Drywall Grid System Technical Guide Curved Ceilings

Armstrong CEILING SOLUTIONS

DRYWALL GRID SYSTEM

Drywall Grid Systems

Features and Benefits

Armstrong Drywall Grid is fast and easy to install and an economical alternative to TCR and Furring Channel construction.

Applications

Armstrong Drywall Grid Systems offer flexible design solutions for:

- Flat and Curved Ceilings
- Bulkheads (Multiple Step and Curved)
- Transitions to Acoustical Ceilings
- Margins
- Perimeters
- Walls

Features

- **PeakForm**
  Patented profile increases strength and stability for improved performance during installation
- **Knurled Face**
  Positive screw penetration into tees
- **SuperLock / XL²**
  Main Bar and Cross Runner clips are 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 Tee face
- **38mm Wide Face**
  Main Bars and Cross Runners – easy installation of screw fixed plasterboard sheets
- **Rotary stitched Double Thickness Web**
  For additional torsional strength and stability
- **Simple Integration of Mechanical Services**

Benefits

- Reduced installation time
- Reduced labour costs
- Reduced material costs and wastage
- Low 38mm profile across one plane
- Material off cuts can be used for bracing and as an alternative suspension method

Physical Data

- Material: Hot dipped galvanised steel
- Recycled Content: 25%
- Surface Finish: Z275 galvanised
- Main Bar / Cross Runner Interface: Joggled ends
- End Detail:
  - Main Bar: staked-on SuperLock clip
  - Cross Runner: staked-on XL² clip

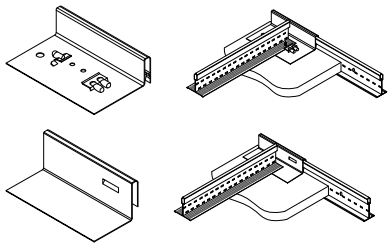
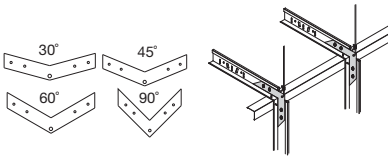
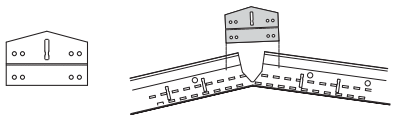
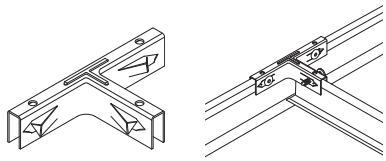
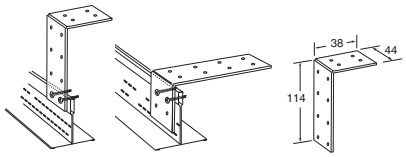
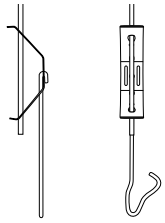
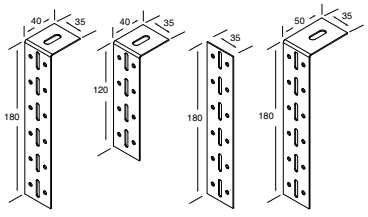
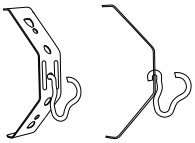
Code Compliance

Armstrong DGS is designed and manufactured to comply with the following standards:

AS/NZS 2785-2020: Suspended Ceilings – Design and Installation
AS/NZ 2589-2007: Gypsum linings – Application and finishing
AS/NZ 1397-2002: Steel sheet and strip – Hot-dipped zinc-coated or aluminium/zinc-coated
AS/NZ 4600-2005: Cold-formed steel structures
AS/NZ 1170-2002: Structural Design Actions

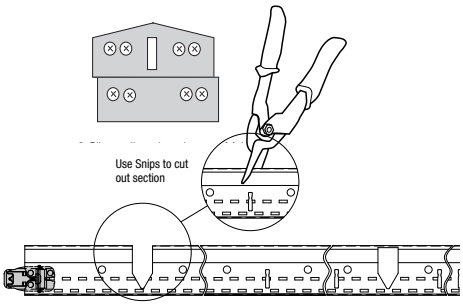
Grid Accessories

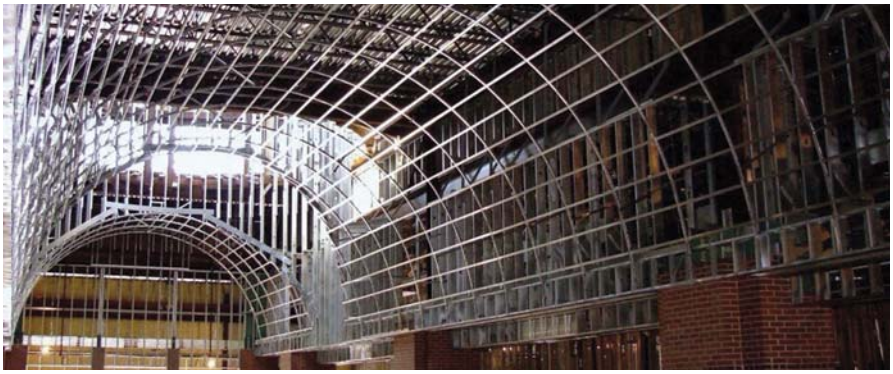
LEGEND: • Flat Ceilings, • Wall systems, • Curved Ceilings, • Quikstix Bulkheads, • ShortSpan

Application	Item Number	Product Description	Pcs / Bucket	Legend
		**Transition Clips with Locking Tabs** facilitate transition from drywall to acoustical ceiling; one-sided hold-down clip; eliminates need for drywall bead. Locking tabs provide secure location for DGS tees		
	BPDW10LT	**For 10mm Plasterboard**	125	•
	BPDW13LT	**For 13mm Plasterboard**	125	•
	BPDW16LT	**For 16mm Plasterboard**	125	•
	ALDW13	**Suits 45/50 Top Hat for 13mm Plasterboard**	100	•
	BPDW30C BPDW45C BPDW60C BPDW90C	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 Bars or Cross Runners	250 250 250 250	• • • •
	BPRC2	**Radius Clip** is used to secure the Main Bar at the desired angle in curved ceiling applications. Includes a rout for Cross Runners installation	205	•
	BPGC3W	**3 Way Bite Clip** connects Intersecting Cross Runners at any point along a Main Bar or other Cross Runners	250	• • •
	BPQSUTC*	**Up Tight Clip** is used for Direct fix applications *Non stock item – lead time required	150	• • • •
	SCDGS	**Rod Hanging Clip** is the standard height adjustable suspension clip connecting from 2.5mm or 5mm rod to the DGS Main Bar	100	• • •
	DWDFC DWDFC120 DWDFFC180 DWDFC18050	**Direct Fix Clip** – 180mm L Shape **Direct Fix Clip** – 120mm L Shape **Direct Fix Clip** – 180mm Flat Extension **Direct Fix Clip** – 180mm L Shape with 50mm Head	100 100 100 100	• • • • • • • • • • • • • • •
	DGSSCS	**DGS Suspension Clip Small** is the standard height adjustable suspension clip connecting from 2.5mm or 5mm rod to the DGS Main Bar	100	• • •
	DGSSCTR	**DGS Threaded Rod Clip** is a suspension clip for 6mm Threaded Rod	100	• • •

Curved Ceilings

An unlimited range of curved ceilings can simply be constructed using standard Armstrong Drywall Grid components.
Single and multiple curved ceilings can be framed quickly and easily, without the requirement to order pre-rolled components.





Features

- Standard Main Bars are simply Faceted on site
- Limitless Concave or Convex designs
- Pre-engineered accessories
- Off site curving can be made to order

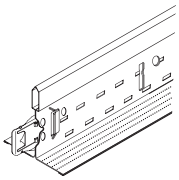
Creating Curved Framing Ceilings

Faceting the Main Bar

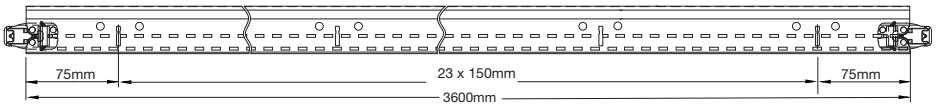
Three simple steps:

i. Cut Main Bar as required
ii. Bend the face of the Main Bar to match the desired radius
iii. Screw fix Radius Clip to reinforce Main Bar at each "cutout" location (use four #6 x12mm button head screws).

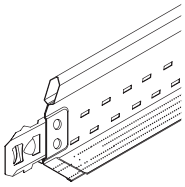
Main Bar: PeakForm 38 with Knurled Face and SuperLock Clip (bulb-to-bulb connection)



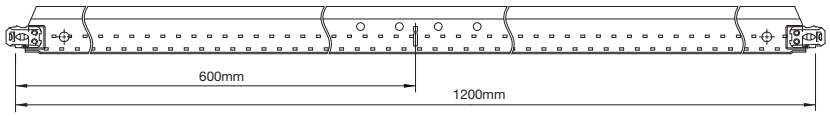
Item Number	Dimensions length (mm)	height (mm)	face (mm)	Rout Spacing mm	Content / Carton / Weight pcs	lm	kg
BP 794033	3600	38	38	150cc	12	43.2	24



Cross Runner: PeakForm 38 XL² with Knurled Face (stab connection, override)

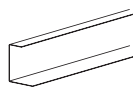


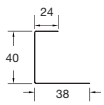
Item Number	Dimensions length (mm)	height (mm)	face (mm)	Rout Spacing mm	Content / Carton / Weight pcs	lm	kg
BP 793033	1200	38	38	Centre	36	43.20	21

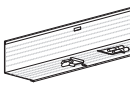


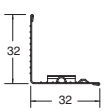
Perimeter Trims

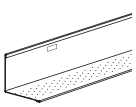
A variety of drywall grid perimeter trims and accessories are available to provide problem-solving solutions that save time, labor and money.











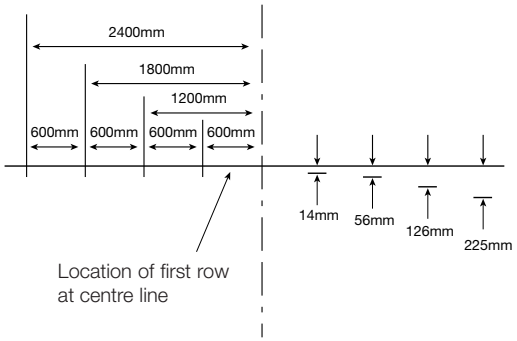
Item Number	Dimensions length (mm)	height (mm)	face (mm)	Rout Spacing mm	Content / Carton / Weight pcs	lm	kg
Knurled Channel Moulding (hemmed with Knurled lower leg)							
BP KCM 36	3600	40	38	–	12	43.2	15.6
Locking Angle Trim (hemmed with Knurled faces)							
BP LAT36	3600	32	32	75 in / 150 o.c.	20	72	26
Angle Trim (hemmed with Knurled faces)							
BP KAM36	3600	32	32	–	20	72	26

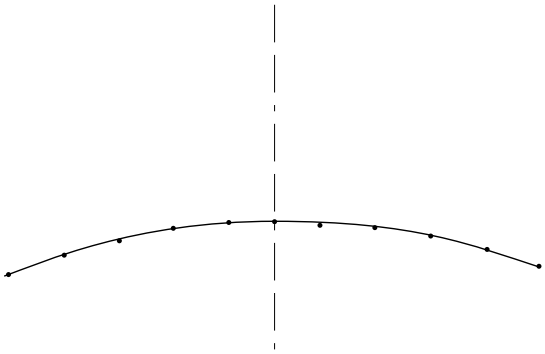
Curved Ceilings

Establishing an Arc

1. Establish a centre line
2. Mark 600mm increments on line perpendicular to centre line
3. At 600mm marks, identify points of arc below perpendicular line (maintain consistent spacing of point). See radius charts on page 14.
4. Connect points to form a smooth arc

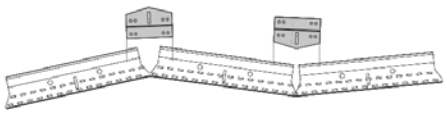
Example: 12.9 m using chart on page 17.



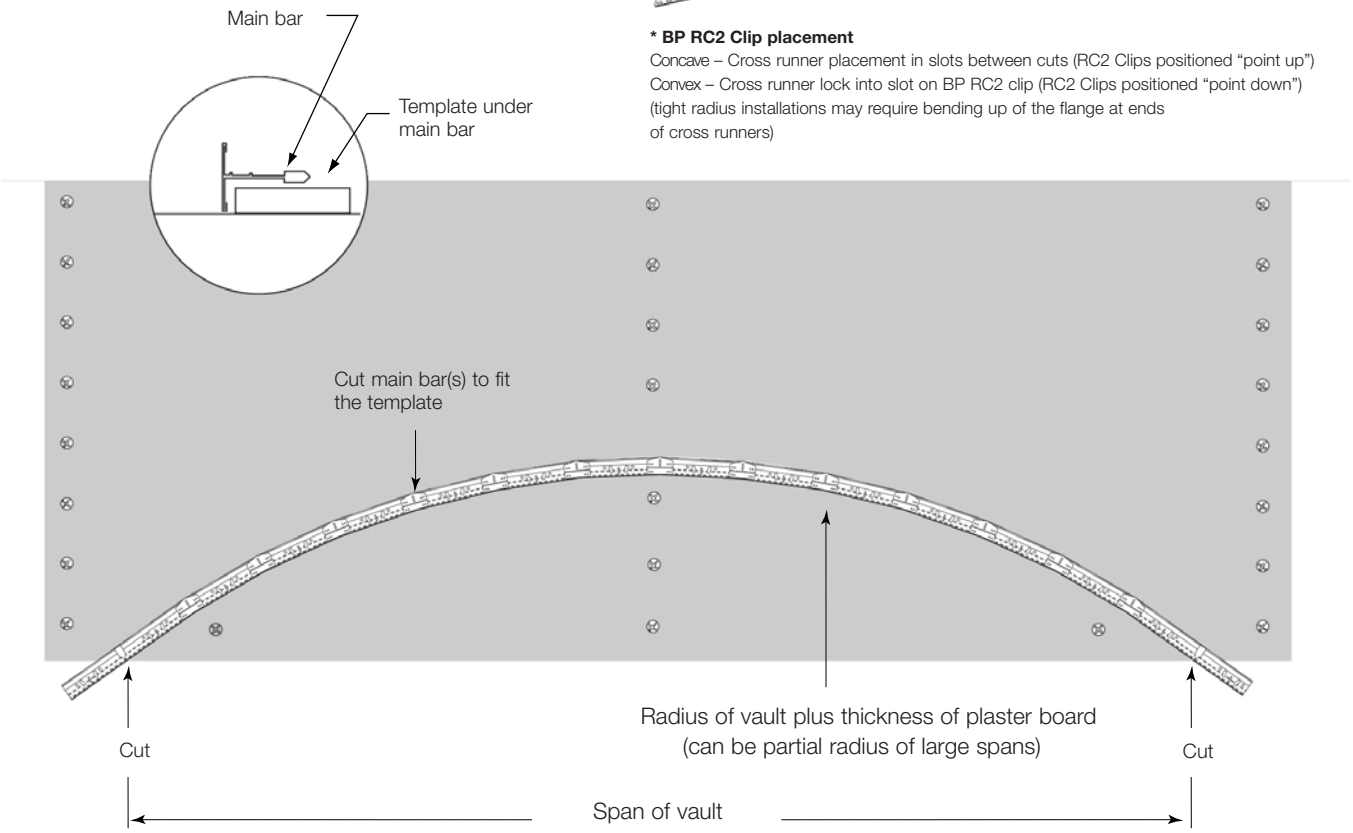


Completing the Template

1. Draw radius on template
2. Cut along the radius and remove section of template
3. Cut main bar as required and position along the cut radius on the template (use the chart below)
4. Screw BP RC2 clips to faceted main bar at all cutout locations *
5. On the template, mark a slot location reference point to maintain consistent slot location



*** BP RC2 Clip placement**
Concave – Cross runner placement in slots between cuts (RC2 Clips positioned "point up")
Convex – Cross runner lock into slot on BP RC2 clip (RC2 Clips positioned "point down")
(tight radius installations may require bending up of the flange at ends of cross runners)

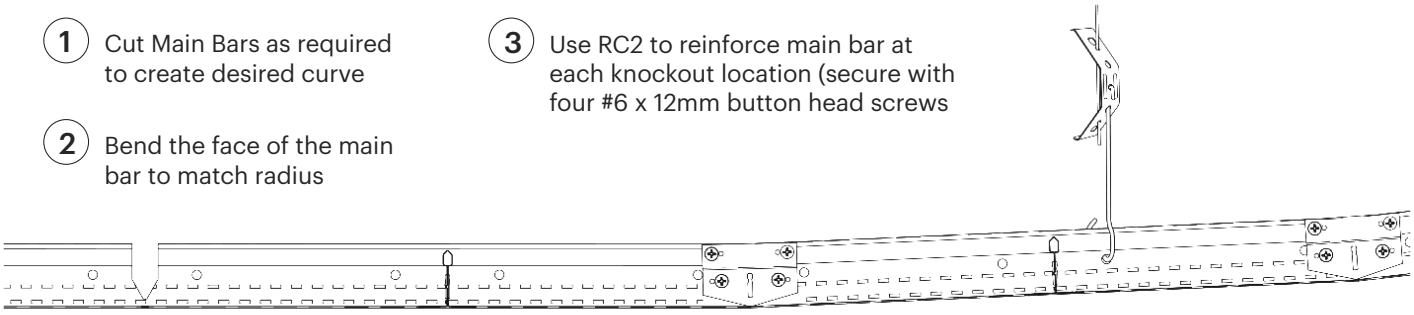


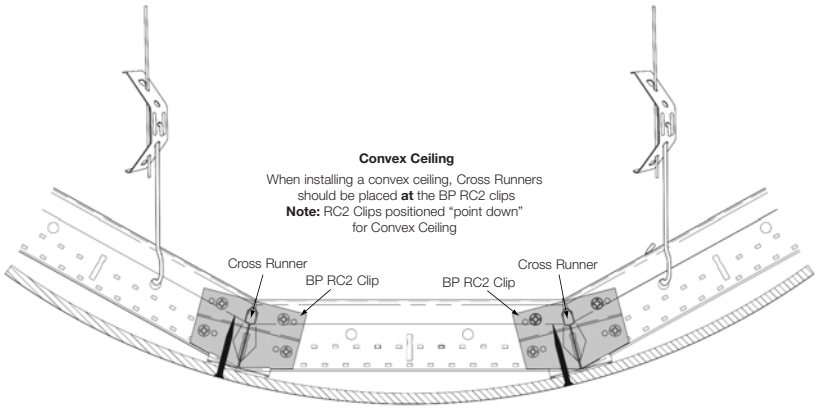
Curved Ceilings

Creating Convex Ceilings

An unlimited range of convex ceilings can be constructed by faceting the Main Bars on the job site to meet design needs.

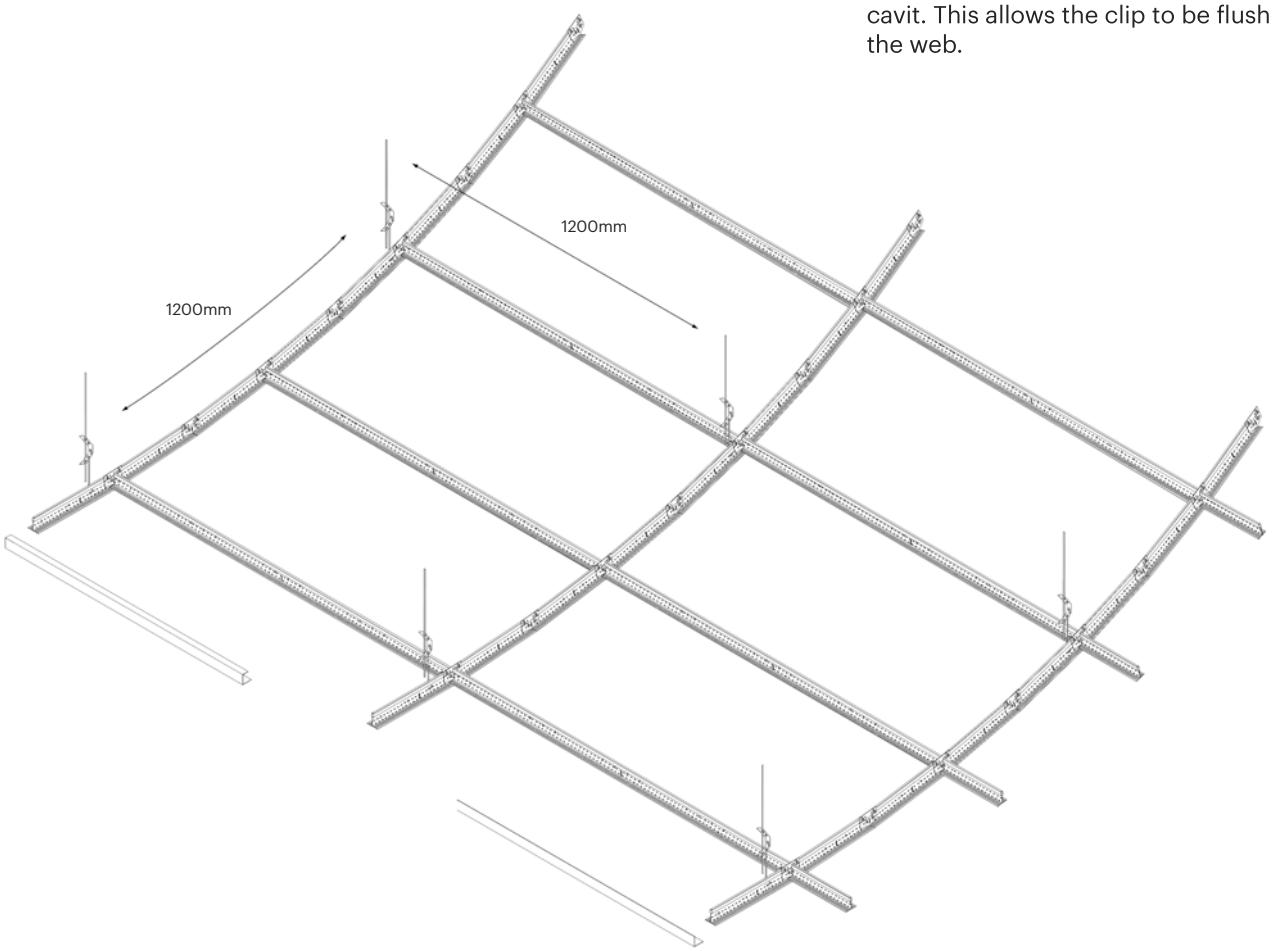
1. Cut Main Bars as required to create desired curve
2. Bend the face of the main bar to match radius
3. Use RC2 to reinforce main bar at each knockout location (secure with four #6 x 12mm button head screws





- Suspension hangers spaced along the Main Bars not more than 1200mm on centre (dependent upon plaster board construction).
- Add vertical braces as required to stabilize the frame.
- Thickness of the sheeting material is determined by its plasticity. (Refer to supplying manufacturer's recommendation).

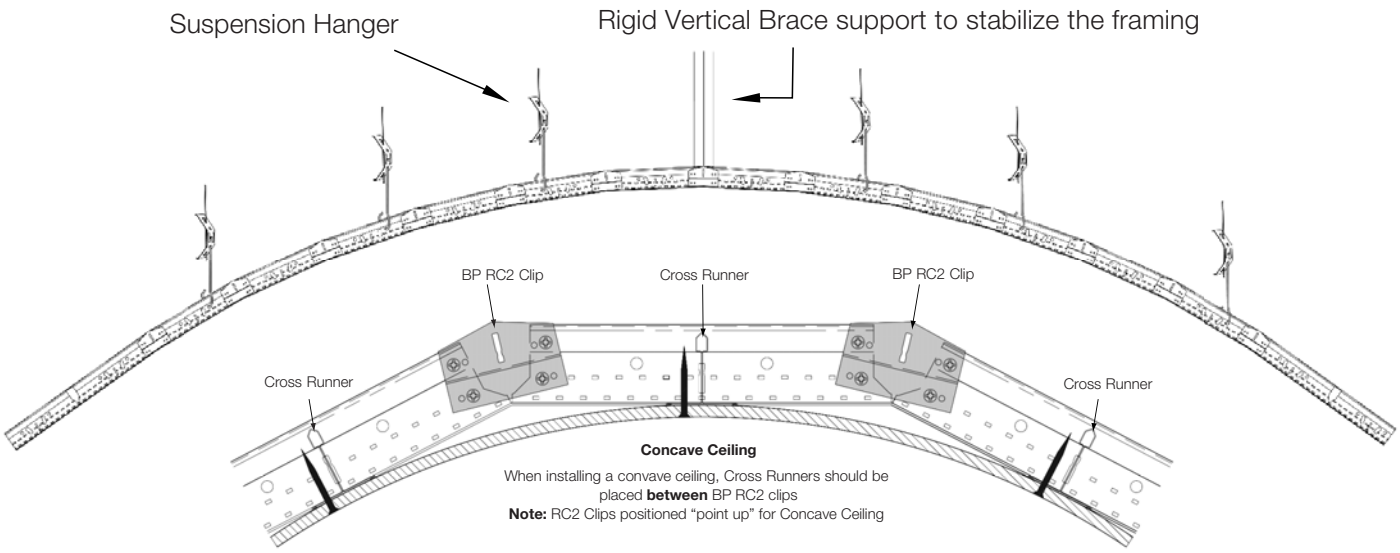
Note: Place RC2 clip on the side of the web where the rotary stitching forms a cavit. This allows the clip to be flush with the web.



Curved Ceilings

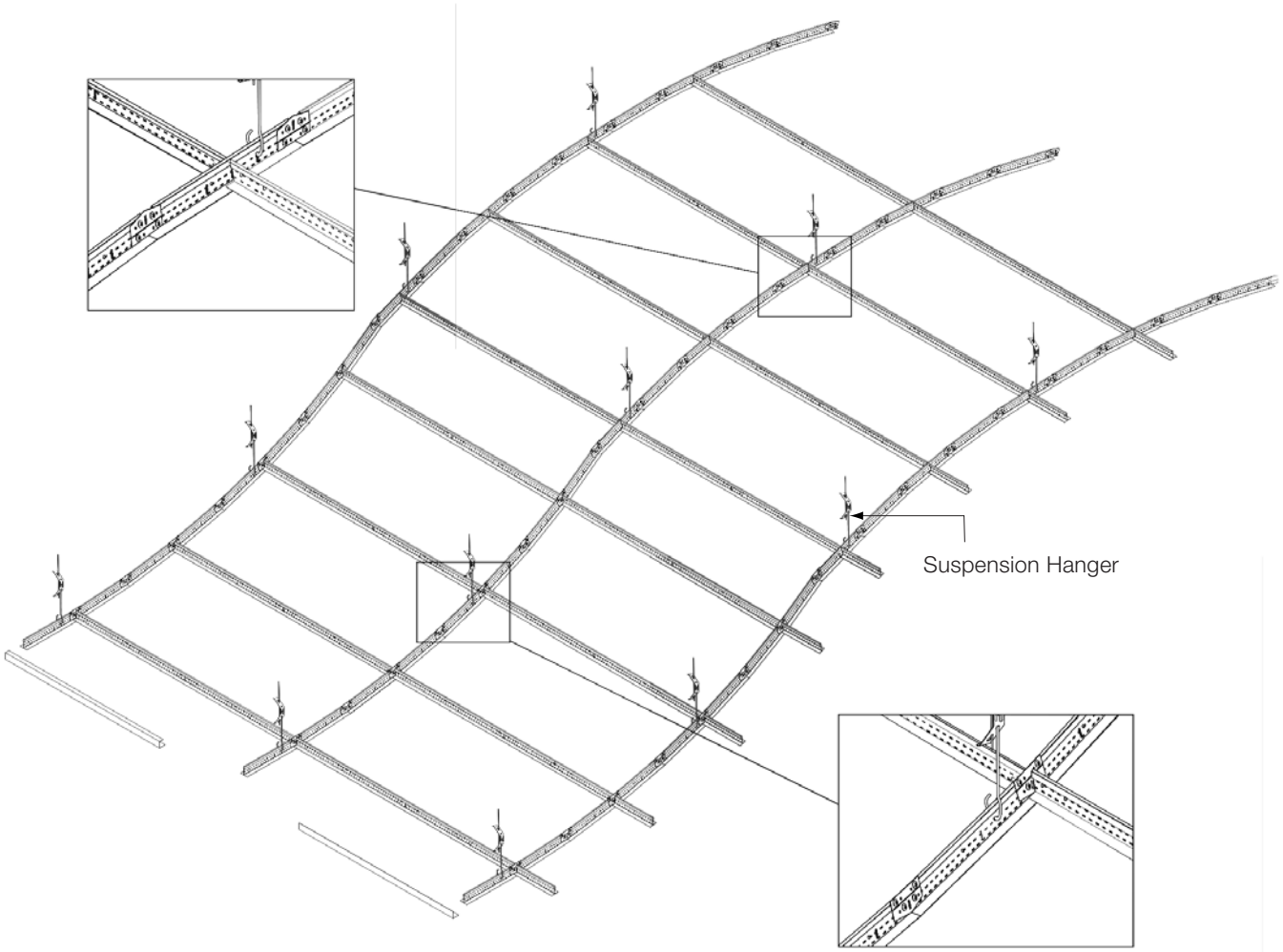
Creating Concave Ceilings and Undulating Ceilings (Waves)

An unlimited range of concave ceilings can be constructed by faceting the Main Bars on the job site to meet design needs Single and multiple curved ceilings can be framed quickly and easily.



- Suspension hangers spaced along the Main Bars not more than 1200mm on centre (dependent upon plaster board construction).
- Add vertical braces as required to stabilize the frame.
- Thickness of the sheeting material is determined by its plasticity. (Refer to supplying manufacturer's recommendation).

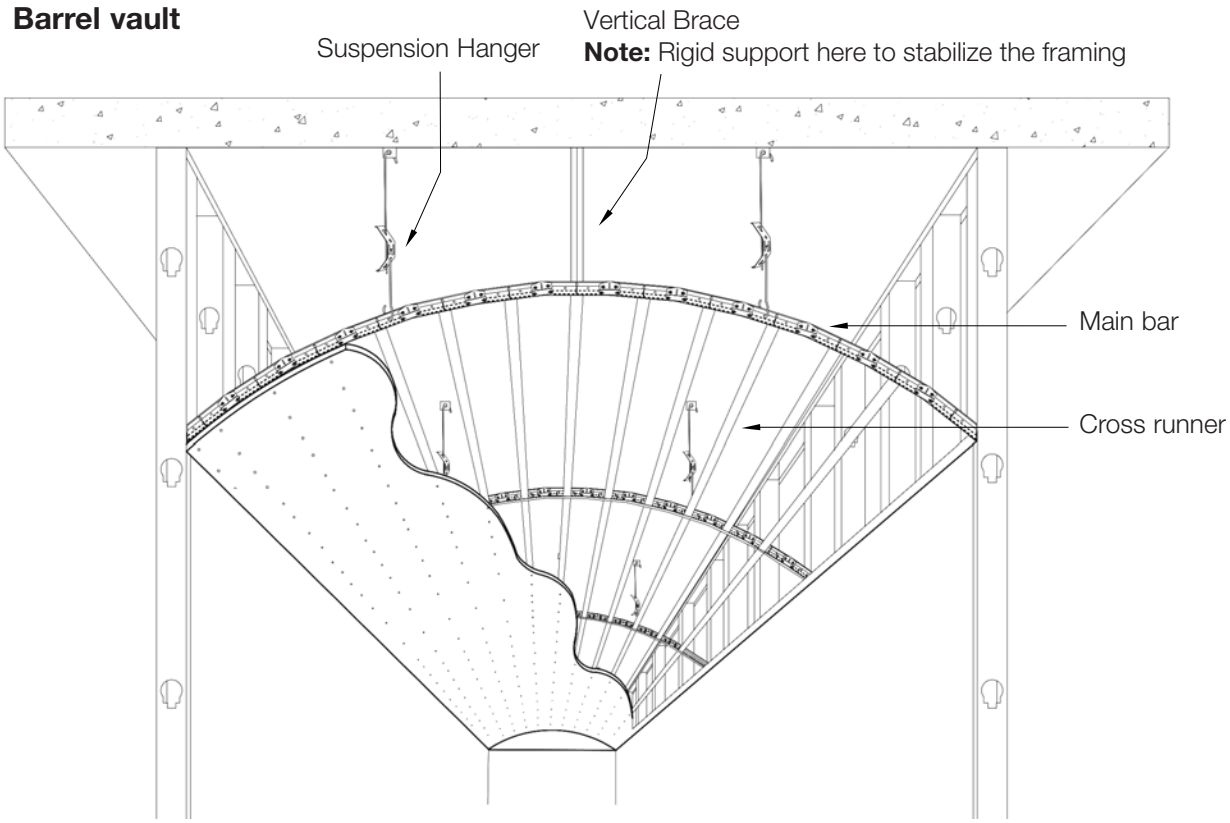
Note: Place RC2 clip on the side of the web where the rotary stitching forms a cavit. This allows the clip to be flush with the web.



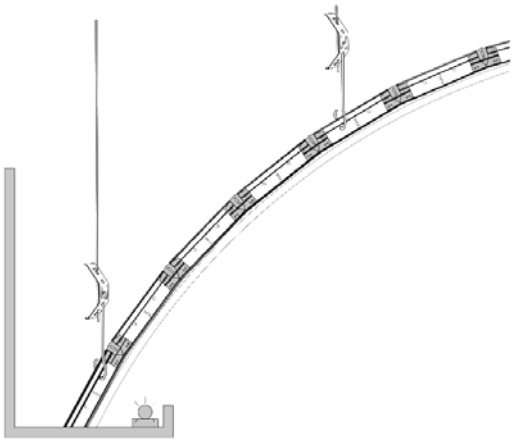
Curved Ceilings

Special Curved Solutions

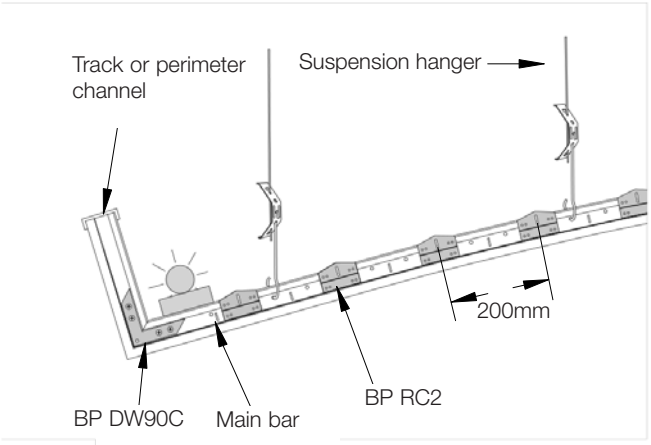
Barrel vault



Vault perimeter light cove



Floating vault



Cantilever Ceilings

A maximum cantilever dimension of 450 mm is allowed on the following basis:

1. Being the sum of both the horizontal and vertical elements.
2. Is measured as the distance from a hanger to the terminal end of the cantilever.

Note: Regardless of the horizontal dimension, a diagonal brace must be installed if the vertical dimension exceeds 300mm. (applies to flat or curved installation – as shown).

Curved Ceilings

Radius dimension in mm

600mm increments from centre line

	3000	3300	3600	3900	4200	4500	4800	5100	5400	5700	6000	6300	6600	6900	7200
600	60	55	50	46	43	40	38	35	33	32	30	29	27	26	25
1200	250	226	206	189	175	163	152	143	135	128	121	115	110	105	101
1800	600	534	482	440	405	376	350	328	309	292	276	263	250	239	229
2400	1200	1035	917	826	753	693	643	600	563	530	501	475	452	431	412

	7500	7800	8100	8400	8700	9000	9300	9600	9900	10200	10500	10800	11100	11400	11700
600	24	23	22	21	21	20	19	19	18	18	17	17	16	16	15
1200	97	93	89	86	83	80	78	75	73	71	69	67	65	63	6.2
1800	219	211	203	195	188	182	176	170	165	160	155	151	147	143	139
2400	394	378	364	350	338	326	315	305	295	286	278	270	263	255	249

	12000	12300	12600	12900	13200	13500	13800	14100	14400	14700	15000	15300	15600	15900	16200
600	15	15	14	14	14	13	13	13	13	12	12	12	12	11	11
1200	60	59	57	56	55	53	52	51	50	49	48	47	46	45	45
1800	136	132	129	126	123	121	118	115	113	111	108	106	10.4	102	100
2400	242	236	231	225	220	215	210	206	201	197	193	189	186	182	179

	16500	16800	17100	17400	17700	18000	18300	18600	18900	19200	19500	19800	20100	20400	20700
600	11	11	11	10	10	10	10	10	10	9	9	9	9	9	9
1200	44	43	42	41	41	40	39	39	38	38	37	36	36	35	35
1800	98	97	95	93	92	90	89	87	86	8.5	83	82	81	80	78
2400	175	172	169	166	163	161	158	155	153	151	148	146	144	142	140

	21000	21300	21600	21900	22200	22500	22800	23100	23400	23700	24000	24300	24600	24900	25200
600	9	8	8	8	8	8	8	8	8	8	8	7	7	77	
1200	34	34	33	33	32	32	32	31	31	30	30	30	29	29	29
1800	77	76	75	74	73	72	71	70	69	68	68	67	66	65	64
2400	138	136	134	132	130	128	127	125	123	122	120	119	117	116	115

	25500	25800	26100	26400	26700	27000	27300	27600	27900	28200	28500	28800	29100	29400	29700
600	7	7	7	7	7	7	7	7	6	6	6	6	6	6	6
1200	28	28	28	27	27	27	26	26	26	26	25	25	25	25	24
1800	64	63	62	61	61	60	59	59	58	58	57	56	56	55	55
2400	113	112	111	109	108	107	106	105	103	102	101	100	99	98	97

	30000	30300	30600	30900	31200	31500	31800	32100	32400	32700	33000	33300	33600	33900	34200
600	6	6	6	6	6	6	6	6	6	6	5	5	5	5	5
1200	24	24	24	23	23	23	23	22	22	22	22	22	21	21	21
1800	54	54	53	52	52	51	51	51	50	50	49	49	48	48	47
2400	96	95	94	93	92	92	91	90	89	88	87	87	86	85	84

	34500	34800	35100	35400	35700
600	5	5	5	5	5
1200	21	21	21	20	20
1800	47	47	46	46	45
2400	84	83	82	81	81

Archtectural Specifications

Flat Plasterboard Ceilings: Suspended Grid shall be Armstrong Drywall Grid System, comprising of Main Bars and Cross Runners, including Wall Mouldings and Transition Trims, as per manufacturer's instructions.

Curved Plasterboard Ceilings: Suspended Grid shall be Armstrong Drywall Grid System, comprising of Main Bars (facetted) and Cross Runners, including Wall Mouldings and Transition Trims, as per manufacturer's instructions.

Corridors or Plasterboard Margins: Suspended Grid shall be Armstrong DGS ShortSpan, comprising of ShortSpan Tees and StrongBack Support sections (where required), including Wall Mouldings and Transition Trims as per manufacturer's instructions.

Bulkhead / Soffit: Suspended Grid structure shall be Armstrong DGS QuickStix, comprising of QuickStix Tees and Cross Runners, including Wall Mouldings and Transition Trims, as per manufacturer's instructions.

Wall Battening: Wall framing shall be Armstrong Drywall Grid System, comprising of ShortSpan, or Main Bar, including Knurled Channel mouldings, as per manufacturer's instructions.

Contact your Armstrong Office for additional project specification details.

For Seismic Design support please contact your local Armstrong Ceilings office.

Contact us

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VIC/TAS
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