TECHNICAL GUIDE

The Prelude® XL® Max™ suspension system for data center applications is a pre-engineered ceiling suspension system designed for improved air flow management, load carrying capacity, and adaptability in data centers of all sizes.

The Prelude XL Max suspension system uses 3/8 inch threaded rod support and reconfigurable load connector clips to support cable trays, bus bars, hot aisle containment, and other components to provide maximum load carrying capacity and flexibility, while eliminating the need for a separate strut channel suspension system.

### Code Compliance
You Can Trust

Suspension system meets:
- ASTM C635
- ASTM C636
- ASTM E580
- ICC-ES AC156

Seismic D, E, F configurations available

### Key Selection Attributes

**Prelude XL Max 15/16” Suspension System**

Supports load from the face utilizing 3/8” threaded rod and integrated hanging clips to provide:
- Allows for flexible and reconfigurable overhead cable trays, electrical distribution, and hot aisle containment to meet client needs without a separate strut channel system.
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10 Point Load Data – Single and Dual Point Connection and Seismic Data
HANG YOUR COMPONENTS
FROM THE CEILING

HOW THE SYSTEM WORKS

For additional information and technical guidelines, contact TechLine at 1 877 276-7876 and select prompts 1-2-3.

PMLC – Prelude XL Max
Load Connector
Used to support bus bars, cable trays, hot aisle containment and other components with 3/8” threaded rod along the suspension system face

PMHC – Prelude Max Hanging Clip
Used to carry the system with 3/8” threaded rod along the main and at intersections over the IJC

Main Beam

Cross Tee

Cable Tray
(By others)

Prelude XL Max Main Beams and Cross Tees
15/16” face double bulb suspension system provides maximum load carrying capacity and Seismic D, E, F performance

IJC – Intersection Joint Clip
Used to connect all cross tees together for rigid connection

TLMBS – Top Lock Main Beam Splice Clip
Locks two main beams together for a secure connection.
*Must be within 6” of a PMHC

For more information, call 1 877 276-7876
The ceiling panels are designed and engineered, and must be used with Prelude® XL® Max™. These panels do not fit in other suspension systems.

### VISUAL SELECTION

<table>
<thead>
<tr>
<th></th>
<th></th>
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<th></th>
<th></th>
<th></th>
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</thead>
<tbody>
<tr>
<td>Prelude XL Max</td>
<td>15/16&quot;</td>
<td>12’ HD Main Beam</td>
<td>144 x 15/16 x 2.44&quot;</td>
<td>40.17</td>
<td>135.5</td>
<td>–</td>
<td>10</td>
<td>120</td>
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<tr>
<td>XL7345</td>
<td>15/16&quot;</td>
<td>4’ Cross Tee</td>
<td>48 x 15/16 x 2.44&quot;</td>
<td>40.17</td>
<td>–</td>
<td>–</td>
<td>30</td>
<td>120</td>
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<tr>
<td>XL7325</td>
<td>15/16&quot;</td>
<td>2’ Cross Tee</td>
<td>24 x 15/16 x 2.44&quot;</td>
<td>–</td>
<td>93.82</td>
<td>–</td>
<td>30</td>
<td>60</td>
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<tr>
<td>Molding</td>
<td>7/8&quot;</td>
<td>12’ Structural Wall Angle</td>
<td>144 x 7/8 x 7/8&quot;</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>12</td>
<td>144</td>
</tr>
</tbody>
</table>

*Simple Span

### ACCESSORIES

- **PMHC** – Prelude Max Hanging Clip – Used to carry the ceiling system with 3/8" threaded rod from structure.
- **XTAC** – Cross Tee Adapter Clip – Secures or main beams of the structural wall molding around the perimeter of the ceiling installation.
- **TLMS** – Top Lock Main Beam Splice Clip – Locks two main beams together for a secure connection. 10 pcs (included with item 730145 Main Beam).
- **PMHDC** – Maximum Hold Down Clip – Attaches to the top bulb of the Prelude XL Max suspension system to hold ceiling panels in place, helps to prevent ceiling panel movement.
- **Molding** – SWA9878HRC 12’ Structural Wall Angle 144 x 7/8 x 7/8" –

* Machine screws, Heavy Hex Nut, and Locknut included

### TYPICAL APPLICATIONS

- Data Centers
- Laboratories
- Hospitals

For more information, call 1 877 276-7876.
**CLEAN ROOM™ FL**
- Clean Rooms up to ISO Class 5 (Class 100)
- Durable – Washable, Scrubbable, Soil-resistant
- Non-directional visual reduces installation time and scrap
- 30-Year Limited System Warranty against visible sag, mold, and mildew

**OPTIMA®**
- Optima® PB panels are part of the Sustain® portfolio, and meet the most stringent sustainability compliance standards today
- Smooth, clean, durable finish – Washable, Impact-resistant, Scratch-resistant, Soil-resistant
- Items with PB suffix are manufactured with a plant-based binder
- Outstanding acoustical performance for open plan areas, both Articulation Class (180-200) and NRC (0.90-1.00)
- Energy-saving high light-reflective finish

*These panels are specially sized and engineered for Prelude® XL® Max™ and must be used with the system. These panels do not fit in other suspension systems.

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## RECOMMENDED CEILING PANELS

### VISUAL SELECTION

<table>
<thead>
<tr>
<th>Edge Profile</th>
<th>Item No.</th>
<th>Description</th>
<th>Dimensions Nominal (Inches)</th>
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<tr>
<td>PRELUDE® XL® MAX™ Square Lay-in</td>
<td>1778</td>
<td>Fine Fissured</td>
<td>23.5 x 23.5 x 5/8”</td>
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<td>1779</td>
<td>Fine Fissured</td>
<td>23.5 x 47.5 x 5/8”</td>
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<tr>
<td></td>
<td>1488</td>
<td>Canyon</td>
<td>23.5 x 23.5 x 5/8”</td>
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<td></td>
<td>1489</td>
<td>Canyon</td>
<td>23.5 x 47.5 x 5/8”</td>
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<td></td>
<td>1927</td>
<td>Ultima</td>
<td>23.5 x 23.5 x 3/4”</td>
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<td></td>
<td>1928</td>
<td>Ultima</td>
<td>23.5 x 47.5 x 3/4”</td>
</tr>
<tr>
<td></td>
<td>1815</td>
<td>Clean Room FL</td>
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<td>Clean Room FL</td>
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</tr>
<tr>
<td></td>
<td>3398</td>
<td>Optima</td>
<td>23.5 x 23.5 x 1”</td>
</tr>
<tr>
<td></td>
<td>3399</td>
<td>Optima</td>
<td>23.5 x 47.5 x 1”</td>
</tr>
<tr>
<td></td>
<td>1747ABL</td>
<td>Fine Fissured – Black</td>
<td>23.5 x 23.5 x 5/8”</td>
</tr>
<tr>
<td></td>
<td>1748ABL</td>
<td>Fine Fissured – Black</td>
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### PERFORMANCE SELECTION

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<th>Fire Performance</th>
<th>Light Reflect</th>
<th>Anti-Mold &amp; Mildew</th>
<th>Sag &amp; Mellow</th>
<th>Antifungal</th>
<th>Recycled Content</th>
<th>Recycle Program</th>
<th>Ammonia</th>
<th>30-Yr Warrant</th>
<th>Acoustics</th>
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<td>170 Class</td>
<td>0.75</td>
<td>35</td>
<td>BETTER</td>
<td>Class A</td>
<td>0.86</td>
<td>Std</td>
<td>Std</td>
<td>• • •</td>
<td>1-Yr</td>
<td>170 Class</td>
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<td>1-Yr</td>
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<td>Std</td>
<td>• • •</td>
<td>1-Yr</td>
<td>170 Class</td>
</tr>
</tbody>
</table>

For more information, call 1 877 276-7876
OVERVIEW: FIVE EASY INSTALLATION STEPS
1. Install threaded rod to deck
2. Install the structural wall angle
3. Install main beams, screw attach PMHC to the mains and attach to threaded rods
4. Snap in cross tees
5. Slide on and secure the load connectors

IMPORTANT: Connections for load-carrying grid form a structural element. Please take time to understand and follow installation instructions to ensure rated load performance.

PRELUDE® XL MAX® LOAD CONNECTOR (PMLC)

- Imperial: #8 X 1/2” L (Min.)
  - Sharp Point Truss
  - Head Screw
- Imperial: 3/8-16” Heavy Hex
  - Single Locknut Grade 2, 11/16” Width, 35/64” Height
  - (MSC Item #52592839)
- Imperial: 3/8-16 Heavy
  - Hex Nut
  - ANSI/ASME B18.2.2
  - Grade 2, 11/16” Width, 23/64” Height
  - (MSC Item #87921425)
- Imperial: 3/8”-16 Threaded
  - Rod Low-strength Steel

PMHC – 100 pcs
F2PMLC – 50 pcs

TOP LOCK MAIN BEAM SPLICE CLIP (TLMBS)

IMPORTANT: Rivets are properly installed when the compressed rivet body protrudes a minimum of 1/8" past the TLMBS surface.

INTERSECTION JOINT CLIP (IJC)

- Imperial: 3/8-16 Heavy
  - Hex Nut
  - ANSI/ASME B18.2.2
  - Grade C-1010
  - Steel with black oxide
  - 1/8” Thickness, 7/8” Width,
  - Imperial: 3/8” Washer
  - 23/64” Height
  - Grade 2, 11/16” Width,
  - Hex Nuts
  - Heavy
  - Imperial: 3/8-16
  - Low-strength Steel
  - Imperial: 3/8” Threaded Rod
  - #8 x 1/2” L Sharp Point Truss
  - Main Beam/4’ Cross Tee
  - INTERSECTION JOINT CLIP (IJC)
  - Top Lock
  - Main Beam Splice

IMPERIAL: 3/8-16 Heavy
Hex Nut
ANSI/ASME B18.2.2,
Grade 2,
Hex Locknuts
Heavy
Imperial: 3/8-16
Low-strength Steel
Imperial: 3/8” Threaded Rod

SYSTEM COMPONENTS

PRELUDE MAX HANGING CLIP (PMHC)

- Imperial: 3/8-16 Heavy
  - Hex Nut
  - ANSI/ASME B18.2.2
  - Grade C-1010
  - Steel with black oxide
  - 1/8” Thickness, 7/8” Width,
  - Imperial: 3/8” Washer
  - 23/64” Height
  - Grade 2, 11/16” Width,
  - Hex Nuts
  - Heavy
  - Imperial: 3/8-16
  - Low-strength Steel
  - Imperial: 3/8” Threaded Rod

PMHC – 150 pcs
F2PMLC – 50 pcs

For more information, call 1 877 276-7876
INSTALLATION AND LAYOUT OVERVIEW

SEISMIC DATA

SEISMIC INFORMATION

IBC categories D, E and F must also meet these additional requirements:

- Structural wall angle is to be used along the perimeter with a XTAC clip attaching the grid to the angle molding, along fixed walls only.
- Grid must be attached to two adjacent walls – opposite walls must have a 3/4" clearance in accordance with ASTM E580.
- Ends of main beams and cross tees must be connected together to prevent their spreading. These should be locked into place using the lateral support bar.
- Ultra Heavy-duty grid system. See load data.
- Ceiling areas over 1,000 SF must have standard rigid bracing for the grid.
- Ceilings without rigid bracing must have 2" oversized trim rings for sprinklers and other penetrations.
- Changes in ceiling plane must have positive bracing.
- Mechanicals (Cable trays, electrical, etc) may be attached and supported by the ceiling grid, per our instructions. However, mechanicals must be seismically braced by others.
- Suspended ceilings will be subject to special inspection.

NOTE: Consult your local code professional for information specific to your region. California projects may be governed by DSA and OSHPD.

NOTE: The structural wall molding and the lateral support bar must be fastened to wall stud framing using a #8 steel framing screw of an appropriate length or positively attached to other support structures.

SYMBOL KEY:

- Intersection Joint Clip (IJC)
- Cross Tee-to-Cross Tee
- Prelude Max Hanging Clip (PMHC) and Intersection Joint Clip (IJC)
- Cross Tee Adapter Clip (XTAC)
- Fixed Wall Molding Condition
- Lateral Support Bar (LSB)
- Float Wall Molding Condition

Fixed Wall

Float Wall

LSB

NOTE: The structural wall molding and the lateral support bar must be fastened to wall stud framing using a #8 steel framing screw of an appropriate length or positively attached to other support structures.
## PRELUDE® XL MAX® LOAD CONNECTOR – MID-SPAN POINT LOADS

Values are not valid when a TLMBS is within the span

### Center Point load information (lbs.)

<table>
<thead>
<tr>
<th>Item No.</th>
<th>2 Ft</th>
<th>3 Ft</th>
<th>4 Ft</th>
<th>5 Ft</th>
<th>6 Ft</th>
<th>7 Ft</th>
</tr>
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<tr>
<td>730145</td>
<td>262.5</td>
<td>143.0</td>
<td>105.4</td>
<td>67.3</td>
<td>58.2</td>
<td>42.3</td>
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<tr>
<td>XL7345</td>
<td>93</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>XL7325</td>
<td>117.2</td>
<td></td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

**NOTES:** These values are based on the spans being installed in a 2' x 2' module (using a 2' tee). Unbraced or 2' x 4' modules will have a lower mid span load value.

For additional loading configurations, contact Techline for guidance and a qualified engineering professional.

Max mid span load = 93 lbs
Max point load within 3" of threaded rod = 300 lbs

All numbers above are for use with a 2' x 2' ceiling tile installation.

For more information, call 1 877 276-7876
### System Performance Criteria*

<table>
<thead>
<tr>
<th>Hanging Method</th>
<th>Point Load (lbs)</th>
<th>Area Load (lbs/ft²)</th>
<th>Ultimate Load (lbs/ft²)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Loading with-in 3&quot; of threaded rod support with building connections</td>
<td>300lbs</td>
<td>18.75lbs/ft²</td>
<td>646lbs</td>
</tr>
<tr>
<td>4' x 4' on centers</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Loading with-in 3&quot; of threaded rod support with building connections</td>
<td>300lbs</td>
<td>37.5lbs/ft²</td>
<td>646lbs</td>
</tr>
<tr>
<td>4' x 2' on centers</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Loading with-in 3&quot; of threaded rod support with building connections</td>
<td>300lbs</td>
<td>75lbs/ft²</td>
<td>210lbs</td>
</tr>
<tr>
<td>Mid Span Loading with building connections</td>
<td>93lbs</td>
<td>5.8lbs/ft²</td>
<td>210lbs</td>
</tr>
<tr>
<td>4' x 4' on centers</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Loading with-in 3&quot; of threaded rod support with building connections</td>
<td>93lbs</td>
<td>11.6lbs/ft²</td>
<td>429lbs</td>
</tr>
<tr>
<td>Mid Span Loading with building connections</td>
<td>117lbs</td>
<td>29.25lbs/ft²</td>
<td></td>
</tr>
<tr>
<td>2' x 2' on centers</td>
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#### Unistrut Beam & Bridging Guidelines

<table>
<thead>
<tr>
<th>Load Condition</th>
<th>Maximum Point Load 300 lbs</th>
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</thead>
<tbody>
<tr>
<td>Simple Beam, Concentrated Load at Mid-Span</td>
<td>4', 5', 6', 7', 8'</td>
</tr>
<tr>
<td>Span</td>
<td>P1000, P5500, P5501, P1001, P1001</td>
</tr>
<tr>
<td>Simple Beam, Two Equal Concentrated Loads at 1/4 pts</td>
<td>8', 9', 10', 11', 12'</td>
</tr>
<tr>
<td>Span</td>
<td>P5500, P5501, P5501, P5501, P5501</td>
</tr>
</tbody>
</table>

**NOTE:** When additional structural support is necessary due to limitations of structural attachment points, strut channel systems may be used. The above member selection tables are to be used as general guidelines and must be designed by a qualified structural engineer. The member size requirements in the tables may potentially be reduced.
SINGLE POINT CONNECTION

Cable Tray (By others)
See manufacturer of cable tray for the recommendation of seismic bracing for the cable tray

DUAL POINT CONNECTION

Cable Tray (By others)
See manufacturer of cable tray for the recommendation of seismic bracing for the cable tray
TAKE THE NEXT STEP

1 877 276 7876
Customer Service Representatives
7:45 a.m. to 5:00 p.m. EST
Monday through Friday

TechLine – Technical information, detail drawings, CAD design assistance, installation information, other technical services – 8:00 a.m. to 5:30 p.m. EST, Monday through Friday. FAX 1 800 572 8324 or email: techline@armstrongceilings.com

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