

COMMERCIAL FLOOR & ROOF PANELS

PRODUCT GUIDELINES



POTIUSTM
BUILDING SYSTEMS LTD



WWW.POTIUS.CO.NZ

Potius™ Panels are a fabricated panel system, built predominantly from engineered timber, resulting in a structurally efficient system with high dimensional accuracy. The environmental advantages of building in timber are well known as the timber has stored carbon absorbed from the atmosphere while it is growing. All timber materials used in the production of **Potius™ Panels** are sourced from sustainably managed forests.

Potius™ Panels have the advantage of being a long spanning light weight system that significantly reduces the seismic mass of a building thus lowering bracing and foundation demands. The light weight nature of the panels allows many advantages during construction, including increased crane reach and utilisation, improved site safety and provides a suitable substrate to attach services directly to.

Potius™ Panels may be overlaid with a concrete topping. Care must be taken in the design and during construction when using a wet trade. An added advantage of the Potius system with a concrete topping is that it does not require propping during construction.

Potius engineers can provide bespoke structural, thermal and fire performance specifications of a panel building system and sometimes also provide the acoustical and air barrier system recommendations, depending on the design.

- ✓ Potius™ Roof Panels can span up to 14m
Potius™ Floor Panels can span up to 9.5m
- ✓ Lightweight Potius™ Panels reduce loads on gravity and seismic system - reducing overall building cost
- ✓ Potius™ Subfloor Panels require fewer piles saving time and money
- ✓ Potius™ Panels utilise environmentally sustainable renewable wood products grown and processed in New Zealand
- ✓ Simple & efficient installation, customised for site specific requirements
- ✓ Enhanced safety - instant safe working platform
- ✓ Light panels reduce crane requirements

POTIUS™ COMMERCIAL FLOOR AND ROOF PANELS SPAN TABLES

		Span (m)					
Web Depth (mm)		200	240	300	400	460	610
FLOOR PANELS	FDT Spec 1*	3.8	4.3	5.0	6.1	6.7	8.3
	FBB Spec 2*	5.1	5.6	6.3	7.4	8.0	9.5
ROOF PANELS	RDT Spec 3*	6.1	6.9	7.9	9.6	10.5	12.8
	RBB Spec 4*	7.9	8.7	9.7	11.3	12.2	14.3

* Refer to appended specification drawings for details and design assumptions.

FDT Floor Panel Double T

FBB Floor Panel Box Beam

RDT Roof Panel Double T

RBB Roof Panel Box Beam



SPECIFICATION

When specifying a **Potius™ Panel**, specify the type and depth of the panel joist such as:

- **POTIUS RDT 240mm**
- **POTIUS FBB 240mm**

GENERAL

Potius™ Panels are typically made from H1.2 treated LVL webs/joists and crossbanded top and bottom flanges that are glued and nailed together to form a composite section. The design parameters may be varied by altering the spacing, size and grade of the webs and flanges to achieve the desired depth and span. These specifications are pre-engineered to be suitable for most applications. If required the in-house engineers at Potius will provide details and a producer statement for bespoke projects. Producer statements for manufacture (PS3) and installation (PS4) can also be provided. Only the gravity loading is covered by the Design tables and Potius producer statement. We can assist the project engineer to achieve the required diaphragm action.

COMPLIANCE WITH THE NEW ZEALAND BUILDING CODE

The compliance pathway for **Potius™ Panels** is via the verification method B1/VM1 using design methods in accordance with the following standards:

- AS/NZS1170 – Structural Design Actions
 - NZS3603 – Timber Structures
 - NZS3602 – Timber & Wood Based Products
 - AS1720 – Timber Structures
 - NZS AS1720 – Timber Structures
 - NZ Wood Design Guides
 - Ch9.8 Floor and Roof Cassette Systems
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MANUFACTURE OF PANELS

The manufacture of **Potius™ Panels** is only done by accredited Potius fabricators who comply with all Potius quality control requirements. If the panels are supplied by anyone else these will be in breach of the Potius intellectual property rights.

ACOUSTICS

Acoustics are generally achieved by a combination of an acoustic ceiling, an acoustic floating floor and other resilient materials, depending on the performance requirements. This is calculated in an acoustic model by the acoustic engineers. There is the opportunity to add acoustic insulation inside the panels as a way of deadening any potential “drumming” from the void inside the panels.

THERMAL RATINGS

Insulation can be added to the panels (PU spray foam insulation by Potius) on request. Sometimes batt type insulation is added to the panels after the building has been enclosed by the contractor. The built up accumulation of thermal performance of panels can be calculated using online tools.

FIRE RATING

Potius™ Panels are commonly engineered for fire performance. This is predominantly achieved by charring of the timber bottom skin and a proportion of the webs (the Potius engineers can perform these calculations for you). A fire-rated ceiling can be added to P Panels to assist with protecting the upper part of the webs and top skin from exposure to fire.

FIXINGS

Along with the detail of the **Potius™ Panels**, we can provide the fixing requirements of the panels to the primary structure (these fixings are typically supplied by the contractor during construction).

DURABILITY

The LVL used in the fabrication of **Potius™ Panels** is typically treated to H1.2, however other treated materials (such as H3.2 plywood) may be specified and used in the manufacture to meet the requirements of NZBC B2 Durability.

POTIUS™ PANEL FDT SERIES

Appendix A – Specification Sheet 1

FLOOR PANEL
FDT 200 -
FDT 610

- 25mm Plywood Flooring
- 45mm LVL web (depth varies - refer span tables)
- Nail-LAM connection
- Additional fixings/blocking/lining may be required for continuity of bracing, hold downs, diaphragm actions, etc

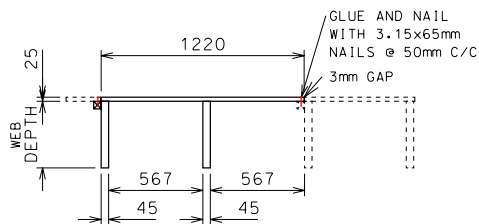
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Web Depth (mm)	200	240	300	400	460	610
Maximum Span (m)	3.8	4.3	5.0	6.1	6.7	8.3
Self Weight (kPa)	0.21	0.23	0.25	0.29	0.32	0.38
Reaction at support ULS (kN/web)	6.0	6.9	8.1	10.0	11.1	13.8

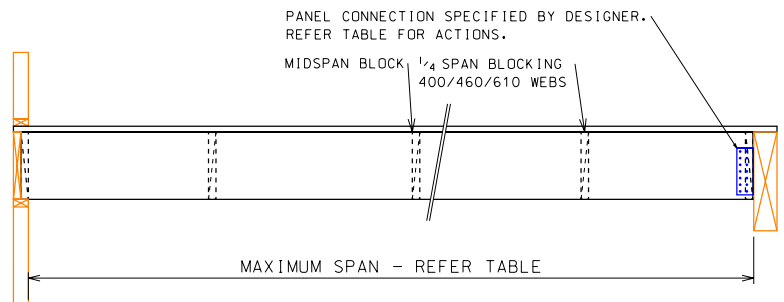
Dead Load Self weight plus 0.5kPa superimposed load

Live Load 3.0kPa

Fire Rating n/a



TYPICAL PANEL SECTION
SCALE 1:20



PANEL LONG SECTION
SCALE 1:20

POTIUS™ PANEL FBB60 SERIES

Appendix B – Specification Sheet 2

FLOOR PANEL
FBB 20060 -
FBB 61060

- 25mm Plywood Flooring
- 45mm LVL web (depth varies - refer span tables)
- 45mm LVL bottom skin
- Nail-LAM connection
- Additional fixings/blocking/lining may be required for continuity of bracing, hold downs, diaphragm actions, fire corking etc

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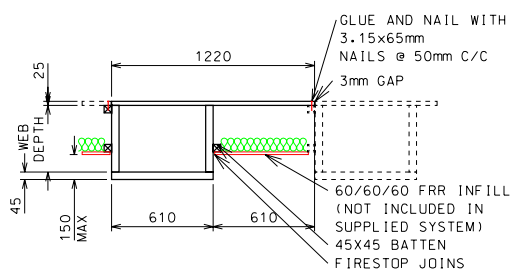
Web Depth (mm)	200	240	300	400	460	610
Maximum Span (m)	5.1	5.6	6.3	7.4	8.0	9.5
Self Weight (kPa)	0.34	0.35	0.38	0.42	0.44	0.50
Reaction at support ULS (kN/web)	8.3	9.2	10.4	12.4	13.5	16.2

Dead Load Self weight plus 0.5kPa superimposed load

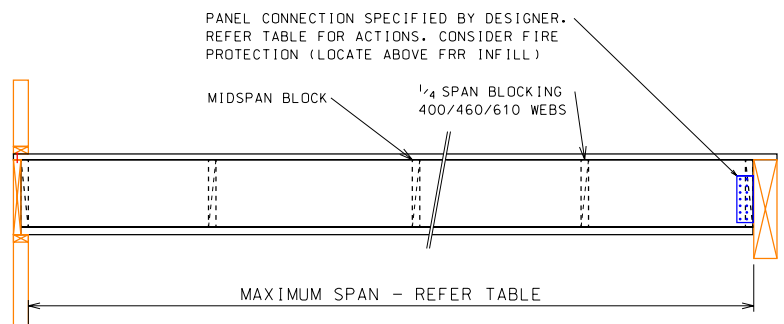
Live Load 3.0kPa

Fire Rating 60/60/60

Intumescent paint to exposed LVL surfaces, fire stopping and infill required



TYPICAL PANEL SECTION
SCALE 1:20



PANEL LONG SECTION
SCALE 1:20

POTIUS™ PANEL RDT SERIES

Appendix C – Specification Sheet 3

ROOF PANEL
RDT 200 -
RDT 610

- 25mm Plywood Flooring
- 45mm LVL web (depth varies - refer span tables)
- Nail-LAM connection
- Additional fixings/blocking/lining may be required for continuity of bracing, hold downs, diaphragm actions, etc

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Web Depth (mm)	200	240	300	400	460	610
Maximum Span (m)	6.1	6.9	7.9	9.6	10.5	12.8
Self Weight (kPa)	0.21	0.23	0.25	0.29	0.32	0.38
Reaction at support ULS (kN/web)	9.8	11.1	12.9	15.7	17.3	21.3

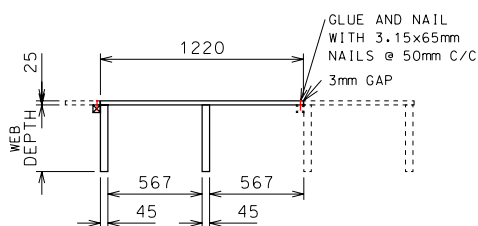
Dead Load Self weight plus 0.5kPa superimposed load

Live Load 0.25kPa

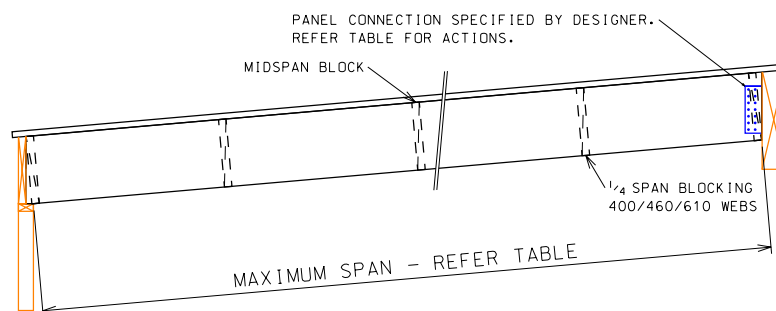
Wind Load 1.82kPa (up)

Snow Load 1.0kPa

Fire Rating n/a



TYPICAL PANEL SECTION
SCALE 1:20



PANEL LONG SECTION
SCALE 1:20

POTIUS™ PANEL RBB SERIES

Appendix D – Specification Sheet 4

ROOF PANEL
RBB 20060 -
RBB 61060

- 25mm Plywood Flooring
- 35/45mm LVL web (depth varies - refer span tables)
- 35mm LVL bottom skin
- Nail-LAM connection
- Additional fixings/blocking/lining may be required for continuity of bracing, hold downs, diaphragm actions, etc

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Web Depth (mm)	200	240	300	400	460	610
Maximum Span (m)	7.9	8.7	9.7	11.3	12.2	14.3
Self Weight (kPa)	0.29	0.31	0.32	0.36	0.37	0.42
Reaction at support ULS (kN/web)	13.0	14.2	15.9	18.7	20.3	24.1

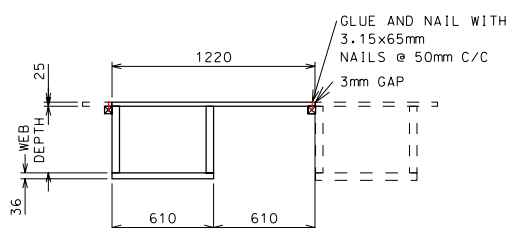
Dead Load Self weight plus 0.5kPa superimposed load

Live Load 0.25kPa

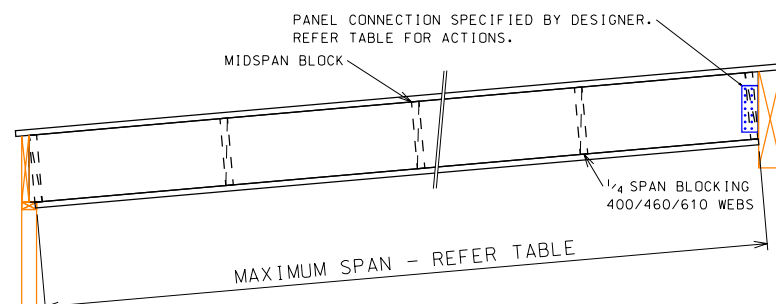
Wind Load 1.82kPa (up)

Snow Load 1.0kPa

Fire Rating n/a



TYPICAL PANEL SECTION
SCALE 1:20



PANEL LONG SECTION
SCALE 1:20



INSTALLATION & ONSITE HANDLING

STORAGE

When unloading panels check all packs to ensure panels have not shifted or been damaged in transit. Take photos for insurance purposes. The panels shall be stored in their packs on level flat 100x100 gluts with no twist. The panels should never be placed on uneven ground, even for a short period. The wrapping should be maintained over the panels and ideally stored under cover to keep the rain out. If a roof is not available use tarps as a primary protection against the elements. Adequate ventilation and ground clearance must be maintained to ensure moisture does not build up within the packs under the plastic. Panels should not be allowed to get wet as this may cause swelling, distortion and discolouration.

HANDLING & INSTALLATION



Lifting and manoeuvring **Potius™ Panels** must be undertaken by appropriately qualified people and equipment in accordance with all Health and Safety legislative requirements and relevant site H&S management systems. **Potius™ Panels** can come with lifting screws preinstalled (such as the Rothoblaas Wasp lifting system) on request. If a panel does not fit as it should DO NOT FORCE IT. Check the panel dimensions. Do not alter the panel without prior approval from Potius. If a panel distorts after it has been installed contact Potius.

PENETRATIONS & FIXINGS

Generally penetrations can be made in the panel webs and skins in accordance with NZS3604. For larger, multiple, irregular penetrations or when in doubt, contact a Potius engineer to provide guidance.

DEALING WITH MOISTURE

Where possible install **Potius™ Panels** without exposure to the exterior environment. Moisture and UV sunlight can discolour and also affect the dimensional tolerances of the panels. In a horizontal situation, where water may pool on the panels, it is recommended that the water is swept off the panels or the panels are covered before a roof is installed. When covering the panels ensure moisture is not trapped under the covering. Be mindful that penetrations in the panels can allow moisture to enter and a suitable strategy shall be undertaken to ensure that water isn't allowed to enter the panels. The panels can handle a certain amount of weathering without effecting their structural performance because we use materials such as treated crossbanded LVL with marine grade adhesive, PU foam insulation, fabrication adhesive and mechanical fasteners.



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