



**METALWORKS™,  
OPTIMA®, and  
SPECTRA™ Capz™**

**CEILING SYSTEMS**

Inspiring Great Spaces®



## TECHNICAL GUIDE

The sleek MetalWorks™, Optima®, and Spectra™ Capz™ Ceiling Systems pair Capz accent hardware with the exceptional acoustical benefits of smooth perforated, durable metal, and fine-textured fiberglass ceiling panels.

This unique combination gives you the opportunity to improve reverberation time by about 50% with only 20% coverage of the available ceiling area, resulting in a sound acoustical solution that gives you the look you want now, without noise problems that can follow.

## CEILING Systems

### Code Compliance You Can Trust

- ICC-ES: ESR-2311 Evaluation of Code Compliance
- ICC-ES: ESR-1289 Evaluation of Code Compliance
- IAPMO: ER-163: Evaluation of Code Compliance
- Department of State Architect – DSA PA105
- City of LA – RR 5348
- 26 UL Fire Resistant Designs
- Meets ASTM C635, C841, C926, C636, C754, C840, and C842
- Meets ASTM C645 requirement for minimum metal thickness to .0179" for screw pullout

### Performance

#### Outstanding Sound Absorption

- Noise is absorbed on both the front and back of the panels
- NRC 0.90 (UL® Classified – Optima)
- NRC 0.75-0.95 (MetalWorks)

#### High Performance Panels

- Available in three finishes:
  - MetalWorks – White, Silver Grey, Gun Metal Grey
  - Optima – White
  - Spectra – Tech Black
- Fine textured, durable finish
  - High light reflectance 0.90 (Optima® Capz™ only), 0.66 (MetalWorks)
  - Scratch and soil-resistant
  - Washable



# METALWORKS™, OPTIMA®, AND SPECTRA™ CAPZ™

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- MetalWorks™ panels offer:
  - ExpanTech™ technology delivers larger panel sizes with 10 times less deflection than standard large-size metal panels
  - Durable – washable, scrubbable, soil-resistant
- Low VOC
- Factory-finished Reverse Tegal (Optima® and Spectra™) and Square edges offer a crisp reveal (MetalWorks)
- Variety of sizes, including:
  - Square panels in 3' x 3', 4' x 4'
  - Rectangular panels in 2' x 4', 4' x 8'
  - Plank looks in 2' x 5', 2' x 6', 2' x 8'
- Panels are pre-drilled for easy installation

NOTE: We do not recommend field painting panels as it negatively impacts acoustical performance.

### Installation:

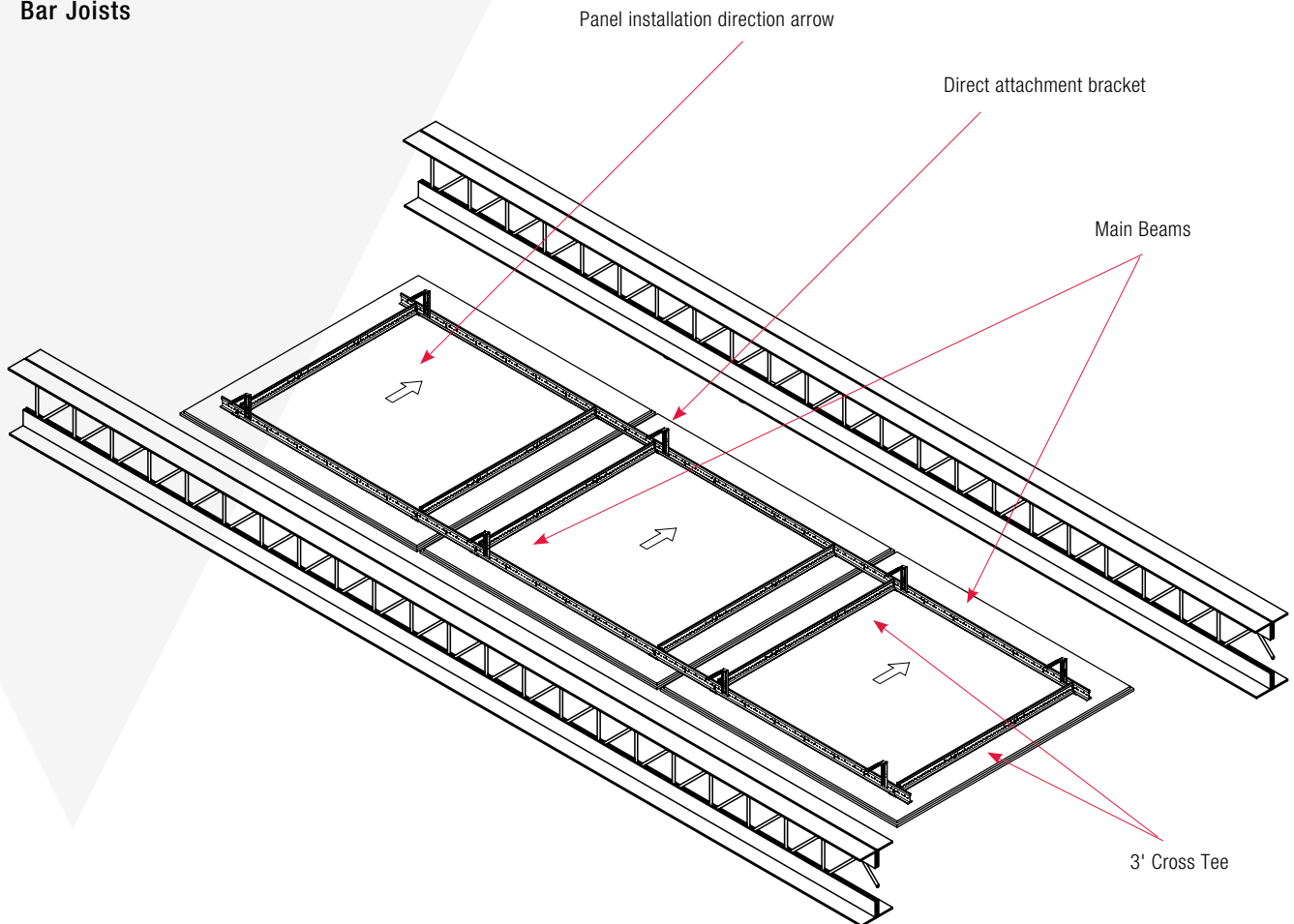
- Lightweight, accessible panels
- Easily demountable
- Installs using standard tools
- Grid system provides easy alignment and leveling for a quick and aesthetically pleasing installation
- Can be installed:
  - As close as 2-3/4" (approx.) to the deck (distance between deck and panel face)
  - Up to 6-1/2" (approx.) (distance between deck and panel face)
  - Suspended off wires at your desired ceiling elevation

# SYSTEM LAYOUT & COMPONENTS

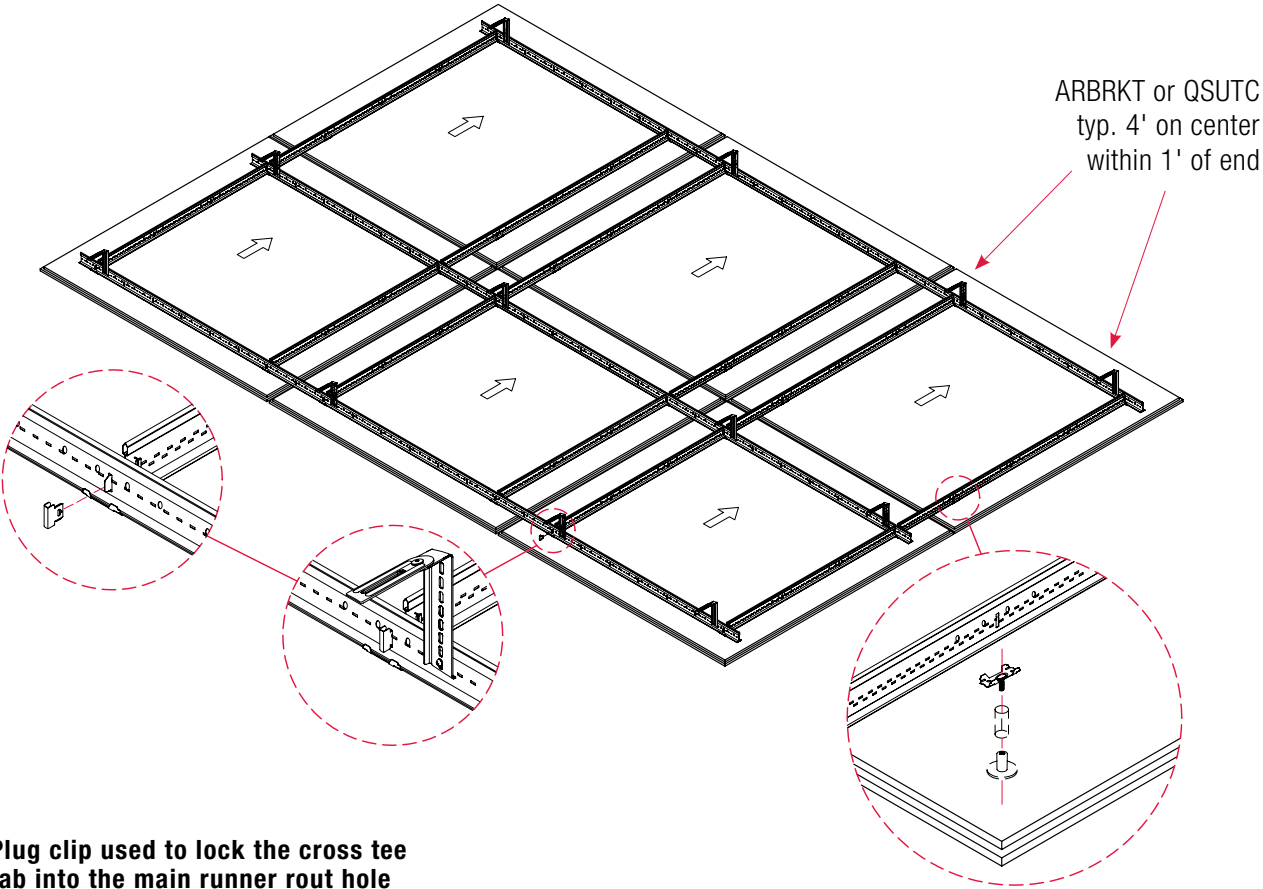
## ITEM DETAILS

MetalWorks™, Optima®, and Spectra™ Capz™ work well in either retrofit or new spaces – they offer a flexible fit with many panel size options that can be installed directly to the deck, on drywall, or suspended like a regular ceiling. Panels can be designed in long runs or grouped based on the acoustical needs of the space.

### 4' x 4' Panel and Grid Installation to the Deck Between Structural Bar Joists



4' x 4' – 6 panel layout,  
detailing the position of  
Direct Attachment Brackets



ARBRKT or QSUTC  
typ. 4' on center  
within 1' of end

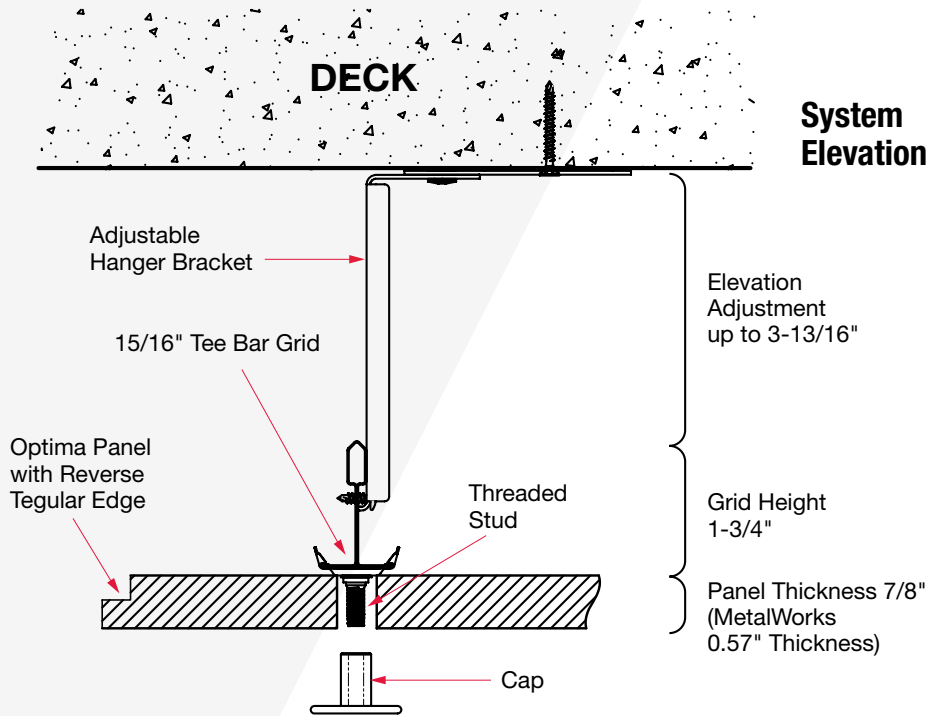
**Plug clip used to lock the cross tee  
tab into the main runner rout hole  
for increased system rigidity**

**Capz™ Assembly**

- 1. Attach 15/16" Grid
- 2. Snap on ARSTUD
- 3. Raise Capz™ panel
- 4. Thread on ARCAP or 5487 (MetalWorks™)

# SYSTEM LAYOUT & COMPONENTS

## SYSTEM CROSS SECTION



### System Elevation

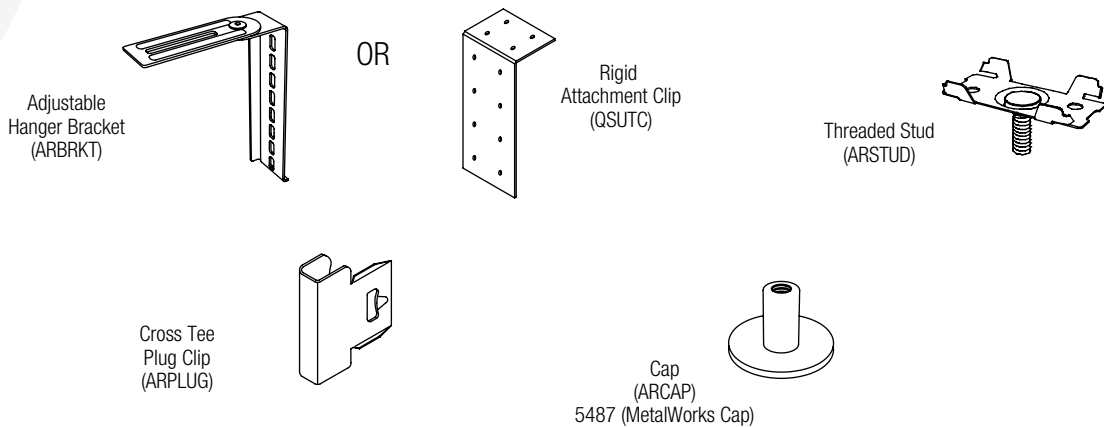
MetalWorks™, Optima®, and Spectra™ Capz™ are installed with standard 15/16" Prelude® grid. May be installed 2-3/4" to 6-1/2" (approximately) from the deck to the panel face.

Elevation Adjustment up to 3-13/16"

Grid Height 1-3/4"

Panel Thickness 7/8" (MetalWorks 0.57" Thickness)

## CAPZ™ HARDWARE COMPONENTS

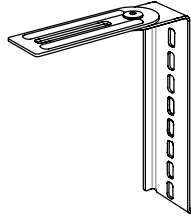


# SUSPENSION HARDWARE INSTALLATION STEPS

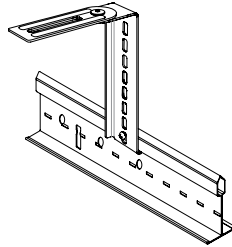
## 5-STEP INSTALLATION PROCESS

**STEP 1:**  
Install Adjustable Hanger  
Bracket to the deck

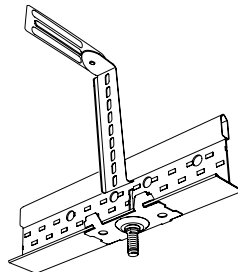
(Use either the adjustable  
ARBRKT or the rigid QSUTC  
based on job-specific need  
for flexibility or panel deviation  
preference)



**STEP 2:**  
Attach Prelude® Main Beam  
to the Adjustable Hanger  
Bracket

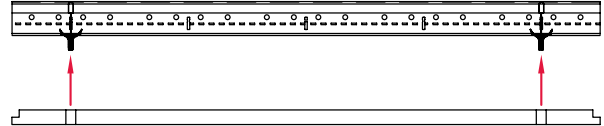


**STEP 3:**  
Snap Threaded Stud  
onto grid



**STEP 4:**  
Raise panel and screw on the  
aluminum cap

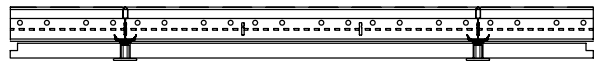
**1**



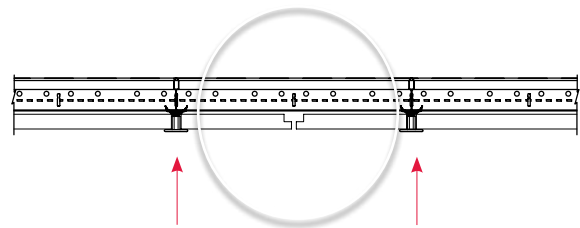
**2**



**3**

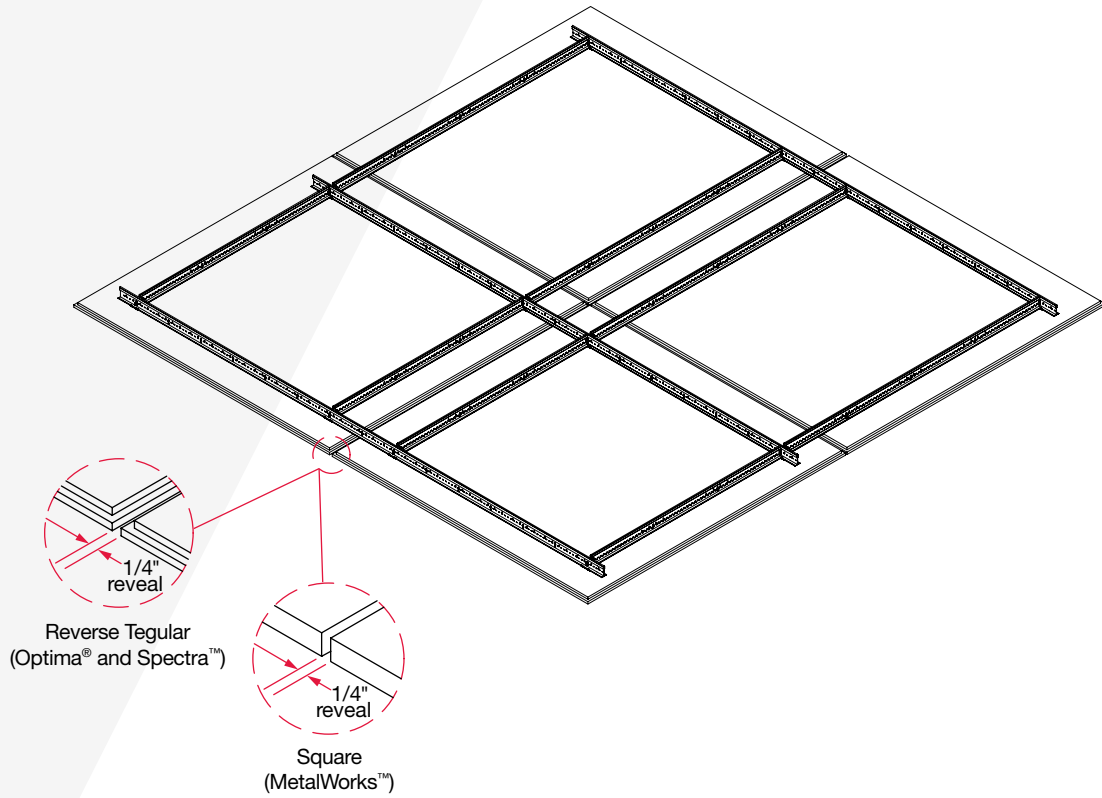


**STEP 5:**  
Adjust panels as required to align 1/4" reveal and  
to set equal panel elevation



# INSTALLATION DETAILS

## REVERSE TEGULAR OR SQUARE 1/4" REVEAL BETWEEN PANELS

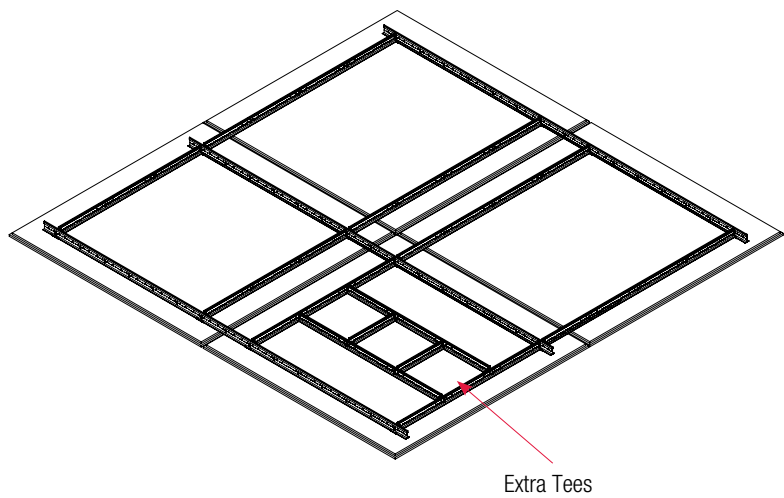


## EXTRA CROSS TEES NEEDED FOR MECHANICAL EQUIPMENT INSTALLATION

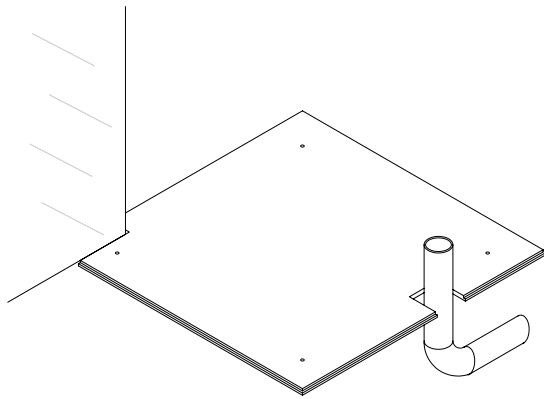
Front View of Installation for Heat Sensor



Sprinkler heads, speakers, or other requirements are easily cut into Optima® and Spectra™ panels; handled like a regular ceiling installation.



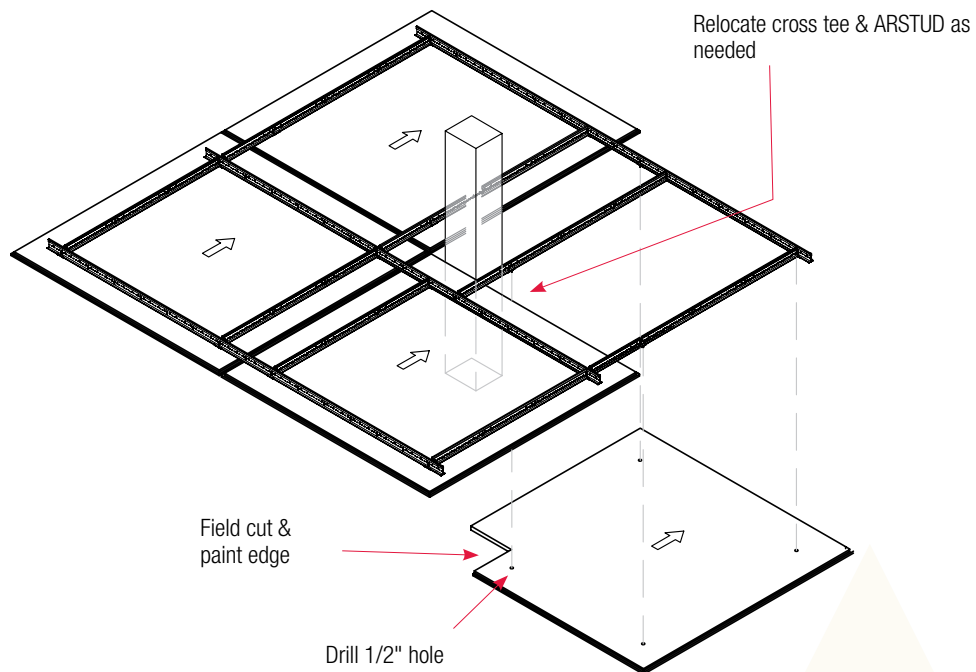
## NOTCH PANEL FOR PENETRATION



Cut notch to provide 1" - 2" clearance around penetration



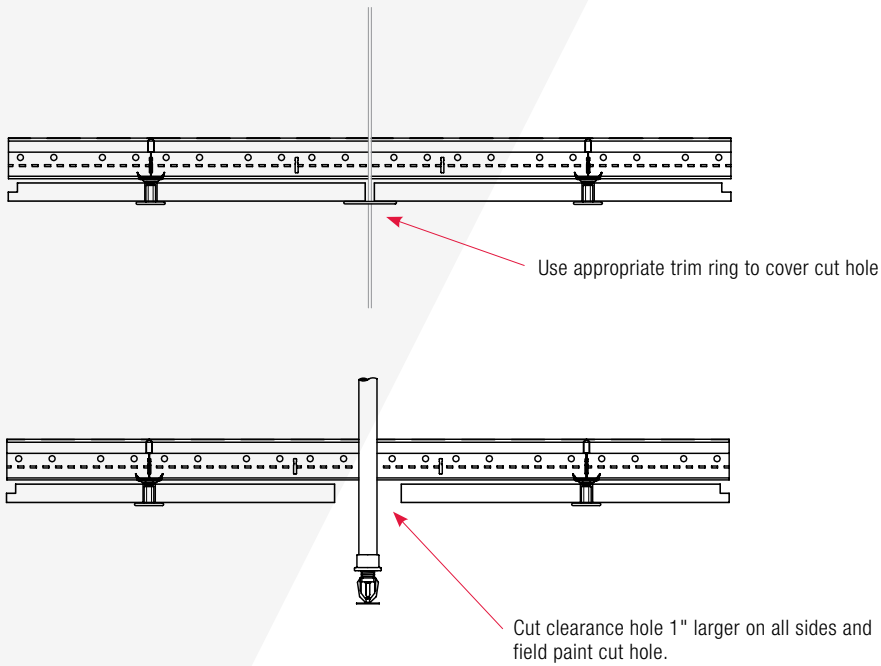
## ADDITIONAL PANEL SUPPORT / PANEL MOUNTING IF HOLE IS TRIMMED OFF



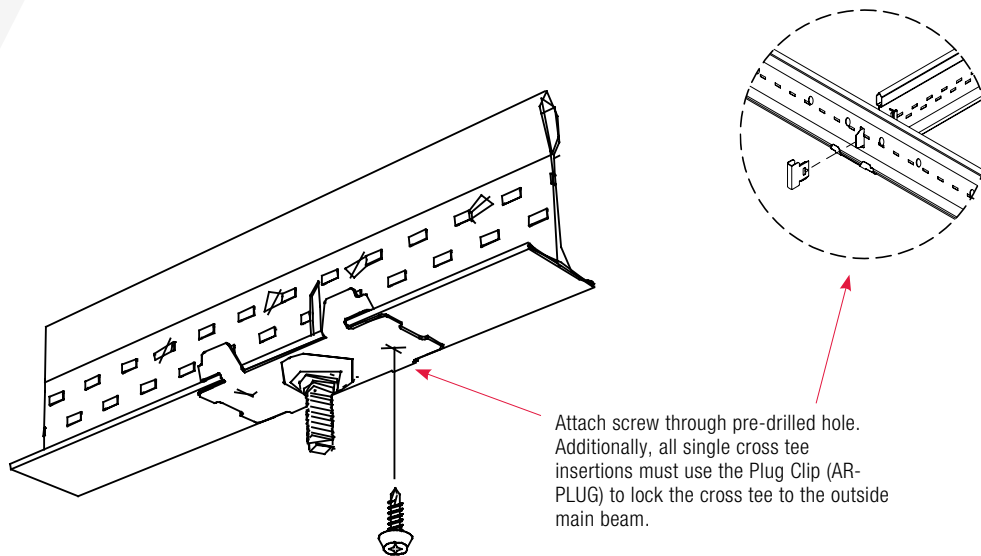
NOTE: Caps cannot be moved in MetalWorks™ panels

# INSTALLATION DETAILS

## PENETRATION THROUGH PANEL

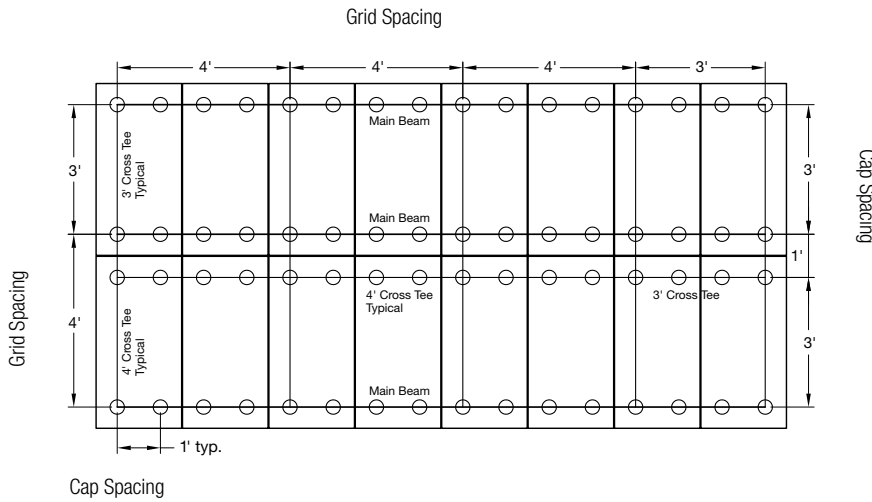


## INSTALLATION FOR SEISMIC OR SLOPED DESIGNS



# INSTALLATION DETAILS

## 2' X 4' PANEL LAYOUT – 16 PANELS – VERTICAL

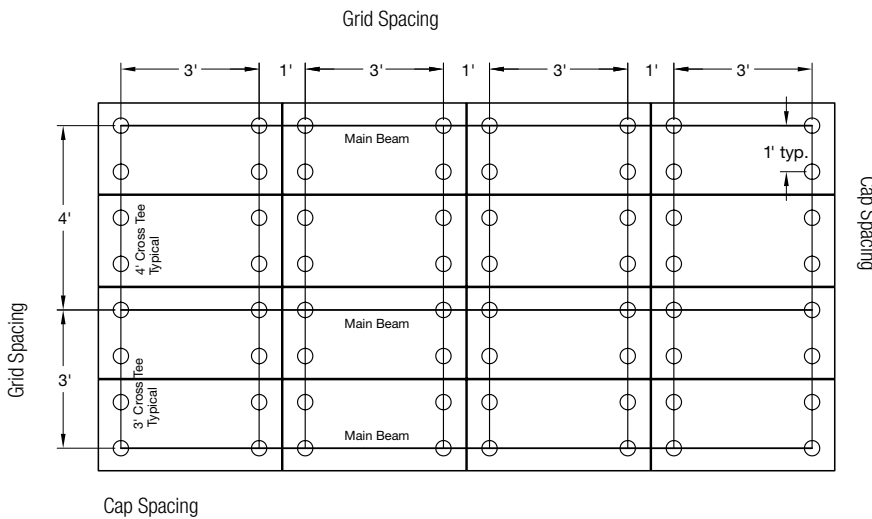


2' x 4' Panel Layout  
16 Panels – Vertical

DESCRIPTION	ITEM #
<b>OPTIMA® Field Panel</b>	
2' x 4' x 7/8" Reverse Tegular	3934
<b>SPECTRA™ Field Panel</b>	
2' x 4' x 7/8" Reverse Tegular	3934BL
<b>METALWORKS™ Field Panel</b>	
2' x 4' x 0.57" Square Edge	64780M10_
<b>Grid Components</b>	
Prelude® 12' Main Beam	7300/7301*
Prelude 3' Cross Tee	XL7330
Prelude 4' Cross Tee	XL7348
<b>Hardware Components</b>	
Adjustable Hanger Bracket	ARBRKT
Rigid Attachment Clip	QSUTC
Threaded Stud	ARSTUD
Cap for Optima & Spectra	ARCAP
Cap for MetalWorks	5487
Cross Tee Plug Clip	ARPLUG

\* Main beam rated for heavy duty load

## 2' X 4' PANEL LAYOUT – 16 PANELS – HORIZONTAL



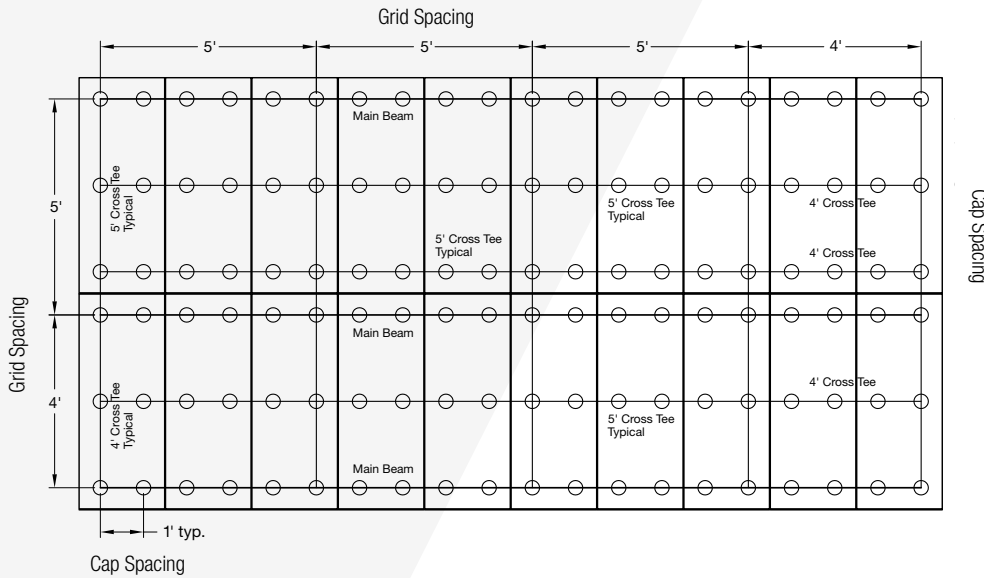
2' x 4' Panel Layout  
16 Panels – Horizontal

DESCRIPTION	ITEM #
<b>OPTIMA Field Panel</b>	
2' x 4' x 7/8" Reverse Tegular	3934
<b>SPECTRA Field Panel</b>	
2' x 4' x 7/8" Reverse Tegular	3934BL
<b>METALWORKS Field Panel</b>	
2' x 4' x 0.57" Square Edge	64780M10_
<b>Grid Components</b>	
Prelude 12' Main Beam	7300/7301*
Prelude 3' Cross Tee	XL7330
Prelude 4' Cross Tee	XL7348
<b>Hardware Components</b>	
Adjustable Hanger Bracket	ARBRKT
Rigid Attachment Clip	QSUTC
Threaded Stud	ARSTUD
Cap for Optima & Spectra	ARCAP
Cap for MetalWorks	5487
Cross Tee Plug Clip	ARPLUG

\* Main beam rated for heavy duty load

# INSTALLATION DETAILS

## 2' X 5' PANEL LAYOUT – 20 PANELS – VERTICAL

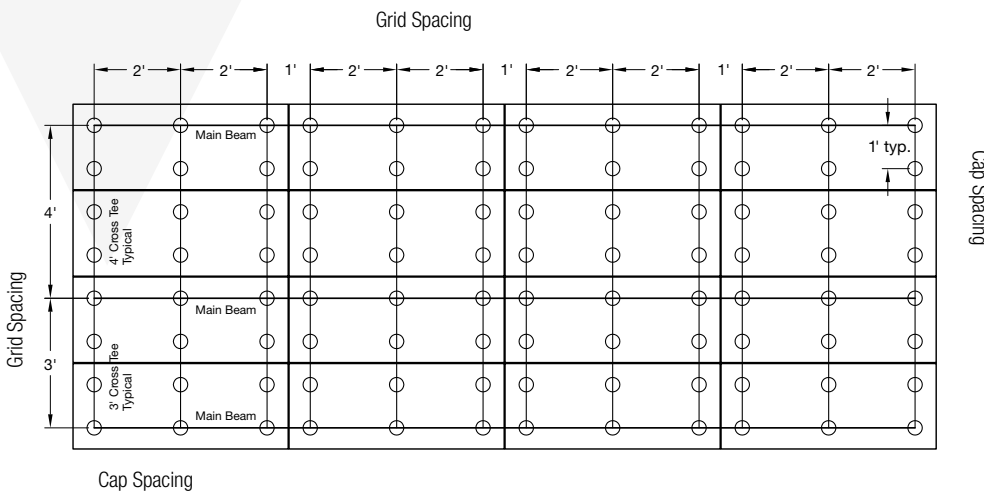


2' x 5' Panel Layout  
20 Panels – Vertical

DESCRIPTION	ITEM #
<b>OPTIMA® Field Panel</b>	
2' x 5' x 7/8" Reverse Tegular	3935
<b>SPECTRA™ Field Panel</b>	
2' x 5' x 7/8" Reverse Tegular	3935BL
<b>METALWORKS™ Field Panel</b>	
2' x 5' x 0.57" Square Edge	64790M10_
<b>Grid Components</b>	
Prelude® 12" Main Beam	7300/7301*
Prelude 5' Cross Tee	XL7357
Prelude 4' Cross Tee	XL7348
<b>Hardware Components</b>	
Adjustable Hanger Bracket	ARBRKT
Rigid Attachment Clip	QSUTC
Threaded Stud	ARSTUD
Cap for Optima & Spectra	ARCAP
Cap for MetalWorks	5487
Cross Tee Plug Clip	ARPLUG

\* Main beam rated for heavy duty load

## 2' X 5' PANEL LAYOUT – 16 PANELS – HORIZONTAL



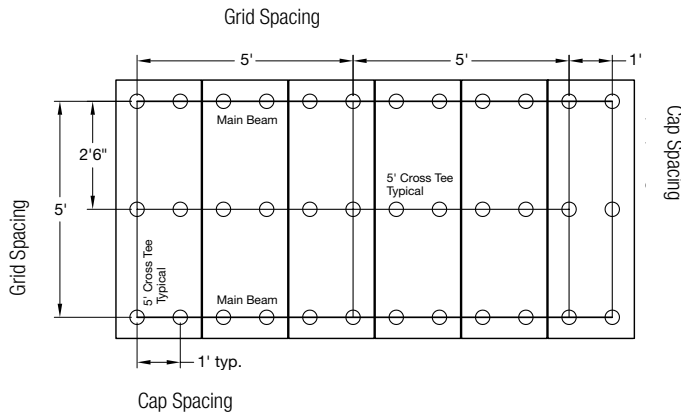
2' x 5' Panel Layout  
16 Panels – Horizontal

DESCRIPTION	ITEM #
<b>OPTIMA Field Panel</b>	
2' x 5' x 7/8" Reverse Tegular	3935
<b>SPECTRA Field Panel</b>	
2' x 5' x 7/8" Reverse Tegular	3935BL
<b>METALWORKS Field Panel</b>	
2' x 5' x 0.57" Square Edge	64790M10_
<b>Grid Components</b>	
Prelude 12" Main Beam	7300/7301*
Prelude 3' Cross Tee	XL7330
Prelude 4' Cross Tee	XL7348
<b>Hardware Components</b>	
Adjustable Hanger Bracket	ARBRKT
Rigid Attachment Clip	QSUTC
Threaded Stud	ARSTUD
Cap for Optima & Spectra	ARCAP
Cap for MetalWorks	5487
Cross Tee Plug Clip	ARPLUG

\* Main beam rated for heavy duty load

# CONFIGURATION DRAWINGS & COMPONENTS

## 2' X 6' PANEL LAYOUT – 6 PANELS – VERTICAL

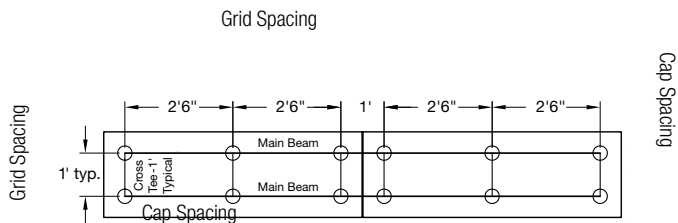


2' x 6' Panel Layout  
6 Panels – Vertical

DESCRIPTION	ITEM #
<b>OPTIMA® Field Panel</b>	
2' x 6' x 7/8" Reverse Tegular	3930
<b>SPECTRA™ Field Panel</b>	
2' x 6' x 7/8" Reverse Tegular	3930BL
<b>METALWORKS™ Field Panel</b>	
2' x 6' x 0.57" Square Edge	64910M10_ _
<b>Grid Components</b>	
Prelude® 12' Main Beam	7300/7301*
Prelude 5' Cross Tee	XL7357
<b>Hardware Components</b>	
Adjustable Hanger Bracket	ARBRKT
Rigid Attachment Clip	QSUTC
Threaded Stud	ARSTUD
Cap for Optima & Spectra	ARCAP
Cap for MetalWorks	5487
Cross Tee Plug Clip	ARPLUG

\* Main beam rated for heavy duty load

## 2' X 6' PANEL LAYOUT – 2 PANELS – HORIZONTAL



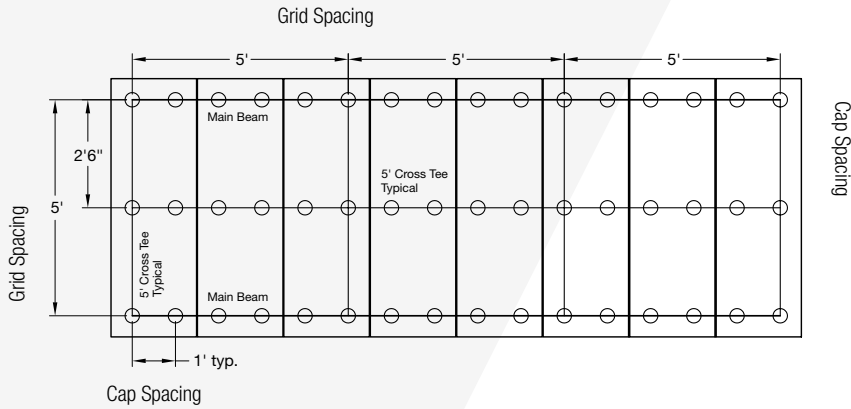
2' x 6' Panel Layout  
2 Panels – Horizontal

DESCRIPTION	ITEM #
<b>OPTIMA Field Panel</b>	
2' x 6' x 7/8" Reverse Tegular	3930
<b>SPECTRA Field Panel</b>	
2' x 6' x 7/8" Reverse Tegular	3930BL
<b>METALWORKS Field Panel</b>	
2' x 6' x 0.57" Square Edge	64910M10_ _
<b>Grid Components</b>	
Prelude 12' Main Beam	7300/7301*
Prelude 1' Cross Tee	XL7318
<b>Hardware Components</b>	
Adjustable Hanger Bracket	ARBRKT
Rigid Attachment Clip	QSUTC
Threaded Stud	ARSTUD
Cap for Optima & Spectra	ARCAP
Cap for MetalWorks	5487
Cross Tee Plug Clip	ARPLUG

\* Main beam rated for heavy duty load

# CONFIGURATION DRAWINGS & COMPONENTS

## 2' X 6' PANEL LAYOUT – 8 PANELS – VERTICAL

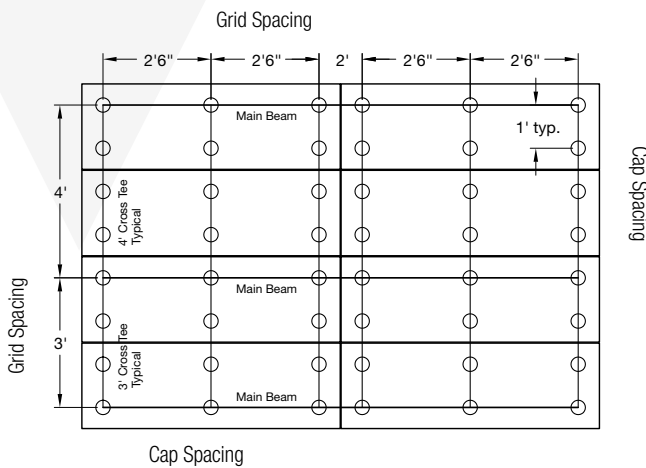


2' x 6' Panel Layout  
8 Panels – Vertical

DESCRIPTION	ITEM #
<b>OPTIMA® Field Panel</b>	
2' x 6' x 7/8" Reverse Tegular	3930
<b>SPECTRA™ Field Panel</b>	
2' x 6' x 7/8" Reverse Tegular	3930BL
<b>METALWORKS™ Field Panel</b>	
2' x 6' x 0.57" Square Edge	64910M10_ _
<b>Grid Components</b>	
Prelude® 12' Main Beam	7300/7301*
Prelude 5' Cross Tee	XL7357
<b>Hardware Components</b>	
Adjustable Hanger Bracket	ARBRKT
Rigid Attachment Clip	QSUTC
Threaded Stud	ARSTUD
Cap for Optima & Spectra	ARCAP
Cap for MetalWorks	5487
Cross Tee Plug Clip	ARPLUG

\* Main beam rated for heavy duty load

## 2' X 6' PANEL LAYOUT – 8 PANELS – HORIZONTAL



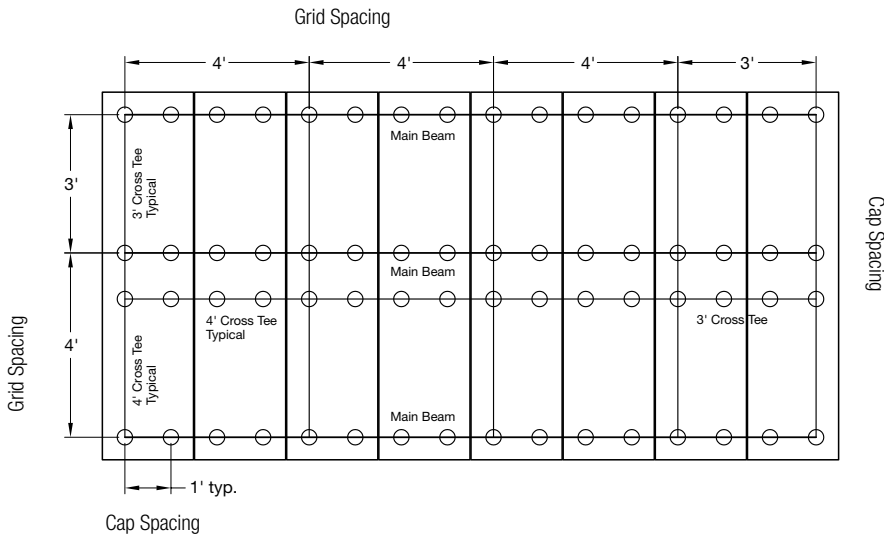
2' x 6' Panel Layout  
8 Panels – Horizontal

DESCRIPTION	ITEM #
<b>OPTIMA Field Panel</b>	
2' x 6' x 7/8" Reverse Tegular	3930
<b>SPECTRA Field Panel</b>	
2' x 6' x 7/8" Reverse Tegular	3930BL
<b>METALWORKS Field Panel</b>	
2' x 6' x 0.57" Square Edge	64910M10_ _
<b>Grid Components</b>	
Prelude 12' Main Beam	7300/7301*
Prelude 3' Cross Tee	XL7330
Prelude 4' Cross Tee	XL7348
<b>Hardware Components</b>	
Adjustable Hanger Bracket	ARBRKT
Rigid Attachment Clip	QSUTC
Threaded Stud	ARSTUD
Cap for Optima & Spectra	ARCAP
Cap for MetalWorks	5487
Cross Tee Plug Clip	ARPLUG

\* Main beam rated for heavy duty load

# CONFIGURATION DRAWINGS & COMPONENTS

## 2' X 8' PANEL LAYOUT – 8 PANELS – VERTICAL

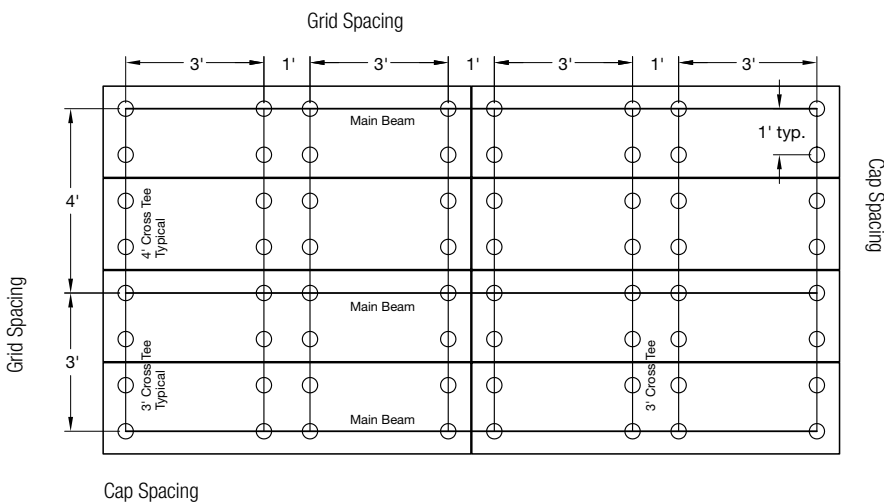


2' x 8' Panel Layout  
8 Panels – Vertical

DESCRIPTION	ITEM #
<b>OPTIMA® Field Panel</b>	
2' x 8' x 7/8" Reverse Tegular	3931
<b>SPECTRA™ Field Panel</b>	
2' x 8' x 7/8" Reverse Tegular	3931BL
<b>METALWORKS™ Field Panel</b>	
2' x 8' x 0.57" Square Edge	64920M10_ _
<b>Grid Components</b>	
Prelude® 12' Main Beam	7300/7301*
Prelude 3' Cross Tee	XL7330
Prelude 4' Cross Tee	XL7348
<b>Hardware Components</b>	
Adjustable Hanger Bracket	ARBRKT
Rigid Attachment Clip	QSUTC
Threaded Stud	ARSTUD
Cap for Optima & Spectra	ARCAP
Cap for MetalWorks	5487
Cross Tee Plug Clip	ARPLUG

\* Main beam rated for heavy duty load

## 2' X 8' PANEL LAYOUT – 8 PANELS – HORIZONTAL



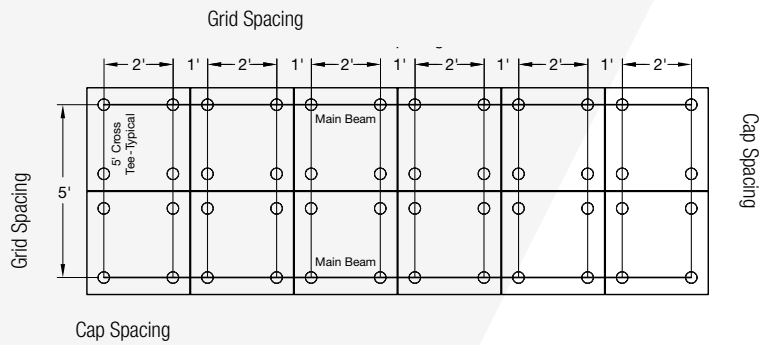
2' x 8' Panel Layout  
8 Panels – Horizontal

DESCRIPTION	ITEM #
<b>OPTIMA Field Panel</b>	
2' x 8' x 7/8" Reverse Tegular	3931
<b>SPECTRA Field Panel</b>	
2' x 8' x 7/8" Reverse Tegular	3931BL
<b>METALWORKS Field Panel</b>	
2' x 8' x 0.57" Square Edge	64920M10_ _
<b>Grid Components</b>	
Prelude 12' Main Beam	7300/7301*
Prelude 3' Cross Tee	XL7330
Prelude 4' Cross Tee	XL7348
<b>Hardware Components</b>	
Adjustable Hanger Bracket	ARBRKT
Rigid Attachment Clip	QSUTC
Threaded Stud	ARSTUD
Cap for Optima & Spectra	ARCAP
Cap for MetalWorks	5487
Cross Tee Plug Clip	ARPLUG

\* Main beam rated for heavy duty load

# CONFIGURATION DRAWINGS & COMPONENTS

## 3' X 3' PANEL LAYOUT – 12 PANELS

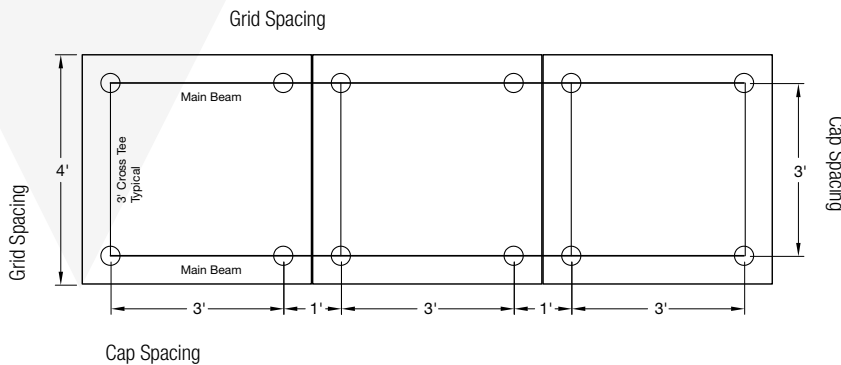


3' x 3' Panel Layout  
12 Panels

DESCRIPTION	ITEM #
<b>OPTIMA® Field Panel</b>	
3' x 3' x 7/8" Reverse Tegalur	3936
<b>SPECTRA™ Field Panel</b>	
3' x 3' x 7/8" Reverse Tegalur	3936BL
<b>METALWORKS™ Field Panel</b>	
2' x 6' x 0.57" Square Edge	64910M10_ _
<b>Grid Components</b>	
Prelude® 12' Main Beam	7300/7301*
Prelude 5' Cross Tee	XL7357
<b>Hardware Components</b>	
Adjustable Hanger Bracket	ARBRKT
Rigid Attachment Clip	QSUTC
Threaded Stud	ARSTUD
Cap for Optima & Spectra	ARCAP
Cap for MetalWorks	5487
Cross Tee Plug Clip	ARPLUG

\* Main beam rated for heavy duty load

## 4' X 4' PANEL LAYOUT – 3 PANELS



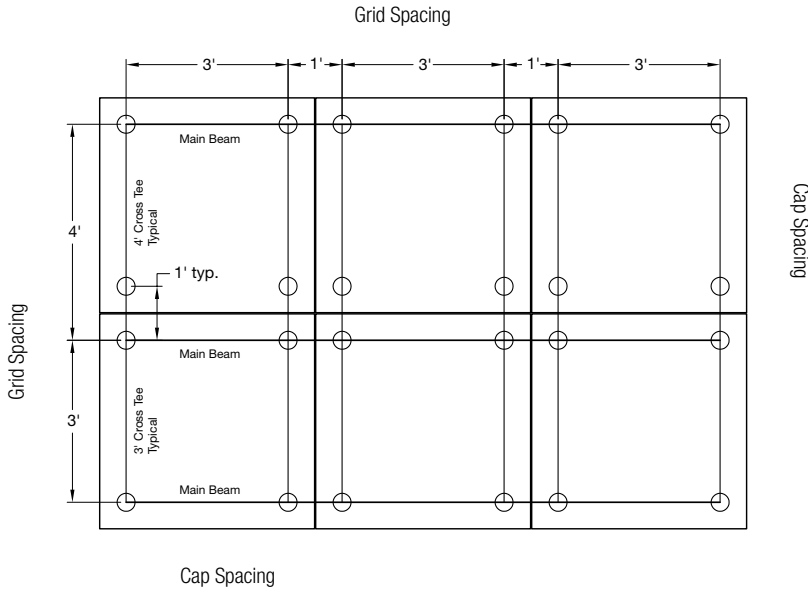
4' x 4' Panel Layout  
3 Panels

DESCRIPTION	ITEM #
<b>OPTIMA Field Panel</b>	
4' x 4' x 7/8" Reverse Tegalur	3932
<b>SPECTRA Field Panel</b>	
4' x 4' x 7/8" Reverse Tegalur	3932BL
<b>METALWORKS Field Panel</b>	
4' x 4' x 0.57" Square Edge	6490_M10_ _
<b>Grid Components</b>	
Prelude 12' Main Beam	7300/7301*
Prelude 5' Cross Tee	XL7357
Prelude 3' Cross Tee	XL7330
<b>Hardware Components</b>	
Adjustable Hanger Bracket	ARBRKT
Rigid Attachment Clip	QSUTC
Threaded Stud	ARSTUD
Cap for Optima & Spectra	ARCAP
Cap for MetalWorks	5487
Cross Tee Plug Clip	ARPLUG

\* Main beam rated for heavy duty load

# CONFIGURATION DRAWINGS & COMPONENTS

## 4' X 4' PANEL LAYOUT – 6 PANELS

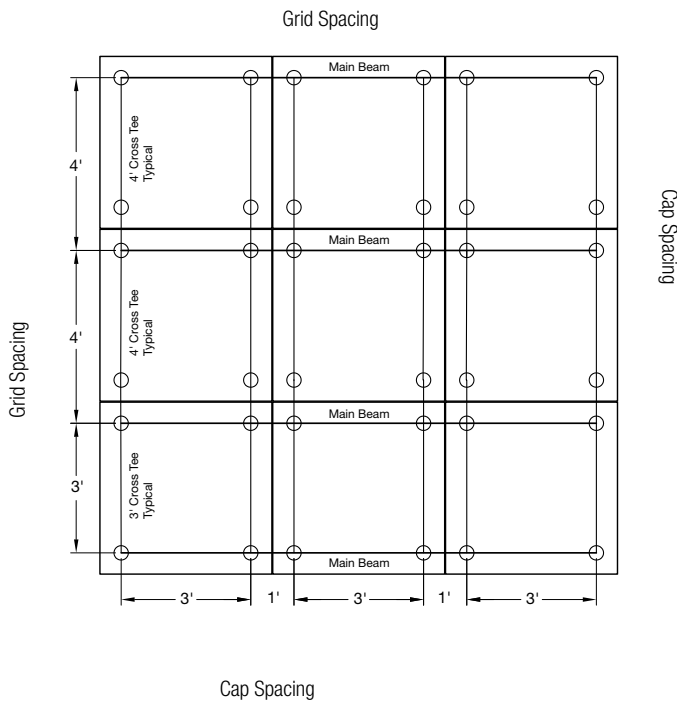


4' x 4' Panel Layout  
6 Panels

DESCRIPTION	ITEM #
<b>OPTIMA® Field Panel</b>	
4' x 4' x 7/8" Reverse Tegular	3932
<b>SPECTRA™ Field Panel</b>	
4' x 4' x 7/8" Reverse Tegular	3932BL
<b>METALWORKS™ Field Panel</b>	
4' x 4' x 0.57" Square Edge	6490_M10_ _
<b>Grid Components</b>	
Prelude® 12' Main Beam	7300/7301*
Prelude 3' Cross Tee	XL7330
Prelude 4' Cross Tee	XL7348
<b>Hardware Components</b>	
Adjustable Hanger Bracket	ARBRKT
Rigid Attachment Clip	QSUTC
Threaded Stud	ARSTUD
Cap for Optima & Spectra	ARCAP
Cap for MetalWorks	5487
Cross Tee Plug Clip	ARPLUG

\* Main beam rated for heavy duty load

## 4' X 4' PANEL LAYOUT – 9 PANELS



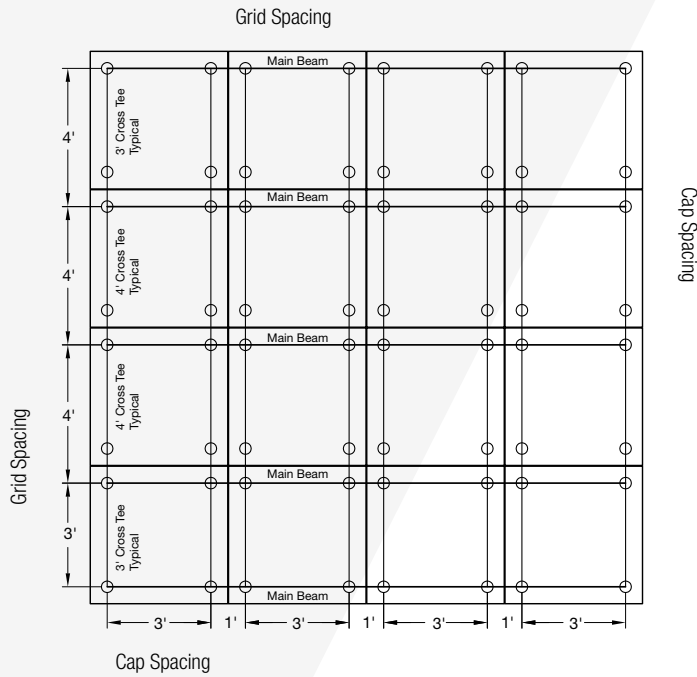
4' x 4' Panel Layout  
9 Panels

DESCRIPTION	ITEM #
<b>OPTIMA Field Panel</b>	
4' x 4' x 7/8" Reverse Tegular	3932
<b>SPECTRA Field Panel</b>	
4' x 4' x 7/8" Reverse Tegular	3932BL
<b>METALWORKS Field Panel</b>	
4' x 4' x 0.57" Square Edge	6490_M10_ _
<b>Grid Components</b>	
Prelude 12' Main Beam	7300/7301*
Prelude 3' Cross Tee	XL7330
Prelude 4' Cross Tee	XL7348
<b>Hardware Components</b>	
Adjustable Hanger Bracket	ARBRKT
Rigid Attachment Clip	QSUTC
Threaded Stud	ARSTUD
Cap for Optima & Spectra	ARCAP
Cap for MetalWorks	5487
Cross Tee Plug Clip	ARPLUG

\* Main beam rated for heavy duty load

# CONFIGURATION DRAWINGS & COMPONENTS

## 4' X 4' PANEL LAYOUT – 16 PANELS

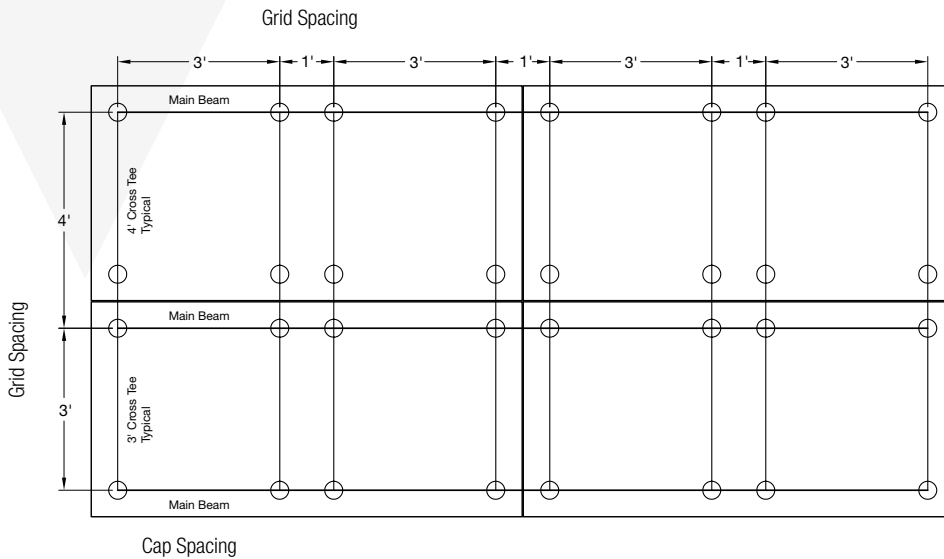


## 4' x 4' Panel Layout 16 Panels

DESCRIPTION	ITEM #
<b>OPTIMA® Field Panel</b>	
4' x 4' x 7/8" Reverse Tegalur	3932
<b>SPECTRA™ Field Panel</b>	
4' x 4' x 7/8" Reverse Tegalur	3932BL
<b>METALWORKS™ Field Panel</b>	
4' x 4' x 0.57" Square Edge	6490_M10_ _
<b>Grid Components</b>	
Prelude® 12' Main Beam	7300/7301*
Prelude 3' Cross Tee	XL7330
Prelude 4' Cross Tee	XL7348
<b>Hardware Components</b>	
Adjustable Hanger Bracket	ARBRKT
Rigid Attachment Clip	QSUTC
Threaded Stud	ARSTUD
Cap for Optima & Spectra	ARCAP
Cap for MetalWorks	5487
Cross Tee Plug Clip	ARPLUG

\* Main beam rated for heavy duty load

## 4' X 8' PANEL LAYOUT – 4 PANELS



## 4' x 8' Panel Layout 4 Panels

DESCRIPTION	ITEM #
<b>OPTIMA Field Panel</b>	
4' x 8' x 7/8" Reverse Tegalur	3933
<b>SPECTRA Field Panel</b>	
4' x 8' x 7/8" Reverse Tegalur	3933BL
<b>METALWORKS Field Panel</b>	
4' x 8' x 0.57" Square Edge	64940M10_ _
<b>Grid Components</b>	
Prelude 12' Main Beam	7300/7301*
Prelude 3' Cross Tee	XL7330
Prelude 4' Cross Tee	XL7348
<b>Hardware Components</b>	
Adjustable Hanger Bracket	ARBRKT
Rigid Attachment Clip	QSUTC
Threaded Stud	ARSTUD
Cap for Optima & Spectra	ARCAP
Cap for MetalWorks	5487
Cross Tee Plug Clip	ARPLUG

\* Main beam rated for heavy duty load

Please understand that you are responsible for the accuracy of all project specifications, including any Armstrong World Industries (AWI) guide specifications that you use.  
AWI SHALL NOT BE LIABLE FOR ANY DAMAGES ARISING OUT OF THE USE OF ANY OF ITS GUIDE SPECIFICATIONS.

## SECTION 09 51 13 Acoustical Panel Ceilings PART 1 - GENERAL

### 1.1 RELATED DOCUMENTS

Drawings and general conditions of Contract, including General and Supplementary Conditions and Divisions-1 Specification sections apply to work of this section.

### 1.2 SUMMARY

#### A. Section Includes:

1. Acoustical ceiling panels
2. Grid suspension system
3. Wire hangers, fasteners, main runners, cross tees, and wall angle moldings

#### B. Related Sections:

1. Section 01350, Special Environmental Requirements
2. Section 09250 - Gypsum Board
3. Section 09120 - Suspension System Framing and Furring for Plaster and Gypsum Board Assemblies
4. Division 15 Sections - Mechanical Work
5. Division 16 Sections - Electrical Work

#### C. Alternates

1. Prior Approval: Unless otherwise provided for in the Contract documents, proposed product substitutions may be submitted no later than TEN (10) working days prior to the date established for receipt of bids. Acceptability of a proposed substitution is contingent upon the Architect's review of the proposal for acceptability and approved products will be set forth by the Addenda. If included in a Bid are substitute products which have not been approved by Addenda, the specified products shall be provided without additional compensation.
2. Submittals which do not provide adequate data for the product evaluation will not be considered. The proposed substitution must meet all requirements of this section, including but not necessarily limited to, the following: Single source materials suppliers (if specified in Section 1.5); Panel design, size, composition, color, and finish; Suspension system component profiles and sizes; Compliance with the referenced standards.

### 1.3 REFERENCES

#### A. American Society for Testing and Materials (ASTM):

1. ASTM A1008 Standard Specification for Steel, Sheet, Cold Rolled, Carbon, Structural, High-Strength Low-Alloy and High-Strength Low-Alloy with Improved Formability.
2. ASTM A641 Standard Specification for Zinc-Coated (Galvanized) Carbon Steel Wire.
3. ASTM A653 Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) by the Hot-Dip Process.
4. ASTM C423 Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method.
5. ASTM C635 Standard Specification for Metal Suspension Systems for Acoustical Tile and Lay-in Panel Ceilings.
6. ASTM C636 Recommended Practice for Installation of Metal Ceiling Suspension Systems for Acoustical Tile and Lay-in Panels.
7. ASTM E84 Standard Test Method for Surface Burning Characteristics of Building Materials.
8. ASTM E1414 Standard Test Method for Airborne Sound Attenuation Between Rooms Sharing a Common Ceiling Plenum.
9. ASTM E1264 Classification for Acoustical Ceiling Products.
10. ASTM E1477 Standard Test Method for Luminous Reflectance Factor of Acoustical Materials by Use of Integrating-Sphere Reflectometers.
11. ASTM D3273 Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber.

#### B. ASHRAE Standard 62.1-2004, "Ventilation for Acceptable Indoor Air Quality"

### 1.4 SUBMITTALS

- A. Product Data: Submit manufacturer's technical data for each type of acoustical ceiling unit and suspension system required.
- B. Samples: Minimum 6 inch x 6 inch samples of specified acoustical panel; 8 inch long samples of exposed wall molding and suspension system, including main runner and 4 foot cross tees.
- C. Shop Drawings: Layout and details of acoustical ceilings. Show locations of items which are to be coordinated with, or supported by the ceilings.
- D. Certifications: Manufacturer's certifications that products comply with specified requirements, including laboratory reports showing compliance with specified tests and standards.

### 1.5 QUALITY ASSURANCE

- A. Single-Source Responsibility: Provide acoustical panel units and grid components by a single manufacturer.
- B. Fire Performance Characteristics: Identify acoustical ceiling components with appropriate markings of applicable testing and inspecting organization.
  1. Surface Burning Characteristics: As follows, tested per ASTM E84 and complying with ASTM E1264 for Class A products.
    - a. Flame Spread: 25 or less
    - b. Smoke Developed: 50 or less
- C. Capz™, as with other architectural features located at the ceiling, may obstruct or skew the planned fire sprinkler water distribution pattern, or possibly delay or accelerate the activation of the sprinkler or fire detection systems by channeling heat from a fire either toward or away from the device. Designers and installers are advised to consult a fire protection engineer, NFPA 13, or their local codes for guidance where automatic fire detection and suppression systems are present.
- D. Handle acoustical ceiling units carefully to avoid chipping edges or damaged units in any way.

### 1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver acoustical ceiling units to project site in original, unopened packages and store them in a fully enclosed space where they will be protected against damage from moisture, direct sunlight, surface contamination, and other causes.
- B. Before installing acoustical ceiling units, permit them to reach room temperature and a stabilized moisture content.
- C. Handle acoustical ceiling units carefully to avoid chipping edges or damaged units in any way.

### 1.7 PROJECT CONDITIONS

#### A. Space Enclosure:

Building areas to receive acoustical clouds shall be free of construction dust and debris. Products can be installed in temperatures between 40°F (4° C) and 120°F (49° C). Cannot be used in exterior applications, where standing water is present, or where moisture will come in direct contact with the acoustical cloud.

### 1.8 WARRANTY

- A. Acoustical Panels: Submit a written warranty executed by the manufacturer, agreeing to repair or replace acoustical clouds that fail within the warranty period. Failures include, but are not limited to:
  1. Acoustical panels: Manufacturing defects.
  2. Attachment devices: Rusting and manufacturing defects.
- B. Warranty Period:
  1. Acoustical panels: Ten (10) years from date of substantial completion.
  2. Attachment devices: Ten (10) years from date of substantial completion.
  3. MetalWorks™ panels: One (1) year limited warranty.
- C. The Warranty shall not deprive the Owner of other rights the Owner may have under other provisions of the Contract Documents and will be in addition to and run concurrent with other warranties made by the Contractor under the requirements of the Contract Documents.

NOTE: Refer to the Drywall Linear Lighting Data Page (BPCS-5367) to view full details

# SPECIFICATIONS

## 1.9 MAINTENANCE

- A. Extra Materials: Deliver extra materials to Owner. Furnish extra materials described below that match products installed. Packaged with protective covering for storage and identified with appropriate labels.
1. Acoustical Ceiling Units: Furnish quality of full-size units equal to 5.0 percent of amount installed.

Exposed Suspension System Components: Furnish quantity of each exposed suspension component equal to 2.0 percent of amount installed.

## Part 2-PRODUCTS

### 2.1 MANUFACTURERS

- A. Ceiling Panels and Suspension System:
1. Armstrong World Industries, Inc.

### 2.2. ACOUSTICAL CEILING UNITS

- A. Acoustical Panels Type ACT-1:
1. Surface Texture: Fine (Optima® & Spectra™); Smooth (MetalWorks™)
  2. Composition: Fiberglass or Aluminum Composite
  3. Color: Optima White; Spectra Tech Black; or MetalWorks White, Silver Grey, or Gun Metal Grey
  4. Size: (24 inches x 48 inches) (24 inches x 60 inches) (24 inches x 72 inches) (24 inches x 96 inches) (36 inches x 36 inches) (48 inches x 48 inches) (48 inches x 96 inches) with pre-drilled 1/2 inch holes for installation.
  5. Thickness: 7/8 inch for Optima and Spectra; 0.57 inch for MetalWorks
  6. Edge Profile: Reverse Tegular Edge, Square (MetalWorks)
  7. Noise Reduction Coefficient (NRC): ASTM C423; 0.75 - 0.95
  8. Ceiling Attenuation Class (CAC): ASTM C1414; Not Applicable
  9. Emissions Testing: Section 01350 Protocol, < 13.5 ppb of formaldehyde when used under typical conditions required by ASHRAE Standard 62.1-2004, "Ventilation for Acceptable Indoor Air Quality"
  10. Flame Spread: ASTM E1264; Class A (UL)
  11. Light Reflectance (LR): ASTM E1477; White Panel (Optima): Light Reflectance: 0.90, Tech Black Panel: Light Reflectance: N/A
  12. Anti-microbial Protection: Inherent - Resists the growth of mold/mildew and bacterial growth
  13. Acceptable Product: MetalWorks, Optima, or Spectra™ Capz™, Item # \_\_\_\_\_, as manufactured by Armstrong World Industries.
  14. Accessories: Touch-Up Paint, #5761, for use on cut Optima® Capz™ panel edges.

### 2.3. SUSPENSION SYSTEM

- A. Components: All main beams and cross tees shall be commercial quality hot-dipped galvanized steel as per ASTM A653. Main beams and cross tees are double-web steel construction with 15/16" type exposed flange design. Exposed surfaces chemically cleansed, capping pre-finished galvanized steel in baked polyester paint. Main beams and cross tees shall have rotary stitching.
1. Structural Classification: ASTM C635, Intermediate Duty or Heavy Duty
  2. Color: White or Tech Black and match the actual color of the selected ceiling tile, unless noted otherwise
  3. Acceptable Product: Prelude® XL® 15/16" Exposed Tee as manufactured by Armstrong World Industries, Inc.
- B. Attachment Devices: Size for five times design load indicated in ASTM C635, Table 1, Direct Hung unless otherwise indicated.
- C. Wire for Hangers and Ties: ASTM A641, Class 1 zinc coating, soft temper, pre-stretched, with a yield stress load of at least three design load, but not less than 12 gauge.

### D. Accessories:

1. QSUTC: Galvanized steel, attachment clip to fasten grid to structure.
2. ARBRKT: Galvanized steel, adjustable hanger bracket to fasten grid to structure.
3. ARSTUD: Galvanized steel, with (1/4-20 threads x 1 inch long) used to secure panel to grid.
4. ARCAP/5487: Aluminum, screws through the panel on the 1/4-20 stud and have 1-1/4 inch diameter face to align and support the panel. Available in white, silver, or black.
5. ARPLUG: Galvanized steel, locks the cross tee tabs on outside rows of mains. Only works with Armstrong® ceilings XL® cross tee end details.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Do not proceed with installation until all wet work such as concrete, terrazzo, plastering, and painting has been completed and thoroughly dried out, unless expressly permitted by manufacturer's printed recommendations.

### 3.2 PREPARATION

- A. Measure each ceiling area and establish layout of acoustical units. Coordinate panel layout with mechanical and electrical fixtures.
- B. Coordination: Furnish layouts for preset inserts, clips, and other ceiling anchors whose installation is specified in other sections.
1. Furnish concrete inserts and similar devices to other trades for installation well in advance of time needed for coordination of other work.

### 3.3 INSTALLATION

- A. Install suspension system and panels in compliance with ASTM C636 and with the authorities having jurisdiction, and in accordance with the manufacturer's instructions.
1. Capz Installation Instructions, LA-297435
- B. Grid must be installed straight, level, and square for best panel fit and alignment. Suspend main beam from overhead construction with hanger wires or brackets spaced 4-0 on center along the length of the main runner. Install hanger wires plumb and straight.
- C. Install Optima and Spectra Capz panels with the directional arrow in the same direction to provide installation consistency, uniform visual, and proper panel alignment.
- D. Two installers are recommended for Optima and Spectra Capz panels exceeding 72 inches.

### 3.4 ADJUSTING AND CLEANING

- A. Replace damaged and broken panels.
- B. Comply with manufacturer's instructions for cleaning and touch up of minor finish damage. Remove and replace work that cannot be successfully cleaned and repaired to permanently eliminate evidence of damage.

## DESIGN CONSIDERATIONS

- In situations where all four suspension points cannot be used, follow our technical guide for recommendations.
- Panels are installation directional and are marked on the back with arrows. Install all Optima® and Spectra™ Capz™ panels with the directional arrow in the same direction to provide installation consistency, uniform visual, and proper panel alignment.
- Product is recommended to be installed at ceiling height of nine feet or higher.
- Suspension system may be visible when the product is installed at low elevations. Specify White or Tech Black grid to coordinate with Optima or Spectra panels. (360° painted grid may be used to coordinate suspension system with ceiling deck.)

## INSTALLATION CONSIDERATIONS

- Please refer to installation instructions LA-297435 before installing Capz panels
- Panels are pre-drilled to accept hardware caps
- Panels may be stacked in layers
- Panels may be installed on a slope using installation guidelines found in installation instructions
- For minor surface or edge scratches on Optima® Capz™, use SuperCoat™ Touch-up Paint, Item #5761, by Armstrong Ceilings
- Consider lifting Spectra Tech Black panels to avoid scuffing
- For slight smudges or scuffing on Spectra Tech Black, wipe lightly with a damp cloth



Arium Architects, Columbia, MD



Optima® Capz™ 4' x 8' with White Caps; Bucyrus International, Inc., Oak Creek, WI

**1 877 276-7876**

Customer Service Representatives  
7:45 a.m. to 5:00 p.m. EST  
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