

Pryda Floor Cassette Guide

2016



Contents

Overview	System Overview	3
Benefits	Benefits	8
Handling	Getting Started	11
	Delivery	12
	Storage	14
Installation	Installation	15
FAQ	FAQ	20
	Typical Cassette Layout Example	22

Pryda Floor Cassette System Overview

The Pryda Floor Cassette System combines all required elements including floor trusses, strongbacks and floor sheathing, into a large but manageable panel which can be lifted into place to form a complete working platform in a matter of hours.

Safer:

- Reduced working at heights on site
- Reduced on-site construction

Better:

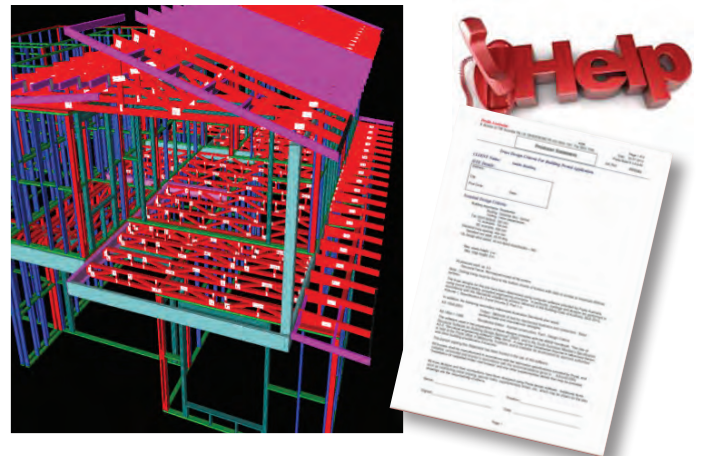
- Job specific design of all components
- Certified lifting system
- Certified footing design
- Certified floor cassette design

Easier:

- One delivery
- Fewer components
- Integrated set-down areas
- Inbuilt services ducts
- Installation manual
- Help line

Faster:

- Fewer deliveries
- Reduced number of foundations
- Reduced on-site construction



Pryda Floor Cassette System Overview

Cassette Components

Floor Trusses

Both *Pryda Longreach* - utilising all-timber webs - and *Pryda Span* floor trusses - using metal webs for the diagonals and timber webs for the verticals - can be used with the Pryda floor cassette system.



Pryda Longreach floor trusses



Pryda Span floor trusses

Allowable span

Pryda floor trusses suit most domestic applications and the table below gives an indication of the depth required to achieve the given spans.

Allowable floor span					
Truss type	Truss spacing	Floor truss depth			
		250	300	350	400
Longreach	600	4200	4400	6000	6600
	450	5000	5500	5200	5400
Pryda span	600	4200	4500		
	450	4800	5400		

Above spans are for domestic loading of 1.5kPa

Floor Sheathing

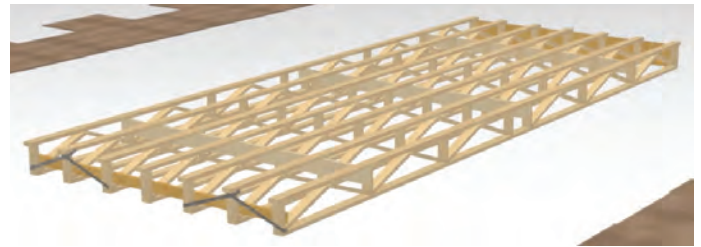
Flooring material can be selected to suit the construction type and site specific requirements. Particleboard flooring is most commonly used in detached buildings or townhouses, with wet area flooring materials like fiber cement board used where required. For apartments or commercial buildings, floor cassettes can be designed for acoustic and fire protection elements if necessary.

Strongback Beams

Strongback beams run perpendicular to the trusses in the floor cassette. They are used to spread footfall impact loads between adjacent trusses. Strongback beams are placed within a floor cassette and are bridged onsite. Please refer to "Guide to Pryda Floor & Rafter Truss Installation" for more information.

Lifting Trimmers

Lifting trimmer beams run perpendicular to the trusses in the floor cassette and are placed approximately 1 metre from the end of the cassette. They are connected to vertical blocks in the floor truss. Lifting trimmers help spread the load when lifting. These trimmers can also act as strongback beams.

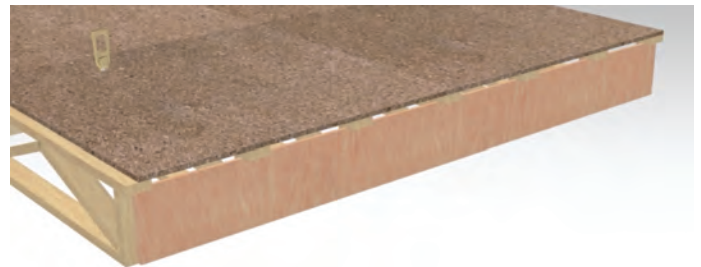


Strongbacks and lifting trimmers

End types

The Pryda floor system utilises the existing floor truss end types in conjunction with new bracing cassette end styles.

Rimboard: allows the user to designate a sheet product to brace the ends of the cassettes i.e. 17mm plywood.



Rimboard end bracing

Lateral ties & bracing: allows the user to specify and locate a lateral tie material in conjunction with metal bracing.



Lateral tie end bracing

Pryda Floor Cassette System Overview

Pryda Lifting System

A fully engineered and independently tested lifting system is available specifically for use with Pryda Floor Cassettes. Lifting brackets are pre-installed during manufacture enabling faster lifting during installation and minimal damage to floor sheathing – saving time on post installation rework.

Lifting anchors must be fixed to lifting trimmers. Floor cassettes must not be lifted using top fixed lifting anchors.

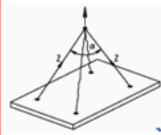


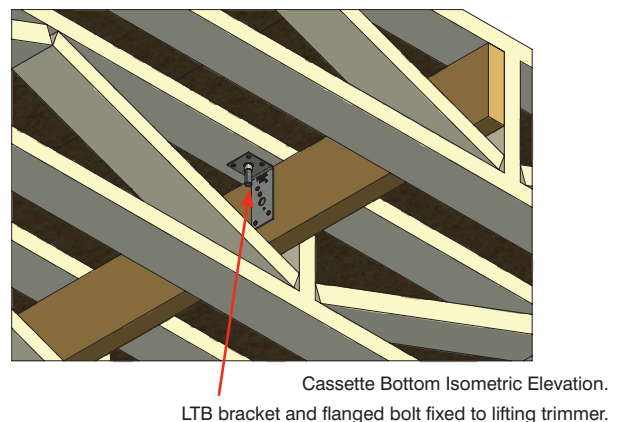
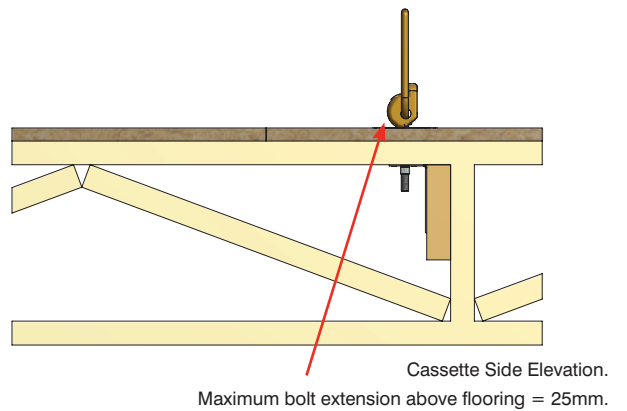
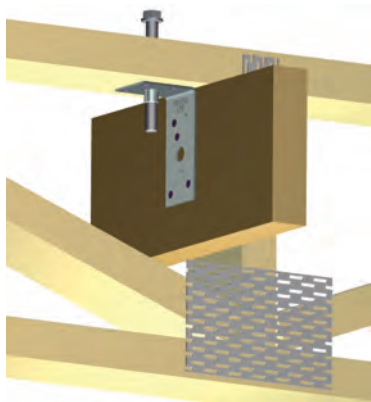
Overview

Lifting Bracket Kit Features and Benefits

Features	Benefits
Installed during manufacturing	Enables fast installation of cassettes onsite
M10 Flange bolt	Only requires a 12mm hole in the floor sheathing minimising amount of post installation rework
Compatible with standard lifting clutches	No need to source or supply special clutches as works with those used by lifting and transport companies
Independently tested with certified load capacities	Provides all parties with confidence in the safety of cassette lifting

Working Load Limit To AS 4991-2004

Product Description	Lifting Configuration (4 point lift at 60 included angle)	Tension Capacity (tonnes)	Shear Capacity (tonnes)
LTB with M10 Flange Bolt		0.3	0.175



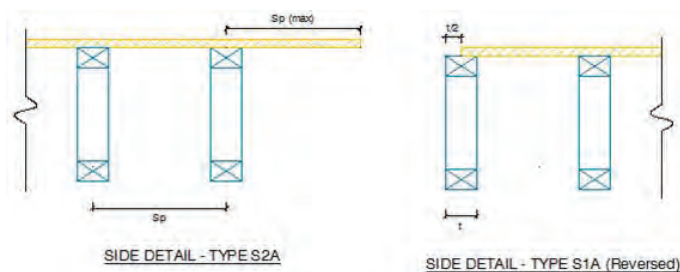
Pryda Floor Cassette System Overview

Cassette Configuration

In order to optimise the cassette design and minimise the need for additional trusses where cassettes meet, two cassette configuration options are available:

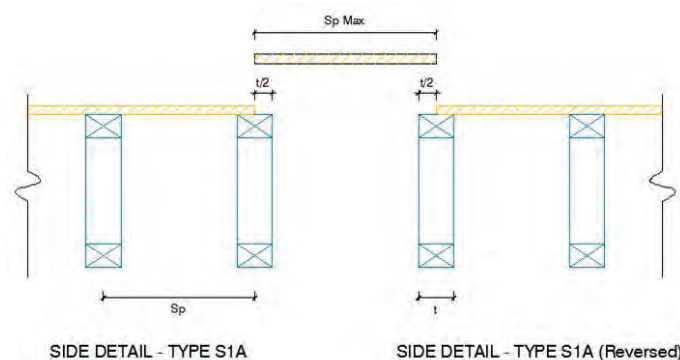
Overhang

In this configuration the first floor cassette to be placed onsite will have sheathing set back of 35 or 45mm respectively for a 70 or 90mm wide floor truss. The second floor sheet is designed to overhang the last truss in the cassette 405mm; this keeps the continuity of 450mm truss centres. Upon installation the overhanging sheet is laid into the space provided by the setback on the adjacent cassette and fixed in place. This method allows for fast installation as it minimises the finishing work required.



Infill

In this configuration, floor sheathing is setback by 35 or 45mm respectively for a 70 or 90mm wide floor truss on both the first and last truss on each cassette. Cassettes are installed with a maximum gap of 300 or 450mm between them. The 300mm gap is the maximum that is to be used with trusses spaced at 450mm and the 450mm gap is the maximum to be used with trusses spaced at 600mm. Once installed the gaps are measured and sheathing cut to size and installed on site.



Cassette Size

There are various factors that determine the optimum cassette size:

- Maximum floor truss manufacturing length
- Manufacturing and storage area available
- Stacking, bundling and lifting limitations
- Transport regulation, delivery and site access restrictions
- Workplace Health and Safety (WHS) requirements

Typical cassette sizes are up to 2.7m wide by 8m in length. The 2.7m width suits the standard 450mm truss spacing and optimises commonly used floor sheathing product lengths.

Important note: Allowance for potential “Building Growth”
A key issue with installation is meeting the required tolerances between the cassette to cassette fit and ensuring that all cassettes fit tightly together. If this is not achieved this will cause the size of the installed building to “grow”, possibly beyond allowable building regulatory tolerances ($\pm 5\text{mm}$).

Using an “infill” flooring piece instead of an overhang on the last cassette allows for additional adjustment between the final cassettes of the run. The infill piece is measured and fitted on-site which ensures cassettes fit tightly together and minimises potential growth.

Pryda Floor Cassette System Overview

Applications

Floor cassettes are suitable for both upper storey and ground floor applications in detached residential, multi-unit and light commercial construction.

Upper Storey

Rather than a two-step installation process of installing floor trusses or joists and floor sheathing, with the Pryda Floor Cassette system, these elements are fully prefabricated into cassettes prior to installation. A typical residential mid-floor using the Pryda floor cassette system can be installed, ready for upper storey wall frames, in just a few hours.

In addition to time saving benefits, by installing floor trusses and floor sheathing together in a cassette, the time spent working at heights can be minimised.



Upper storey cassette installation

Ground Floor

The greater use of sites with reactive soils has meant an increase in the number of problems relative to foundation movement. Light weight raft slabs do not cope well with ground movement and their use has left builders with an increasing number of warranty claims. To date, traditional timber subfloors have been viewed as difficult to manage, slow and costly. Now, with the Pryda floor cassette system this is no longer the case.



Ground floor cassette installation

Combined with Surefoot concrete-free foundation system, a complete timber subfloor can be installed in under 2 days by a single supplier. Further, if any movement does occur, foundation levels can be adjusted after installation. Floor insulation can also be installed during Pryda floor cassette manufacture to achieve required floor insulation values.



What is Surefoot?

Surefoot is a fast and cost effective way to ground posts of any size without the need for digging, excavation or concrete.

Its engineering principles are based on pile technology using a combination of skin friction and point bearing. A patented plate secures pins in place resulting in a foundation spreading over a greater area achieving larger load capacities.

Benefits

The Pryda Floor Cassette System offers benefits to the designer, builder and building owner in providing a cost effective, reliable, high performance system. Cassette benefits include:

Cassettes can suit a variety of applications

Floor cassettes can be designed to suit upper storey and ground floor applications in detached housing, multi-unit and light commercial developments.

Cassettes can reduce onsite WHS risks

Floor cassettes can be installed on upper stories from below and provide a working platform upon installation, minimising risks associated with working at heights.



Cassettes can improve floor system quality

Cassettes are pre-fabricated off-site in a factory controlled environment, enabling a higher degree of consistency and quality assurance to be achieved.

Cassettes offer net installed cost benefits

The Pryda Floor Cassette System has many advantages that result in a lower total installed cost compared to other systems available. In some instances while there may be an increased material cost, this is offset by significant labour and equipment savings achieved on-site during installation. Advantages contributing to the net installed cost benefit include:

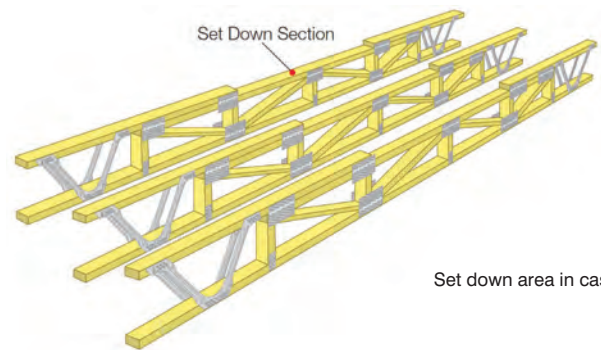
Design flexibility

Cassette designs are fully customised, detailed and engineered by Pryda fabricators to suit the needs of the specific project. Trusses can be manufactured up to 10m in length with designs able to take into consideration factors such as positioning of services, wet areas, balcony set downs and co-ordination with the supporting structure. This results in the following design and cost benefits:

- **Long spans** can potentially eliminate the need for some interior support walls and beams, giving more scope to the architects and designers thus reducing the cost of the support structure. Additionally internal support beams can be

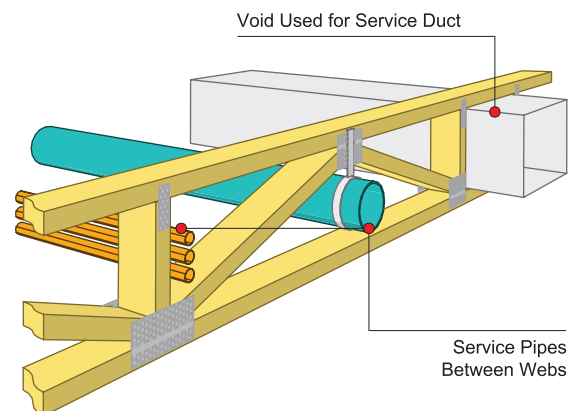
fabricated in and concealed within the cassette depth giving a clear ceiling line below and an additional time saving and accuracy on site.

- **Set downs** allow for floor sheeting with different thicknesses such as those used in wet areas. Compared to the site equivalent, this results in labour savings, increased accuracy and better quality. Following trades are not delayed by having to do any installation, modification or adjustment.



Set down area in cassette

- **Open webs** and voids designed to allow easy fixing of electrical, plumbing, ducts and energy services mean there is minimal need for cutting, drilling or notching, saving time on site.



Open webs and services

Lightweight and solid

The Pryda floor trusses within the cassettes will be designed to stringent dynamic performance criteria to eliminate 'liveliness' in a floor, which can lead to bounce. When using *Pryda Longreach* floor trusses, span capacity and stiffness can be significantly enhanced by increasing the depth of the truss. Due to the timber web design of the truss, the increase in depth is at minimal cost.

Fewer delays waiting for trades and deliveries

Cassettes form a complete working platform incorporating all ancillaries, thereby avoiding incomplete deliveries, and there is minimal work required for follow on trades meaning lost time waiting for trades is minimised.

Benefits

Minimises onsite waste

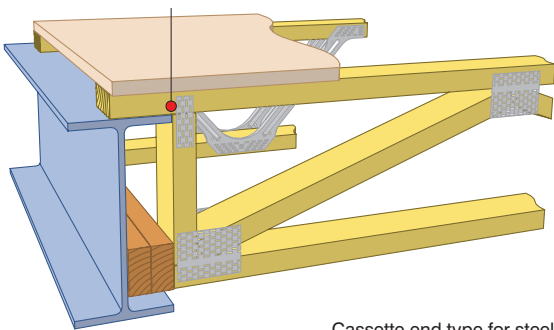
The usage of flooring materials and other ancillary products are optimised during design, and installed off-site eliminating on-site cutting, waste and the risk of materials going missing.



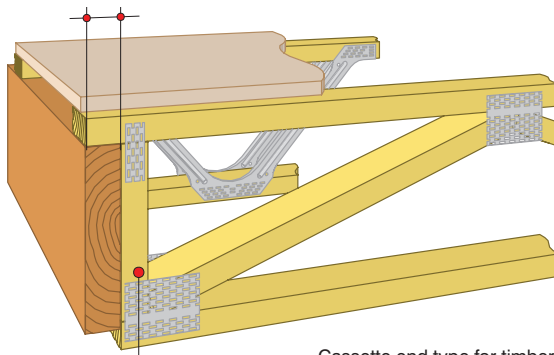
Onsite wastage for floor sheeting

Fast onsite installation

Pryda Floor Cassette Systems arrive on site ready for installation. They are designed and manufactured with specific end types to ensure fast, secure fixing to steel, concrete, masonry or timber. Pre-installed lifting devices and a mobile crane lift the cassettes into position and the floor is ready for wall frames to be installed.



Cassette end type for steel beam supports

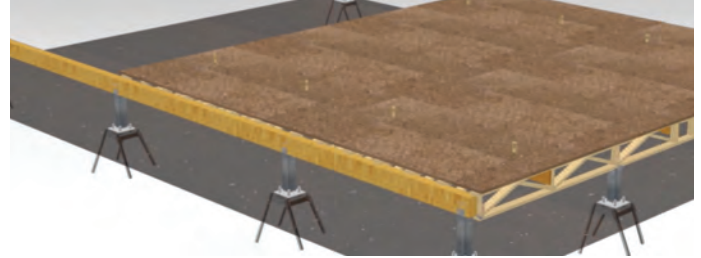


Cassette end type for timber beam supports

Simplified plumbing

Plumbers will no longer be on the critical path as installation can occur before or after the floor is installed.

Additional floor cassette benefits for ground floor applications:



Pryda Floor Cassette System - Ground Floors

The Pryda Floor Cassette system can also be utilised in combination with Surefoot concrete-free foundation system and offers a number of additional benefits:

Concrete free foundations

Eliminates time waiting for concrete to cure and offers an alternative solution in areas where access to concrete is limited or cost is prohibitive.

Increased time saving

With no concrete to cure and cassettes installed in a matter of hours, a working platform can be ready for wall frames the same day; cutting days from the build and enabling key progress payment claims to be made sooner.

Fewer footings

The increased span of the floor cassettes when compared to traditional sub-floor systems enable the number of subfloor piles required to be reduced by up to 60%.

Raised floor height

The raised system is ideally suited to flood prone areas and if movement occurs over time particularly in areas with highly reactive soils, it will allow for easy re-adjustment of levels.

Reduced cut and fill

With the possibility to install on sloping sites, expensive excavation can be minimised, saving time, money and preserving natural water drainage of the land.



Surefoot system on sloping site

Benefits

No compromise on R Values

Insulation can be incorporated into the cassette design to ensure required R Values can be achieved.

Designed and certified

For subfloors utilising Pryda Floor Cassettes and Surefoot foundation, designs can be completed by Pryda fabricators who will also arrange for certification to be provided by a registered professional engineer.

No inspections required

Surefoot foundations are installed in an all-in-one process therefore there is no necessity for an engineering inspection of foundations. Instead installers simply need to document the actual driven depths of piles and provide a written report to the project engineer upon completion.

Suits all site classes

The embedment depth of the Surefoot piles will be specified to suit your specific site class and soil type giving complete flexibility for use in most soil types.

High load capacities

Surefoot is engineered to yield loads from 1 to 30 tonnes depending on which type is used. Ultimate load capacities of each Surefoot are determined by soil type, wind and terrain category and imposed loads from the structure above.

Brick veneer construction

Buildings constructed with the Pryda Floor Cassette System and Surefoot can have a brick veneer exterior cladding.

Garage slab:

Often there is a significant amount of work involved in the excavation, forming up, reinforcing and pouring of a concrete slab. The system can be used in conjunction with slabs and Surefoot can be used to replace bored piers and dropped edge beams.

Termite protection:

It is mandatory that all buildings are provided with termite protection. It is easily achieved with the system.

Cladding in contact with the ground and its durability:

These are important considerations and are easily accommodated by the system.

Table 1: Pryda & Surefoot comparison to alternative ground floor systems

Aspect of project	Concrete slab / Waffle pod	Stumps / piers and traditional sub-floors	Pryda Timber Cassette System (incl. Surefoot)
Costs fixed no matter what the soil class	✗	✗	✓
Minimises cut and fill	✗	✗	✓
No concrete curing time	✗	✗	✓
No engineering inspection	✗	✗	✓
Total installation time	Up to 2 weeks	Up to 2 weeks	2-3 days
Minimises site waste	✗	✗	✓
Number of trades & materials to organise	Many	Many	Few
Plumbing outside the critical path	✗	✓	✓
Adjustable (plumb & level) after installation	✗	✓	✓
Risk of rain delays	High	High	Low
Quality controlled product	✗	✗	✓
Sustainable resource and reduced carbon emissions	✗	✓	✓

Getting Started

Consideration of all of the following points will mean that you will make the most effective use of your time and of those experts involved in the process in achieving an accurate estimate at the lowest possible project cost.

Table 2: Owner/Builder Considerations

Factors for consideration	Consult the following	
Zone	<ul style="list-style-type: none"> • Climate • Earthquake • Wind • Flood • Termites • Local LEP 	Local council www.yourhome.gov.au
Site	<ul style="list-style-type: none"> • Slope • Soil Type • Access • Location of Services 	Project engineer or local council
Building	<ul style="list-style-type: none"> • Use • Size • Levels • Type of structure 	Project architect
Responsibilities	<ul style="list-style-type: none"> • Architectural design • Engineering design • Fabrication • Building • Certification 	Each should be considered individually
Safety	<ul style="list-style-type: none"> • Delivery • Storage • Construction • Finishing 	www.safeworkaustralia.gov.au www.business.govt.nz/worksafe
Schedule	<ul style="list-style-type: none"> • Planning • Ordering • Delivery • Installation • Follow on trades 	Builder Fabricator
Quotation	<ul style="list-style-type: none"> • Components supplied • Components installed • Crane requirements 	Each should be considered individually

Table 3: Fabricator Considerations

Factors for consideration	Consult the following	
Resources needed	<ul style="list-style-type: none"> • Estimating • Detailing • Fabrication • Installation 	Pryda Internal Staff
Quotation	<ul style="list-style-type: none"> • Cassette components • Installation • Crane 	Pryda Internal Staff
Detailing	<ul style="list-style-type: none"> • Detailer training • Software readiness • Builder awareness of requirements 	Pryda Internal Staff
Schedule	<ul style="list-style-type: none"> • Planning • Ordering • Delivery • Installation • Follow on trades 	Pryda Internal Staff
Fabrication	<ul style="list-style-type: none"> • Assemblers trained • Maximum span • Maximum width • Stock • Storage 	Pryda Internal Staff
Delivery	<ul style="list-style-type: none"> • Permits • Time • Access 	Internal Staff
Installation	<ul style="list-style-type: none"> • Permits • Tools • Power 	www.safeworkaustralia.gov.au www.business.govt.nz/worksafe
Safety	<ul style="list-style-type: none"> • Delivery • Storage • Construction • Finishing 	www.safeworkaustralia.gov.au www.business.govt.nz/worksafe

Storage

Introduction:

This section outlines the requirements for:

- Care of floor sheathing
- Lifting, stacking and storage of cassettes on site

Care of floor sheathing:

Floor sheathing is one of the few new materials not commonly stocked by Pryda fabricators and is ordered in specifically for each job. During the manufacturing process the following recommendation are strictly adhered to by the fabricator and the same is to be ensured by those involved in the delivery and installation processes. Table 4 below outlines the recommended storage conditions and potential issues to consider:

Table 4: Storage of floor sheathing

Product	Exposed to elements	Recommendation outdoor storage	Potential issues
Particleboard	3 months	Store flat, dry and covered. Battens should be placed between sheathing and cover for air to circulate.	Moisture penetration can result in the opening of joints between installed sheets when the product dries out.
Plywood	Standard project is 3 months H3 product is > 3 months	Store flat, dry and covered. Battens should be placed between sheathing and cover for air to circulate. Store flat with at least 3 bearers.	Discolouration. Checking of the surface. Higher moisture contents.
OSB	Contact supplier	Store flat, dry and covered.	OSB3 is most water resistant and can be exposed for long periods of time.
Hebel®	N/A	Store flat, dry and covered. Supported to avoid sagging.	Unaffected by weather however exposure over long periods of time to the dust particles caused by cutting can be hazardous.
Scyon® Secura®	Contact supplier	Stored off the ground. Covered with waterproof covering.	Shrinkage if exposed to water and then dried. Stains when exposed to damp. Difficulty handling as it absorbs moisture.
LVL	Contact supplier	Store flat, dry and covered.	Warping, twisting and bowing.

Stacking and storage of cassettes on site

Often it is the availability of level storage space on site that determines whether or not the cassettes will be stored temporarily or be installed on arrival. This will change the order of the cassettes in the stacks. Refer to the section on Delivery for more detail.

Each floor cassette manufacturing drawing details the onsite sequence installation number and the cassette weight to assist with stacking/bundling.

If storage space and lifting equipment allows then cassettes can be bundled. This means multiple cassettes are stacked and lifted together reducing crane, delivery and installation time.

Other considerations to be made when stacking or bundling cassettes are:

- **Lifting of cassettes:** Cassettes are always to be lifted flat and level and as specified in the Pryda documentation.



Loading cassettes flat and level

Storage

- **Stacking cassettes level and flat:** Pryda floor cassettes should be stored and transported flat and level to avoid distortion and damage to any of the cassette components.



Stacking cassettes flat, level and dry



End block to avoid floor sheet damage

Cassettes are to be stored dry, flat, covered and well supported to prevent sagging and twisting.

- **Minimising cassette movement:** Some floor sheathing products offer little resistance to movement across their upper surface when cassettes are bundled on top of each other due to the wax like coating. Care is to be taken to prevent cassettes sliding across one another during lifting and transport.
- **Minimising damage to lifting brackets:** Lifting brackets and bolts are installed during the manufacturing of the cassettes and are usually staggered to prevent damage from overlying cassettes. Care is to be taken in lifting the top cassette off the bundle not to damage the lower cassette's lifting bolt and brackets.
- **Minimising damage to floor sheathing:** To prevent damage to over-sail of floor sheathing it is recommended that the free edges be propped prior to transport to site and for it to be maintained on site prior to installation.
- **Positioning of small cassettes:** Small cassettes may be stacked on top of bundles even if they are not the first to be installed. This usually means the larger cassettes that make up the stack are better supported.

If in doubt contact the Pryda fabricator that supplied the cassettes or visit our websites:
www.pryda.co.nz
www.pryda.com.au

Delivery

Introduction

There are many different delivery options for floor cassettes and in choosing the most suitable, local transport regulation, site conditions and cassette weight and size needs to be given consideration.

Transport Regulations

To date each state or region provides legal framework that will outline what is required if the load is oversized. The road traffic acts specify the maximum mass and dimensional limits for general access vehicle “GAVs” to operate on the roads.

Any vehicle with a gross vehicle mass “GVM” over 4.5 tonnes must operate to the state or region regulation. Please note that in 2014 the Heavy Vehicle National Law 2012 (HVNL) commenced, replacing existing laws governing the operation of all vehicles over 4.5 tonnes gross vehicle mass in Queensland, New South Wales, Victoria, South Australia, the Australian Capital Territory and Tasmania. Refer to the table below for details.

Table 10: State transport requirements

Further information to each state	
VIC QLD SA ACT TAS	www.nhvr.gov.au/road-access/mass-dimension-and-loading
WA	http://www.slp.wa.gov.au/legislation/statutes.nsf/main_mrtitle_2019_homepage.html
NT	www.transport.nt.gov.au/__data/assets/pdf_file/0018/21870/permit-guidelines-ooov.pdf
NZ	www.nzta.govt.nz/resources/factsheets/53/overdimension-vehicles-and-loads.html

Note: There may also be site specific rules that need to be observed.

Cassette packs

Floor cassettes are to be transported horizontally and each floor cassette is separated by a non-slip material. It's important that height of the delivery bundle when loaded on the truck meets the state or region regulations.

Note: Care is to be taken at all times to keep the cassettes flat and evenly supported to avoid any excessive distortion as this may adversely affect their performance.

Cassette Weight

Consideration is to be given to the weight of the cassettes. Typical cassettes can weigh between 400 - 800 Kg. The Pryda Build V4 software does report the weight and centre of gravity of all cassettes.

Site requirements

Floor cassettes will be installed using either a truck mounted crane or by a mobile crane if the site access is restricted.

Site conditions may vary significantly and the following should be considered prior to undertaking a delivery:

- Can the truck loaded with panels physically access the site?
- Are the soil conditions dry, firm and adequate?
- How close to the unloading point can the truck and/or crane get?
- What is the maximum reach of the crane required?

Consultation with the builder will be required. If site access is restricted a mobile crane may be required.

Delivery to site:

Cassettes should only be loaded onto the truck for delivery once the foundations and the supporting structure are in place and have been checked for acceptable accuracy.

Should the bearers be transported to site on the same truck as the cassettes then they should be the most accessible components of the load so there is no additional work required to unload them.

Cassettes should be loaded for delivery in the order that they are to be installed if transferred directly from the truck to their final position. Where cassettes are required to be temporarily stored on-site then they should be loaded for delivery in reverse order.

Should the need for storage on site arise then the bundles are to be stored flat, dry, covered and with sufficient support to avoid any distortion. Refer also to the recommendations of AS 4440-2004 and the individual component suppliers' recommendations. This should be discussed with the fabricator prior to delivery.

Installation

A. Preparation

Note: Should there be any doubt about any aspect of the installation process or if alternate conditions are discovered on site, it is the contractor's responsibility to contact the project principal and material or component supplier.

Step 1

Ensure the responsibilities for each part of the job have been assigned and that each party is aware of the project schedule. For more information refer to Getting started section of this manual.

Step 2

Ensure all documentation for the project is available, has been read and is understood by those responsible for each aspect of the project.

Step 3

Read and approve the Safe Work Method Statement and ensure that all aspects have been considered and the appropriate measures have been taken prior to commencement of the work.

Step 4

Check delivery documentation and confirm that all of the components have been delivered and are undamaged.

Should damage to any component be observed bring it to the attention of the supplier at the earliest possible time to ensure approved corrective action and minimal delays.

Note: At no time is any modification to any component to be undertaken without the supplier's express consent. This consent is to be in the form of a document that specifically details the relevant components to be modified, the method of modification/rectification to be carried out and the printed name and signature of the approving authority.

Step 5

Set out all building lines.

Note: At this time it is advisable to make provision for a string line of known offset from the building line. This should be done around the entire building to facilitate quick and easy checking of the position of critical elements.

Note: Refer to the current Surefoot Installation Manual and other structural documentation for the project.

B. Installation of posts and subfloor bracing

Note: Ensure all previous steps of the Installation process have been completed prior to the commencement of this part.

Step 1

Install any termite protection that is required at this stage.

Step 2

With reference to the building lines and detailed drawings, position all post bases onto the foundations ensuring that all post bases are in their correct location and correctly orientated.

Step 3

Use the specified fixings to attach each post base to each footing.

Note: post bases and fixing may vary depending on the loads that are to be transferred.

Step 4

Install posts of the correct height in all internal and external corners of the building.

Step 5

Install bearers and trim to correct lengths so not to obstruct other bearers or the placement of cassettes.

Step 6

Ensure all bearers are located within acceptable tolerances and fix to post caps as per the specification.



Align bearers and fix to post caps

Installation

Step 7

Install additional temporary bracing and spacers between the bearers to ensure their correct position is maintained.

Step 8

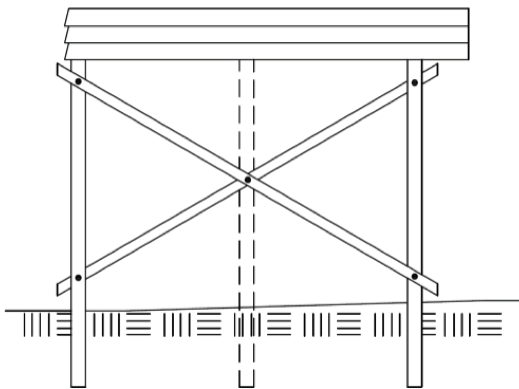
Carry out a final check of the setout dimensions with particular attention to the diagonals being well within the recommended values. All discrepancies are to be rectified prior to installation of the cassettes.

Note: All elements are to be temporary braced until permanent bracing has been installed in its entirety. It is the responsibility of the installer and builder to ensure this is completed at the appropriate time and is capable of satisfactorily withstanding all construction loads applied to it during the process.

Step 9

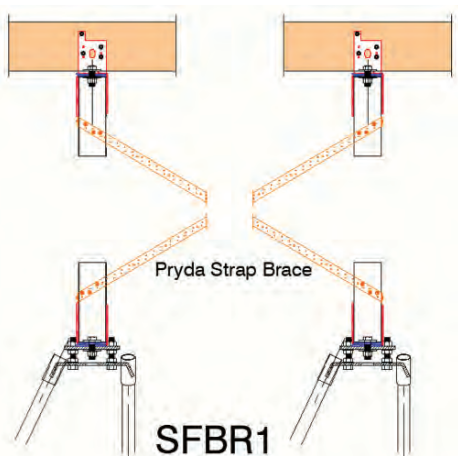
Select relevant bracing option below and install as required:

Option 1: AS 1684-2010 standard detail Refer to Clause 8.3.5



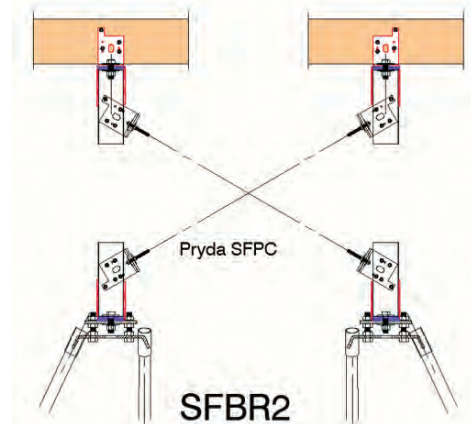
Option 1 Bracing detail

Option 2: AS 1684-2010 compliant alternative for Pryda Floor Truss and Surefoot System - Intermediate shear/racking forces to be resisted.



Option 2 Bracing detail

Option 3: AS 1684-2010 compliant alternative for Pryda Floor Truss and Surefoot System - Higher shear/racking forces to be resisted.



Option 3 Bracing detail

Note: These recommendations are an excerpt only and are to be read in conjunction with the remainder of the code.

Bracing capacities: (Preliminary only)

Pryda Sub Floor Bracing for Surefoot Footings			
Bracing Unit	Fastener Shear Capacity (kN)	Brace Tensile Capacity (kN)	Design Capacity (kN)
SFBR1 (12g Tekes)	8.6	9.4 (SB123)	8.6
SFBR2 (M10 Bolts)	18.0	18.6 (M10)	12.0
SFBR2 (12g Tekes)	14.1	18.6 (M10)	12.0

Bracing capacity notes for SFBR1:
Screw shear capacity calculated from 3/12 g screws including 1 screw to the face of the column and 2 in the wrap around portion of the Pryda Strap Brace.

Bracing capacity notes for SFBR2:
The capacity is limited by the strength of the Pryda SFPC brackets.

Note: The number and distribution of bracing units is to be determined in accordance with AS1684-2010 or by the project engineer.

Installation

C. Installation of the Floor Cassettes

WARNING: Under no circumstance shall the builder or installer allow modification to floor trusses or their connections without prior approval from truss designer or Pryda Engineers.

Note: Ensure all previous steps of the Installation process have been completed prior to the commencement of this part.

Step 1

Check appropriate certificates of those undertaking the delivery and installation and the relevant data recorded i.e. expiry date, etc.

Step 2

Position delivery truck and crane as close to the installation point as possible to maximise crane manoeuvrability and reduce any reach/weight issues.

Step 3

Determine the exact location of the corners of the first cassette to be installed.

Step 4

Remove transport tie-downs ensuring cassettes remain stable.

Step 5

Check lifting brackets to ensure there has been no damage and lifting bolt protrudes the correct distance from the top of the flooring to allow for engagement of the lifting clutches.

Step 6

Engage lifting clutches to the lifting brackets on the top panel. Ensure they are fixed in accordance with the SWMS.

Note: It may be necessary to attach guide ropes to the cassette prior to it being lifted so that it can be safely guided and rotated into the correct orientation. Strict observance of the SWMS is to be maintained.

Step 7

Lift panel into position then slowly move into place with at least two observers guiding and advising on progress.

Take care when placing cassettes to ensure the supporting structure is not knocked or moved from its intended location and level.

The use of offset string lines from the building line will assist with accurate positioning of the cassettes.

Step 8

Slacken lifting chains and check cassette is correctly located.



Check position on first cassette

Step 9

Fix panel to the footing cap/bearer/top plate in accordance with the specification.

Step 10 (Subfloor installation only)

Fix and tighten subfloor bracing (if not already fixed in place).

Step 11

Disengage the lifting clutches and prepare to repeat the process for the next cassette.

Step 12

Install second cassette in the run. Take care with this and subsequent cassettes when utilising the overhang floor sheathing method that the overhang flooring edge is matched with the setback edge on the receiving cassette, and adhesive is applied on setback edge prior to installation. Nail off overhang flooring joint and remove any excess adhesive using scraper, rag and solvent as recommended by its manufacturer.

Step 13

Continue to check position of floor cassette relative to “floor installation” set-out lines. Once confirmed fix each cassette down to the footings/bearers/top plates and then disengage lifting clutches.

Step 14 (Subfloor installation only)

Continue to fit, fix and tighten the remaining permanent subfloor bracing as the cassettes are installed (if not already fixed in place).

Step 15

Repeat process for remaining cassettes.

Installation

Step 16

Remove or screw down below flush, all of the lifting bolts from the Pryda LTB brackets.

Where a discrepancy between cassette alignment and specified tolerances exists then action is to be taken to rectify it prior to the installation of further cassettes.



Ensure neat fit of subsequent cassettes



Additional vertical diagonal (shear) bracing



Additional bracing

Note: If the discrepancy is significant then the installation may have to be halted until the responsible person is contacted and the appropriate corrective action is taken. No unauthorised modification of the cassettes is to be undertaken.

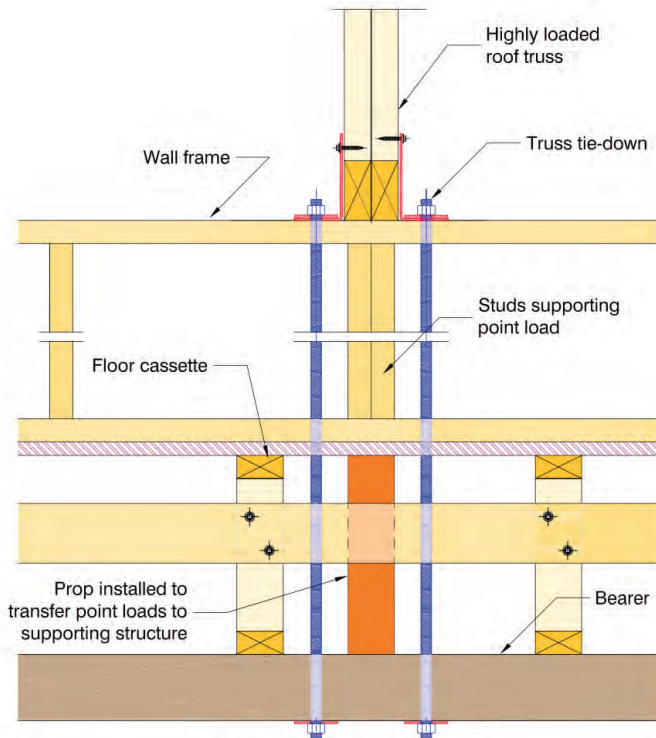
Bracing and hold down fixings

Installation of additional bracing may be required in accordance with the specification.

Note: The vertical diagonal bracing usually included in the ends of the cassettes in most cases is sufficient to resist both the lifting/construction loads and the in-service loads. However, there may be need for additional bracing in some instances to provide additional shear resistance between the overlying structure and the supporting structure.

Installation

Installation of props and tie down rods may be required in accordance with the specification.



Point load support:

Point load support props

Note: Where high point loads are present, it will be necessary to transfer these loads from overlying roof trusses and wall frames to the supporting lower structure.

FAQ

Q. Is the system suitable for sloping sites?

A. Yes, Pryda Floor Cassette System in combination with the Surefoot System is ideally suited to sloping sites drastically reducing time and expense by reducing the cost of each footing and the total number of footings required.

Q. What are the key benefits and differences of this system?

A. The Pryda Floor Cassette System combines the time saving benefits of floor cassette and the Surefoot Systems to enable a finished foundation and platform floor to be completed within hours instead of days or weeks in comparison to current methods.

The Pryda Floor Cassette System is customised for each job and is computer designed for optimal performance, cost and installation efficiency while minimizing waste.

The Pryda Floor Cassette System when used with Surefoot footings is concrete free and eliminates the need for heavy equipment, significant excavation and soil removal and the costly delays associated with adverse weather conditions.

There is no delay in lifting Pryda Floor Cassettes on site as lifting brackets are pre-installed during manufacture. In addition the brackets cause minimal damage to floor sheeting meaning there is little to no remedial work required to the flooring after the cassettes have been installed.

The Pryda Floor Cassette System ensures services are easily installed. Duct spaces can be allowed for in design so that no additional materials need to be added and no drilling or notching is required, saving time on site.

Extra-long spans and large cantilevers can be accommodated in the design as well as the ability to support high loads.

Significant design and performance improvement with minimal cost increases can be achieved with the Pryda Floor Cassette, by simply increasing the truss depth.

There is a large selection of cassette end support types for quick and easy installation onto various support types.

Pryda Floor Cassettes arrive on site manufactured to size and ready to install, eliminating the need to trim on site.

Set down or recess sections can be designed and prefabricated into the floor truss. This results in significant labour savings when it comes to laying floor coverings on balconies or fixtures and tiles in the bathroom.

Q. What is it made from and is it “green”?

A. The Pryda Floor Cassette System efficiently utilises engineered timber flooring and sustainably grown plantation timber joined with steel nail-plates/webs in the trusses. Up to 50% of the dry weight of plantation timber is stored carbon! Few other materials/systems can make this claim. Engineered timber in the bearers and steel (which is 90% recycled) in the Surefoot footing and its attachments ensure the most efficient

and appropriate material is used to minimise the environmental impact.

On average the timber component of the floor truss makes up 80% of the cost of the Pryda Floor Cassettes. It should also be noted that timber frame buildings are now being designed to meet low energy construction standards as timber has a high standard of thermal comfort while consuming minimal non-renewable energy.

A principal objective for responsible design of environmentally friendly timber construction is to minimise life cycle energy consumption. Timber in lightweight construction is a superior material compared to manufactured material such as steel, concrete and masonry as it uses a comparatively small amount of non-renewable energy in its extraction and manufacture.

Timber maximises the efficiency of insulation materials as wood has low thermal conductivity, therefore less energy is required to maintain warmth in a building, hence minimising the effect on the environment.

Today timber is available with a variety of popular and very cost effective treatments that can make it an extremely durable and termite resistant building material.

The metal webs used in Pryda Span floor trusses are manufactured from Bluescope Steel 02 grade with Z275 galvanised coating.

The Pryda Claw® nail-plates used for joining of timber in the construction of both Pryda Longreach and Pryda Span floor and rafter trusses are manufactured from Bluescope Steel G300 grade with Z275 galvanised coating.

The Surefoot footing System has less embodied energy than the equivalent concrete foundation and is completely removable and recyclable. It also helps avoid unnecessary disturbance to vegetation and soil and responds to the natural topography of a site eliminating the use of heavy machinery to install foundations. This saves energy, preserves natural drainage patterns and prevents soil erosion and sediment run offs from waste spoil. Excessive excavation can damage the ecological integrity of a site and disturb groundwater zones.

Surefoot sources its steel from environmentally focused suppliers who use up to 90% recycled steel as part of their manufacturing processes. At the end of a building’s design life Surefoot can be removed from the ground and recycled back into its raw form to produce other steel products.

Q. Is it expensive?

A. If you are comparing flooring systems cost on a per lineal metre basis, there are less expensive alternatives. However considering the “net installed cost” the Pryda Floor Cassette System can provide both installation and design savings.

The Pryda Floor Cassette System can span further than alternative flooring systems, which can result in savings in

FAQ

additional support structures. E.g. Internal load bearing walls and steel beams.

Q. Is it easy and quick to install?

A. Yes, the Pryda Floor Cassette System is much quicker to install than other conventional systems. With 20 different end support type options the cassette connections are all prefabricated there is no cutting or complicated fitting required, speeding up installation and minimizing the risk of mistakes.

The open-web design of the product eliminates potentially damaging practices such as cutting out sections for services or drilling large holes. This ease of access for installing services including plumbing, heating ducts, electrical wiring and electronic data cabling is a major benefit to builders.

Each cassette has its own lifting points built in so on arrival at site they can be immediately craned into position with no time lost and reducing potential lifting or placing damage.

With Surefoot footings additional gains can be achieved as it is a concrete free foundation system that can be installed within hours. This avoids delays of having to coordinate a number of different trades, the removal of fill and/or the risk of long delays due to adverse weather conditions.

Following trades need to be informed if this Pryda Cassette System and the Surefoot System are to be used as it will mean that the site will be ready for them to commence their work well before expected compared to a site where more traditional methods are used.

Q. What accreditation does the product have?

A. The Pryda Build software is used by licensed Pryda truss and frame fabricators to produce designs and manufacturing specifications for Pryda floor cassettes.

Pryda Build has been independently assessed by professional consulting structural engineers for compliance with the Building Code of Australia, BCA 2010, and its referenced documents.

Pryda has also demonstrated compliance with the requirements set out in the ABCB Handbook “The Use of Structural Software for Building Design Approval” (2007). All licensed Pryda fabricators are trained by Pryda in the use of Pryda Build. Users are issued with a Certificate of Training if they have demonstrated an acceptable understanding of the features presented during the course. Evidence of this training to any fabricator using Pryda Build may be obtained on request.

In addition the following reports are available and they can each be produced by a licensed Pryda fabricator:

- Producer Statement Report - a statement of design compliance for the whole job with overall and nominal design criteria, and BCA referenced documents.
- Plan Layout - showing the roof and all trusses laid out; all bracing (input by users); special notes for installation; all truss-to-truss connections.

- Detail Sheet - a drawing of each truss with all relevant design parameters associated with that particular truss.
- Design Report (summary) - all general loads; all applied distributed loads; truss serviceability; displacements for major loads; support reactions; critical member timber designs details; bearing requirements; and nail-plate design details at critical joints.
- Design Report (detailed) - as for the summary report, plus the results of the analysis for the 4 most critical combined load cases; all timber member designs; all nail-plate joint designs.

The Surefoot System has been used around Australia in hundreds of domestic and commercial applications including regions of cyclonic activity and reactive soil conditions. The Surefoot System is compliant with the following Australian standards and codes of practice which form part of the Building Code of Australia.

AS2870 -2011	Residential slabs and footings
AS/NZS1170.2 – 2011	Structural design action and wind actions
AS/NZS4600 – 2005	Cold formed steel structures
AS/NSZ2159 – 2009	Piling design and installation
AS 4100 – 1998	Steel structures

The Surefoot layout is designed for each individual project and the installation is undertaken by trained installers with a bore log being completed and returned to the certifying engineer.

Q. Where can I get it?

A. For more information contact Pryda using the information below:

The Pryda Floor Cassette/Surefoot System

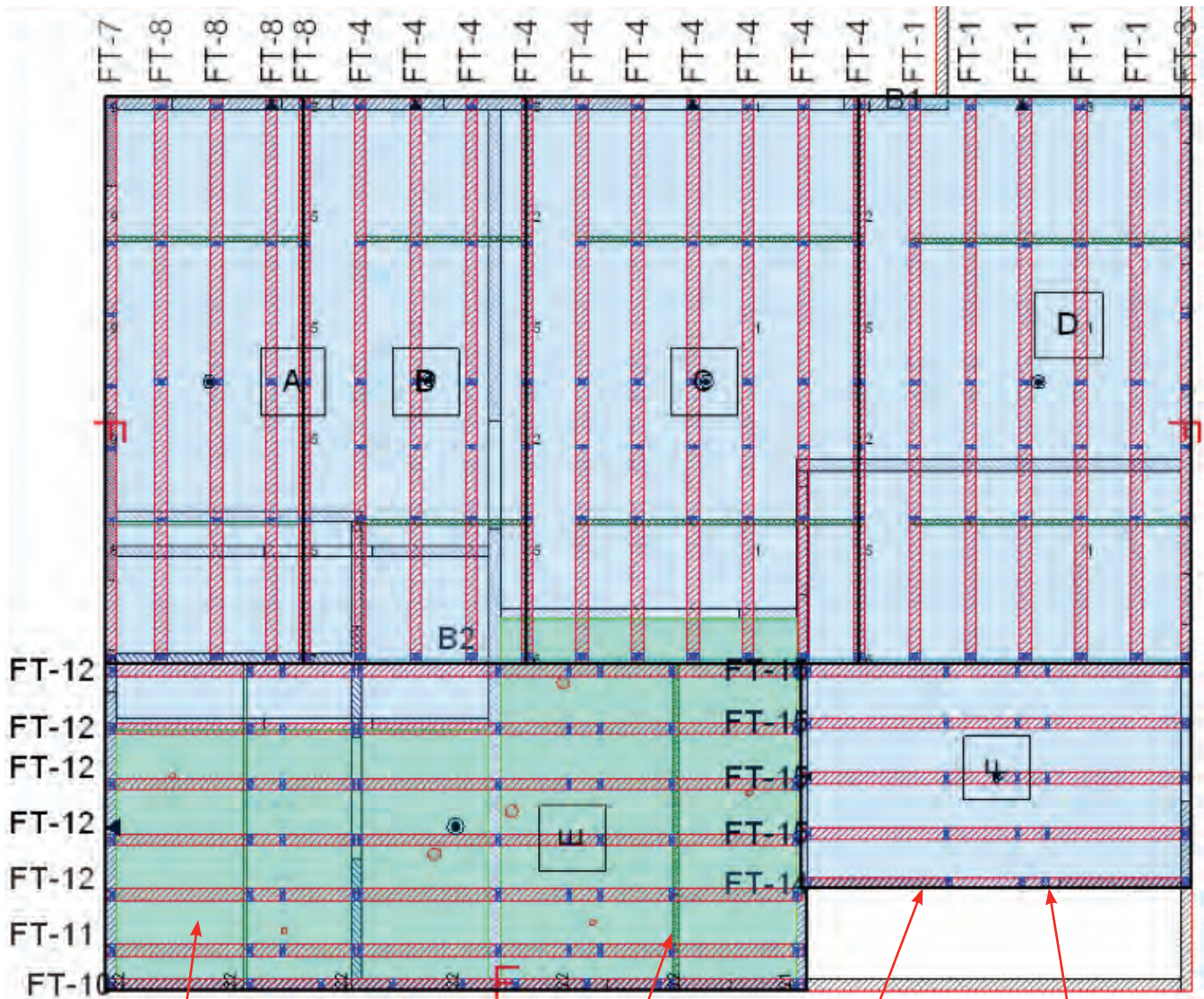
Pryda Australia
 P: 1800 810 741
 E: info@prydaanz.com
 W: www.pryda.com.au

Pryda New Zealand
 P: 0800 882 244
 E: office@pryda.co.nz
 W: www.pryda.co.nz

Typical Floor Cassette Layout

Typical Pryda Production Documentation

Layout for fabrication:



Set-down floor area

Strongback

Truss location

Location of vertical webs



Pryda Australia - A Division of ITW Australia Pty Ltd

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