

PRYDA TRUSS SYSTEMS



# GUIDE TO INSTALLATION

## PRYDA FLOOR TRUSS & RAFTER TRUSS SYSTEMS



PRYDA TRUSS SYSTEMS

# PRYDA FLOOR TRUSS SYSTEMS

Pryda Floor Truss Systems are a complete structural system for timber floors made up of flooring material, floor trusses, strongbacks, connections and bracing. There are two different types of web systems for these

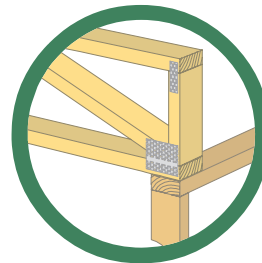
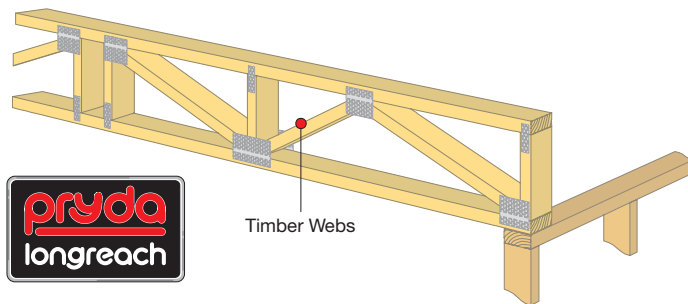
trusses. Both have timber chords but Pryda Longreach uses all-timber webs, while Pryda Span uses metal webs for the diagonals and timber webs for the verticals.

## TRUSS IDENTIFICATION AND ORIENTATION

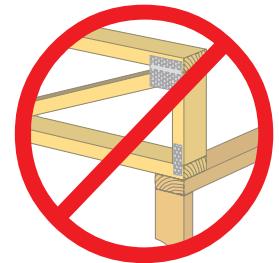
It is imperative that Longreach and Pryda Span Floor Trusses are oriented the right way up. The trusses may be marked with a “This Way Up” sticker or similar.

If the truss is not marked in this way then ensure that the trusses match the following diagrams.

### Pryda Longreach Truss

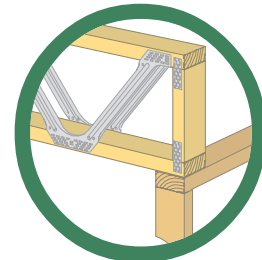
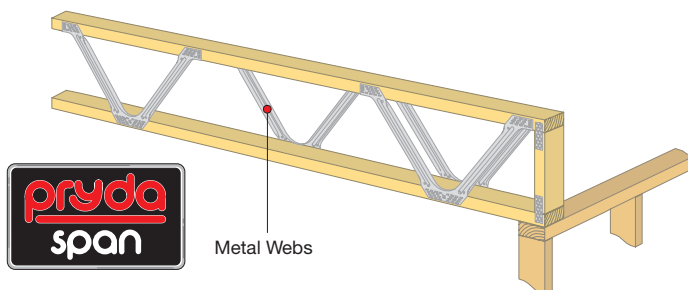


Right Way Up

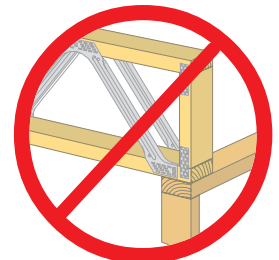


Wrong Way Up

### Pryda Span Truss



Right Way Up



Wrong Way Up

## SUPPORTING STRUCTURE

To ensure a satisfactorily level floor on completion, the supporting structure must be square and the loadbearing surfaces level. The structure must be stable in its own right.

## BEARING

Trusses must bear directly on their supports and not be held above them by the flooring. This may sound odd, but where the support top plate is not level, and the flooring is nailed to the truss top chord, the flooring itself can lift the lower truss(es) by a few millimetres and this considerably worsens the perception of floor bounce.

It is important that floor trusses bear over the support wall plate or beam with a minimum of 30mm for residential floors and 40mm for commercial floors to guard against localised crushing and encourage proper load transference.

## SET OUT

In no circumstances should the floor truss spacing exceed the design spacing (usually 450mm or 600mm). The manufacturer should supply a floor truss layout that clearly defines the correct location of any special truss.

## ON SITE VARIATIONS

Being fully engineered components, any modifications made on site to Longreach or Pryda Span Floor Trusses may be detrimental. This includes cutting or notching chords or webs. Any such modifications should be referred immediately to the floor truss manufacturer to ensure that correct rectification details are provided from Pryda (Aust.) Pty Ltd.

# INTERNAL WALLS

## INTERNAL NON-LOADBEARING WALLS

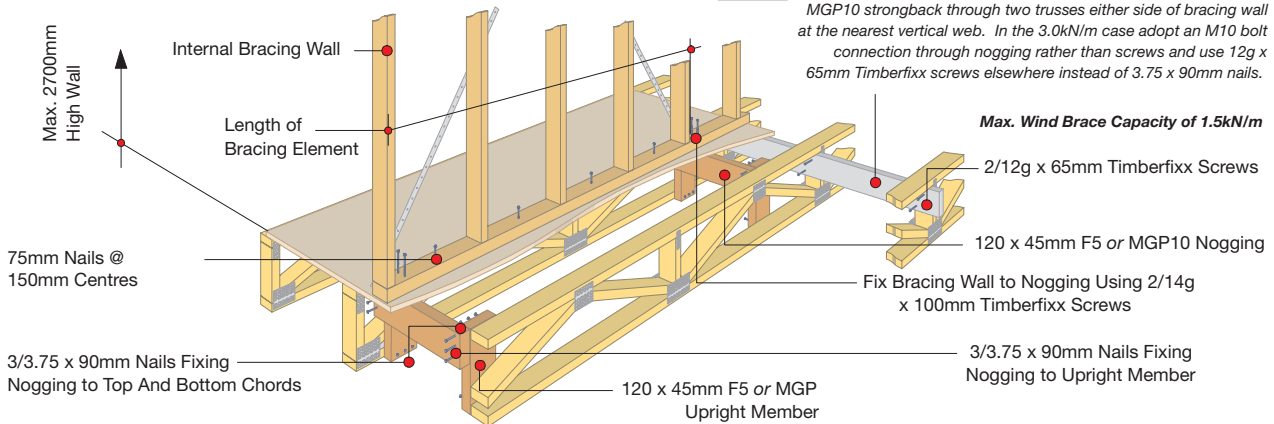
The floor truss system requires no additional stiffening when supporting non-loadbearing walls, however special consideration is required for non-loadbearing walls acting as wind bracing walls. Specifiers should notify the Pryda licenced fabricator of wall bracing positions and capacities.

### Bracing walls parallel to the floor trusses

If the wall is positioned between two floor trusses and is a wind bracing element with a capacity of no more than 1.5kN/m and does not exceed 2.7m high, fix noggings at each end of the bracing element to transfer wind forces to the adjacent trusses. Use 2/14gx100mm Timberfixx screws to fix the bottom plate of the bracing element into the nogging, and 12gx65mm Timberfixx screws to fix the bottom plate to the flooring at 450mm centres along the length of the bracing element. For wind bracing wall capacities of up to 3.0kN/m fix a 120x45 MGP10 strongback to the vertical web nearest the end of the bracing element. The strongback will pass through two trusses either side of the wall and fix to the webs with 2/12gx65mm Timberfixx screws. The flooring material shall be nailed and glued to all floor trusses in the flooring system.

If a bracing wall sits directly over a floor truss then fix 14gx100mm Timberfixx screws into the truss at 450mm centres along the length of the bracing element along with 2/14g x 100mm screws at each end for 1.5kN/m wind bracing capacities. Use 4 screws at each end with the strongback detail as outlined above for up to 3.0kN/m wind bracing capacities.

### PARALLEL BRACING WALL



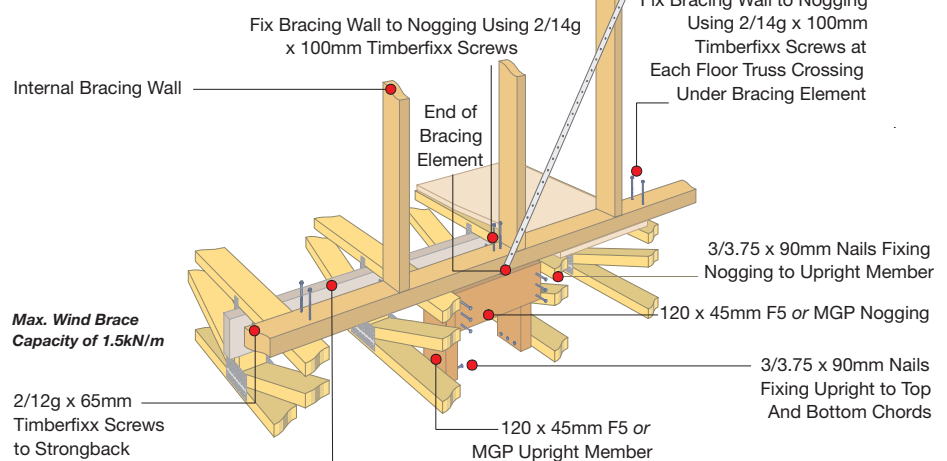
### Bracing walls perpendicular to the floor trusses

For wind bracing walls of up to 1.5kN/m wind bracing capacity with the element no higher than 2.7m, use 14gx100mm Timberfixx screws to fix the bottom plate of the bracing element to each perpendicular floor truss. If the end of the bracing element finishes directly above a floor truss use 2/14gx100mm Timberfixx screws, and if not then use the same screws into the nogging as previously mentioned. For wind bracing walls of up to 3.0kN/m capacity adopt the same details as for bracing walls parallel to the floor trusses. The flooring material shall be nailed and glued to all floor trusses in the flooring system.

### Platform Flooring

Where a structural platform floor has been constructed over the trusses, any non-loadbearing wall parallel to the trusses does not require additional support other than that of the platform flooring.

### PERPENDICULAR BRACING WALL



For wind bracing capacities of up to 3.0kN/m extend a 120 x 45mm MGP10 strongback through two trusses either side of bracing wall at the nearest vertical web. In the 3.0kN/m case adopt an M10 bolt connection through nogging rather than screws and use 12g x 65mm Timberfixx screws elsewhere instead of 3.75 x 90mm nails.

### Max. Wind Brace Capacity of 1.5kN/m

2/12g x 65mm Timberfixx Screws

120 x 45mm F5 or MGP10 Nogging

Fix Bracing Wall to Nogging Using 2/14g x 100mm Timberfixx Screws

3/3.75 x 90mm Nails Fixing Nogging to Upright Member

120 x 45mm F5 or MGP Upright Member

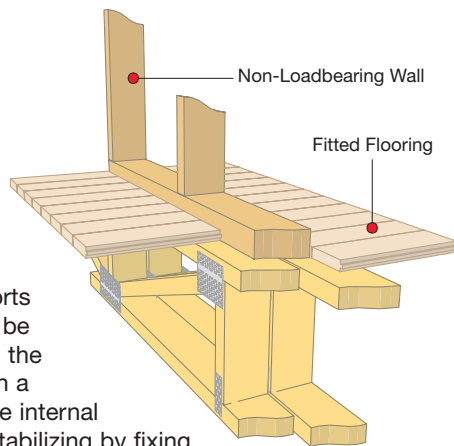
## Fitted Flooring

Where a fitted floor is being used, locate a double truss under each wall to provide support to both the wall and flooring. Alternatively, use supplementary ledger plates fixed to the side of the floor trusses.

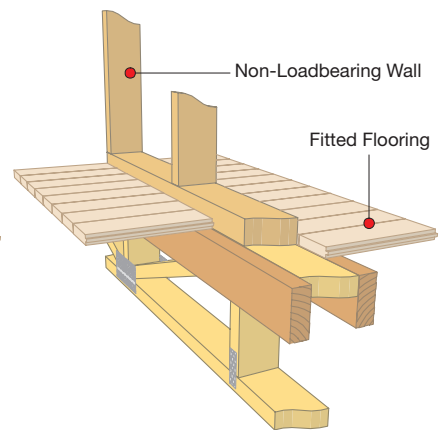
## NON-LOADBEARING WALLS UNDER

Floor trusses must be adequately supported on the loadbearing supports nominated in the design. There may be a detrimental effect on the walls and the flooring system if the trusses bear on a non-loadbearing wall. The tops of the internal non-loadbearing walls need lateral stabilizing by fixing to the truss bottom chords. The trusses must be allowed to deflect downwards, so Pryda Partition Hitches have been developed for this purpose, which should be nailed to the truss near the top of the slots.

FITTED FLOOR FIXING – DOUBLE TRUSS



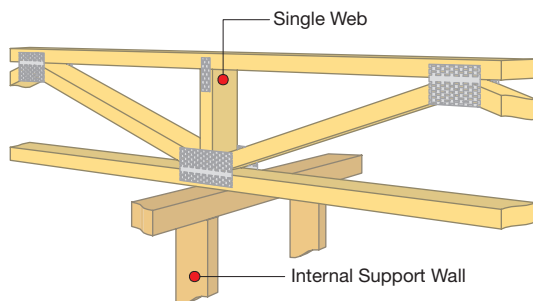
FITTED FLOOR FIXING – SUPPLEMENTARY LEDGER PLATES



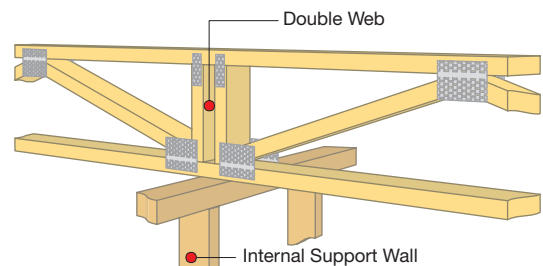
## LOADBEARING WALLS UNDER

Where trusses are designed to sit on internal loadbearing walls it is important that the vertical compression webs or blocks are in line with the support.

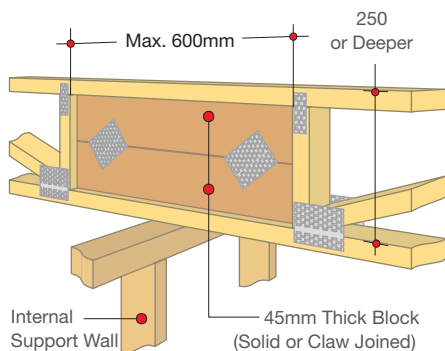
SINGLE WEB SUPPORT



DOUBLE WEB SUPPORT



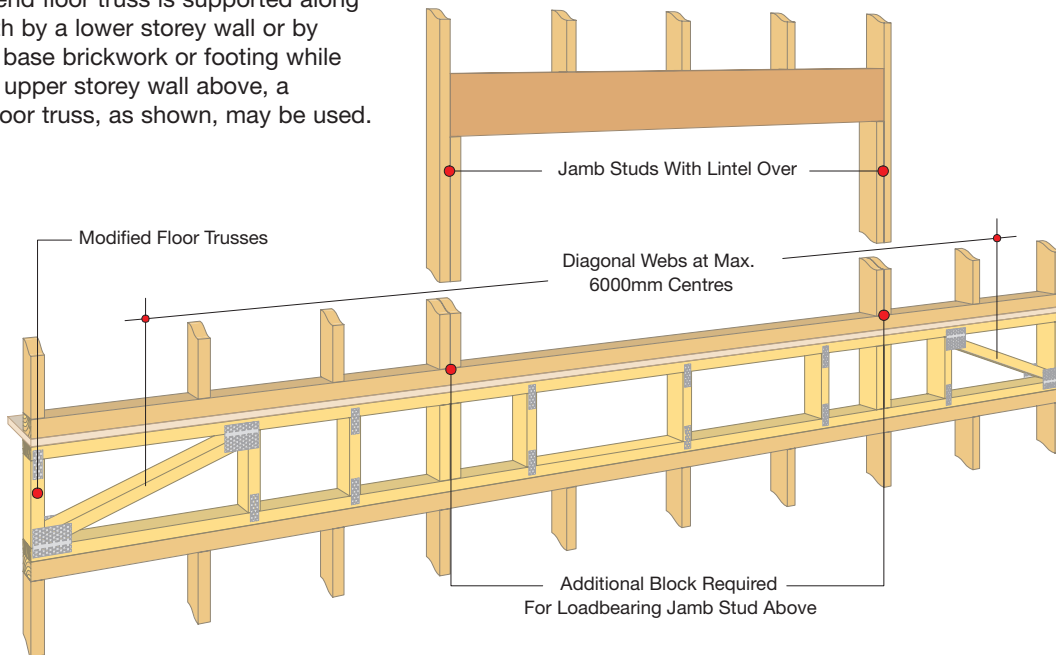
NAILED BLOCK SUPPORT



# EXTERNAL WALLS

## Fully Supported End Truss

Where the end floor truss is supported along its full length by a lower storey wall or by continuous base brickwork or footing while carrying an upper storey wall above, a simplified floor truss, as shown, may be used.



## End Truss Under Gable Roof

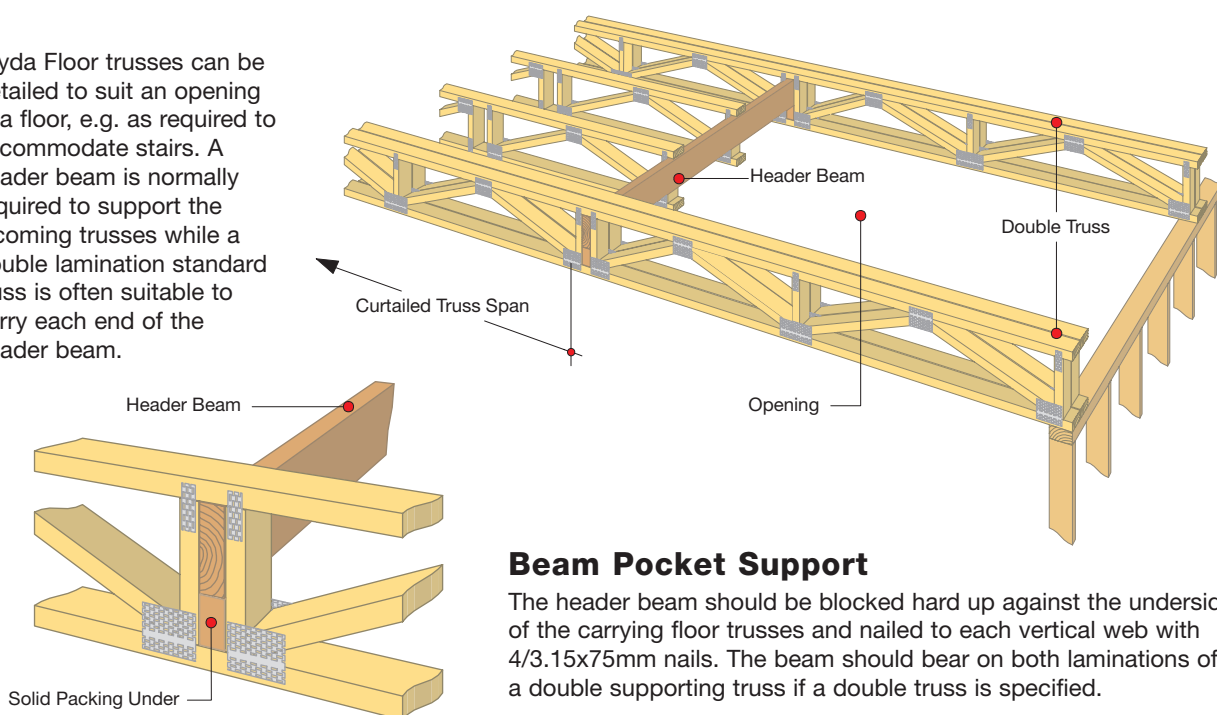
Where the end floor truss is located under a gable end roof and is free spanning, it is appropriate to use a single floor truss as it is carrying a non-loadbearing wall and floor only.

## Offset Loadbearing Walls

If the walls supported by floor trusses are required to carry roof or other loads, please refer to a Pryda licensed fabricator to verify that the trusses are appropriately designed for this situation.

# FLOOR OPENINGS

Pryda Floor trusses can be detailed to suit an opening in a floor, e.g. as required to accommodate stairs. A header beam is normally required to support the incoming trusses while a double lamination standard truss is often suitable to carry each end of the header beam.



## Beam Pocket Support

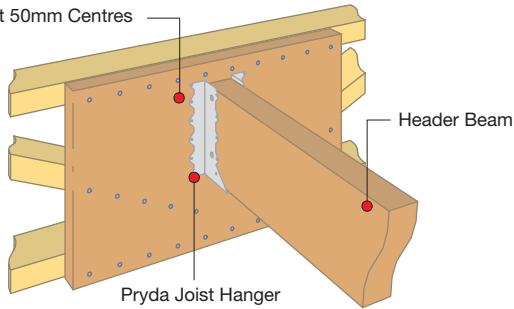
The header beam should be blocked hard up against the underside of the carrying floor trusses and nailed to each vertical web with 4/3.15x75mm nails. The beam should bear on both laminations of a double supporting truss if a double truss is specified.

## Block Support

Alternatively, a solid block (600mm long) fixed to the side of the trusses may support the header beam. The header beam may be notched into the solid block or fixed to the block using a Pryda Joist Hanger as shown.

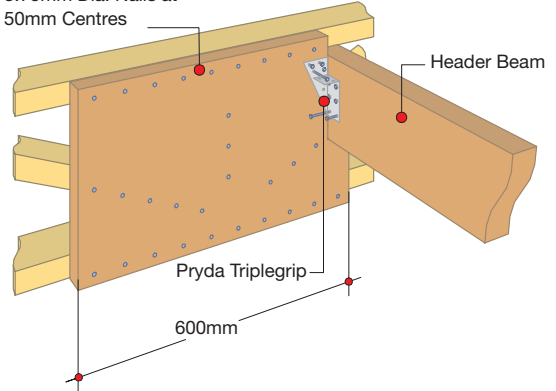
### PRYDA JOIST HANGER SUPPORT

35mm Solid Block Fixed To Side of Truss With 75 x 3.75mm Dia. Nails at 50mm Centres



### NOTCHED HEADER SUPPORT

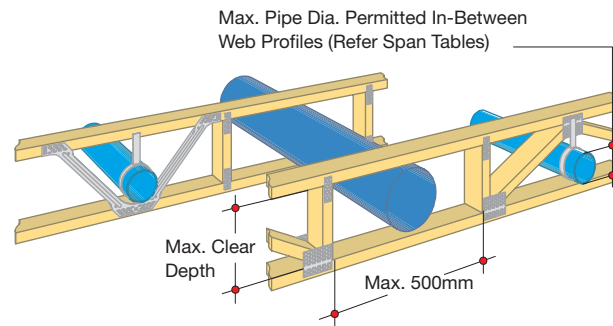
35mm Solid Block Fixed to Side of Truss With 75 x 3.75mm Dia. Nails at 50mm Centres



# DUCTS FOR MECHANICAL SERVICES

The open web configuration of Pryda Floor Trusses permits ductwork and mechanical services to pass through the depth of the truss.

### CENTRE GAP FOR MECHANICAL SERVICES

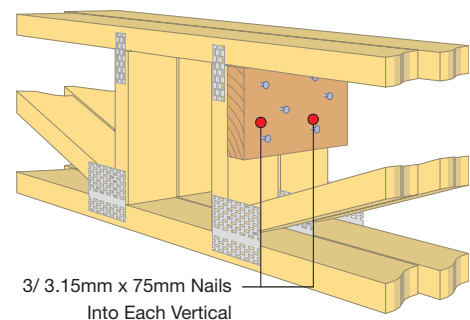


# MULTIPLE TRUSS FIXING

Under concentrated loadings there may be specifications for two floor trusses to act as one. In this case the web profiles of both laminations shall be identical and connections should be introduced at 2400mm centres maximum via vertical webs for Longreach. For Pryda Span supplementary vertical webs may be nailed to the side of the truss (see strongback installation section) to simulate the vertical web requirement at 2400mm centres maximum.

A 140mm x 35mm block or Pryda Nail On Plate should make the connection between both vertical webs with 3/3.15x75mm into each vertical.

### MULTIPLE TRUSS FIXING

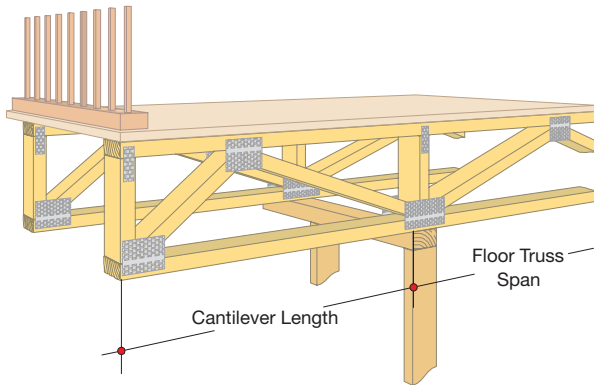


# CANTILEVERS

## Internal Cantilevers

In this case the first floor trusses are cantilevered only a small amount as an architectural feature.

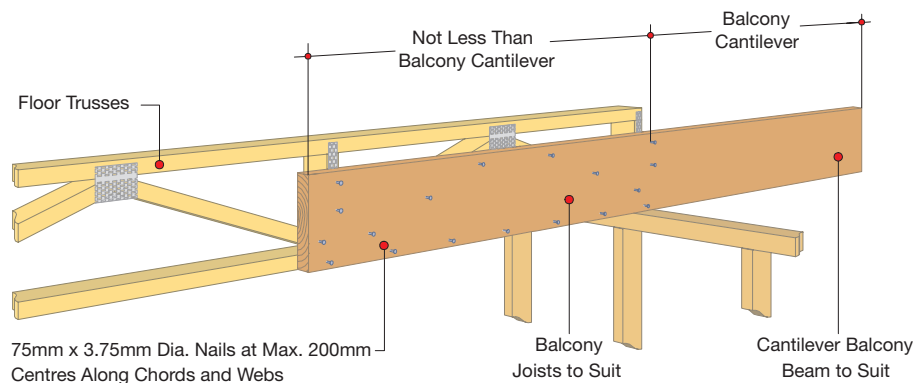
### INTERNAL CANTILEVER DETAIL



## External Cantilevered Balconies

This detail concerns the cantilever which forms a balcony generally outside the room. The cantilever balcony beam, fitted alongside the floor truss, should run a similar distance back into the floor truss and at least to the next vertical web past that distance. The cantilever joists are to be fixed to the truss bottom chord and vertical webs with 3.75 mm dia nails (75mm long into 35mm joists and 90mm long into 45mm joists) at maximum 200mm centres.

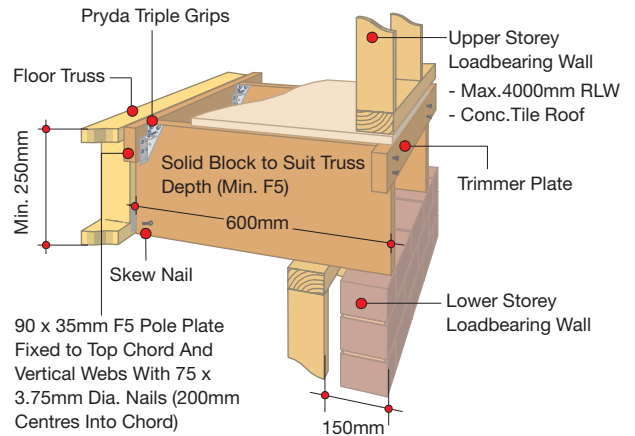
Note: This cantilever detail is not intended for cantilevers carrying loadbearing walls over.



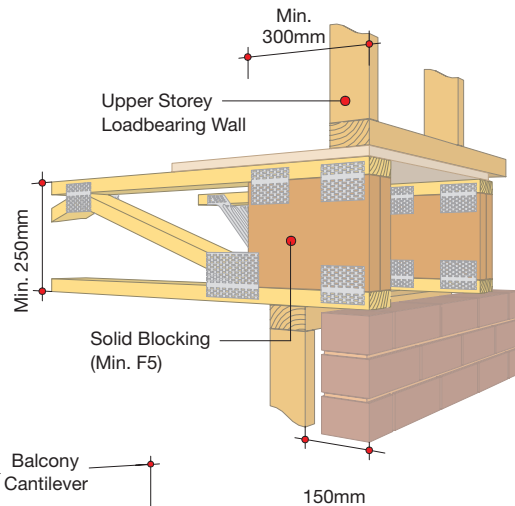
## Offset Wall Cantilever

A common cantilever issue encountered is one in which the timber clad second storey frame is offset 150mm outside the lower storey frame.

### CANTILEVER - PARALLEL OFFSET UPPER LOADBEARING WALL



### CANTILEVER - PERPENDICULAR OFFSET UPPER LOADBEARING WALL

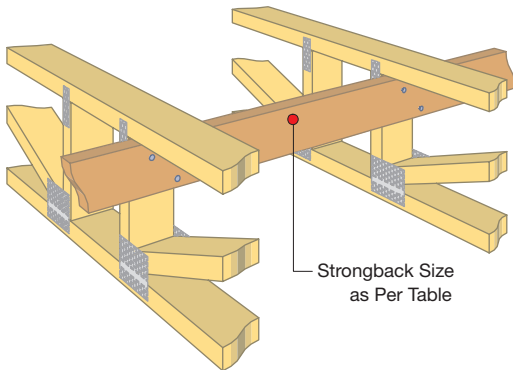


# STRONGBACKS

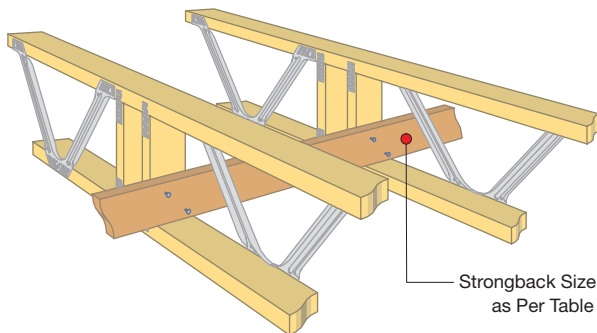
Strongback beams run perpendicular to the trusses and are used to spread footfall impact loads to adjacent trusses. They are required for all residential floors and some of the lighter commercial floors.

Strongbacks are not required for trusses up to 3.5m in span. For trusses 3.6m to 7m span, use one row of strongbacks located close to midspan. For trusses above 7m span use 3 rows of strongbacks located one row at midspan, and two further rows located at each of the quarter points.

## LONGREACH STRONGBACK



## PRYDA SPAN STRONGBACK



Strongbacks should be fixed hard up against the vertical web, but may be fixed up against the top chord or the bottom chord to suit. Fixings may be hand hammered 75 x 3.75 nails, or power driven 75 x 2.9 nails, or 12g – 11 x 65 Timberfixx screws. While screws are more expensive, they provide the best performance as they are more rigid, they clamp the timber components together, and they prevent squeaks due to various floor components loosening over time.

Where Pryda Span trusses have been used, and there is no vertical web close to the desired location of the strongback, a supplementary vertical web may be nailed to the side of the truss instead with 2 nails to the top chord and to the bottom chord, to provide a fixing for the strongback.

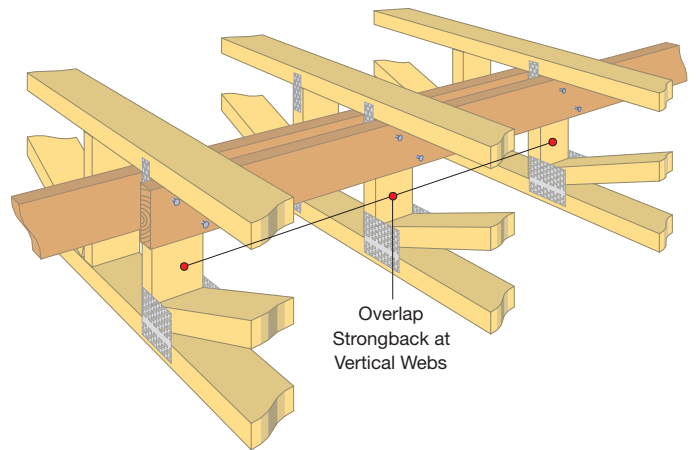
## Strongback Size Selection

### STRONGBACK BEAM SELECTION

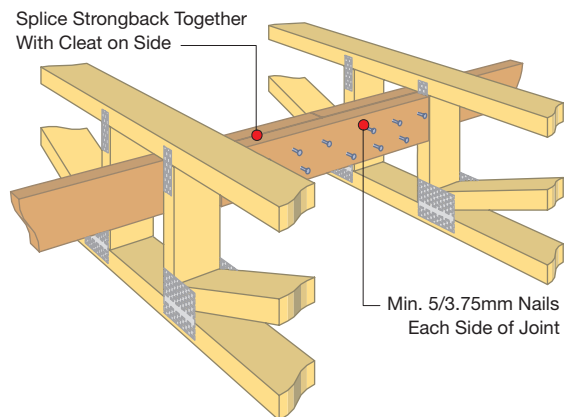
Nominal truss depth (mm)	Strongback depth and grade (all 35 mm thick)	No. of fixings per connection
200	90 F5/P10 or 70 F17	2/nails or 1/screw
250	120 F5/P10 or 90 F17	3/nails or 2/screws
300	140 F5/P10 or 120 F17	3/nails or 2/screws
350	140 F5/P10 or 120 F17	3/nails or 2/screws
400	140 F5/P10 or 120 F17	3/nails or 2/screws

In locations where the strongback needs to be joined, either of the following methods may be used:

### STRONGBACK SPLICE



### ALTERNATE STRONGBACK SPLICE



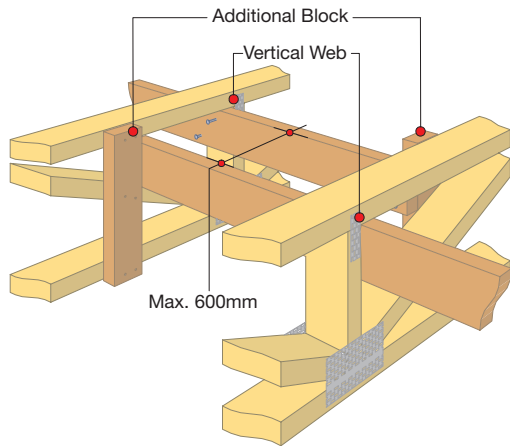


# STABILITY BRACING

## Non-aligned Strongbacks

In cases where different adjacent spans cause the strongbacks to be out of alignment, the following detail may be adopted. Vertical blocks of 90 x 35 mm are fixed with 2/3.75 dia x 75 mm nails to both top and bottom chords. Strongbacks are then fixed into the side of the block and the preceding vertical web with the number of nails specified in the table.

### NON-ALIGNED STRONGBACKS



## Strongbacks Not Required

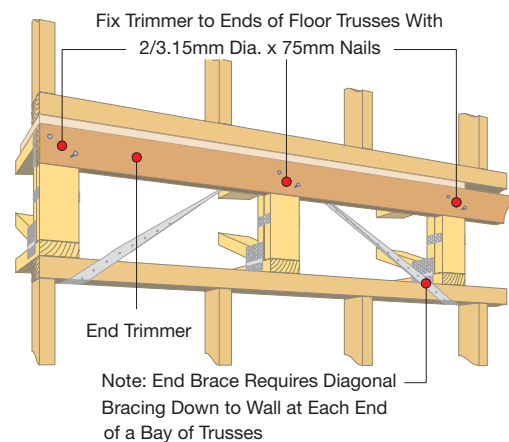
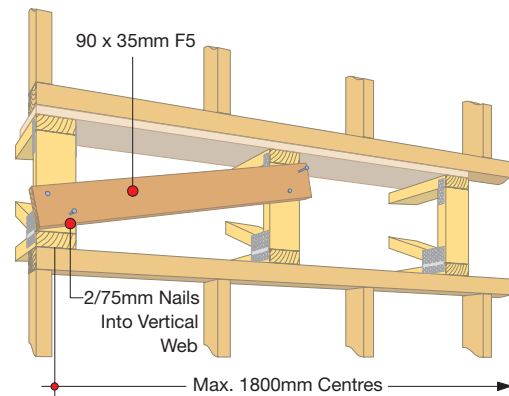
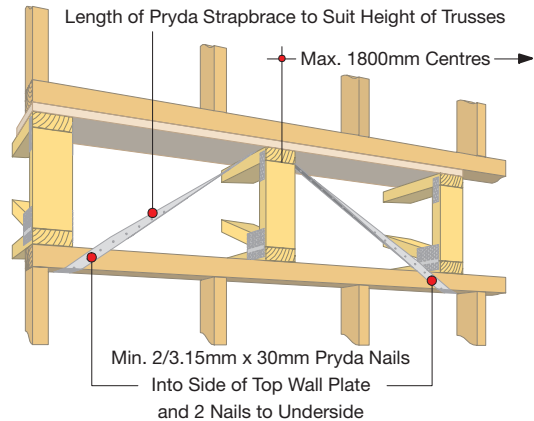
Strongbacks may be omitted from floors when:

- The floor has been designed for live load of 3000 Pa and 4.5 kN, or greater.
- Either 25 mm F11 plywood, or 2 layers of 19 mm F11 plywood (or better) has been used

In these situations, either the truss will be very stiff due to the high design load, or the flooring itself is capable of dissipating human footfall impacts.

Instead, use 90 x 35 F5 (on flat) lateral ties fixed to the bottom chord, located approximately at the third points of the span.

Pryda floor trusses must be braced back to their supporting structure for stability in a similar manner to the bracing stipulated by AS1684.2-1999 for solid deep joists. Use diagonally placed Pryda Strapbrace or timber braces (minimum thickness of 25 mm) at 1800 mm centres maximum at the ends of trusses and at any internal wall supports. Alternatively, a continuous trimming beam may be used at the end of each truss – see End Type 3 – with diagonal bracing at the end bays only.

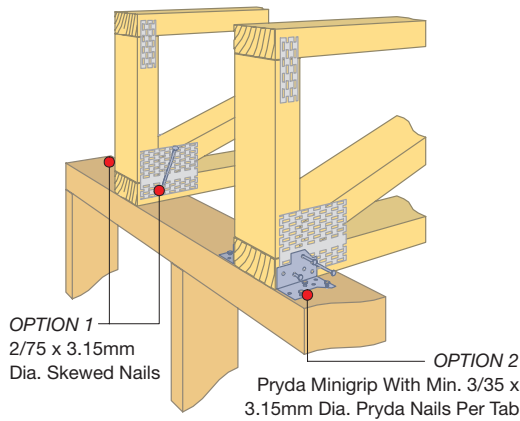


Pryda floor trusses are braced laterally at the top chord level by the flooring material and at the bottom chord level by the ceiling lining. If there is no ceiling fixed directly (or by battens) then 90 x 35 binders must be provided on the bottom chord at 3000 mm centres maximum.

# FIXINGS AT SUPPORTS

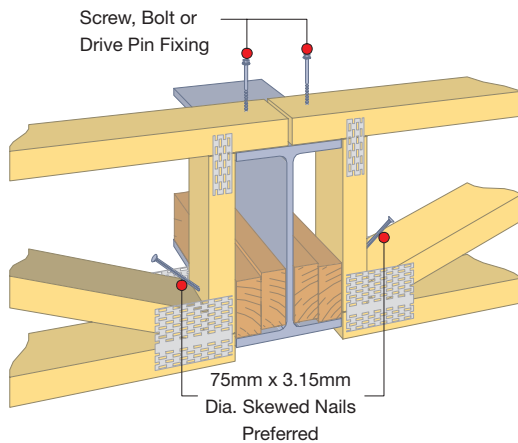
Each truss shall be held onto its supporting plate/bearer by a minimum of 2/75 x 3.15 mm dia nails. If preferred, a better fixing may be achieved by using one Pryda Minigrip with 3/35 x 3.15 mm dia Pryda nails per tab.

## TYPICAL PLATE SUPPORT FIXING

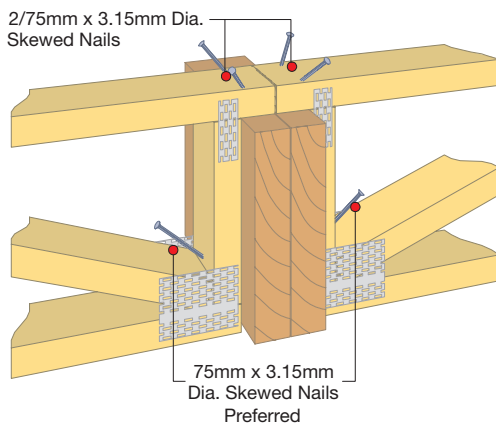


When supporting trusses on steel or timber beams via top chords it is preferable to restrain the bottom chord using skew nails while the top chord should be fixed to the supporting beam using screws or Pryda Triplegrips. This practice improves the stiffness of the floor by minimising movement and vibration at the supports.

## TYPICAL BEAM SUPPORT FIXING OPTION 1



## TYPICAL BEAM SUPPORT FIXING OPTION 2



# PRYDA RAFTER TRUSS SYSTEMS

Many of the installation requirements associated with Longreach and Pryda Span floor trusses are also relevant to the same products when used as roof purlins or rafters. The floor truss installation guidelines for truss

orientation, bearing, non-loadbearing and loadbearing walls under, and ducts for mechanical services also apply to the Pryda Roof System.

## BRACING

### Bottom chord bracing

Strongbacks are not required for Longreach or Pryda Span roof trusses.

For suspended ceilings, or exposed bottom chords, or where ceiling battens do not provide restraint to bottom chords under wind uplift conditions, it is recommended that bottom chord ties are introduced in accordance with AS4440 –1999: Installation of Nailplated Timber Roof Trusses. In addition to this, Pryda Speed or Strap Braces shall be fixed to the truss bottom chords to transfer bracing loads back to the supporting structure according to AS4440-1999: Installation of Nailplated Timber Roof Trusses.

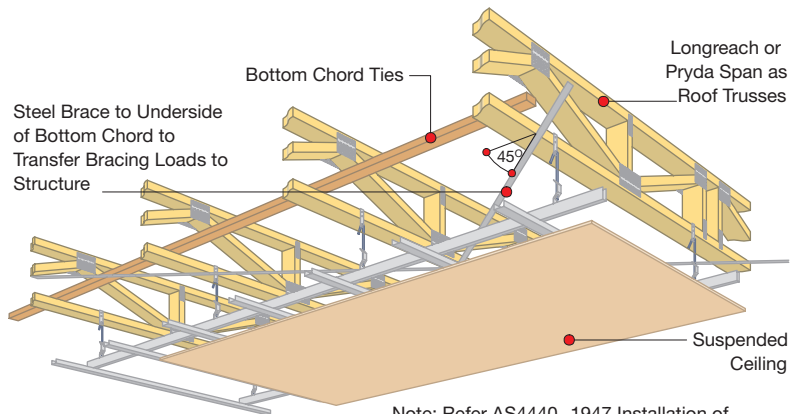
In circumstances where the ceiling material and battens do provide effective restraint then bottom chord ties shall not be required.

### Top chord bracing

The forces generated by resistance to buckling of the top chord and wind loading perpendicular to the span of the trusses must also be transferred back to the supporting structure by steel braces. It is recommended that Pryda Speed Brace or Strap Brace be applied to

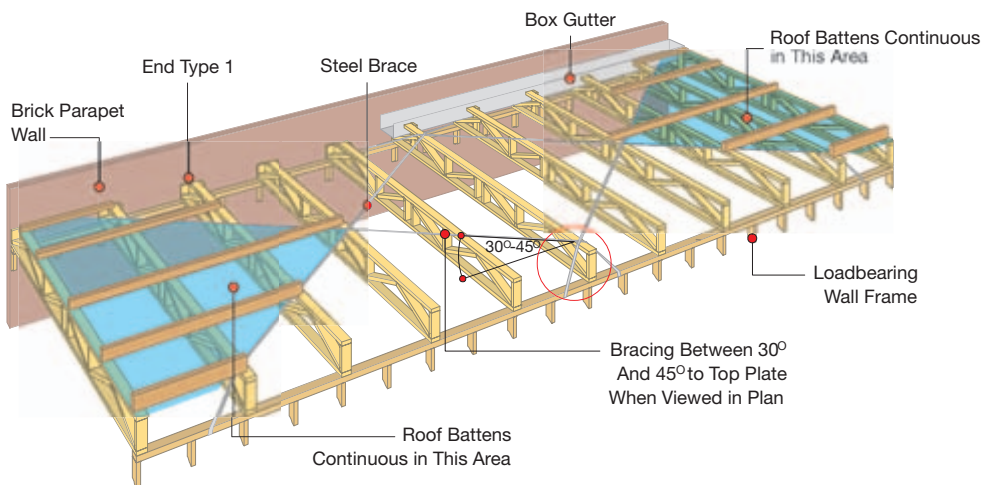
the top chord in conjunction with adequately spaced roof battens in accordance with AS4440 –1999: Installation of Nailplated Timber Trusses. The steel brace shall be continuous over the ends of the trusses and be anchored down to the top plate.

### BRACING REQUIREMENTS FOR SUSPENDED CEILINGS AND UNRESTRAINED BOTTOM CHORDS



Note: Refer AS4440 -1947 Installation of Nailplated Timber Trusses For Further Guidance on Bottom Chord Restraint Requirements

### TOP CHORD BRACING REQUIREMENTS



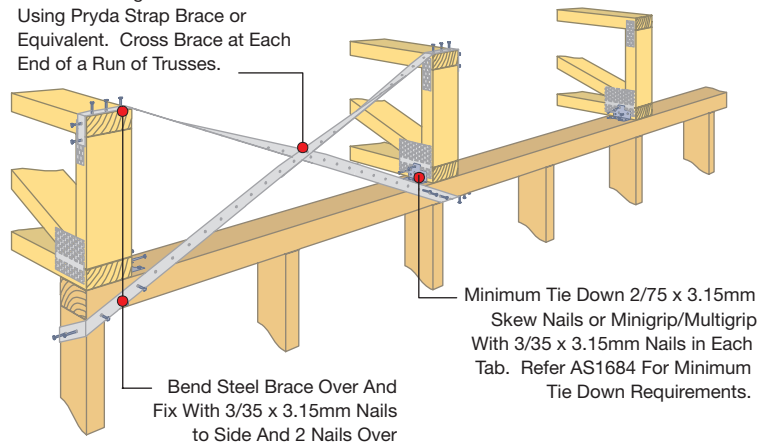
# TIE DOWN AND FIXING DETAILS

Pryda roof trusses must be fixed down to the supporting structure using connections that match or exceed the magnitude of the wind uplift forces on each truss. Each truss shall be held onto its supporting plate/bearer by a minimum of 2/75x3.15mm skew nails, or one Pryda Minigrip or Multigrip with 3/35x3.15mm nails per tab. Refer to AS1684-1999 for further guidance on fixings and tie down requirements.

Pryda roof trusses shall also be braced laterally at the ends of the trusses using Pryda Strap Braces at each end of a run of trusses.

## END BRACING AND TIE DOWN

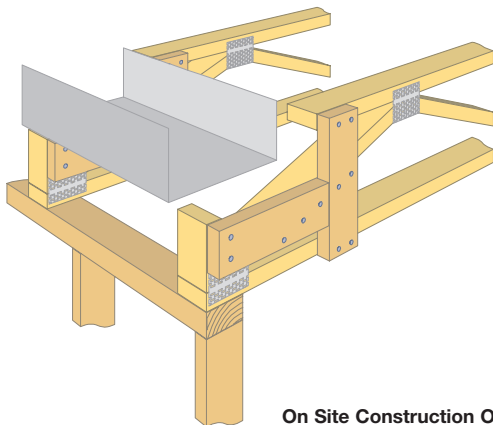
Lateral Bracing at Ends of Trusses Using Pryda Strap Brace or Equivalent. Cross Brace at Each End of a Run of Trusses.



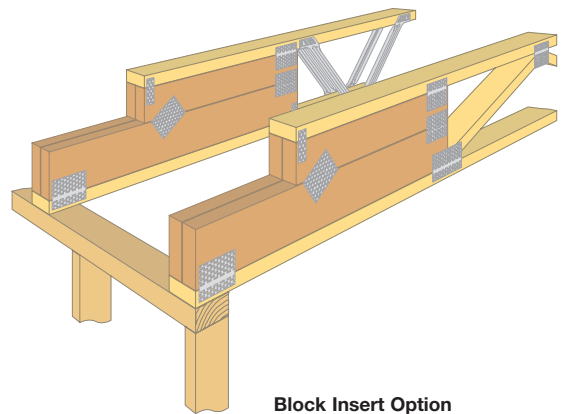
## BOX GUTTERS

Longreach and Pryda Span may be designed to accommodate box gutters. Pryda Span can comprise of a notched solid block end while Longreach also has the option of trimming the top chord with additional framing attached.

### BOX GUTTER OPTIONS



On Site Construction Option



Block Insert Option



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Building Products Division

