

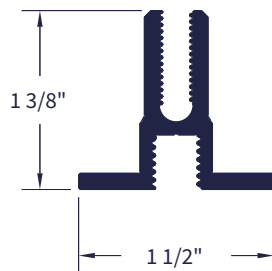


DATA CENTER CEILINGS

THE MOST VERSATILE DESIGN PLATFORM FOR TOMORROW'S DATA CENTER

EFTCG DATA CENTER CEILING SYSTEM BENEFITS

- Serves the dual purpose of both drop ceiling and structural support grid for overhead utility distribution
- Provides an attachment or suspension platform for containment barriers, partitions, or surface mounted equipment
- Greater installation and routing flexibility of distribution systems and partitions
- Totally accessible overhead suspension allows for simple expansion, upgrade or distribution system changes
- Reduces the amount of interstitial support steel by up to 50%
- Eliminates the need to have both strut grids for overhead distribution suspension and acoustical ceiling tile drop ceilings
- No drop ceiling penetrations means no harmful debris that can damage electronic equipment
- Ceiling components are non-progressive and removable, without compromising the structural integrity of the installed ceiling grid.

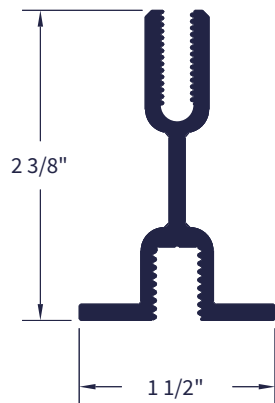


EF 1.5 HEAVY LOAD
CEILING SUSPENSION

EF 1.5

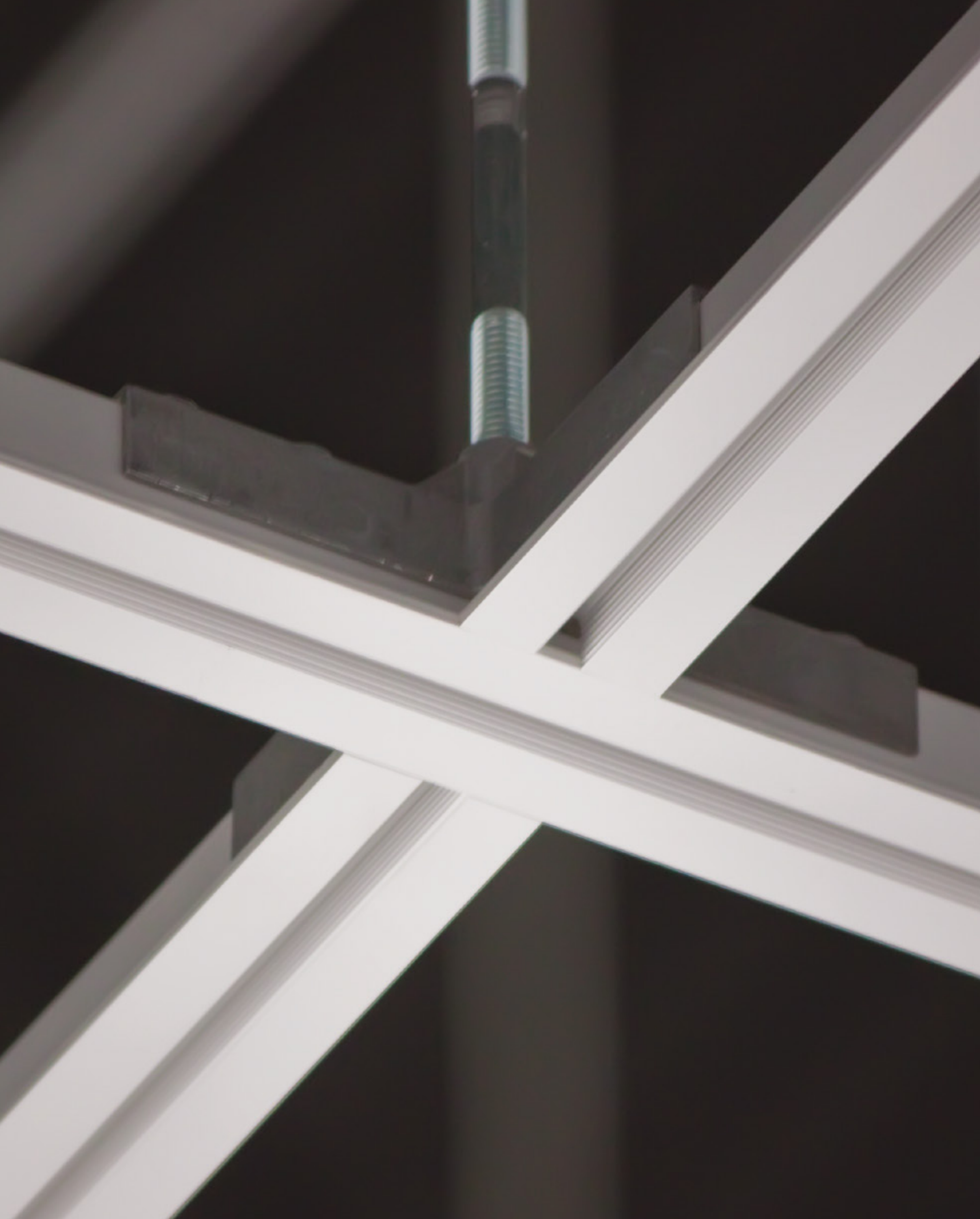
CEILING SUSPENSION

- Load Bearing Design - The EF ceiling suspension is engineered to support direct suspension of overhead cable distribution and containment barriers.
- All extrusions have a continuous 3/8-16 thread boss for attachment and/or suspension at any location
- Die cast intersection connectors join the extruded aluminum grid members and provide an attachment point for 4' x 4' suspension from building structure
- Perimeter can be fixed or floating for seismic compliance
- Standard Finish - Clear Anodized. Black or white optional.



EF 3.0

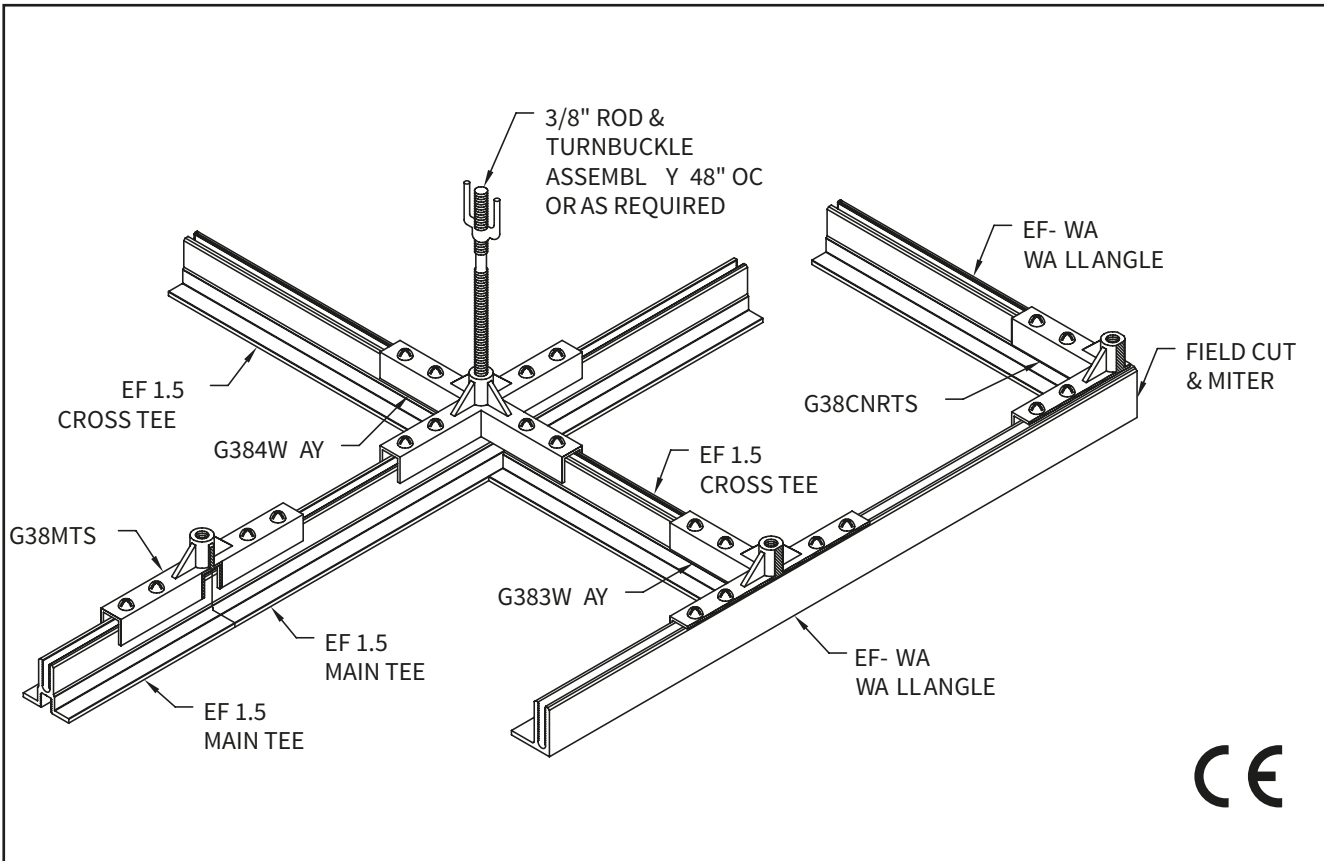
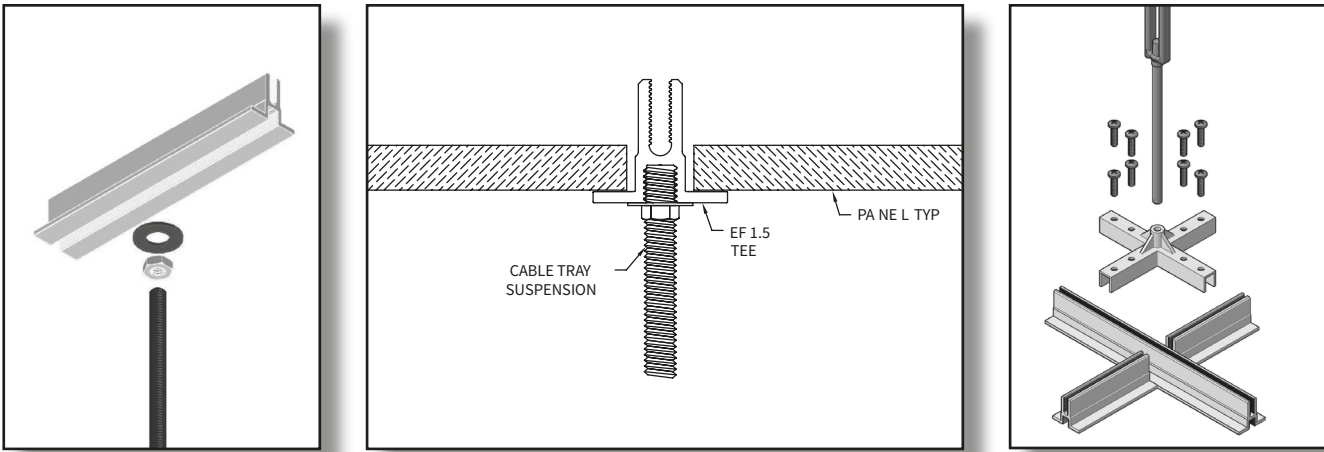
EF 3.0 EXTREME LOAD
CEILING SUSPENSION



EF 1.5 Ceilings

CEILING DETAILS

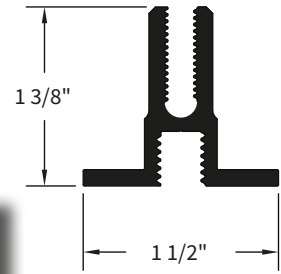
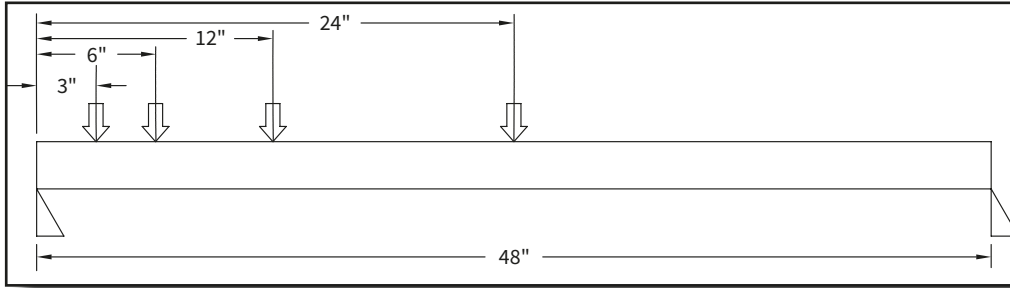
TYPICAL FOR ALL EF SUSPENSION SYSTEMS



Typical Assembly (1.5 Extrusion Depicted)

EF 1.5 LOAD DATA

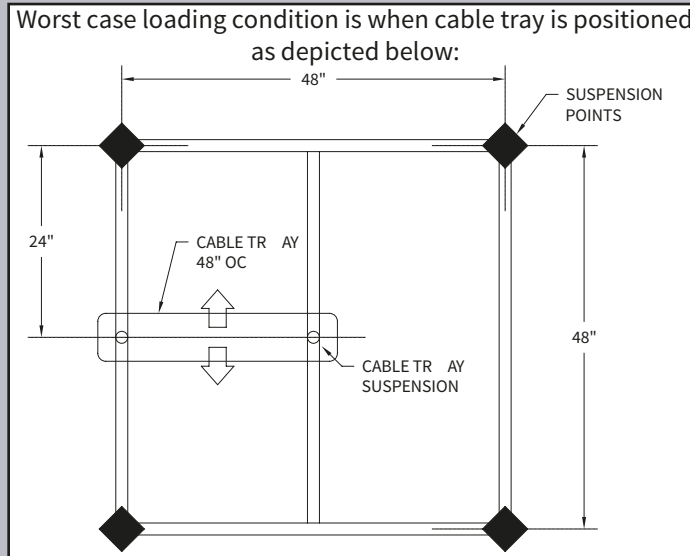
Point Load and Deflection



| Single Point Load | | | Lbs@24" | | Lbs@12" | | Lbs@6" | | Lbs@3" | |
|-------------------|---------------------|--------------------------|------------------|--------------------------------------|------------------|--------------------------------------|------------------|--------------------------------------|------------------|--------------------------------------|
| Hanger Span | Deflection Criteria | Vertical Deflection (in) | Point Load (lbs) | Uniform Load (lbs/ft ²)* | Point Load (lbs) | Uniform Load (lbs/ft ²)* | Point Load (lbs) | Uniform Load (lbs/ft ²)* | Point Load (lbs) | Uniform Load (lbs/ft ²)* |
| 48" | L/360 | 0.13 | 63 | 3.9 | 74 | 4.6 | 135 | 8.4 | 335 | 20.9 |
| 48" | L/180 | 0.27 | 127 | 7.9 | 148 | 9.3 | 275 | 17.2 | 530 | 33.1 |
| 48" | L/90 | 0.53 | 241 | 15.1 | 286 | 17.9 | 550 | 34.4 | 1000 | 62.5 |

* Structural Engineer to specify allowable uniform load for deck above ceiling.

Cable Tray Loading

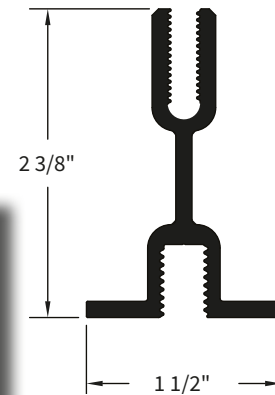
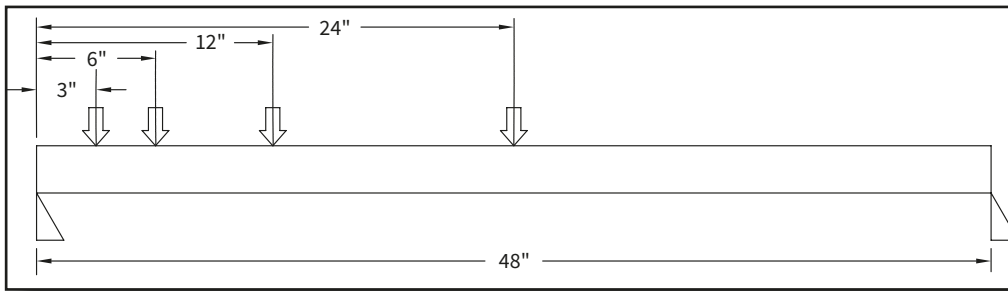


Point Load below based on worst case loading of Cable Tray.

| Deflection Criteria | Vertical Deflection (in.) | Point Load lbs@24" | Number of Cat 6 Cables including Cable Tray Supported 48" O.C. |
|---------------------|---------------------------|--------------------|--|
| L/360 | 0.13 | 33 | 413 |
| L/180 | 0.27 | 66 | 940 |
| L/90 | 0.53 | 120 | 1,853 |

EF 3.0 LOAD DATA

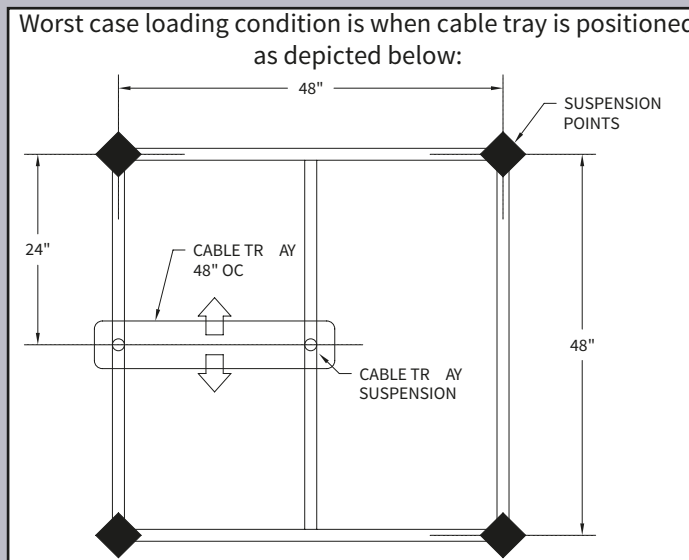
Point Load and Deflection



| Single Point Load | | | Lbs@24" | | Lbs@12" | | Lbs@6" | | Lbs@3" | |
|-------------------|---------------------|--------------------------|------------------|--------------------------------------|------------------|--------------------------------------|------------------|--------------------------------------|------------------|--------------------------------------|
| Hanger Span | Deflection Criteria | Vertical Deflection (in) | Point Load (lbs) | Uniform Load (lbs/ft ²)* | Point Load (lbs) | Uniform Load (lbs/ft ²)* | Point Load (lbs) | Uniform Load (lbs/ft ²)* | Point Load (lbs) | Uniform Load (lbs/ft ²)* |
| 48" | L/360 | 0.13 | 235 | 14.7 | 330 | 20.6 | 610 | 38.1 | 1150 | 71.9 |
| 48" | L/180 | 0.27 | 460 | 28.8 | 655 | 40.9 | 1200 | 75.0 | 2250 | 140.6 |
| 48" | L/90 | 0.53 | 860 | 53.8 | 1310 | 81.9 | 2350 | 146.9 | 4300 | 268.8 |

* Structural Engineer to specify allowable uniform load for deck above ceiling.

Cable Tray Loading



Point Load below based on worst case loading of Cable Tray.

| Deflection Criteria | Vertical Deflection (in.) | Point Load lbs@24" | Number of Cat 6 Cables including Cable Tray Supported 48" O.C. |
|---------------------|---------------------------|--------------------|--|
| L/360 | 0.13 | 149 | 1,978 |
| L/180 | 0.27 | 298 | 4,010 |
| L/90 | 0.53 | 596 | 7,800 |



EF 1.5 Ceilings
Infomart, Dallas, TX



EFTCG DATA CENTER CEILINGS

EF 15 Ceilings
EBM Data Center, Phoenix, AZ

OCTAVE CEILING PANELS

Octave High NRC lay-in acoustical ceilings panels provide an economical solution for EF data center ceiling suspension. Octave panels deliver a high quality appearance, fire resistance, and high acoustical performance.

Design:

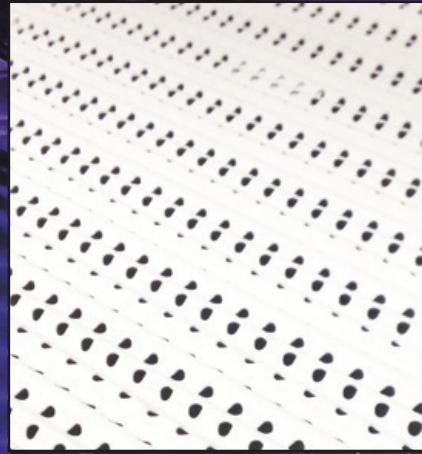
- Material: Mineral wool tile, fleece-covered
- Colors: White (Standard) or Black (Special Order)
- Nominal 2' x 2' and 2' x 4' module sizes..... no field cutting required
- Thickness: 3/4" nominal
- Sound Reduction: 33dB, CAC 35 dB, NRC 0.80
- Reaction to fire: White finish
 - Class 1 (ASTM E84-97a)
 - Class A (ASTM E 1264)
 - CAN/ULC-S102
 - A2-s1, d0 (EN 13501-1)
- Light Reflectance: Approx 87 (ISO 7724-2, ISO 7724-3) nominal
- Humidity Resistance: Up to 95% RH
- Mold Resistance: According to ASTM D3273



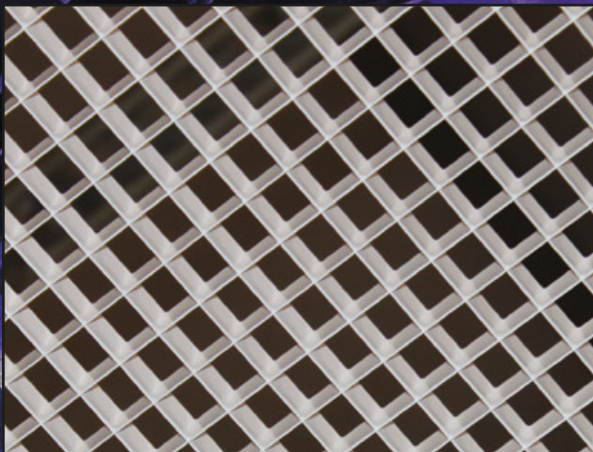
CORRUGATE D ACOUSTICAL PANELS

Attributes:

- Perforated aluminum
- Standard Perforation Pattern is 0.125" (1/8") diameter holes on 0.328" (21/64") staggered centers
- 13.2% open area
- .95 NRC with 2" thick x 1.5# density polyethylene encapsulated fiberglass insulation
- Nominal 24" x 24" & 24" x 48" panel sizes.
- Standard finish: White or clear matte powder coat



DATAVENT PANELS



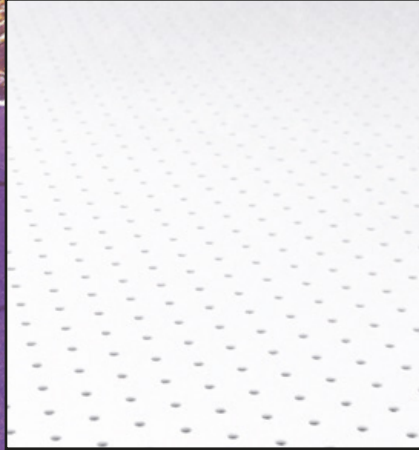
Attributes:

- Cell size 1/2" x 1/2". Panel height = 1/2".
- 92% open area
- Nominal 24" x 24", 24" x 48", 48" x 48" panel sizes. Custom sizes are available upon request.
- Standard finish: White powder coat
 - Also Available in Black

Applications:

- Hot air return ceiling panel
- Security ceiling panel when used with security hold down clips
- Meets NFPA standards when sprinklers are above the suspension

FLAT METAL PANELS



Attributes:

- Perforated or non-perforated
- Many perforation options available
- Nominal 24" x 24" & 24" x 48" panel sizes.
- Standard finish: White powder coat

ADDITIONAL PANEL OPTIONS

DATA LUME LED PANELS
FOR EF SUSPENSION SYSTEMS

EFTCG DATA CENTER CEILING ACCESSORIES

The DataLUME LED Panels are designed to lay in **EFTCG** G20 or G38 series rod-suspended structural Data Center ceiling systems. 2' x 2' or 2' x 4' LED Panels are available.

Panels are available in a neutral color temperature and offers 0-10V DC Control dimming.

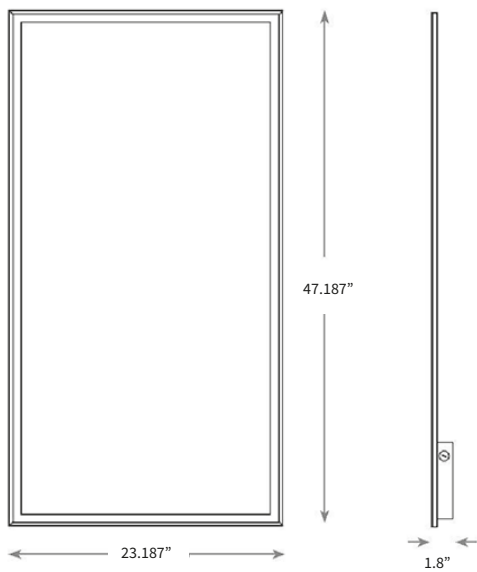
The LEDs enable long life, high lumen maintenance, and high CRI. LED Panels are low maintenance, and constructed without hazardous materials.

DATA LUME - LEDP2450 W 2' x 4' LED PANEL LIGHTS

Features:

- Panel frame is extruded aluminum, painted white
- Ultra thin for narrow plenums
- Also available in 2' x 2'
- Fits standard T-bar and narrow grid drop ceilings
- 7/8" conduit knock out provided

Dimensions:



Product Specifications

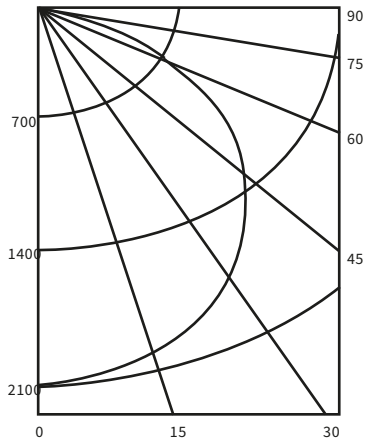
| ITEM | SPECIFICATION | DETAILS |
|---------------------|--------------------------|---------------------------------------|
| General Performance | Spacing Criteria | Available upon request |
| | Wattage (W) | 50W |
| | Color Temperature (CCT) | 5000K |
| | Nominal Lumens Delivered | 5000lm |
| | Efficacy (LM/W) | 100lm/w |
| | CRI | 90 |
| | Color Consistency | Proprietary binning for uniform color |
| | Lumen Maint. (L70) | More than 50,000 hours |
| Electrical | Power Factor | Over 95% |
| | Input Voltage | 100V-277V 50/60 Hz |
| | Power Consumption | 50 watt nominal |
| Control | Dimming Switch | Standard 0-10V dimming 10%-100% |
| | Linking Lengths/Qty | 15 cable feet x 20 panels |
| Physical | Dimensions | 23.187" x 47.187" x 1.8" |
| | Weight | Max 14 lbs. |
| | Housing | Aluminum |
| | Lens | Translucent white PS |
| | Operating Temperature | -5°F to 104°F |
| | Humidity | 20% - 85% RH, non condensing |
| Certification | Certification | c ETLus , Fcc |
| | Material Usage | RoHS compliant; no mercury |
| | Environment | Damp location |
| | Warranty | Five year |

Metric Dimensions: 588.95mm x 1198.55mm x 45.72mm



Photometry

LEDP2450W /Test Wattage: 47.2w



Intensity (Candlepower) Summary

| Angle | 0° | 90° |
|-------|------|------|
| 0° | 1675 | 1675 |
| 5° | 1669 | 1668 |
| 15° | 1599 | 1597 |
| 25° | 1477 | 1474 |
| 35° | 1329 | 1321 |
| 45° | 1099 | 1094 |
| 55° | 878 | 878 |
| 65° | 598 | 594 |
| 75° | 310 | 311 |
| 85° | 66 | 66 |
| 90° | 1 | 2 |

— 0° 90°

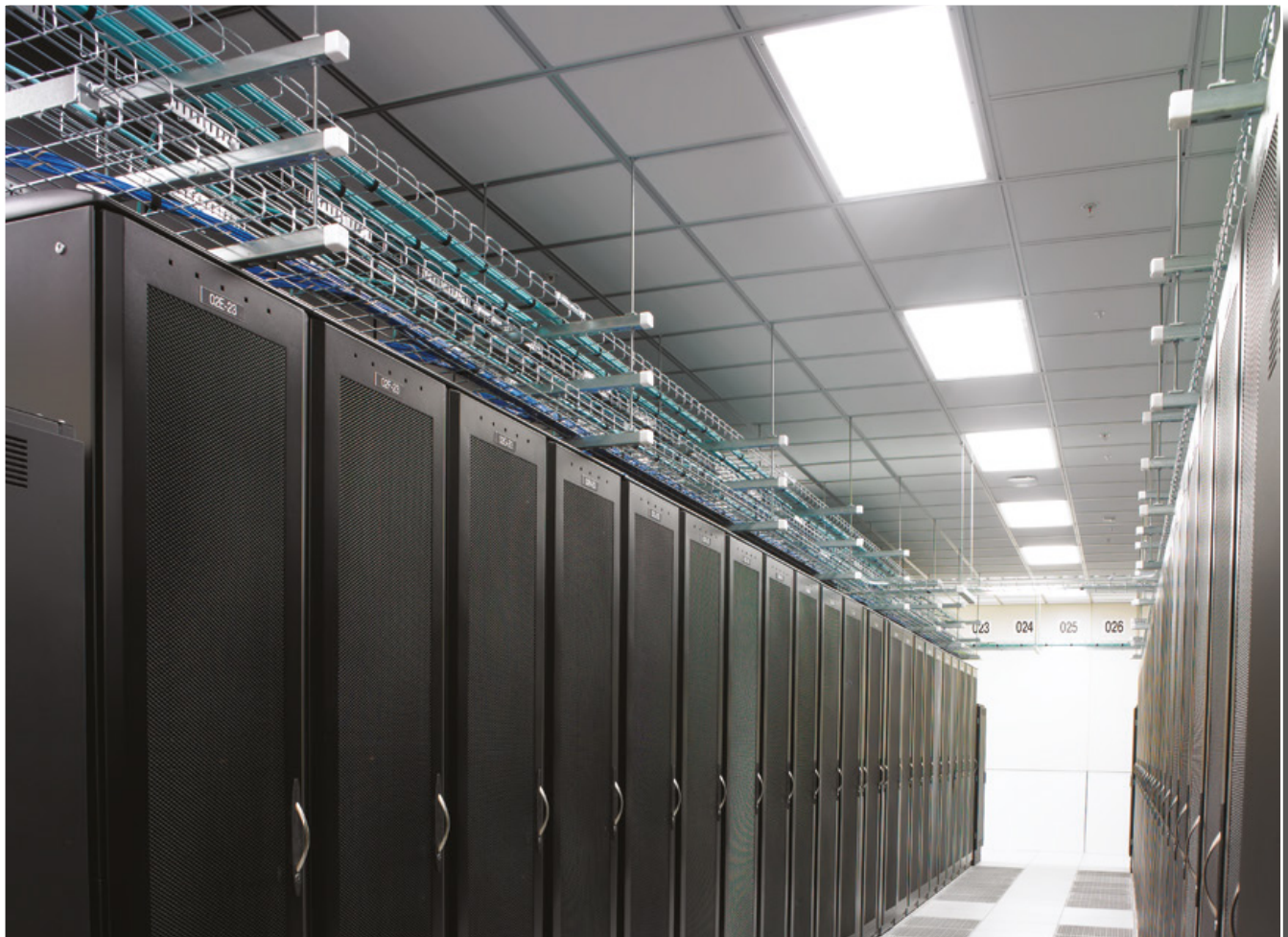
Zonal Lumen Summary

| Zone | Lumens | % Lamp | % Fix |
|------|--------|--------|-------|
| 0-30 | 1304 | 27.0% | 27.0% |
| 0-40 | 2141 | 44.3% | 44.3% |
| 0-60 | 3802 | 78.7% | 78.7% |
| 0-90 | 4833 | 100% | 100% |

Application Reference

| Open Space | | | | | |
|------------|--------|---------|-----|------|------------|
| Spacing | Lumens | Wattage | LPW | w/SF | Average fc |
| 8 x 8 | 5000Lm | 50 | 100 | 0.78 | 70 |
| 8 x 10 | 5000Lm | 50 | 100 | 0.60 | 52 |
| 10 x 10 | 5000Lm | 50 | 100 | 0.50 | 44 |
| 10 x 12 | 5000Lm | 50 | 100 | 0.42 | 37 |

9' ceiling 80/50/20 reflectances, 2.5' workplane, open room, CCT: 4000K
LLF: 1.0 Initial. Open Space: 50' x 40' x 10'

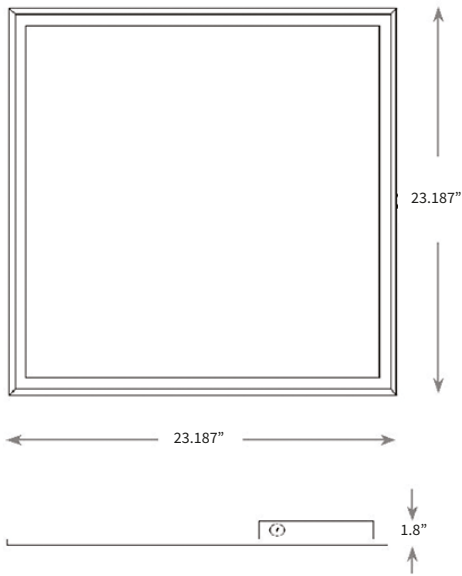


DATA LUME - LEDP2240 W 2' X 2' LED PANEL LIGHTS

Features:

- Panel frame is extruded aluminum, painted white
- Ultra thin for narrow plenums
- Also available in 2' x 4'
- Fits standard T-bar and narrow grid drop ceilings
- 7/8" conduit knock out provided

Dimensions:



Product Specifications

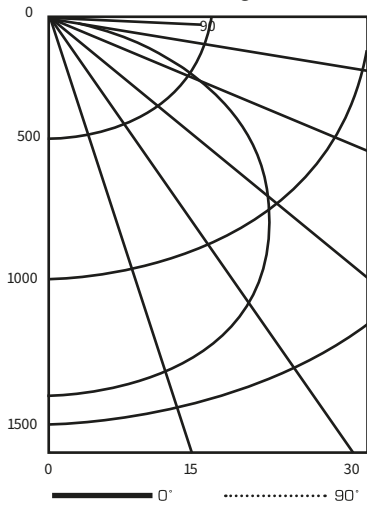
| ITEM | SPECIFICATION | DETAILS |
|---------------------|--------------------------|---------------------------------------|
| General Performance | Spacing Criteria | Available upon request |
| | Wattage (W) | 40W |
| | Color Temperature (CCT) | 5000K |
| | Nominal Lumens Delivered | 4000lm |
| | Efficacy (LM/W) | 100lm/w |
| | CRI | 90 |
| | Color Consistency | Proprietary binning for uniform color |
| | Lumen Maint. (L70) | More than 50,000 hours |
| Electrical | Power Factor | Over 95% |
| | Input Voltage | 100V-277V 50/60 Hz |
| | Power Consumption | 40 watt nominal |
| Control | Dimming Switch | Standard 0-10V dimming 10%-100% |
| | Linking Lengths/Qty | 15 cable feet x 20 panels |
| Physical | Dimensions | 23.187" x 23.187" x 1.8" |
| | Weight | Max 7 lbs. |
| | Housing | Aluminum |
| | Lens | Translucent white PS |
| | Operating Temperature | -5°F to 104°F |
| Certification | Humidity | 20% - 85% RH, non condensing |
| | Certification | c ETLus , Fcc |
| | Material Usage | RoHS compliant; no mercury |
| | Environment | Damp location |
| | Warranty | Five year |

Metric Dimensions: 588.95mm x 588.95mm x 45.72mm



Photometry

LEDP2240W / Test Wattage: 38.4w



Intensity (Candlepower) Summary

| Angle | 0° | 90° |
|-------|------|------|
| 0° | 1361 | 1361 |
| 5° | 1355 | 1356 |
| 15° | 1298 | 1297 |
| 25° | 1202 | 1198 |
| 35° | 1079 | 1075 |
| 45° | 893 | 890 |
| 55° | 709 | 705 |
| 65° | 488 | 485 |
| 75° | 251 | 246 |
| 85° | 54 | 58 |
| 90° | 1 | 2 |

Zonal Lumen Summary

| Zone | Lumens | % Lamp | % Fix |
|------|--------|--------|-------|
| 0-30 | 1043 | 27.0% | 27.0% |
| 0-40 | 1739 | 44.3% | 44.3% |
| 0-60 | 3089 | 78.7% | 78.7% |
| 0-90 | 3925 | 100% | 100% |

Application Reference

| Open Space | | | | | |
|------------|--------|---------|-----|------|------------|
| Spacing | Lumens | Wattage | LPW | w/SF | Average fc |
| 8 x 8 | 4000Lm | 40 | 100 | 0.62 | 56 |
| 8 x 10 | 4000Lm | 40 | 100 | 0.50 | 45 |
| 10 x 10 | 4000Lm | 40 | 100 | 0.40 | 35 |
| 10 x 12 | 4000Lm | 40 | 100 | 0.33 | 29 |

9' ceiling 80/50/20 reflectances, 2.5' workplane, open room, CCT : 4000K
LLF: 1.0 Initial. Open Space: 50' x 40' x 10'





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