



Seismic Compliance

In geographic seismic zones, properly engineered building structures need to be properly designed to withstand the seismic effects, while sustaining an acceptable level of damage. The International Building Code (IBC) presents minimum design/performance requirements and, in some instances, prescriptive guidance for product and installation requirements in seismic areas.

The purpose of this requirement is to:

- Provide a suspension system strong enough to resist lateral forces imposed upon it without failing
- Prevent border panels from falling from the ceiling plane

INSTALLATION REQUIREMENTS FOR SUSPENDED CEILINGS

IBC Requirements for Wall-to-Wall Ceiling Systems with Standard Acoustical Suspension Systems

IBC requirements are based on flat, level, suspended ceiling systems – main beams and cross tees suspended from the building structure by wires and wall molding around the perimeter.

- The IBC code is based on the suspension system only
- Many manufacturers market non-standard ceiling systems not covered by the code
- You must be able to prove that specified ceiling systems perform at a level consistent with the intent of the code

Installation Requirements for Clouds, Canopies, and Vertical Elements

Code officials may reject specified products such as clouds or canopies* during plan review, challenging your design and delaying the construction schedule.

However, the code “is not intended to prevent”¹ the installation of certain ceiling systems,

and does allow “alternative materials, designs, and methods” to be used. To substantiate claims for alternative materials and designs, code officials “have the authority to require tests as evidence of compliance.”² If you are having problems getting free-floating or non-traditional objects approved, contact your local Armstrong Ceilings representative.

¹ Section 104.11 Alternative materials, designs, and methods of construction and equipment.

² Section 104.11.2 Tests.

*Armstrong Ceilings defines a cloud as a ceiling that is not connected to a wall on any side. Armstrong defines a canopy as a single, unique architectural element which is independently suspended from the building structure.

Installation Requirements for Suspended Drywall Ceilings

The drywall grid components listed in ESR-1289 and ESR-2311, which represent a code-compliant system for suspended-ceiling-mounted drywall installations, meet ASTM C645 and are UL Fire Rated. Armstrong® Drywall Grid Systems offer a labor- and cost-saving method of meeting seismic code without risk of delaying your construction schedule. Additional benefits of ESR-1289 and ESR-2311 are:

- Elimination of the lateral load design requirements (see ESR-1289, Section 4.4.1)
- Recognition and approval of DGS 6' cross tees (XL8965), and that 6' spacing of main beams reduces material, hanger wire, and installation time
- UL approval of XL8965 in fire-rated applications
- Recognition of fire-rated Type “F” cross tees – XL8947, XL8947P, and XL8918
- Recognition and approval of ShortSpan® pre-engineered solution to support spans up to seven feet with no independent support

Seismic Rx® Suspension System

Armstrong® Ceilings has an International Code Council-Evaluation Service (ICC-ES) approach to installation evaluated by the entitled Evaluation Service Report (ESR-1308). The Armstrong Seismic Rx Suspension System eliminates unsightly 2" wall angles in Category D, E, F seismic-compliant installations. It provides a labor- and cost-saving method of meeting seismic codes without the risk of delaying the construction schedule.

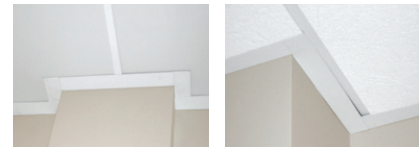


ICC Evaluated Heavy-duty Suspension Systems ESR-1308

- Prelude® XL® 15/16" Exposed Tee suspension system
- Suprafine® XL® 9/16" Exposed Tee suspension system
- Silhouette® XL® 9/16" Slotted Tee suspension system
- Interlude® XL® 9/16" Exposed Tee suspension system

2" wall angles are prone to the following problems:

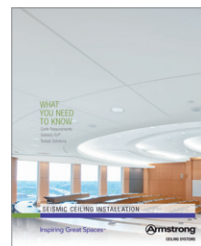
- Difficult to keep “tight” to wall
- Difficult to install corners
- Prone to twisting and warping



ESR-1308 Lists Specific Armstrong Ceiling Components and Method of Installation

The performance of the Armstrong Seismic Rx Suspension System is based on the specific combination of components and method of installation. Other manufacturers' components and installation methods were not tested, and are not covered in the ESR-1308 evaluation. Substitution of other components puts the system at risk and is not allowed by this ESR report.

For more information and code-related web site information, refer to our brochure: “WHAT YOU NEED TO KNOW Code Requirements Seismic Rx® Tested Solutions” BPCS-4141



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Providing a valid Evaluation Service Report (ESR) to a code official represents the “gold standard” for installations. The ESR represents the safest, least risky method for selecting a seismic ceiling solution. Armstrong Ceilings also has tested products that do not appear in ESR reports, as many products do not have clear code requirements. Armstrong Ceilings can provide you with seismic test results via a white paper or test report based on large-scale seismic shake table test results from an IAS accredited test facility (State University of New York, University at Buffalo). Contact TechLine at 877 276-7876, techline@armstrongceilings.com

Armstrong Ceilings is one of the only ceiling manufacturers consistently providing seismic test results for all types of installations: Wall-to-Wall Ceilings, Canopies, Clouds, Vertical Elements, and Drywall Grid Systems.

When requesting a white paper or test report, please have this information ready to share:

- Project Name
- Location
- Product
- Installing Customer Contact
- Design Professional Contact

SEISMIC TESTED SYSTEMS

Product	Installation Detail	Product	Installation Detail
Axiom® Building Perimeters	Perimeter Pocket with Horizontal Diffuser Perimeter Pocket with Vertical Diffuser	Seismic	Category C Installation per Code Category D, E & F Installation per Code Seismic Corridor with 8" Gusset Seismic Corridor with 12" Gusset Seismic Joint Clip Main Beam (SJM15) Fully Loaded Seismic Joint Clip Main Beam (SJM19) Fully Loaded Seismic Joint Main Beam Splice Seismic Separation Joint on Prelude® XL® Seismic Separation Joint on Suprafine® XL® STAC – Single Tee Adapter Clip
Canopies	AcoustiBuilt® in Cloud Applications Capz™ Infusions® Hills & Valleys Infusions (Grouped) MetalWorks™ Canopies Optima® Canopies SoundScapes® Canopies WoodWorks® Canopies	Seismic Rx®	BERC2 45-degrees to the Wall on Prelude XL BERC2 Fully Loaded on Prelude XL BERC2 on 7897 Shadow Molding with Ultima® Vector® Panels BERC2 on Interlude® XL® HRC BERC2 on Interlude XL HRC with Lights & Sprinklers BERC2 on Silhouette® XL® with Diffusers & Sprinklers BERC2 with Prelude XL Intermediate-duty BERC2 with Suprafine XL ALBERC2 Prelude XL – Alternate Category C
Clouds, Baffles & Blades	72" x 72", 144" x 144", and 168" x 168" Formations™ – Planks 12" Axiom® Floating trim 2-sides with Prelude® XL® ID 12" Axiom® Floating Cloud with Prelude XL ID 6" Axiom® Floating trim 2-sides with Prelude XL ID 6" Axiom® Floating Cloud with Prelude XL ID 16" Axiom® trim FeltWorks® Blades FeltWorks® Open Cell Infusions® Blades™ Infusions® Shapes Formations Curves & with Integrated Lighting MetalWorks™ Blades™ Serpentina® Classic Serpentina® Vault Serpentina® Waves™ SoundScapes® Blades™ SoundScapes® Shapes	Standard T-Bar Suspension System	DynaMax™ Metaphors® Optima Radial Ceiling Optima® Vector® Optima® Vector® 24" x 96" Planks Optima® Vector® 48" x 48" Panels Prelude® XL Fire Rated Prelude® XL Intermediate-duty Prelude® XL to Black Iron NYC Prelude® XL Max® Shiplap Full Room Silhouette® XL with Shadow Molding Sloped Ceiling Suprafine® XL® Installation per Code Tectum Square Lay-in & Tegular Tectum Canopies TechZone® Ceiling Systems Ultima® Beveled Tegular Ultima® Vector®
Corridors	AcoustiBuilt® Seamless Ceiling System Acoustical Locking Angle Molding with 8" and 12" Gusset Acoustical Locking Angle Molding with Fiberglass Panels Acoustical Locking Angle Molding with Mineral Fiber Panels ShortSpan® Corridor System with Gusset SingleSpan™ Acoustical Corridor Suspension System	WoodWorks®	Access™ Canopies Grille – Classics Grille – Forté Linear Curved Linear Flat Shapes for DesignFlex Tegular on Prelude XL Vector on Prelude XL
Drywall Systems	6' DGS Tees Drywall Grid System QuikStix™ Locking Pocket Main ShortSpan 6', 7', 14', 20' QuikStix Soffits AcoustiBuilt®	Other	Capz™ Altitudes® Torsion Spring Axiom® Transitions Axiom® Glazing Channel Axiom® Light Coves XAL LENO with lighting connector bracket
MetalWorks™	DH700 Faceted Tegular and Vector® Fastrack 3", 6", and 12" Flush Tegular on Prelude XL Linear Curved and Flat Open Cell 4" and 8" Planks RH200 RH200 Cantilevered Curved RH215 Curved RH215 Clip-on Square Tegular on Prelude XL Standard Planks Tartan 3" Tartan 6" with Mega Panels and Planks Torsion Spring Torsion Spring Shapes Vector® on Prelude® 15/16" suspension system Wings		