for suspension	Mechanical anchor is made of cast steel alloy zinc plated.
<b>Turnbuckle stud</b> Product code 112358		M10 x 1.5 -RH x 35 (L) – 40 – M10 x 1.5 -LH x 75 (L)	Turnbuckle stud composed of zinc electroplated, is used wherever a fastener of greater length and rigidity is needed to secure the turnbuckle and the runner together.
<b>Turnbuckle</b> Product code 112359		M10 x 1.5 X 181 (L)	Turnbuckle is composed of cast steel alloy and acts as a connector between threaded rods to create structural support for the grid.
<b>Threaded rod</b> Product code 112356		M10 x 1.5 (Length as per site)	Threaded rod composed of zinc electroplated, are used as a ceiling suspension fixed to hard point on one end such as concrete or steel structure and ceiling frame on the other.

Metal Ceiling tile 0.60/0.70 thickness GI pre-coated/powder coated (Optional as per client's requirement)

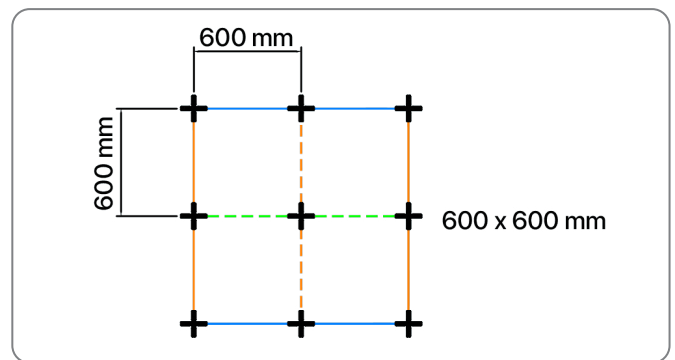
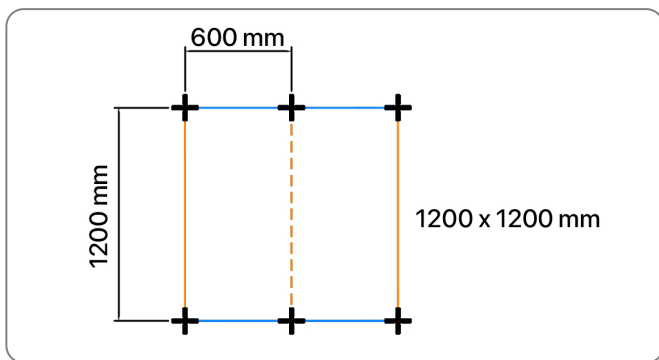


# Different Grid Sizes

## TYPES OF PANEL GRID WITH REGULAR PROFILE



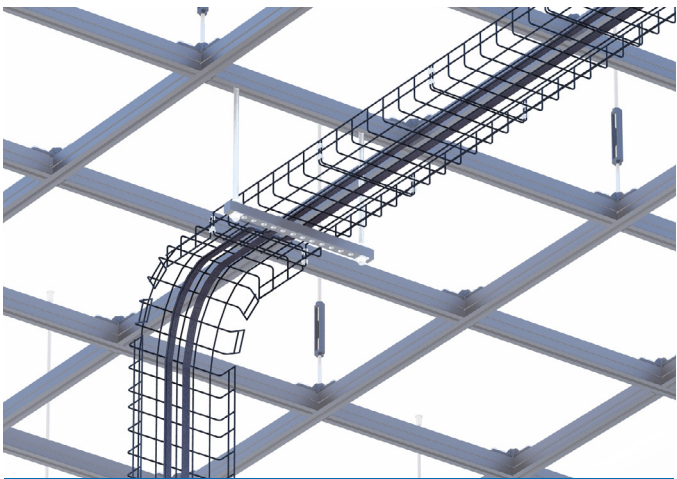
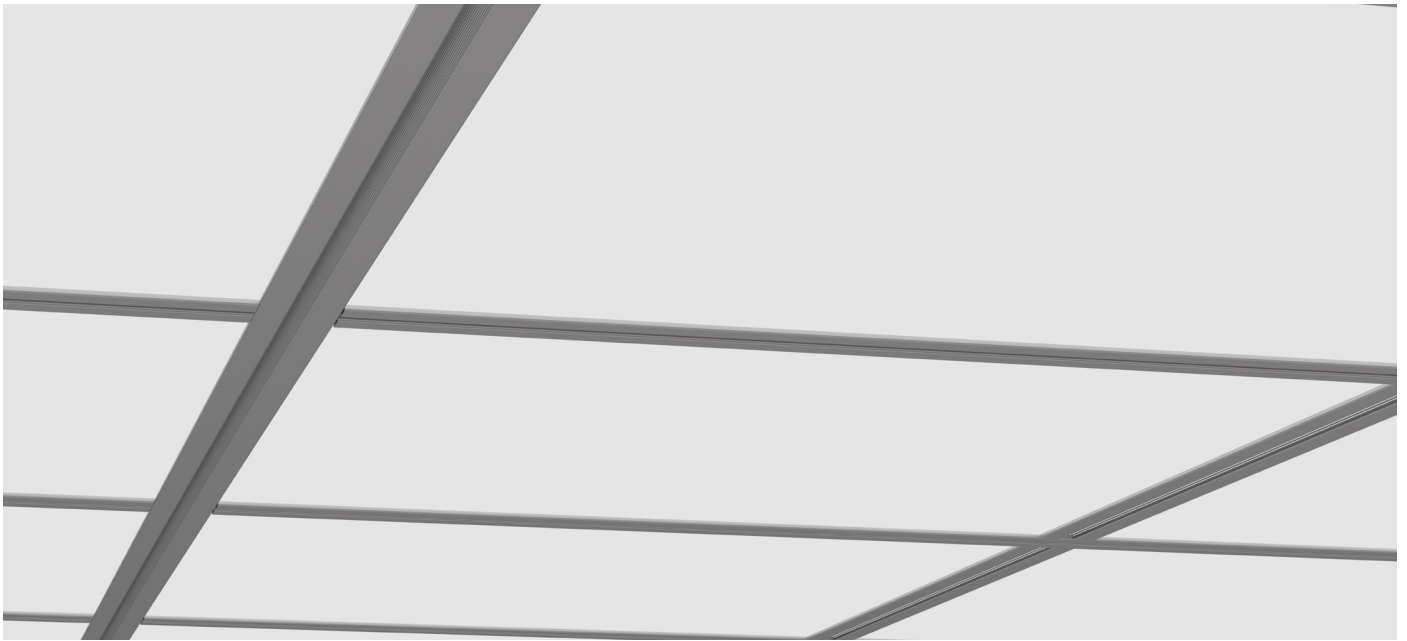
## TYPES OF PANEL GRID WITH LIGHT DUTY PROFILE



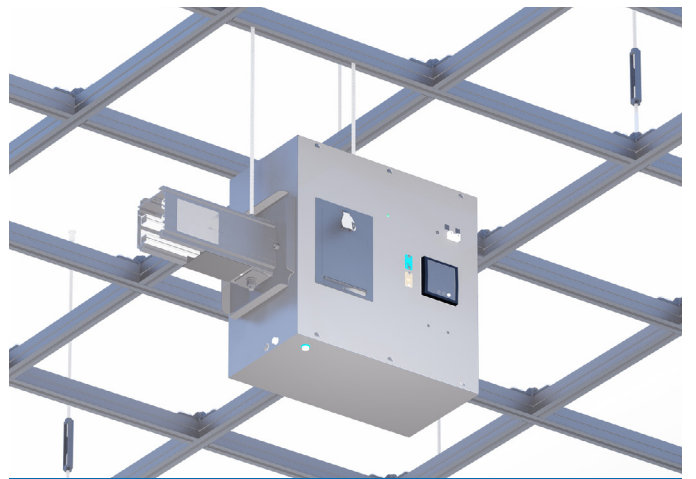
- Main Runner
- Cross Runner 1200
- Cross Runner 600
- - - Light Duty Extrusion 1200

# Continuous Slot

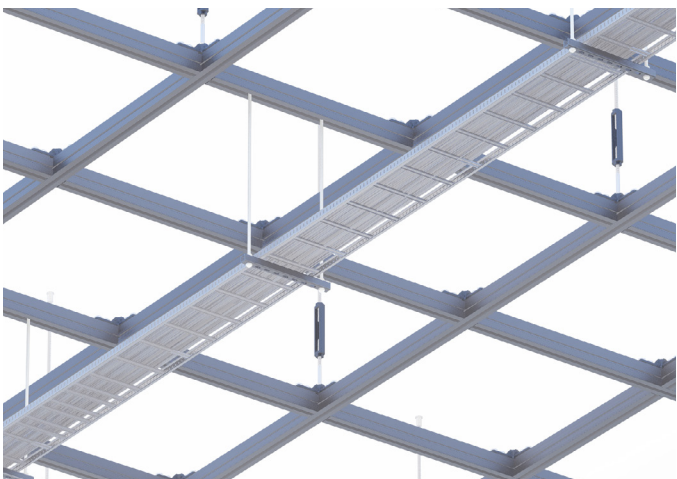
Designed for maximum flexibility with a continuous threaded slot for various utility support at any location.



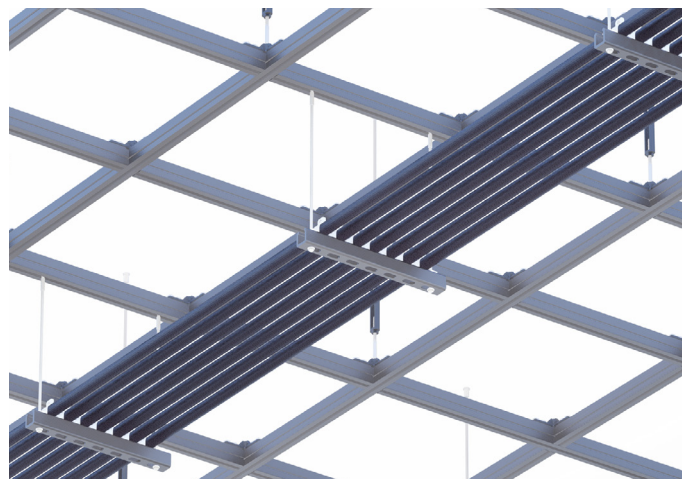
Cable tray baskets



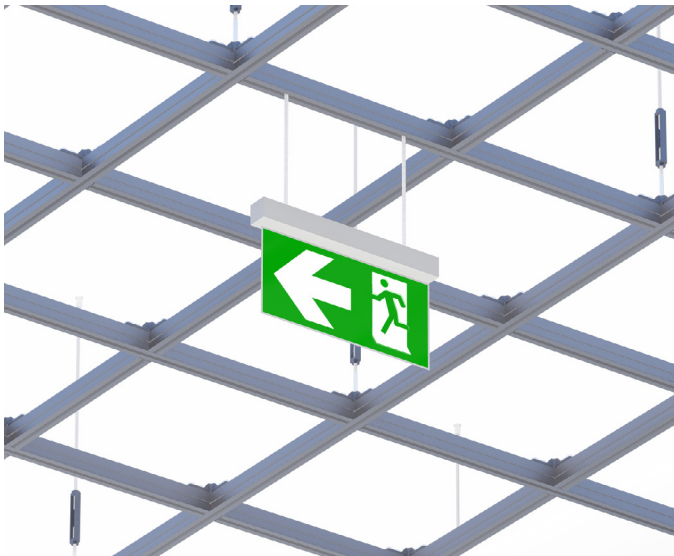
Busbars



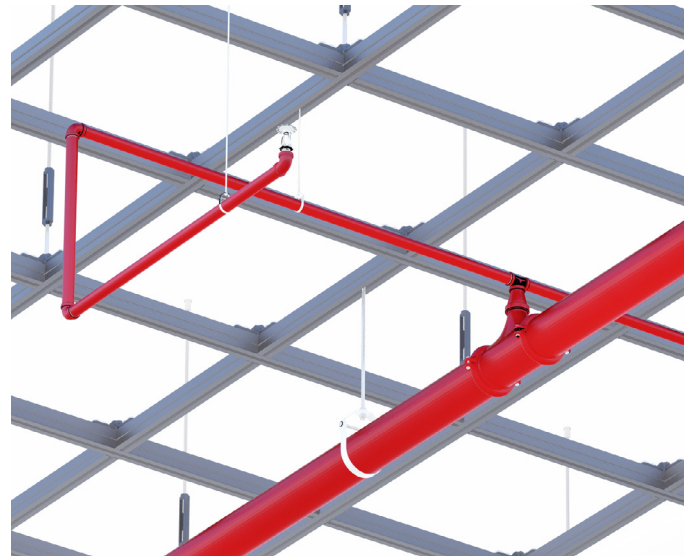
IT Cables and accessories



Electrical conduit



Indicating plates & signages



Water sprinklers

**Other utilities such as:**

- Firefighting pipes & accessories
  - Containment zone supports
- Caging partitions
  - Sensors (Occupancy/Rh/IAQ etc.)
- Light fixtures
  - CCTV cameras

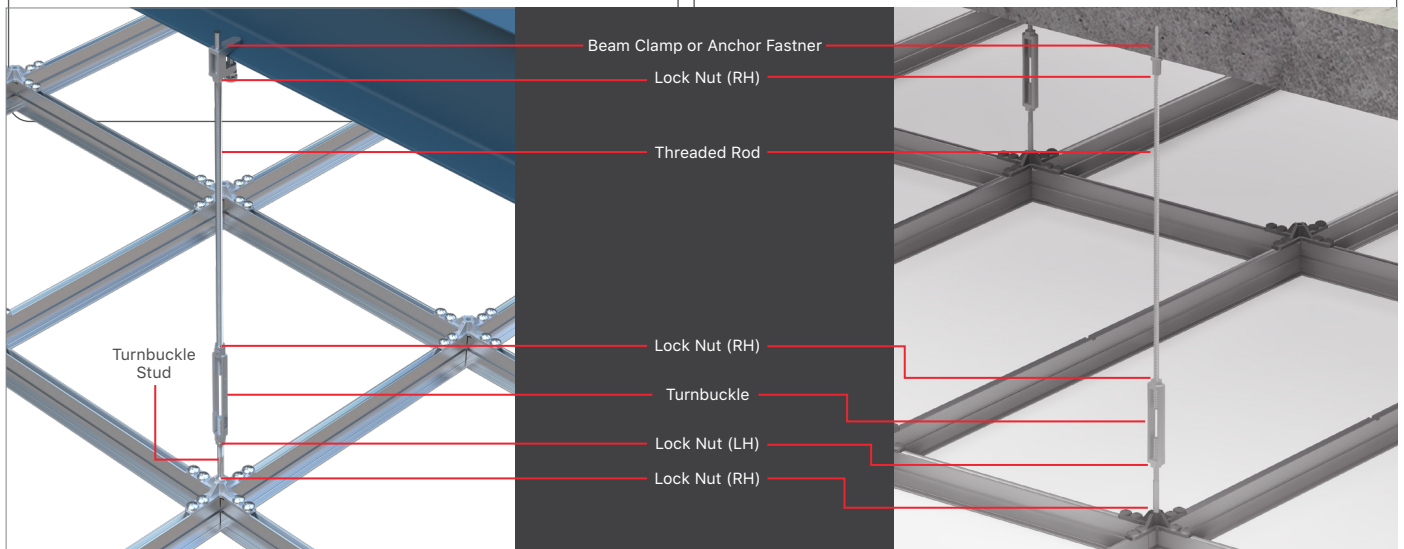
## Customized Configuration: Suspension methods

### Support from a Steel Structure


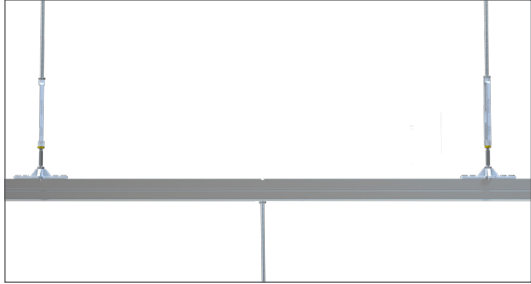
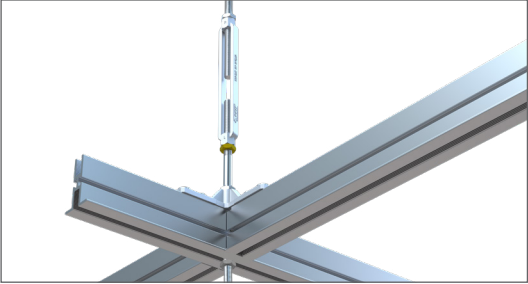
Die casted bracket or beam clamp support from a steel structure on ceiling slab.

### Support from a Concrete Slab Structure

Anchor fastener hanging method from a concrete slab structure.



# System Performance Criteria

		
Hanging Method	Grid Load Performance with building connections 1200mm x 1200mm on mid span	Above ceiling suspension
Point Load (kN)	2.21 kN*	4.0 kN*
Ultimate Point Load (kN)	3.68 kN	6.00 kN

\*Max point load not less than 1200mm apart in any direction.



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