U-FLEX™

ENGINEERED STRUCTURAL CEILING SYSTEM

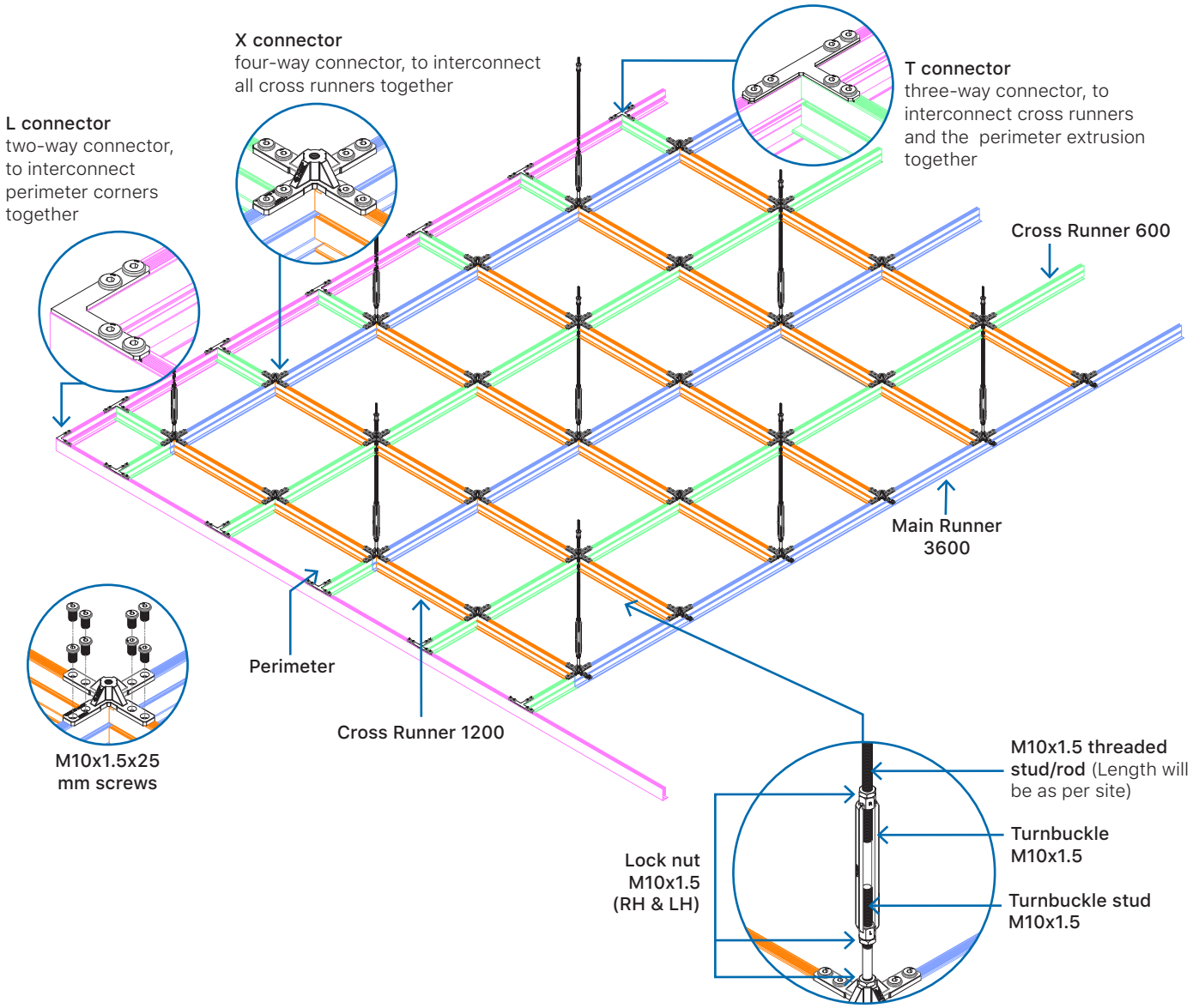
Overhead Infrastructure Solution for Futureproofing Data Centers & Critical Applications

TECHNICAL SPECIFICATION

www.unitileindia.com

V3_11092023

System Grid Installation Overview



Grid Options

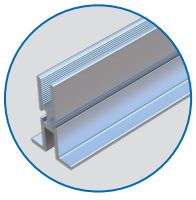
System Layout

600x600 mm | 600x1200 mm | 1200x1200 mm

Center Spacing

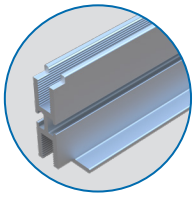
Customized grid size to accommodate project/site requirements

Standard Finish

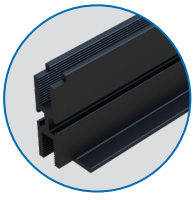


Mill Finish

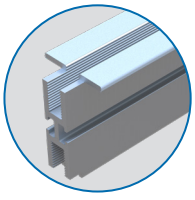
Finishes Available on Request



Natural Anodized



Black Anodized



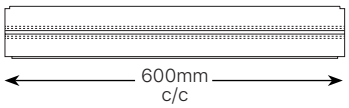
White Partial

Key Design Features

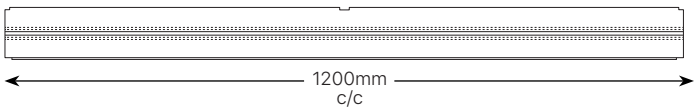
- Designed as an attachment platform or suspension system for containment barriers, partitions, and surface-mounted service equipment in the room void.
- Continuous threaded slot acts as a support structure for all overhead services and fixtures, enabling easy installation of firefighting systems, LV tray and HV tray (busbars, sensors and detectors, lights, CCTV camera, and other such utilities at any location).
- Easy access to the overhead plenum with removable ceiling panels (optional) without compromising the structural integrity of the structural grid and the services supported below.
- Max grid point load of 4.0 kN, based on building connection spacing of 1200 mm at the suspension location.

*Note: Non-standard grid size can be considered on request based on project/customer requirements. Please contact our sales team to know more.

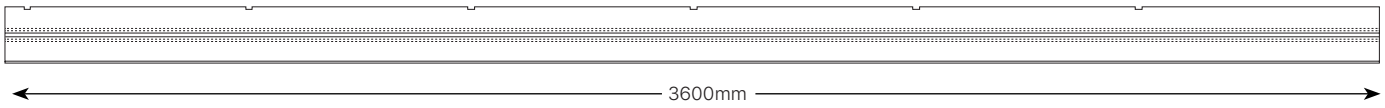
Runner Specification



All 600mm cross runners have CNC milled ends which allow the grid to overlap on the perpendicular supporting runners to ensure a snug fit and enhanced load-carrying capacity. (Cut Length 583mm)



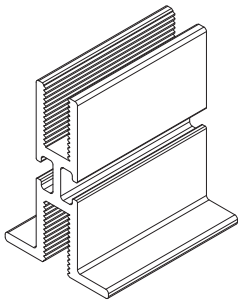
All 1200mm cross runners and main runners come with inbuilt notches at every 600mm on the center for proper alignment of the grid and accurate spacing of the connectors. (Cut Length 1183mm)



All 3600mm main runners are notched every 600mm on the center for proper alignment and spacing of the connectors. (Cut Length 3600mm)

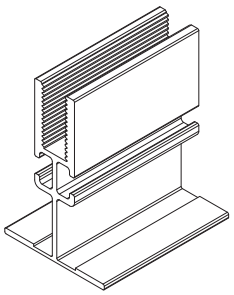
Extrusion Profiles

(All dimensions in mm)



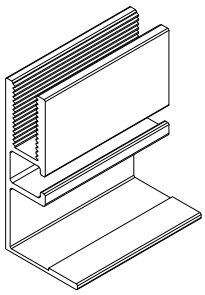
Main Extrusion
3600/1200/600
40 (W) x 60 (H)

- Top: M10 x 1.5 - 20 mm deep continuous threaded slot.
- Bottom: M10 x 1.5 - 20 mm deep continuous threaded slot.



Light Duty Extrusion
1200/600
40 (W) x 60 (H)

- Top: M10 x 1.5 - 20 mm deep continuous threaded slot.

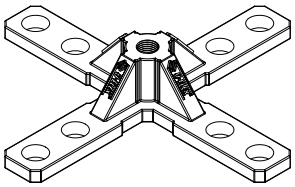


Perimeter Light Duty Extrusion
3600
29 (W) x 60 (H)

- Top: M10 x 1.5 - 20 mm deep continuous threaded slot.

Connector Specifications

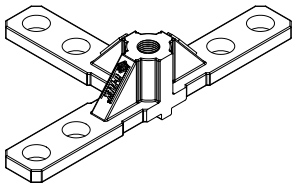
(All dimensions in mm)



X Connector

Product code 112357
144 (L) x 144 (W) x 29 (H) x 6 (T)

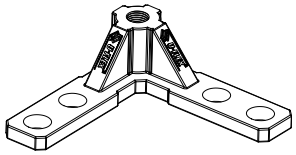
High-strength and corrosion-resistant cast aluminum construction, the X connector is used to interlock all cross tees for rigid connection and suspension to the roof slab.



T Connector

Product code 112536
82 (W) x 144 (L) x 29 (H) x 6 (T)

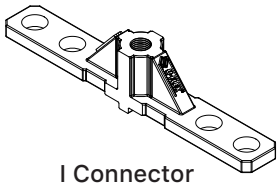
High-strength and corrosion-resistant cast aluminum construction, T connectors are primarily used for installation along the walls/columns or any other space interface.



L Connector

Product code 112537
82 (W) x 82 (L) x 29 (H) x 6 (T)

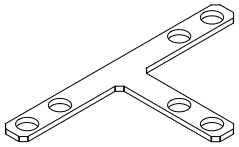
High-strength and corrosion-resistant die-cast aluminum construction L connectors are used to interlock perimeter extrusion corners.



I Connector

Product code 112538
20 (W) x 144 (L) x 29 (H) x 6 (T)

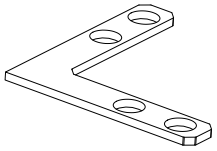
High-strength and corrosion-resistant die-cast aluminium construction I connectors are used to interlock the main beam ends.



T flat bracket

Product code 112749

'T' bracket
M.S. for partitions



L flat bracket

Product code 112750

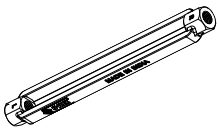
'L' bracket
M.S. for partitions

Other Component Specifications (All dimensions in mm)

Turnbuckle Stud

Product code 112358

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.



Turnbuckle

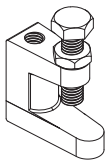
Product code 112359
M10 x 1.5 X 180 (L)

Turnbuckle composed of cast steel alloy acts as a connecter between threaded rods to create structural support for the grid.

Threaded Rod

Product code 112356
M10 x 1.5 (Length as per site)

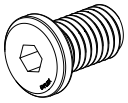
Threaded rod composed of zinc electroplated, are used as a ceiling suspension fixed to a hard point on one end such as concrete or steel structure and to a ceiling frame on the other.



Beam Clamp

Product code 112547
M10 x 1.5

Beam clamp of cast steel alloy zinc plated, provide steel-to-steel connections between structural beams eliminating the requirement for drilling, welding, etc.

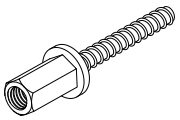


Ultra Low Head Allen Socket Screws

Product code 113132
M10 x 1.5 x 20 (L)

Product code 113133
M10 x 1.5 x 25 (L)

Allen socket screws, for fixing connectors and services



Mechanical Anchor Fastner

Product code 112546
7.5 (D) x 55 (L) with M10 x 1.5 boss for suspension

Mechanical anchor fastener made of steel alloy zinc plated is used for fixing with threaded rods suspended ceilings with concrete structures

Lock Nut

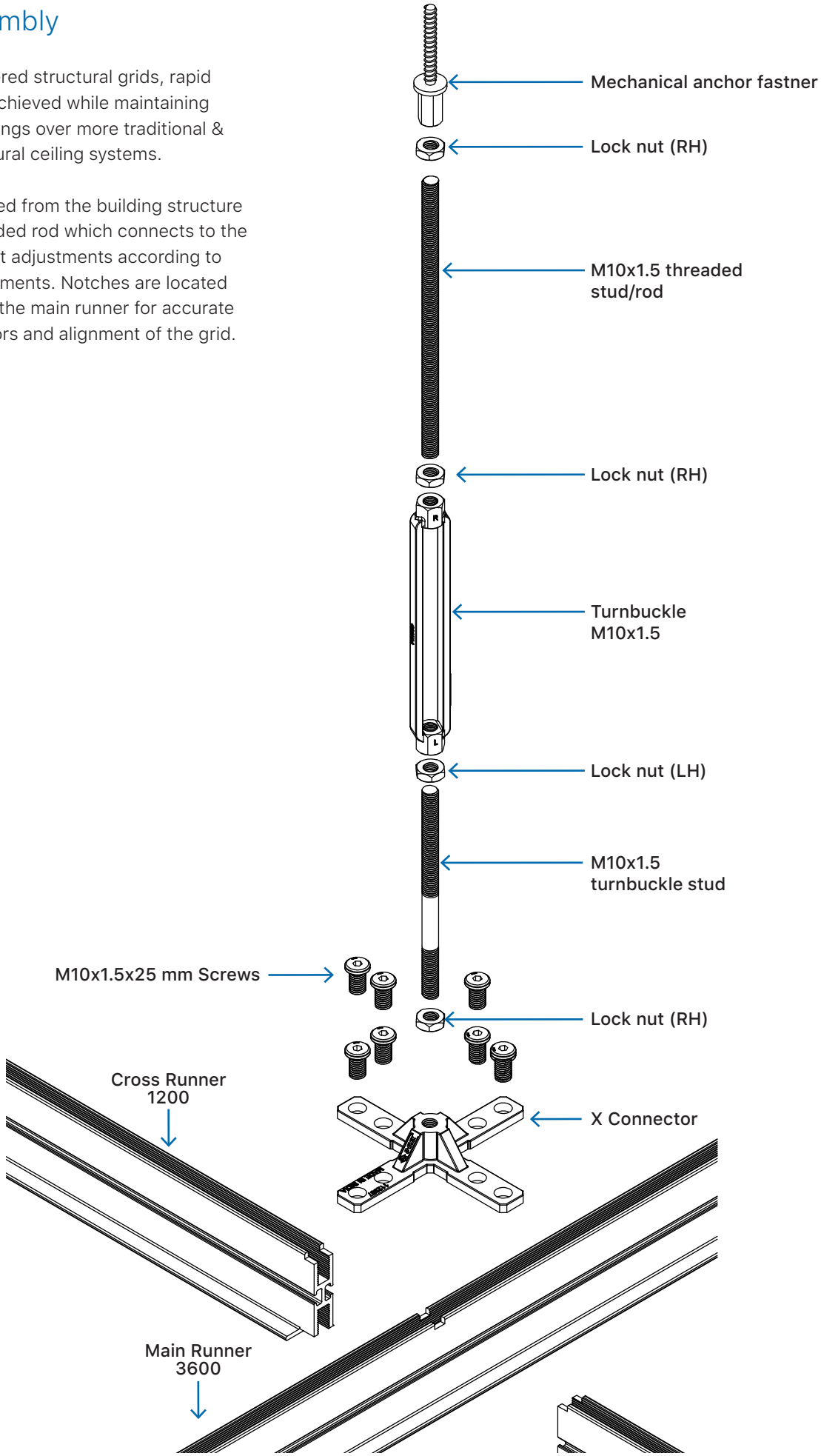
Product code:
LH - 112669 | RH - 112545
M10 x 1.5

Lock nut made of zinc electroplated acts as a connecter to fasten and lock the turnbuckle to the structural grid

System Assembly

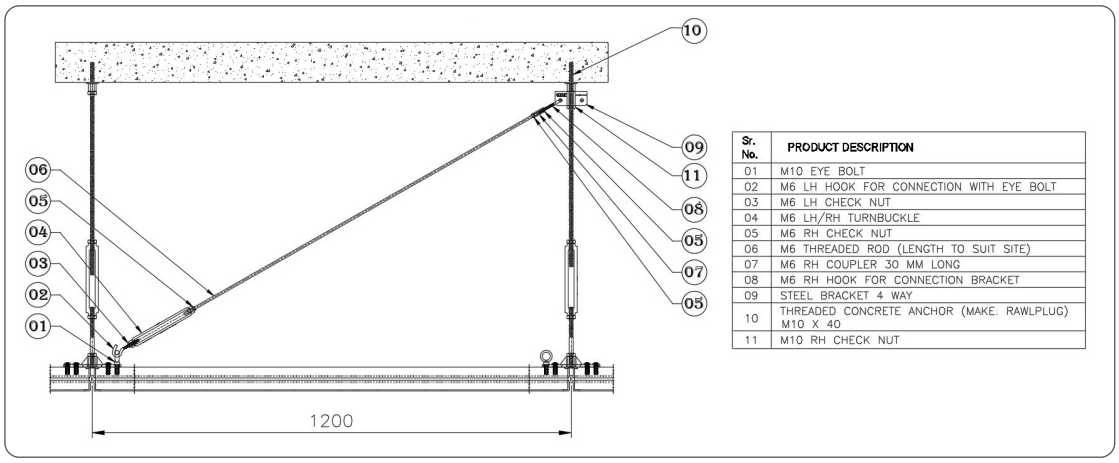
With U-Flex engineered structural grids, rapid installation can be achieved while maintaining substantial cost savings over more traditional & cumbersome structural ceiling systems.

The grid is suspended from the building structure above using a threaded rod which connects to the turnbuckle for height adjustments according to the site/user requirements. Notches are located at fixed intervals on the main runner for accurate location of connectors and alignment of the grid.



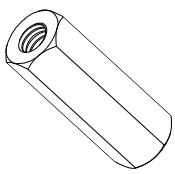
Seismic Support – R.C.C. Slab

The intent of the seismic design is to minimize risk and reduce damage to the structure. The following seismic design solutions are available.



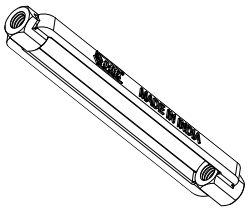
Sr. No.	PRODUCT DESCRIPTION
01	M10 EYE BOLT
02	M6 LH HOOK FOR CONNECTION WITH EYE BOLT
03	M6 LH CHECK NUT
04	M6 LH/RH TURNBUCKLE
05	M6 RH CHECK NUT
06	M6 THREADED ROD (LENGTH TO SUIT SITE)
07	M6 RH COUPLER 30 MM LONG
08	M6 RH HOOK FOR CONNECTION BRACKET
09	STEEL BRACKET 4 WAY
10	THREADED CONCRETE ANCHOR (MAKE: RAWLPLUG) M10 X 40
11	M10 RH CHECK NUT

Support Components



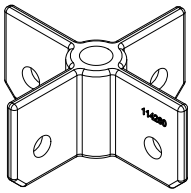
Hexagonal Boss

Product code: 114267



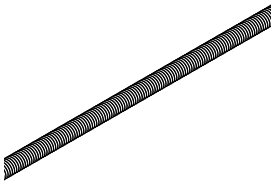
Threaded Turn Buckle

Product code: 114265



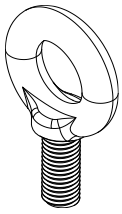
Seismic Support Bracket

Product code: 114260
(80 x 80 x 35 x ø11)



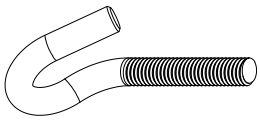
Threaded Rod

Product code: 114266
(M6 x 1.00 RH)



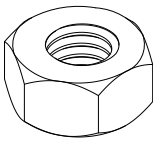
Eye Bolt

Product code: 112884
M10 x 1.50 x 25.00 mm



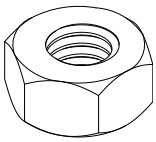
Long Screw Hook

M6 x 1.0 x 75 mm
Product code:
LH: 114261 RH: 114262



Check Nut

M6 x 1.00 mm
Product code:
RH: 114263 LH: 114264



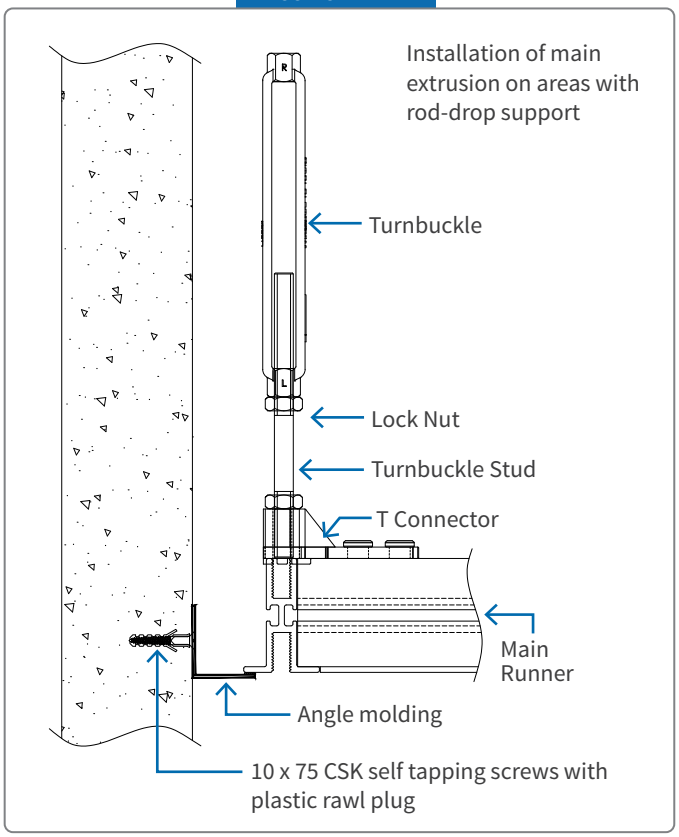
Lock Nut

M10 X 1.50 mm
Product code: 112545

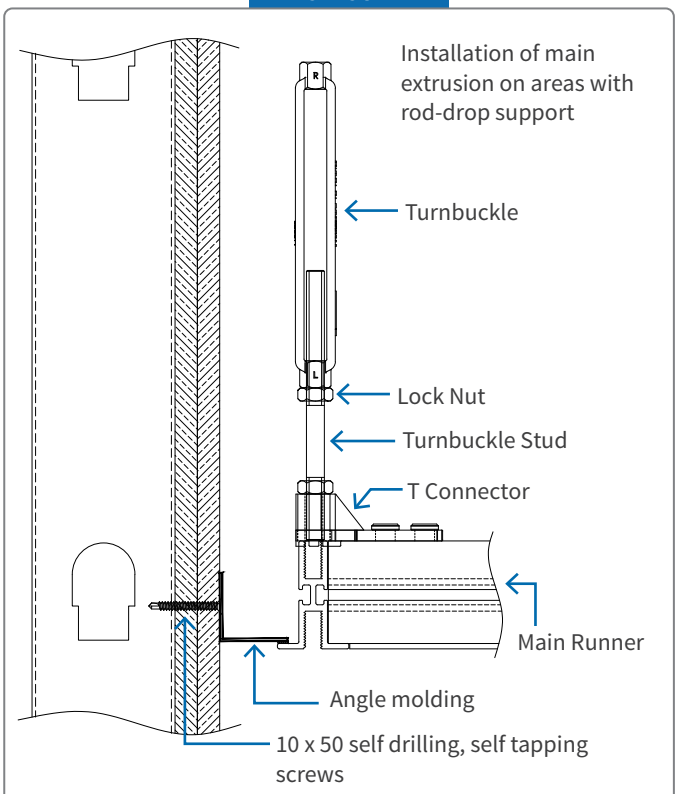
Installation at perimeter

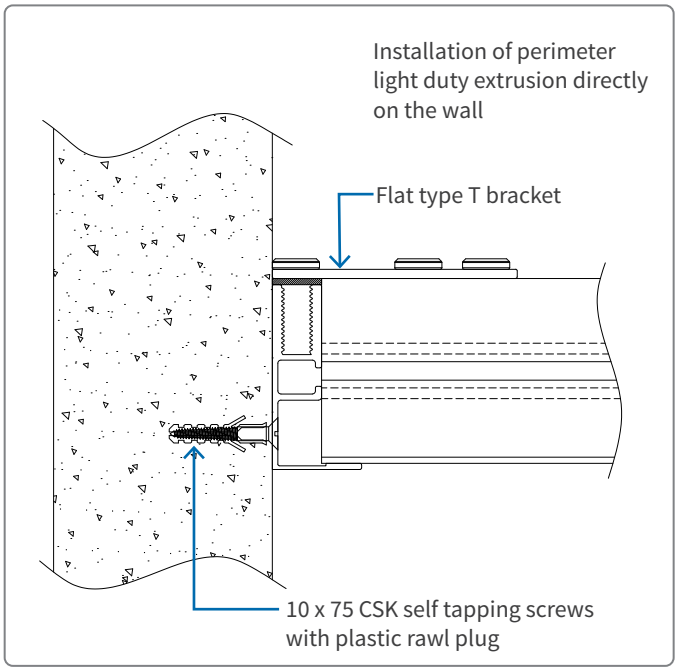
It is recommended to predrill holes in the perimeter 450mm or a maximum 600mm on center to allow screws to pass through and secure the perimeter to studs or structure. The wall angle can be attached to studs or structures using screws.

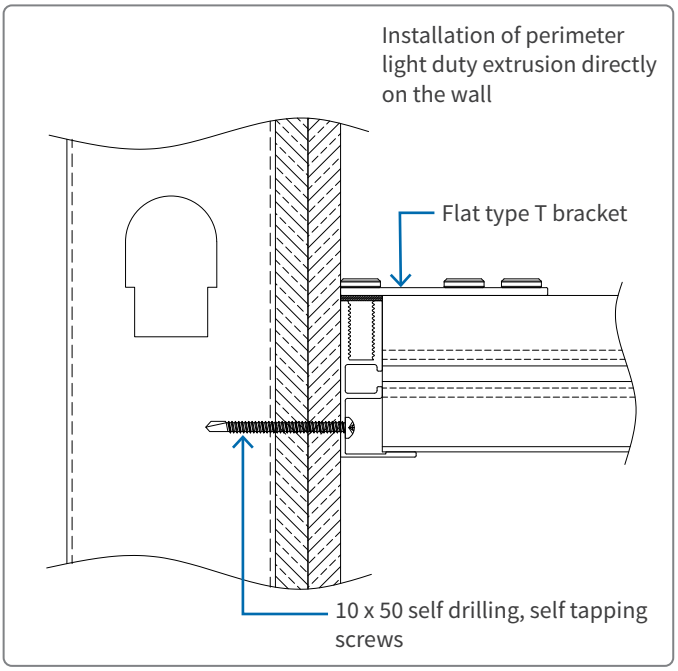
CONCRETE



GYPSUM







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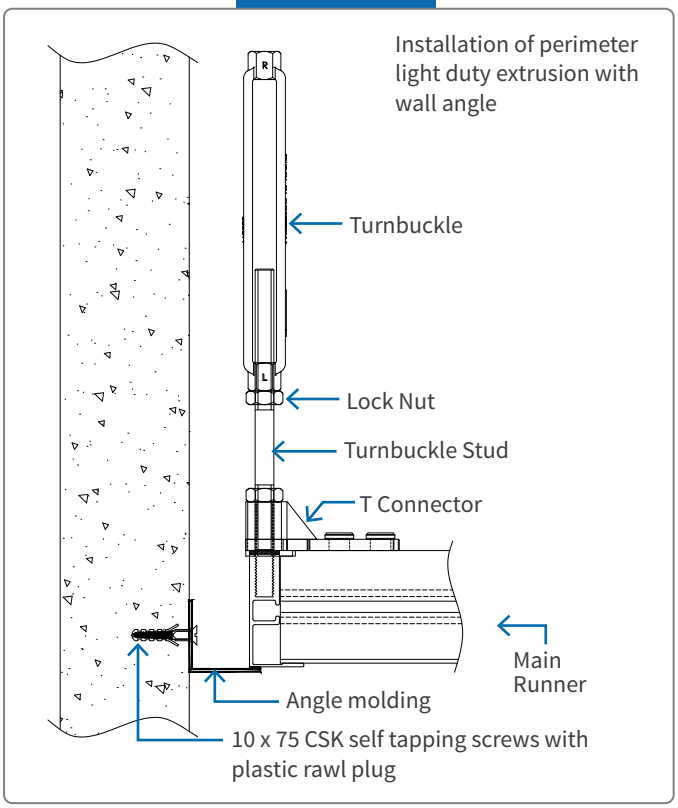

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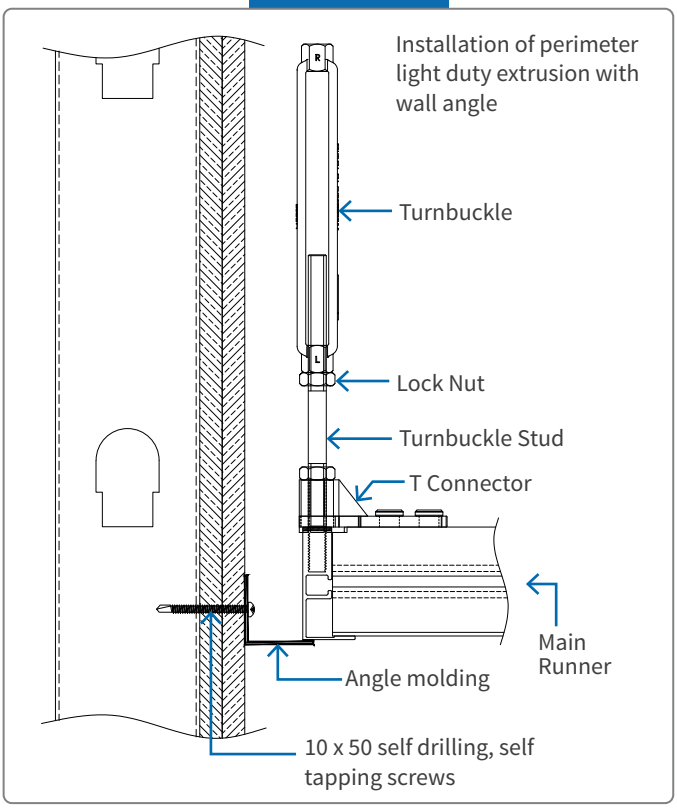
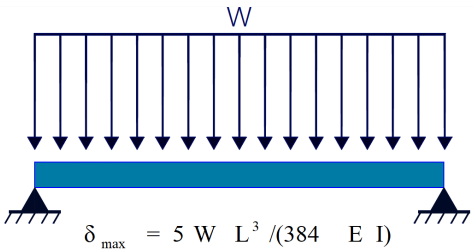


Uniform Load

Span (mm)	Uniform Load, W (kg/m)				
	Load at Deflection Limit			Allowable Load	Load at Yield
	L/180	L/240	L/360		
600	-	-	-	1499	2503
900	-	-	365	666	1113
1200	308	231	154	375	626
1500	158	118	79	240	401
1800	91	68	46	167	278
2100	57	43	29	122	204
2400	38	29	19	94	156



$$\delta_{max} = 5\ W\ L^3 / (384\ E\ I)$$

$$M_{max} = W\ L^2 / 8$$

Uniform Area Load

Main Beam Spacing (mm)	Span (mm)	Uniform Area Load				
		L/180	L/240	L/360	Allowable Load (kg/m^2)	Allowable Load (kN/m^2)
600	1200	-	385	257	625	6.13
	1500	263	197	131	400	3.92
	1800	152	114	76	278	2.72
	2100	96	72	48	204	2.00
	2400	64	48	32	156	1.53
1200	1200	257	192	128	312	3.06
	1500	131	99	66	200	1.96
	1800	76	57	38	139	1.36
	2100	48	36	24	102	1.00
	2400	32	24	16	78	0.77