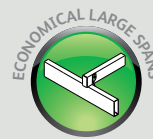


# DuraGal Flooring System<sup>®</sup>

Product Information Guide



**Sloping Blocks | Bushfire Zones | Termite Areas | Flood Zones | Reactive Soils  
Decks | Sub-Floors | Mezzanine Floors | Home Additions | Re-Piering Solution**

# Build a Better Floor With DuraGal Flooring System®



## No Other System Makes as Much Sense

DuraGal Flooring System® is assembled on site and requires no welding. Simple screwed connections make construction fast and easy. DuraGal Flooring System® meets the industry durability guideline by including fully-galvanised Australian-manufactured tubular sections which are corrosion resistant and won't rot, warp or twist. The strength of steel allows for greater spans and reduces the impact of site works and sediment control issues.

## DuraGal Flooring System®

- ✓ Fully Engineered System
- ✓ Easy to Install
- ✓ Adjustable Piers
- ✓ Termite, Fire & Corrosion Resistant
- ✓ Economical
- ✓ Versatile in Design
- ✓ Residential
- ✓ Decks and Verandahs
- ✓ Commercial





## Fully Engineered System

DuraGal Flooring System® is a fully engineered steel flooring system\* developed to provide a termite resistant, economical and easy-to-install alternative to conventional timber bearers and joists.

DuraGal Flooring System® design criteria references the following Australian Standards:

AS 1170.0	AS 3623	AS/NZS 4792
AS 1170.1	AS 3660.1	AS/NZS 4600
AS 1163	AS 4055	
AS 2870	AS 4100	

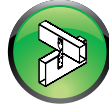
AS/NZS 2312: Guide to the protection of structural steel against atmospheric corrosion by the use of protective coatings.

NASH Standard: Residential and Low-rise Steel Framing Part 1 Design Criteria.

Each floor plan is assessed against certified DuraGal Flooring System® span tables. These tables have been developed by InfraBuild and certified following a third party engineering review.

Obligation free estimate of probable cost can be provided for a large range of single story residential applications. We can also assist with layouts for Decks and Verandahs, plus light industrial and commercial flooring systems applications up to a 5kPa live load.

For Industrial Mezzanine floor applications, we recommend you refer to the DuraGal® Mezzanine Flooring System brochure.



## Easy to Install and Connect

DuraGal Flooring System® uses high strength C450L0 grade galvanized DuraGalPLUS® ZB135/135 Hollow Sections. The sections are strong and lightweight making them easy to handle on site. DuraGal® ZB 135/135 is easy to cut and drill, and best of all the system has been designed so that it simply screws together on site using a screw gun fitted with a hex head bit.

DuraGal Flooring System® features a range of specialty galvanized fittings designed to allow you to get on with the job easily and quickly. Fast and accurate levelling of the floor using the adjustable piers during and after construction is a great feature.

Sheet flooring can still be attached in the traditional way using building adhesive and nailing or screwing. Most reputable nail tool suppliers have nails to suit fixing sheet flooring to steel joists up to and including 2mm thick.

Check the diagrams on pages 5 to 10 to see how easy installing a DuraGal Flooring System® can be.

Refer to the DuraGal Flooring System® Technical Brochure on the InfraBuild Steel Centre website [www.infrabuild.com](http://www.infrabuild.com) for installation and engineering instructions.



\* DuraGal Flooring System® requires independent engineering certification to determine compliance of site specific conditions with statutory requirements.

**InfraBuild Steel Centre and their approved re-sellers are the exclusive suppliers of the DuraGal Flooring System®.**

# Build a Better Floor With DuraGal Flooring System®



## Termite Resistant

A new home is a major investment and the risk of termite invasion is a major concern for new home buyers, and for good reason. Termites can cause serious structural damage, often unnoticed until it is too late.

Termites cannot eat steel.

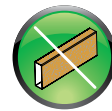
While the DuraGal Flooring System® is great for sloping sites, the advantage of having a raised floor, even on level land, can be significant in helping to protect a new home from termite damage.

Regular inspections are a key factor in protecting a home against termite damage. DuraGal Flooring System® provides visual inspection points because termites would have to build a tunnel around the exposed solid steel threaded rod of the DuraGal® ZB 135/135 pier adjustable top connection to access your home (assuming no other concealed entry points). This offers a similar visual inspection area to a traditional ant cap on a masonry pier and is deemed to comply with AS 3660.1. A raised steel sub-floor system helps protect a home by providing improved access to regularly inspect the under floor area.



## Fire Resistant

Steel does not burn and, as such, an excellent choice for new homes, extensions and alterations where councils are increasingly requiring designers to use non-combustible materials.



## Corrosion Resistant

DuraGal Flooring System® components are either manufactured from Galvanized Strip, Batch Hot Dip Galvanized, or standard Galvabond® building supplies and coated fasteners.

The standard DuraGal Flooring System® Hollow Sections are internally and externally galvanized to comply with AS/NZS 4792 ZB 135/135, with a minimum average coating mass similar to AS 1397 Class Z275 Galvanized steel strip and sheet.

**Precautions:** While suitable for building applications in many environments found throughout Australia, the DuraGal Flooring System® will not be suitable for all environments. We do not recommend its use in applications where there is a very high rate of corrosion, such as in marine or heavy industrial environments.

**Table 1 – Do not use the DuraGal Flooring System® within the following distances from the source of corrosion<sup>1</sup>**

Source of Corrosion	Minimum Distance for Enclosed Floors (km)	Minimum Distance for Open Floors/ Decks (km)
Surf beach	2	4
Sheltered bay	0.5	1.5
Rocky Coastline/Headlands	3	4
Heavy Industrial Area <sup>2</sup>	3	4

- The distances recommended in this table are minimum distances and are estimates only. The appropriate distance from a source of corrosion will depend upon many factors such as prevailing winds, whether shielding exists (ie by trees and adjacent buildings), the topography of the surrounding area, and exposure to rain. In any building application, the specific micro climatic conditions must always be considered and taken into account. DuraGal® ZB 135/135 isn't recommended for decks or verandahs adjacent to the splash zone of swimming pools. You should seek advice from InfraBuild if you are unsure whether the DuraGal Flooring System® is suitable for your location.
- "Heavy Industrial Areas" are locations where the environment may be acidic with a pH value less than 5, as per Section 2.3 of the Australian and New Zealand Standard AS/NZS 2312:2002.





## Economical

DuraGal Flooring System® can help save money on site preparation costs by reducing the amount of site excavation, retaining walls and drainage.

Larger bearer and joist spans can significantly reduce the number of pier footings required.

The dimensional accuracy and stability of steel means it will not shrink or warp like timber, thereby avoiding those expensive callbacks, and the adjustable piers mean you can compensate for any settlement in the future.

The high strength lightweight DuraGal® ZB 135/135 sections provide excellent spans to open up underfloor areas for uses such as storage or a workshop. This can be a real selling feature now and in the future and could add value and appeal to your new home.

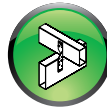


## Versatile in Design

The wide range of standard DuraGal Flooring System® components can accommodate an almost infinite number of flat and sloping site design possibilities, giving you the freedom and flexibility to design the home around your needs.

DuraGal Flooring System® has been successfully used in a large number and varied types of construction applications including Kit Homes, Brick Veneer, Free Standing, Decks, Extensions, Renovations, Walkways, Schools, Libraries, Public Halls and Storage Facilities.

Whether its just 10 square metres or 1000 square metres, the DuraGal Flooring System® has proven to have the solutions for today's designs. DuraGal Flooring System® is available nationally via the extensive InfraBuild Steel Centre network.

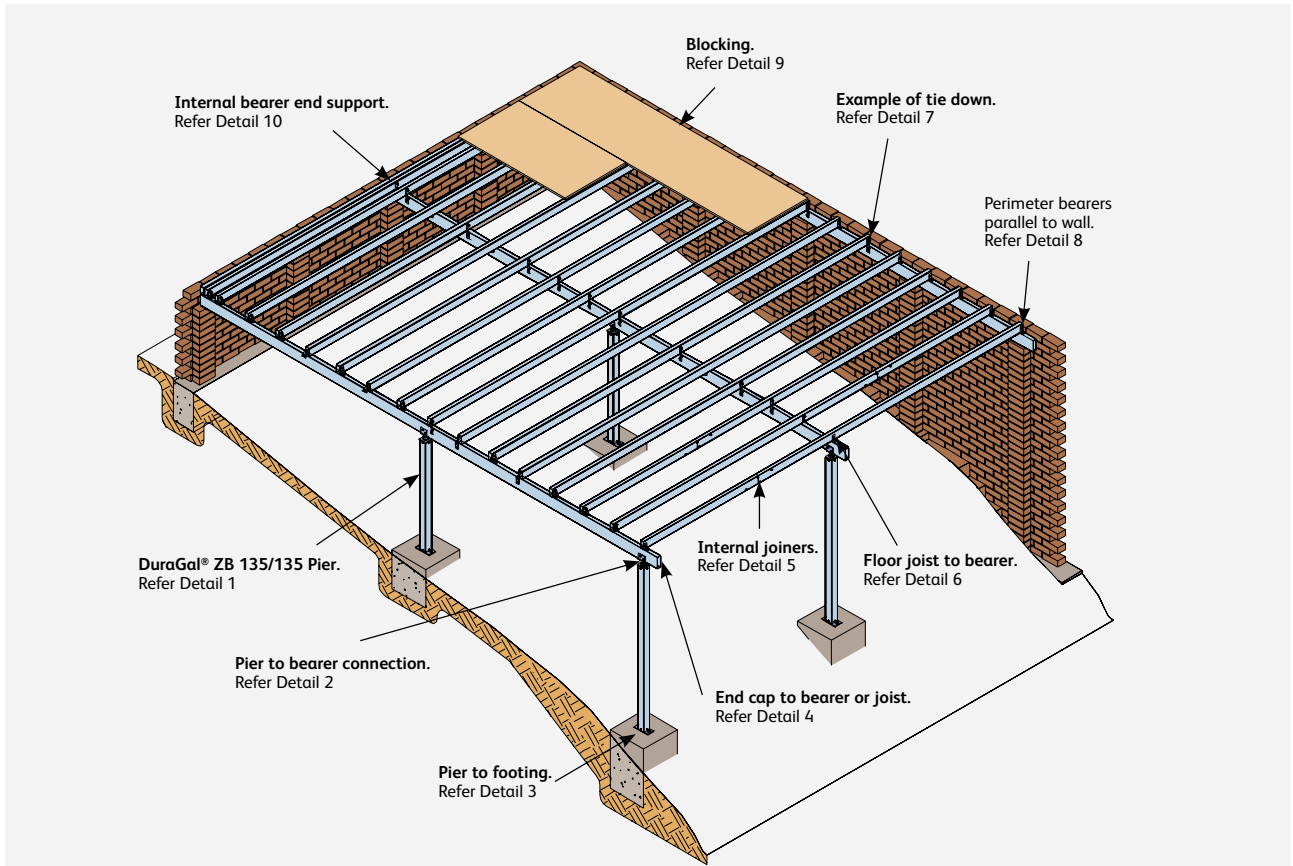


## Obtain a Quotation

To obtain a quotation please follow the simple 4-point checklist below and simply email, fax or post a COPY of your plans to your nearest DuraGal Flooring System® distributor.

1. Please provide fully dimensioned drawings clearly stating what you would like designed/quoted, e.g. deck only, house only.
2. Ensure details of any step-downs (e.g. deck) or significant site excavations are noted. As well, do you require the posts to carry through to the verandah beams.
3. Nominate whether the building is in a marine or heavy industrial environment. If in doubt check with your DuraGal Flooring System® distributor first.
4. Be sure to include the site address, your daytime contact details and the return address details where you would like us to send the quotation.





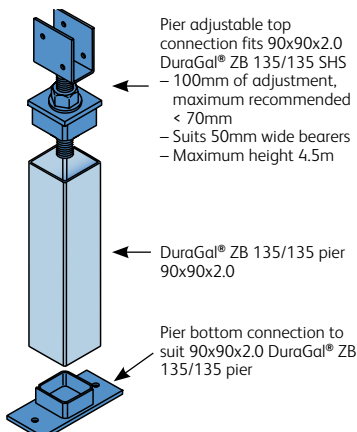
**Spans** Joists are typically 100x50x1.6 with continuous spans of 2800mm and bearers are typically 150x50x2.0 with continuous spans of 3000mm. Other sizes may be specified with differing spans subject to the floor layout and site conditions. Your Duragal Flooring System™ distributor will be able to nominate the most economical sizes and layout upon receipt of the house plans.

**Gluing and nailing of sheet flooring** Sheet flooring can be successfully glued and nailed to both 1.6 and 2.0mm Duragal® ZB 135/135 joists. Most nailing tools including Duo-Fast® and Max® or equivalent, have been successfully tested using the manufacturer's recommended hardened steel twist nail. Most reputable building adhesives work on steel joists and should be applied as per manufacturer's recommendations to clean and dry joists. Sheet flooring can also be glued and screwed to steel joists using Buildex® WingTek™ screws (or equivalent) and is the recommended method for joists with wall thickness greater than 2.0mm.

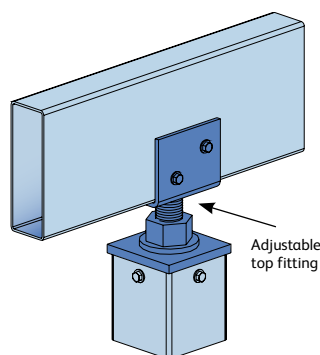
**Nailing timber tongue and groove floor boards** - A 50 x 38mm timber batten should be first glued and screwed to the top of the Duragal® ZB 135/135 joists. Timber boards can then be nailed to the battens in the conventional way. Alternatively, sheet flooring can be laid as in 2.0 above and timber boards 12.7 or 19.0mm laid on this platform.

**Cutting Duragal® ZB 135/135** - The cutting of steel on site has been made easier with the introduction of portable cold cut docking saws (Makita® 4131 or LC1230 or equivalent). These saws are lighter, and the cold cut generally produces a burr-free cut (therefore safer), without zinc burn. Other recommended methods include drop saw and circular hand saws.

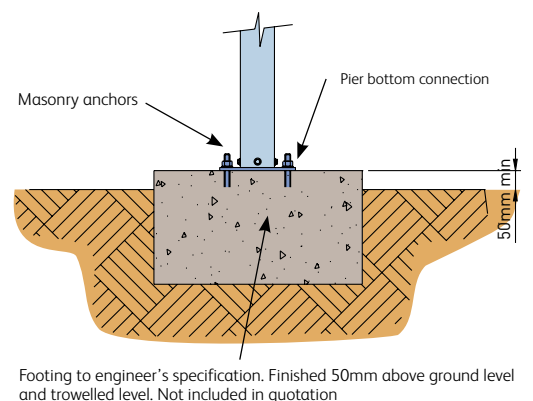
**DETAIL 1**  
DuraGal® ZB 135/135 pier



**DETAIL 2**  
Pier to Bearer Connection

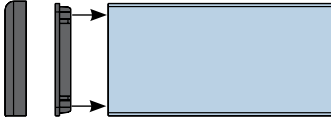


**DETAIL 3**  
Pier to Footing Detail

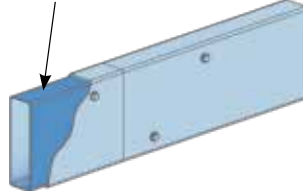


**Note:** InfraBuild Steel Centre reserve the right to change specifications without notice.

**DETAIL 4**  
**End Cap to DuraGal®**  
 ZB 135/135 Bearer or Joist

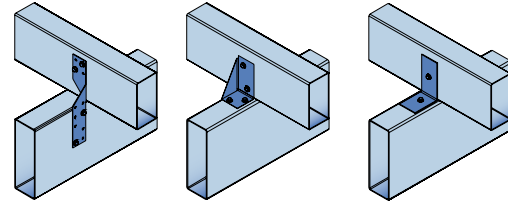


**DETAIL 5**  
**Internal Joiners**  
 Internal joiner (bearer and joist)



Also available in 45 and 90 degree for standard sizes

**DETAIL 6**  
**Floor Joist to Bearer**



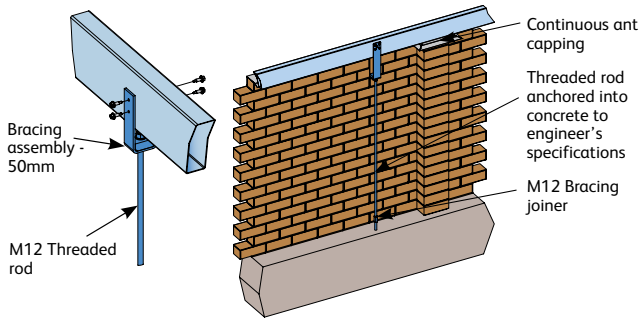
PRYDA®  
UNITTIE

PRYDA®  
TRIPLE GRIPS

PRYDA®  
PERGOLA ANGLES

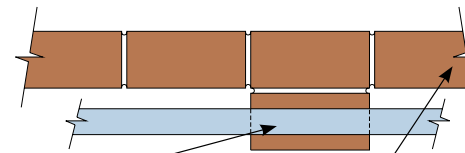
NOTE: Which type used will depend on the tie down requirements

**DETAIL 7**  
**Example of Tie Down (Cyclonic)**



**DETAIL 8**  
**Perimeter Bearers Parallel to Wall**

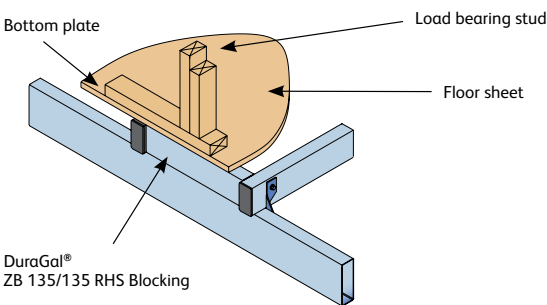
The maximum brick pier spacing is 2m for continuous span and a maximum 1.8m for single span



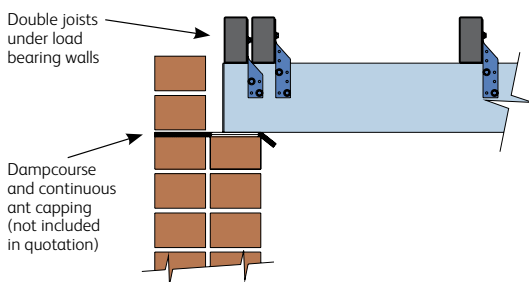
At least 200mm of support for full width of bearer

Continuous ant capping and dampcourse not shown for clarity

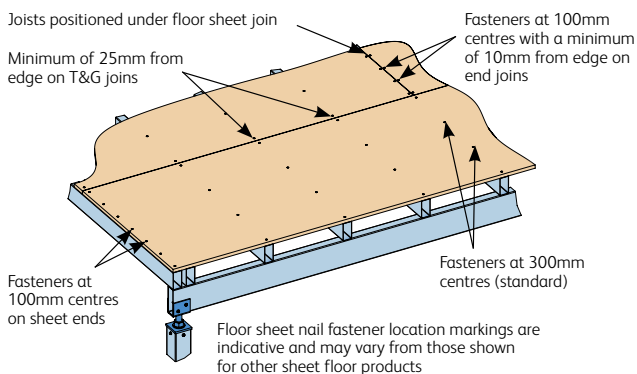
**DETAIL 9**  
**Blocking**



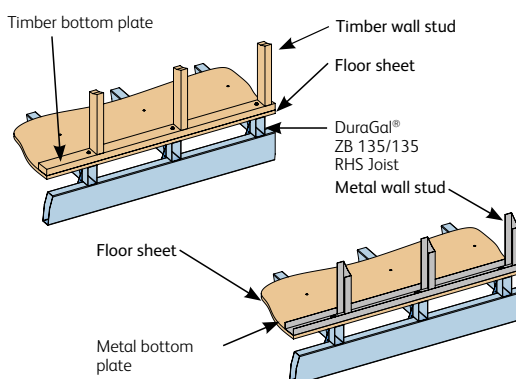
**DETAIL 10**  
**Internal Bearer End Support**

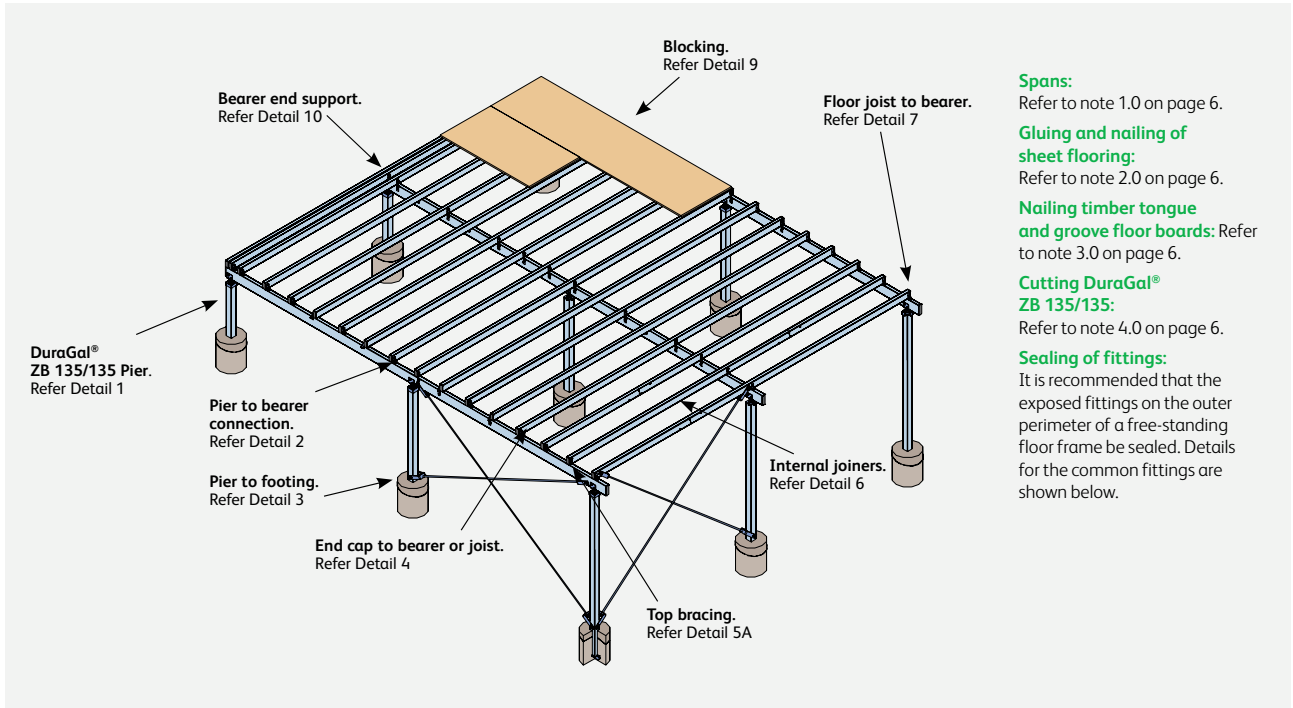


**DETAIL 11**  
**Floor Sheeting Arrangement and Fastening**



**DETAIL 12**  
**Wall Framing Arrangement and Fastening**





**Spans:**  
Refer to note 1.0 on page 6.

**Gluing and nailing of sheet flooring:**  
Refer to note 2.0 on page 6.

**Nailing timber tongue and groove floor boards:** Refer to note 3.0 on page 6.

**Cutting DuraGal® ZB 135/135:**  
Refer to note 4.0 on page 6.

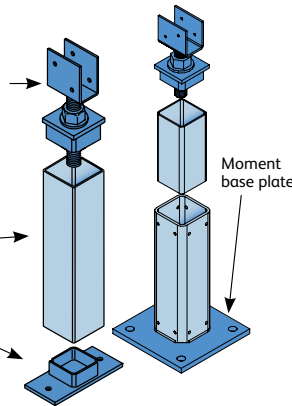
**Sealing of fittings:**  
It is recommended that the exposed fittings on the outer perimeter of a free-standing floor frame be sealed. Details for the common fittings are shown below.

**DETAIL 1**  
DuraGal® ZB 135/135 pier

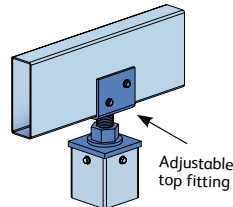
Pier adjustable top connection fits 90x90x2.0 DuraGal® ZB 135/135 SHS  
 - 100mm of adjustment, maximum recommended < 70mm  
 - Suits 50mm wide bearers  
 - Maximum height 4.5m

DuraGal® ZB 135/135 pier 90x90x2.0

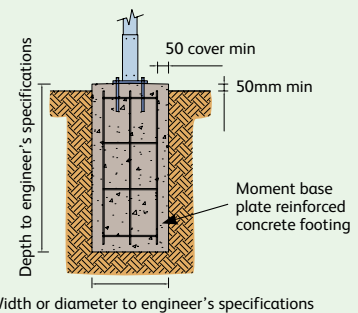
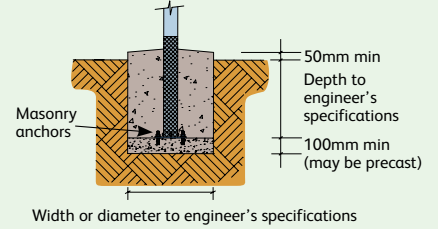
Pier bottom connection to suit 90x90x2.0 DuraGal® ZB 135/135 pier



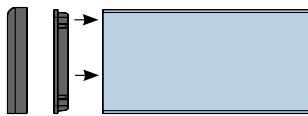
**DETAIL 2**  
Pier to Bearer Connection



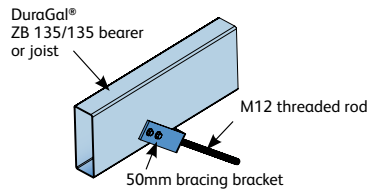
**DETAIL 3**  
Pier to Footing Detail



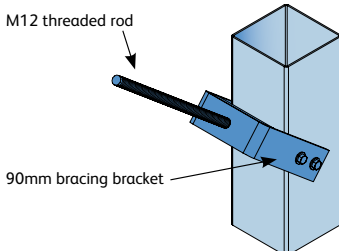
**DETAIL 4**  
End Cap to DuraGal® ZB 135/135 Bearer or Joist



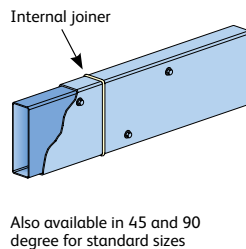
**DETAIL 5A**  
Top Bracing Assembly



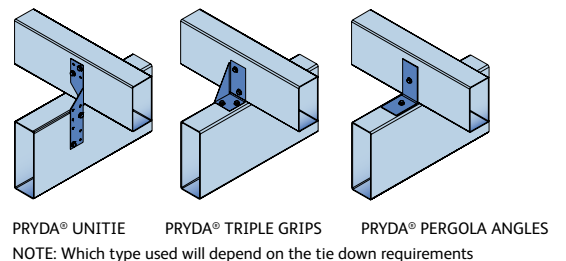
**DETAIL 5B**  
Bottom Bracing Assembly



**DETAIL 6**  
Internal Joiners

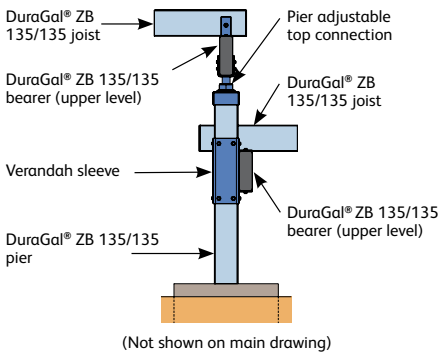


**DETAIL 7**  
Floor Joist to Bearer Connection

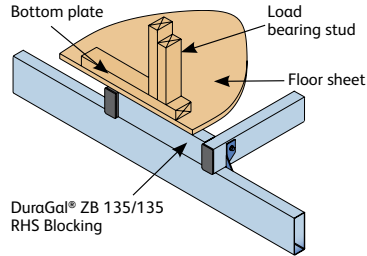


**Note:** InfraBuild Steel Centre reserve the right to change specifications without notice.

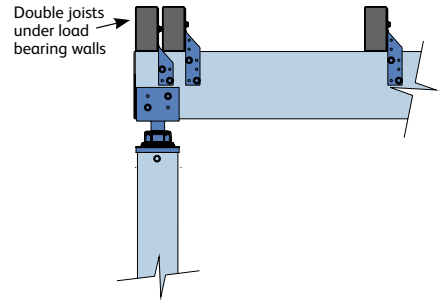
**DETAIL 8**  
Split Level Arrangement



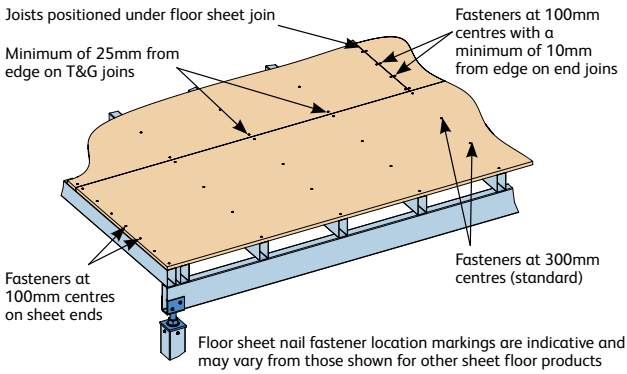
**DETAIL 9**  
Blocking



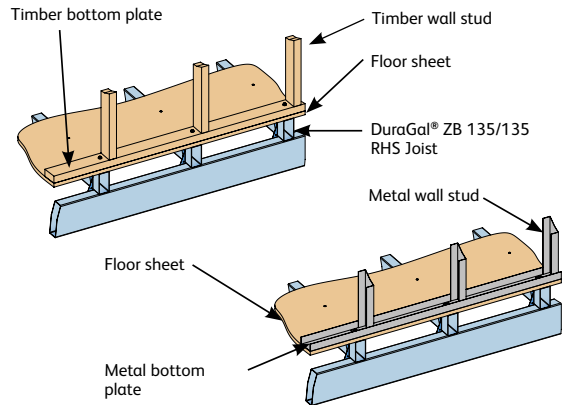
**DETAIL 10**  
Bearer End Support



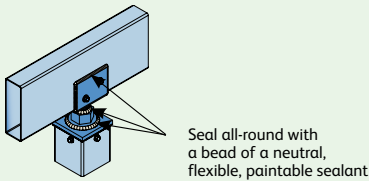
**DETAIL 11**  
Floor Sheeting Arrangement and Fastening



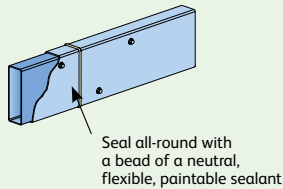
**DETAIL 12**  
Wall Framing Arrangement and Fastening



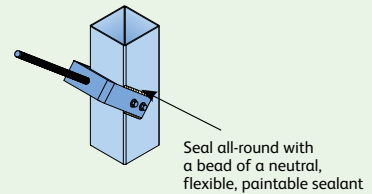
**FIGURE 1**  
Top Fitting Sealing



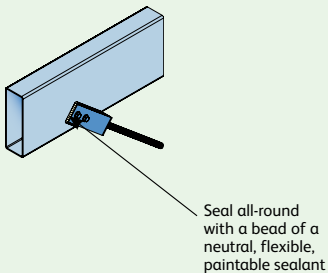
**FIGURE 2**  
Internal Joiner Sealing



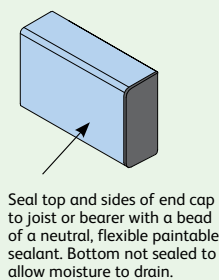
**FIGURE 3**  
Bottom Bracing Assembly



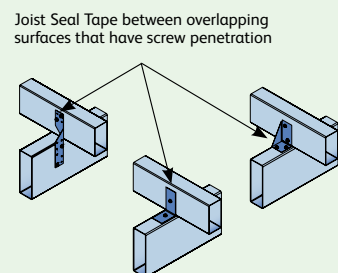
**FIGURE 4**  
Top Bracing Assembly

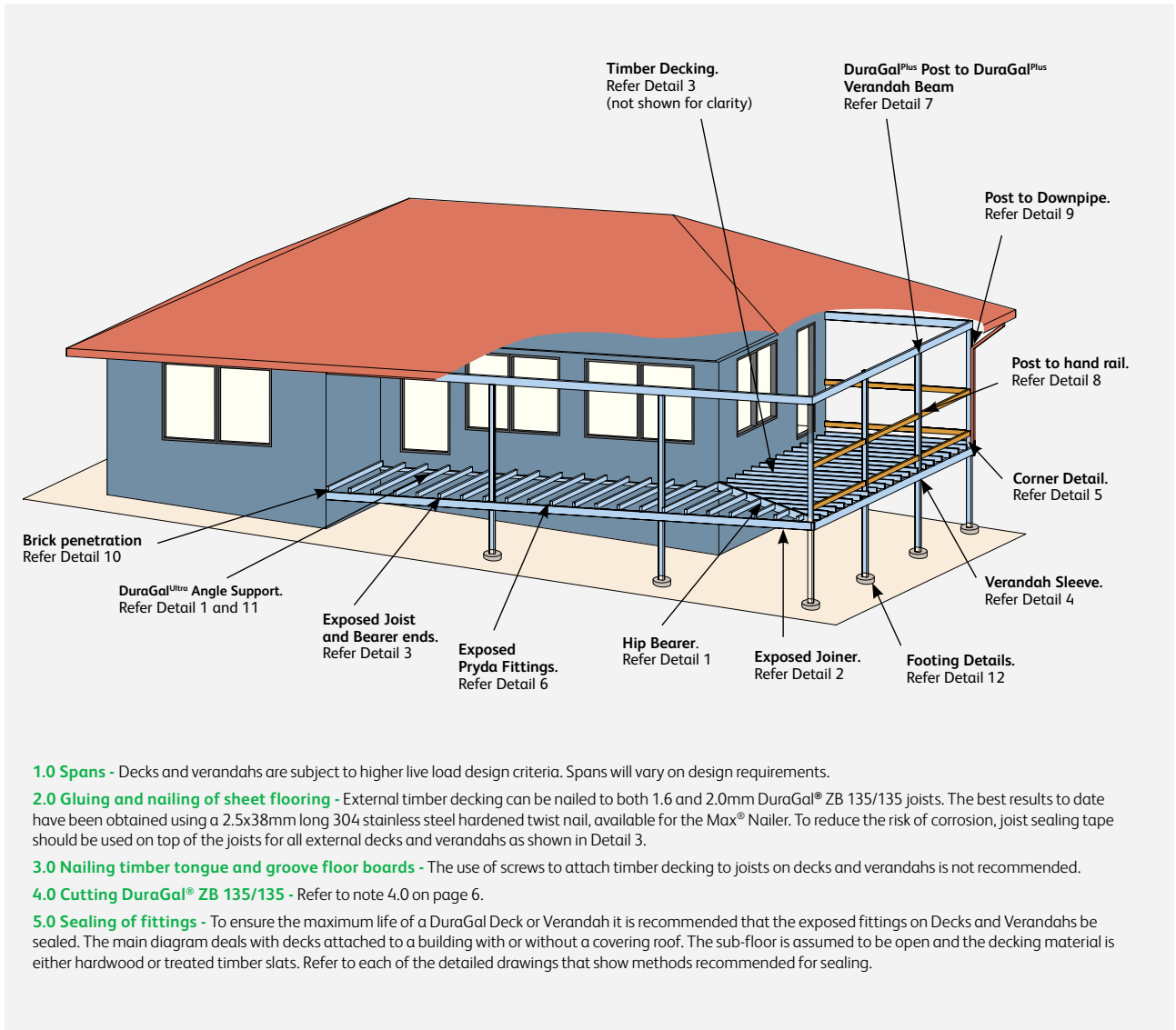


**FIGURE 5**  
End Cap Sealing



**FIGURE 6**  
Pryda Fittings to DuraGal® Sealing

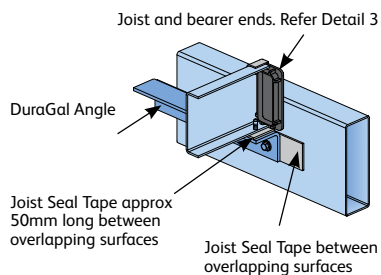




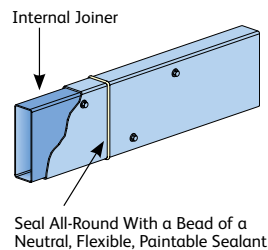
- 1.0 Spans** - Decks and verandahs are subject to higher live load design criteria. Spans will vary on design requirements.
- 2.0 Gluing and nailing of sheet flooring** - External timber decking can be nailed to both 1.6 and 2.0mm DuraGal® ZB 135/135 joists. The best results to date have been obtained using a 2.5x38mm long 304 stainless steel hardened twist nail, available for the Max® Nailer. To reduce the risk of corrosion, joist sealing tape should be used on top of the joists for all external decks and verandahs as shown in Detail 3.
- 3.0 Nailing timber tongue and groove floor boards** - The use of screws to attach timber decking to joists on decks and verandahs is not recommended.
- 4.0 Cutting DuraGal® ZB 135/135** - Refer to note 4.0 on page 6.
- 5.0 Sealing of fittings** - To ensure the maximum life of a DuraGal Deck or Verandah it is recommended that the exposed fittings on Decks and Verandahs be sealed. The main diagram deals with decks attached to a building with or without a covering roof. The sub-floor is assumed to be open and the decking material is either hardwood or treated timber slats. Refer to each of the detailed drawings that show methods recommended for sealing.

### DETAIL 1 Angle Support to Bearer Sealing

(Applies to Verandah Hip and Perimeter Bearers)



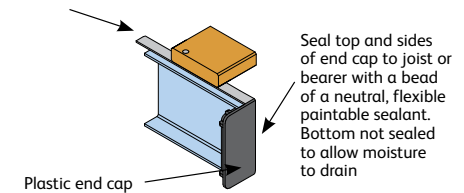
### DETAIL 2 Internal Joinder Sealing



### DETAIL 3 Timber Decking to Joist Sealing and End Cap Sealing

Joist Seal Tape also acts as a barrier between DuraGal® ZB 135/135 joist and treated timber

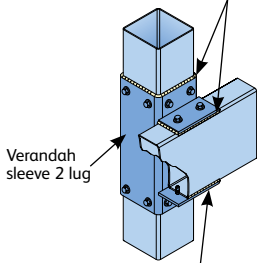
Joist sealing tape



**Part isometric view of joist sealing tape and end cap sealing**  
**Caution:** Do not use solvent borne decking oils or paints because these solvents may be detrimental to the barrier tapes

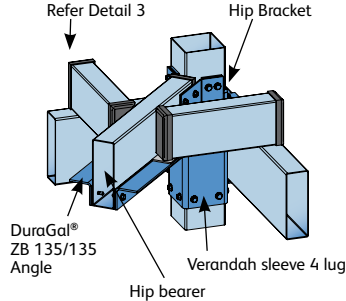
## DETAIL 4 Verandah Sleeve

Seal all-round with a bead of a neutral, flexible, paintable sealant



Seal all-round with a bead of a neutral, flexible, paintable sealant

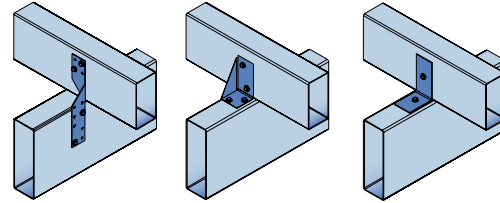
## DETAIL 5 Corner Detail



Sealing: Refer details 1, 3, 4 and 6

## DETAIL 6 Pryda Fittings to DuraGal Sealing

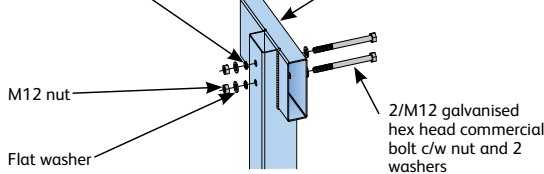
Joist Seal Tape between overlapping surfaces that have screw penetration



NOTE: Which type used will depend on the tie down requirements

## DETAIL 7 DuraGal Post to Verandah Beam Sealing

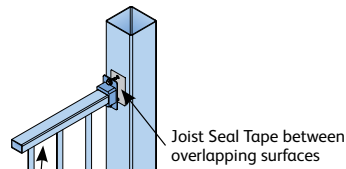
'O' ring - nom 12mm ID x 3mm section dia. or nom 1/2" ID x 1/8" section dia. (both sides)



The top of the post to be sealed against the ceiling lining

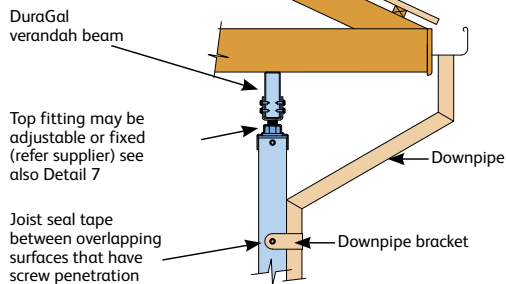
2/M12 galvanised hex head commercial bolt c/w nut and 2 washers

## DETAIL 8 DuraGal® Post to Hand Rail Sealing



Hand Rail to be installed as per manufacturer's recommendations

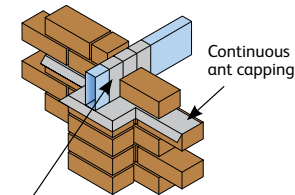
## DETAIL 9 DuraGal Post to Downpipe Sealing



Top fitting may be adjustable or fixed (refer supplier) see also Detail 7

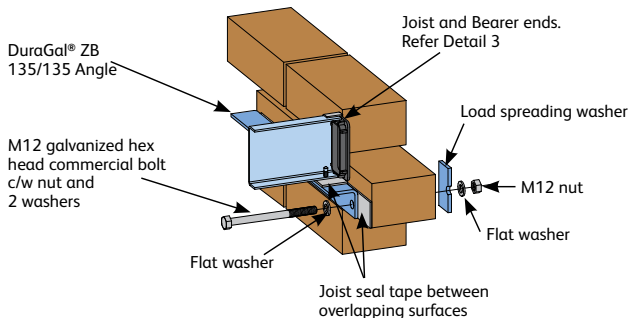
Joist seal tape between overlapping surfaces that have screw penetration

## DETAIL 10 Brick Penetration Sealing



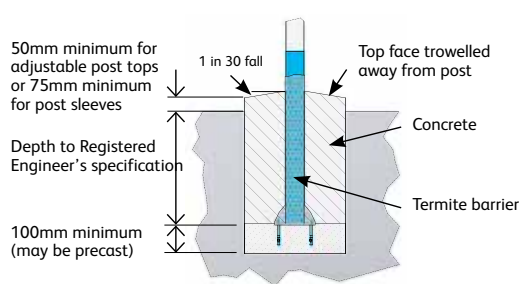
Wrap joist seal tape around bearer where in contact with brickwork or use Norton Flashtac® or equiv. DuraGal surface should be clean of oil, grease and any residue

## DETAIL 11 DuraGal Angle to Brickwork Sealing



Note: Alternatively, use DuraGal® ZB 135/135 bearer supported on DuraGal® ZB 135/135 piers or external engaged brick piers.

## DETAIL 12 Pier Footing and Termite Barrier



Note: The termite barrier shown is only required for through columns with fixed post top components. Refer to AS 3660.1 for details.

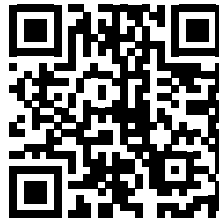
## No other system makes as much sense.

Concrete slabs provide a very solid base upon which to build, but ground movement can cause the slab to crack over time. Future changes or additions to underfloor services will also prove difficult with a concrete slab. Additionally, slabs can act as a highway for termites to attack wooden building frames.

Timber sub-flooring can provide access beneath the house and assist the house to breathe. However, timber sub-floors can attract termites and other pests. Timber can also rot, warp, twist, swell and contract in variable conditions.

DuraGal Flooring System® doesn't warp, twist, crack or shrink. It cannot be affected by termites or pests. It allows access to all services: pipes, hot and cold water, gas supplies and central heating. DuraGal Flooring System® can be assembled on site without welding, and the piers are height adjustable if and when the land settles. DuraGal® offers significant savings in site preparation costs and maintenance.

Find your  
InfraBuild Steel Centre:  
**[www.infrabuild.com](http://www.infrabuild.com)**



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DuraGal Flooring System® is perfect for both new builds as well as additions such as verandahs and decks which can add value to your home.