TECHNICAL GUIDE

MADE IN THE USA

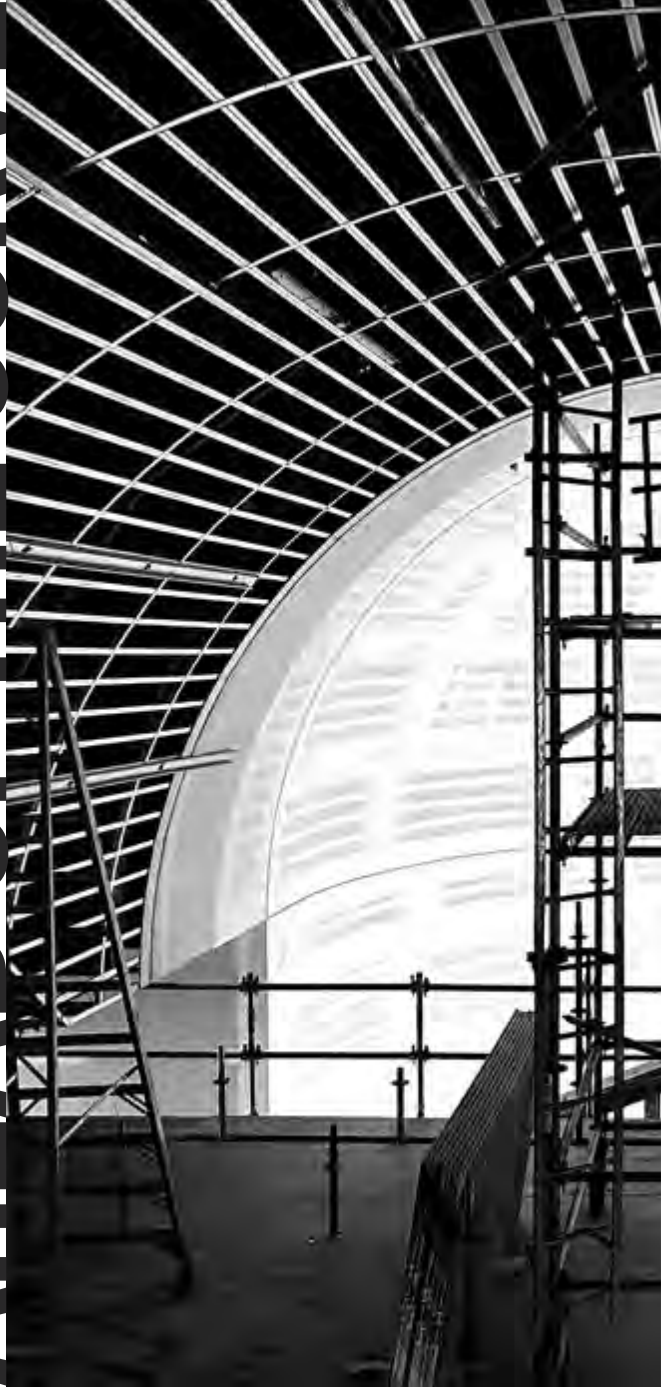
HANGING
& FRAMING
CURVED CEILINGS

DRYWALL GRID SYSTEM

FRAMEALL®

Armstrong®
World Industries

AHEAD OF THE CURVE



FRAMEALL® DRYWALL GRID

FrameAll® Drywall Grid offers a worry-free approach to incorporating hills, valleys, undulating waves, vaults, and domes into your design. Combining our faceted main beam with our RC2 clip allows you to:

- Create custom radii to suit any design
- Have ultimate control of the curve
- Expand your design beyond traditional pre-selected or pre-determined radii

CODE COMPLIANCE YOU CAN TRUST

Meets:

- ASTM C1858
- ASTM C635
- ASTM C645
- ASTM C754
- ASTM C840
- ASTM E3090
- ASTM A653
- ASTM A1003
- ASTM C1925
- City of LA – RR 25348
- International Building Code, Continuous Membrane, One Level.
- Per Section 25.210 single level drywall ceilings do not require lateral bracing when walls are more than 50 feet apart. When walls are more than 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.

PERFORMANCE (cont...)

- PeakForm® profile increases strength and stability for improved performance during installation
- XL® (staked-on end detail) cross tees provide secure locked connection; fast and easy to install
- 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
- new Knurled Ridges on cross tees for speed of screw insertion during board installation

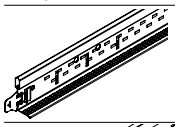
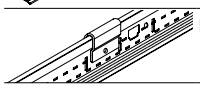
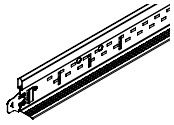
Flat Drywall Grid barrel vault installation

TABLE OF CONTENTS

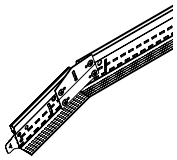
(...cont.) PERFORMANCE

- ScrewStop™ reverse hem prevents screw spinoff on 1-1/2" wide face
- Faceted main beam – prenotched main beam to simplify assembly of curved sections; all notched locations along main beam require installation of RC2 clip HD8906F08 – Prenotched 8" O.C. HD8906F16 – Prenotched 16" O.C.
- 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 – corrosion resistance
- G90 Hot dipped galvanized coating – superior corrosion resistance for exterior applications (HD8906F08 and HD8906F16 not available in G90 coating)
- Cross tee spacing: 24" O.C. for 5/8" drywall 16" O.C. for 1/2" drywall 8" O.C. for tight radius

MAIN BEAMS

Perspective	Item No.	Length	Height	Pcs./Ctn	LF/Ctn	Load Test Data (Lbs/LF) L/240 Simple Span 24"	L/240 Simple Span 36"	L/240 Simple Span 48"	L/360 Simple Span 24"	L/360 Simple Span 36"	L/360 Simple Span 48"
	HD8906 HD8906G90 HD8906HRC	144"	1-11/16"	12	144	120.0	48.95	28.14	95.5	43.19	18.66
	HD8906IIC	144"	1-11/16"	12	144	120.0	48.95	28.14	95.5	43.19	18.66
	HD890610	120"	1-11/16"	12	120	120	48.95	28.14	95.5	43.19	18.66

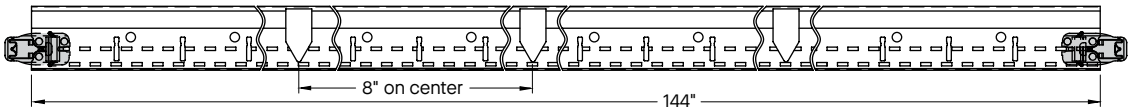
Red Numbers are Fire Guard items. For fire-rated assemblies, use Type C gypsum board as noted in the UL® fire-rated assembly designs.

Perspective	Item No.	Length	Height	Pcs./Ctn	LF/Ctn	Allowable Load (LBS/FT)** Simple Span (inches) 24"	30"	36"	42"	48"
	HD8906F08*	144"	1-11/16"	12	144	50	49.4	30.34	23.72	17.76
	HD8906F16*	144"	1-11/16"	12	144	50	49.4	30.34	23.72	17.76

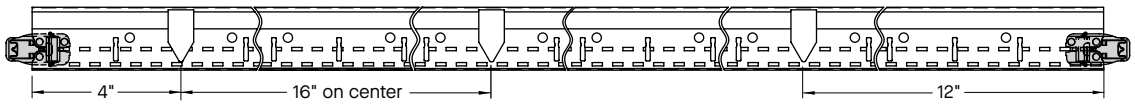
* Tested flat per ASTM C635 with RC2 clips at each faceted location
** Allowable load is the max allowed load per ASTM C635 as tested

FACETED MAIN BEAM

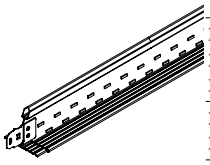
HD8906F08 – Faceted 8" O.C. Use for radius 15' or less



HD8906F16 – Faceted 16" O.C. Use for radius over 15' (Directional Main Beam)

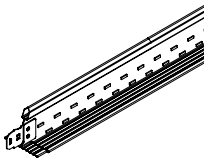


CROSS TEES

Perspective	Item No.	Length	Height	Pcs./Ctn	LF/ Ctn	Load Test Data (Lbs/LF) L/240 Simple Span 72"	L/360 Simple Span 72"
	XL8965 XL8965HRC XL8965G90	72"	1-1/2"	36	216	6.87 @ 72"	4.58 @72"
	XL8947P XL8947PG90	50"	1-1/2"	36	150	19.5 @ 50"	12.79 @ 50"
	XL8945P XL8945HRC XL8945PG90	48"	1-1/2"	36	144	22.5 @ 48"	14.27 @ 48"
	XL8940	40"	1-1/2"	36	119	36.22 @ 40"	24.15 @ 40"
	XL7936G90**	36"	1-1/2"	36	108	45.7 @ 36"	31.33 @ 36"
	XL8926 XL8926G90	24"	1-1/2"	36	78	119.0 @24"	90.25 @ 24"

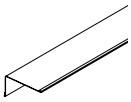
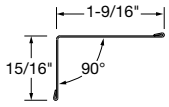
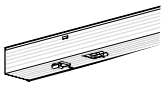
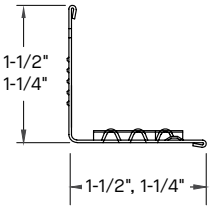
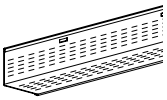
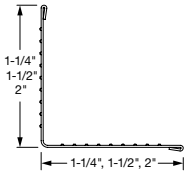
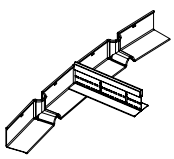
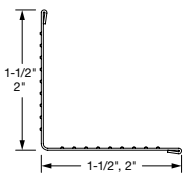
CROSS TEES (...CONT.)

Metric

Perspective	Item No.	Length	Height	Pcs./Ctn	LF/ Ctn	Load Test Data (Lbs./LF) L/240 Simple Span	Load Test Data (Lbs./LF) L/360 Simple Span	Load Test Data (KG./LM) L/240 Simple Span	Load Test Data (KG./LM) L/360 Simple Span
Drywall Cross Tees – Metric 	XL7961*	1600mm	38mm	36	188.9	10.25 @ 72"	6.84 @ 72"	15.21 @ 1600mm	10.15 @ 1600mm
	XL7930*	1200mm	38mm	36	138.8	22.4 @ 48"	14.93 @ 48"	33.48 @ 1200mm	21.24 @ 1200mm
	XL7925*	900mm	38mm	36	108	51.92 @ 36"	34.61 @ 36"	68.01 @ 900 mm	46.62 @ 900mm
	XL7920*	600mm	38mm	36	69.4	114.59 @ 24"	79.39 @ 24"	177.15 @ 600mm	134.31 @ 600mm

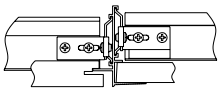
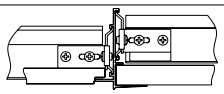
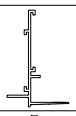
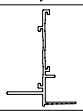
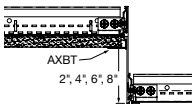
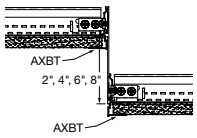
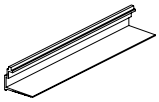
Red Numbers are Fire Guard items. For fire-rated assemblies, use Type C gypsum board as noted in the UL® fire-rated assembly designs.
NOTE: All load test data based on flat installation per ASTM C635.
*Indicates items that are not Type F Fixture compatible

MOLDINGS

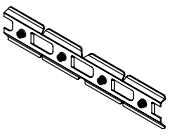
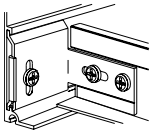
Perspective	Item No.	Length	Height	Metal Thickness	Pcs/Ctn	LF/Ctn	Profile
Reverse Angle Molding 	7858	144"	15/16"	0.018"	20	240	
Locking Angle Molding 	LAM12	144"	1-1/4"	0.018"	10	240	
	LAM12G90	144"	1-1/4"	0.018"	10	240	
	LAM12HRC	144"	1-1/4"	0.018"	10	240	
	LAM151220E	144"	1-1/2"	0.028"	10	120	
Knurled Angle Molding (KAM) 	KAM10	120"	1-1/4"	0.018"	10	100	
	KAM12	144"	1-1/4"	0.018"	10	120	
	KAM12G90	144"	1-1/4"	0.018"	10	120	
	KAM1510	120"	1-1/2"	0.018"	10	100	
	KAM1512	144"	1-1/2"	0.018"	10	120	
	KAM151020E	120"	1-1/2"	0.028"	10	100	
	KAM151220E	144"	1-1/2"	0.028"	10	120	
	KAM151020	120"	1-1/2"	0.033"	10	100	
	KAM1525G90	120"	1-1/2"	0.018"	10	100	
	KAM1520G90	120"	1-1/2"	0.018"	10	100	
	KAM21025	120"	2"	0.018"	10	100	
	KAM21020EQ	120"	2"	0.028"	10	100	
	KAM21020	120"	2"	0.033"	10	100	
SimpleCurve® KAM 	SC151220EQ (37" Radius)	148"	1-1/2"	0.028"	10	124	
	SC151225 (32" Radius)	148"	1-1/2"	0.018"	10	124	
	SC21220EQ (55" Radius)	148"	2"	0.028"	10	124	
	SC21225 (40" Radius)	148"	2"	0.018"	10	124	

AXIOM DRYWALL TRANSITIONS

Material: Extruded aluminum, alloy 6063

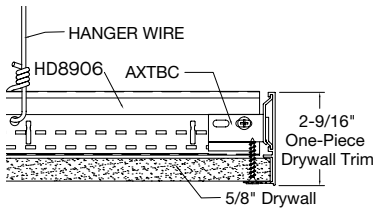
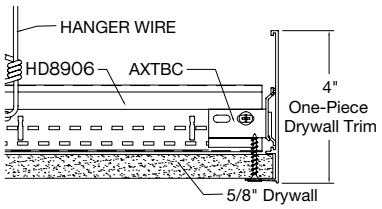
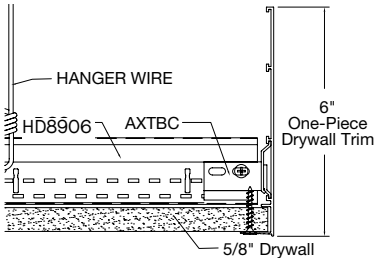
Item No.	Length/Item Description	Dimensions	
AXTRVESTR	Straight Transition for Axiom® Vector® Ceiling	120 × 2-9/16 × 1-11/16"	 Axiom® – Transitions with Vector® panel to drywall perimeter (AXTRVESTR)
AXTRTECUR	Curved Transition for Tegular	120 × 2-9/16 × 1-11/16"	 Axiom® – Transitions with Tegular panel to drywall perimeter (AXTRTESTR, AXTRTECUR)
AXTR7907STR	9/16" Tegular Transition Molding, Straight	120 × 2-9/16 × 1-11/16"	
AXTR7907CUR	9/16" Tegular Transition Molding, Curved	Vary × 2-9/16 × 1-11/16"	
AXTR7908STR	15/16" Tegular Transition Molding, Straight	120 × 2-9/16 × 1-13/16"	
AXTR7908CUR	15/16" Tegular Transition Molding, Curved	Vary × 2-9/16 × 1-13/16"	
AXTR2STR	2" Straight Transition	120 × 2 × 1-1/2"	
AXTR2CUR	2" Curved Transition	120 × 2 × 1-1/2"	
AXTR4STR	4" Straight Transition	120 × 4 × 1-1/2"	 Acoustical-to-Drywall  Drywall-to-Drywall
AXTR4CUR	4" Curved Transition	120 × 4 × 1-1/2"	
AXTR6STR	6" Straight Transition	120 × 6 × 1-1/2"	
AXTR6CUR	6" Curved Transition	120 × 6 × 1-1/2"	
AXTR8STR	8" Straight Transition	120 × 8 × 1-1/2"	
AXBTSTR AXBTCUR	Drywall Bottom Trim for Straight and Curved 5/8" Drywall	120 × 1-1/8 × 27/32"	
AXBTASTR AXBTACUR	Bottom Trim for AcoustiBuilt® Ceiling Systems (straight or curved)	–	

ACCESSORIES

AX4SPLICEB	Splice Plate	–	
AXSPLICE2	Axiom Splice Plate Galvanized sheet steel formed to fit into the trim channel bosses. Provides positive lock between abutting channels with factory-installed setscrews.	–	
AXTBC	T-Bar Connector Clip	–	

AXIOM ONE-PIECE DRYWALL TRIM

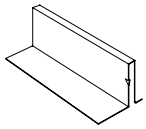
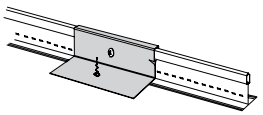
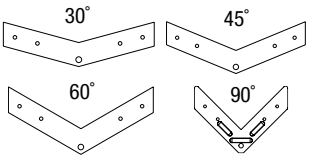
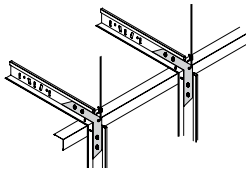
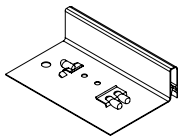
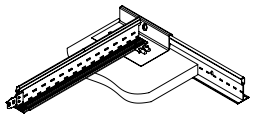
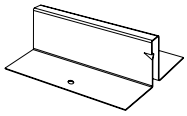
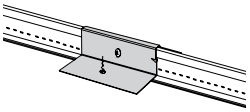
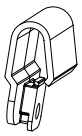
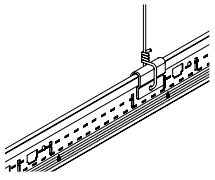
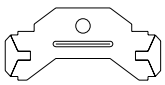
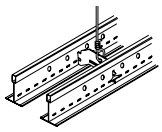
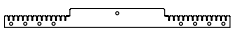
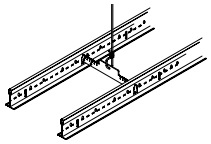
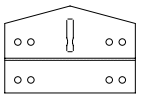
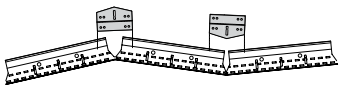
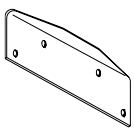
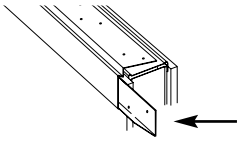
Material: Commercial-quality extruded aluminum alloy 6063

Item No.	Length/Item Description	
AX1PC2STR	2-9/16" One-Piece Straight Drywall Trim	
AX1PC2CUR	2-9/16" One-Piece Curved Drywall Trim	
AX1PC4STR	4" One-Piece Straight Drywall Trim	
AX1PC4CUR	4" One-Piece Curved Drywall Trim	
AX1PC6STR	6" One-Piece Straight Drywall Trim	
AX1PC6CUR	6" One-Piece Curved Drywall Trim	

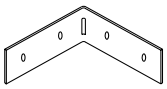
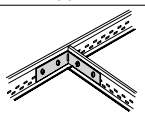
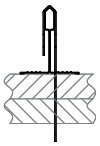
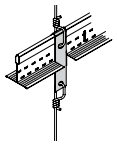
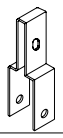
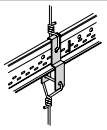
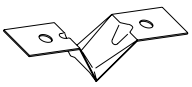
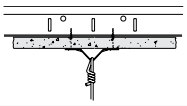
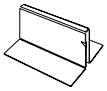
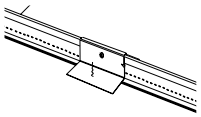
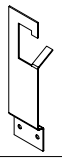
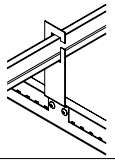
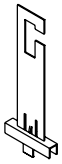
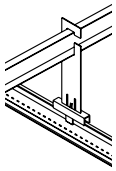
NOTE: For use with 5/8" drywall only

DRYWALL GRID 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 BPCS-3082.

Item No.	Quantity	Description	Perspective	Application
DWACS FZDWACS	100 50	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 FZDW30C FZDW45C FZDW60C FZDW90C	250 250 250 250 50 50 50 50	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.		
DW58LT FZDW58LT	125 50	DW58LT – Transition Clip for 5/8" Drywall with Locking Tabs; facilitates transition from drywall to acoustical ceiling; one-sided hold down clip; eliminates need for drywall bead. Locking tabs provide secure location for Drywall Grid System tees.		
DW50LT FZDW50LT	125 50	DW50LT – Transition Clip for 1/2" Drywall with Locking Tabs; facilitates transition from drywall to acoustical ceiling; one-sided hold down clip; eliminates the need for a drywall bead. Locking tabs provide secure location for Drywall Grid System tees.		
IIC IIC2	36 36	Impact Isolation Clip (IIC) for use with HD8906IIC drywall grid main beam. Provides up to 8 points of IIC improvement to ensure your project meets IBC requirements. IIC2 for use with HD8906IIC drywall grid main beam. For conditions requiring two layers of drywall. Clip Color: Green IIC Clip must be used with HD8906IIC Drywall Grid Main Beam		
MBSC2	200	Main Beam Spacer Clip (2" in length) is used to space two parallel main beams 2" O.C. for air supply or return.		
GSC9 GSC12 GSC16 FZGSC9 FZGSC12 FZGSC16	100 100 100 50 50 50	Adjustable Grid Spacer Clip is used to space two parallel main beams for light fixtures, air diffusers, etc.; allows for 1/4" adjustments with three different clips.		
RC2AG FZRC2AG	205 50	RC2 – Radius Clip is used for drywall applications which form curved installations; attaches to the cavity side of web of the main beam with four 7/16" pan head screws. Install at all knockout locations.		
RC1 FZRC1	200 50	RC1 – Splice Clip is used as a main beam splice or partition top trim splice.		

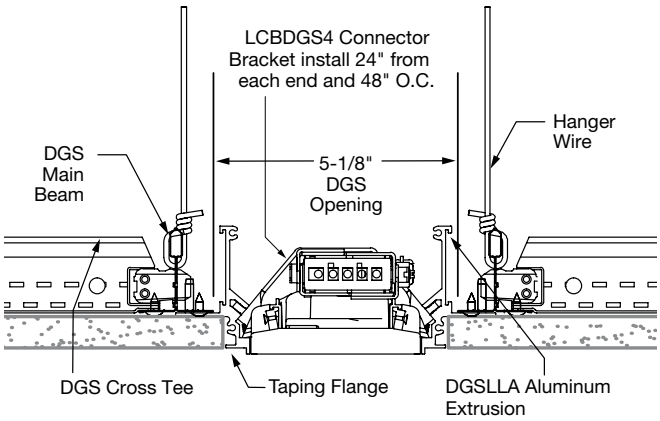
DRYWALL GRID ACCESSORIES

Item No.	Quantity	Description	Perspective	Application
XTAC FZXTAC	100 50	Cross Tee Adapter Clip – is used to attach field cut cross tees to main beams.		
DDC FZDDC	250 50	Double Drywall Clip to hang suspension system below existing 1-1/2" 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; allows for double layer of 5/8" gypsum board.		
DLCC FZDLCC	250 50	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	250	Drywall Clip allows for a “second” ceiling to be installed below a drywall ceiling; attach through installed drywall to supporting structure.		
MBAC FZMBAC	70 50	Main Beam Adapter Clip attaches to web of suspension system section; provides larger surface for screw attachments; used as a hold down clip for thin material (metal or plastic lay-in panels); fastens drywall track to underside of exposed suspension system with lay-in panels, leaving suspension system face free of screw holes.		
CBS4SS CBS6SS CBS8SS CBS10SS CBS12SS	50 50 50 50 50	4", 6", 8", 10", and 12" CBS Hangers – Channel Beam Support Hanger for SimpleSoffit™ is used for easier C Channel installations (New York City market only).		
CBS4A	200	4", 6", 8", 10", and 12" Channel Beam Splice – Used to suspend main beams to 1-1/2" black iron carrying channels CBS2004A (4"), CBS2006A (6"), and CBS2008A (8") used for 2" black iron carrying channels		
CBS6A	200			
CBS8A	200			
CBS10A	150			
CBS12A	150			
CBS2004A	75			
CBS2006A	75			
CBS2008A	75			

BASO™ LED Light Drywall Trim Kit

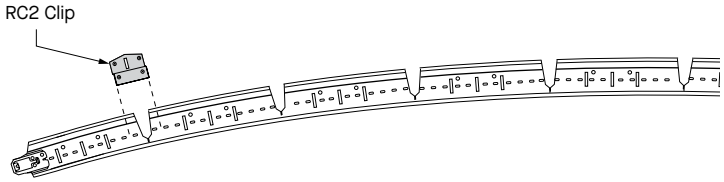
Item No.	Description	Fixture Length
DRYWALL LINEAR LIGHTING		
DGSLLTK24	24" Linear Light Trim Kit	24" × 4"
DGSLLTK30	30" Linear Light Trim Kit	30" × 4"
DGSLLTK48	48" Linear Light Trim Kit	48" × 4"
DGSLLTK60	60" Linear Light Trim Kit	60" × 4"
DGSLLTK72	72" Linear Light Trim Kit	72" × 4"
DGSLLTK90	90" Linear Light Trim Kit	90" × 4"
DGSLLTK96	96" Linear Light Trim Kit	96" × 4"
DGSLLTK120	120" Linear Light Trim Kit	120" × 4"
DGSLLTKCON	120" Continuous Linear Light Trim Kit	120"

NOTE: Linear Light Trim Kits designed to work with 5/8" drywall

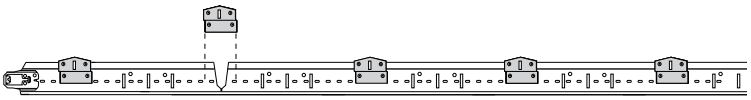


CREATING CURVES

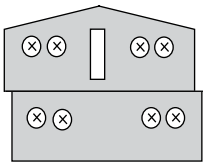
- Creating curved framing for drywall is easy and offers unlimited possibilities.
- Custom radii to suit any design installation.
- You control the curve.
- Not limited to a pre-selected or pre-determined curved radius.
- Full range of clips and accessories make installation easier than bending stud and track.



Radius and drywall thickness will determine on-center spacing of cuts. Refer to “Establishing An Arc” on page 9 for creating a curved template.

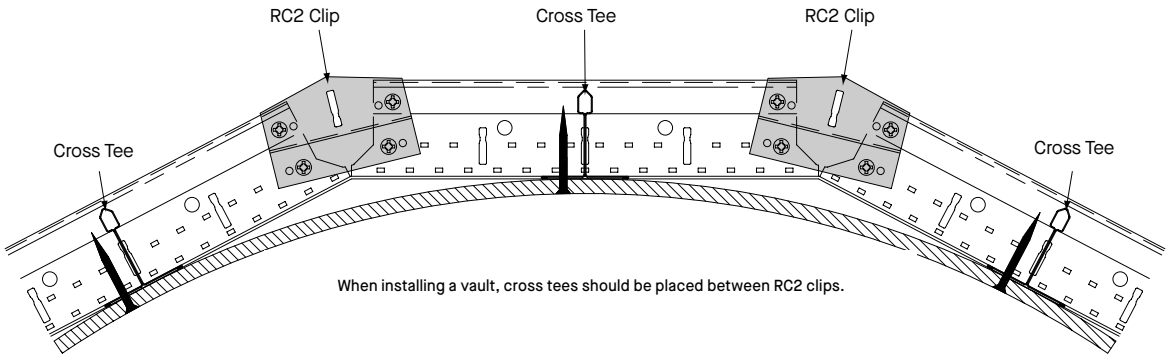


RC2 Clip must be installed at all knockout locations when used to frame a flat or curved ceiling.

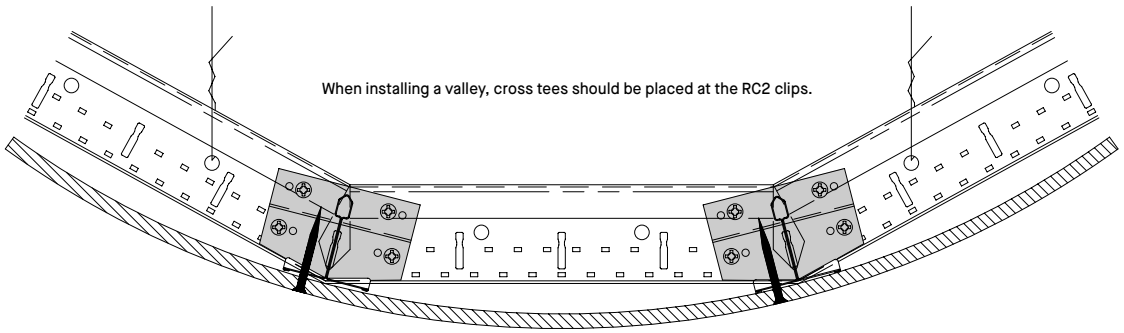


Install RC2 clip using four screws per clips.

RC2 Clip is used to secure the main beam at the desired angle in curved ceiling with rout for installing cross tees. Refer to “Making a Template” on page 9.



When installing a vault, cross tees should be placed between RC2 clips.



When installing a valley, cross tees should be placed at the RC2 clips.

ESTABLISHING AN ARC

How to draw a radius on a template (plywood, gypsum board, etc.)

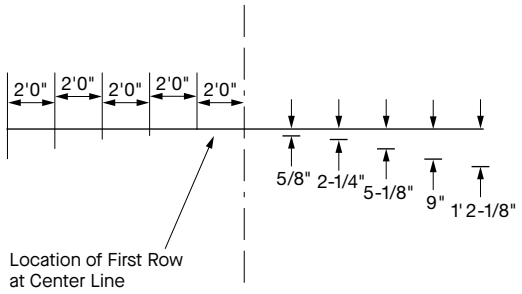
1 Establish a center line.

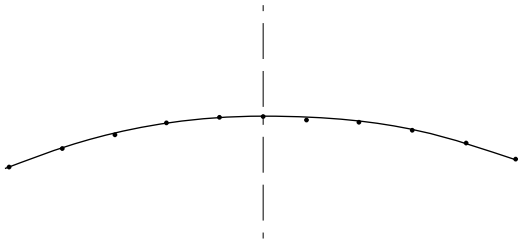
2 Mark 2' increments on line perpendicular to center line.

3 At 2' marks, identify points of arc below perpendicular line (maintain consistent spacing of point). See radius charts on page 20.

4 Connect points to form a smooth arc.

Example: 43' arc using chart on page 16.





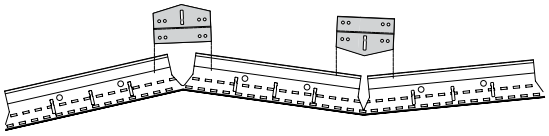
COMPLETING THE TEMPLATE – OPTION 1

1 Cut along the arc and remove section of template

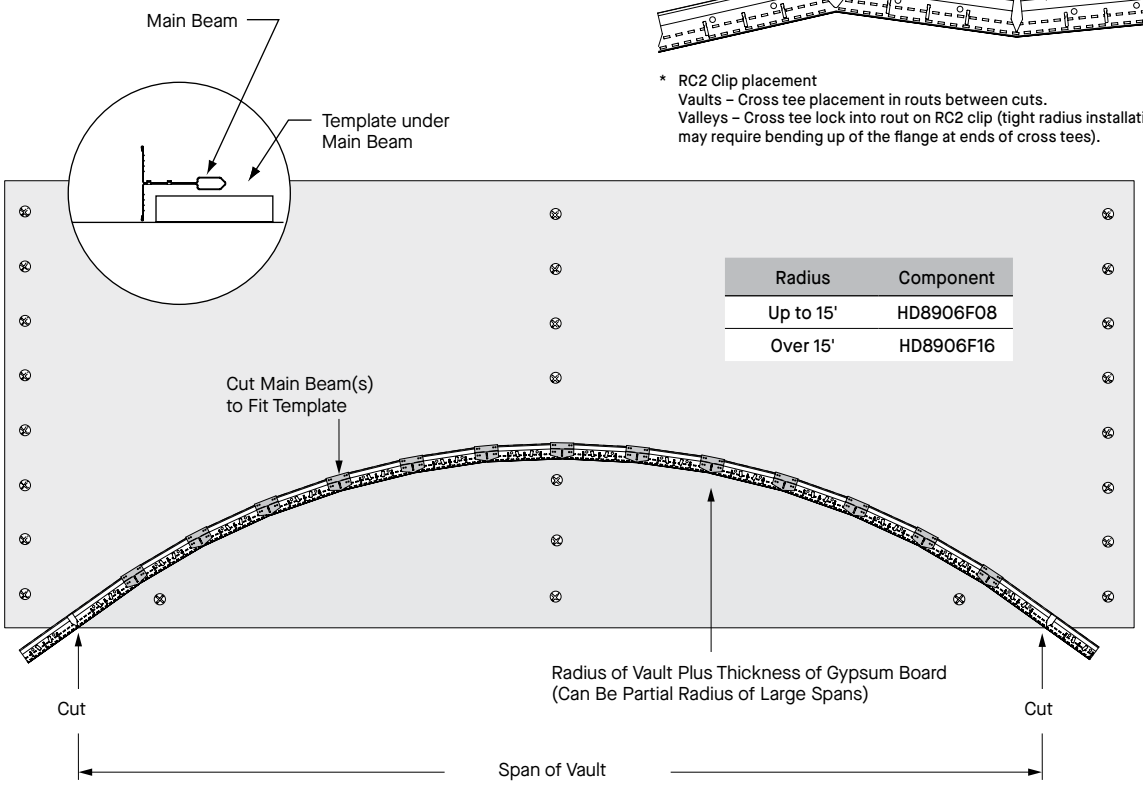
2 Cut main beam as required and position along the cut radius on the template (use the chart on page 20).

3 Screw RC2 clips to faceted main beam at all knockout locations.*

4 On the template, mark a rout location reference point to maintain consistent rout location.

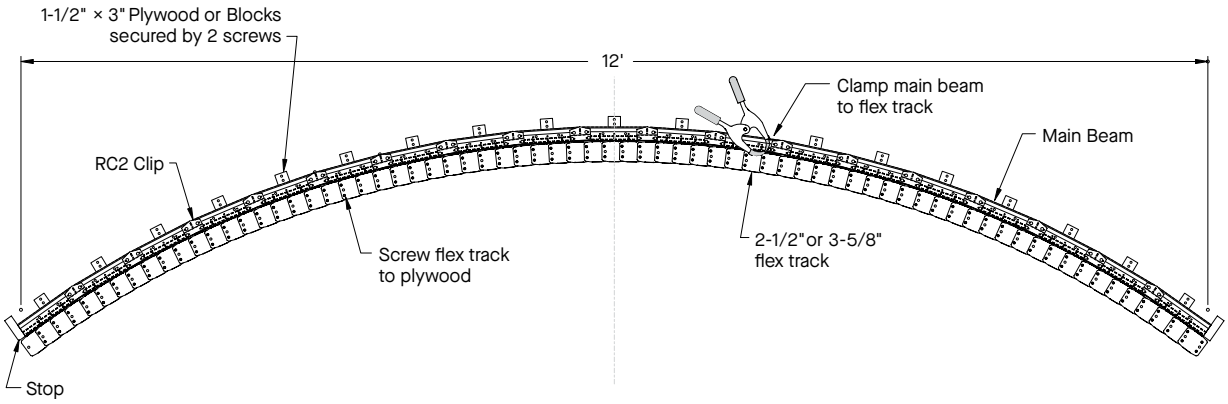


* RC2 Clip placement
Vaults – Cross tee placement in routs between cuts.
Valleys – Cross tee lock into rout on RC2 clip (tight radius installations may require bending up of the flange at ends of cross tees).



Radius	Component
Up to 15'	HD8906F08
Over 15'	HD8906F16

COMPLETING THE TEMPLATE – OPTION 2



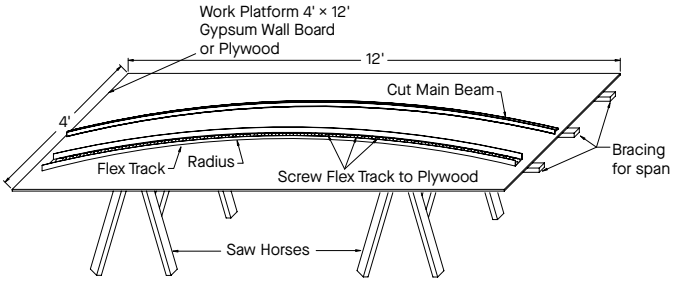
1 Draw radius on board.

2 Screw flex track to board along radius line.

3 Cut main beams as required and position along the flex track on the template.

4 Screw RC2 clips to faceted main beam at all knockout locations.

5 On the template, mark a rout location reference point to maintain consistent rout location.



- Contractors' efficiency and understanding of the suspended grid system construction provides performance benefits and cost savings.
- An unlimited range of vaults and valleys can be constructed using faceted main beams made on the job to meet design needs.
- Single and multiple curved ceilings can be framed quickly and easily.

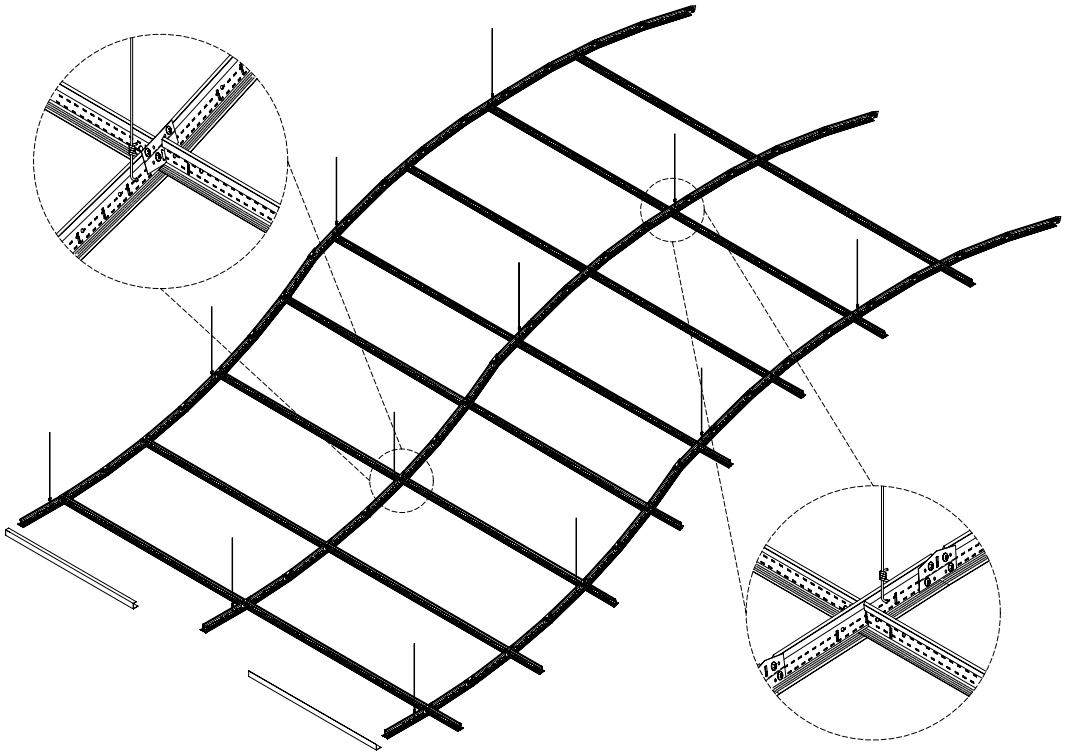
WORKING WITH VAULTS

1 Hanger wires must be minimum 12 gauge and spaced along the main beams not more than 4' O.C. for gypsum board construction and not more than 3' O.C. for plaster work (spaced as required to support load).

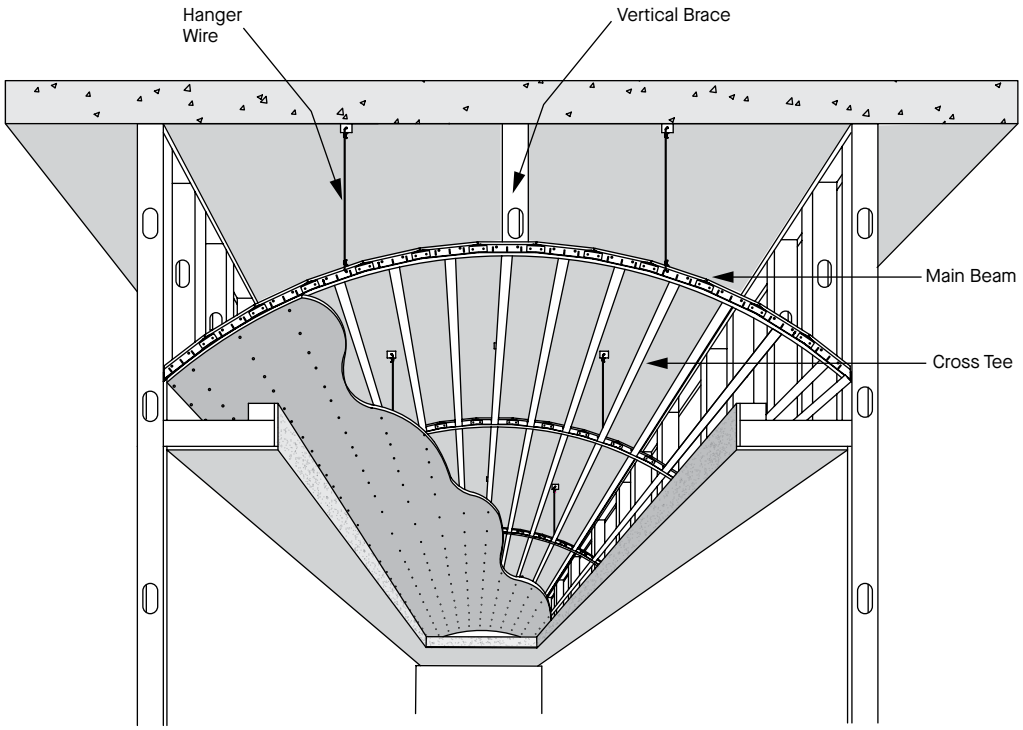
2 Add vertical braces as required to stabilize the frame.

3 Thickness of the sheeting material is determined by its plasticity. Refer to table titled “Drywall Bending Radius” on page 19.

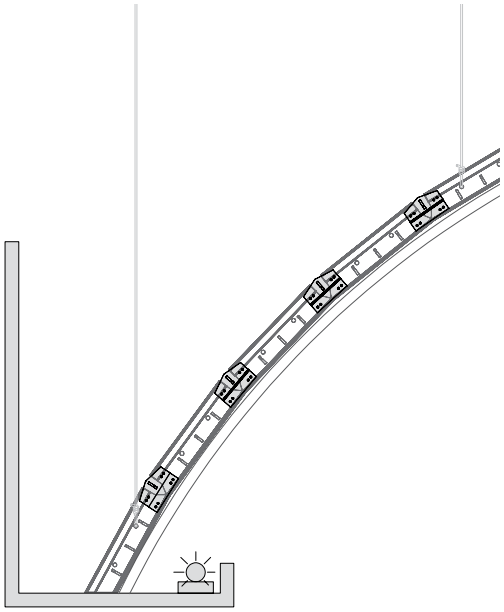
4 For vaults, space the main beams 4' O.C. for gypsum board construction and 3' O.C. for plaster. Angle or channel molding is used to frame the ends of the structure.

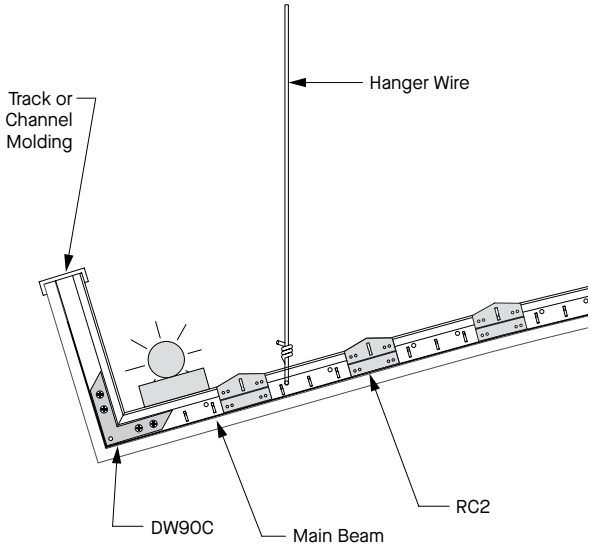


BARREL VAULT

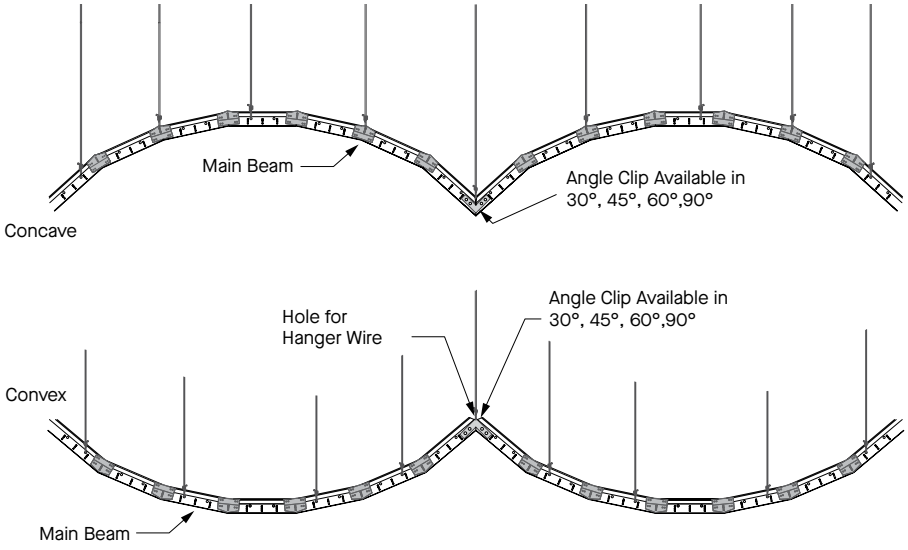


VAULT WITH PERIMETER LIGHT COVE

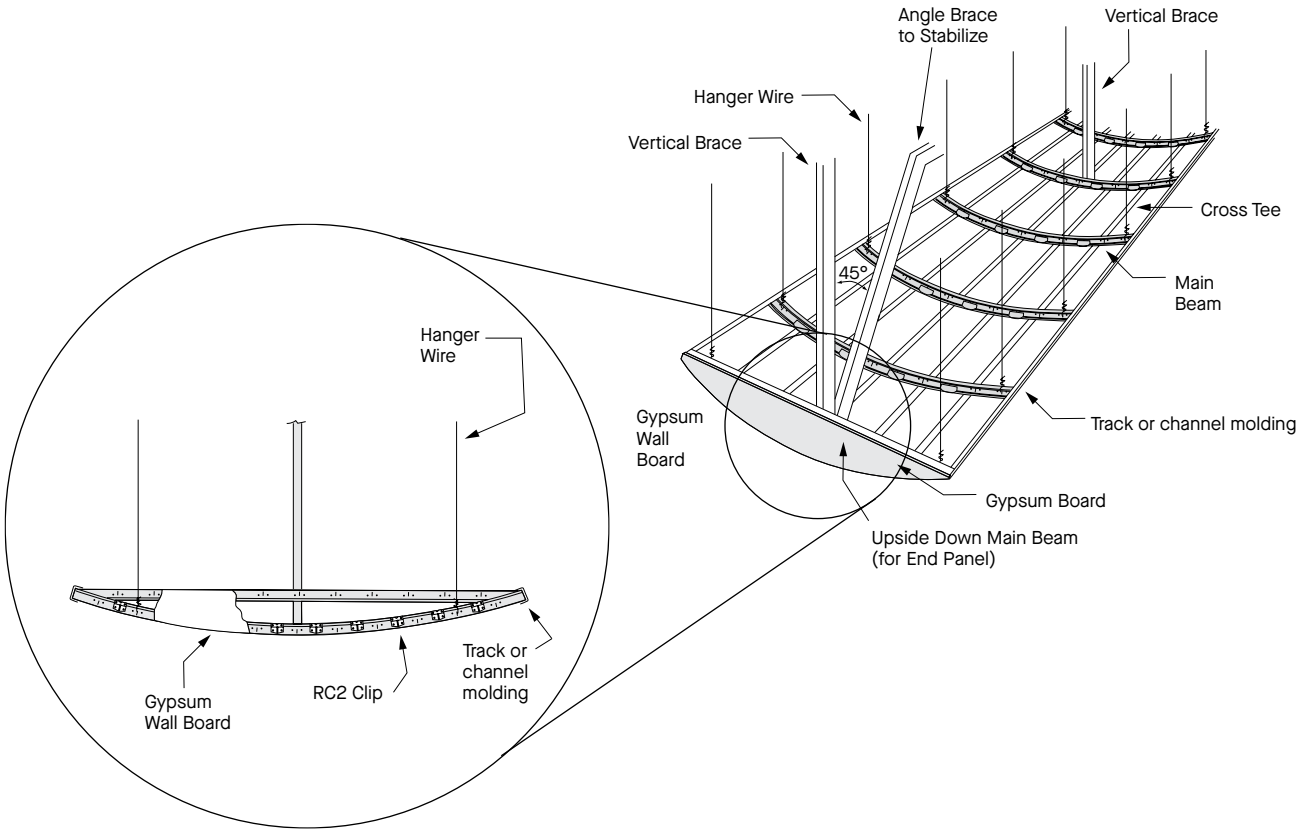




DOUBLE BARREL VAULT

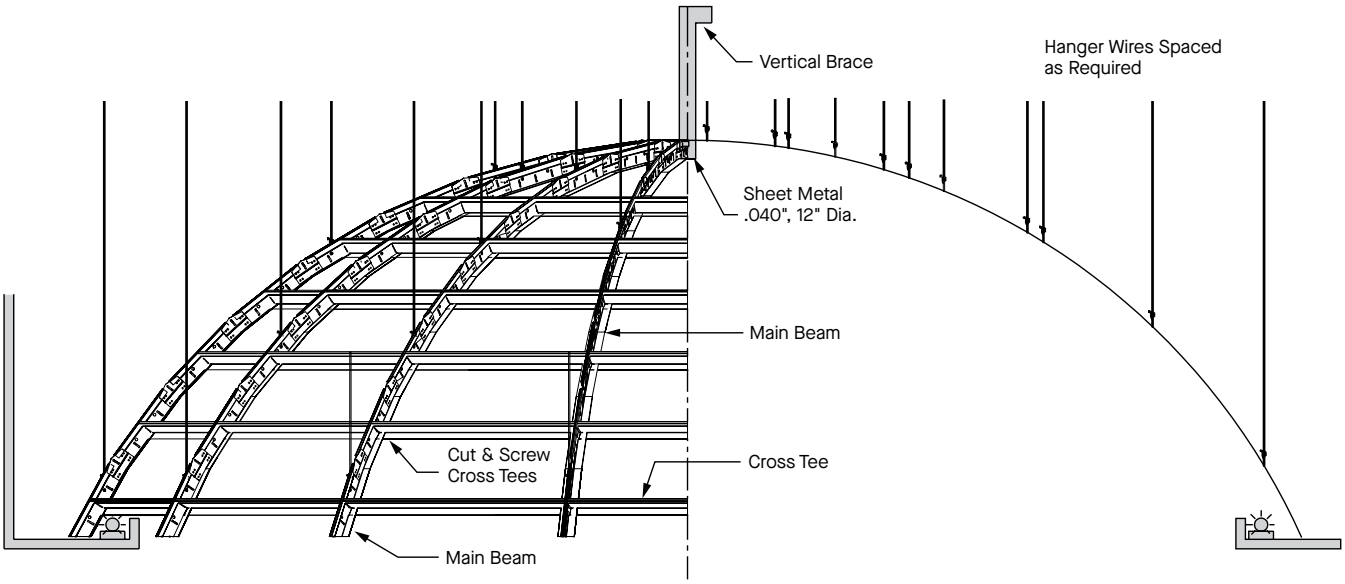


CEILING CLOUD



WORKING WITH DOMES

Domes, like arches, have many variable characteristics that make each design unique. With a suspended drywall grid system, you can easily create the desired look of domes ranging from simple to complex.



1 Determine the starting point at the top and bottom of the dome.

2 Prepare a sheet metal disk or donut for the top of the dome. The disk should be one to two feet in diameter and should be fabricated from steel with a thickness of at least 25-gauge thickness. Note that the center of the dome may need to be open to receive an electrical box, pole, or some other architectural detail. Refer to “Options for Top of Dome” on page 17.

3 Prepare a ring for the base of the dome from rolled angle or channel.

4 Attach curved main beams to the disk at the top of the dome and to the ring at the bottom with sharp point pan or wafer head screw (by others).

5 Mains should be spaced no greater than 4' O.C. (measured at the bottom ring). Install main beams 2' O.C. for a radius of 15' or less. (Refer to Radius Chart on page 22.)

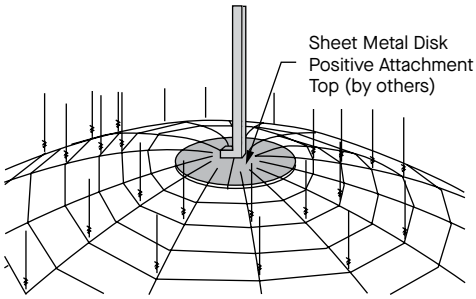
6 Use cross tees cut to the appropriate length and screwed to the flange of the main beams to complete the dome frame structure.

7 Cross tees are not required near the top of the dome when the space between mains becomes less than 16".

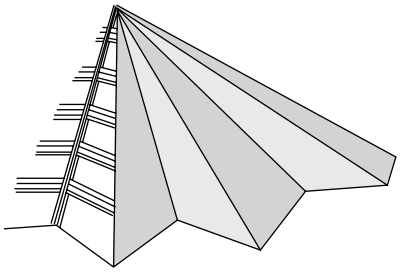
8 The sheathing must be cut into pie shaped sections and screw attached to the framework.

OPTIONS FOR TOP OF DOME

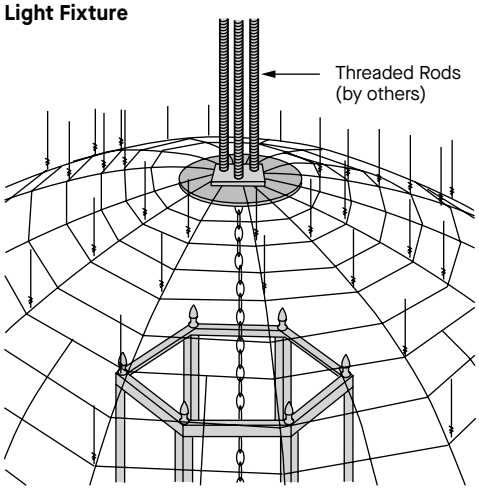
Vertical Brace



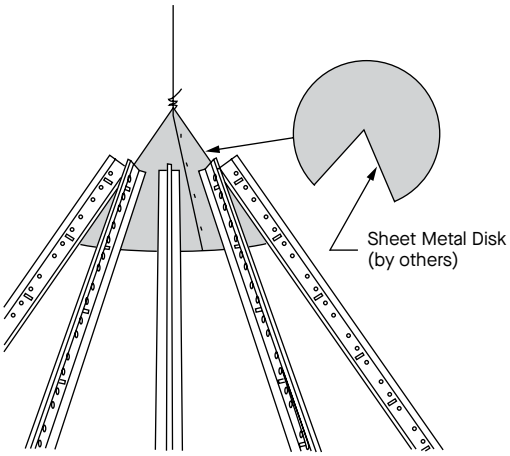
Folded Plate Dome



Light Fixture

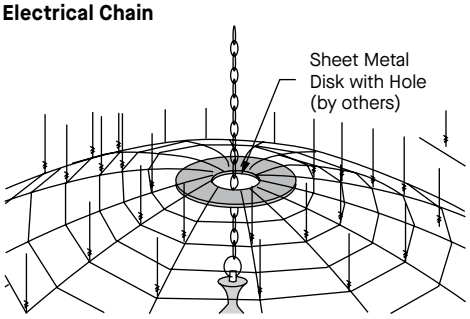


Cone

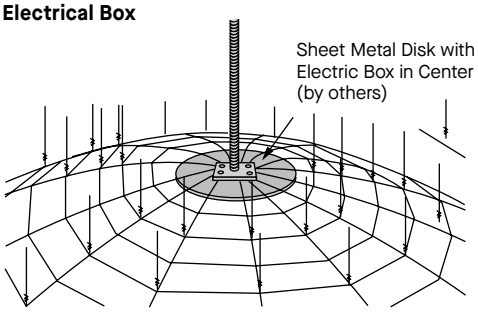


DOME COMPONENTS

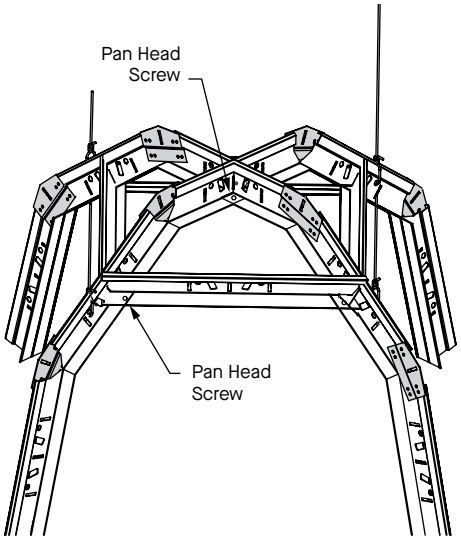
Electrical Chain



Electrical Box

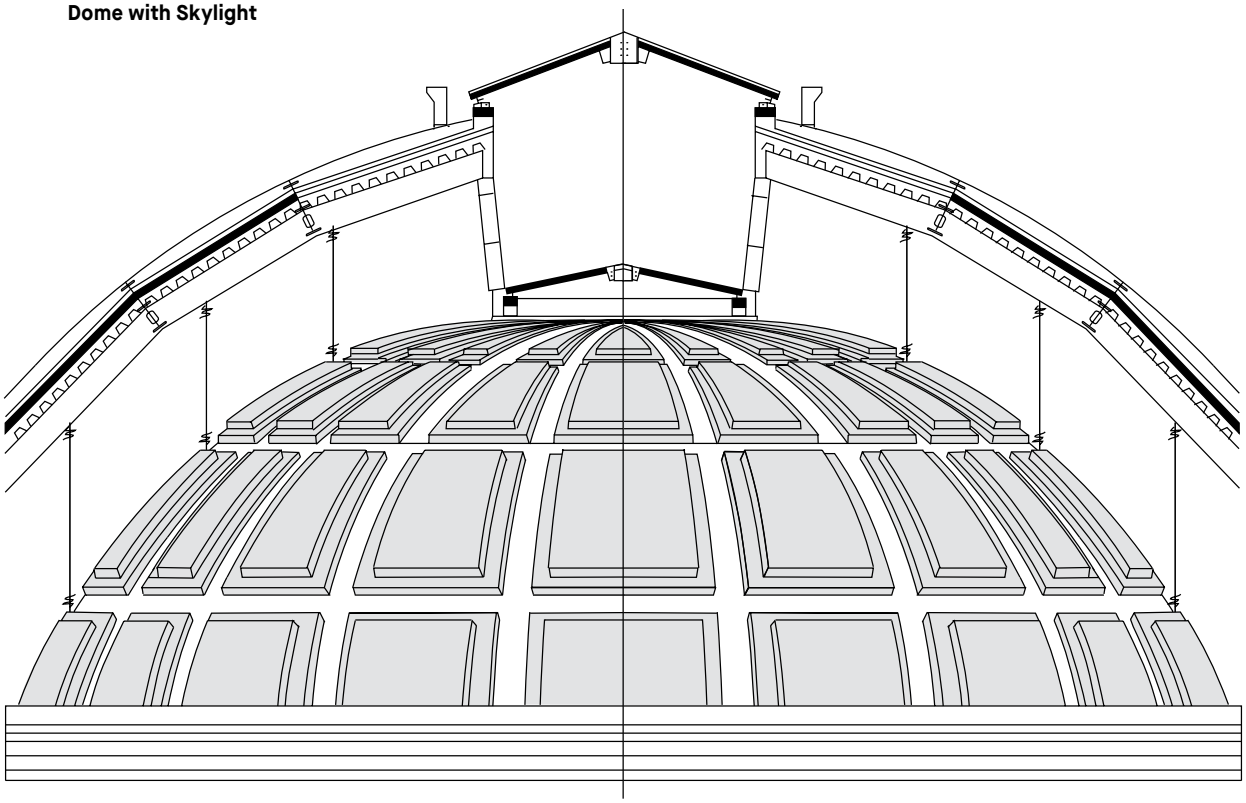


Self Supporting Tee Top

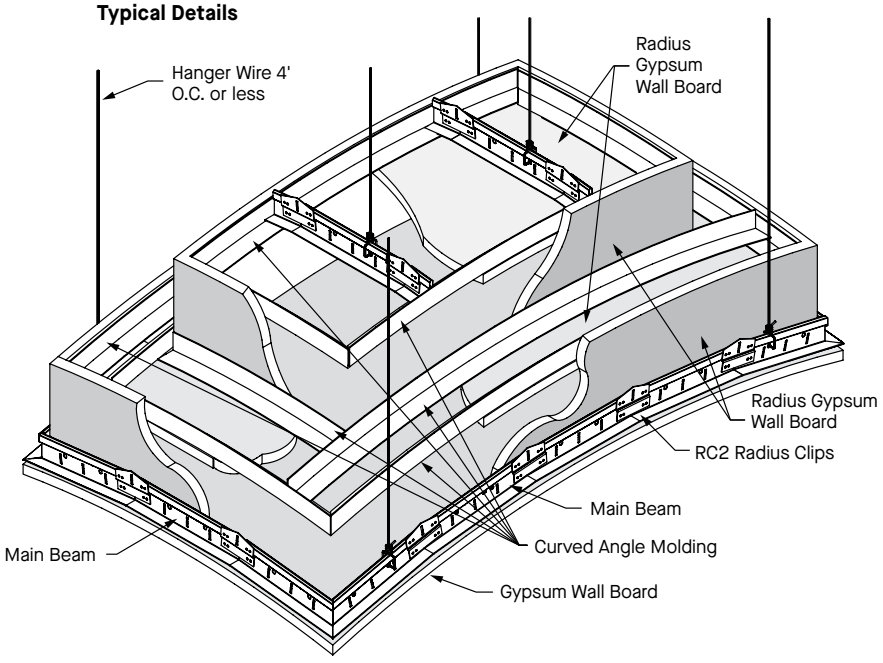


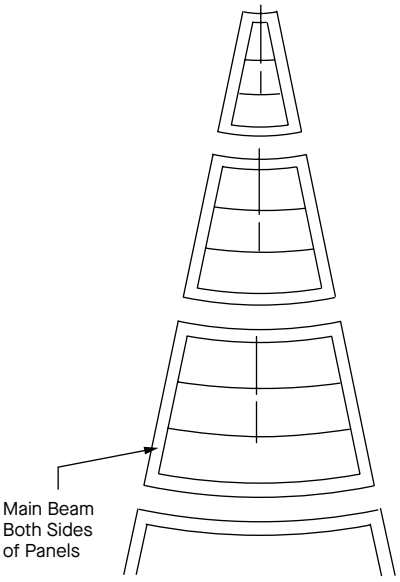
ADDITIONAL DOME TYPES

Dome with Skylight



Typical Details

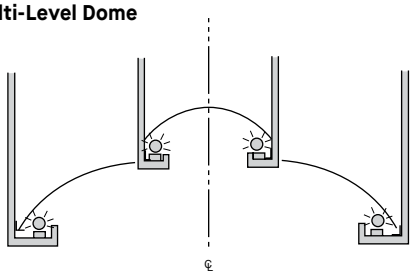




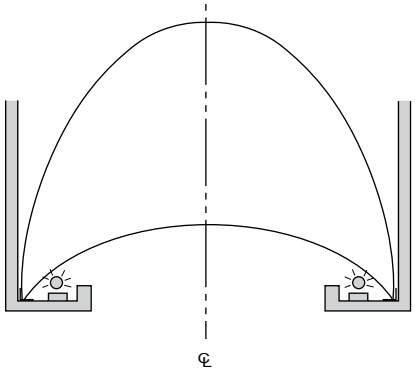
See page 15 for Bending Radius of gypsum board.

ADDITIONAL DOME TYPES

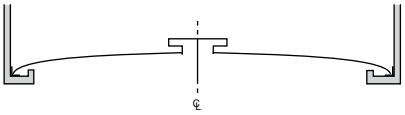
Multi-Level Dome



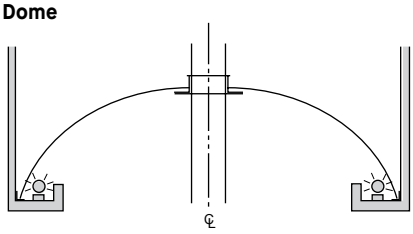
Egg or Elliptical Dome



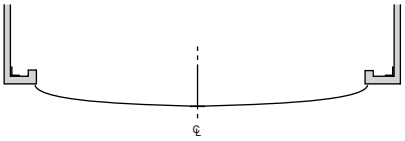
Saucer Dome Up



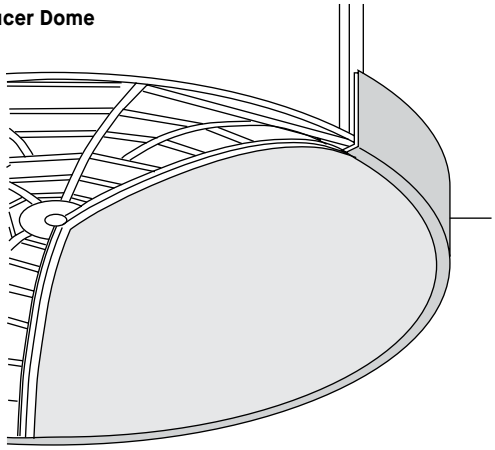
Pole Dome



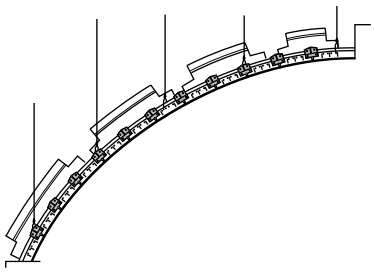
Saucer Dome Down



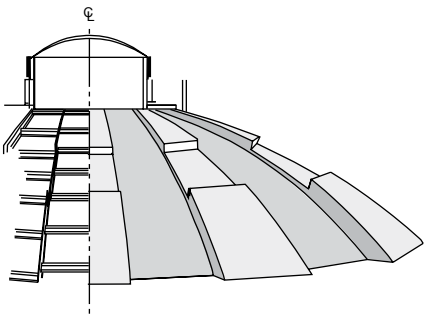
Saucer Dome



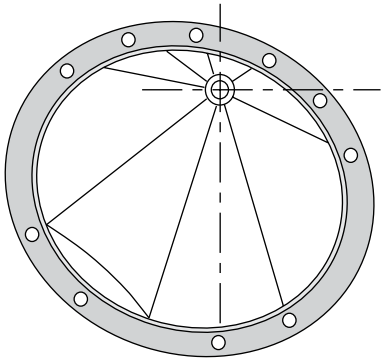
Step Up Dome



Checker Board Dome
(step down)



Offset 2 way Radius Dome
Column Ring Made from a Metal Angle



DRYWALL BENDING RADIUS

	Drywall Bending Radii				
Material	Minimum Radius (dry)	Maximum Cross Tee Spacing (dry)	Minimum Radius (wet)	Maximum Cross Tee Spacing (wet)	Water Required Per Panel (oz.)
1/4" Hi-flex Gypsum	32"	9"	20" concave 14" convex	8" concave 6" convex	–
1/4" Gypsum	5'	8"	2'	6"	30 ounces
3/8" Gypsum	7-1/2"	–	3'	8"	35 ounces
1/2" Gypsum	20'	16"	4'	12"	45 ounces
5/8" Gypsum	28'	24"	–	–	–

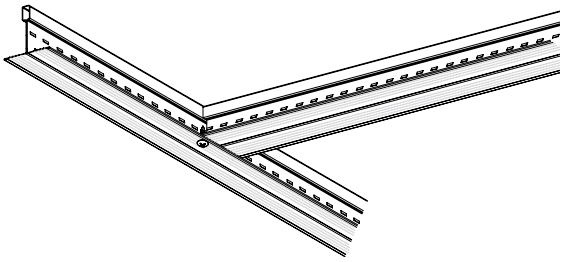
NOTE: Refer to gypsum wallboard manufacturer for additional information.

If required, apply water to the side of the panel that will be in compression. Apply the water uniformly over the surface of the boards. Stack moistened boards on a flat surface and cover with plastic sheeting. Allow water to soak into the panels for at least 1 hour before application to the frame. Allow installed panels to dry for 24 hours before finishing.

CONTROL JOINTS

Please refer to ASTM C840 Section 20.3.3 - 20.4 for control requirements.

Non-Module Cut and Screw Application, Metal-to-Metal



Ceiling expansion joints are installed to separate the metal suspension system when expansion joints occur in buildings, when 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. Expansion and control joints look similar, but perform different functions.

RADIUS DIMENSIONS

	Radius Dimension														
	10' 0"	11' 0"	12' 0"	13' 0"	14' 0"	15' 0"	16' 0"	17' 0"	18' 0"	19' 0"	20' 0"	21' 0"	22' 0"	23' 0"	24' 0"
2'	2"	2-1/4"	2"	1-7/8"	1-3/4"	1-5/8"	1-1/2"	1-1/2"	1-3/8"	1-1/4"	1-1/4"	1-1/8"	1-1/8"	1-1/8"	1"
4'	10"	9-1/8"	8-1/4"	7-5/8"	7"	6-1/2"	6-1/8"	5-3/4"	5-3/8"	5-1/8"	4-7/8"	4-5/8"	4-3/8"	4-1/4"	4"
6'	2'0"	1'9-3/8"	1'7-3/8"	1'5-5/8"	1'4-1/4"	1'3"	1'2"	1'1-1/8"	1'0-3/8"	11-3/4"	11-1/8"	10-1/2"	10"	9-5/8"	9-1/8"
8'	4'0"	3'5-5/8"	3'0-3/4"	2'9-1/8"	2'6-1/8"	2'3-3/4"	2'1-3/4"	2'0"	1'10-1/2"	1'9-1/4"	1'8-1/8"	1'7"	1'6-1/8"	1'5-1/4"	1'4-1/2"
	25' 0"	26' 0"	27' 0"	28' 0"	29' 0"	30' 0"	31' 0"	32' 0"	33' 0"	34' 0"	35' 0"	36' 0"	37' 0"	38' 0"	39' 0"
2'	1"	1"	7/8"	7/8"	7/8"	7/8"	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	5/8"	5/8"	5/8"
4'	3-7/8"	3-3/4"	35/8"	3-1/2"	3-3/8"	3-1/4"	3-1/8"	3"	3"	2-7/8"	2-3/4"	2-3/4"	2-5/8"	2-5/8"	2-1/2"
6'	8-3/4"	8-1/2"	81/2"	7-7/8"	7-1/2"	7-1/4"	7-1/8"	6-7/8"	6-5/8"	6-3/8"	6-1/4"	6-1/8"	5-7/8"	5-3/4"	5-5/8"
8'	1'3-3/4"	1'3-1/8"	1'25/8"	1'2"	1'2-1/2"	1'1-1/8"	1'0-5/8"	1'0-1/4"	11-1/2"	11-1/2"	11-1/8"	10-7/8"	10-1/2"	10-1/4"	10"
	40' 0"	41' 0"	42' 0"	43' 0"	44' 0"	45' 0"	46' 0"	47' 0"	48' 0"	49' 0"	50' 0"	51' 0"	52' 0"	53' 0"	54' 0"
2'	5/8"	5/8"	5/8"	5/8"	5/8"	5/8"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"
4'	2-3/8"	2-3/8"	2-3/8"	2-1/4"	2-1/8"	2-1/8"	2-1/8"	2-1/8"	2"	2"	2"	1-7/8"	1-7/8"	1-3/4"	1-3/4"
6'	5-1/2"	5-3/8"	5-1/4"	5-1/8"	5"	4-7/8"	4-3/4"	4-5/8"	4-1/2"	4-1/2"	4-3/8"	4-1/4"	4-1/4"	4-1/4"	4"
8'	9-3/4"	9-1/2"	9-1/4"	9"	8-7/8"	8-5/8"	8-1/2"	8-1/4 “	8-1/8"	7-7/8"	7-3/4"	7-5/8"	7-1/2"	7-3/8"	7-1/8"
	55' 0"	56' 0"	57' 0"	58' 0"	59' 0"	60' 0"	61' 0"	62' 0"	63' 0"	64' 0"	65' 0"	66' 0"	67' 0"	68' 0"	69' 0"
2'	1/2"	1/2"	1/2"	1/2"	1/2"	3/8"	3/8"	3/8"	3/8"	3/8"	3/8"	3/8"	3/8"	3/8"	3/8"
4'	1-3/4"	1-3/4"	1-3/4"	1-3/4"	1-5/8"	1-5/8"	1-5/8"	1-5/8"	1-1/2"	1-1/2"	1-1/2"	1-1/2"	1-1/2"	1-1/2"	1-3/8"
6'	4"	3-7/8"	3-7/8"	3-3/4"	3-3/4"	3-5/8"	3-5/8"	3-1/2"	3-1/2"	3-3/8"	3-3/8"	3-1/4"	3-1/4"	3-1/4"	3-1/8"
8'	7"	6-7/8"	6-3/4"	6-5/8"	6-5/8"	6-1/2"	6-3/8"	6-1/4"	6-1/8"	6"	6"	5-7/8"	5-3/4"	5-3/4"	5-5/8"
	70' 0"	71' 0"	72' 0"	73' 0"	74' 0"	75' 0"	76' 0"	77' 0"	78' 0"	79' 0"	80' 0"	81' 0"	82' 0"	83' 0"	84' 0"
2'	3/8"	3/8"	3/8"	3/8"	3/8"	3/8"	3/8"	3/8"	3/8"	3/8"	3/8"	3/8"	3/8"	3/8"	3/8"
4'	1-3/8"	1-3/8"	1-3/8"	1-3/8"	1-3/8"	1-1/4"	1-1/4"	1-1/4"	1-1/4"	1-1/4"	1-1/4"	1-1/4"	1-1/4"	1-1/4"	1-1/8"
6'	3-1/8"	3-1/8"	3"	3"	3"	2-7/8"	2-7/8"	2-7/8"	2-3/4"	2-3/4"	2-3/4"	2-3/4"	2-5/8"	2-5/8"	2-5/8"
8'	5-1/2"	5-1/2"	5-3/8"	5-1/4"	5-1/4"	5-1/8"	5-1/8"	5"	5"	4-7/8"	4-7/8"	4-3/4"	4-3/4"	4-5/8"	4-5/8"
	85' 0"	86' 0"	87' 0"	88' 0"	89' 0"	90' 0"	91' 0"	92' 0"	93' 0"	94' 0"	95' 0"	96' 0"	97' 0"	98' 0"	99' 0"
2'	3/8"	1/4"	1/4"	1/4"	1/4"	1/4"	1/4"	1/4"	1/4"	1/4"	1/4"	1/4"	1/4"	1/4"	1/4"
4'	1-1/8"	1-1/8"	1-1/8"	1-1/8"	1-1/8"	1-1/8"	1-1/8"	1-1/8"	1-1/8"	1"	1"	1"	1"	1"	1"
6'	2-5/8"	2-1/2"	2-1/2"	2-1/2"	2-1/2"	2-3/8"	2-3/8"	2-3/8"	2-3/8"	2-3/8"	2-1/4"	2-1/4"	2-1/4"	2-1/4"	2-1/4"
8'	4-1/2"	4-1/2"	4-1/2"	4-3/8"	4-3/8"	4-1/4"	4-1/4"	4-1/4"	4-1/8"	4-1/8"	4-1/8"	4"	4"	4"	3-7/8"
	100' 0"	105' 0"	110' 0"	115' 0"	120' 0"	125' 0"	130' 0"	135' 0"	140' 0"	145' 0"	150' 0"	155' 0"	160' 0"	165' 0"	170' 0"
2'	1/4"	1/4"	1/4"	1/4"	1/4"	1/4"	1/4"	1/4"	1/4"	1/4"	1/4"	1/4"	1/8"	1/8"	1/8"
4'	1"	1"	7/8"	7/8"	7/8"	3/4"	3/4"	3/4"	3/4"	3/4"	5/8"	5/8"	5/8"	5/8"	5/8"
6'	2-1/4"	2-1/8"	2"	1-7/8"	1-7/8"	1-3/4"	1-3/4"	1-5/8"	1-5/8"	1-1/2"	1-1/2"	1-3/8"	1-3/8"	1-3/8"	1-1/4"
8'	3-7/8"	3-3/4"	3-1/2"	3-3/8"	3-1/4"	3-1/8"	3"	2-7/8"	2-3/4"	2-3/4"	2-5/8"	2-1/2"	2-3/8"	2-3/8"	2-1/4"
	175' 0"	180' 0"	185' 0"	190' 0"	195' 0"	200' 0"	210' 0"	220' 0"	230' 0"	240' 0"	250' 0"				
2'	1/8"	1/8"	1/8"	1/8"	1/8"	1/8"	1/8"	1/8"	1/8"	1/8"	1/8"				
4'	5/8"	5/8"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	3/8"	3/8"	3/8"				
6'	1-1/4"	1-1/4"	1-1/4"	1-1/8"	1-1/8"	1-1/8"	1"	1"	1"	7/8"	7/8"				
8'	2-1/4"	2-1/8"	2-1/8"	2"	2"	2"	1-7/8"	1-3/4"	1-5/8"	1-5/8"	1-1/2"				

ESTIMATING MATERIAL

Item Number	Length	Pcs/Ctn.	LF/Ctn.	Lbs./Ctn.	Area of ceiling completed by one carton 8" O.C.	16" O.C.	24" O.C.	36" O.C.	48" O.C.	50" O.C.	
DRYWALL/STUCCO GRID MAIN BEAM											
HD8901	144"	20	240	71			480	720	960	1000	sq. ft.
HD8906/HD8906G90	144"	12	144	53			288	432	576	600	sq. ft.
HD8906F08/HD8906F16	144"	12	144	53							sq. ft.
DRYWALL/STUCCO GRID 1-1/2" FACE CROSS TEES											
XL8965	72"	36	216	78	144	288	432				sq. ft.
XL8947P/XL8947PG90**	50"	36	150	56	100	200	300				sq. ft.
XL8945P/XL8945PG90	48"	36	144	52	96	192	288				sq. ft.
XL7936G90	36"	36	108	39		144	216				sq. ft.
XL8926/XL8926G90	24"	36	72	26	48						sq. ft.

** Dimensions are nominal.

Item Number	Length	Pcs/Ctn.	LF/Ctn.	Lbs./Ctn.
REVERSE MOLDINGS				
7857	120"	30	360	51
7858	120"	20	240	67
DRYWALL ANGLE MOLDING				
HD7801G90	120"	30	300	38
KAM-12	144"	30	360	31
KAM-10	120"	30	300	49
LAM-12	144"	30	360	31
LAM-151220E	144"	10	120	39
SIMPLECURVE®				
SC151220EQ	148"	10	124	40
SC151225	148"	10	124	26
SC21220EQ	148"	10	124	52
SC21225	148"	10	124	34

Example calculation based on 5,100 SF ceiling:

Main beam at 48" O.C.
5,100 SF x .25 = 1,275 LF
1,275 LF ÷ 144 LF/Ctn = 9 cartons needed

Cross tee at 16" O.C.
5,100 SF x .76 = 3,876 LF
3,876 LF ÷ 144 LF/Ctn = 27 cartons needed

Estimating Lineal Feet of Grid Based on Square Footage of Ceiling

O.C. Spacing of Component	Percent of Square Footage
8"	108%
12"	100%
16"	76%
20"	60%
24"	50%
30"	40%
36"	33%
48"	25%
60"	20%

NEXT STEPS

877 276-7876

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

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

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Contacts – reps, where to buy, who will install

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