

3811E I-BUILT ENGINEERED TIMBER PRODUCTS

1. GENERAL

This section relates to the supply and installation of New Zealand Wood Products Ltd (NZWOOD) engineered timber products, and the I-Built™ Structural Flooring System, comprised of the following;

- Louisiana Pacific (LP) I-Beam
- Hyne beam Glulam
- Hyne 44mm LGL Edge Beam
- Structural LVL
- LVL Rimboard
- and associated Pryda hardware.

Related work

1.1 RELATED WORK

Refer to ~ for ~.

Documents

1.2 DOCUMENTS

Refer to the general section 1233 REFERENCED DOCUMENTS. The following documents are specifically referred to in this section:

NZBC B1/VM1	Structure
I.S. EN 300	Oriented Strand Boards (OSB) - Definitions, Classification and Specifications
AS/NZS 1170.0	Structural design actions - General principles
AS/NZS 1170.1	Structural design actions - Permanent, imposed and other actions
AS/NZS 1170.2	Structural design actions - Wind actions
AS/NZS 1170.3	Structural design actions - Snow and ice actions
NZS 1170.5	Structural design actions - Earthquake actions - New Zealand
AS/NZS 1328.1	Glued laminated structural timber - Performance requirements and minimum production requirements
AS 1684.2	Residential timber-framed construction - Non-cyclonic areas
AS 1684.3	Residential timber-framed construction - Cyclonic areas
AS 1684.4	Residential timber-framed construction - Simplified - Non-cyclonic areas
AS 1720.1	Timber structures and design methods
AS/NZS 1748.1	Timber - Solid - Stress graded for structural purposes - General requirements
AS/NZS 2269.0	Plywood - Structural - Specifications
NZS 3604	Timber-framed buildings
AS/NZS 4357.0	Structural Laminated Veneer Lumber

1.3 MANUFACTURER'S DOCUMENTS

Manufacturer's documents relating to work in this section are:

I-Built™ Design and Installation Guide - Specification Information

Copies of the above literature are available from:

Web: www.nzwoodproducts.co.nz
 Email: techinfo@nzwoodproducts.co.nz
 Office: 09 276 7030
 Freephone: 0800 022 352
 Freefax: 0800 022 357

Requirements

1.4 QUALIFICATIONS

Work to be carried out by tradesmen experienced, competent and familiar with the materials and techniques specified.

- 1.5 **NO SUBSTITUTIONS**
Substitutions are not permitted to any specified NZWOOD or I-Built™ products or associated components and accessories.
- 1.6 **CO-ORDINATION**
Refer to all drawings to ensure details and fixings required are provided for in the engineered timber structural work.
- 1.7 **INSTALLATION**
Installation of NZWOOD or I-Built™ engineered timber products to AS 1684.2, .3, and .4 and to any technical recommendations or instructions given by Hyne & Son Pty Ltd and LP Building Products.

Documentation

- 1.8 **PRODUCER STATEMENT**
Provide the producer statement compiled by Hyne & Son Pty Ltd in the form as required by the Building Consent Authority.

Performance

- 1.9 **DESIGN CRITERIA**
NZWOOD and I-Built™ engineered timber products to be designed to comply with AS 1720.1 and [AS/NZS 1170.0](#), [AS/NZS 1170.1](#), [AS/NZS 1170.2](#), [AS/NZS 1170.3](#), and [NZS 1170.5](#).

2. PRODUCTS

Materials

- 2.1 **LOUISIANA PACIFIC (LP) I-BEAM**
Untreated Douglas Fir LVL top and bottom flanges and 9.5mm OSB (EN 300 Oriented Strand Board) structural panel webs, and assembled with exterior grade adhesive. For floor joists, rafters, floor and roof beams.
- 2.2 **HYNE BEAM 17C**
Manufactured from high grade glue-laminated pine timber to [AS/NZS 1328.1](#). All timber laminates are assembled with exterior grade adhesive (service class 3). Beams are specified as camber (C) to 600 m radius and supplied H3.1 LOSP treated. For lintels, bearers, floor and roof beams.
- 2.3 **HYNE BEAM 18C**
Manufactured from Tasmanian Oak hardwood feed stocks to [AS/NZS 1328.1](#). All timber laminates are assembled with exterior grade adhesive (service class 3). Beams are specified as camber (C) to 600 m radius with option of straight (S) or curved. For lintels, bearers, floor and roof beams.
- 2.4 **HYNE BEAM 21C**
Manufactured from rich coloured and textured Queensland Hardwoods to [AS/NZS 1328.1](#). All timber laminates are assembled with exterior grade adhesive (service class 3). Beams are specified as camber (C) to 600 m radius with option of straight (S) or curved. For lintels, bearers, floor and roof beams.
- 2.5 **HYNE LGL**
For trimmer beams, lintels, and floor joists manufactured to [AS/NZS 1328.1](#). Supplied H3.1 LOSP.
- 2.6 **I-BUILT LVL**
I-Built™ LVL E11 and E13 is Laminated Veneer Lumber made from rotary peeled pine veneers from NZ grown FSC certified forests. Veneers are laid up with parallel grain orientation. The structural properties have been determined by testing to [AS/NZS 4357.0](#). I-Built™ LVL is available untreated or H3.1 LOSP.

- 2.7 **RIMBOARD**
21mm/35mm/45mm H3.1 LOSP treated perimeter/boundary board, comprised of a structural Plywood LVL to [AS/NZS 2269.0](#). The Rim board is used as a perimeter board. H3.1 treated to provide a protective envelope to the floor joists. The Rim board ties the end of the I-Beam joists together, providing lateral stability to the floor platform.

Treatment

- 2.8 **CHEMICAL TREATMENT OF BEAMS**
All NZWOOD and I-Built™ products are available in the following treatment options:
- LP I-Beams H3.1 LOSP and untreated
 - Hyne LGL Edgebeams H3.1 LOSP
 - Hyne 17C - H3.1 LOSP
 - Hyne 18C/21C Hardwoods - Untreated
 - Structural LVL - H3.1 LOSP and untreated
 - Rimboard H3.1 LOSP

All treated timber is marked accordingly with the treatment grade. Treat all cuts, holes and notches with generous amounts of preservative:

- H3.1 LOSP - Koppers Arch Enseal clear/green or similar preservative
- H3.2 CCA - a suitable copper or zinc naphthenate based primer.

Components

- 2.9 **PRYDA JOIST HANGERS**
Pryda top mount hanger, full depth face mount hanger, partial depth face mount hanger and structural split hangers. Nails and screws to Pryda technical literature requirements.
- 2.10 **WEB STIFFENERS**
Web stiffeners in conjunction with partial height joist hangers and fixed to I-Built™ technical literature requirements.
- 2.11 **UNEQUAL ANGLE BRACKET**
Mild steel galvanized unequal angle bracket, 75mm x 50mm x 5mm.
- 2.12 **STEEL STRAPS**
Mild steel galvanized steel straps to suit application, 27mm x 0.6mm, 25mm x 0.8mm and 25mm x 1.0mm.
- 2.13 **CORROSION RISKS**
For exterior timber, timber in damp areas and timber subject to occasional wetting, use only stainless steel (or equivalent) fixings and connectors, when the timber is treated with; Copper Azole (CuAz, Preservative code 58), Alkaline Copper Quaternary (ACQ, Preservative code 90), Micronise Copper Azole (code 88) or Micronised Copper Quaternary (code 89).

3. EXECUTION

Conditions

- 3.1 **DELIVER AND HANDLE**
Deliver and handle beams so no structural damage occurs, corners and edges are not damaged, or surfaces marked or stained.
- 3.2 **HANDLING**
Handle beams with nylon strops or similar to prevent damage. Beams to be lifted edge up.
- 3.3 **STORE**
Stack on level bearers, 150mm minimum clear of the ground. Store under cover to keep dry prior to installation.

3.4 DEFECTS

Discard beams showing visual defects affecting its structural integrity.

3.5 ERECTION GENERALLY

Carry out the erection of NZWOOD and I-Built™ and associated support framing for houses and similar structures to the requirements of [NZS 3604](#) and to the I-Built™ Design and Installation Guide. Comply with [NZBC B1/VM1](#), 6.0 Timber. Refer to I-Built™ Design and Installation Guide for the installation of Engineered Timber structural framing. Reseal cut ends, holes, and notches of treated Engineered Timber with a brush on solvent based preservative. Prop long length beams and lintels at the mid span until the moisture content has reached a suitable level for the application of internal linings.

Application - Louisiana Pacific (LP) I-Beam

3.6 ERECTION

Lift, place and fix LP I-Beam without overstressing or deformation. Use temporary supports as needed without causing damage. Fix LP I-Beam to [NZS 3604](#) and NZWOOD/I-Built™ Design and Installation Guide manual. Ensure all LP I-Beams are correctly located, plumb and true to line.

3.7 WEB HOLE LOCATIONS IN LP I-BEAMS

Circular holes, square holes and rectangular holes to be located in I-Beam floor joists as per limitations in the I-Built™ Design and Installation guide, or HD7 NZ Design Software. Cut web area as specified. Do not cut, notch or bore through flanges.

3.8 LP I-BEAMS RAFTERS AND OVERHANGS

To I-Built™ Design and Installation Guide, or HD7 NZ Design Software, for details of rafter tie down, restraint at supports, lateral restraint for Hyne rafters, ridge support detail, fascia connection detail and overhang details. For sloping soffit with LP I-Beam rafters birds mouthed at supports, cut notch no deeper than 22mm (½ of flange thickness). Web to be reinforced to details in installation guide. Maximum overhang for lightweight roof is 900mm and for heavyweight roof is 750mm.

3.9 LP I-BEAM BEARING AND SUPPORT DETAILS

To I-Built™ Design and Installation Guide, or HD7 NZ Design Software, for details of bearing and support, nailing down to supports, installation of joist hangers, web stiffeners, web stiffeners for double joists, for joists oblique to bearer, concentrated loads from jamb studs or posts and limited notching at end supports.

3.10 JOIST HANGERS FOR LP I-BEAM JOISTS

To Pryda I-Joist hanger installation guide, for product selection. Z275 galvanised coating and fixed to Fixing Requirements and Capacities tables.

Application - Hyne beam 17C, 18C, 21C

3.11 ERECTION

Lift, place and fix Hyne beam without overstressing or deformation. Use temporary supports as needed without causing damage. Fix Hyne beam to [NZS 3604](#) and to I-Built™ Design and Installation Guide, HD7 NZ Design Software. Ensure all Hyne beam beams are correctly located, plumb and true to line and face and follow procedures in the Construction Guide.

3.12 HOLES AND NOTCHES IN HYNE BEAM

Holes and notches in Hyne beam beams to [NZS 3604](#), and to I-Built™ Design and Installation guide.

Application - Hyne LGL

3.13 ERECTION GENERALLY

Lift, place and fix Hyne LGL without overstressing or deformation. Use temporary supports as needed without causing damage. Fix Hyne LGL to [NZS 3604](#) and to I-Built™ Design and Installation Guide requirements. Ensure all Hyne LGL's are correctly located, plumb and true to line and face and follow procedures in the Construction Guide.

3.14 LINTEL END CONNECTIONS
To I-Built™ Design and Installation Guide for residential construction - Information for design and installation for lintel end connections and cantilevered lintel connections construction details and to [NZS 3604](#) for trimming stud connections and to strap where required for wind uplift.

3.15 CANTILEVERED LINTEL CONNECTIONS
Refer to HD7 NZ Design Software or contact NZWOOD for residential cantilevered lintel construction, requiring specific design for lintel end connections and cantilevered lintel connections, and to [NZS 3604](#) for trimming stud connections and nail plate, on plate and on cleat fixings as required for wind uplift.

Application - I-BUILT™ Structural Flooring Solutions

3.16 I-BUILT STRUCTURAL FLOORING SOLUTIONS
Refer to I-Built™ Design and Installation Guide for Residential/Commercial I-BUILT™ structural flooring solutions. - Information for design and installation. For total structural flooring requirements combining:

LP I-Beams, Hyne beam 17C/18C/21C, Hyne LGL, I-Built™ LVL and Rimboard, Pryda hardware and Strandfloor or Ply flooring.

Refer to 5431S STRANDFLOOR® RECONSTITUTED TIMBER FLOORS for Pynefloor Gold particleboard flooring.

Completion

3.17 PROTECT
Protect new work from damage.

3.18 REPLACE
Replace or repair damaged elements.

3.19 REMOVE
Remove debris, unused materials and elements from the site.

3.20 LEAVE
Leave work to the standard required by following I-Built™ Design and Installation Guide.

4. SELECTIONS

4.1 I-BUILT™ BEARERS AND FLOOR BEAMS

Location: ~
Type: ~
Size: ~mm x ~mm
Treatment: ~

4.2 I-BUILT™ FLOOR JOISTS

Location: ~
Type: ~
Size: ~mm x ~mm
Treatment: ~

4.3 I-BUILT™ PERIMETER/BOUNDARY JOISTS

Location: ~
Type: LVL Rimboard
Size: ~mm x ~mm
Treatment: H3.1 LOSP

4.4 I-BUILT™ LINTELS

Location: ~
Type: ~

Size: ~mm x ~mm
Treatment: ~

4.5 I-BUILT™ ROOF BEAMS
Location: ~
Type: ~
Size: ~mm x ~mm
Treatment: ~

4.6 I-BUILT™ RAFTERS
Location: ~
Type: ~
Size: ~mm x ~mm
Treatment: ~