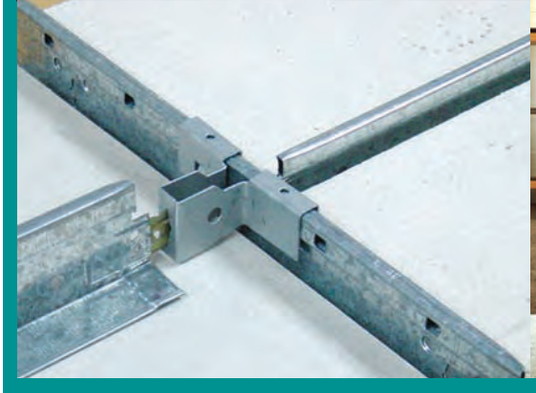
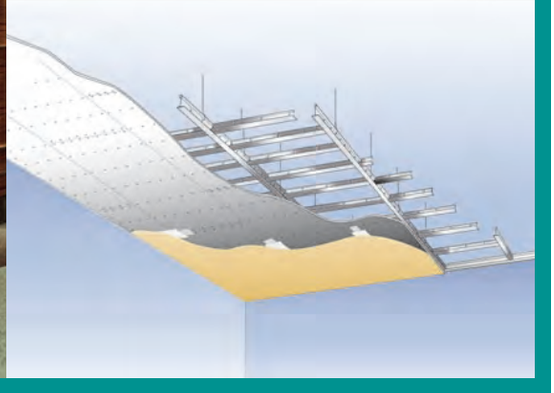
USG Australasia

USG Drywall Grid

Suspension System





Apartments

Hotels

Retail Malls

Banks

Lobbies

Schools

Medical

Industrial

Food Preparation Areas

The USG Drywall Grid Suspension System is expressly designed for screw attaching sheet linings such as plasterboard, fibrous plaster and fibre cement. It is a pre-engineered suspension system created to reduce the design and installation difficulties associated with conventional channel/top hat type systems and represents a major breakthrough in drywall/plasterboard ceiling construction.

USG Drywall Grid can be successfully used for new installations, and interior retrofits. It is also suitable for residential constructions featuring large areas of suspended smooth ceilings.

For fire protection and safety, USG Drywall Grid can provide a number of different Fire Resistant Rating (FRR/FRL) ceiling design options

One system, endless possibilities

Users Guide

Flat Drywall Ceilings

The pre-engineered components of the USG Drywall Grid Suspension System can be quickly connected to form attractive, rigid plasterboard drywall ceilings. The system eliminates the labour intensive practice of attaching channels by using the same QRC clip technology as used with USG's DONN Brand exposed grid systems. In contrast to older channel and top-hat section systems, the USG main tees with pre-indexed cross tee hole locations significantly reduce time spent measuring cross member locations. This one feature also allows the use of standard light and a/c fittings used with exposed grid systems.

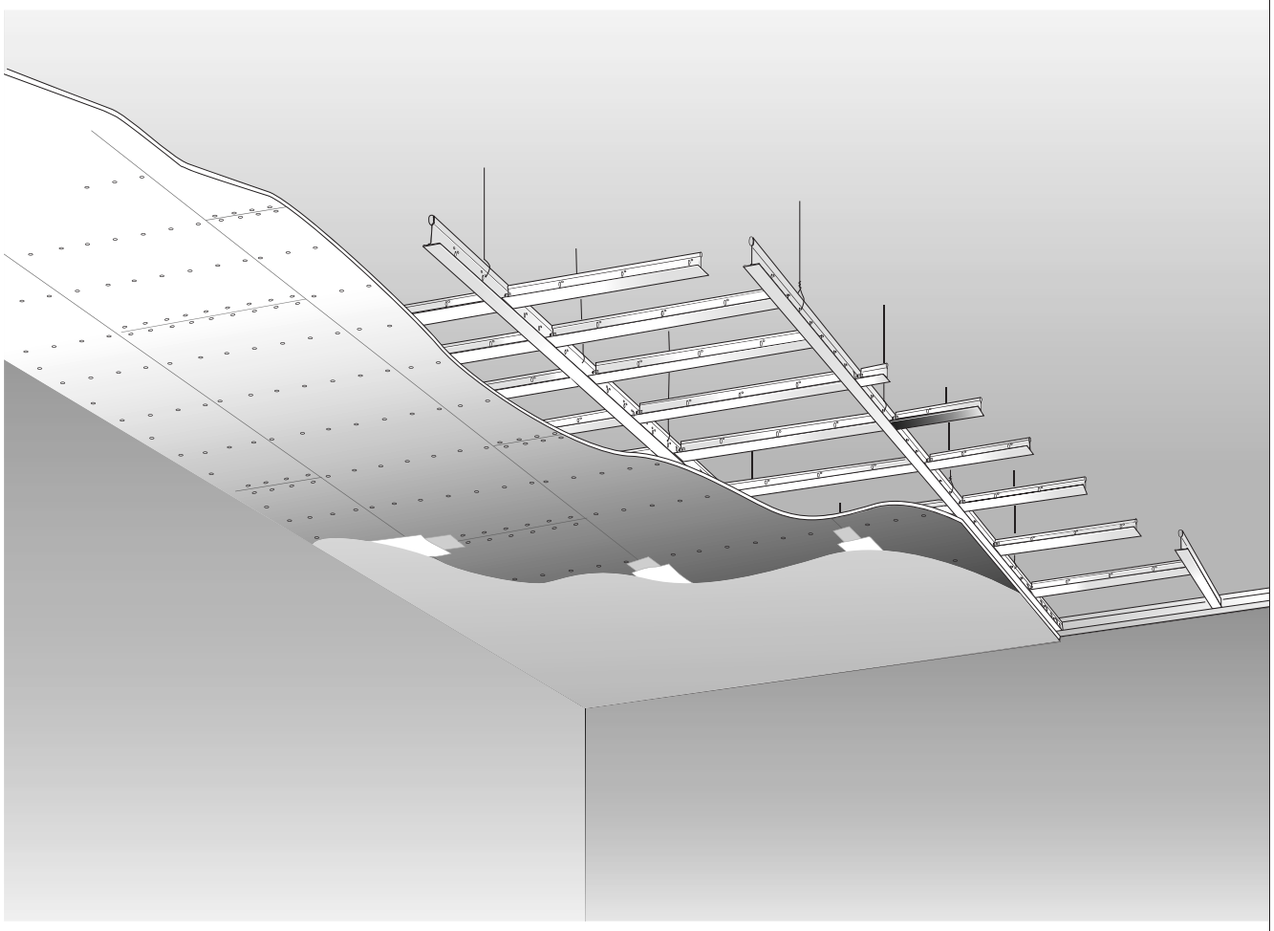
Transitions

The Drywall Grid system gives you the flexibility to make easy transitions with bulkheads, false soffits or raked flat ceilings. Transitions from drywall/plasterboard to USG acoustical ceilings are also easily accomplished with the system accessories

Notes

Features and Benefits

Flat Drywall Ceilings



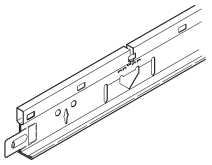
The pre-engineered cross tees and main tees of the USG Drywall Suspension System join easily for rapid installation. The tees lock in place to be able to form a rigid, square, level structure to which gypsum board is easily attached.

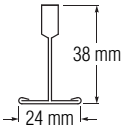
Feature	Benefit
Two fire-rated main tees, 24 mm face width	Systems for all applications increases flexibility
Integral reversible main tee splices	Fast, locked-in connections
Main tees have indexed cross tee hole locations	Reduces measuring, aligning, and squaring time significantly
Quick insertion of cross tees	Faster installation; cost savings
QUICK-RELEASE™ clip on cross tees	Removes without tool; speeds rework
Knurled face on components	Easier screw attachment
Galvanized steel	Suitable for interior and exterior applications
System flexibility	Easy transitions for bulkheads, soffits, flat and curved fascias Also transitions to acoustical ceilings
Component and suspension options	L/600 deflection limit for Level 5 finishes
Fire resistant designs	Maximum flexibility with many designs
Standard 15-year warranty	15-year warranty on suspension system
Accepts lay-in and framed lights	Lower cost lay-in fixtures can be used in a drywall installation

System Components

Main Tees

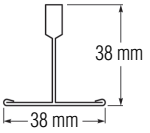
DGL40D-3600
DGL55D-3600
24 mm Face Width



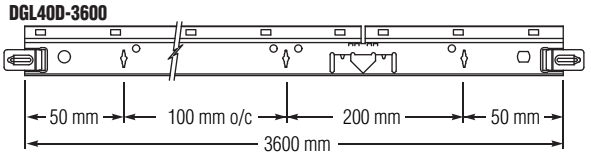


DGWL40D-3600
DGW40D-WW-(wall to wall)
38 mm Face Width

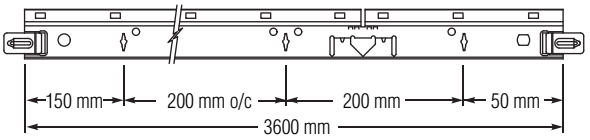
To special order



DGL40D-3600

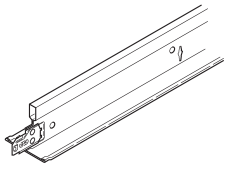


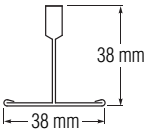
DGL55D-3600



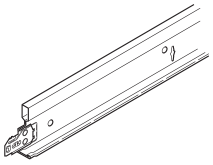
Cross Tees

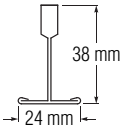
DGW40D-600
DGW40D-1200
38 mm Face Width



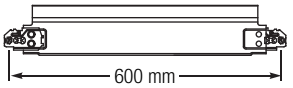


DG40D-600*
DG40D-1200*
24 mm Face Width

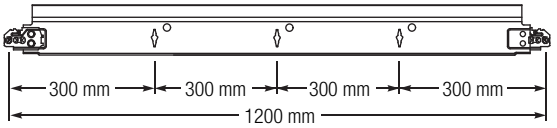




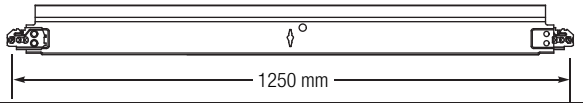
DGW40D-600
DG40D-600*



DGW40D-1200
DG40D-1200*

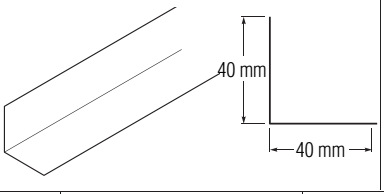


DGW40D-1250 **Lighting Batten**

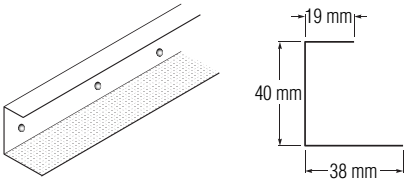


Wall Molding

DJ4040
Wall Angle

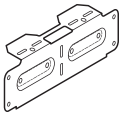


DGPC-40
Perimeter Channel

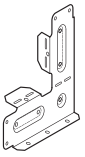


Accessories

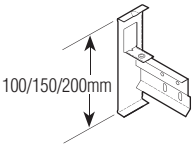
DGSC-180
Splice Clip



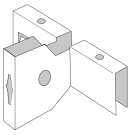
DGTC-90
Transition Clip



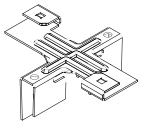
DGC4 / DGC6 / DGC8
Fascia Drywall Clip



DG-DX
Acoustical Transition Clip



DGMT
Strongback Clip



System Components

	Item #	Length	Face Width	Height	Fire Rated
Main Tees	DGL40D	3600 mm	24 mm	38 mm	Yes
	DGL55D	3600 mm	24 mm	38 mm	Yes
Cross Tees	DGW40D	600 mm	38 mm	38 mm	Yes
	DGW40D	1200 mm	38 mm	38 mm	Yes
	DGW40D	1250 mm	38 mm	38 mm	Yes
	DG40D	600 mm	24 mm	38 mm	Yes
	DG40D	1200 mm	24 mm	38 mm	Yes
Wall Moldings	DJ4040	3600 mm	40 mm	40 mm	—
	DGPC-40	3600 mm	38 mm	40 mm	—

Accessories	**Description**
DGTC-90	Transition Clip
DGSC-180	Splice Clip
DGC4	100mm Fascia Drywall Clip
DGC6	150mm Fascia Drywall Clip
DGC8	200mm Fascia Drywall Clip
DG-DX	Acoustical Flush Transition Clip
DGMT	Strongback Clip

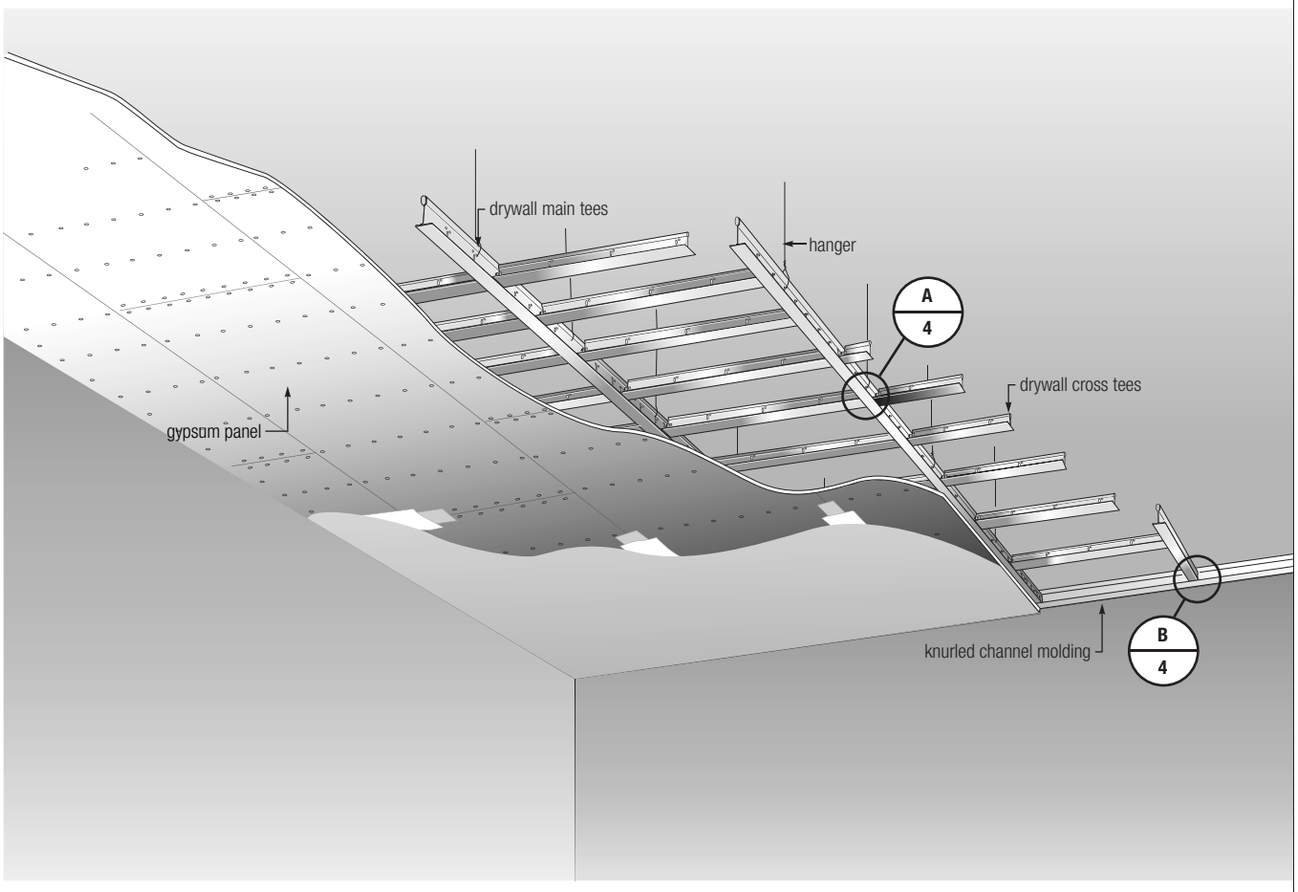
*(utility interface available to order)

Flat Drywall Ceilings

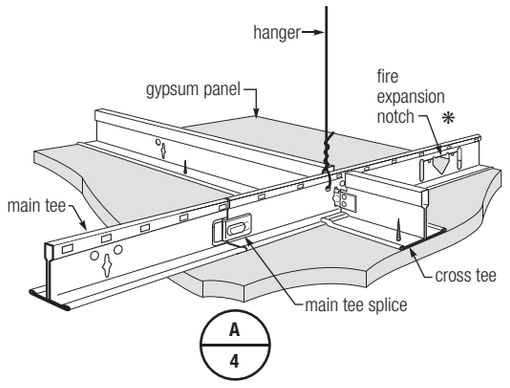
The USG Drywall Suspension System is designed to install quickly, easily, and inexpensively.

Flat Drywall Ceiling Notes

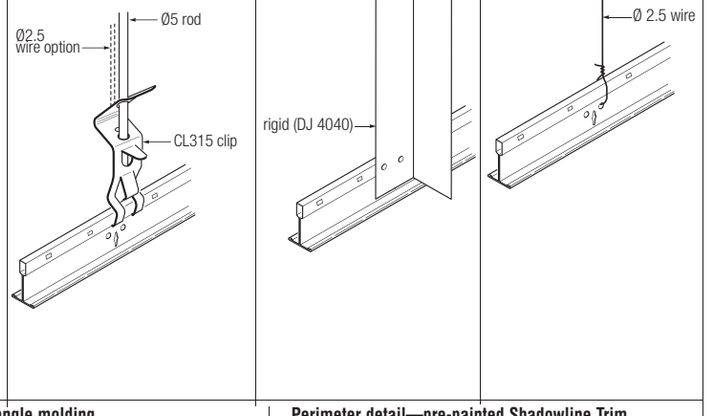
- Main tee and cross tee spacing is provided in the table on page 18.
- See pages 12 - 16 for special requirements for fire rated assemblies.
- In general, linings are applied at 90° to the cross tees.
- For specific installation details including type and positioning of fasteners, always refer to the lining board manufacturer's latest information.



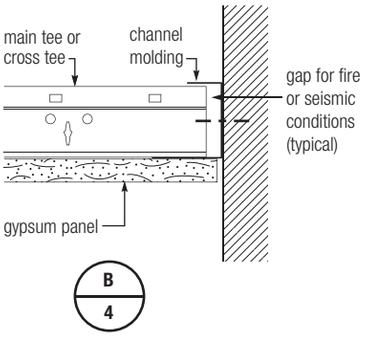
Cross tee/main tee intersection



Hangers—typical options

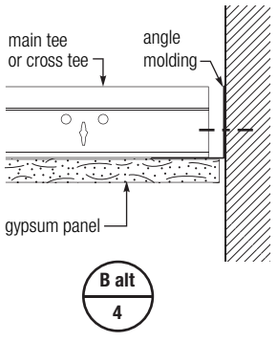


Perimeter detail—channel molding



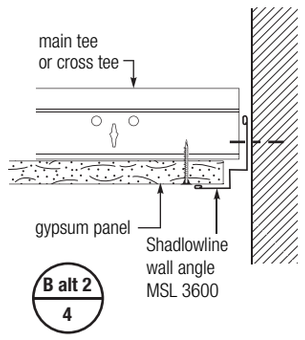
For fire rated ceilings leave 5 mm gap - **do not fix tees to channel.**
For seismic conditions leave 10 mm gap.

Perimeter detail—angle molding



(For fire rated ceilings, tees may be fixed to angle with 3.2 diameter **aluminum rivets only.**)

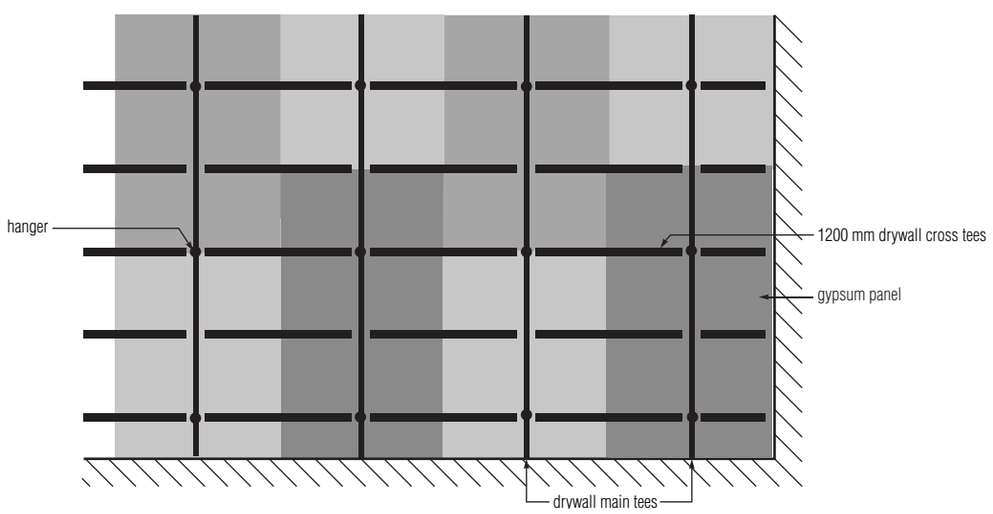
Perimeter detail—pre-painted Shadowline Trim



For non-fire rated ceilings only

Plan View

* NOTE: Ensure fire notches are not installed adjacent to each other, see page 12.

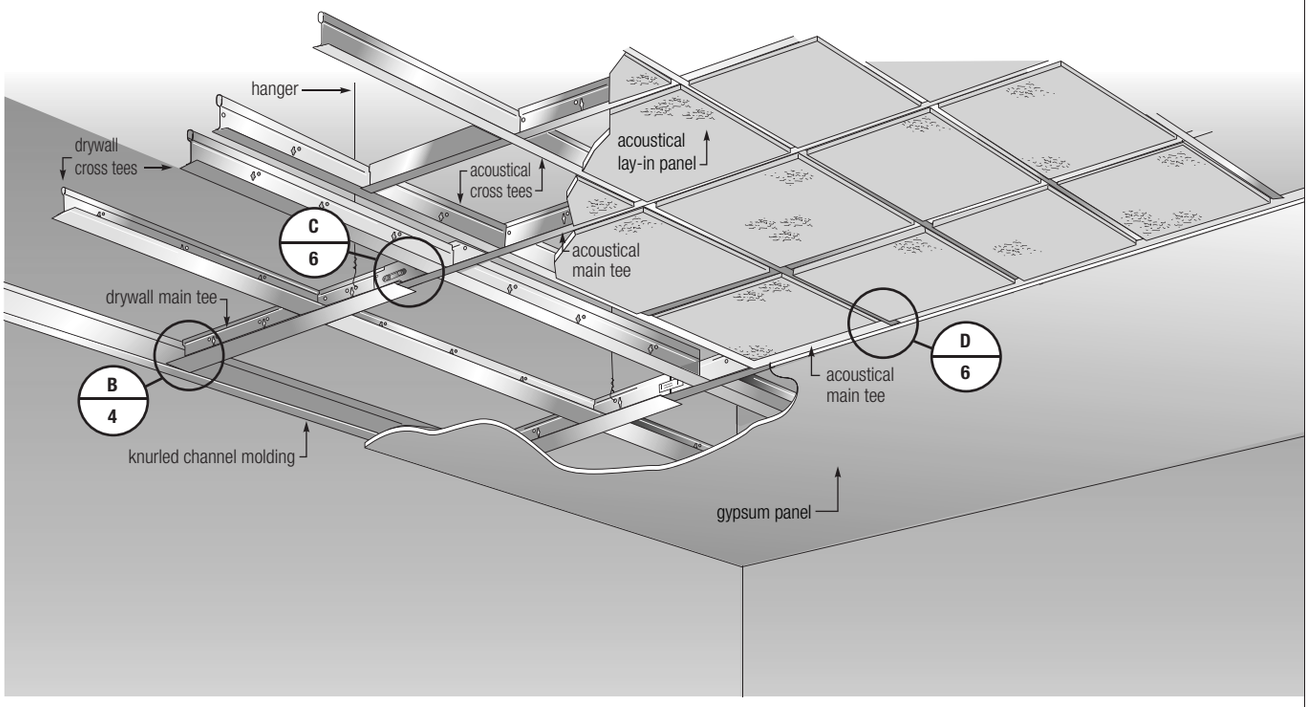


When butt joining on cross tees, it is recommended to stagger adjacent sheets for better joint finish

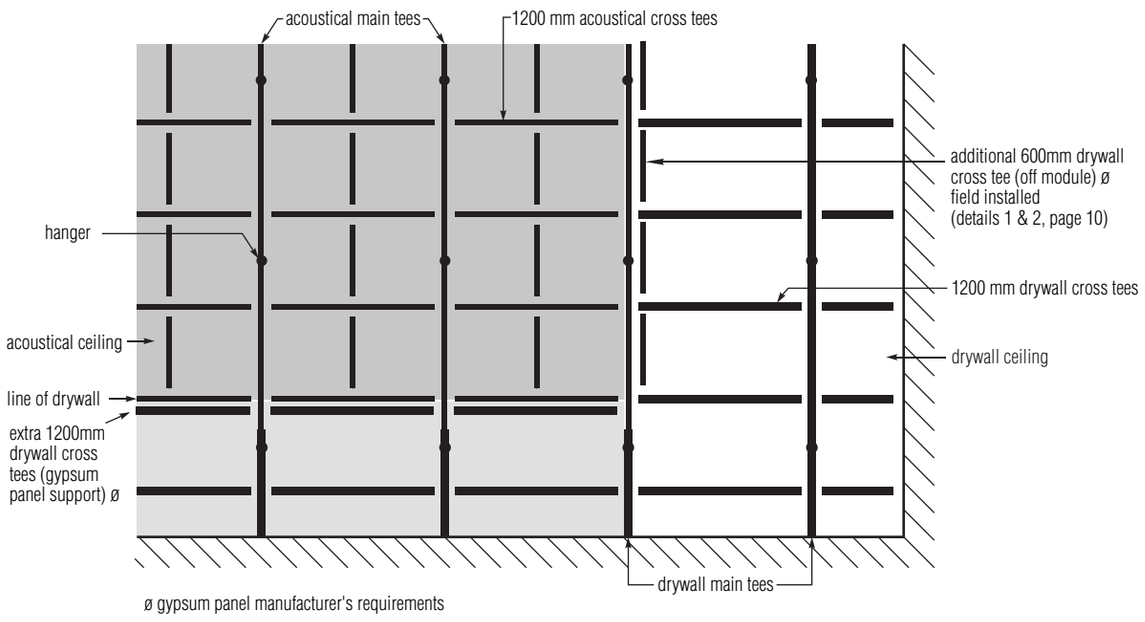
Transition to Acoustical Ceiling

The new USG Drywall Suspension System is totally compatible with our DONN® DX® and CENTRICITEE™ acoustical suspension systems, making it easy to transition between flat drywall and acoustical ceilings.

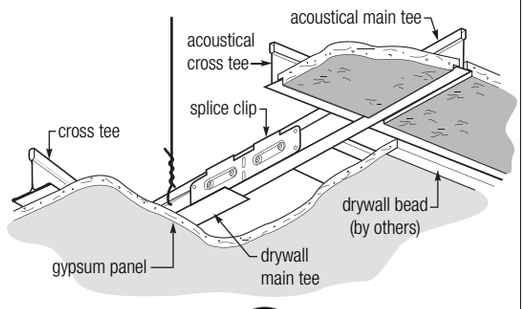
Flush or offset transitions are possible. Additional cross tees are necessary at drywall edge to provide adequate support (as shown on plan view).



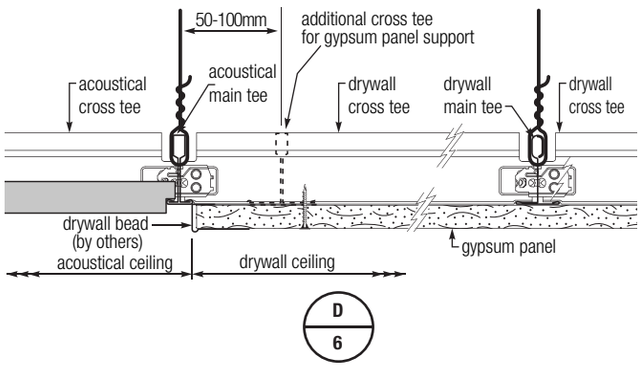
Plan view



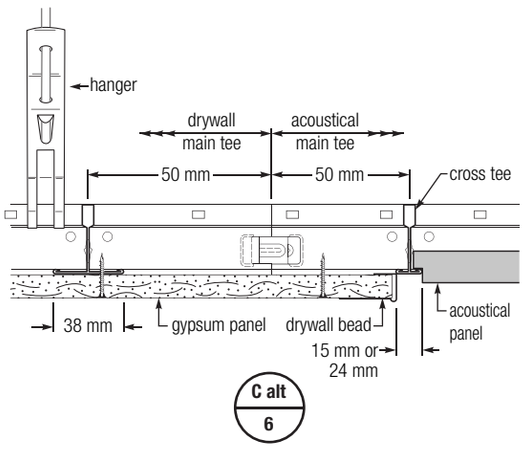
Drywall to acoustical transition—field cut connection



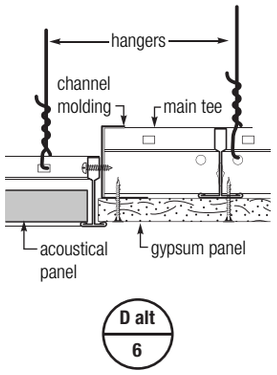
Drywall to acoustical transition



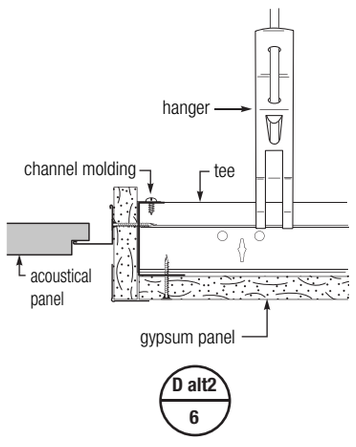
Drywall to acoustical transition—factory end connection



Flush transition



Standard offset



System Component Construction Details

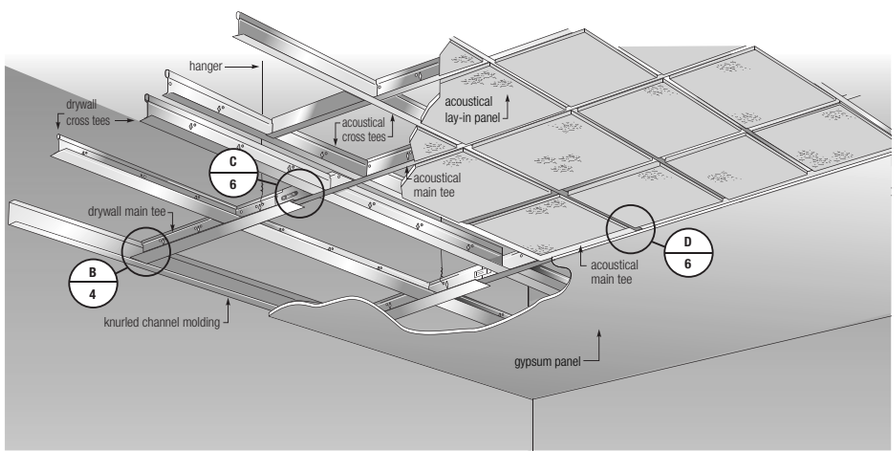
Acoustical Ceiling Transition Clip

USG Drywall Grid System Update

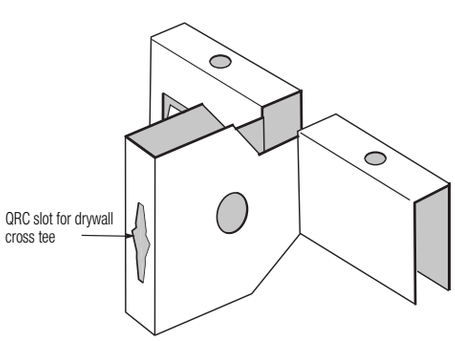
Since its introduction, this **revolutionary suspension system** has been welcomed by designers for its flexibility in design compared to conventional channel systems.

One of its major benefits is the ability to **easily transition** from a plasterboard ceiling to a USG acoustical ceiling

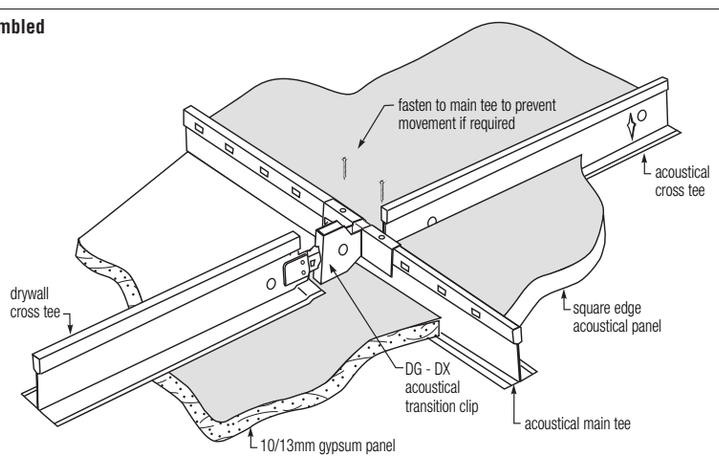
Where a flush transition is desired, USG have developed a dedicated clip that allows super easy installation for the Drywall Grid to USG DONN Brand exposed grid.



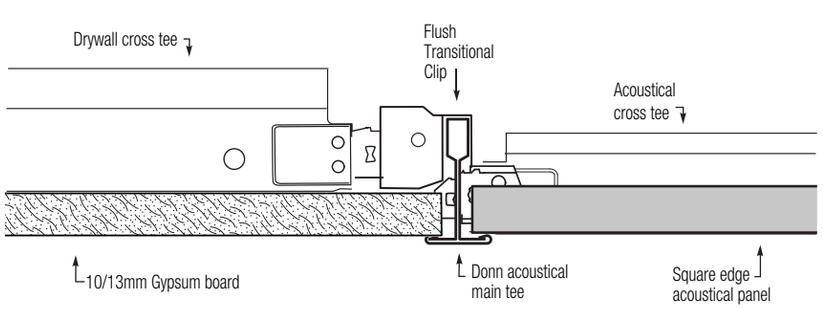
DG - DX Flush Acoustical Transition Clip



Assembled

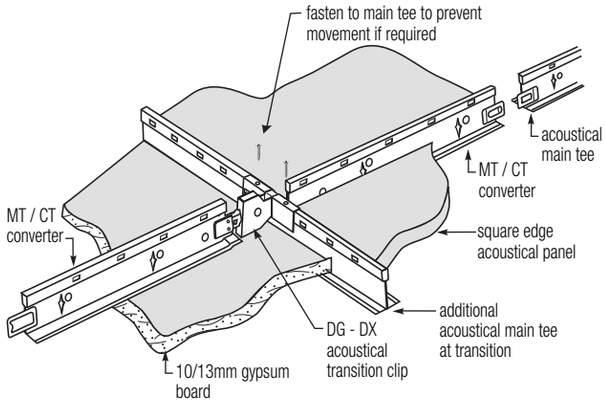


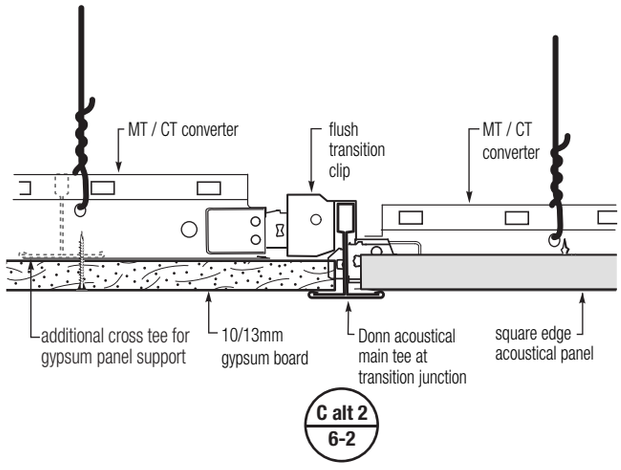
Intersection Detail



Main Tee Direction - keep acoustical and drywall main tees in line

Option 1





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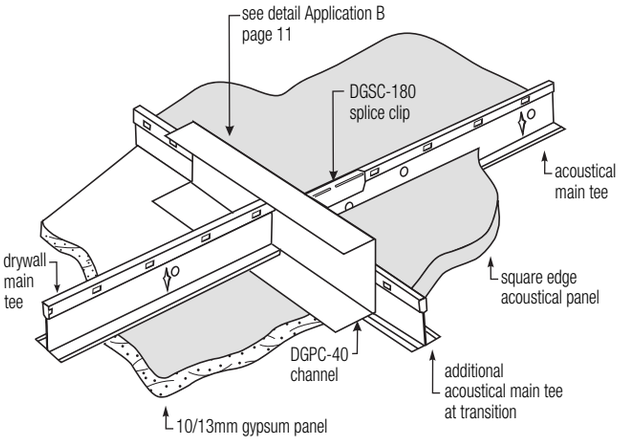
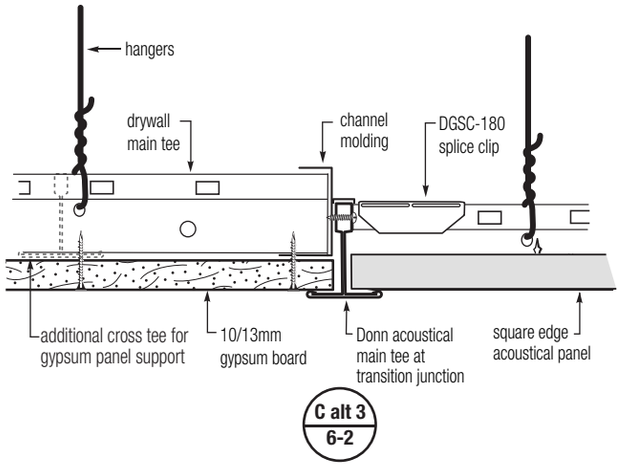
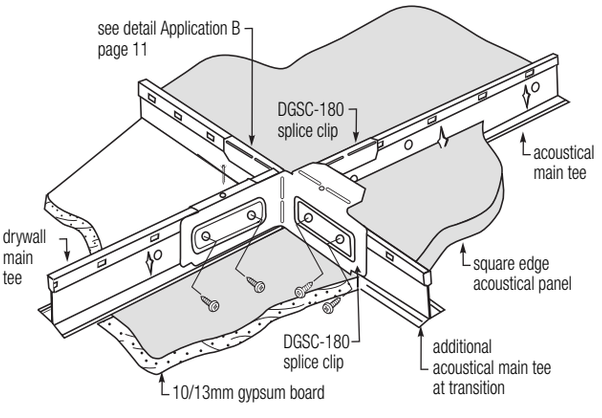
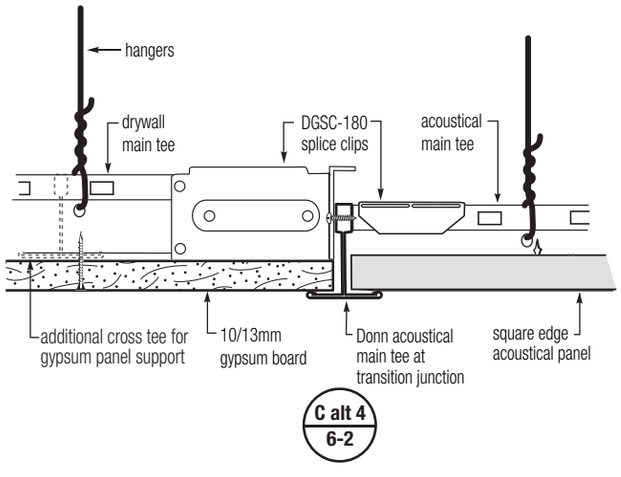




Option 3





Bulkheads / Soffits

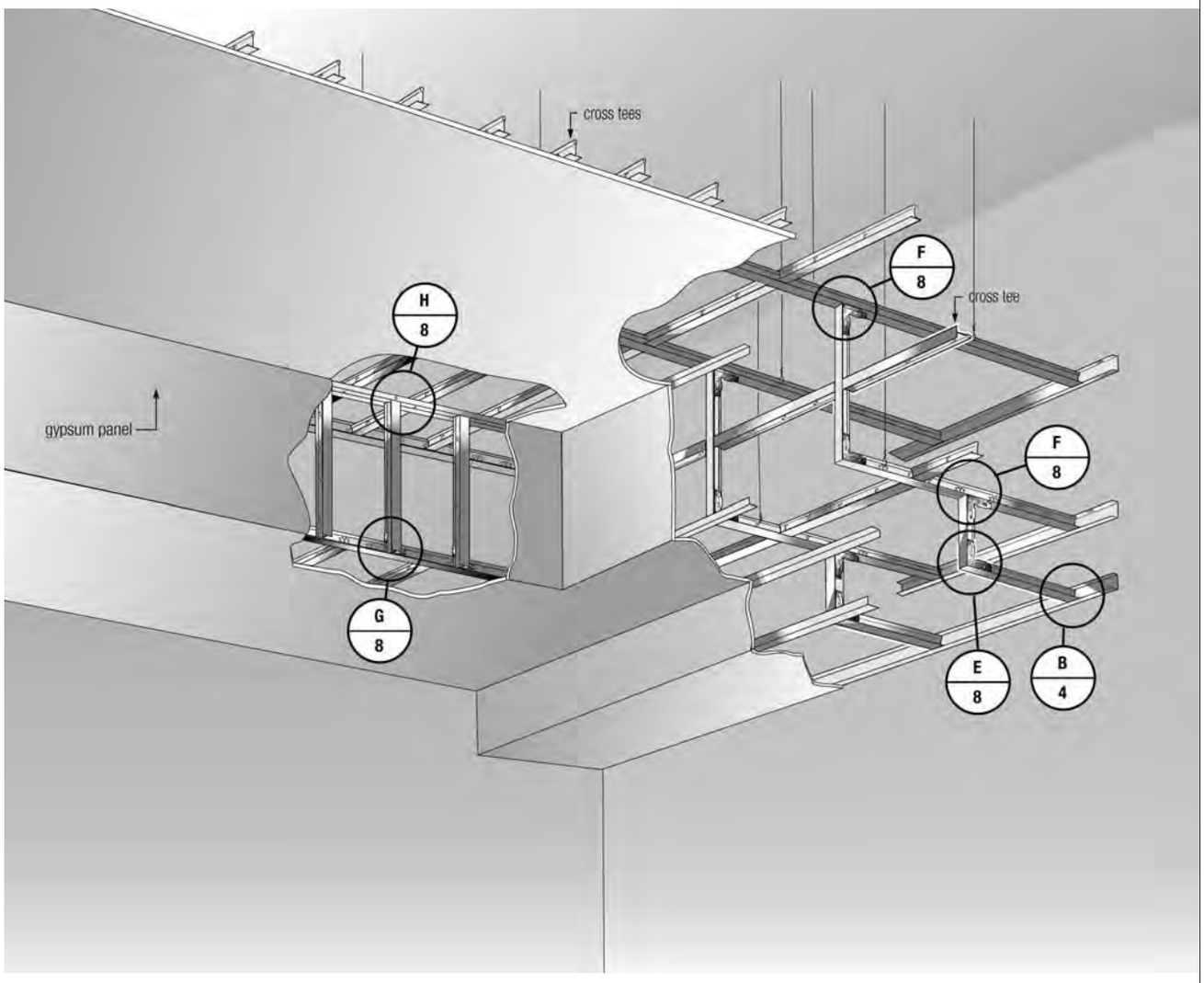
The USG Drywall Suspension System is the best choice for designing and building bulkheads and false soffits, which can now be built with a lower cost than with metal stud construction.

Suspension System Components

The bulkhead/soffit suspension system components are identical to the components used in flat surface areas.

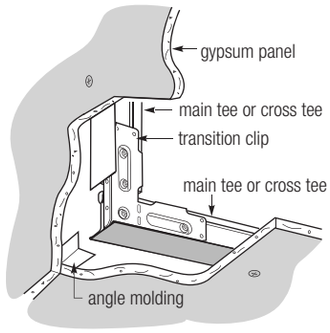
Notes

- In some drawings, hanger wires, bracing, and grid components have been omitted or truncated for clarity.
- When constructing bulkheads or soffits, bracing of the drywall suspension and/or additional hanger wires may be necessary to ensure stability and structural performance during and after gypsum board attachment.
- The maximum vertical soffit height is 1200 mm with cross tees spaced 600 mm on centre. (Maximum unsupported drywall area 1200 x 600 mm). Intermediate cross tees are not necessary when soffit dimensions do not exceed 600 mm.
- When used in this construction, all Transition Clips are to have a minimum of 4 screws for attachment.



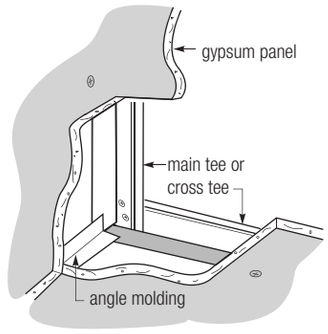
Bulkheads / Boxed Soffits

90˚ outside corner using Transition Clip



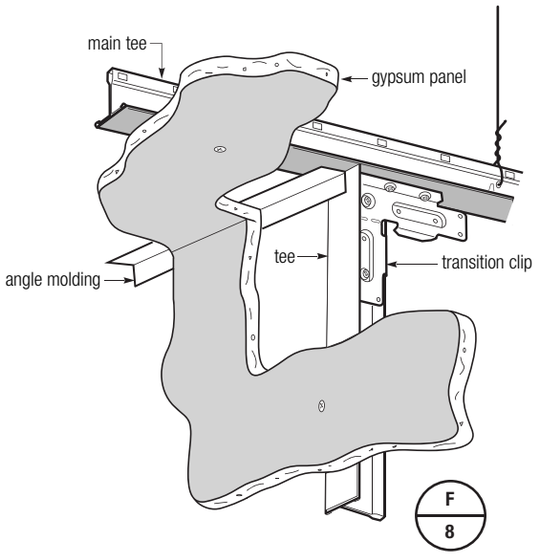
E
8

90˚ outside corner with field cut tee



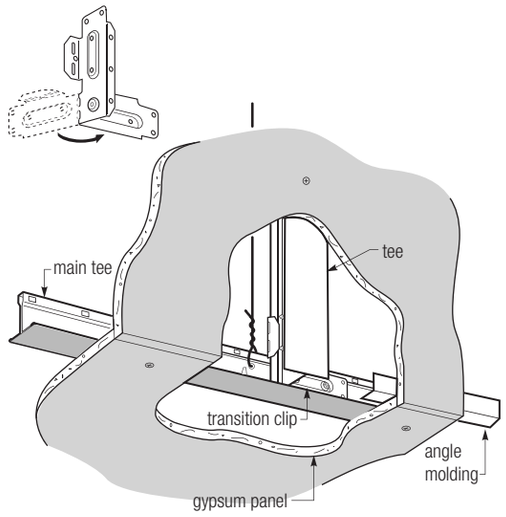
E alt
8

90˚ inside corner



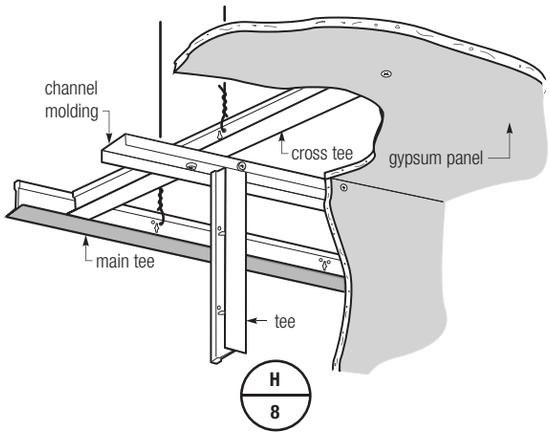
F
8

90˚ outside corner with main tee at bottom edge



G
8

90˚ inside corner with channel molding at top edge

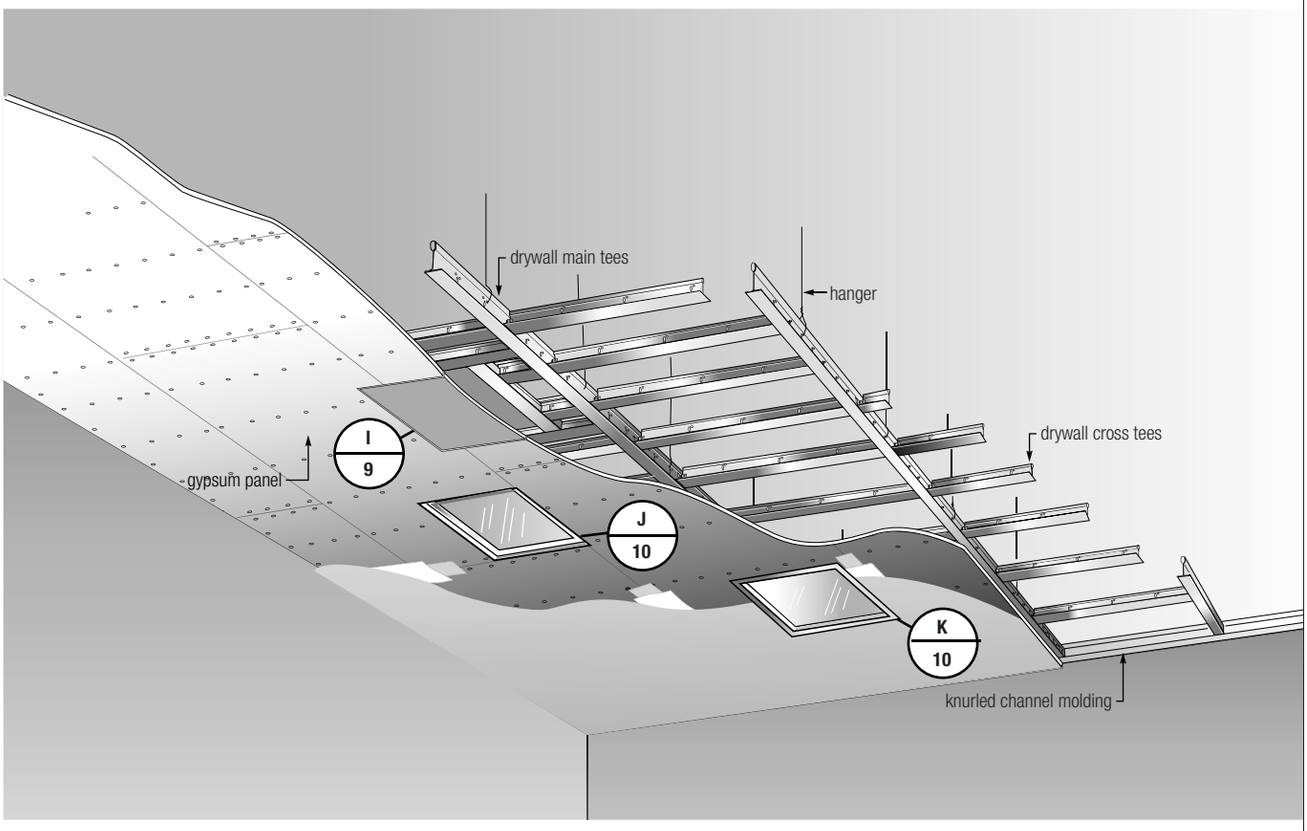


H
8

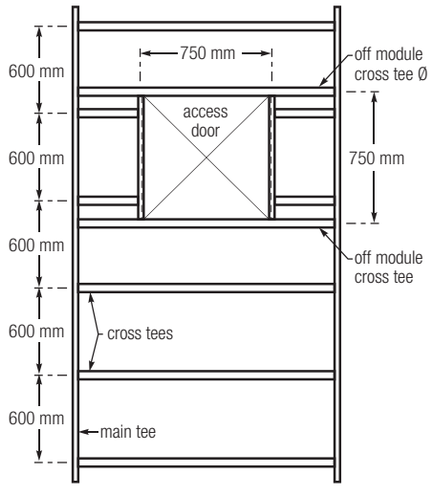
NOTE: At least one (1) hanger is required within 300mm of a Transition Clip or Channel Molding intersection.

Utility Interfaces

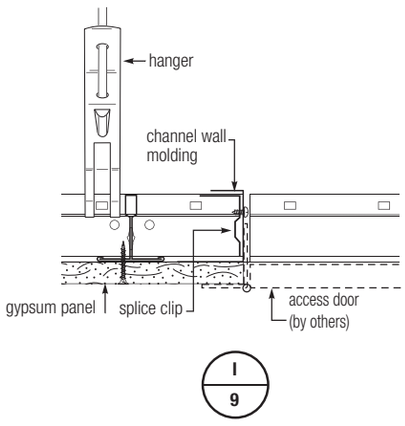
The USG Drywall Suspension System easily accommodates conventional light fixtures, access doors, or HVAC ceiling diffusers.



Access door - off module condition



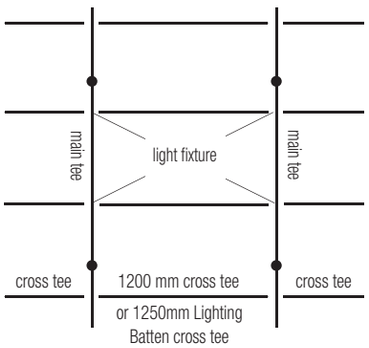
Access door



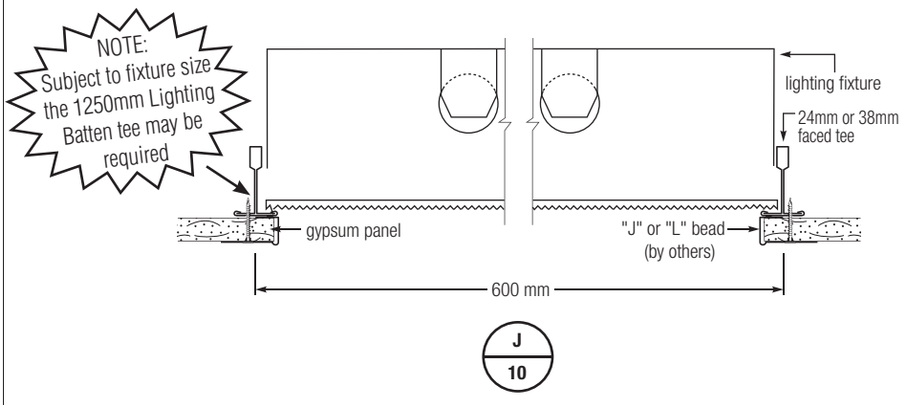
Ø For off module cross tee connection details see:
– DGSC-180 Splice Clip, Application B, page 11
– Detail 2, page 10

Construction Details

Lay-in light fixture

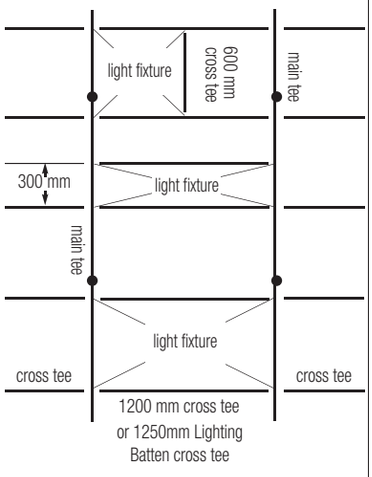


A lay-in fixture, commonly used in suspended acoustical suspension ceilings, requires main or cross tees to be located on either 600 mm or 1200 mm centres. Drywall is cut even with the grid flanges and trimmed with "J" or "L" bead. The fixture is passed through the opening and lowered to rest on the grid, followed by the diffuser to rest on the grid flange.

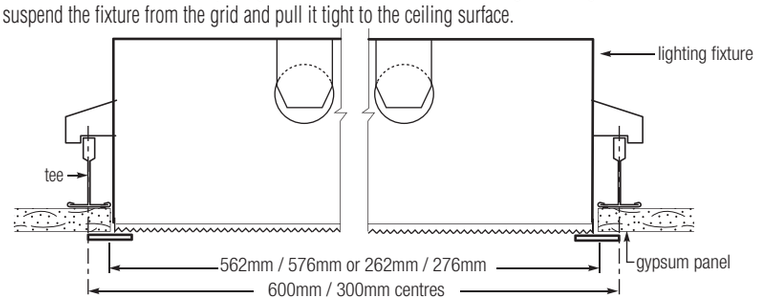


J
10

Framed light fixture



Framed light fixtures have lower flanges that cover the cut edges of the drywall. This fixture typically requires a full 575 mm or 1175 mm opening, and therefore may require the 24 mm faced DG40D-1200 (or 600) optional utility cross tee. Framed light fixtures are raised into the opening until the flanges contact the ceiling. Securing devices on the fixture are adjusted to suspend the fixture from the grid and pull it tight to the ceiling surface.

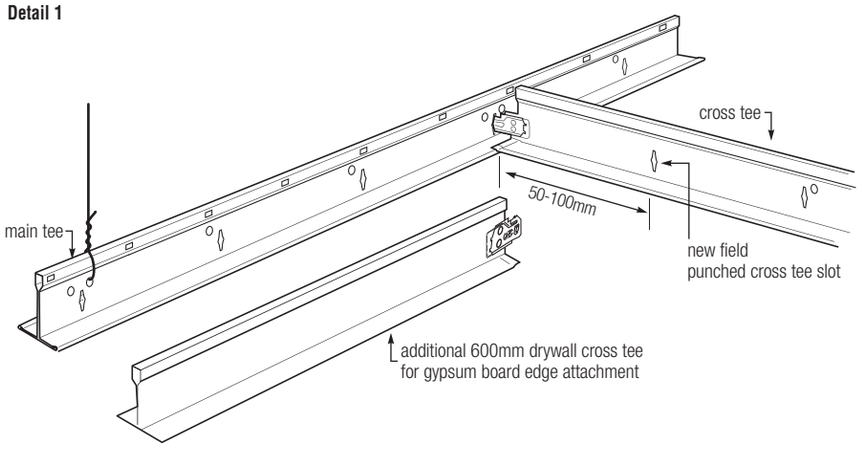


K
10

Note: Where light fixtures are required to be positioned parallel with the main tee, 1200mm cross tees are punched at 300mm centres as standard to accept additional tees. Refer page 2 for details.

Off module grid condition

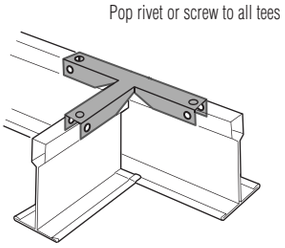
Detail 1



Using Donn Hand-held Field Punch, punch out additional QRC slots 50mm - 100mm from gypsum board edge. Refer plan view page 6.

Detail 2

3-Way Off Module Connector DH3

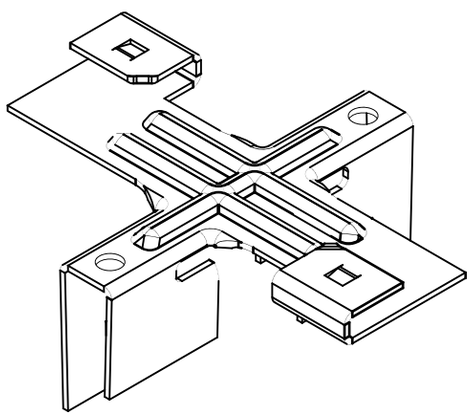


System Component Construction Details

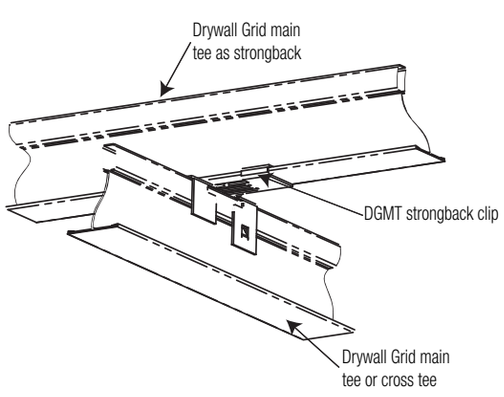
Utility Interfaces - off Module

Where utilities/services may need to be installed off-module, partial removal of the USG Drywall Grid Syspension System and/or hanger may be necessary. To maintain strength and load carrying performance, it is necessary to reinforce the suspension system using the following construction techniques illustrated.

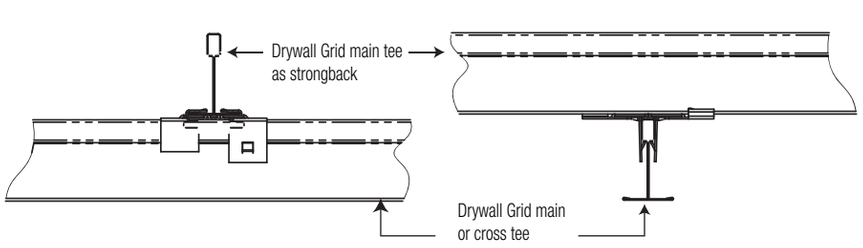
DGMT Strongback Clip



Assembled



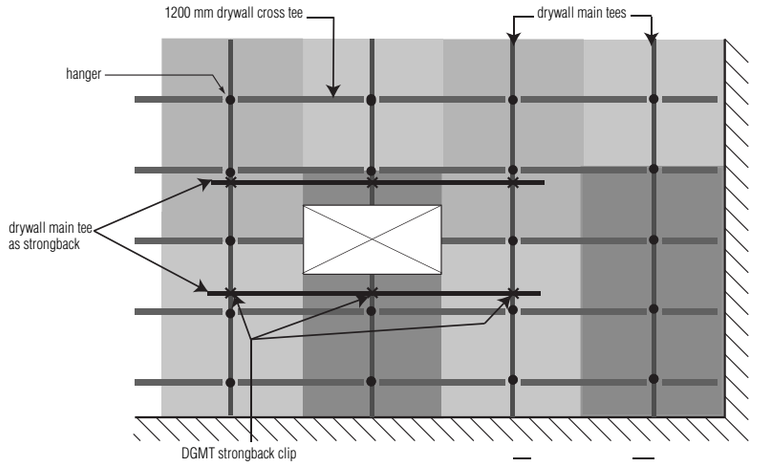
Connection Detail



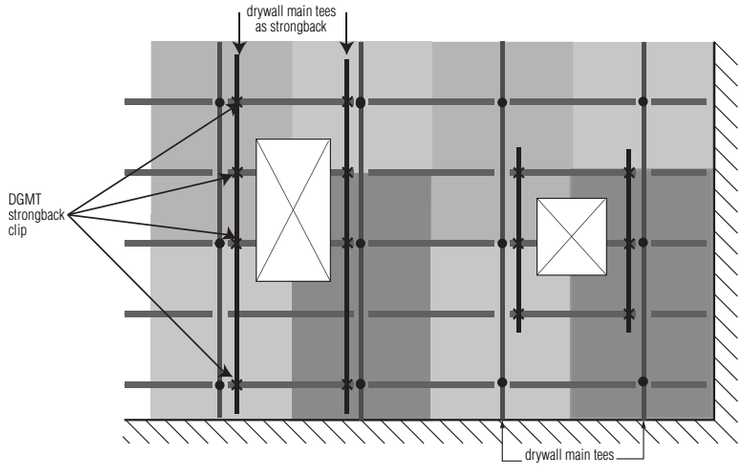
Utility Interfaces - off Module

Removal of 1 Suspension Hanger

- drywall strongback must span 2400mm minimum and use the DGMT clip at every intersection.



Partial removal of a cross tee



Limitations

The installation of strongback main tees as shown above is <u>not</u> suitable for:

- removing more than one ceiling support hanger, unless there is a minimum 4.0m clearance in any direction between any two hangers that are removed.
- supporting opening larger than 1200x600mm
- ceilings requiring a Level 5 finish (L/600).
- supporting services with a total weight heavier than 2.0kg on a ceiling with Level 4 finish (L/450). Services heavier than 2.0kg must be independently supported from the roof structure.
- supporting services with a total weight heavier than 5.0kg on a ceiling with Level 3 finish (L/360). Services heavier than 5.0kg must be independently supported from the roof structure.
- ceilings with face pressures greater than 40kg/m^2, considering the combination of dead load, services loads, and wind pressure with no load factors applied (i.e. serviceability limit state loads exceeding 0.4kPa.).
- some ceilings that have been designed to resist seismic loads, refer to notes below.
- trafficable ceilings.
- exterior ceilings.

Important notes

1) Caution must be used when installing strongback main tees with DGMT clips in ceilings that are designed to resist seismic loads. Do not cut out and replace ceiling tees on any grid-line that has been fixed to a perimeter wall to restrain the ceiling under lateral seismic loads, or main tees on any gridline that is attached to seismic bracing in the plenum (unless the design engineer approves the specific installation).
2) The recommendations on this brochure have been established from the results of a full scale test. The actual strength and deflection of a ceiling will vary depending on the size of openings, continuity of main tee members, weight of supported services, weight distribution and fixing of supported services, and the quality of workmanship. These notes are a guide to the strength and level of finish that may be achieved, and do not constitute a guarantee of ceiling performance.

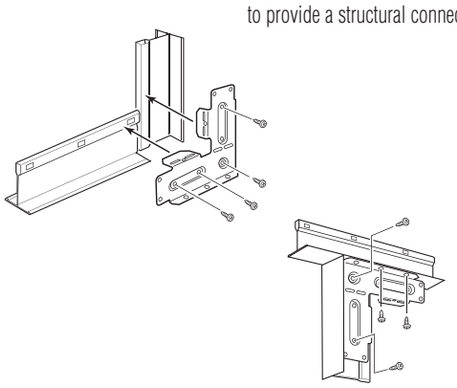
Accessory Selector

The following information will help you select and use the appropriate accessories. Many of the accessories are multifunctional. Transitions from soffits or flat surfaces can be easier with the use of accessories.

- Transition Clip joints require at least one (1) hanger within 300mm.
- Splice Clip joints require one (1) hanger within 150mm of splice.
- Provide a hanger on main and/or cross tee within 150mm of Fascia Clips.

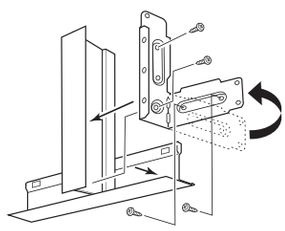
DGTC-90
Transition Clip—
Application A

The Transition Clip securely joins two tier grid components, regardless of face width, at a 90° angle. Bend down tabs secure the clip to the grid. Screws are required to provide a structural connection.



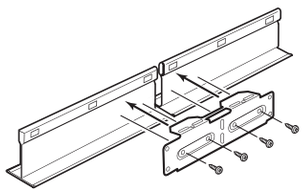
DGTC-90
Transition Clip—
Application B
Field Modified

The Transition Clip has a slotted bend line to facilitate connecting grid members that are not in line.



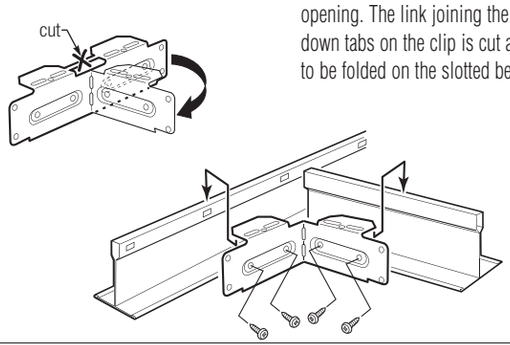
DGSC-180
Splice Clip—
Application A

The primary purpose of the Splice Clip is to join two field cut to length in-line main tees.



DGSC-180
Splice Clip -
Application B

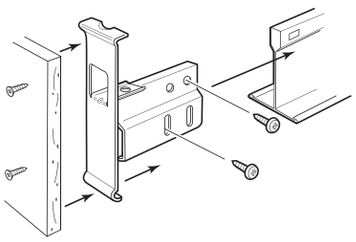
Another common use of the Splice Clip is joining two grid tees that are intersecting off module, such as a utility opening. The link joining the bend down tabs on the clip is cut allowing it to be folded on the slotted bend line.



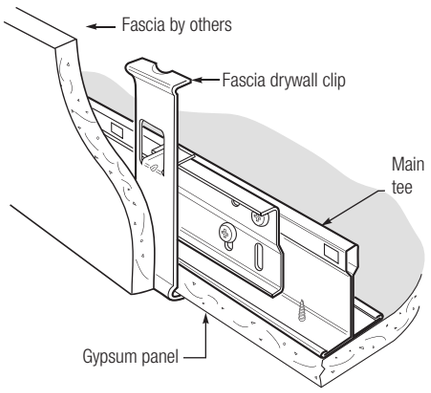
DGC4
DGC6
DGC8

Fascia Trim Clips

Three Fascia Trim clips are available in 100mm, 150mm or 200mm heights. These clips are adjustable for both 13mm and 16mm boards. The two portions of the clip are pivoted to accommodate fascia panels at any angle in relation to the grid.



Fascia parallel to main or cross tee.

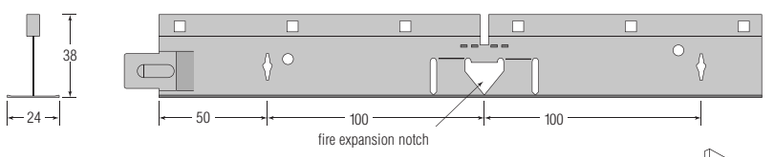


Installation Requirements

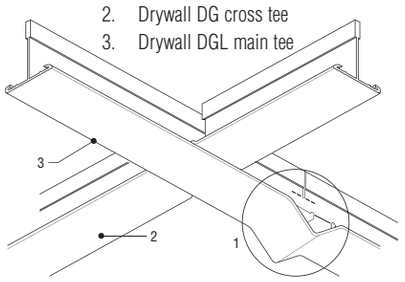
Fire Rated Assemblies

The Fire Resistance Rating of a building assembly (walls, floor/ceiling etc) refers to the period of time the assembly will serve as a barrier to the spread of a fully developed blaze. It also refers to how long the assembly can function structurally after it is exposed to a fire of standard intensity as defined by Standard AS1530.4. The results of the fire test may be used to directly assess fire hazard, but it should be recognised that a single test method will not provide a full assessment of fire hazard under all fire conditions. It is imperative that all design defaults are adhered to, to ensure compliance with the tested systems.

Drywall Suspension System

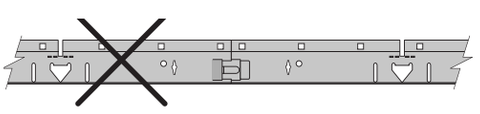


1. Controlled expansion notch
2. Drywall DG cross tee
3. Drywall DGL main tee



During a fire, the DGL main tee notch and engineered design of the patented high tensile QRC tab of the cross tees, allow a controlled collapse from any thermal expansion.
This prevents the unpredictable twisting, bending and bowing extreme heat can produce on non-fire rated steel grid. This maintains the fire resistant integrity of the ceiling system avoiding injury, obstruction or decreased structure protection.

- Install fire rated DGL main tees so expansion notches are spaced every 3.6m. **Do not** install notches adjacent to each other.



Plenum Depths

– Floor

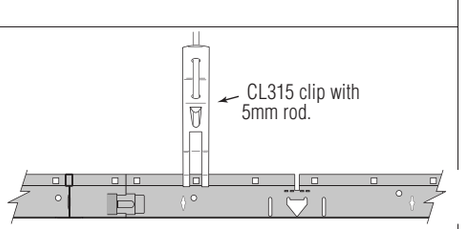
FRL / FRR 90/90/90 and 60/60/60 – 450mm minimum from face of grid to underside of floor.
FRL / FRR 30/30/30 – 80mm minimum from face of grid to underside of structure.

– Roof

For FRL / FRR 90/90/90 and 60/60/60 roof/ceiling designs with a horizontal ceiling and a sloping roof, a minimum average of 450mm plenum depth is allowable.

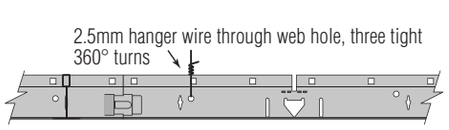
Suspension Options

- Suspensions must be at 1200, maximum.
- Suspension hangers must be used between main tee splice and fire expansion notch as shown.



A. CL315 clip with 5mm rod. Clip shall not vary more than 5º from vertical.

B. 2.5mm diameter hanger wire shall be attached to the DGL main tee through the web holes only. Ends are to be wound off three tight, 360° turns minimum. **Do not use bulb convenience holes.**



C. DJ4040 Wall Angle with two steel 8g - 16 x 12mm minimum self drilling screws

Penetrations

- Any service penetrations through the fire rated constructions covered in this brochure must be constructed or fire stopped by approved methods in accordance with the BCA, NZBC and gypsum board manufacturer's requirements.

In particular attention is drawn to:

A. Firestops shall have a FRL / FRR no less than the fire separation assembly in which they are installed.

B. Penetrations are to be supported to resist movement or collapse during a fire to avoid failure of the seal. The support system shall not prevent normal expansion or contraction of the penetration.

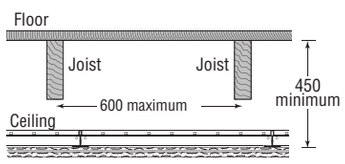
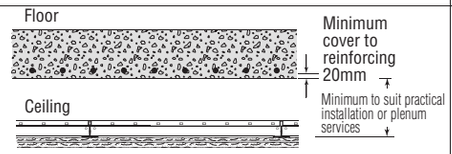
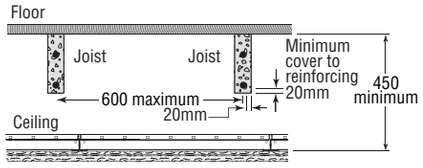
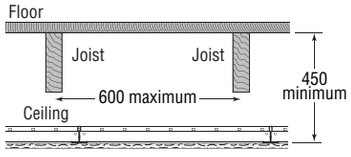
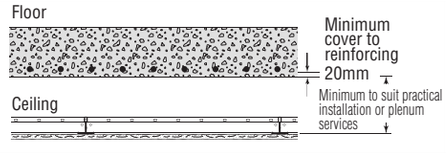
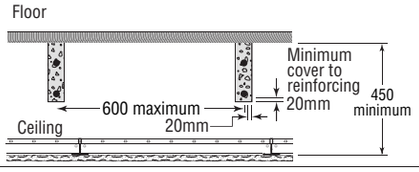
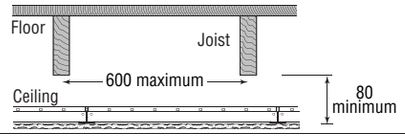
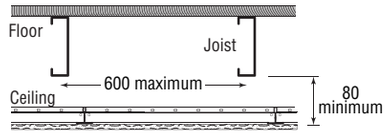
C. In addition penetrations and seals must not inhibit the Drywall Grid Suspension System movement during a fire.

D. Any penetrations must be supported independently from the grid unless within the maximum allowable loadings of the selected system. Such penetration's load shall be transferred back to the Drywall Grid by steel supports.

E. Any penetration hardware shall have a FRL / FRR no less than the USG Fire rated ceiling system. If different, the lesser of the FRL / FRR's shall apply.

Fire Rated Assemblies

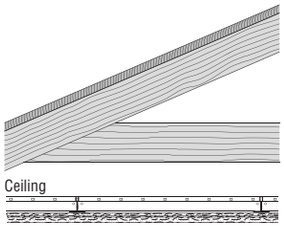
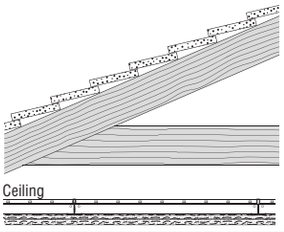
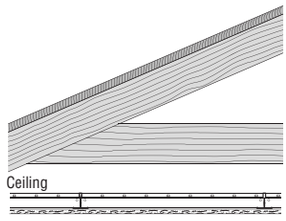
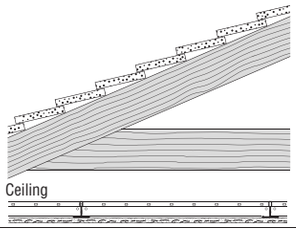
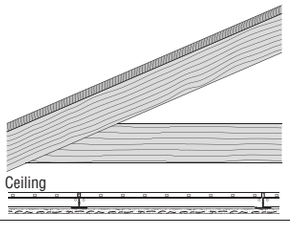
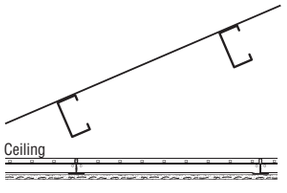
Floor/Ceiling Designs

Assembly Rating 90/90/90 [1]	Design No.	System Design	Construction Materials		BRANZ Test/Opinion
Timber Floor **Timber Joists** **Fire Rated Gypsum Board** - top layer 13mm - bottom layer 16mm	USGDG FC-91		Floor 20mm flooring grade particle board or 18mm minimum T & G, or 18mm minimum plywood Joist 250 x 50mm radiata pine, Grade F5, kiln dried Alternative 250 x 50mm joists Softwood – 440kg/m³ density, minimum Hardwood – 500kg/m³ density, minimum	 T 0 0 T 0 0 0	 FR 2842 [1] FAR 1767 FAR 1767 FR 2842 FAR 1767 FAR 1767 FAR 1767
Reinforced Concrete Floor **Fire Rated Gypsum Board** - top layer 13mm - bottom layer 16mm	USGDG FC-92			0	FAR 1767
Reinforced Concrete or Prestressed Concrete Joists **Fire Rated Gypsum Board** - top layer 13mm - bottom layer 16mm	USGDG FC-93		Floor 20mm flooring grade particle board or 18mm minimum T & G, or 18mm minimum plywood	 0 0 0	 FAR 1767 FAR 1767 FAR 1767
Timber and Steel Joist		Posi-Strut joists may be substituted provided: - the ratio of applied test load to design ultimate load is not less than the joists in FR2842 and the char rate of the timber components is not greater than the tested Radiata pine.		0	FAR 1767
60/60/60 [2]					
Timber Floor **Timber Joists** **Fire Rated Gypsum Board** - single layer 16mm	USGDG FC-61		Floor 20mm flooring grade particle board or 18mm minimum T & G, or 18mm minimum plywood Joist 250 x 50mm radiata pine, Grade F5, kiln dried Alternative 250 x 50mm joists Softwood – 440kg/m³ density, minimum Hardwood – 500kg/m³ density, minimum	 T 0 0 T 0 0 0	 FR 2843 [2] FAR 1744 & 1826 FAR 1744 & 1826 FR 2843 FAR 1744 & 1826 FAR 1744 & 1826 FAR 1744 & 1826
Reinforced Concrete Floor **Fire Rated Gypsum Board** - single layer 16mm	USGDG FC-62			0	FAR 1744 & 1826
Reinforced Concrete or Prestressed Concrete Joists **Fire Rated Gypsum Board** - single layer 16mm	USGDG FC-63		Floor 20mm flooring grade particle board or 18mm minimum T & G, or 18mm minimum plywood	 T 0 0	 FR 2843 FAR 1744 & 1826 FAR 1744 & 1826
Timber and Steel Joist		Posi-Strut joists may be substituted provided: - the ratio of applied test load to design ultimate load is not less than the joists in FR2843 and the char rate of the timber components is not greater than the tested Radiata pine.		0	FAR 1767
30/30/30					
Timber Floor **Timber Joists** **Fire Rated Gypsum Board** - single layer 16mm	USGDG FC-31		Flooring options as per USGDG FC-61 No constraint on joist or timber type – to suit load requirements	0	FAR1744 & 1826
Timber Floor **Steel Joists** **Fire Rated Gypsum Board** - single layer 16mm	USGDG FC-32		Flooring options as per USGDG FC-61 No constraint on steel joist type – to suit load requirements	0	FAR1744 & 1826

1. R.I.S.F. 82 minutes - BRANZ Report FR 2842 (Full copy available on request).
2. R.I.S.F. 31 minutes - BRANZ Report FR 2843 (Full copy available on request).

R.I.S.F. = Resistance to Incipient Spread of Fire

Roof/Ceiling Designs

Assembly Rating 90/90/90	Design No.	System Design	Construction Materials	BRANZ Test/Opinion	
Any Roof Type Timber Structure Fire Rated Gypsum Board - top layer 13mm - bottom layer 16mm	USGDG RC-91	 See Plenum Depths page 12.	Roof 18mm timber sarking minimum Structure Joist or bottom chord 250 x 50 minimum or 100 x 50mm if roof space not useable for storage	0	FAR 1767
Concrete Roof Timber Structure Fire Rated Gypsum Board - top layer 13mm - bottom layer 16mm	USGDG RC-92		Roof Solid concrete or concrete tile Structure Timber structure as above, minimum	0	FAR 1767
60/60/60					
Any Roof Type Timber Structure Fire Rated Gypsum Board - single layer 16mm	USGDG RC-61		Roof 18mm timber sarking minimum Structure Joist or bottom chord 250 x 50 minimum or 100 x 50mm if roof space not useable for storage	0	FAR 1744 FAR 1826
Concrete Roof Timber Structure Fire Rated Gypsum Board - single layer 16mm	USGDG RC-62		Roof Solid roof, concrete or concrete tile Structure Timber structure as above, minimum	0	FAR 1744 FAR 1826
30/30/30					
Any Roof Type Timber Structure Fire Rated Gypsum Board - single layer 16mm	USGDG RC-31		Roof Any roof type Structure Joist or bottom chord may be different timber type, spacing or size - to suit load requirements	0	FAR 1744 FAR 1826
Any Roof type Steel Structure Fire Rated Gypsum Board - single layer 16mm	USGDG RC-32		Roof Any roof type Structure No restraint of steel; joist / purlin type - to suit load requirements	0	FAR 1744 FAR 1826

Important Notes

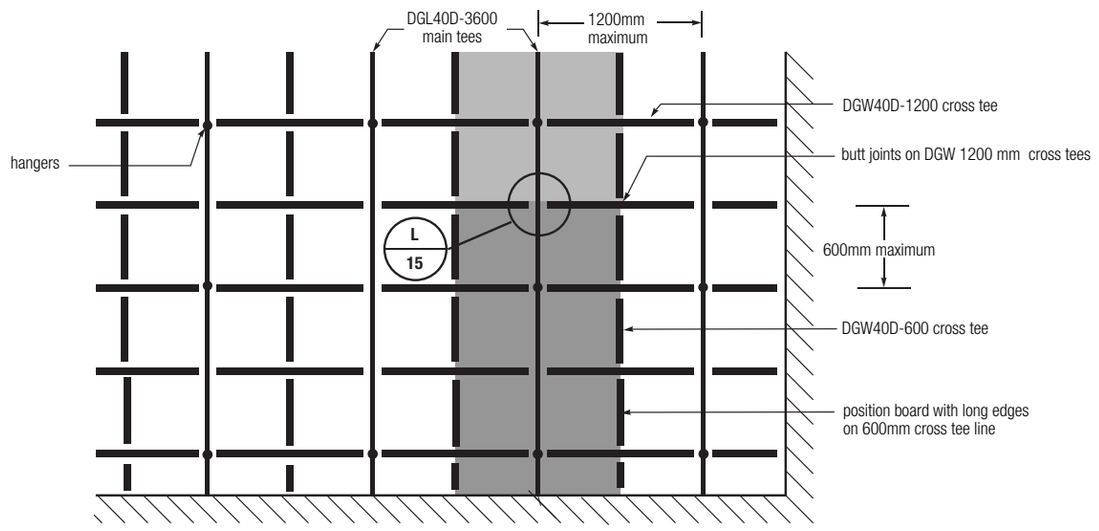
Loads – Unless the roof and ceiling members have been specifically designed to carry storage loads, they are not required to carry load beyond the self weight of the system during a fire test. They have been tested to carry a significant live load per AS 1170 / NZS 4203 and AS 1720 / NZS 3603. Consideration shall be given to other roof load requirements (wind/snow) and the roof structure shall be the greater of the fire resistance or other load requirements.

Insulation – If insulation is required, it is **not** to be overlaid on the ceiling as this will **nullify the fire rating**. It should be kept as close to the roof as possible, the area adequately vented and incorporate a vapor retarder to prevent condensation.

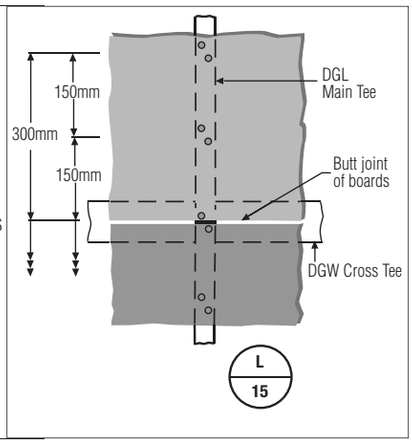
Fire Rated Assemblies

Single Layer Construction **60/60/60** **30/30/30**

BRANZ Test FR2843*
- One layer 16mm fire rated board.

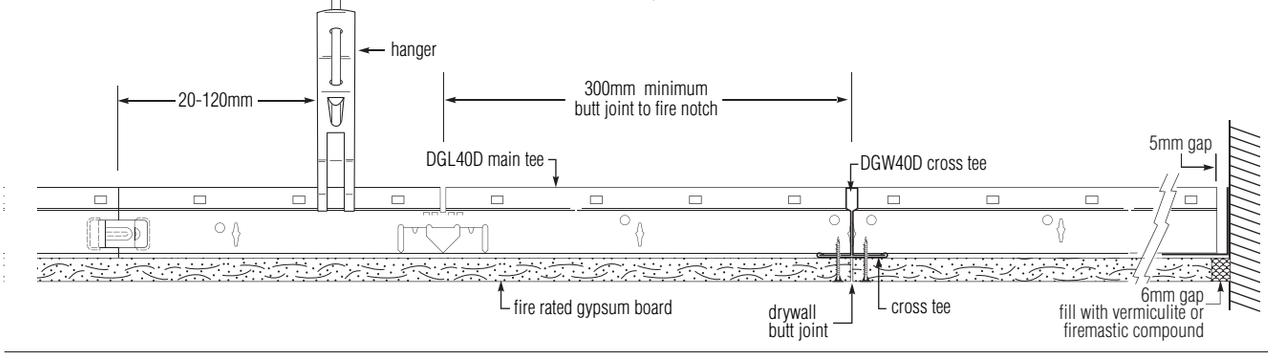


Perimeter	**A.**	DGPC-40 Perimeter Channel or DJ4040 Angle to be fixed with appropriate **steel** fasteners for substrate at 600mm centres maximum, and no more than 30mm from ends. Joints to be overlapped 60mm minimum.
	B.	Junction of tees with channel and angle to have a 5mm gap between end of tees and wall.
	C.	Tees laying on DJ4040 Angle may be connected with 1 x Ø3.2 **aluminium** rivet to allow easier fixing of gypsum board.
	D.	Tees in DGPC-40 Channel are not to be fixed.
Suspension	**A.**	Top fixings to be suitable for substrate and installed per manufacturers requirements. Only mechanical steel fastenings shall be used. Note: Particular attention should be paid to detail such as drilled hole sizes, embedment etc. to ensure fastener does not fail under fire conditions.
Gypsum Board Fixing	**A.**	Fire rated boards to be fastened to manufacturer's specification, but in general at 150mm centres around perimeter of board and 200mm in centre of board.
	B.	Fastening to the Main Tee on either side of a butt joint, use two (2) staggered screws at 150mm centres, out to 300mm. Detail L/15 (at right).
	C.	Fire rated board screws are not to be fastened through the grid at perimeter intersection (Wall Angle or Channel only), or within 50mm either side of fire notch.
	D.	Use gypsum board screws suitable for steel, as per board manufacturer's requirements Note: Screw heads should be driven below the sheet surface but care should be taken not to break the paper face lining.
	E.	All fire rated boards must be mechanically fixed. Adhesive is not permitted.
	F.	Board is to be cut to allow a 6mm gap at the perimeter. This is to be filled with vermiculite or fire mastic compound flush to the lower surface.
	G.	All joints are to be taped and stopped according to manufacturer's specification.



Fire-Rated Butt Joint - single layer

Fire Rated assemblies require a hanger installed alongside the fire relief notch and no further than 150mm from the main tee splice.

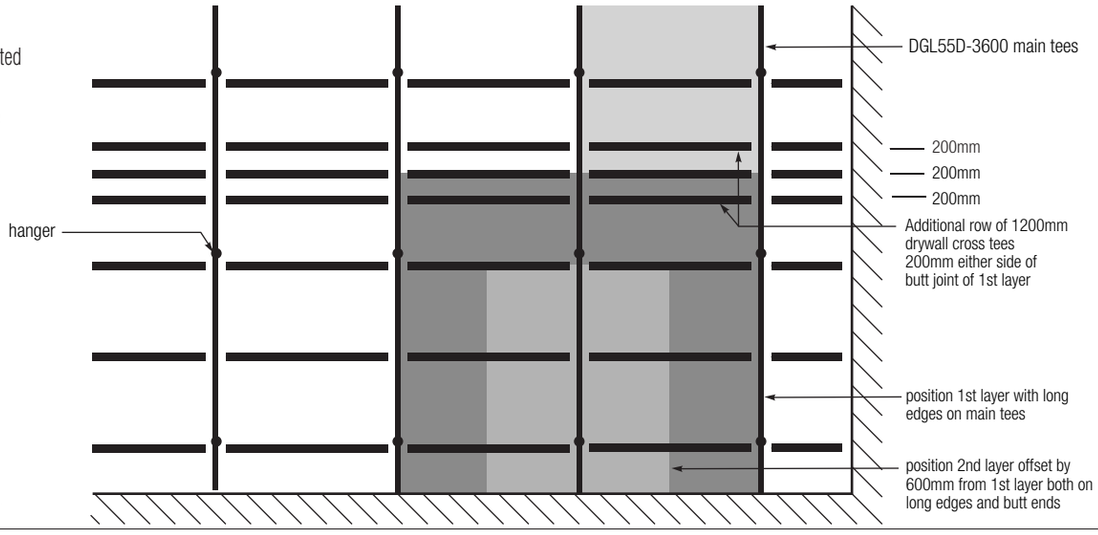


* Full copy available on request.

Construction Details

Double Layer Construction **90/90/90**

BRANZ Test FR2842*
- Top layer 13mm fire rated board.
- Lower layer 16mm fire rated board

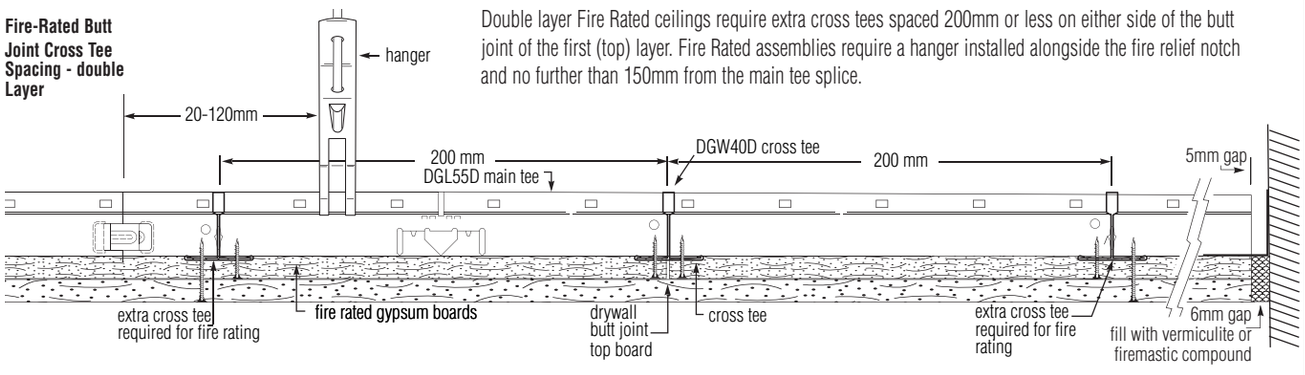


* Full copy available on request.

Perimeter	**A.**	DGPC-40 Perimeter Channel or DJ4040 Angle to be fixed with appropriate **steel** fasteners for substrate at 600mm centres maximum, and no more than 30mm from ends. Joints to be overlapped 60mm minimum.
	B.	Junction of tees with channel and angle to have a 5mm gap between end of tees and wall.
	C.	Tees laying on DJ4040 Angle may be connected with 1 x Ø3.2 **aluminium** rivet to allow easier fixing of gypsum board.
	D.	Tees in DGPC-40 Channel are not to be fixed.
Suspension	**A.**	Top fixings to be suitable for substrate and installed per manufacturers requirements. Only mechanical steel fastenings shall be used. Note: Particular attention should be paid to detail such as drilled hole sizes, embedment etc. to ensure fastener does not fail under fire conditions.
	B.	The first hanger from the perimeter shall be no more than half the span of the main hanger spacing, maximum of 600mm.
	C.	Main hanger spacing to suit load. (see page 17), maximum of 1200mm centres
Gypsum Board Fixing	**A.**	Where different thickness boards are used, fix thinner board first direct to suspension
	B.	Fire rated boards to be fastened to manufacturer's specification, but in general at 150mm centres around perimeter of board and 200mm in centre of board.
	C.	Joint stopping is not required on the first layer.
	D.	Apply second board as per layout on drawing with all joints offset by 600mm. Fixing as for first layer. Where joints do not coincide with steel suspension component, gypsum laminating screws are to be used.
	E.	Fire rated board screws are not to be fastened through the grid at perimeter intersection (Wall Angle or Channel only), or within 50mm either side of fire notch.
	F.	Use gypsum board screws suitable for steel, as per board manufacturer's requirements Note: Screw heads should be driven below the sheet surface but care should be taken not to break the paper face lining.
	G.	All fire rated boards must be mechanically fixed. Adhesive is not permitted.
	H.	Both board layers are to be cut to allow a 6mm gap at the perimeter. This is to be filled with vermiculite or fire mastic compound flush to the lower layer surface.
	I.	All visible joints on the second layer are to be taped and stopped according to manufacturer's specification.

Fire-Rated Butt Joint Cross Tee Spacing - double Layer

Double layer Fire Rated ceilings require extra cross tees spaced 200mm or less on either side of the butt joint of the first (top) layer. Fire Rated assemblies require a hanger installed alongside the fire relief notch and no further than 150mm from the main tee splice.



Application of Gypsum Panels

The USG Drywall Suspension System is engineered to provide the ultimate in design flexibility and will accept a variety of gypsum panels for flat ceiling applications.

Alternative lining materials may be used provided they and other utility fixtures combined weight does not exceed the maximum allowable ceiling load as detailed on page 18.

Common Gypsum Board and DG System Combinations

Board Thickness	Deflection	Minimum Main Tee Type	Maximum Main Tee on Centre Spacing	Maximum Cross Tee on Centre Spacing[3]	Maximum Suspension Spacing
10mm Single Layer	L/360	DGL40D-3600	1200mm	400mm	1400mm
10mm Double Layer	L/360 or L/600	DGL40D-3600	1200mm	400mm	1000mm
13mm Single Layer	L/360 or L/600	DGL40D-3600	1200mm	600mm	1200mm
13mm Double Layer	L/360	DGL55D-3600	1200mm	600mm	1200mm
16mm Single Layer	L/360 or L/600	DGL40D-3600	1200mm	600mm	1000mm
16mm Double Layer	L/360	DGL55D-3600	1200mm	600mm	1000mm
13mm plus 16mm Double Layer	L/360	DGL55D-3600	1200mm	600mm	1200mm
13mm plus 16mm Double Layer	L/600	DGL55D-3600	1200mm	600mm	1000mm

1. The above maximum spacings are a guideline based on a calculated Dead Load *G* comprising:
- grid system weight
- nominal gypsum board weight
- additional fixtures @ 2.5kg/m^2
- included Factor of Safety 1.4

Increased fixture weight and/or inclusion of Service Load *U* may require recalculation per Allowable Loads page 18.

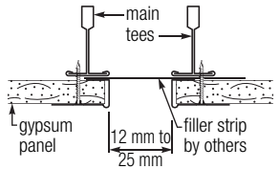
2. For fire-rated ceiling applications, see pages 12 - 16.

3. Guideline only. Consult board manufacturer for maximum limits.

4. Boards are standard products unless only available as a fire core board.

Expansion Joints

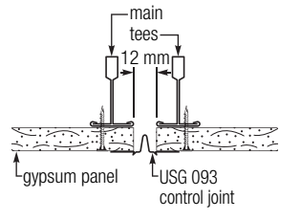
At building movement and expansion joints provide a separation in the suspension system and install back to back main tees to allow for building movement, expansion, and contraction in large ceiling areas.



Control Joints

Control joints are used to control stress caused by expansion and contraction across large ceiling expanses in drywall plaster board systems.
Use of control joint 093 provides a 2.5 mm gap for drywall ceiling areas.
Maximum distances are defined by the gypsum board manufacturers, but in general not to exceed 12 - 15m in either direction with perimeter relief and 9 - 12m in either direction without perimeter relief.

For fire rated ceilings, control joints shall not occur within 300mm of the fire expansion notch. Do not seperate suspension - use continuous single main tees.



Notes

Location of control and expansion joints are the responsibility of the design professional. Gypsum panel surfaces should be isolated with control joints, caulk, or other means where;

1. Ceiling or soffit abuts a structural element, column, partition, or other vertical penetration.

2. Construction changes within a plane of the ceiling.

3. Ceiling dimensions exceed 12-15m in either direction with perimeter relief or 9-12m without relief.

4. Soffit exceeds 9m in either direction.

5. Wings of “L”, “U” and “T” shaped ceilings areas are joined.

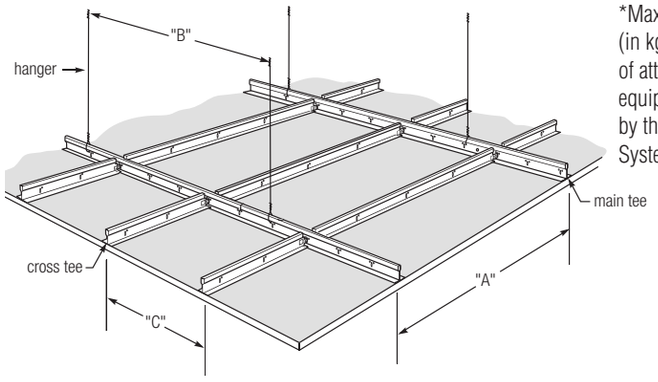
Control and expansion joints shall be adequately sealed behind the joints where sound and/or fire ratings are prime considerations. Refer gypsum board manufacturer’s recommended details.

Allowable Loads

Maximum Allowable Loads (kg/m²)

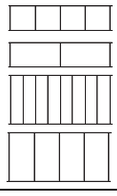
From the following tables select the level of finish required.

Deflection of:
L/600 = high finish
L/360 = less critical level



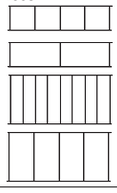
*Maximum allowable loadings (in kg/m²) is the combination of attached linings ***plus*** any equipment or services supported by the Drywall Grid Suspension System.

DGL 40D Main Tee
DGW40D-1200/600 Cross Tees



		Deflection L/360 of span			Deflection L/600 of span		
"B" Suspension at		**1000**	**1200**	**1400**	**1000**	**1200**	**1400**
"A" Main Tee	**"C"** 600	56.4	39.1	28.8	56.4	34.5	21.7
@ 600	**"C"** 1200	56.4	39.1	28.8	56.4	34.5	21.7
"A" Main Tee	**"C"** 400	28.2	19.6	14.4	28.2	17.2	10.9
@ 1200	**"C"** 600	28.2	19.6	14.4	28.2	17.2	10.9

DGL 55D-3600 Main Tee
DGW40D-1200/600 Cross Tees



		Deflection L/360 of span			Deflection L/600 of span		
"B" Suspension at		**1000**	**1200**	**1400**	**1000**	**1200**	**1400**
"A" Main Tee	"C" 600	136.2	78.8	49.6	81.7	47.3	29.8
@ 600	"C" 1200	135.9	78.8	49.6	81.7	47.3	29.8
"A" Main Tee	"C" 400	68.1	39.4	24.8	40.9	23.6	14.9
@ 1200	"C" 600	48.8	39.4	24.8	40.9	23.6	14.9

Ceiling Loads Calculation - Standard*

* Wind or other specific design loads are not taken into calculation.

Key
G - nominal weight of ceiling mass
1.4 - safety factor
U - service load
1.7 - safety factor

Dead Load *G*

Grid Weight: (as below)
Board Weight: (refer lining manufacturer)
Lights/fixtures: _____ (refer lighting / Insulation data)
TOTAL *G* kg/m²
G x 1.4 = ☐ kg/m² (A)

Service Load *U* (if applicable) to AS/NZS 2785:2000 Clause 3.2.2 (b)

U x 1.7 =
3.0 x 1.7 = 5.1 (B)
(A) + (B) TOTAL ☐ kg/m²

System Weights (kg/m²)

Layout	Module Size	DGL40D Main Tee	DGL55D Main Tee
	600 x 600mm	1.43	1.65
	1200 x 600mm	1.04	1.26
	1200 x 400mm	1.5	1.6
	1200 x 600mm	1.1	1.2
	600 x 600mm	1.5	1.6

NOTES:

Loadings laboratory tested to ASTM C635
Loadings based on suspension of 3 or more continuous spans at maximum of 1200mm centres for ceilings 2.4m or greater.
For ceilings shorter than 2.4m contact USG.

Interior Application
Wind Load Data

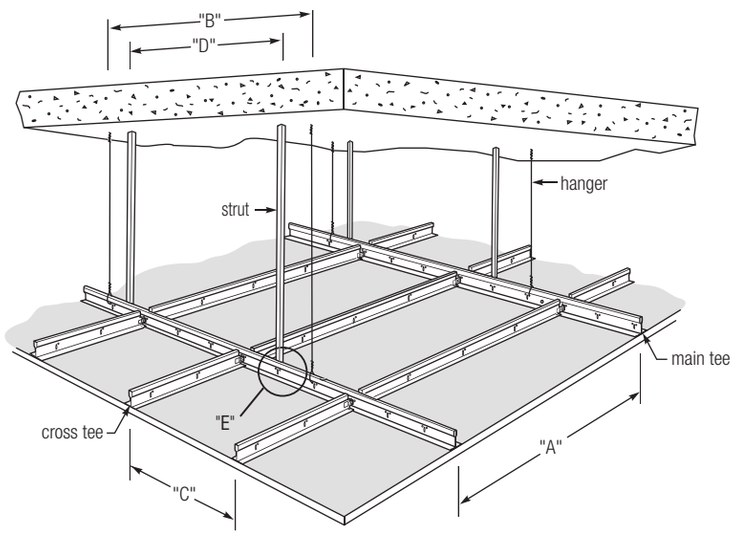
Technical Information

The new USG Drywall Suspension System has been engineered and designed for uplift resistance for interior ceilings. See illustration below. USG has different grid and wind load combinations to accommodate your design parameters.

Below is a chart indicating the components, their spacing, strut options, and allowable plenum depths which are necessary to achieve the different uplift classifications. For applications not covered here contact your nearest USG.

Design wind loads vary with geographic region and building conditions, and must be established by a professional engineer or architect.

Interior Ceiling



Wind & Static Design Chart

Wind Uplift Load (kPa)	Plasterboard lining	Main Tee Type	"A" Main Tee Spacing	"B" Hanger Spacing (max)	"C" Cross Tee Spacing	"D" Strut Centres (mm)	Strut Type						"E" Strut Fasteners Load kg
							MT45 @ 500mm Plenum	MT45 @ 800mm Plenum	DJ4040 @ 500mm Plenum	DJ4040 @ 1000mm Plenum	DGPC-40 @ 500mm Plenum	DGPC-40 @ 1000mm Plenum	
0.2	10mm	DGL 40D	1200	1000	400	1400	✓	✓	✓	✓	✓	✓	21.4
	13mm/16mm	DGL 40D	1200	1000	600	1400	✓	✓	✓	✓	✓	✓	18.5
0.4	10mm	DGL 40D	1200	1000	400	800	✓	✓	✓	✓	✓	✓	31.8
	13mm/16mm	DGL 40D	1200	1000	600	800	✓	✓	✓	✓	✓	✓	30.1
0.6	10mm	DGL 40D	1200	1000	400	600	–	–	✓	–	✓	✓	38.5
	13mm/16mm	DGL 40D	1200	1000	400	600	✓	–	✓	✓	✓	✓	37.3
	13mm/16mm	DGL 55D	1200	1200	400	1000	–	–	–	–	✓	✓	60.0
0.8	10mm	DGL 40D	600	1400	600	800	✓	–	✓	✓	✓	✓	35.5
	13mm/16mm	DGL 40D	1200	1000	400	600	–	–	–	–	✓	✓	51.9
	16mm	DGL 55D	1200	1200	400	800	–	–	–	–	✓	✓	67.6
1.0	10mm	DGL 40D	600	1400	600	600	✓	–	✓	✓	✓	✓	33.9
	13mm/16mm	DGL 40D	600	1000	600	600	✓	–	✓	✓	✓	✓	33.3
	13mm	DGL 55D	600	1400	600	1000	–	–	–	–	✓	✓	55.5
	16mm	DGL 55D	600	1400	600	800	–	–	–	–	✓	✓	43.6
1.2 - 1.6	10mm	DGL 40D	600	1400	600	600	–	–	–	–	✓	✓	56.0
	13mm/16mm	DGL 40D	600	1000	600	600	–	–	–	–	✓	✓	55.3
1.8 - 2.0	10 /13/16mm	DGL 55D	600	1400	600	800	–	–	–	–	✓	✓	94.2
2.2	10 /13/16mm	DGL 55D	600	1400	600	700	–	–	–	–	✓	✓	91.0
2.4 - 2.6	13/16mm	DGL 55D	600	1400	600	600	–	–	–	–	✓	✓	92.0
0.2	2 x 16mm	DGL 55D	1200	1000	600	1400	✓	✓	✓	✓	✓	✓	15.0
0.4	2 x 16mm	DGL 55D	1200	1000	600	1400	✓	–	✓	✓	✓	✓	34.0
0.6	2 x 16mm	DGL 55D	1200	1000	600	1000	–	–	–	–	✓	✓	48.8
0.8	2 x 16mm	DGL 55D	1200	1000	400	1000	–	–	–	–	✓	✓	73.2
1.0 - 1.4	2 x 16mm	DGL 55D	600	1000	600	1000	–	–	–	–	✓	✓	73.3
1.6 - 2.2	2 x 16mm	DGL 55D	600	1000	600	800	–	–	–	–	✓	✓	97.8
2.4 - 2.6	2 x 16mm	DGL 55D	600	1000	600	600	–	–	–	–	✓	✓	88.0

NOTES:

Install hangers and Drywall Suspension System first then install struts.

For strut to Main Tee typical connection, see DJ4040 detail, page 4.

Suitable single or multiple fasteners may be used, provided their shear value(s) equal or exceed "E".

Strut to structure fasteners need only be suitable for the substrate material.

Only steel fasteners shall be used for fire rated ceilings

Static design based on:
Lights + Tees = 2 kg/m^2
Service Load = 3 kg/m^2

USG Drywall Grid Suspension System

Seismic Requirements

The Standards NZS 1170.5, AS 1170.4 require non-structural building elements to be designed to minimise the risk of loss of life from collapse or damage in the event of an earthquake.
When control joints or perimeter relief is required in the Drywall Grid system by the plasterboard manufacturer, seismic bracing will be necessary to enable the Drywall Grid system to meet the above requirements.
Below are tables providing K-brace design solutions for common installations. Select building location Zone (NZ), Ceiling Area, Plenum Depth, and Gypsum Board Lining - the number is the quantity of the selected brace type **(a)** or **(b)**. For applications not covered here, contact your nearest USG.

New Zealand NZS 1170.5

No. of K-brace / Area		Gypsum Board Lining								Zone
Ceiling Area	Plenum Depth (max)	9.5mm (a)*	9.5mm (b)*	12.5mm (a)*	12.5mm (b)*	16mm (a)*	16mm (b)*	2 x 16mm (a)*	2 x 16mm (b)*	
9m x 9m	500mm	4	3	5	3	6	4	10	7	A (e.g. Wellington)
	1000mm	5	4	6	4	7	5	12	9	
12m x 12m	500mm	7	5	8	5	10	7	18	12	
	1000mm	9	6	10	7	12	9	21	15	
15m x 15m	500mm	11	7	13	8	16	10	28	18	
	1000mm	13	10	15	11	18	13	33	24	
9m x 9m	500mm	4	3	4	3	5	3	9	6	B (e.g. Christchurch)
	1000mm	4	3	5	4	6	4	10	7	
12m x 12m	500mm	6	4	7	5	9	6	15	10	
	1000mm	7	5	8	6	10	7	18	13	
15m x 15m	500mm	10	6	11	7	13	9	24	15	
	1000mm	11	8	12	9	15	11	27	20	
9m x 9m	500mm	3	2	3	2	4	3	7	5	C (e.g. Auckland)
	1000mm	4	3	4	3	5	4	8	6	
12m x 12m	500mm	5	3	6	4	7	5	12	8	
	1000mm	6	4	7	5	8	6	14	10	
15m x 15m	500mm	8	5	9	6	11	7	19	12	
	1000mm	9	7	10	7	12	9	22	16	

Notes

1) Ceiling level assumed worst case.
2) Building risk factor is assumed R = 1.0 - Normal occupancy or usage
3) For projects Seismic Zone location, refer DONN Seismic Guide or NZS 1170.5.

Australia AS 1170.4

No of K-brace / Area		Gypsum Board Lining							
Ceiling Area	Plenum Depth (max)	10mm (a)*	10mm (b)*	13mm (a)*	13mm (b)*	16mm (a)*	16mm (b)*	2 x 16mm (a)*	2 x 16mm (b)*
9m x 9m	500mm	4	3	4	3	5	3	8	5
	1000mm	4	3	5	4	6	4	9	7
12m x 12m	500mm	6	4	7	5	8	5	14	9
	1000mm	7	5	8	6	9	7	16	12
15m x 15m	500mm	10	6	11	5	13	8	22	14
	1000mm	11	8	12	9	14	11	25	18

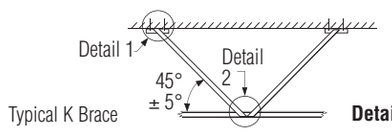
Notes

1) Ceiling and building heights are assumed worst case.
2) Seismic Coefficient used is worst case (a = 0.22).
3) Table based on buldings for normal occupancy or usage (Structure Type 1)
4) Table based on soft soil Site Factor. (S = 1.5)

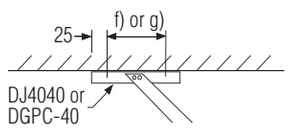
Design Details K Brace

	*Brace type	Rivet type, Top & Bottom	Floor / Structure Fixing
a)	2 x DGPC-40	2 x 4.0 mild steel	2 x No 8 Screws
b)	2 x DJ38	2 x 4.8 mild steel	2 x M 4.5 dynabolt

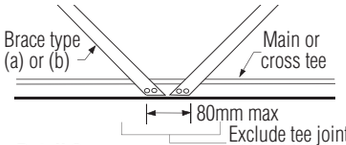
c) All braces are back to back and typically pop-riveted together at 450mm centres maximum.
d) All K Braces @ 45 degrees
e) K Braces must be evenly distributed over the ceiling area
f) 4.5 Dynabolts: Embedment = 25mm, Spacings = 70mm
g) No 8 Screws: Embedment = 30mm, Spacings = 40mm
h) Plasterboard assumed to be heaviest available per thickness
i) For fire rated ceilings, Main Tee braces shall be no closer than 3.6 metres centres and no less than 50mm from fire expansion notch.
j) Seismic design based on: Lights + Tees = 2kg/m^2, and service Load = 3 kg/m^2 with $\Psi = 0.6$



Typical K Brace



Detail 1



Detail 2

Warranties and Limitations

Drywall Grid Suspension System

	USG Interiors Pacific Ltd ("USG Interiors") Drywall Grid Suspension System as installed in the building nominated overleaf, carries a 15 year warranty from date of installation ("Warranty Period").
What Products Are Covered ?	This Warranty covers any of the Drywall Grid Suspension System steel components as manufactured or supplied by USG Interiors
What Does This Warranty Cover ?	Product defects caused by faulty materials, manufacturing workmanship and failure to meet product specifications issued by USG Interiors in effect at the time of installation. This Warranty covers the owner (and subsequent owners) of the building nominated overleaf in which the products are installed for the Warranty Period.
What Will USG Interiors Do ? :	USG Interiors at our election will replace or repair the defective product or, refund or credit an amount equal to the purchase price of the defective products, net of all taxes, charges or other levies paid. This constitutes USG Interiors' entire liability.
What Does This Warranty Not Cover :	This Warranty does not cover defects arising from a failure to comply with USG Interiors' printed Guidelines, Limitations, Specifications, Installation Instructions and industry Standards, before, during and after installation. In particular the Warranty does not cover damage to the products arising from: • Abnormal climatic conditions outside the products specification. • Exterior applications. • Chemical fumes, corrosive substances, freezing temperatures or vibration. • Suspension used to support any other materials or fixtures that are above maximum loading limitations. • Damage by fire, water (including condensation) or other elements of nature or act of God. • Accident, abuse, neglect, deterioration by chemical action, damage during shipment, storage, installation or used for purposes other than for which they were designed. • Other components in the ceiling systems not manufactured by USG Interiors such as hanger wires, fasteners, accessories. • Alteration or removal of products without the prior approval of USG Interiors or attempts to repair any defective products.
Also This Warranty Does Not Cover :	• Costs of removal or installation of products. • Cost of removal of damaged or installed faulty product • Any direct, indirect or consequential damage or loss of any nature.

Warranties and Limitations

Drywall Grid Suspension System

WDG/4-06

If You Have A Problem ?

USG Interiors will only accept claims in writing made in accordance with this warranty, and

- within the Warranty Period, and
- within 30 (thirty) days from the date the problem was, or by reasonable inspection should have been, discovered, and
- with proof of installation *(to assist, fill out details below)*

You must keep any products that are alleged to be defective for our inspection and you must not attempt to alter, repair or remove these products.

Other Legal Rights :

This Warranty is not part of a contract between USG Interiors and the building owner. USG Interiors shall not be bound by any unauthorised warranty given by the seller of the products or the contractor. It does not exclude, limit, restrict or modify the rights and remedies available to the building owner, or the liability of the seller or contractor, under any statute or other laws in respect of the products and, in particular, when the goods are supplied to a Consumer as defined in the Trade Practices Act 1974 (Australia) or Consumer Guarantees Act 1993 (New Zealand), the provisions of that Act shall apply.

Project Details :

15 YEAR CEILING SYSTEM WARRANTY

PRODUCT :

Grid : USG Drywall Suspension System 00 x 00 mm ..... m²

DATE OF INSTALLATION: .....201.....

BUILDING:

Name : .....

Address : .....

: .....

Country : .....

Owner : .....

CEILING SYSTEMS CONTRACTOR:

Name : .....

Address : .....

Signature : .....

Title : .....

Date : .....

Warranty Copies :

❒ Building Owner ❒ Ceiling Contractor ❒ USG Interiors

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USG Drywall Grid Suspension System

Architectural Specification

Note to specifier: The following specification for the USG Drywall Grid Suspension System is a guide for specifying flat drywall ceilings. Delete such items that are not related to the particular project. Where blank spaces occur, provide information to the particular project for which the specification is prepared.

1: General	**1.01 Scope**	**A.**	Specify areas to receive this system.
	1.02 System Description	**A.**	USG pre-engineered drywall grid suspension system consisting of main tees and cross tees, that join together to support screw attached gypsum panels and light fixtures, and air diffusers, where specified. (Where applicable) Installed systems must conform to Fire Resistance Design No. _____ and other applicable codes.
	1.03 Quality Assurance	**A.**	Manufacturer shall be ISO9001 Certified.
	1.04 References	**A.** **B.** **C.** **D.** **E.** **F.** **G.** **H.**	AS/NZS 2785 : 2000, Suspended Ceilings - Design and Installation AS 1530-4, Fire Resistance Tests of Elements of Building Construction. ASTM C635, Standard Specifications for Metal Suspension Systems. AS/NZS 4600, Cold Form Steel Structures Code. AS/NZS 1397, Steel Sheet and Strip. AS/NZS 1170, Structural Design Actions. BCA. NZBC, B1, B2, C3, C4.
	1.05 Delivery, Storage and Handling	**A.** **B.** **C.** **D.**	Deliver materials in original, unopened manufacturer's packages as applicable. Promptly inspect delivered materials. Any damaged materials shall be promptly removed from the job site. Store in a manner that will prevent warpage, water damage, or damage of any kind. Prevent interference to/by other trades and any other adverse job conditions due to storage locations or methods. Handle in such a manner to insure against racking, distortion or physical damage of any kind.
	1.06 Installation Conditions	**A.** **1.** **2.** **B.** **1.**	Environmental requirements: Building Conditions: Building shall be enclosed with all windows and exterior doors in place and glazed and roof watertight before installation of suspension system. Interior temperature/humidity in building: Climatic conditions in areas to receive drywall suspension systems shall range from 0° C to 40° C and relative humidity of not more than 95% shall be maintained before installation of components. Coordination with other work: Coordinate with other work above ceiling, or supported by or penetrating through the ceiling, including mechanical and electrical work and partition systems. Services work above system shall be completed before installation.
2: Products	**2.01 Manufacturer**	**A.**	USG Drywall Grid Suspension System. Manufactured by USG Interiors.
	2.02 Materials	**A.** **B.** **1.** **2.** **3.** **C.**	Commercial quality, cold rolled steel, hot dipped galvanized finish. USG Drywall Suspension Systems: Main Tees: Fire-Rated 38mm high x 3600mm long, integral reversible splice with knurled 24mm face. Cross Tees: Fire-Rated members with knurled 38mm face x 38mm high x 1200mm / 600mm long. Tees must have Quick Release Clip cross tee ends to provide positive locking and removability without the need for tools. Wall moldings: DGPC-40 19 x 40 x 38 x 3600 perimeter channel. DJ4040 40 x 40 x 3600 wall angle. Accessories as applicable for project requirements
3: Execution	**3.01 Installation**	**A.** **B.** **C.** **D.** **E.**	Standards reference: Install in accordance with AS/NZS 2785 : 2000, ASTM C636, and other applicable code references. Manufacturer's reference: Install in accordance with manufacturer's current printed recommendations. Drawing reference: Install in accordance with approved architectural drawings. When constructing stepped soffits, bracing of the drywall suspension system and/or additional hangers may be necessary to ensure stability and structural performance during and after drywall attachment. Do not support hangers from mechanical and/or electrical equipment above ceiling.
	3.02 Gypsum Panel	**A.**	Use appropriate fasteners to screw fix lining sheets to the USG Drywall Suspension System at centres required by the lining manufacturer or as required for Fire Rated applications.
	3.03 Completion	**A.** **B.** **C.**	Replace any damaged elements. Leave work to the level specified. Remove debris and unused elements from site.

To request literature, samples, a visit from a USG Ceilings specialist, or for all technical questions, call your nearest USG office below.

Trademark
The following are trademarks of USG Interiors , Inc. or a related company: DONN, FIRECODE, QUICK RELEASE, USG.

Patent Pending for this system in several countries.

Manufacturer
Manufactured in Australasia by USG Interiors Pacific Ltd.

Note
All products described here may not be available in all geographic markets. Consult your local USG sales office or representative for information.

ISO 9000
USG Interiors Pacific Ltd is an accredited ISO 9001 : 2000 manufacturer - Licence No: 5044

Certified System
Quality
ISO 9001
SAI GLOBAL

Notice
We shall not be liable for incidental and consequential damages, directly or indirectly sustained, nor for any loss caused by application of these goods not in accordance with current printed instructions or for other than the intended use. Our liability is expressly limited to replacement of defective goods. Any claim shall be deemed waived unless made in writing to us writing thirty (30) days from date it was or reasonable should have been discovered.

Health and Safety
The material composition presents no health hazard. When handling take care and ensure that safe work practices are adhered to at all times. Some products my have surface treatments and sharp edges/ends. All reasonable care should be taken when handling or installing to avoid any potential injury to self or others. Users should be properly trained and supervised in the use and handling of these materials. Appropriate personal protective equipment should be used when necessary eg: gloves/glasses etc, to avoid any potential injuries.

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