

Technical Installation Manual

d² Dura Riser System



d² Dura Grating is a Glass Reinforced Polymer (GRP) flooring which is manufactured using advanced composite technology. Designed for service risers and void protection platforms it is suitable for installation at any multi-storey construction project to minimise the risk of construction personnel or debris falling from height in riser shafts.

Dura Grating is the leading choice for customers who are looking for a safe, easy to install, versatile and lightweight riser flooring system. With various installation options, including pre and post pour solutions, the Dura Riser system also offers our best ever gritted surface giving an anti-slip flooring. Dura Grating is available in Standard Mesh, Mini Mesh and Solid Top variants.

This Technical Manual contains guidance relating to the installation of Dura Grating in Construction environments and technical information regarding the product specification. To ensure you get the best results from your Dura Grating, we also offer a full installation service for the complete solution.

If you require any further information or support, please call us on **+44 (0)1255 446 830** or email **highrise@duracomposites.com** where one of our knowledgeable staff will be happy to help.

Unlocking the Power of Composites™
>> for High-Rise Applications

Tel: 01255 446830 | www.duracomposites.com

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Contents

1. Reference Guide

Reference Guide	2
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2. Materials

Choosing the Right Grating for your Project	4
d ² Dura Grating Product Information	5
Framework Components	6
Fixings	7

3. Preparation

Choosing the Right Substructure	9
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4. Framework

Installing Dura Riser Post-Fix Framework	14
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5. Installation

Safety	16
Tools Required	16
Installing d ² Dura Grating	17
Anchor Fixing Installation Details	18
Concrete Anchor Fixing Installation Details	19
Typical Section Configurations	20



Reference Guide



Use Professionals

This quick Reference Guide refers to Dura Grating from Dura Composites, a moulded anti-slip composite floor grating system constructed from Glass Reinforced Polymer (GRP) as an ideal and cost-effective alternative to traditional floor grating materials such as mild steel, concrete, aluminium or wood.

1. Applications for Dura Grating in the Construction Industry:

Dura Composites was founded in 1996 and has been at the forefront of composite technology for almost 30 years. Our extensive knowledge of the Construction sector enables us to give unrivalled advice and support to a wide variety of businesses operating in the Construction sector. Our value added services include CAD Design support and Live Load Test Data for our Dura Grating Construction products.

2. Benefits:

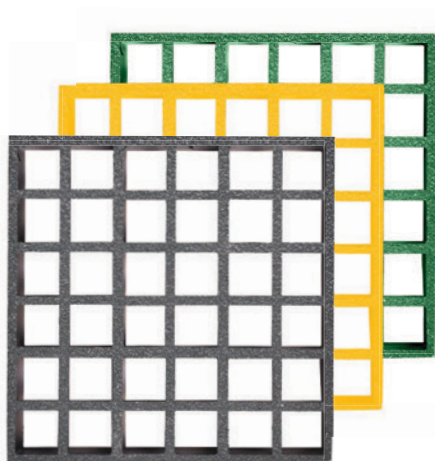
High strength, light weight, dimensional stability, anti-slip surface, corrosion/chemical & electrical resistance, low tooling/installation cost, long life. GRP products compete very favourably on a performance/life cycle cost basis versus traditional materials.

3. Finish Type & Slip Resistance:

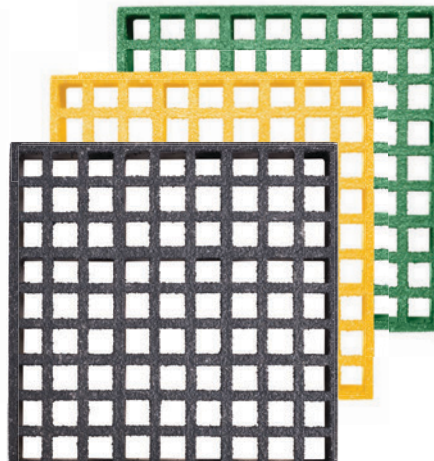
Dura Grating features our best ever gritted surface which has been tested to over 1 million footfalls (in accordance with BS 7976-2:2002+A1:2013) and out-performs all other grating products available when it comes to durability and anti-slip properties.

4. Colours:

Dura Grating Standard Mesh is available in Dark Grey, Green and Yellow. Dura Grating Mini Mesh is available in Dark Grey, Green and Yellow. Dura Solid Top Grating is available in Dark Grey only. Other colours are available on request but may be subject to extended lead times and MOQ.



Standard Mesh



Mini Mesh



Solid Top

5. Fixings:

We have a wide range of fixings and accessories available to suit our different mesh sizes and thicknesses, depending on your application and installation requirements. Our fixing clips anchor the grating to the supporting substructure or connect panels together and are suitable for both our open mesh and solid top GRP grating. Our technically trained sales staff can advise you on the best fixings for your project. You can also refer to pages 7 and 8 of this document.

6. Handling/Cutting:

Wear RPE and Eye Protection when cutting or grinding. Cover exposed parts of the body. Wear gloves when moving or lifting. Use diamond tipped tools for cutting. Suitable carbide and tungsten carbide tools can also be used if optimised for GRP.

7. Load Strength:

Dura Grating's load capacity is extremely high, it also provides excellent impact resistance and exceptional traction on walkways. For specific load capacity by product, please see the table on page 5.

8. Waste Disposal:

Even after they have been used for their intended purpose and reach the end of their lifecycle in the original context, they can easily be up-cycled or repurposed in other ways. Secondary uses include 4x4 sand ladders, caravan jack pads, stair treads, building site flooring, seedling plant separators, lorry jacks, drain covers, shelving and racking, car parking matting, and farmland access grids. We are happy to advise all customers on their specific scenarios. The product itself is not considered a hazardous waste. Please ensure that you abide by local laws and procedures regarding disposal if you choose not to upcycle or re-use your product at the end of its initial lifecycle.

9. Cleaning and Maintenance:

For general cleaning any road traffic film cleaner can be used. There are two products we use for cleaning our GRP Products, both supplied by a company called Shine-On, one of the products is called GP413 and the other is called Mega Shine.

10. Chemical Resistance:

Dura Grating is resistant against a wide range of chemicals across a wide temperature spectrum. It can be made of different resin systems to achieve specific chemical resistance. For more details consult your Dura Composites representative.

11. Warranty:

Refer to website for further details: www.duracomposites.com/about-dura/warranty



Materials



Choosing the Right Grating for your Project

With so many geometric, material, panel size, and finishing options available, Dura Grating is able to meet the needs of almost any Construction application.

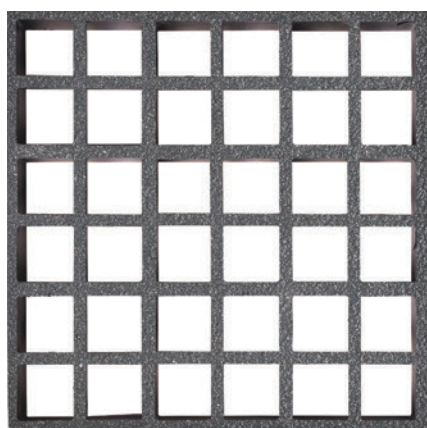
d² Dura Grating

Our ground-breaking new d² Dura Grating is more cost-effective than traditional GRP grating in almost every scenario, and has an industry-leading Class B fire rating (BS EN 13501) as standard. Its unique high specification composition achieves ultra-low slip potential in both wet and dry conditions and its anti-slip surface is proven to reduce by a mere 5% even after an astonishing 1 million footfalls. With a patent-pending design that's completely unique in the marketplace, you won't find it anywhere else – but we're positive that d² Dura Grating will increase the cost-efficiency and handling efficiency of your construction project without compromising on safety.

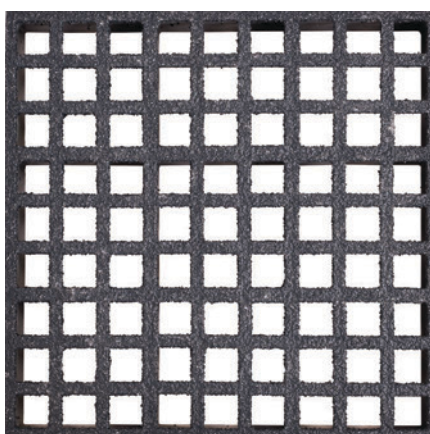
Determining the Right Grating for Your Application

To select the correct grating, you should first determine your required load, clear span and deflection requirements. Whilst one product may meet your minimum requirements, other options might also be applicable which carry greater loads. For the most cost-effective selection, you should choose the greatest width that will support the load consistent with your job requirements.

Our d² Dura Grating Mini Mesh hole sizes (17mm and 19.5mm) meet the requirements of BS 4592 and the European 20mm Ball Falling Test.



Standard Mesh



Mini Mesh



Solid Top

For commercial applications where people could be walking beneath the grating, you may also wish to consider Solid Top d² Dura Grating to avoid items dropping through the open holes. Its gritted, anti-slip properties and strong surface offer a suitable platform for foot or wheeled traffic and provides approximately 30% higher stiffness values than open mesh grating.

d² Dura Grating Product Information

Below are the recommended d² Dura Grating products suitable for the Riser System.

Standard d² Dura Grating offers the largest open hole size and provides excellent bidirectional mechanical properties, Mini Mesh d² Dura Grating that has all the benefits of the d² Standard Mesh grating but with a smaller open hole size complying with BS 4592 and the European 20mm Ball Falling test, and the Solid Top d² Dura Grating is a great choice for preventing all objects and debris falling through.

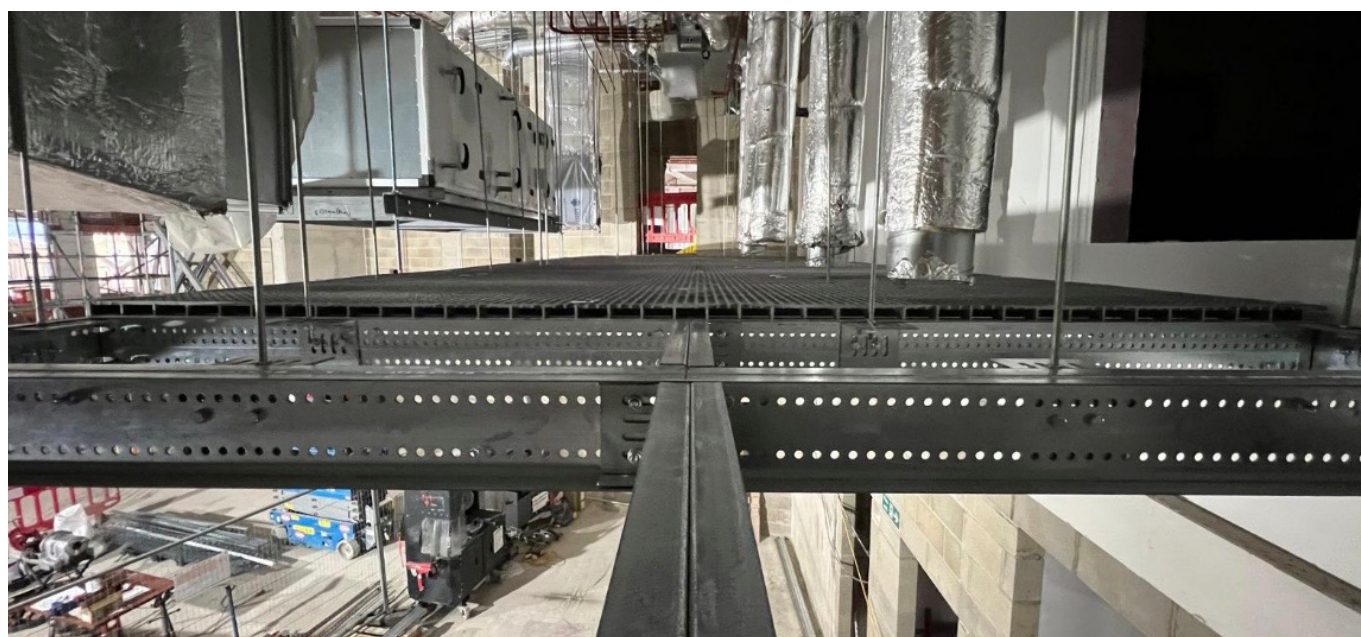
Product Range	Depth (mm)	Panel Sizes (mm)	Open Mesh Size (mm)	Weight (kg/m²)	Colour
Mini Mesh	35	3030 x 1041	19.5 x 19.5	13.2	Dark Grey Light Grey Yellow Green Sand Teak
		3667 x 1200		15.3	
	45	3030 x 1041			
		3667 x 1200			
	55	3030 x 1041			
		3667 x 1200			
Standard Mesh	38	3054 x 996	31 x 31	13.2	Dark Grey Yellow Green
		3664 x 1224	28 x 28	15.7	
	50	3052 x 1057			
		3682 x 1267			
Solid Top	29	3043 x 993	NONE	16.7	Dark Grey
		3669 x 1239		21.09	
	41	3054 x 996			
		3663 x 1224			
	53	3052 x 1057			
		3682 x 1267			

Maximum Spans for Common Load Criteria

Limits for allowable deflection will vary from project to project and as such, Dura Composites provides a wealth of data on product suitability for varying load criteria at www.duracomposites.com/powerofcomposites.

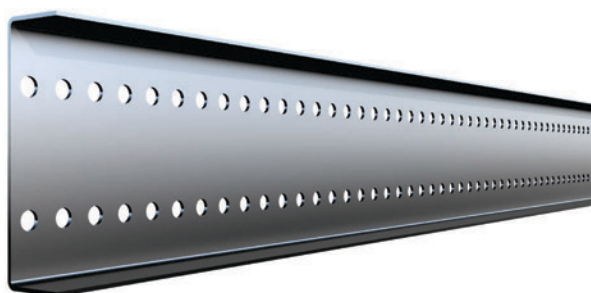
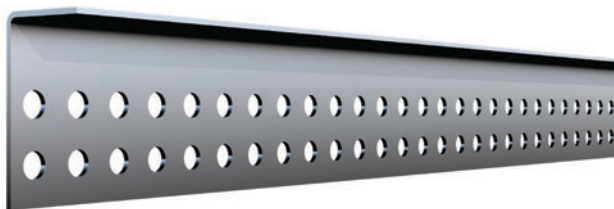


Each product is accompanied by its own Data Booklet, containing detailed performance criteria and specific data sets. Scan the QR code to access our Resource Centre.



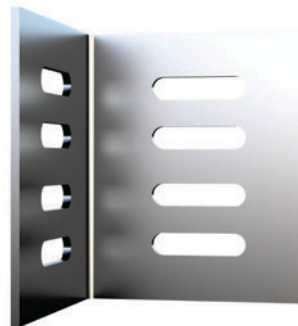
Framework Components

Dura Composites' framework solution involves the components below:



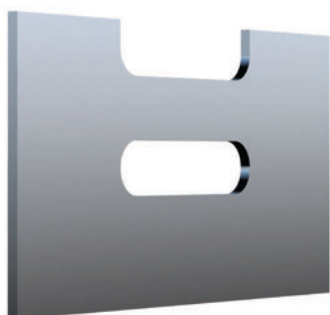
Dura Riser Angle		
Product Code	DP08123	3000mm
	DP08126	6000mm

Dura Riser Channel		
Product Code	DP08113	3000mm
	DP08116	6000mm



Dura Riser G-Bracket 150	
Product Code	DP08130

Dura Riser Cleat Bracket 150	
Product Code	DP08131

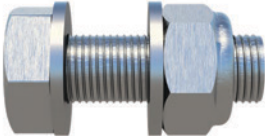
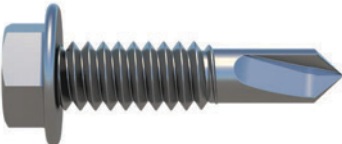


Dura Riser G-Bracket 150 Packer	
Product Code	DP08132

Dura Riser Z Hanger	
Product Code	DP05059

Fixings

A wide range of fixings are available to cater for the various install applications for the Dura Riser system:

Main Fixings									
Fixing	Technical Information								
Throughbolt 	RAWL M10 Zinc Plated R-XPT Throughbolt – 80mm <table> <tr> <td>Part Codes</td><td>BFX02157</td></tr> <tr> <td>Pack Size</td><td>50</td></tr> <tr> <td>Suitable for</td><td>Connecting Dura Riser perimeter angle to reinforced concrete</td></tr> <tr> <td>Required at</td><td>500mm centres</td></tr> </table>	Part Codes	BFX02157	Pack Size	50	Suitable for	Connecting Dura Riser perimeter angle to reinforced concrete	Required at	500mm centres
Part Codes	BFX02157								
Pack Size	50								
Suitable for	Connecting Dura Riser perimeter angle to reinforced concrete								
Required at	500mm centres								
Concrete Screw 	Fischer Concrete Screw UltraCut FBS II M10 x 80mm <table> <tr> <td>Part Codes</td><td>FX02080</td></tr> <tr> <td>Pack Size</td><td>50</td></tr> <tr> <td>Suitable for</td><td>Connecting Dura Riser perimeter angle and Dura Riser G-Bracket to reinforced concrete</td></tr> <tr> <td>Required at</td><td>500mm centres (angle), x2 per G-Bracket</td></tr> </table>	Part Codes	FX02080	Pack Size	50	Suitable for	Connecting Dura Riser perimeter angle and Dura Riser G-Bracket to reinforced concrete	Required at	500mm centres (angle), x2 per G-Bracket
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Pack Size	50								
Suitable for	Connecting Dura Riser perimeter angle and Dura Riser G-Bracket to reinforced concrete								
Required at	500mm centres (angle), x2 per G-Bracket								
Connecting Bolts 	M10 BZP Bolt – 30mm, 2 Washers & Nyloc Nut <table> <tr> <td>Part Codes</td><td>BFX02166</td></tr> <tr> <td>Pack Size</td><td>50</td></tr> <tr> <td>Suitable for</td><td>Connecting Dura Riser Back-to-Back Channel and Dura Riser G-Bracket to Dura Riser Channel</td></tr> <tr> <td>Required at</td><td>500mm centres (Back-to-Back Channel), x2 per G-Bracket</td></tr> </table>	Part Codes	BFX02166	Pack Size	50	Suitable for	Connecting Dura Riser Back-to-Back Channel and Dura Riser G-Bracket to Dura Riser Channel	Required at	500mm centres (Back-to-Back Channel), x2 per G-Bracket
Part Codes	BFX02166								
Pack Size	50								
Suitable for	Connecting Dura Riser Back-to-Back Channel and Dura Riser G-Bracket to Dura Riser Channel								
Required at	500mm centres (Back-to-Back Channel), x2 per G-Bracket								
Extra Large Dome Washer 	M8 Pre-Galv Extra Large Dome Washer – 55mm diameter <table> <tr> <td>Part Codes</td><td>BFX02165</td></tr> <tr> <td>Pack Size</td><td>50</td></tr> <tr> <td>Suitable for</td><td>Connecting d² Dura Grating to Dura Riser framework (with tek screws), formed rebates (with Tapcon screws) and Panel to Panel Joining Bar Assemblies</td></tr> <tr> <td>Required at</td><td>1000mm centres (perimeter), x2 per Joining Bar Assembly</td></tr> </table>	Part Codes	BFX02165	Pack Size	50	Suitable for	Connecting d² Dura Grating to Dura Riser framework (with tek screws), formed rebates (with Tapcon screws) and Panel to Panel Joining Bar Assemblies	Required at	1000mm centres (perimeter), x2 per Joining Bar Assembly
Part Codes	BFX02165								
Pack Size	50								
Suitable for	Connecting d² Dura Grating to Dura Riser framework (with tek screws), formed rebates (with Tapcon screws) and Panel to Panel Joining Bar Assemblies								
Required at	1000mm centres (perimeter), x2 per Joining Bar Assembly								
Tek Screw 	Dura Riser Fixings 5.5 Hex Head Screw SD BZP <table> <tr> <td>Part Codes</td><td>BFX03001 / BFX03002 / BFX03003</td></tr> <tr> <td>Pack Size</td><td>50</td></tr> <tr> <td>Suitable for</td><td>Connecting d² Dura Grating to Dura Riser perimeter angle 50mm – 22-30mm grating, 70mm – 38-50mm grating, 82mm – 55mm grating</td></tr> <tr> <td>Required at</td><td>1000mm centres</td></tr> </table>	Part Codes	BFX03001 / BFX03002 / BFX03003	Pack Size	50	Suitable for	Connecting d² Dura Grating to Dura Riser perimeter angle 50mm – 22-30mm grating, 70mm – 38-50mm grating, 82mm – 55mm grating	Required at	1000mm centres
Part Codes	BFX03001 / BFX03002 / BFX03003								
Pack Size	50								
Suitable for	Connecting d² Dura Grating to Dura Riser perimeter angle 50mm – 22-30mm grating, 70mm – 38-50mm grating, 82mm – 55mm grating								
Required at	1000mm centres								

Tapcon Screw



M6 Phillips Head Tapcon Counter Sunk Screw – 57mm / 70mm / 100mm

Part Codes	BFX02153 / BFX02154 / BFX02150
Pack Size	50
Suitable for	Connecting d ² Dura Grating to formed rebates 57mm – 22-30mm grating, 70mm – 38-45mm grating, 100mm – 50-55mm grating
Required at	1000mm centres

Joining Bar Fixings

Fixing

Technical Information

Uni-Strut Channel



Pre-Galv Steel Slotted Channel 41x41x2.5mm – 350mm

Part Codes	DP05060
Pack Size	1
Suitable for	Connecting two d ² Dura Grating panels to stop panels independently deflecting
Use With	x2 Extra Large Dome Washers, x2 M8 Counter Sunk Set Screws and x2 Captive Nuts
Required at	500mm centres

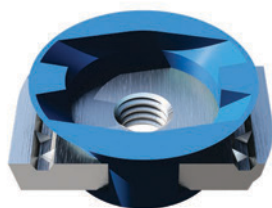
Set Screw



M8 BZP Counter Sunk Set Screw – 50mm / 60mm / 70mm

Part Codes	BFX03004 / BFX03005 / BFX03006
Pack Size	50
Use With	DP05060 Panel to Panel Joining Bar 50mm – 22-30mm grating, 60mm – 38mm grating, 70mm – 41-55mm grating x2 per Joining Bar Assembly

Captive Nut



M8 BZP Nylon Captive Nut

Part Codes	BFX01040
Pack Size	50
Suitable for	Connecting two d ² Dura Grating panels to stop panels independently deflecting
Use With	DP05060 Panel to Panel Joining Bar x2 per Joining Bar Assembly

Preparation



Choosing the Right Substructure

There are various methods for installing the Dura Grating into the service voids.

Formed Rebate

A formed rebate edge made with timber shuttering. The rebate should be 50mm wide and the appropriate height to match the chosen grating size.

This method needs to be co-ordinated to get the correct height and means that the timber shuttering must be broken out before the grating can be installed.

Rebates can be formed on all slab edges coupled with Dura Riser steel perimeter angle on core wall sides (see Post-Fix section for details).

Formed rebates can pose issues with fire stopping strategies further in the build, and should be taken into consideration when planning to use this method.

Fixings required: Tapcon concrete screws with Extra Large Dome Washers to be placed through the Dura Grating into the formed rebate at 1000mm centres to hold down the grating.

x1 M6*100 Tapcon [BFX02150]
x1 Large Dome Washer [FX01003]

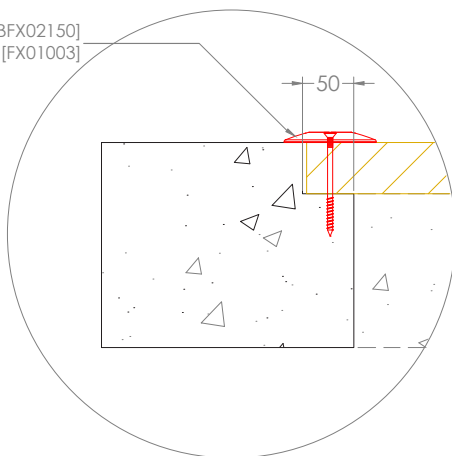


Image shows supporting Dura Riser framework and Grating from underneath.

Dura Riser Cast-In Modules

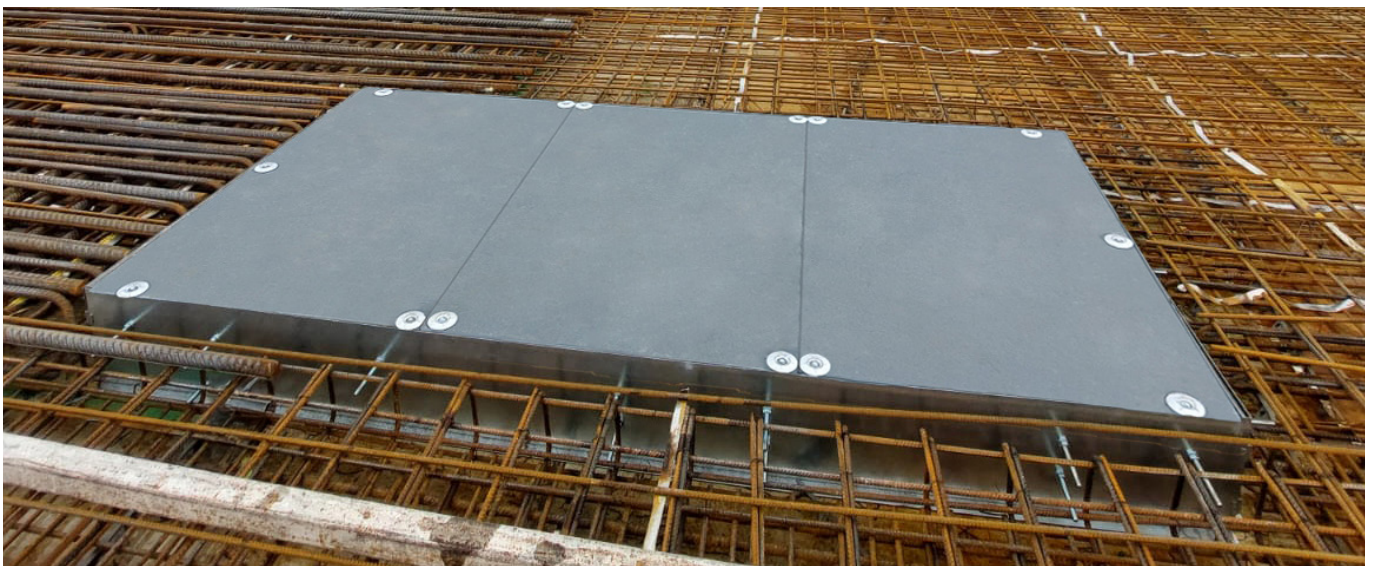
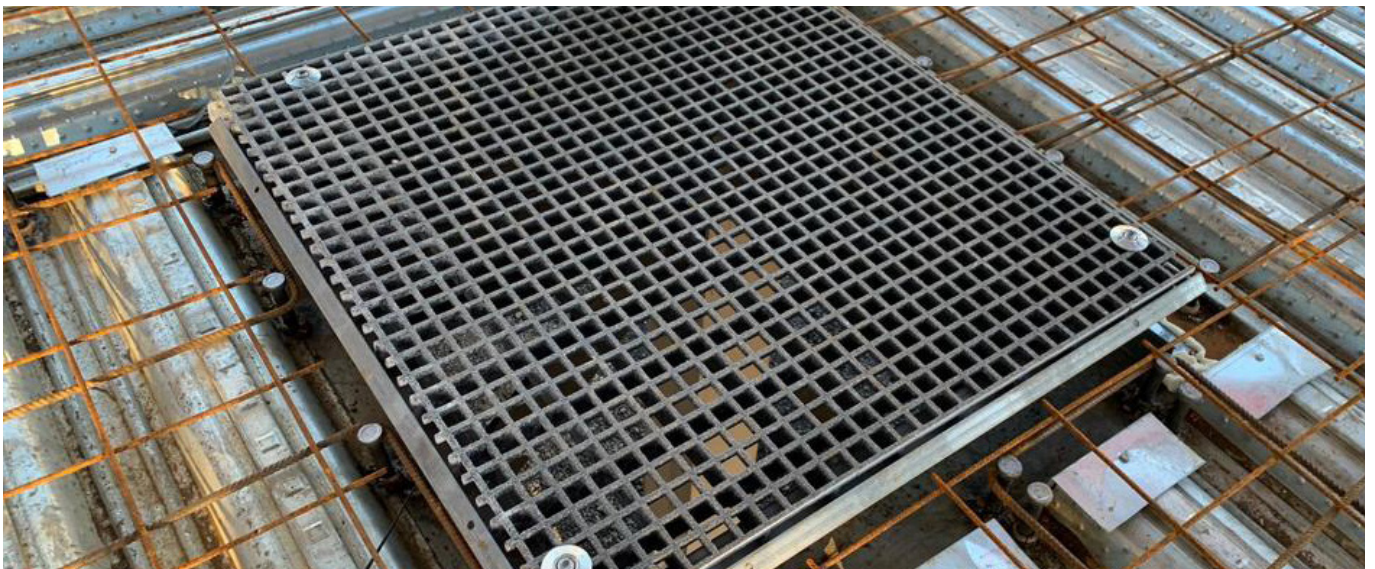
Dura Riser Dura Riser Cast-In Modules cast in module is a galvanised steel permanent shutter for reinforced concrete slab, designed specifically for use in the riser floor building construction for complete piece of mind. The Dura Riser Dura Riser Cast-In Modules provides an opening in concrete floor bespoke built to the correct length, width and height of each void and slab.

The Dura Riser Cast-In Modules can be delivered fat-packed for assembly on-site, or completely pre-built for lifting into place with maximum speed and minimum risk. Opting for pre-built units can help on projects with shorter construction schedules where safety, quality, time and cost parameters still need to be met.

Dura Riser perimeter is fixed to the inside of the Dura Riser Cast-In Modules for the Dura Grating to sit on, or the Dura Riser Cast-In Modules sides can be made with a bend flange at the top for the Dura Grating to rebate into the slab. This can pose issues with fire stopping strategies further in the build and should be taken into consideration when planning to use this method.

Once the temporary floor is removed post-pour, the Dura Riser Cast-In Modules is held in place with 100mm bolts that key into the concrete.

Fixings required: Dura Riser Angle perimeter profile to be secured to the Dura Riser Cast-In Modules with M10 BZP Hex Head x100 bolts at 500mm centres. Tek screws with Extra Large Dome Washers to be placed through the Dura Grating into the steel angle at 1000mm centres to hold down the grating.



Grating Cast In (Not Dura Recommended)

The Dura Grating can be also be cast directly into the concrete. While this will secure the grating in place, this method is best avoided as it does prove difficult to remove the grating at a later date to make adaptations when the services are installed.

Removing the Dura Grating may result in having to cut it away from the concrete and then a post-fix angle to be installed, or new Dura Grating having to be installed to replace the damage grating that was removed.

Additionally, the uncured concrete can break down the composite structure of the Dura Grating resulting in a weakened panel.



Framework



Dura Composites' Post-Fix galvanised coated steel framework system is ideal for use in situations where the riser void covering needs to be fixed to an existing structure such as a reinforced concrete slab or core wall. Designed to work seamlessly with our d² Dura Grating products, the Patent Pending framework is supplied in sections for easy handling on site.

Perimeter Angle

Dura Riser Angle is to be secured into the reinforced concrete around the perimeter of the void and is pre-punched meaning that the profile doesn't need to be drilled and has two rows of perforated holes so that its more likely that rebar will be avoided during installation.

Fixings required: Dura Riser Angle perimeter profile to be secured to the reinforced concrete with M10 Zinc Plated Throughbolt x80 or M10 Zinc Plated Concrete Screw Hex Head x80 at 500mm centres.

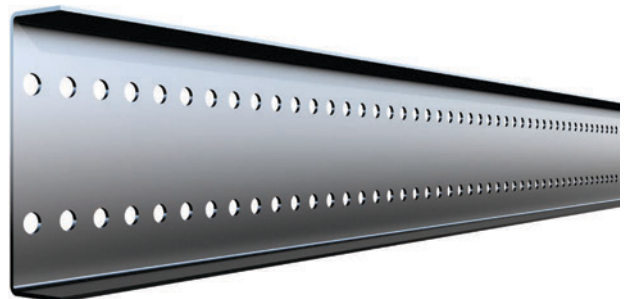


Full Length

Support Channels

Dura Riser Channel is used for reducing the span of the d² Dura Grating on larger voids, and also for around cut outs when services are introduced into the riser. These can be used singularly or back-to-back depending on the span of the channel. The Dura Riser Channel profile is also pre-perforated for ease of installation without the need for drilling.

Fixings required: Dura Riser Channel profile to be secured to the reinforced concrete or secondary Dura Riser Channel with Dura Riser G-Brackets using x2 Concrete Screws and connecting bolts at 500mm centres for back-to-back supports.

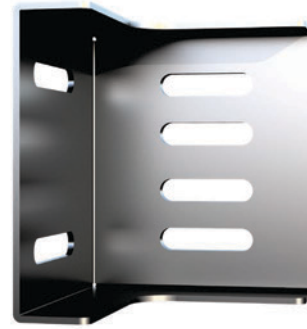


Full Length

Dura Riser G-Bracket 150

Dura Riser G-Bracket 150 is used to connect the Dura Riser Channel to reinforced concrete to create support beams over a short span, up to 1000mm. They can also be used to connect a Dura Riser Channel to spur off another Dura Riser Channel for cut out supports. The Dura Riser G-Bracket 150 can be used directly on reinforced concrete, or over the top of the Dura Riser Angle along with the Dura Riser G-Bracket Packer.

Fixings required: Dura Riser G-Bracket 150 to be secured to the reinforced concrete with x2 M10 Zinc Plated Concrete Screw Hex Head x80 and x2 connecting bolts, or x4 connecting bolts when joining two spurring Dura Riser Channels.

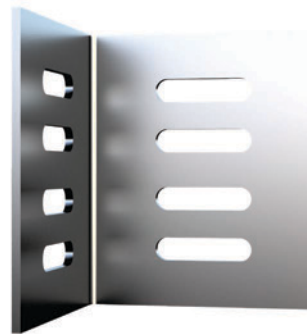


Dura Riser G-Bracket 150

Dura Riser Cleat Bracket 150

Dura Riser Cleat Bracket 150 is used to connect the Dura Riser Channel to reinforced concrete to create support beams over a short span, up to 1200mm. They can also be used to connect a Dura Riser Channel to spur off another Dura Riser Channel for cut out supports. The Dura Riser G-Bracket can be used directly on reinforced concrete, or over the top of the Dura Riser Angle along with the Dura Riser G-Bracket Packer.

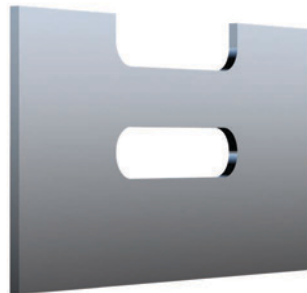
Fixings required: Dura Riser Cleat Bracket 150 to be secured to the reinforced concrete with x2 M10 Zinc Plated Concrete Screw Hex Head x80 and x2 connecting bolts, or x4 connecting bolts when joining two spurring Dura Riser Channels.



Dura Riser Cleat Bracket 150 Packer

Dura Riser G-Bracket 150 Packer

Dura Riser G-Bracket 150 Packer is to be used with the Dura Riser G-Bracket 150 or Dura Riser Cleat Bracket 150 when installing the bracket over the top of the Dura Riser Angle.



Dura Riser G-Bracket 150 Packer

Dura Riser Z Hanger

The Dura Riser Z Hanger is designed for use with d² Dura Grating Standard Mesh 50mm.

It is ideally suited for situations where fixing to the inside face of the riser grating is not possible, or in narrow risers (less than 250mm) where access for drilling is limited.

Fixings required: Use Dome Head Washers and Tek screws to secure the GRP to the Z Hanger and Tapcon screws to secure to the concrete.



Dura Riser Z Hanger

Installing Dura Riser Post-Fix Framework

Approach

The approach to the installation will be outlined in the method statement for each project this will usually be from below from an aluminium tower, podium or MEWP.

Perimeter Frame

Dura Riser Angle perimeter profile to be secured to the reinforced concrete with minimum of two M10 Zinc Plated Throughbolt x80 or M10 Zinc Plated Concrete Screw Hex Head x80 anchors per length or a maximum of 500mm centres. When fixing the Dura Riser Angle, care should be taken to allow for the thickness of the grating below the desired finish level, the current configuration has been optimised for the grating finishing at S.S.L.

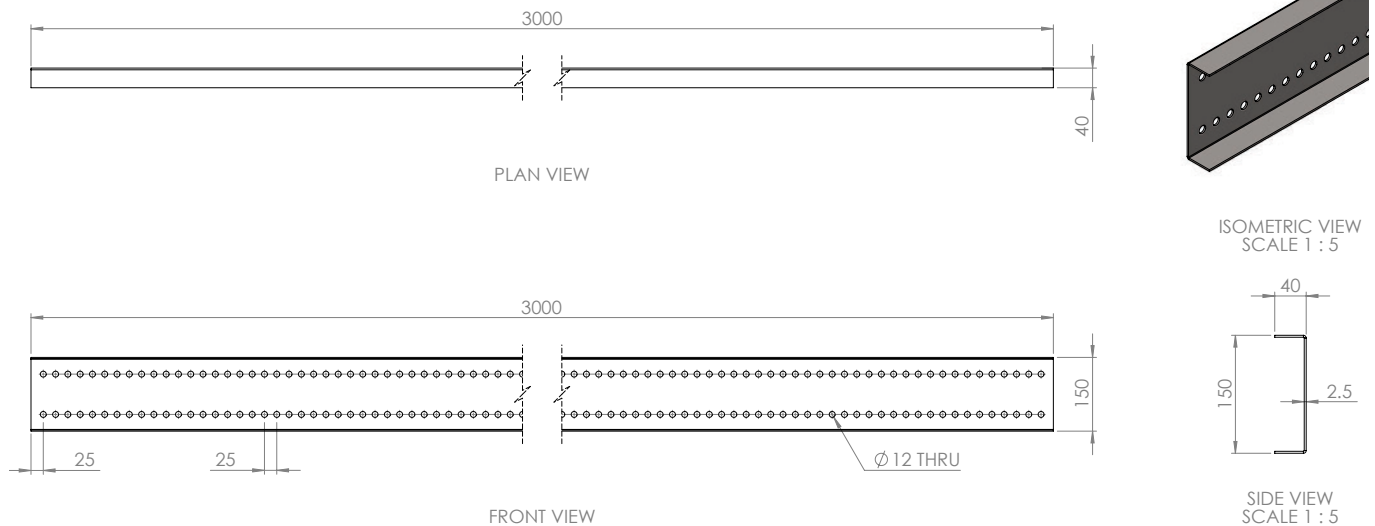
Dura Riser Angle is best installed with 50mm clearance from adjacent side, so cut the length of the angle to 100mm less than the void length.

TIP: A sample of the grating can be used as a spacer when installing to assure the product is aligned at the correct level.

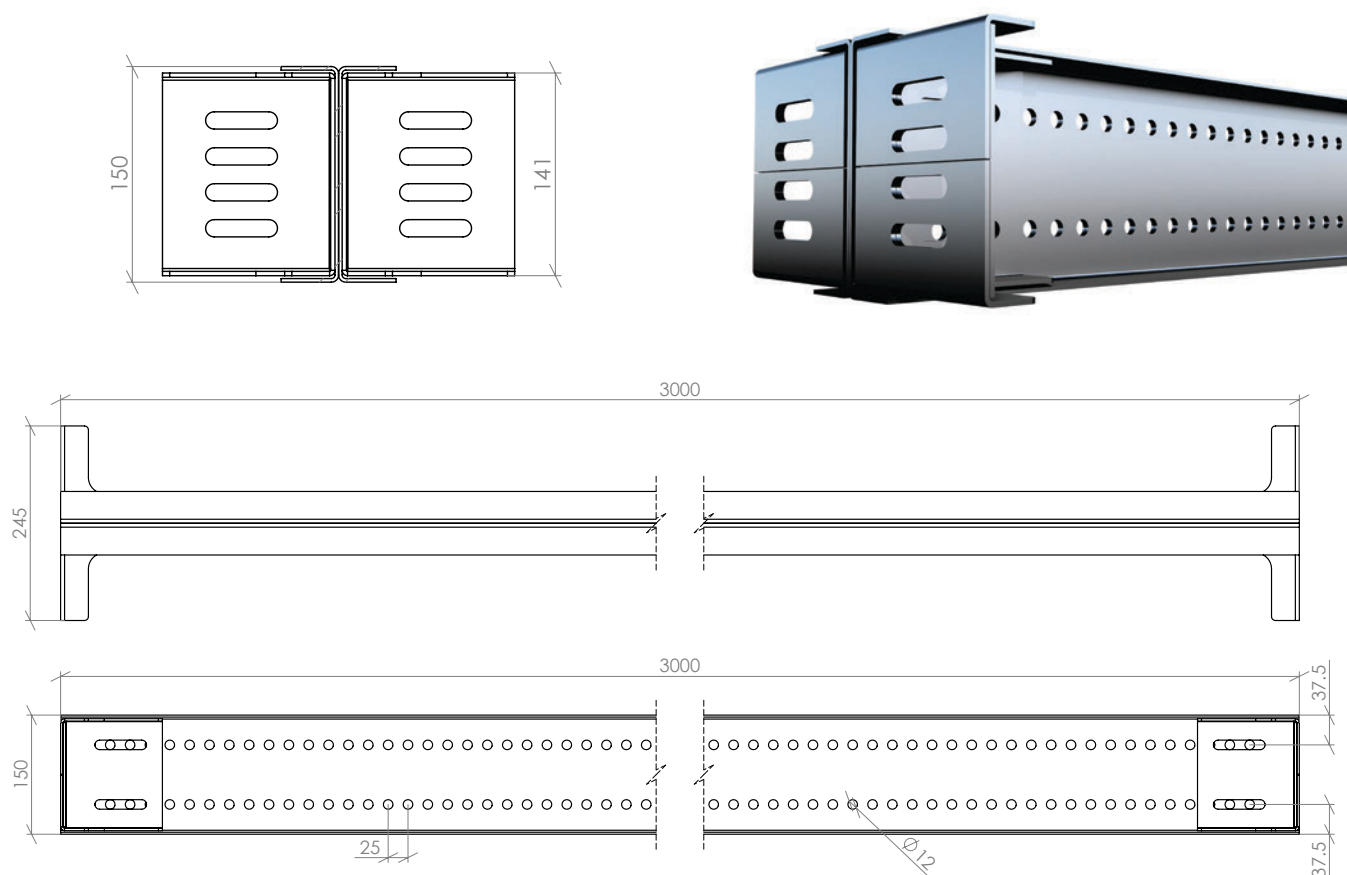
Support Channels

Supplementary supports comprise of Dura Riser Channel connected to the reinforced concrete with two Dura Riser G-Bracket 150. These can be connected directly to the core wall/slab directly, or over the front face of the Dura Riser Angle along with the Dura Riser G-Bracket 150 Packer.

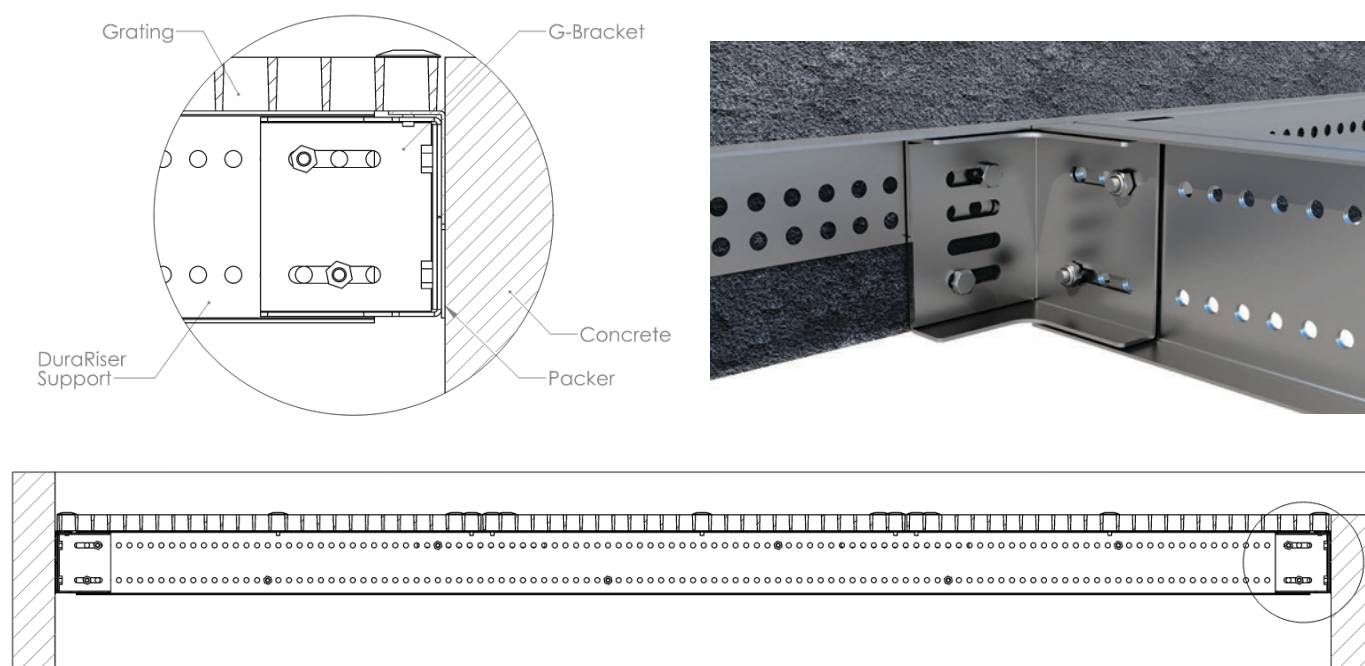
Two Fischer 10mm Ultra Cut FSB II concrete screws are to be used to secure the Dura Riser G-Bracket 150 utilising one of the top two slots and one of the bottom two slots.



The Dura Riser Channel support beam can be used as a single beam when spanning up to 1300mm with two Dura Riser G-Bracket 150. If the desired span is greater than 1300mm the Dura Riser Channel needs to be used in a back-to-back configuration with four Dura Riser G-Bracket 150.



The Dura Riser Channel is to be connected to the Dura Riser G-Bracket 150 with two M10 30mm Concrete Screws, with two washers and a Nyloc nut. The back-to-back Dura Riser Channel needs to have M10 30mm Concrete Screws placed at 500mm centres alternating between the top and bottom row of perforated holes.



Safety & Install



Our grating solutions for the Construction industry have been designed for simplicity and ease of installation. However, to ensure long-term performance, any installation **MUST** be carried out in accordance with these instructions by a qualified professional with previous experience of working in Construction environments who has carried out risk assessment, in addition to the general risk found in the construction area. Below are hazards that should be considered.

Manual Handling

While Dura Composites d² products are up to 33% lighter than previous generation gratings, lifts should be planned, lifting aids employed where appropriate and team lifts coordinated. PPE provision should include Safety Boots and Gloves.

Dust

Dry cutting of GRP produces fine dust that can irritate skin or eyes. Use M-class extraction when dry cutting and vacuum residual dust from the work area at the end of the work period. Face-fit RPE and Eye Protection are mandatory for all persons in the cutting area.

Safe Access and Platform Loadings

Ensure the ground can support the loads of installers and their access equipment, especially when working from MEWPS. All operatives should be trained to use the specific equipment they plan to use.

Cutting Guide

Utilise wet cutting where possible. Follow dust guidelines if wet cutting is unavailable. Use diamond and carbide-coated multi-construction cutting discs, monitoring noise and vibration. Saw blades for circular saws are bespoke and expensive; contact Dura Composites for blades. Use T141MH or T341HM jigsaw blades for GRP, following dust management guidelines. Ideal for service cutouts and in-situ trimming, but not for large amounts of cutting. Abrasive reciprocating saw blades can be used but cutting is slow. Follow dust provisions.

Warranty and Fixings

All installations must include the use of approved Dura Composites fixings or accessories, to ensure your warranty is valid. All panels should be clipped down. Confirm all loading with Dura Composites and observe specified limits.

25 year limited warranty available. Please register your product with us within 30 days of your invoice date. Visit www.duracomposites.com/warranty.

By following these detailed guidelines, you can ensure the safe and effective installation of our grating solutions in construction environments. Please be sure that your proposed design meets any relevant local building codes and regulations before you begin the installation.

Installing d² Dura Grating

d² Dura Grating can be supplied pre-cut to size or supplied in full stock panels. When the grating is supplied pre-cut, the panels will have a 4mm reduction from the overall size of the void (in the case of post-fix) or over all size between the formed rebates to ensure that there is enough room to place the grating inside the required space. When cutting the grating on site (if supplied in full stock sheets) the required dimensions should be marked on the panel and then cut to suit.

Method

Access will be gained from below using appropriate access solution, a perimeter profile will be installed around edge of the void at an offset that allows the flush finishing of the grating. Span and service trimmer will be installed where design drawings dictate. All operations to be carried out using specified approved anchors, with care being taken to observe the minimum cross centre, edge and embedment distances, connections will be made using steel cleats and grade 8.8 bolts.

Drilling operations will be carried out using a rotary hammer drill fitted with drill bits that are designed for use with reinforced concrete. On-tool extraction should be used in conjunction with a face fit EN-149 FFP3 or EN-140 P3 with self-test R.P.E. during drilling operations. Noise and vibration controls should be observed when carrying out works. Anchors and fixings will be tightened to correct torque using appropriate tools.

After support framework has been installed grating will be manually handled from above while sited from below by operatives on mobile tower.

After the grating has been placed in situ it will be fixed down as stipulated above with Extra Large Dome Washer and Tek/Tapcon screws at 1000mm centres.

Where panels join with no support framework beneath, Joining Bar Assemblies should be used at 500mm centres prevent the panels deflecting independently and reducing the risk of creating a trip hazard.

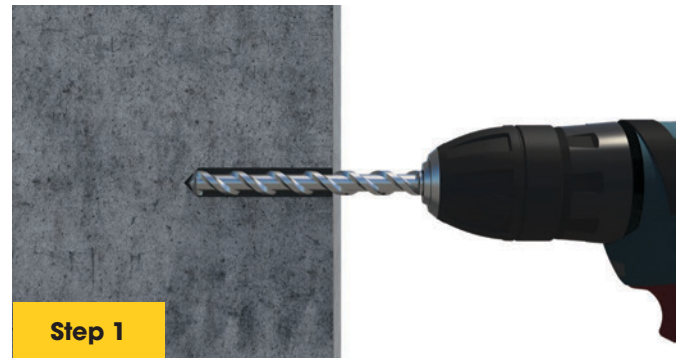


Anchor Fixing: Installation Details

RAWL M10 Zinc Plated R-XPT Throughbolt – 80mm

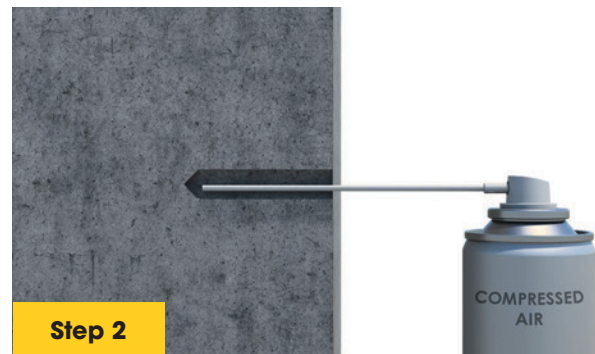
Step 1:

Drill a hole of required diameter (10mm) and depth (75mm).



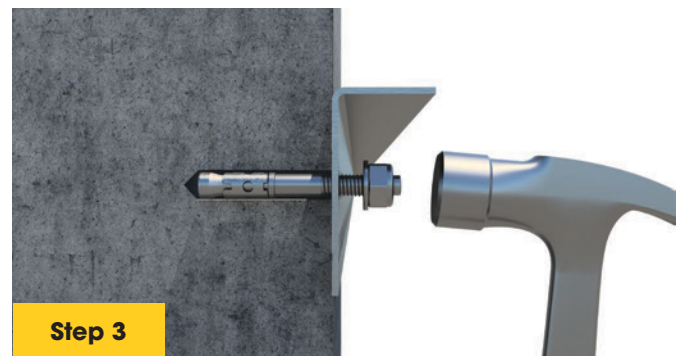
Step 2:

Clear the hole of drilling dust and debris (using blow pump or equivalent method).



Step 3:

Lightly tap the through bolt through the fixture into hole with a hammer, until fixing depth is reached.



Step 4:

Tighten to the recommended torque (20Nm) using correct tool (17mm socket).



Step 5:

The installation of the fixing is now complete.



Concrete Anchor Fixing: Installation Details

Fischer 10mm Ultra Cut FSB II – 80mm

Step 1:

Drill a hole of required diameter (10mm) and depth (75mm).



Step 2:

Option a) Clear the hole of drilling dust and debris (using blow pump or equivalent method).

Option b) Cleaning the drill hole is not necessary when:

- using a hollow drill
- If drilling vertically upwards
- If drilling vertically downwards and the drill hole depth has been increased. We recommended to increase the drill hole depth an additional 3 times d_0 .



Step 3:

Installation with any torque impact screw driver up to the maximum mentioned torque moment ($T_{imp. max}$). Alternatively, all other tools without an indicated torque moment are allowed (e.g. ratchet spanner). The indicated torque moments for impact screw driver are therefore not decisive.



Step 4:

After installation a further turning of the screw must not be possible. The head of the screw must be supported on the fixture and is not damaged.



Optional Step 5:

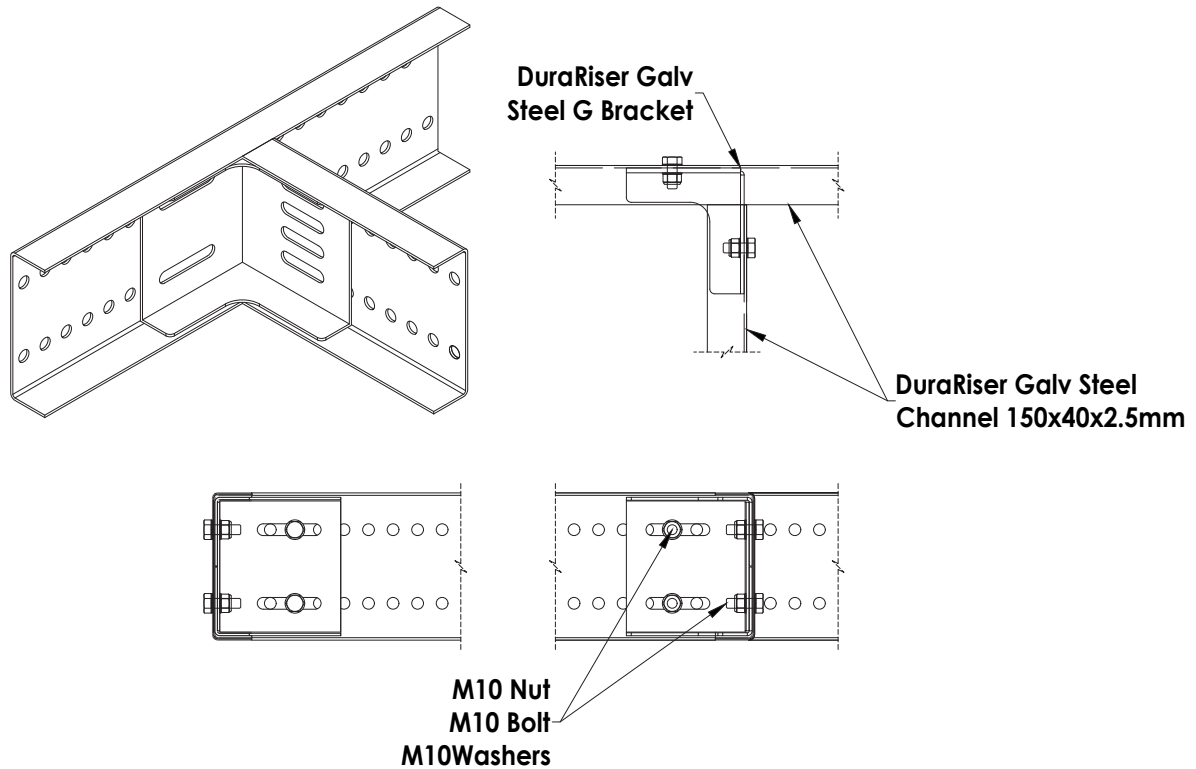
It is permissible to adjust the screw two times. Therefore the screw may be untightened to a maximum of $L_{adj} = 20\text{mm}$ off the surface of the initial fixture. The total permissible thickness of shims added during the adjustment process is $t_{adj} = 10\text{mm}$.

For Seismic Performance Category C2 applications: The gap between screw shaft and fixture must be filled with mortar; compressive strength $> 50\text{N/mm}^2$ for example: FIS V, FIS EM, FIS HB or FIS SB.

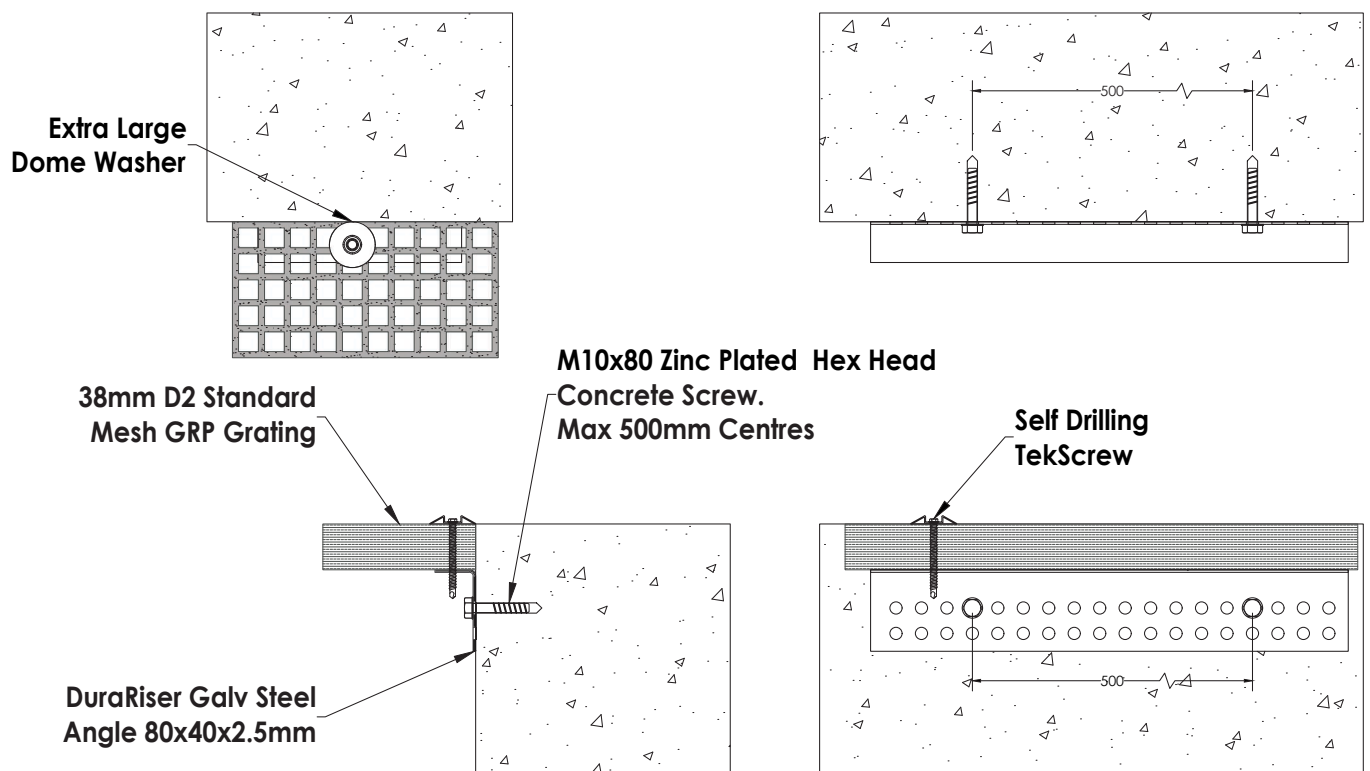


Typical Section Configurations

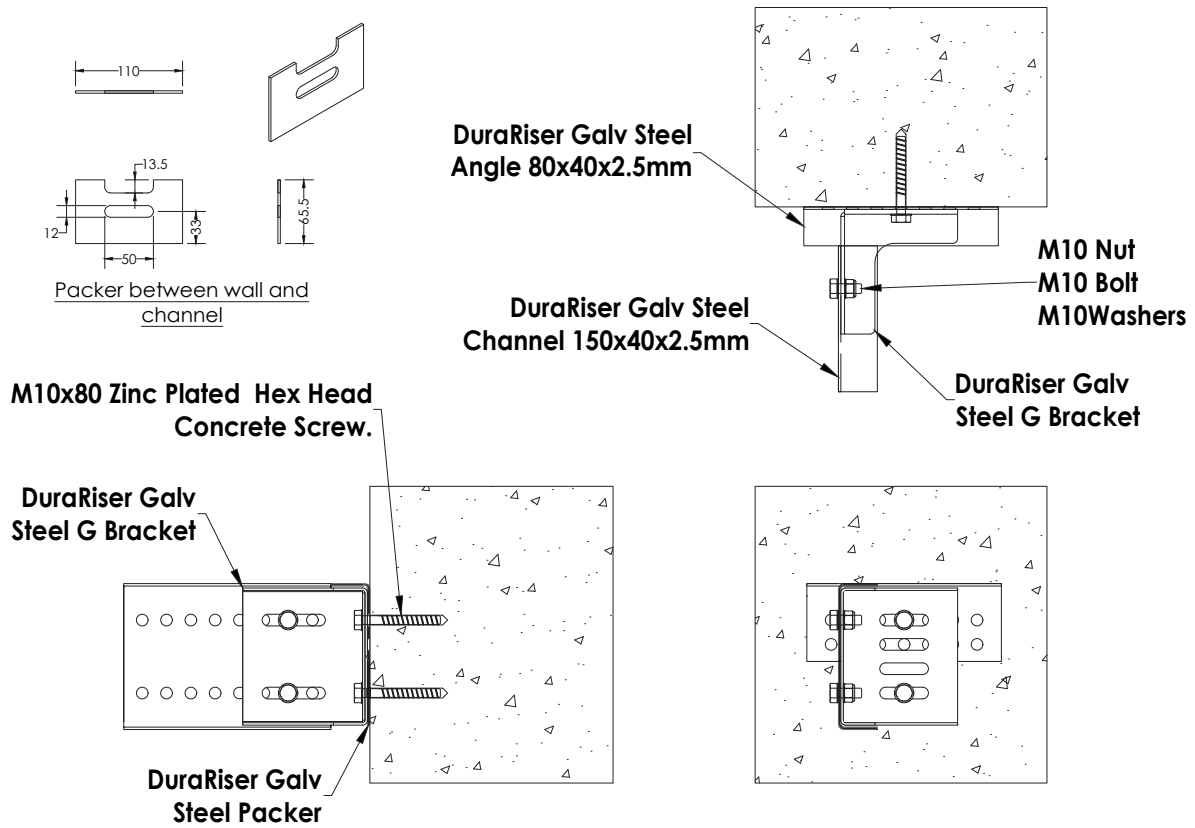
Channel to Channel Connection Example



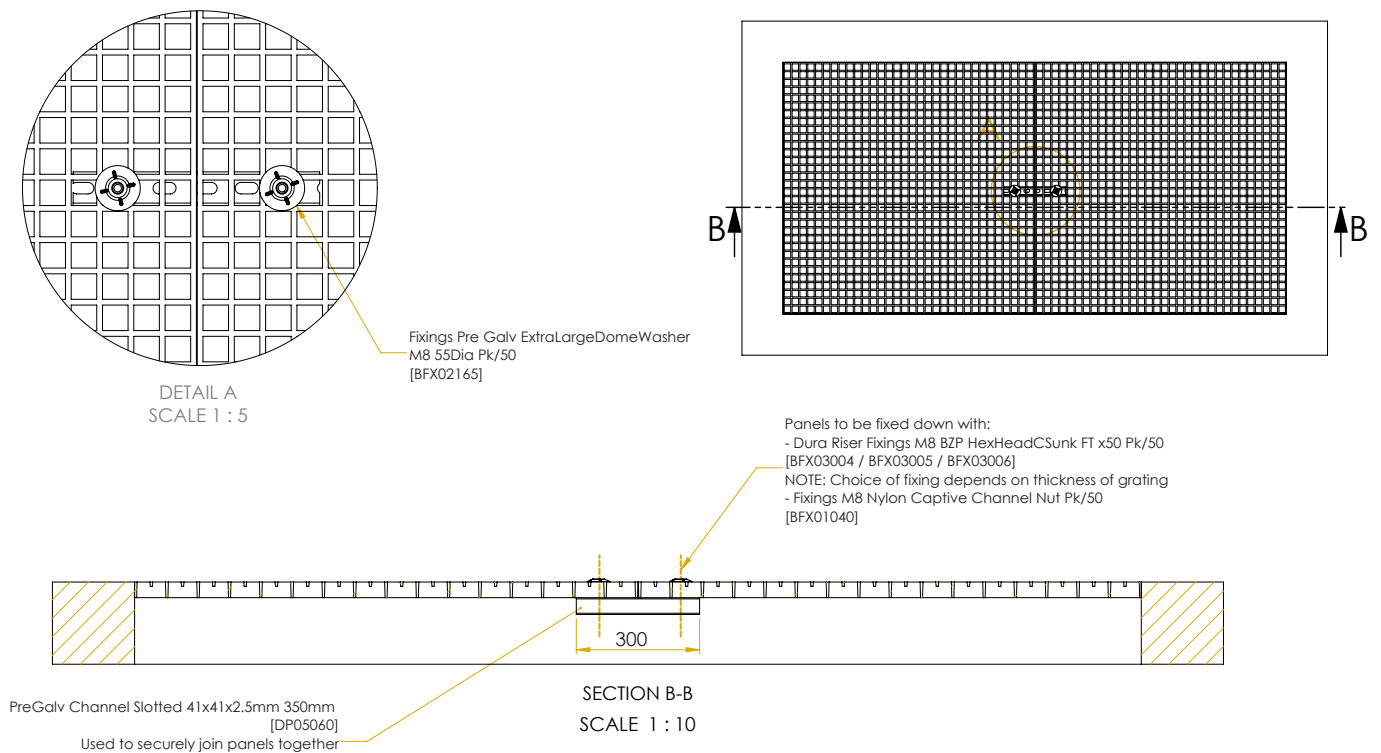
Perimeter Angle to Grating/Core Wall Connection Example



Channel to Grating/Core Wall Connection Example

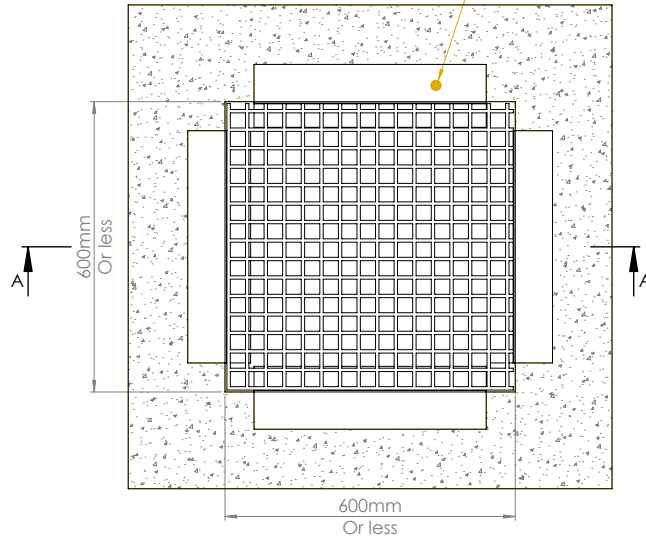


Uni-Strut Channel As Joining Bar For 2 Panels Example

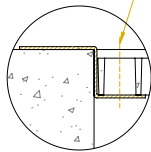


Z Hanger Connection Example

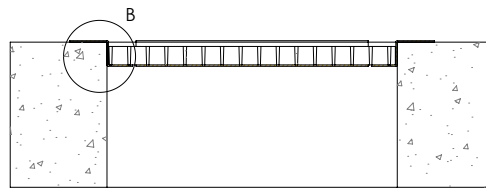
DuraRiser Z-Hanger comes pre-drilled & pre-countersunk.
 Fixings spaced as per component.
 Fixings required are:
 - Fixings M6 Tapcon Countersunk x70 Pk/50 (BFX02154)
 Z-Hangers to be used only when void size prevents access to tools, as such fixings are to be applied into top of the slab.



Fixings to be positioned @ 500mm Max Centres.
 Fixings required are:
 - Pre Galv ExtraLarge Dome Washer M8 55mm Ø (BFX02165)
 - DuraRiser Secure Fixings 5.5 HexHeadScrew SD BZP (length depending on grating thickness) (BFX | 03001/03002/03003)

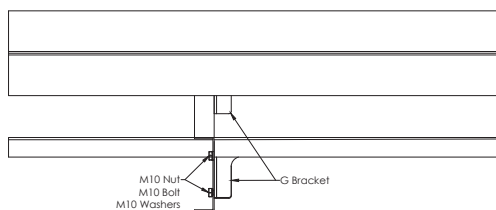
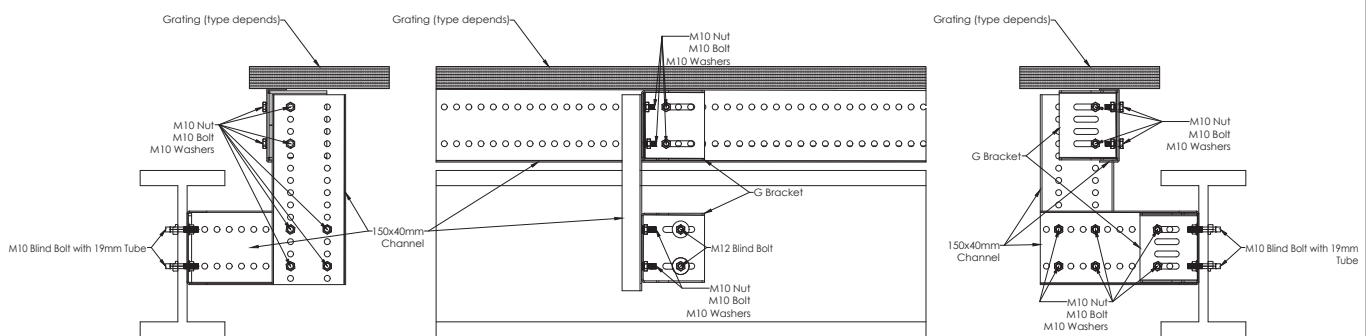


DETAIL B
 SCALE 1 : 4



SECTION A-A

Dog Leg Connection Example



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