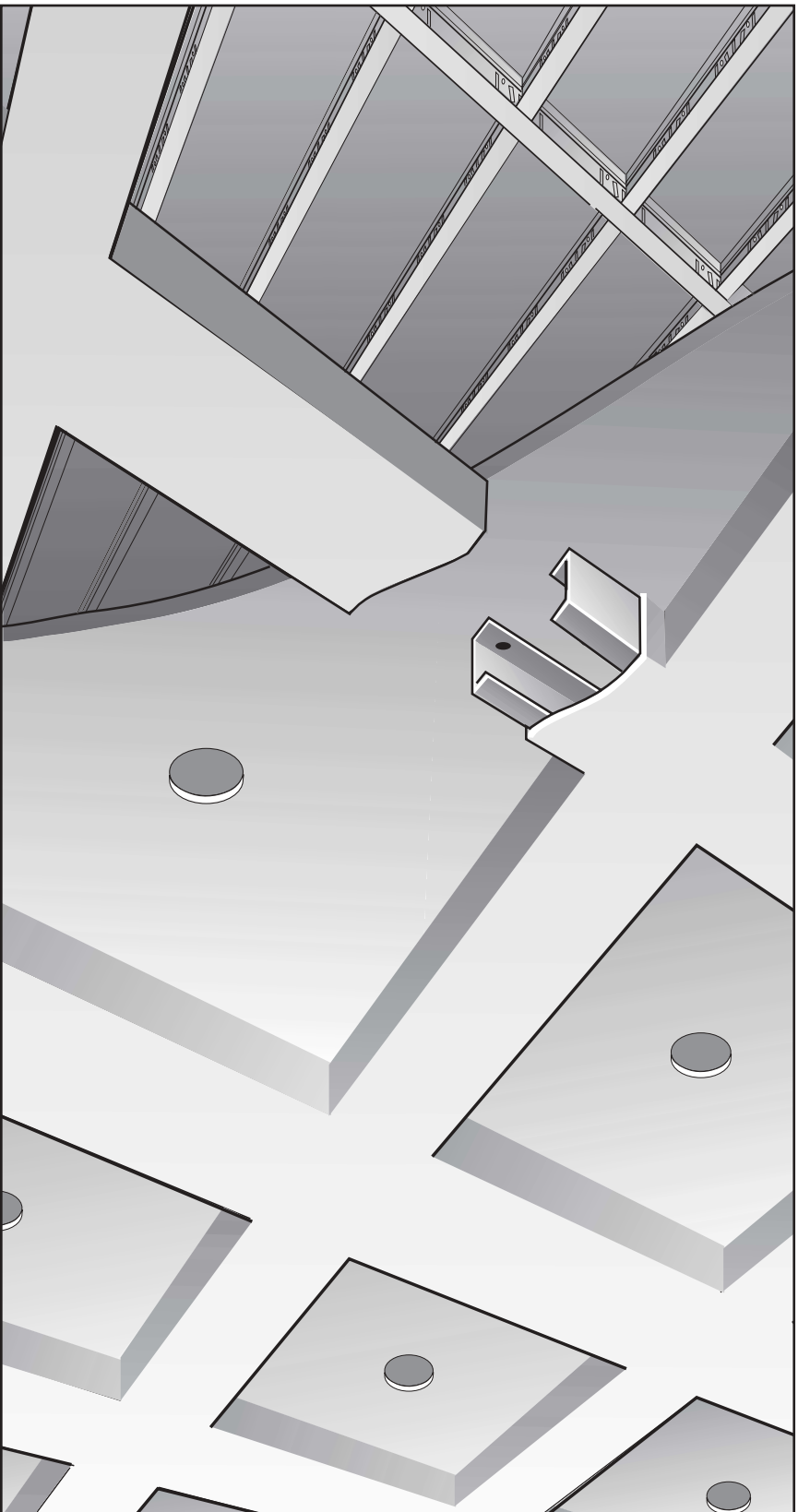
CEILING SYSTEMS

[Between us, ideas become reality.™]



TECHNICAL GUIDE DrywallGridSystem

DRYWALL Grid Systems

Hanging and Framing Flat Ceilings

Armstrong

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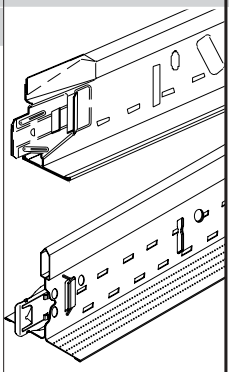
Performance

- **PeakForm**™ patented profile increases strength and stability for improved performance during installation
- **SuperLock**™ main beam clip is engineered for a strong secure connection and fast accurate alignment confirmed with an audible click; easy to remove and relocate
- **ScrewStop**™ reverse hem prevents screw spin off on 1-1/2" wide face
- **Rotary-stitched** — Greater torsional strength and stability
- **1-1/2" wide face** main beams and cross tees — Easy installation of screw applied gypsum wallboard
- **G40 hot dipped galvanized coating** — Superior corrosion resistance
- **G90 hot dipped galvanized coating** — Available for exterior application
- **Heavy-duty load rating** — Minimum 16 Lbs./LF on main beams and cross tees
- **Fire rated** — Applicable to 25 UL Fire Resistant designs (D501, D502, G523, G524, G526, G527, G528, G529, J502, L502, L508, L513, L515, L525, L526, L529, P501, P506, P507, P508, P509, P510, P513, P514, P516). Items XL8947, XL8925, XL8926, XL7918 are not fire rated
- Wind uplift construction available
- **Cross tee Spacing:**
  24" O.C. for 5/8" drywall
  16" O.C. for 1/2" drywall

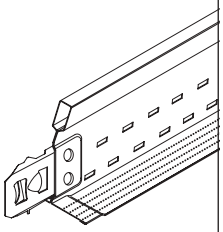
Code Compliance

- Meets ASTM C 635
- Meets ASTM C 645
- Installation per ASTM C636
- Installation per ASTM C754
- ICBO Evaluation Report Number ES-5413
- Department of State Architect — DSA PA105
- City of LA — RR 25348
- Uniform Building Code, Continuous Membrane, One Level. Per Section 25.210 single level drywall ceilings are exempt from lateral force bracing requirements when walls are not over 50 feet apart. When walls are over 50 feet apart, the ceiling should be examined for bracing requirements
- IBC categories D, E and F single layer drywall ceilings are exempt from lateral force bracing requirements, regardless of room size
- Consult local codes for specific requirements

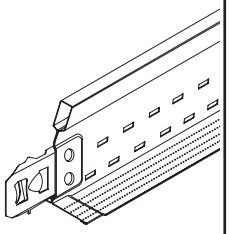
Main Beams

Item #	Length	Face Dimension	Duty Load	Fire Rated	Routs	Load Test Data (Lbs./LF)						Perspective
						L/360 wires at			L/240 wires at			
						2'	3'	4'	2'	3'	4'	
HD8901	144"	15/16"	Heavy duty	Yes	51 routs—starting 2-1/4" from each end (type “F” fixture compatible)	801	314	16.5	123.2	46.3	24.75	
HD8906 HD8906**G90**	144"	1-1/2"	Heavy duty	Yes	51 routs—starting 2-1/4" from each end (type “F” fixture compatible)	95.5	35.8	18.76	143.0	57.3	28.14	

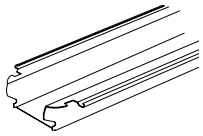
Cross Tees

Item #	Face Length	Face Dimension	Fire Rated	Routs	Load Test Data (Lbs./LF)						Perspective
					L/360 wires at			L/240 wires at			
					50"			50"			
XL8947 XL8947**G90**	50"	1-1/2"	No	8 routs—starting 10" from each end (type “F” fixture compatible)	17.07			25.22			
					2'	3'	4'	2'	3'	4'	
XL8945 XL8945**G90**	48"	1-1/2"	Yes	9 routs—center rout and starting 10" from each end (type “F” fixture compatible)			17.07			25.6	
XL8341	48"	15/16"	Yes	3 routs—starting 12" from each end			18.80			28.2	
XL7341	48"	15/16"	No	3 routs—starting 12" from each end			16.39			28.2	
XL7231 XL7231**G90**	36"	15/16"	No	none	33.0			49.5			
XL7936**G90**	36"	1-1/2"	No	none	33.33			49.96			

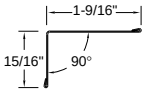
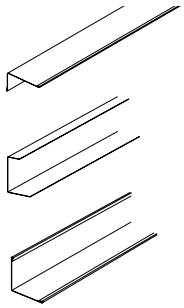
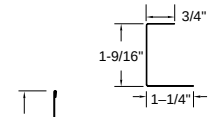
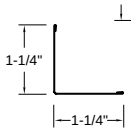
Cross Tees

Item #	Length	Face Dimension	Fire Rated	Routs	Load Test Data (Lbs./LF)		Perspective
					L/360 wires at	L/240 wires at	
					2' 3' 4'	2' 3' 4'	
XL8925 XL8925**G90**	26"	1-1/2"	No	2 routs—12" from each end (type “F” fixture compatible)	98.0	147.0	
XL8926 XL8926**G90**	24"	1-1/2"	Yes	3 routs—center rout and 10" from each end (type “F” fixture compatible)	129.0	193.0	
XL7918	14"	1-1/2"	No	none (type “F” fixture compatible)	129.0	193.0	

Furring Hat Channel

Item #	Length	Face Dimension	Fire Rated	Load Test Data (Lbs./LF)		Perspective
				L/360 wires at	L/240 wires at	
				4'	4'	
HD8940	48"	1-3/8"	Yes	7.08	10.62	

Wall Molding

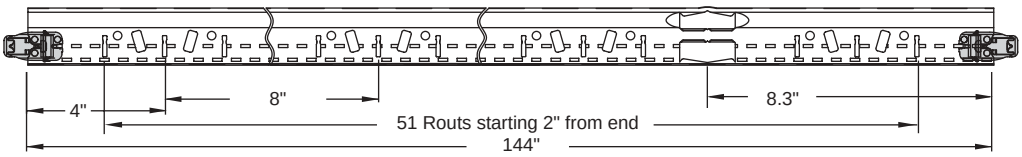
Item #	Length	Description	Profile	Perspective
7858	144"	Reverse angle molding nominal 1-9/16" x 15/16"		
7838	120"	Unhemmed channel molding nominal 3/4" x 1-9/16" x 1-1/4"		
HD7859	120"	Hemmed angle molding nominal 1-1/4" x 1-1/4"		

Corrosion Prevention

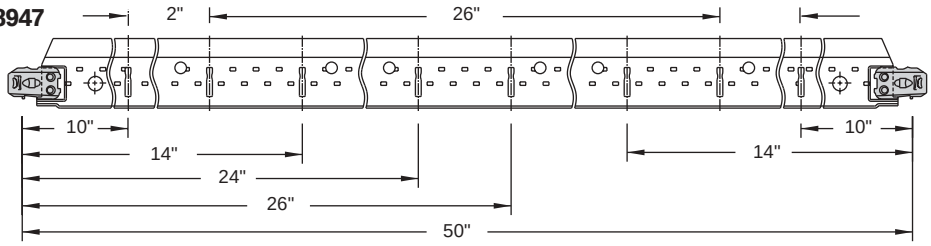
Corrosion prevention is an essential factor in the economical utilization of galvanized sheet metal for ceiling grid. Armstrong provides G-40 for standard construction per ASTM C 645. When conditions include exposure to extreme moisture and salt water, G-90 is available upon request per ASTM A 653.

ROUT LOCATIONS

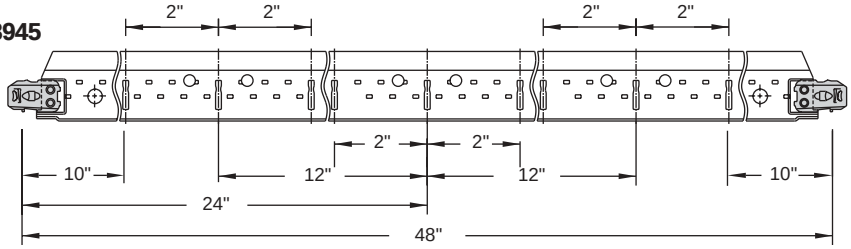
***HD8906/HD8901**



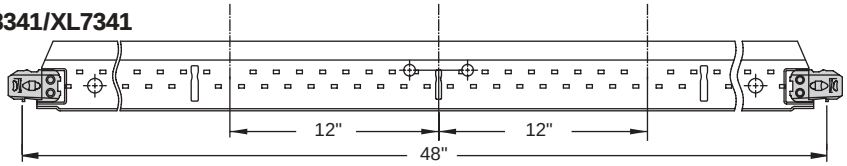
XL8947



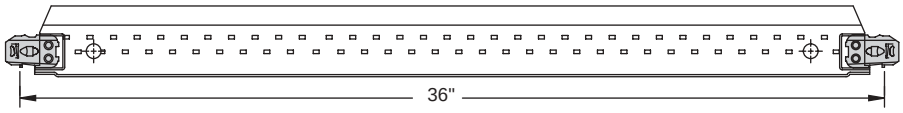
XL8945



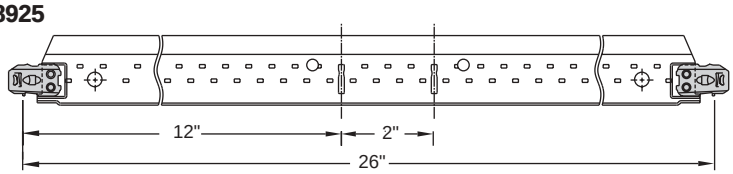
XL8341/XL7341



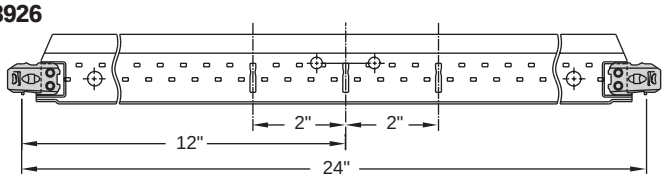
XL7231/XL7936G90



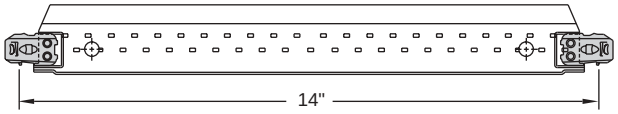
XL8925



XL8926



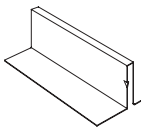
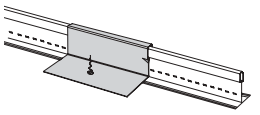
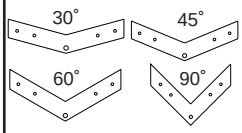
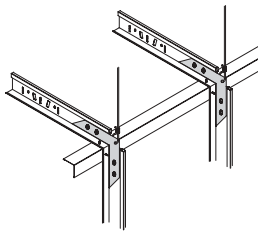
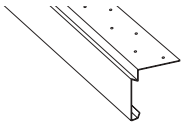
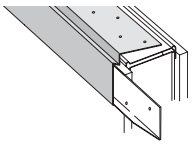
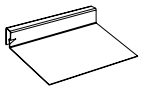
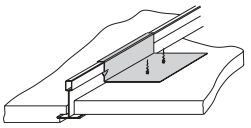
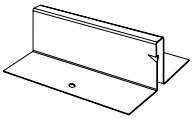
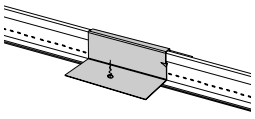
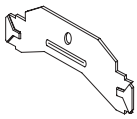
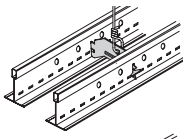
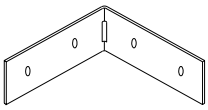
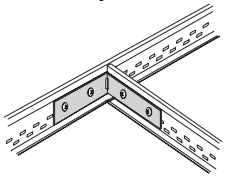
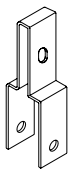
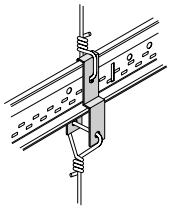
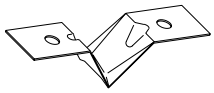
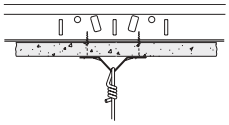
XL7918



* HD8901 has an integral nose end detail
Note: All dimensions are nominal

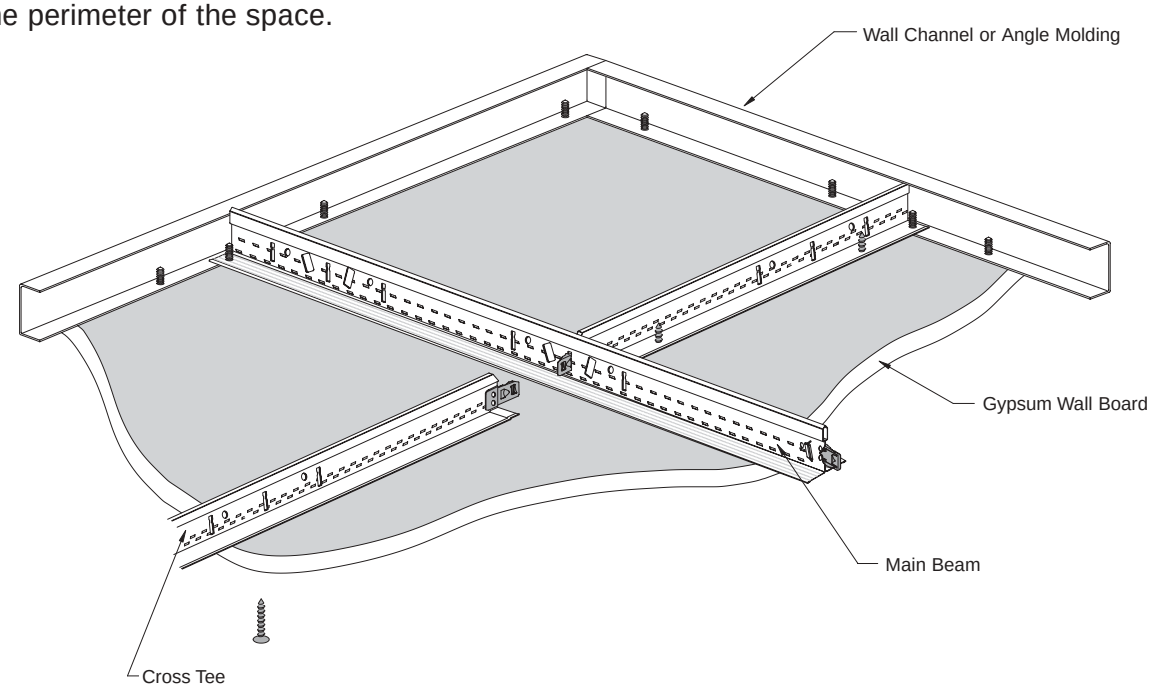
ACCESSORIES

A variety of drywall grid accessories are available to provide problem-solving solutions that save time, labor and money. For a complete list of accessories, request submittal CS-3082.

Item #	Description	Perspective	Application
DWACS	**Drywall Attachment Clip** facilitates transition from drywall to acoustical ceiling; locks under bulb of grid section to prevent upward movement and provide secure attachment surface on one side of exposed grid		
DW30C DW45C DW60C DW90C	30, 45, 60 and 90 degree **Drywall Angle Clips** are used to create positive and secure angles for drywall and ceiling installations on either main beams or cross tees		
TT10	**Partition Top Trim** used to finish the top of a drywall partition for a continuous drywall/acoustical ceiling interface		
DW58 DW50	**DW58-Transition Clip for 5/8" Drywall; DW50-Transition Clip for 1/2" Drywall** facilitates transition from drywall to acoustical ceiling; one-sided hold-down clip; eliminates the need for a drywall bead		
MBAC	**Main Beam Adapter Clip** attaches to web of grid section; provides larger surface for screw attachment; used as a hold-down clip for thin material (metal or plastic lay-in panels); fastens drywall track to underside of exposed grid with lay-in panels, leaving grid face free of screw holes		
MBSC2	**Main Beam Spacer Clip** (2" in length) used to space two parallel main beams 2" O.C. for air supply or return		
XTAC	**Cross Tee Adapter Clip** - Used to attach field cut cross tees to main beams		
DLCC	**Direct Load Ceiling Clip** to hang suspension system below existing 15/16" grid face, transferring weight directly to hanger wire; may be used to preserve the fire rating of an existing ceiling and to support heavy accessories		
DWC	**Drywall Clip** allows for a “second” ceiling to be installed below a drywall ceiling; attach through installed drywall to supporting structure		

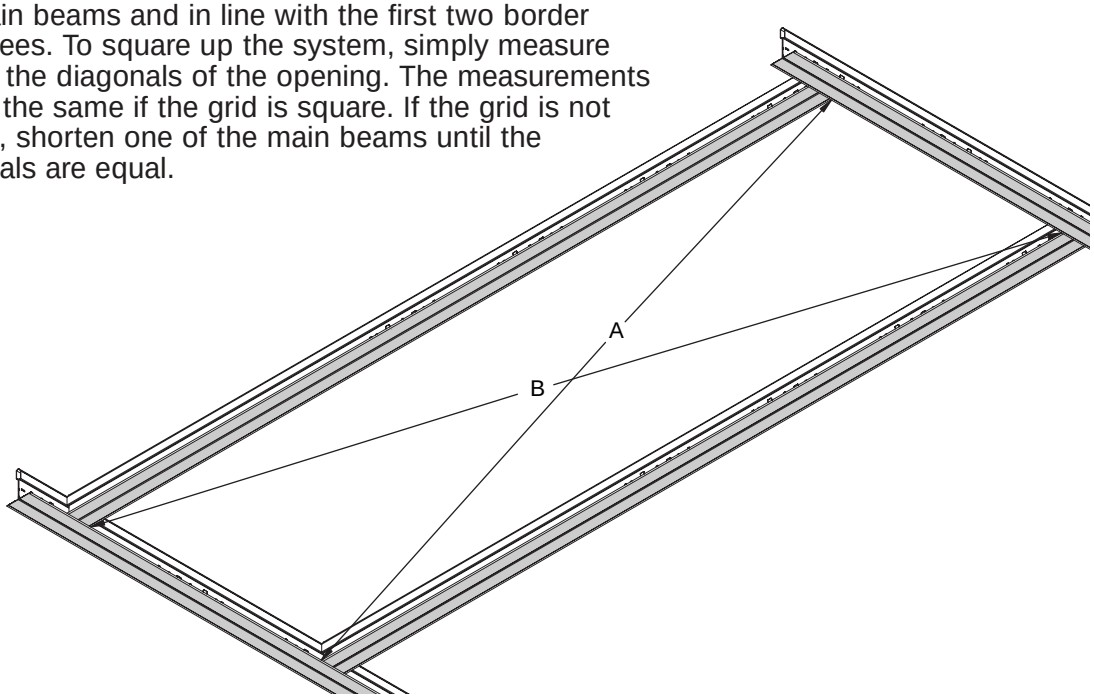
System Framing

The grid system is made up of main beams and cross tees that are suspended by hanger wires to the structural deck. Sections of main beams lock together end-to-end while cross tees span between the main beams. The ends of the main beams and cross tees rest on the wall channel or angle molding that run around the perimeter of the space.



Squaring up the System

Once you've hung your first two main beams and border cross tees, install two full cross tees between the main beams and in line with the first two border cross tees. To square up the system, simply measure across the diagonals of the opening. The measurements will be the same if the grid is square. If the grid is not square, shorten one of the main beams until the diagonals are equal.

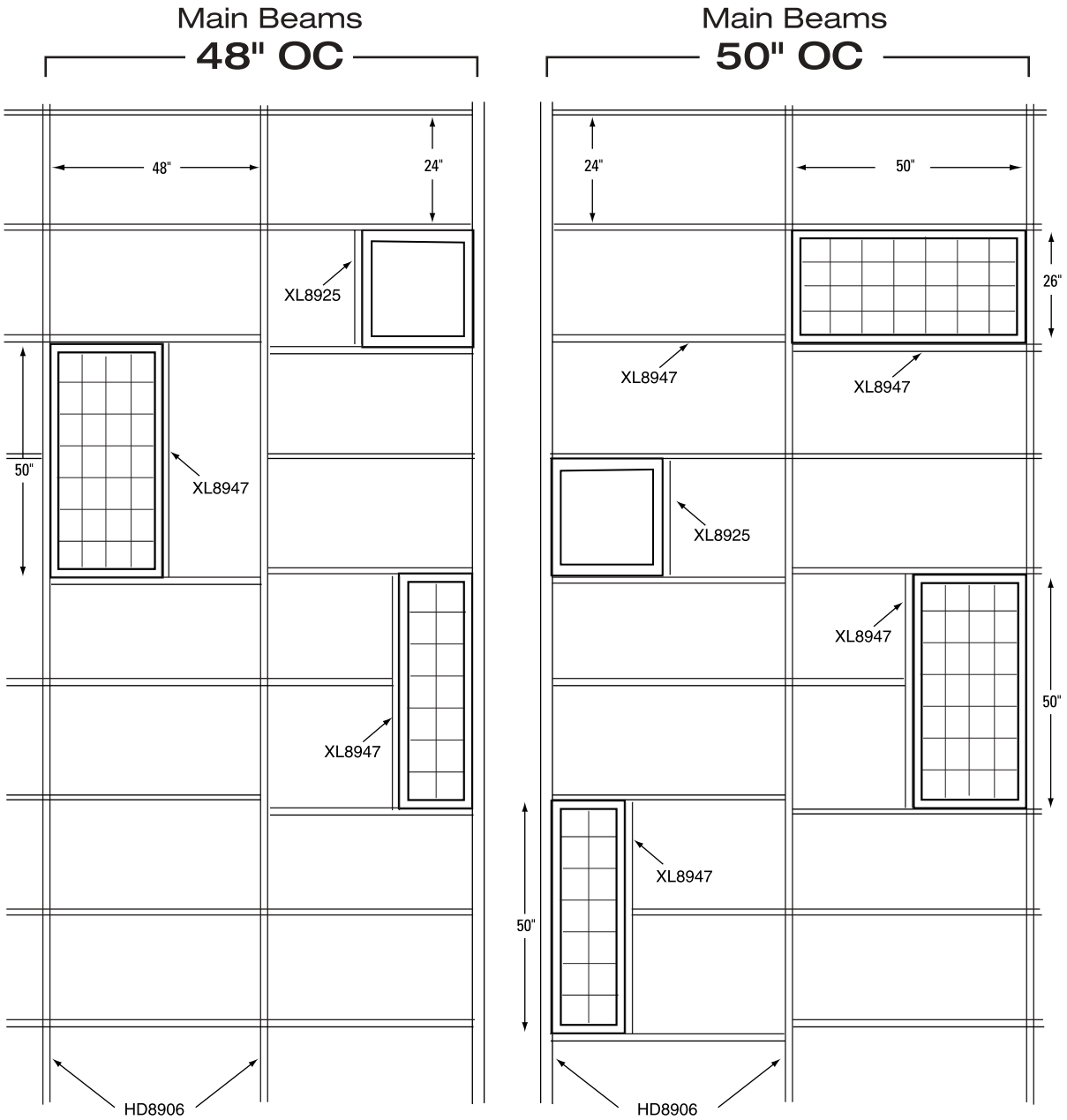


Type F Fixtures

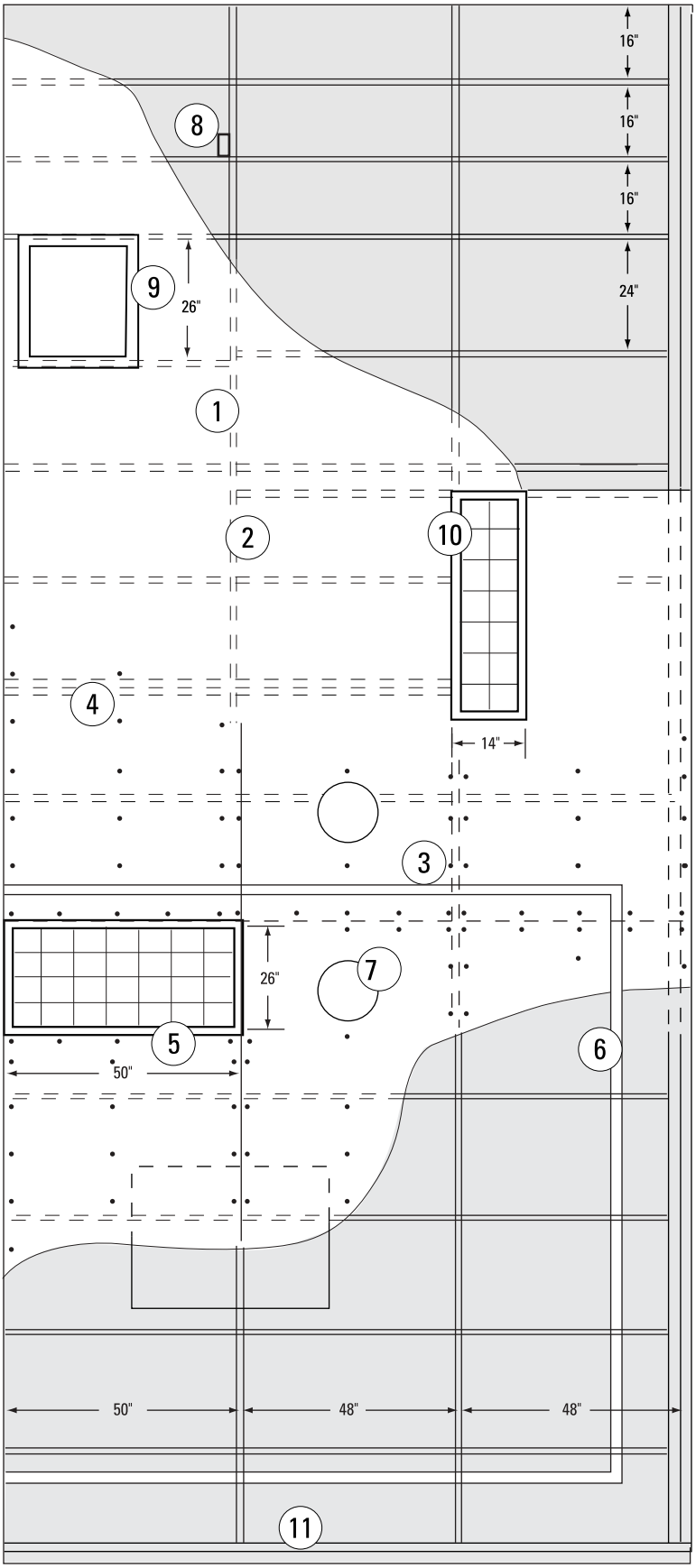
Type “F” fixtures, access panels and air diffusers require a full 12", 24" or 48" opening dimension. The Armstrong Drywall Grid system main beams and cross tees have additional routs in the web to accommodate this larger opening for type “F” fixtures. Using our 14", 26" and 50" cross tees, type “F” fixtures fit perfectly without field cutting or special accessories.

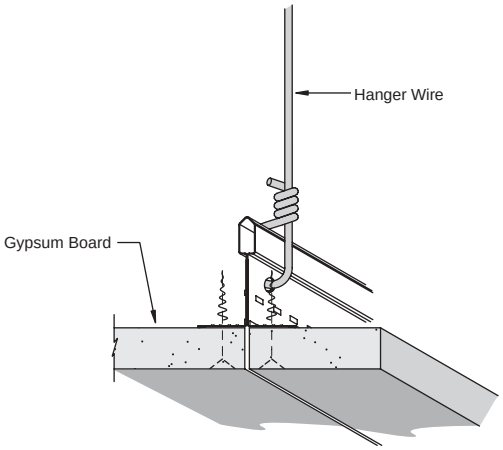
When installing type “F” fixtures **parallel** to the main beams use a 50" and 48" cross tee for easy placement of fixtures without field modifications.

When installing fixtures **perpendicular** to the main beams, use our 50" cross tees for virtually limitless fixture placement.

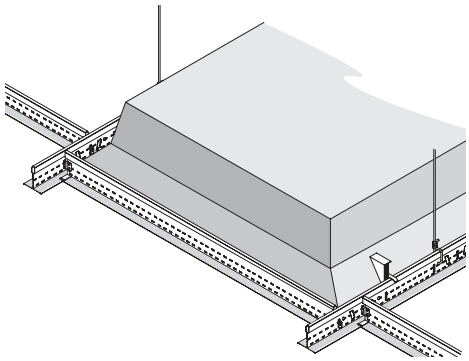


SUSPENDED DRYWALL GRID SYSTEM DETAILS

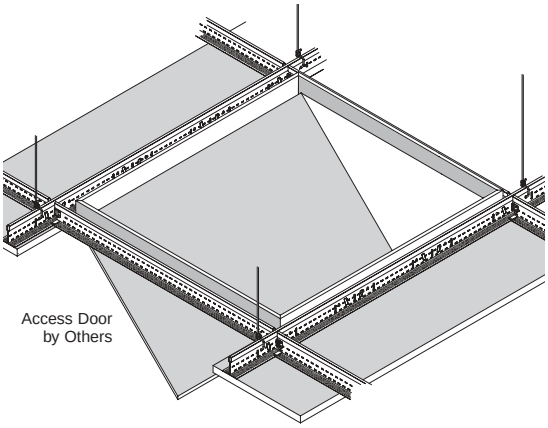




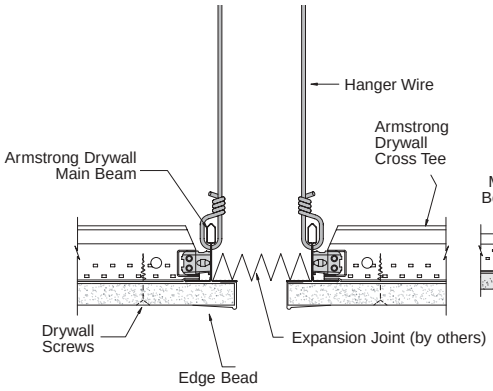
1 Butt Joint



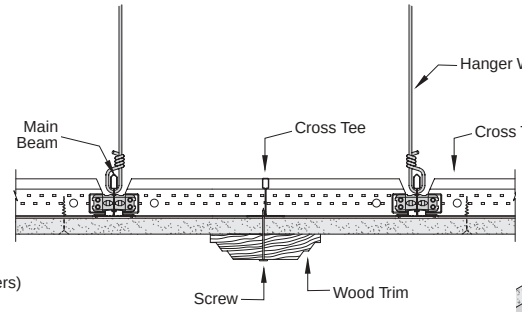
5 Type F Fixture



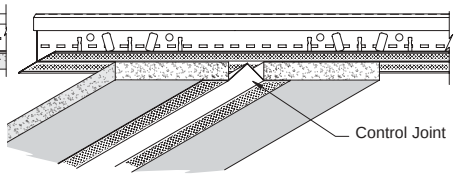
9 Access Door



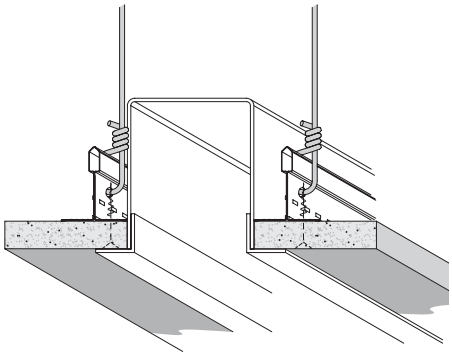
2 Expansion Joint



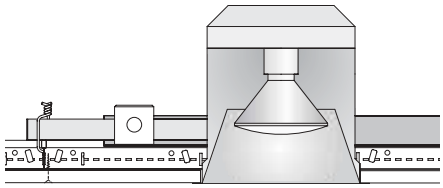
3 Wood Trim



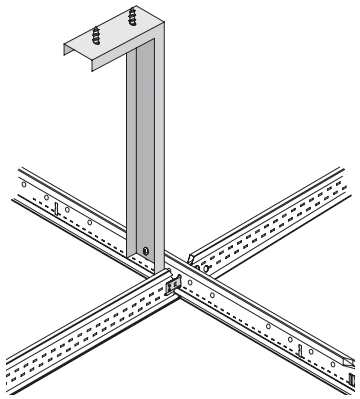
4 Control Joint



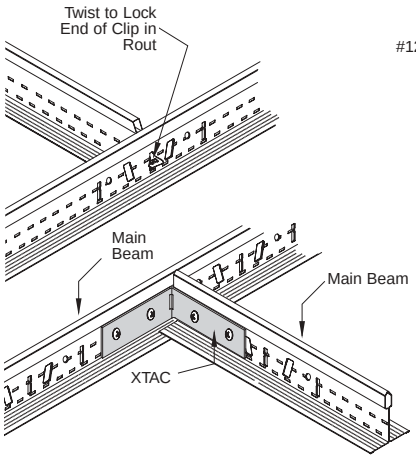
6 Air Bar



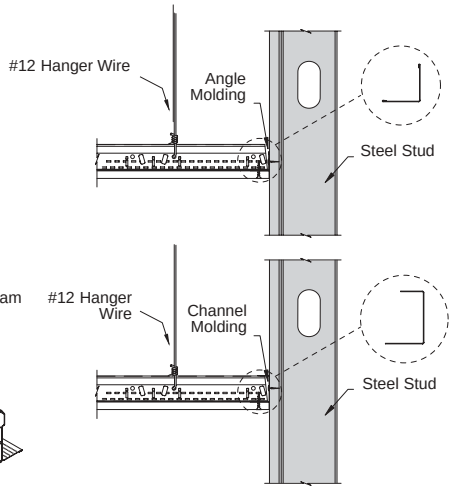
7 High Hat Fixture



8 Vertical Brace

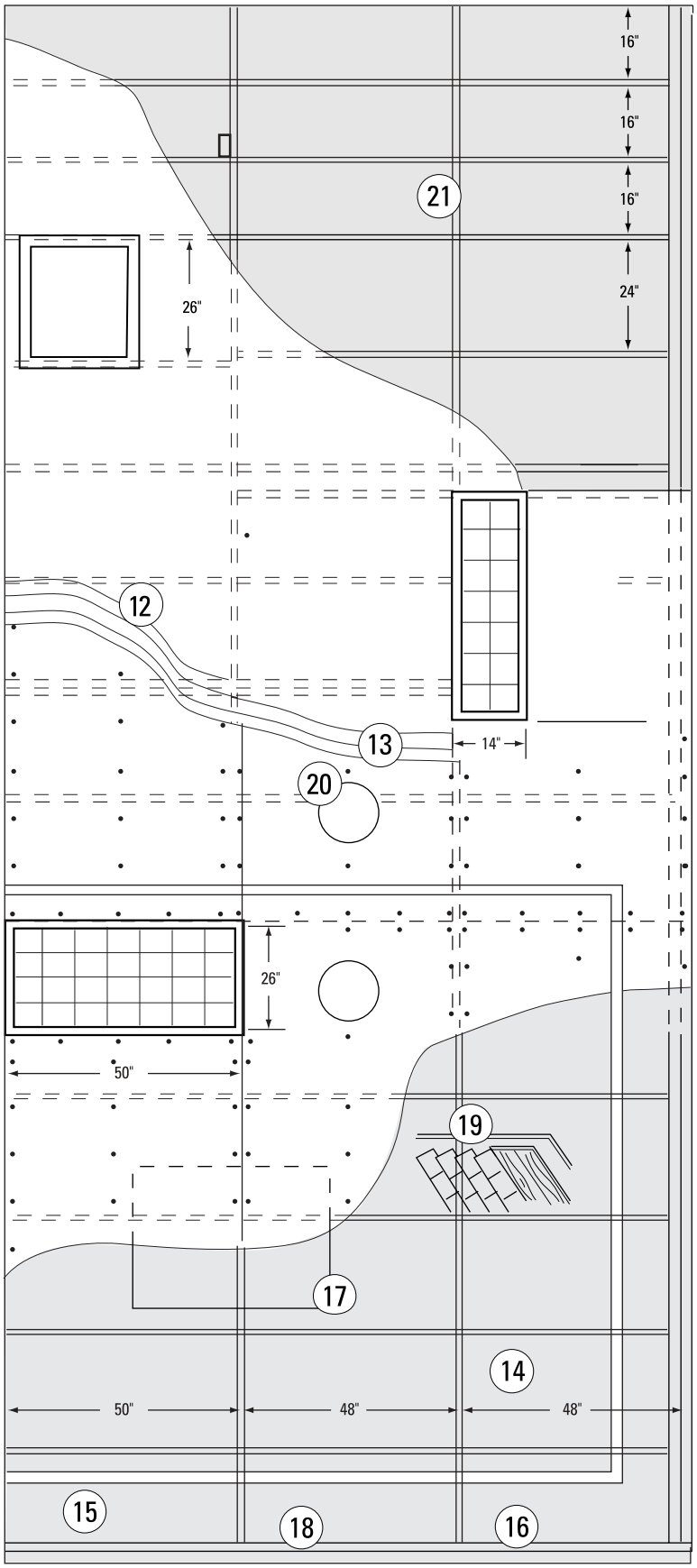


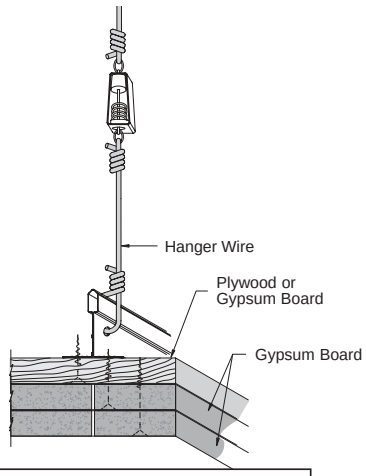
10 Securing a Single Cross Tee



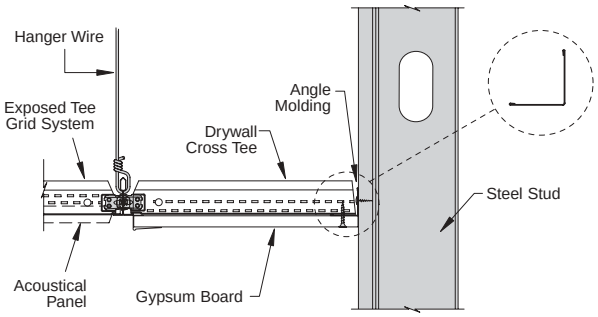
11 Channel and Angle Molding

SUSPENDED DRYWALL GRID SYSTEM DETAILS

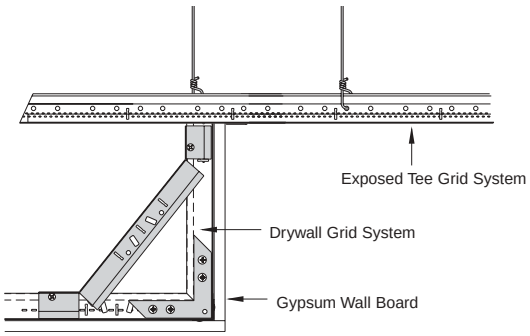




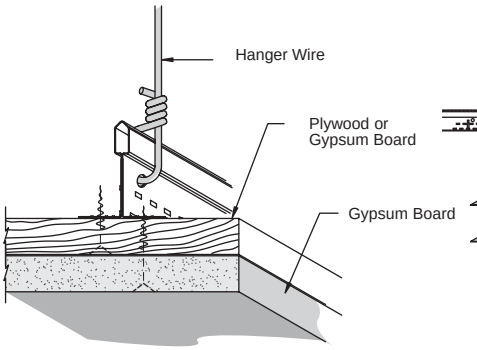
12 Triple Layer



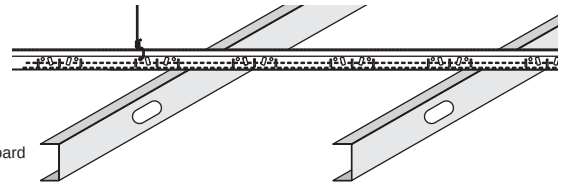
16 Transition



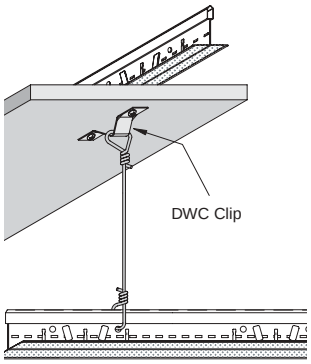
18 Drywall Vertical



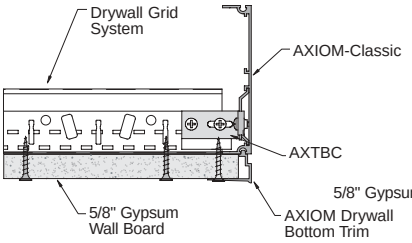
13 Double layer

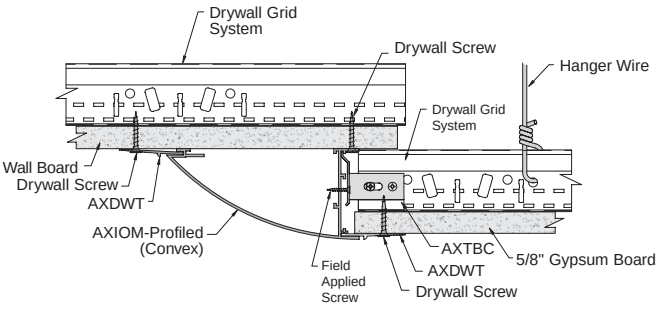


14 Main Beam Stabilizer

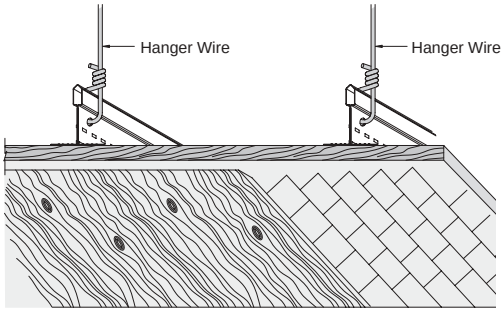


15 Double Hung Ceiling

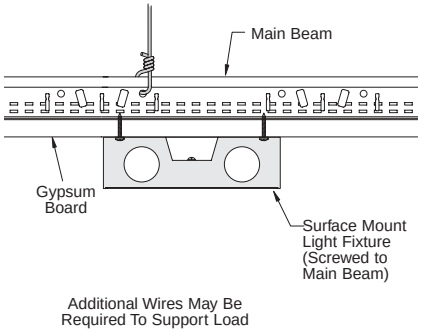




17 AXIOM™ Perimeter Trim

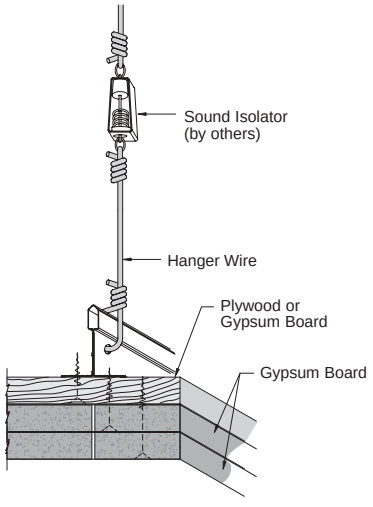


19 Alternate Finishes



Additional Wires May Be
Required To Support Load

20 Surface Mount Fixture

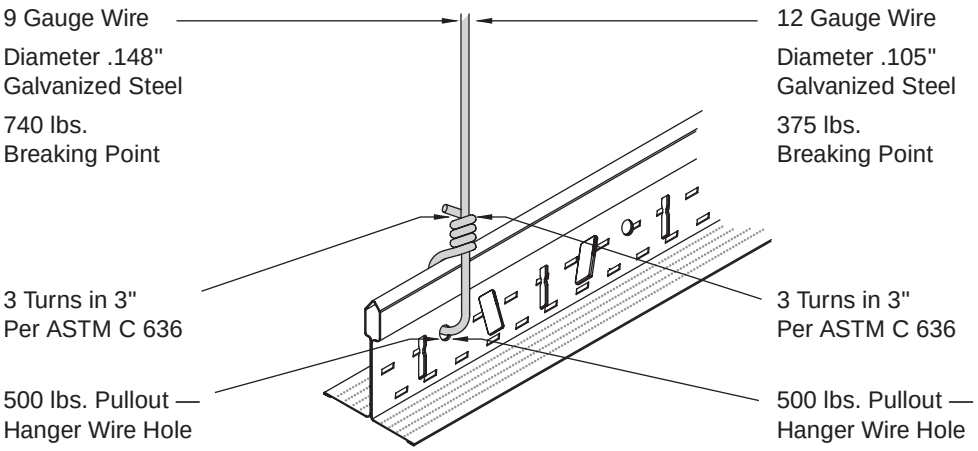


21 Sound Isolators

Wire Loading

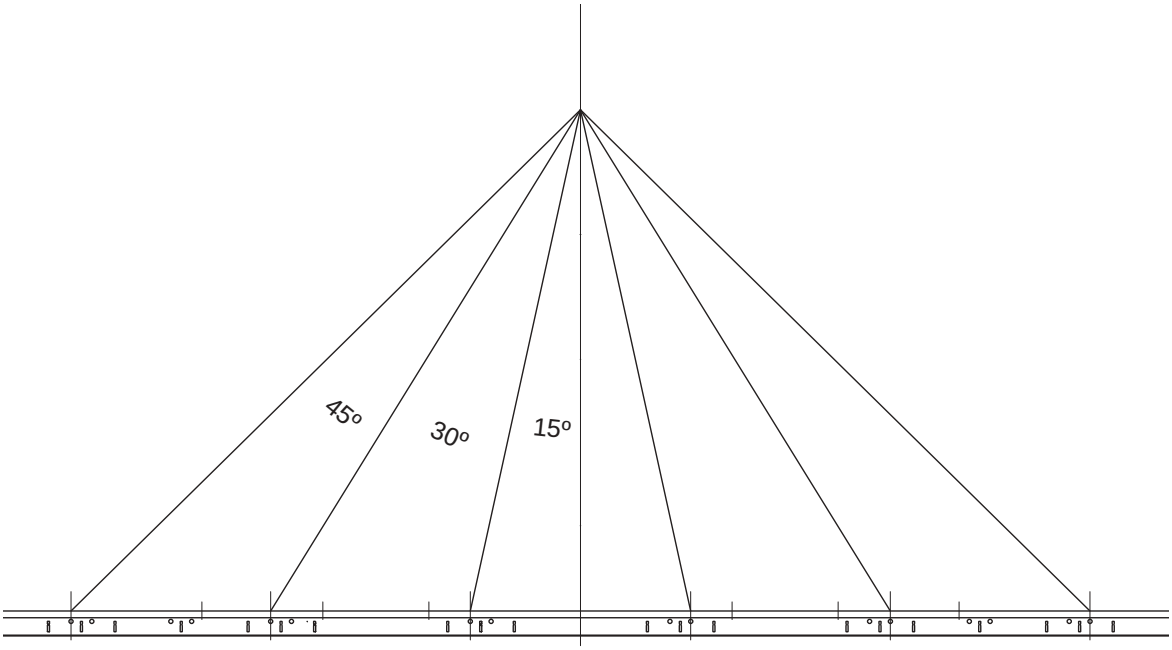
9 Gauge Wire Breaking Strength and Technical Data

12 Gauge Wire Breaking Strength and Technical Data



Counter Splayed Wires

Objects in the plenum may obstruct placement of vertical hanger wires and require splayed wires to support the load. When this occurs, a second counter splayed wire must be added. Install counter splayed wires at an angle equal and opposite the first wire, but not greater than 45° from vertical. The load capacity of the main beam remains unchanged (refer to ASTM C 636).

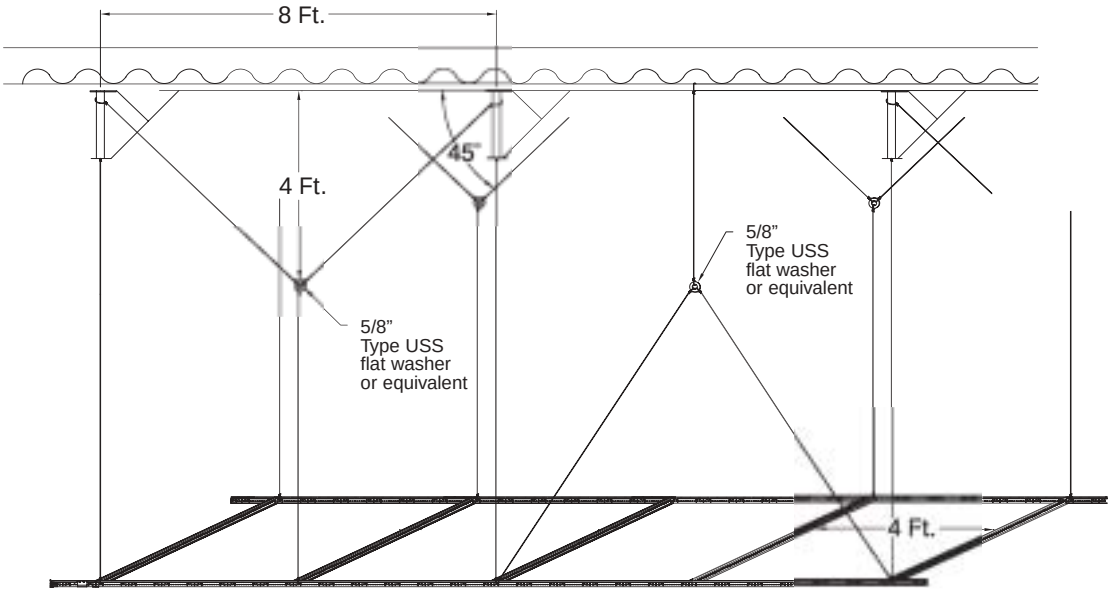


Yoke Wire Hung Ceilings

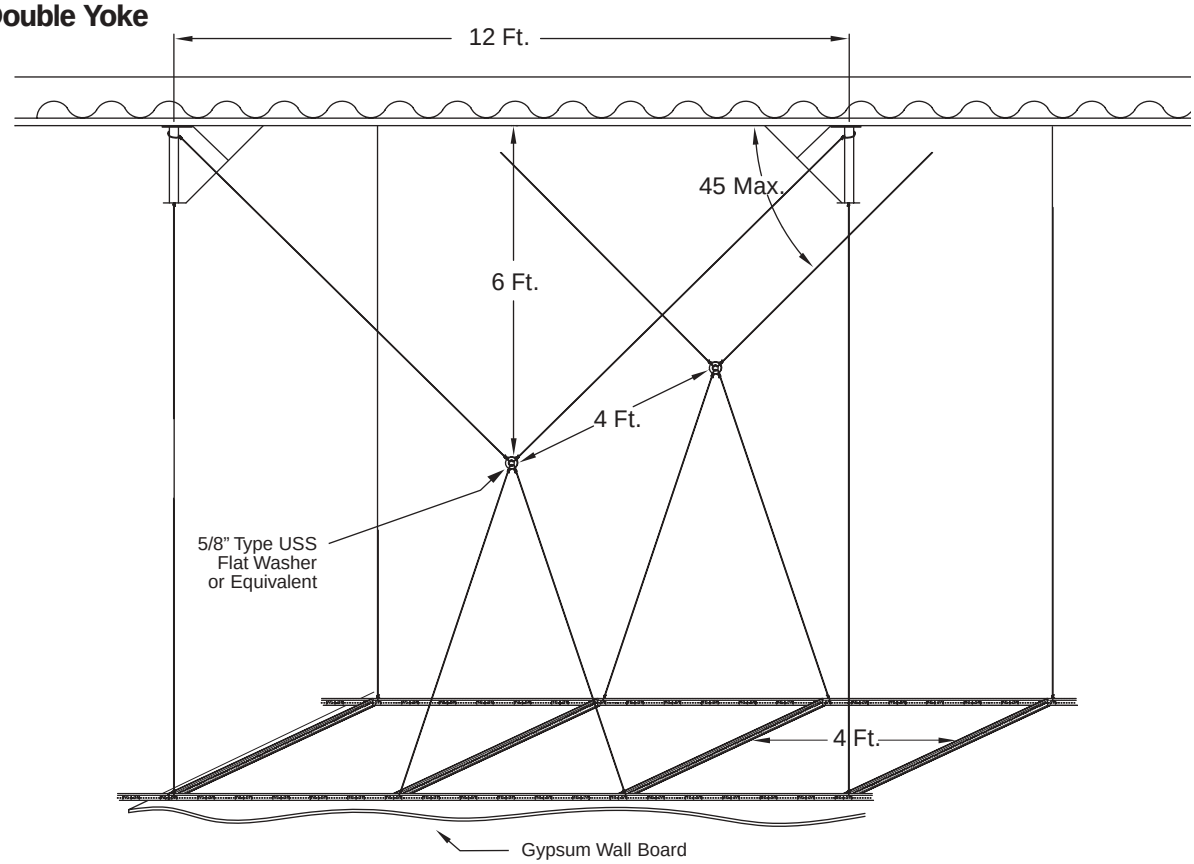
Another method to install hanger wires around an object in the plenum is to utilize a single or double yoke wire technique.

Rule: to form the 45 degree angle, the vertical location of the tension ring is always half the distance of the span at the structure.

Single Yoke

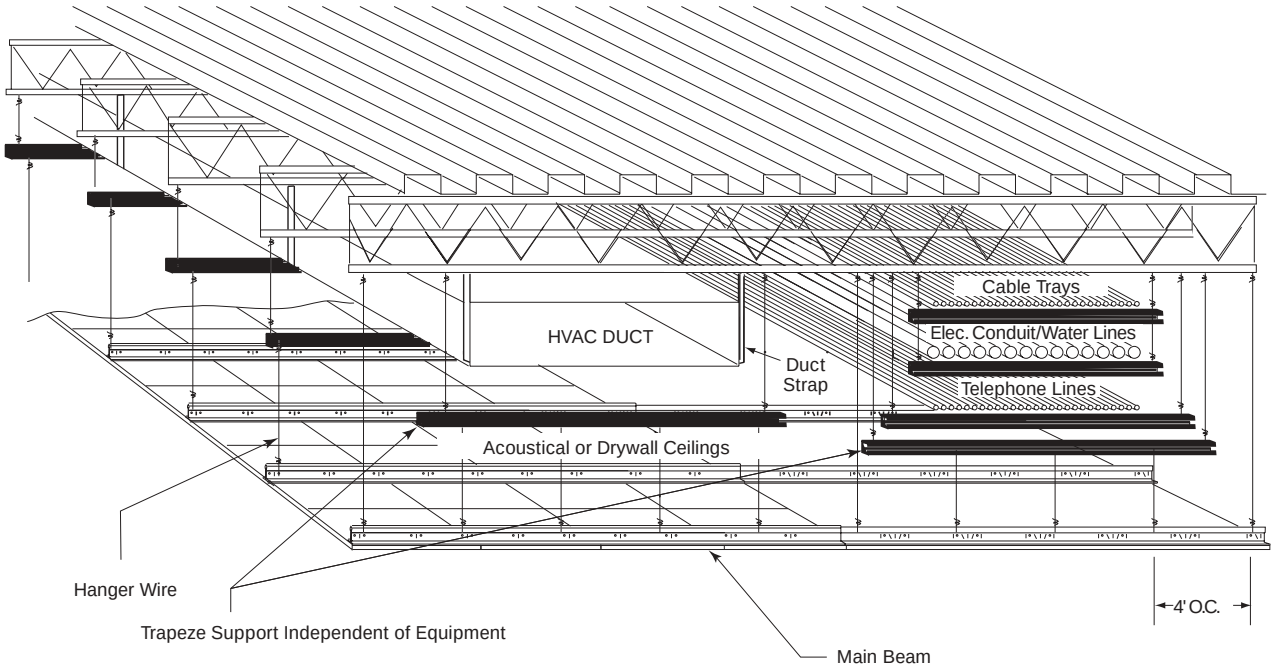


Double Yoke



Trapeze Supported Loads

Installing a trapeze is a technique to support multiple hanger wires under obstructions, such as trunk lines, cable trays or other objects in the plenum. In some cases the trapeze may effect the ceiling height and must be kept small. In other cases steel studs may be used to span the distance required.



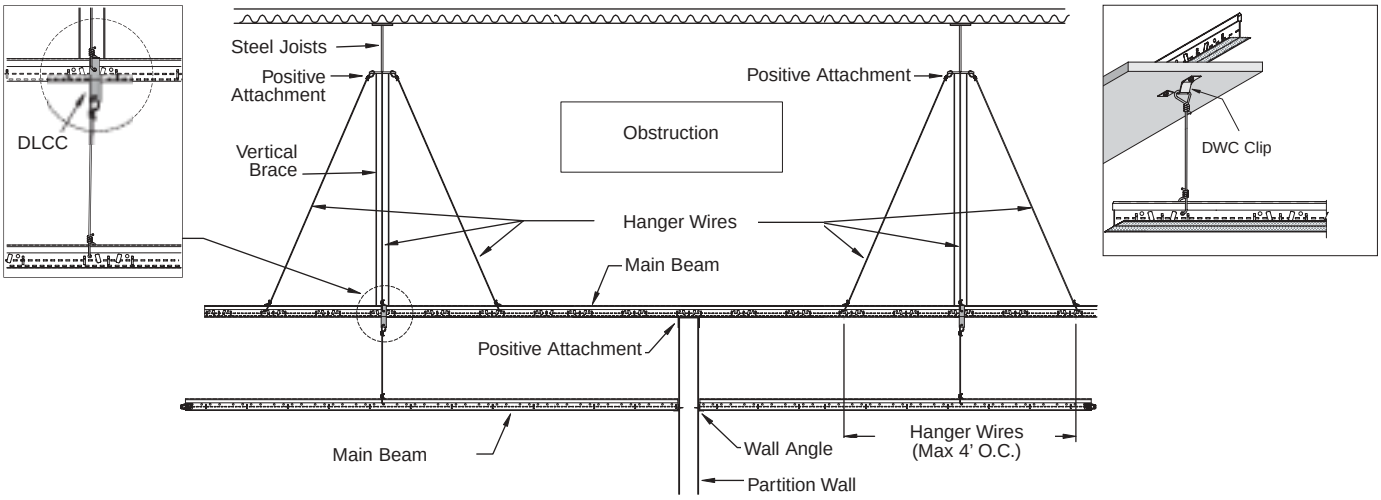
Trapeze Loading per ASTM C 636

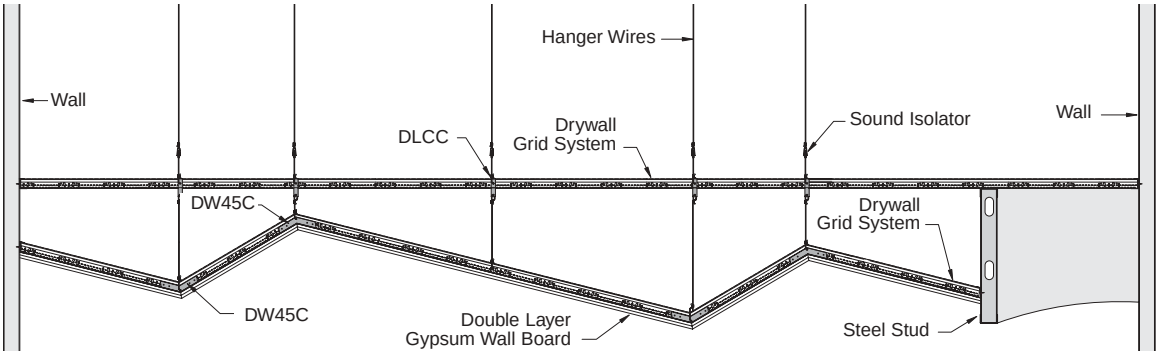
Members	Gauge	0' – 4'	4' – 8'	8' – 12'	12' – 16'	16' – 20'
1 1/2" CRC	16	1 1/2" CRC	NA	NA	NA	NA
1 5/8" Unistrut	16				P-2000	NA
	14					P-1100
	12					P-1000
6" Steel Stud	20			6CSJ-20 Bridge Mid	NA	NA
	18				6CSJ-18 Bridge Mid	NA
	16					6CSJ-16 Bridge Mid

NOTE: Bridging is required at mid span when steel stud members are greater than 8' – 0" in length. Bridging may be 1 1/2" CRC or main runner screw attached to hold vertical and prevent cocking. No wire is required at mid span.

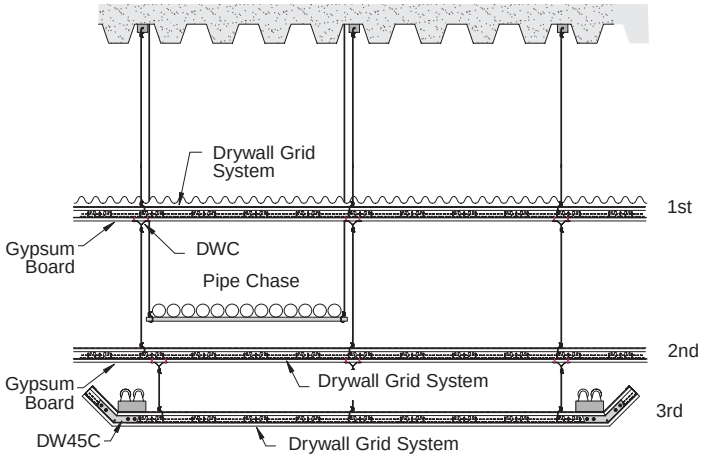
A suspended ceiling not only carries the load of the applied finish, but can also act as a load carrying structure or membrane that supports another ceiling at a lower level. The DLCC clip is used at hanger wire locations to allow for connecting the second and even third ceiling. This method of hanging and framing is used in multi-layer ceilings with long vertical drops—eliminating the use of long stud drops.

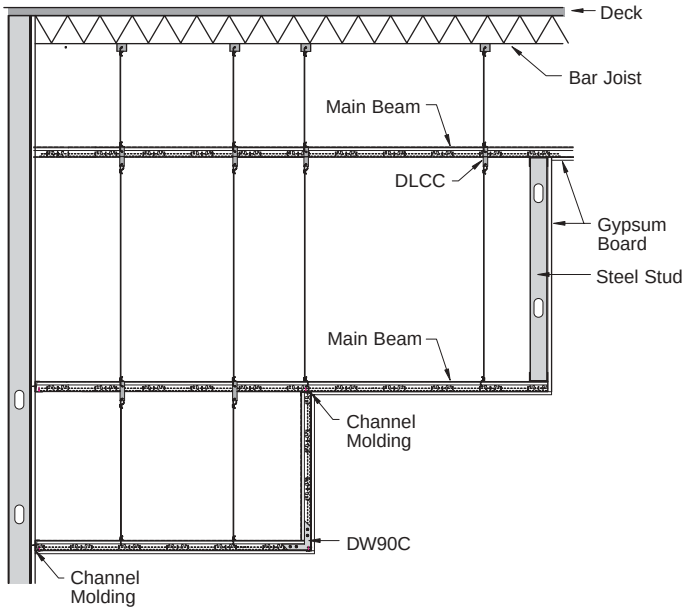
Double Hung Ceilings





Triple Hung Ceilings

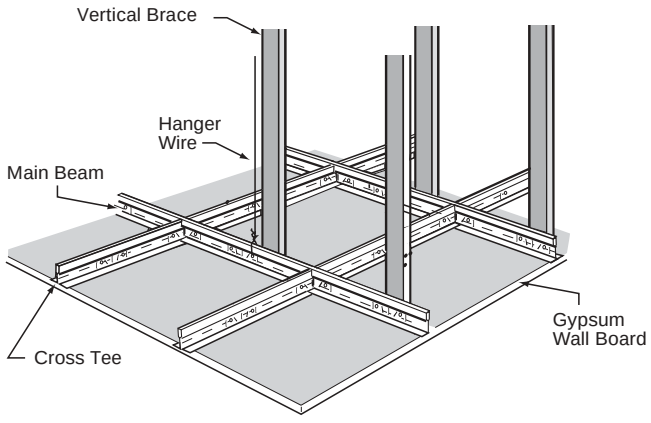




Wind Load

Vertical Height in Plenum	Up Lift Load (mph)	Stud Gauge	Stud Thickness	Exterior Grade Sheeting	Main Runner Spacing	Cross Tee Spacing	Hanger Wire Spacing	Cross Tee Length	Stud Spacing
0	15	20	2-1/2"	5/8" Exterior Sheeting	48"	24"	4' o.c.	4'	4'
↓	30	20	2-1/2"	5/8" Exterior Sheeting	48"	24"	4' o.c.	4'	4'
	45	20	2-1/2"	5/8" Exterior Sheeting	48"	24"	4' o.c.	4'	4'
	60	20	2-1/2"	5/8" Exterior Sheeting	24"	24"	4' o.c.	2'	4'
	90	20	2-1/2"	5/8" Exterior Sheeting	24"	16"	4' o.c.	2'	3'
	120	20	2-1/2"	5/8" Exterior Sheeting	24"	16"	4' o.c.	2'	2.5'
6'6"	140	20	2-1/2"	5/8" Exterior Sheeting	24"	16"	4' o.c.	2'	2'
6'7"	15	18	2-1/2"	5/8" Exterior Sheeting	48"	24"	4' o.c.	4'	4'
↓	30	18	2-1/2"	5/8" Exterior Sheeting	48"	24"	4' o.c.	4'	4'
	45	18	2-1/2"	5/8" Exterior Sheeting	48"	24"	4' o.c.	4'	4'
	60	18	2-1/2"	5/8" Exterior Sheeting	24"	24"	4' o.c.	2'	4'
	90	18	2-1/2"	5/8" Exterior Sheeting	24"	16"	4' o.c.	2'	3'
	120	18	2-1/2"	5/8" Exterior Sheeting	24"	16"	4' o.c.	2'	2.5'
10'3"	140	18	2-1/2"	5/8" Exterior Sheeting	24"	16"	4' o.c.	2'	2'
10'4"	*15	18	2-1/2"	5/8" Exterior Sheeting	48"	24"	4' o.c.	4'	4'
↓	*30	18	2-1/2"	5/8" Exterior Sheeting	48"	24"	4' o.c.	4'	4'
	*45	18	2-1/2"	5/8" Exterior Sheeting	48"	24"	4' o.c.	4'	4'
	*60	18	2-1/2"	5/8" Exterior Sheeting	24"	24"	4' o.c.	2'	4'
	*90	18	2-1/2"	5/8" Exterior Sheeting	24"	16"	4' o.c.	2'	3'
	*120	18	2-1/2"	5/8" Exterior Sheeting	24"	16"	4' o.c.	2'	2.5'
15'0"	*140	18	2-1/2"	5/8" Exterior Sheeting	24"	16"	4' o.c.	2'	2'
15'1"	**15	18	3-5/8"	5/8" Exterior Sheeting	48"	24"	4' o.c.	4'	4'
↓	**30	18	3-5/8"	5/8" Exterior Sheeting	48"	24"	4' o.c.	4'	4'
	**45	18	3-5/8"	5/8" Exterior Sheeting	48"	24"	4' o.c.	4'	4'
	**60	18	3-5/8"	5/8" Exterior Sheeting	24"	24"	4' o.c.	2'	4'
	**90	18	3-5/8"	5/8" Exterior Sheeting	24"	16"	4' o.c.	2'	3'
	**120	18	3-5/8"	5/8" Exterior Sheeting	24"	16"	4' o.c.	2'	2.5'
20'0"	**140	18	3-5/8"	5/8" Exterior Sheeting	24"	16"	4' o.c.	2'	2'
Ceiling System: HD8906 Main Beam, XL8945 Cross Tee, XL8926 Cross Tee.									

* 1-1/2" 16ga. U-Channel bridging required at mid-span for 10'4" up to 15'0"
** 1-1/2" 16ga. U-Channel bridging required at 1/3 points for 15'1" up to 20'0"



UL Fire Resistive Designs

Deck Construction Type	UL Design Number	Concrete Thickness	# Drywall Layers	Minimum Drywall Thickness	Maximum Fixture Penetration (Ft^2/100 Ft^2)	Maximum Duct Penetration (In^2/100 Ft^2)
Floor/Ceiling Drywall Assemblies						
CONCRETE ON COMPOSITE FLAT CELLULAR, FLUTED OR BLEND DECK						
2-Hour	D501	2 1/2"	1	5/8"	None	None
	D502**	2 1/2"	1	5/8"	24	144
CONCRETE ON METAL LATH, CORRUGATED AND RIBBED DECK						
3-Hour	G523**	3	1	5/8"	24	144
	G524***	3 1/2", 3 3/4"	1	1/2"	none	113
	G529	3 1/4"	1	1/2"	24	57
	G529	2 3/4"	1	5/8"	24	57
2-Hour	G523	2 1/2"	1	1/2" Or 5/8"*	24	144
	G524***	2 1/2", 2 3/4"	1	1/2"	none	113
	G526	2 1/2"	1	1/2" Or 5/8"*	25	56.5
	G527	2 1/2"	1	1/2" Or 5/8"*	None	None
	G529	2 1/2"	1	1/2"	24	57
1 1/2-Hour	G528	2 1/2"	1	1/2" Or 5/8"*	None	None
PRECAST CONCRETE SLAB						
3-Hour	J502	2 3/4"	1	5/8"	None	None
2-Hour	J502	2"	1	5/8"	None	None
Wood Deck/Ceiling Drywall Assemblies						
PLYWOOD 2 X 10 WOOD JOISTS						
1-Hour	L502	Na	1	1/2"	None	None
	L513	Na	1	5/8"	None	None
	L515	Na	1	1/2"	None	None
	L525	Na	1	1/2" Or 5/8"*	24	57
	L526**	Na	1	5/8"	24	114
PLYWOOD (2) 2 X 10 OR (1) 4 X 10 WOOD JOISTS						
1-Hour	L508	Na	1	5/8"	None	None
PLYWOOD WITH WOOD TRUSSES						
1-Hour	L529	Na	1	5/8"	24	57
Roof/Ceiling Drywall Assemblies						
STANDING SEAM EXPOSED METAL ROOF WITH BATTS/BLANKETS						
1-Hour	P516	Na	2	5/8"	None	None
MINERAL FIBER, FOAM ON CELLULAR, FLUTED, CORRUGATED METAL DECK						
2-Hour	P501	Na	1	5/8"	None	None
	P514	Na	1	5/8"	24	255
1 1/2-Hour	P507	Na	1	5/8"	24	57
	P510	Na	1	5/8"	24	57
	P513**	Na	1	5/8"	24	144
1-Hour	P508**	Na	1	5/8"	24	144
	P509**	Na	1	5/8"	24	144
	P510	Na	1	1/2"	24	57
MINERAL FIBER/LAMINATED GYPSUM PLANKS						
1 1/2-Hour	P506	Na	1	5/8"	24	57

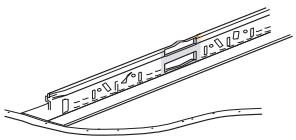
* Depends on rating, manufacturer

** Optional acoustical tile may be glue applied to gypsum board

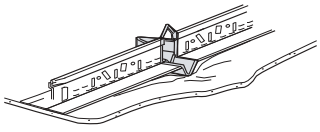
*** Concrete thickness depends on joist depth used

NOTES: Drywall Grid "Design To Fit" items XL7918, XL8947, XL8925 and XL8926 can not be used as part of a UL Fire Resistive Design.
DFR 8000 - UL Designation, Fireguard Drywall Grid System

Fire Rated Expansion Joint



Fire expansion notch



Collapsed fire expansion notch

Load Test Data

Technical Load Test Data • Main Beam									
Item No.	Flange Width (in.)	Length (in.)	Web Height (in.)	Simple Span (lbs/lF)					
				4'		3'		2'	
				L/240	L/360	L/240	L/360	L/240	L/360
HD8901	15/16"	144"	1-1/2"	24.75	16.5	46.3	31.4	123.2	80.1
HD8906	1-1/2"	144"	1-11/16"	28.14	18.76	57.3	35.8	143.0	95.5

Load Test Data

Technical Load Test Data • Cross Tees											
Item No.	Flange Width (in.)	Length (in.)	Web Height (in.)	Simple Span (lbs/lF)							
				50"		4'		3'		2'	
				L/240	L/360	L/240	L/360	L/240	L/360	L/240	L/360
XL8947	1-1/2"	50"	1-1/2"	25.22	17.07						
XL8945	1-1/2"	48"	1-1/2"			25.6	17.07				
XL8341	15/16"	48"	1-1/2"			28.2	18.8				
XL7231	15/16"	36"	1-1/2"					49.5	33.0		
XL7936G90	1-1/2"	36"	1-1/2"					49.96	33.33		
XL8925	1-1/2"	26"	1-1/2"							147.0	98.0
XL8926	1-1/2"	24"	1-1/2"							193.0	129.0
XL7918	1-1/2"	14"	1-1/2"							193.0	129.0

NOTE: Allowable loads tested per ASTM C 635 for deflection limited to L/360 and complies with ASTM C 645 for deflection limited to L/240. See standards for additional information.

Membrane Load Values

Component Combination	Maximum Load in lbs./ft.² at Hanger Wire/Cross Tee Spacing					
	48"/ 24"		48"/ 16"		36"/ 16"	
	L/240	L/360	L/240	L/360	L/240	L/360
HD8906/XL8947 (mains 50" O.C.)	5.93	4.24	5.93	4.24	12.87	8.58
HD8901/XL8947 (mains 50" O.C.)	5.25	3.96	5.25	4.24	11.14	7.43
HD8906/XL8945 (mains 48" O.C.)	6.18	4.41	6.18	4.41	13.41	8.98
HD8901/XL8945 (mains 48" O.C.)	5.47	4.12	5.47	4.12	11.61	7.74
HD8906/HD8940 (mains 48" O.C.)	4.95	3.54	6.18	4.41	7.43	5.31
HD8901/HD8940 (mains 48" O.C.)	4.95	3.54	5.47	4.12	7.43	5.31

Component Combination	Maximum Load in lbs./ft.² at Hanger Wire/ Cross Tee Spacing	
	36"/ 16"	
	L/240	L/360
HD8906/XL7231 (mains 36" O.C.)	17.88	14.9
HD8901/XL7231 (mains 36" O.C.)	15.48	12.9
HD8906/XL8926 (mains 24" O.C.)	26.82	22.35
HD8901/XL8926 (mains 24" O.C.)	23.23	19.35

Typical Drywall Cross Tee Spacing
XL8945 24" O.C. for 5/8" drywall
XL8945 16" O.C. for 1/2" drywall

Basic Products Used on Suspension Systems

Material	Weight Lbs./SF	Maximum Main Beam Spacing	Maximum Cross Tee Spacing	Maximum Wire Spacing	Load on Wire
OSB 1/4"	0.9	48"	8" - 16"	48"	14.4 Lbs.
3/8"	1.3	48"	16"	48"	20.8 Lbs.
1/2"	1.7	48"	16"	48"	27.2 Lbs.
5/8"	2.2	48"	24"	48"	35.2 Lbs.
3/4"	2.5	48"	24"	48"	40.0 Lbs.
Plywood 1/4"	.075	48"	8" - 16"	48"	12.0 Lbs.
3/8"	1.1	48"	16"	48"	17.6 Lbs.
1/2"	1.5	48"	16"	48"	24.0 Lbs.
5/8"	1.8	48"	24"	48"	28.8 Lbs.
3/4"	2.2	48"	24"	48"	35.2 Lbs.
Gypsum Board 1/4"	1.2	48"	8" - 16"	48"	19.2 Lbs.
3/8"	1.4	48"	16"	48"	22.4 Lbs.
1/2"	2.0	48"	16"	48"	32.0 Lbs.
5/8"	2.4	48"	24"	48"	38.4 Lbs.
Cement Board1/2"	3.0	48"	24"	48"	48.0 Lbs.
Cement Siding 3/8"	1.9	48"	16"	48"	30.4 Lbs.
Hard Board Siding 1/2"	2.0	48"	16"	48"	32.0 Lbs.
Water Resist. Gypsum Board 5/8"	2.6	48"	16"	48"	41.6 Lbs.
Expanded Steel Lath	3.4	48"	16"	48"	54.4 Lbs.
12 Gauge Sheet Steel	4.5	24"	16"	48"	72.0 Lbs.

NOTES: All framing on the exterior should be 16" O.C. or less
Some manufacturers make 1/2" Gypsum Board with special core to span 24" framing on interior ceiling installations (available on request)
All steel product on exterior made from G-90 Galvanized finish
Data based on manufacturer's published data.

Control Joints

Control joints minimize cracking caused by stresses in the surface material attached to a metal suspension system. Materials have different rates of expansion and control joints are placed 35' to 50' apart to control bucking and cracking of surface. Control joints are also used to minimize stresses in monolithic ceiling membrane that occur at columns, access doors, light fixtures, inside and outside corners and other unusual penetrations in ceilings. (See detail drawing on page 9).

Expansion Joints

Ceiling expansion joints are installed to separate the metal suspension system when expansion joints occur in buildings, ceiling span is over 100' or when metal changes direction. Expansion joints are required to separate a system in T, H, L and U or Circle shaped buildings to eliminate cracking from expansion. Both expansion and control joints look similar but perform different functions. (See detail drawing on page 9).

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