



BRANZ Appraised
Appraisal No. 827 [2019]

**ECOPLY® BARRIER
RIGID AIR BARRIER**

Appraisal No. 827 [2019]

This Appraisal replaces BRANZ
Appraisal No. 827 [2014]

Amended 03 September 2021



BRANZ Appraisals

Technical Assessments of
products for building and
construction.



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Product

1.1 The Ecoply® Barrier Rigid Air Barrier is sealed plywood sheets and tapes designed for use as a rigid wall underlay and air barrier (sheathing) behind cavity wall cladding systems. Ecoply® Barrier is also for use as a wall bracing system to resist wind and earthquake loads on timber-framed buildings.

Scope

- 2.1 Ecoply® Barrier has been appraised for use as a rigid wall underlay, air barrier and temporary weather-protecting sheathing on timber-framed buildings within the following scope:
- the scope limitations of NZBC Acceptable Solution E2/AS1, Paragraph 1.1; and,
 - with absorbent and non-absorbent wall claddings installed over an 18 mm minimum drained and vented cavity; and,
 - with masonry veneer in accordance with NZBC Acceptable Solution E2/AS1; and,
 - situated in NZS 3604 Wind Zones up to, and including, Extra High.
- 2.2 Ecoply® Barrier has also been appraised for use as wall bracing systems for timber-framed buildings within the scope of NZS 3604.

Building Regulations

New Zealand Building Code (NZBC)

3.1 In the opinion of BRANZ, Ecoply® Barrier, if used, designed, installed and maintained in accordance with the statements and conditions of this Appraisal, will meet, or contribute to meeting the following provisions of the NZBC:

Clause B1 STRUCTURE: Performance B1.3.1, B1.3.2 and B1.3.4. Ecoply® Barrier meets the requirements for loads arising from earthquake and wind [i.e. B1.3.3 (f) and (h)]. See Paragraphs 8.1-8.4.

Clause B2 DURABILITY: Performance B2.3.1 (a) not less than 50 years, B2.3.1 (b) 15 years and B2.3.2. Ecoply® Barrier meets these requirements. See Paragraphs 9.1-9.3.

Clause E2 EXTERNAL MOISTURE: Performance E2.3.2. When used as part of the wall cladding system, Ecoply® Barrier contributes to meeting this requirement. See Paragraphs 12.1 and 12.2.

Clause F2 HAZARDOUS BUILDING MATERIALS: Performance F2.3.1. Ecoply® Barrier meets this requirement.

3.2 Ecoply® Barrier can be used to satisfy the bracing demand requirements of Section 5 of NZS 3604 which is an Acceptable Solution for compliance with NZBC Clause B1.



Technical Specification

- 4.1 The components and accessories for Ecoply® Barrier, which are supplied by Carter Holt Harvey Plywood Ltd are:
- **Ecoply® Barrier sheets** are 7 mm thick, 1,197 mm wide and 2,440 and 2,745 mm long structural plywood, manufactured from radiata pine in accordance with AS/NZS 2269, and H3.2 CCA treated in accordance with AS/NZS 1604.3. The sheets are coated on the front face and four edges with a beige polyester powder coating. Plywood sheets are marked Ecoply® Barrier for identification.
 - **Ecoply® Sealing Tape** - 60 mm x 30 m tape for sheet joints.
 - **Ecoply® Frame Flashing Tape** - 150 mm x 30 m and 200 mm x 30 m.
 - **Ecoply® Sill Tape** - 150 mm x 20 m and 200 m x 20 m.
- Tapes are marked Ecoply® and type for identification.
- 4.2 The components and accessories for the Ecoply® Barrier, which are supplied by the building contractor are:
- **Ecoply® Horizontal Jointer** - PVC horizontal 'Z' flashing supplied by E2 Flashing Solutions.
 - **Fasteners** - 50 x 2.8 mm flathead hand-driven nails, hot-dip galvanised or stainless steel. Paslode Impulse 50 x 2.8 mm round head gun-nails. Hot-dip galvanised or stainless steel. Stainless steel nails must be ring shanked.
- [Note: Hot-dip galvanising must comply with AS/NZS 4680 and stainless steel must be Grade 304 or 316.]*
- **Bracing panel end stud connection** - GIB® HandiBrac® one-piece, 2 mm thick, galvanised steel angle bracket approximately 95 mm high, 65 mm long and 54 mm wide. The bracket is supplied with 5 Type 17 screws 14 g x 35 mm.
 - **Timber floor end stud hold down** - 12 mm x 150 mm hot-dip galvanised coach screws.
 - **Concrete floor end stud hold down** - cast-in bolts M12 x 150 mm minimum, or proprietary fixings with a minimum characteristic strength of 15 kN.

Handling and Storage

- 5.1 Handling and storage of all materials supplied by Carter Holt Harvey Plywood Ltd or the building contractor, whether on-site or off-site, is under the control of the building contractor. Ecoply® Barrier plywood sheets must be stacked flat, off the ground and supported on a level platform. They must be kept dry at all times either by storing under cover or providing waterproof covers to the stack. Care must be taken to avoid damage to edges, ends and surfaces. The Ecoply® Tapes must be protected from damage and weather and stored in clean, dry conditions away from direct exposure to sunlight. uPVC jointers must be protected from physical damage and should be stored flat and under cover.
- 5.2 Other accessories must be stored so they are kept clean, dry and undamaged.

Technical Literature

- 6.1 Refer to the Appraisals listing on the BRANZ website for details of the current Ecoply® Barrier Specification & Installation Guide, which must be read in conjunction with this Appraisal. All aspects of design, use, installation and maintenance contained in the Ecoply® Barrier Specification & Installation Guide and within the scope of this Appraisal must be followed.

Design Information

General

- 7.1 Ecoply® Barrier is intended for use as a rigid wall underlay and an air barrier fixed over timber-framed walls in order to support wind pressures and to act as a secondary barrier to wind-driven rain. With all joints sealed with Ecoply® Tapes, no flexible wall underlay is required over the Ecoply® Barrier plywood.
- 7.2 Commencing from installation, the Ecoply® Barrier, including the Ecoply® Tapes, must not be exposed to the weather for more than 180 days.
- 7.3 Ecoply® Barrier may be used as a temporary weather protecting sheathing to allow the insulation and internal lining of the building to proceed before the wall cladding is installed. To achieve temporary weathertightness, all joints, internal and external corners of the Ecoply® Barrier must be sealed, the roof cladding and soffit linings must be installed, the flexible sill and jamb flashing tape system must be installed around the window and door openings, and the window and door joinery must be installed complete with head flashings and air seals. The timber wall framing must have a maximum moisture content as specified by the internal lining system supplier at the time of the insulation installation and internal lining application.
- 7.4 Ecoply® Barrier is suitable for use under wall claddings as a rigid wall underlay in accordance with NZBC Acceptable Solution E2/AS1, Table 23 on timber-framed buildings. Refer to Table 1.

Table 1: NZBC E2/AS1, Table 23 Requirements

NZBC E2/AS1 Table 23 Rigid Wall Underlay Properties	Property Performance Requirement	Ecoply® Barrier Actual Property Performance
Vapour Resistance	≤ 7 MN s/g	2.2 MN s/g
Absorbency	≥ 100 g/m ²	1,451 g/m ²
Water Resistance	≥ 20 mm	Pass

Timber Treatment

- 7.5 Timber wall framing behind the Ecoply® Barrier must be treated as required by NZBC Acceptable Solution B2/AS1.

Timber Framing

- 7.6 Timber framing must be minimum 90 x 45 mm structural grade SG8 and must comply with NZS 3604 for buildings or parts of buildings within the scope limitations of NZS 3604. Buildings or parts of buildings outside the scope of NZS 3604 must be to a specific design in accordance with NZS 3603 and AS/NZS 1170, considering local factors. In all cases, studs must be at maximum 600 mm centres. Dwargs must be fitted flush between the studs at maximum 1,200 mm centres. *[Note: The timber framing must also be suitable for the selected wall cladding. Refer to the selected cladding system's Technical Literature for specific framing requirements.]*
- 7.7 Timber wall framing where the Ecoply® Barrier plywood sheets are joined must be nominal 50 mm width [i.e. 45 mm minimum finished width].
- 7.8 Timber framing must be kiln dried and as dry as practically possible at the time of the Ecoply® Barrier installation.

Ecoply® Barrier Set Out

- 7.9 All Ecoply® Barrier plywood sheet edges must be fully supported by framing.
- 7.10 Ecoply® Barrier must be installed vertically. At the base of the wall the plywood sheets must hang below the bottom plate a minimum of 25 mm, up to a maximum of 40 mm.

Ecoply® Barrier Plywood and Cladding Fixing

- 7.11 Ecoply® Barrier plywood sheets must be fixed at maximum 150 mm centres around the perimeter of each sheet and at maximum 300 mm centres to intermediate studs. In Extra High Wind Zones, the fixing centres on the intermediate studs must be closed up to maximum 150 mm centres. The fixings are at the same centres regardless of whether the Ecoply® Barrier plywood is being used for bracing or not.
- 7.12 The length of the selected wall cladding fasteners must be increased by a minimum of 7 mm to maintain the face load strength of the wall cladding system.

Structure

Mass

- 8.1 The mass of Ecoply® Barrier is approximately 4 kg/m². This mass must be added to the selected wall cladding system mass when determining the overall wall cladding mass in terms of NZS 3604.

Wind Zones

- 8.2 Ecoply® Barrier is suitable for use in all Wind Zones of NZS 3604 up to, and including, Extra High.

Bracing

- 8.3 The bracing units achieved [wind and earthquake] for the Ecoply® Barrier are given in Table 2. The Technical Literature gives details of edge and end fixing distances and provides comprehensive construction and panel hold-down details.
- 8.4 The bracing units are derived from the BRANZ P21 test method based on a wall height of 2.4 m. For greater wall heights the bracing rating is calculated by multiplying the appropriate value shown in Table 2 by 2.4 divided by the wall height in metres. Walls lower than 2.4 m shall be rated as if they were 2.4 m in high.

Table 2: Bracing Ratings for Ecoply® Barrier Structural Plywood Brace

Specification No.	Minimum Wall Length	Lining Requirements	Bottom Plate Hold-down and Fixing	BUs/m Wind	BUs/m Earthquake
EPBI	0.4 m	Ecoply® Barrier one side	GIB HandiBrac®*	80	95
	0.6 m			95	105
	1.2 m			120	135**
EP2	0.6 m	Ecoply® Barrier or Ecoply® each side	GIB Handibrac®	105	115
EPBS	0.4 m	Ecoply® Barrier one side	No additional fastening*	60	60
	0.6 m			60	65
	1.2 m			65	70
	2.4 m			80	90
EPBG	0.4 m	Ecoply® Barrier one side and 10 mm GIB® Standard plasterboard other side	GIB HandiBrac®	100	115
	1.2 m			150**	150**

Notes:

* Bottom plate fixed in accordance with the requirements of NZS 3604.

** Timber Floors - A limit of 120 BU/m applies to NZS 3604 timber floors.

Penetrations for Services

- 8.5 Small openings for services of up to 90 x 90 mm may be placed no closer than 90 mm to the edge of the bracing element and service penetrations up to a maximum of 150 mm diameter may be placed no closer than 150 mm from the sheet edge, without affecting the bracing rating of the panel.

Connections

- 8.6 The Ecoply® Barrier Technical Literature contains a top plate hold down detail and a lintel tie down connection detail that are alternatives to the details given in NZS 3604.

Durability

- 9.1 Ecoply® Barrier meets code compliance with NZBC Clause B2.3.1 (a) not less than 50 years when used where the cladding durability requirement or expected serviceable life is not less than 50 years, e.g. behind masonry veneer, or where it is used as a bracing element, and code compliance with NZBC Clause B2.3.1 (b), 15 years where the cladding durability requirement is 15 years and the Ecoply® Barrier is not used as a bracing element.

Serviceable Life

- 9.2 Provided Ecoply® Barrier is not exposed to the weather or ultraviolet (UV) light for a total of more than 180 days, and provided the exterior cladding is maintained in accordance with the cladding manufacturer's instructions and the cladding remains weather resistant, the Ecoply® Barrier is expected to have a serviceable life of at least 50 years.
- 9.3 Areas of geothermal activity and coastal locations can be very corrosive to fasteners, especially coastal locations within distances of up to 500 metres of the sea including harbours, or 100 metres from tidal estuaries and sheltered inlets in some instances. These coastal locations are defined in NZS 3604 as Zone D and stainless steel fasteners must be used. For installation in NZS 3604 Corrosion Zones C and B, hot-dip galvanised steel fasteners complying with the requirements of NZS 3604 may be used.

Maintenance

- 10.1 Ecoply® Barrier will not normally require maintenance. However, if damage occurs to the cladding or lining protecting the sheathing or to the sheathing itself, then repairs or replacement must be carried out to ensure the integrity of the rigid air barrier.

Prevention of Fire Occurring

- 11.1 Separation or protection must be provided to the Ecoply® Barrier from heat sources such as fireplaces, heating appliances and chimneys. Part 7 of NZBC Verification Method C/VM1 and Acceptable Solution C/AS1, and Acceptable Solution C/AS2 provide methods for separation and protection of combustible materials from heat sources.

External Moisture

- 12.1 Ecoply® Barrier must be used behind claddings that meet the performance requirements of NZBC Clause E2.
- 12.2 Ecoply® Barrier, when installed in accordance with the Ecoply® Barrier Specification & Installation Guide and this Appraisal, will assist in the total cladding system's compliance with NZBC Clause E2.

Installation Information

Installation Skill Level Requirements

- 13.1 All design and building work must be carried out in accordance with the Ecoply® Barrier Technical Literature and this Appraisal by competent and experienced tradespersons conversant with the Ecoply® Barrier. Where the work involves Restricted Building Work (RBW), this must be completed by, or under the supervision of, a Licensed Building Practitioner (LBP) with the relevant License Class.



System Installation

Ecoply® Barrier Installation

- 14.1 Ecoply® Barrier plywood sheets may be cut using any circular saw or hand saw tool. Holes and cut-outs may be formed by using a hole saw.
- 14.2 Sheets must be dry prior to installation. Cut edges that are left exposed must be sealed in accordance with the Ecoply® Barrier Specification & Installation Guide prior to installation.
- 14.3 Prior to fixing Ecoply® Barrier plywood sheets, a check must be made to ensure all sheet edges will be supported by framing. At the base of the wall, the sheet must hang below the bottom plate by a minimum of 25 mm.
- 14.4 Ecoply® Barrier plywood sheets must be fixed to the timber framing with 50 x 2.8 mm hot-dip galvanised flathead clouts, or 50 x 2.8 mm ring shanked stainless steel nails. Nails may be either hand-driven or power-driven. Refer to Paragraph 7.11 for fixing centres and Paragraph 9.3 for material selection.
- 14.5 At vertical joints, Ecoply® Barrier must be installed with a 1.5-3 mm gap between the sheet edges. Sheets at horizontal joints between floor levels must be installed with a minimum 15 mm gap between the edges and must be supported over horizontal framing. All horizontal joints must be flashed with the Ecoply® Horizontal Joiner.
- 14.6 Any damaged areas of Ecoply® Barrier, or gaps around service penetrations, must be repaired by covering with joint sealing tape.

Joint Sealing Tape Installation

- 14.7 Ecoply® Barrier plywood sheets must be cleaned of dust and other surface contaminants prior the application of the joint sealing tape to ensure adequate adhesion is achieved.
- 14.8 All vertical sheet joints, internal and external corners, penetrations or damaged areas and over driven nails must be covered with Ecoply® Sealing Tape. The manufacturer's instructions regarding the application temperatures for the joint sealing tapes must be followed.

Flexible Sill and Jamb Tape Installation

- 14.9 The Ecoply® Sill Tape and Ecoply® Frame Flashing Tape must be installed in accordance with the Ecoply® Barrier Specification & Installation Guide. Particular attention must be paid to the installation of the sill and jamb tapes around window and door joinery openings to ensure all exposed timber wall framing in the opening is protected.

Inspections

- 14.10 The Ecoply® Barrier Specification & Installation Guide must be referred to during the inspection of the Ecoply® Barrier installations.

Health and Safety

- 15.1 Ecoply® Barrier must be handled in accordance with the Material Safety Data Sheet for H3.2 CCA treated Ecoply®.
- 15.2 When power tools are used for cutting or forming holes, health and safety measures as set out in the Ecoply® Barrier Specification & Installation Guide must be undertaken because of the amount of dust generated.
- 15.3 Safe use and handling procedures for the Ecoply® Barrier and the components that make up the cladding system are provided in the relevant manufacturers' Installation Guides.

Basis of Appraisal

The following is a summary of the technical investigations carried out:

Tests

- 16.1 Racking tests were carried out in accordance with BRANZ Technical Paper P21. The earthquake and wind bracing ratings were determined using the evaluation procedures outlined in BRANZ Technical Recommendation No. 10. The test results and laboratory methods have been reviewed by BRANZ and found to be satisfactory.
- 16.2 Testing has been carried out by BRANZ to determine the face load pressure resistance of Ecoply® Barrier.
- 16.3 Testing to determine the resistance of Ecoply® Barrier plywood to water vapour transmission in accordance with AS/NZS 4200.1 and resistance to water penetration in accordance with AS/NZS 4201.4 has been completed. The results have been reviewed by BRANZ and found to be satisfactory.
- 16.4 The Ecoply® Sealing Tape, Frame Flashing Tape and Sill Tape have been tested to BRANZ criteria to assess the tensile strength of control and UV aged material, nail sealability, water resistance of control and UV accelerated aged material and pliability. BRANZ has determined that the tapes are fit for purpose for the intended use. The adhesion to the Ecoply® Barrier plywood sheet has also been tested and found to be satisfactory.

Other Investigations

- 17.1 Structural and durability opinions were given by BRANZ technical experts.
- 17.2 An assessment was made of the durability of the Ecoply® Barrier Tapes by BRANZ technical experts.
- 17.3 BRANZ expert opinion on NZBC E2 code compliance for Ecoply® Barrier was based on evaluation of all details within the scope and as stated within this Appraisal. The details contained within the Ecoply® Barrier Specification & Installation Guide have been reviewed and an opinion has been given by BRANZ technical experts that the system will meet the performance levels of Acceptable Solution E2/AS1 for a rigid wall underlay.
- 17.4 Site inspections were carried out by BRANZ to assess the practicability of installation.
- 17.5 The Ecoply® Barrier Specification & Installation Guide has been examined by BRANZ and found to be satisfactory.

Quality

- 18.1 The manufacture of the Ecoply® Barrier plywood has been examined by BRANZ, including methods adopted for quality control. Details regarding the composition of the materials used were obtained by BRANZ and found to be satisfactory.
- 18.2 The quality of materials, components and accessories supplied by Carter Holt Harvey Plywood Ltd is the responsibility of Carter Holt Harvey Plywood Ltd. The quality control system for the manufacture of the plywood used for the Ecoply® Barrier has been assessed and registered as meeting the requirements of AS/NZS 2269 by the Engineered Wood Products Association of Australasia, Certificate No. 911.
- 18.3 The manufacture of Ecoply® Tapes has been examined on behalf of BRANZ, including methods adopted for quality control. Details of the quality and composition of the materials used were obtained and found to be satisfactory.
- 18.4 Quality of installation on-site of components and accessories supplied by Carter Holt Harvey Plywood Ltd and the building contractor is the responsibility of the installer.
- 18.5 Designers are responsible for the building design, and building contractors are responsible for the quality of installation in accordance with the instructions of Carter Holt Harvey Plywood Ltd.



Sources of Information

- AS/NZS 1170:2002 Structural design action - General principles.
- AS/NZS 2269:2012 Plywood - Structural.
- AS/NZS 4200.1:2017 Pliable building membranes and underlays - materials.
- AS/NZS 4201.4:1994 Pliable building membranes and underlays - Methods of test - Resistance to water penetration.
- NZS 3602:2003 Timber and wood-based products for use in building.
- NZS 3603:1993 Timber Structures Standard.
- NZS 3604:2011 Timber-framed buildings.
- Ministry of Business, Innovation and Employment Record of amendments - Acceptable Solutions, Verification Methods and handbooks.
- The Building Regulations 1992.

Amendments

Amendment No. 1, dated 03 September 2021.

This Appraisal has been amended to reflect building code updates relating to fire.



BRANZ Appraised
Appraisal No.827 [2019]

BRANZ Appraisal
Appraisal No. 827 [2019]
21 June 2019

ECOPLY® BARRIER RIGID AIR
BARRIER



In the opinion of BRANZ, **Ecoply® Barrier Rigid Air Barrier** is fit for purpose and will comply with the Building Code to the extent specified in this Appraisal provided it is used, designed, installed and maintained as set out in this Appraisal.

The Appraisal is issued only to **Carter Holt Harvey Plywood Ltd**, and is valid until further notice, subject to the Conditions of Appraisal.

Conditions of Appraisal

1. This Appraisal:
 - a) relates only to the product as described herein;
 - b) must be read, considered and used in full together with the Technical Literature;
 - c) does not address any Legislation, Regulations, Codes or Standards, not specifically named herein;
 - d) is copyright of BRANZ.
2. **Carter Holt Harvey Plywood Ltd:**
 - a) continues to have the product reviewed by BRANZ;
 - b) shall notify BRANZ of any changes in product specification or quality assurance measures prior to the product being marketed;
 - c) abides by the BRANZ Appraisals Services Terms and Conditions;
 - d) warrants that the product and the manufacturing process for the product are maintained at or above the standards, levels and quality assessed and found satisfactory by BRANZ pursuant to BRANZ's Appraisal of the product.
3. BRANZ makes no representation or warranty as to:
 - a) the nature of individual examples of, batches of, or individual installations of the product, including methods and workmanship;
 - b) the presence or absence of any patent or similar rights subsisting in the product or any other product;
 - c) any guarantee or warranty offered by **Carter Holt Harvey Plywood Ltd**.
4. Any reference in this Appraisal to any other publication shall be read as a reference to the version of the publication specified in this Appraisal.
5. BRANZ provides no certification, guarantee, indemnity or warranty, to **Carter Holt Harvey Plywood Ltd** or any third party.

For BRANZ

Chelydra Percy

Chief Executive

Date of Issue:

21 June 2019

STORMWATER DISPOSAL DESIGN

PROPOSED NEW HOUSE @ LOT 43, ANDERSON PARK, WAIKANAE

SOAKAGE RATE: 300mm/hr

ROOF AREA: 30° ROOF = 216 m²DRIVEWAY AREA: 60 m²CATCHMENT AREA: 276 m²

$$R_c = 10 \times 0.9 \times 70 \times 0.0276 = 17.39 \text{ m}^3$$

Assume Soakpit 4 x 2.1 x 2.1m deep (44m³)

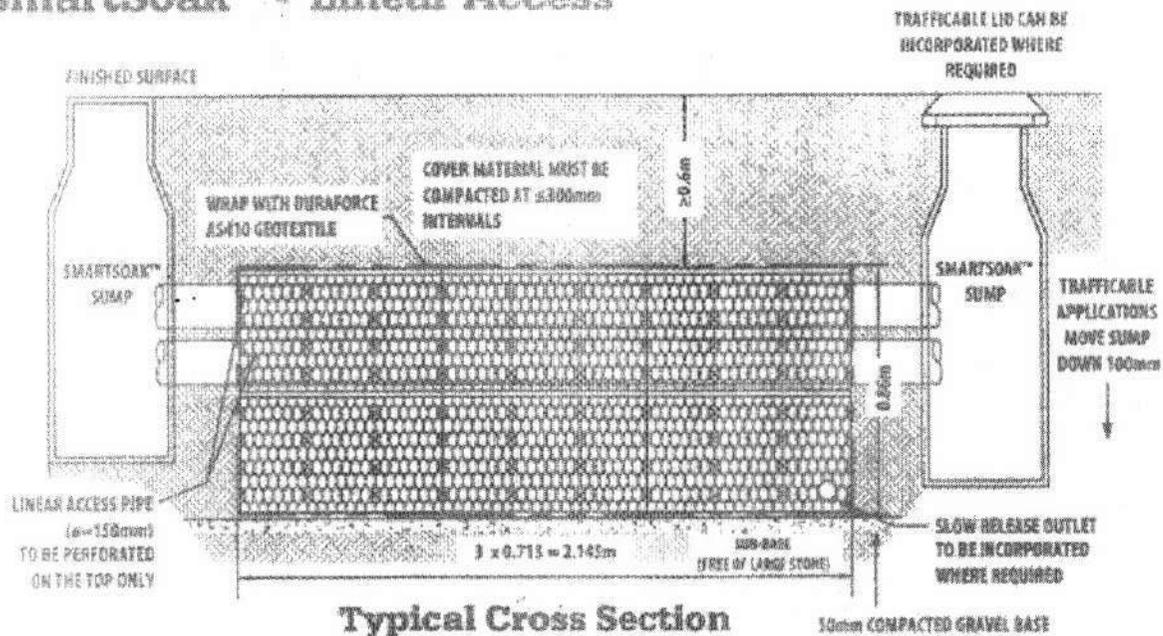
$$V_{\text{soak}} = 7.0 \times 300 / 1000 = 2.1 \text{ m}^3$$

$$V_{\text{stor}} = R_c - V_{\text{soak}} = 17.39 - 2.1 = 15.29 \text{ m}^3$$

$$\text{Void space} = V_{\text{stor}} \div 0.95 = 15.29 \div 0.95 = 16.1 \text{ m}^3 \text{ min}$$

Using SMARTSOAK SYSTEM select 10m³ + 7m³ system

THEREFORE SYSTEM OF 9.6 x 2.145 x 0.86m DEEP OK.

SmartSoak™ - Linear Access

BC230628
Further Information Received
12/10/23



SMARTSOAK®

RESIDENTIAL STORMWATER
MANAGEMENT SYSTEM



SMARTSOAK®

Presenting a new way to deal with stormwater runoff from residential properties. In a smart, easy and cost effective kit, the SmartSoak system contains all the components needed to attenuate stormwater from an individual residential site. Hidden underground, SmartSoak stores runoff from the impermeable surfaces in a series of modules wrapped in a geotextile fabric where it slowly soaks away into the surrounding soils and/or is released through an orifice.

- Using the innovative 'Linear Access' pipes (refer to page 5), SmartSoak is a maintainable system which will not silt up over time, like traditional gravel soakage stormwater pits and buried crate systems.
- SmartSoak is smart, cost effective and compact; boasting a 95% void ratio compared with traditional soakage aggregate pits with a void ratio of 30-40% which are not able to be maintained.
- The SmartSoak modules are pre-approved by council* which streamlines the consenting process of the developer and project engineer.
- Available in 4 standard sizes to suit property requirements, the SmartSoak system can be easily installed anywhere on the property. The modules are trafficable meaning they can be installed under driveways and parking areas, providing there is a minimum of 600mm of cover.

SMARTSOAK KIT - Standard Sizes

Code	Product	Tank Size	Modules
13281	SmartSoak 3.5m ³ System	2.0 x 2.145 x 0.86	15
13085	SmartSoak 5m ³ System	2.8 x 2.145 x 0.86	21
13086	SmartSoak 7m ³ System	4.0 x 2.145 x 0.86	30
13087	SmartSoak 10m ³ System	5.6 x 2.145 x 0.86	42

SmartSoak modules and linear access technology hold pre-approval certification from Auckland and Waikato Local Authority SHARED SERVICES. At present, these are the only councils requiring formal approval for underground stormwater devices.



SMARTSOAK UTILISED IN 3 WAYS!

The primary function of SmartSoak is the management of storm runoff from impermeable surfaces.

SOAKAGE

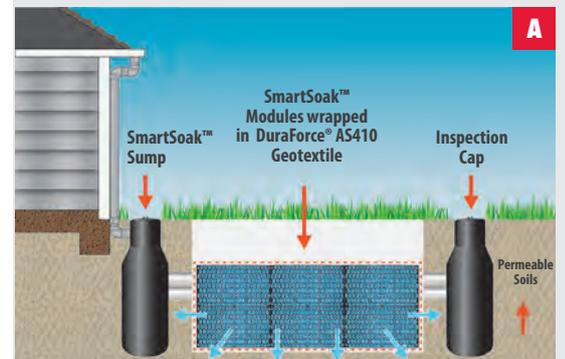
Rainwater is collected in SmartSoak modules and allowed to soak into the surrounding soil over a period of time after the storm has finished. A coarse screen filter is recommended to catch larger objects from blocking the system.

DETENTION

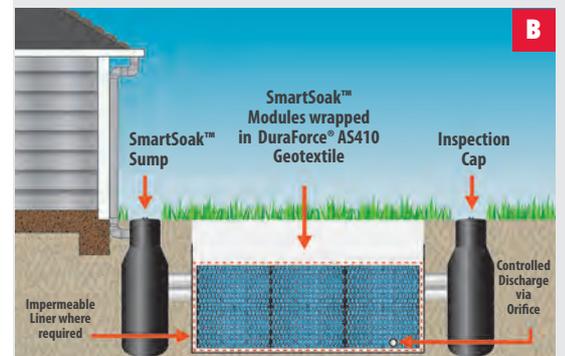
Stormwater is collected in SmartSoak detention module and released at a reduced rate through a flow control orifice into an appropriate outflow pipe. This reduces peak flows from the site, thereby minimising the risk of flooding, erosion and potentially deferring the need to replace hydraulically inadequate stormwater pipes.

REUSE

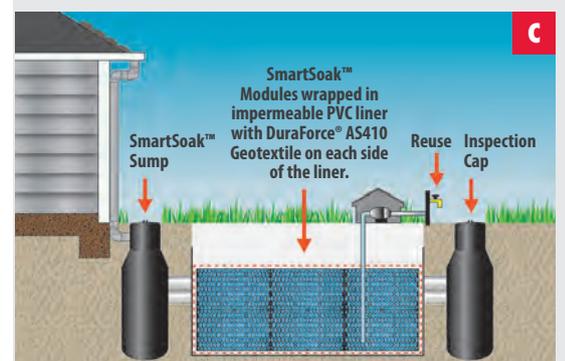
Rainwater from roofs is directed to SmartSoak modules located beneath driveways, lawns and other trafficable or non trafficable surfaces. A coarse screen filter is recommended to remove leaves and rubbish from inflows, thereby protecting the SmartSoak Soakage modules from blocking. Water collected in the tank is suitable for garden watering, laundry use and toilet flushing.



SOAKAGE SYSTEM



DETENTION SYSTEM



REUSE SYSTEM

SMARTSOAK

HOW TO WORK OUT WHAT SIZE YOU NEED

To ensure you use the right size SmartSoak for your property, a suitably qualified engineer will consider a number of factors including:

1. SURFACE TYPES AND AREAS

Such as:

- > Roof
- > Driveway
- > Patio
- > Lawn/Landscaped areas

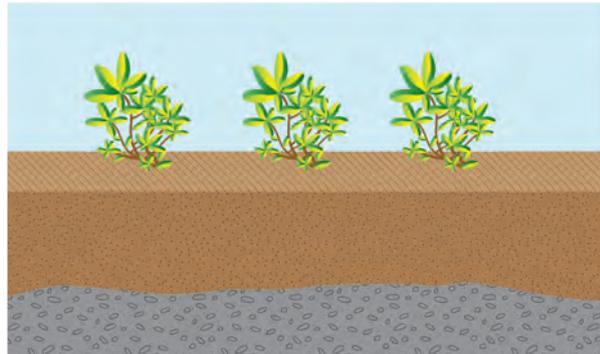


2. ANNUAL RAINFALL DATA & CLIMATE CHANGE FOR YOUR AREA

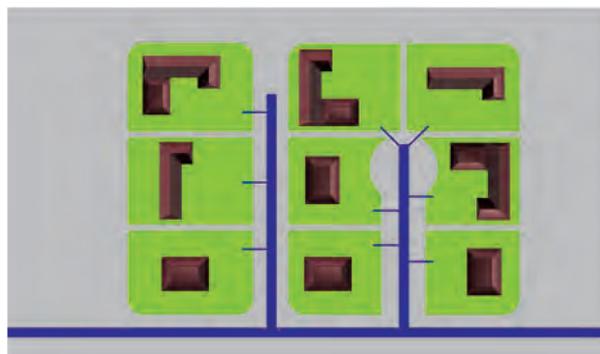


3. THE SOIL CONDITIONS ON YOUR PROPERTY

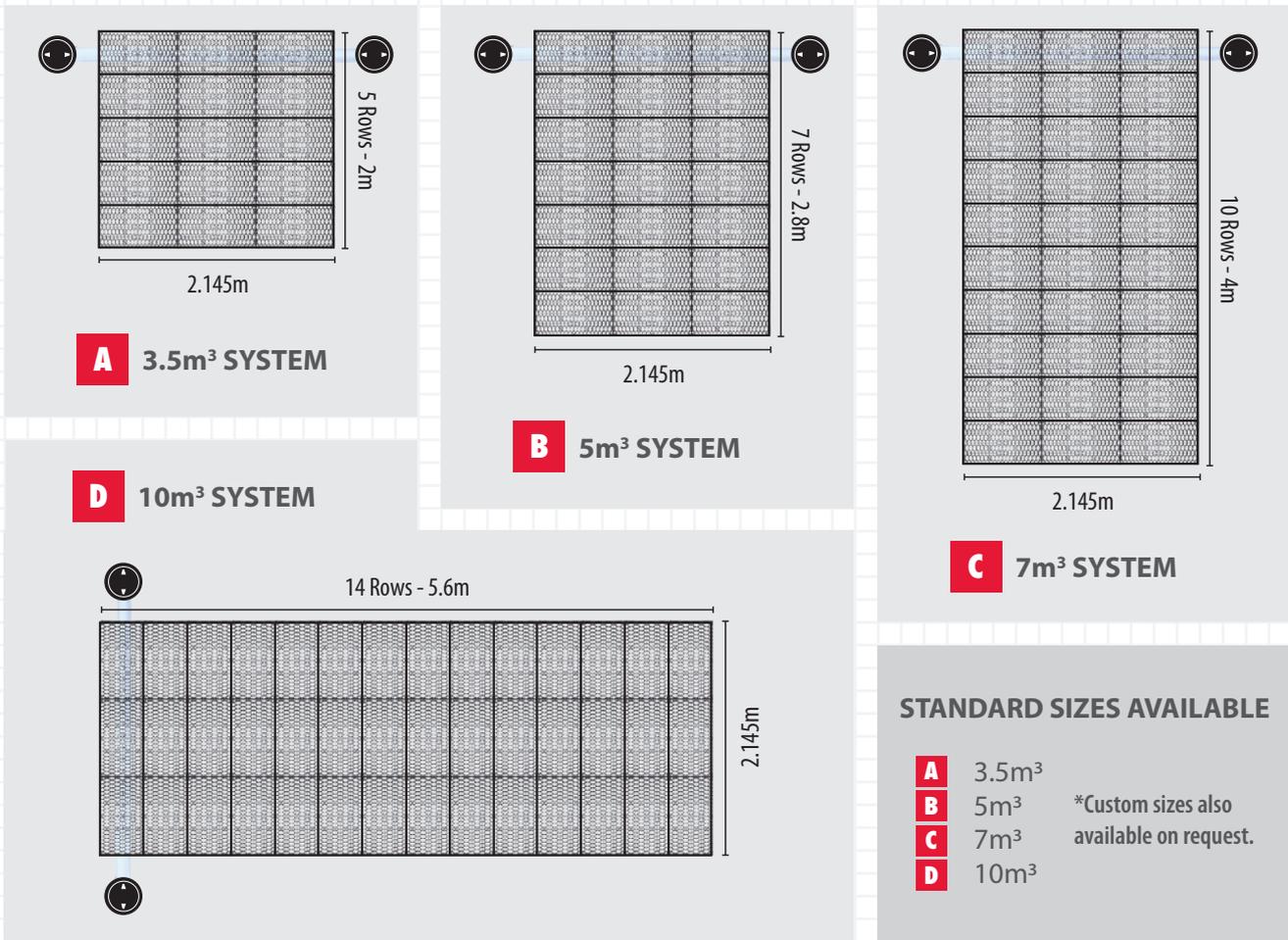
- > Soakage rate
- > Geotechnical hazards
- > Groundwater



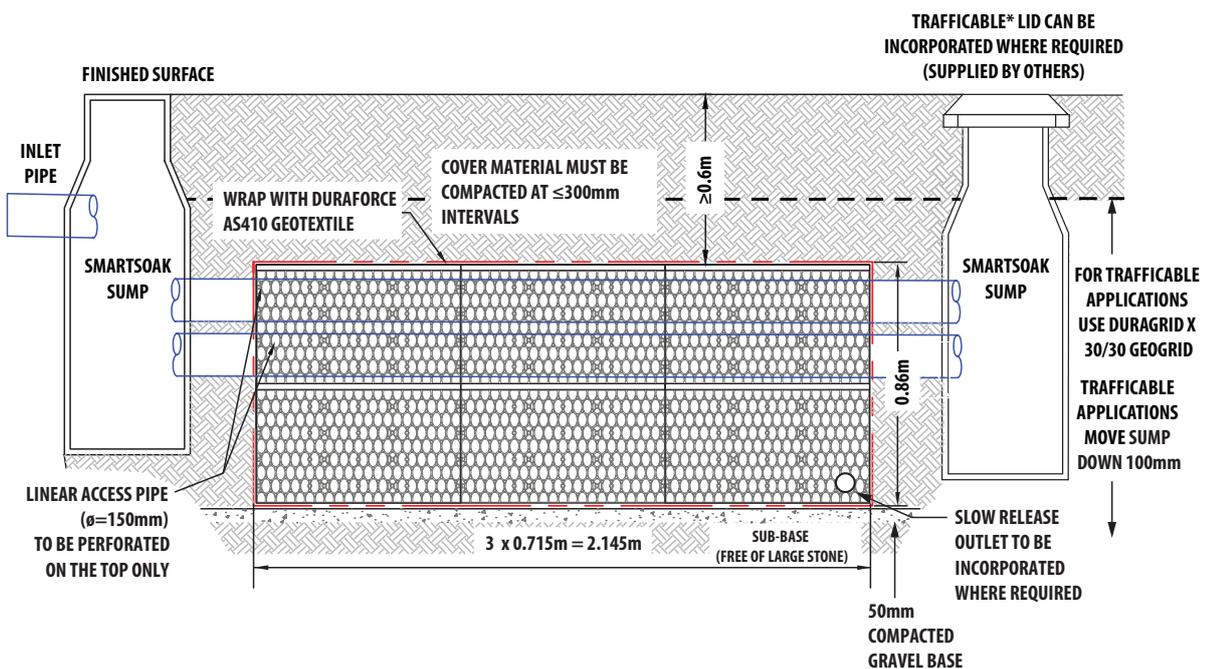
4. Whether you can discharge some stormwater into the council mains, or whether you need to deal with all run-off onsite.



SMARTSOAK SYSTEM SIZES

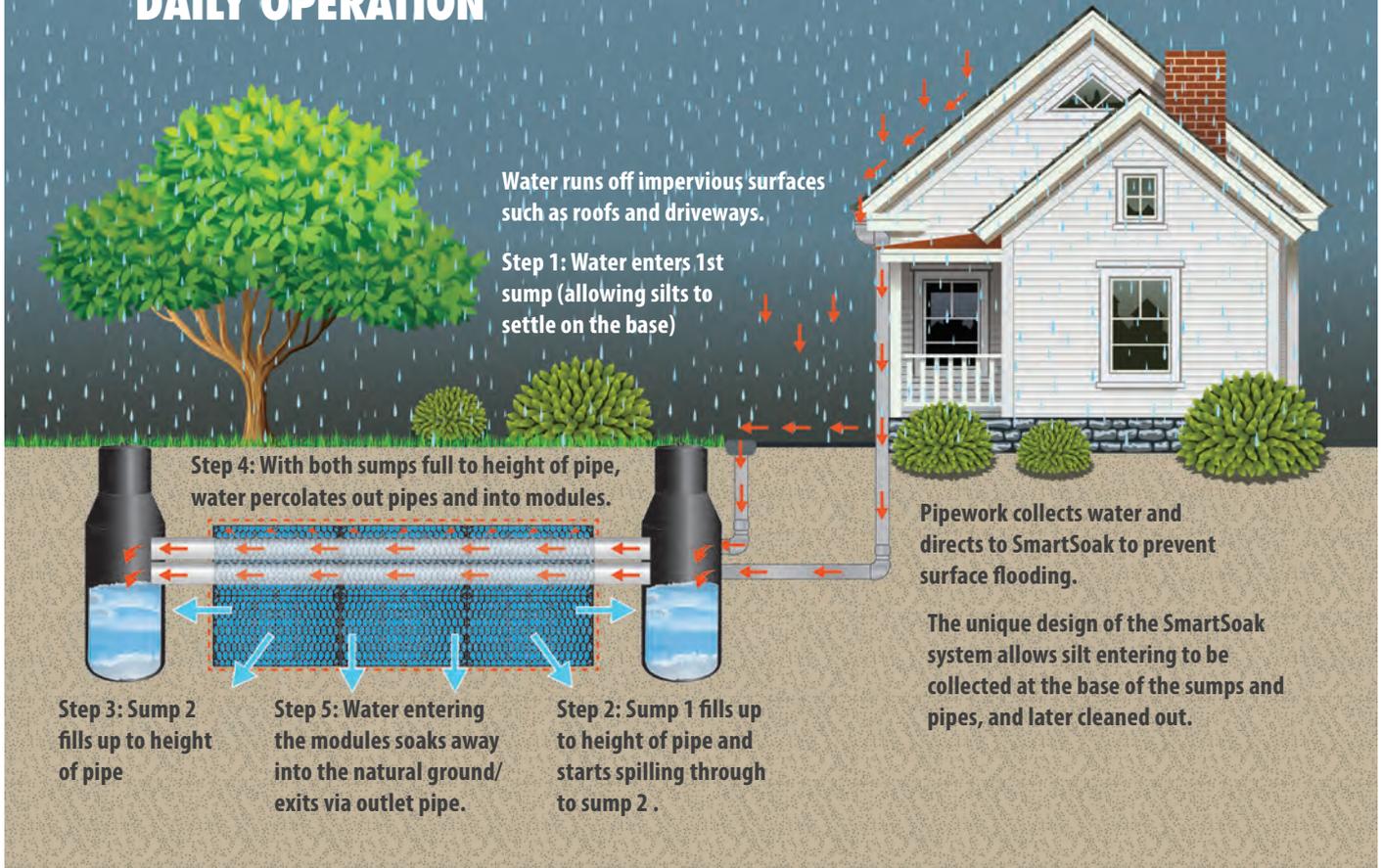


SMARTSOAK LINEAR ACCESS



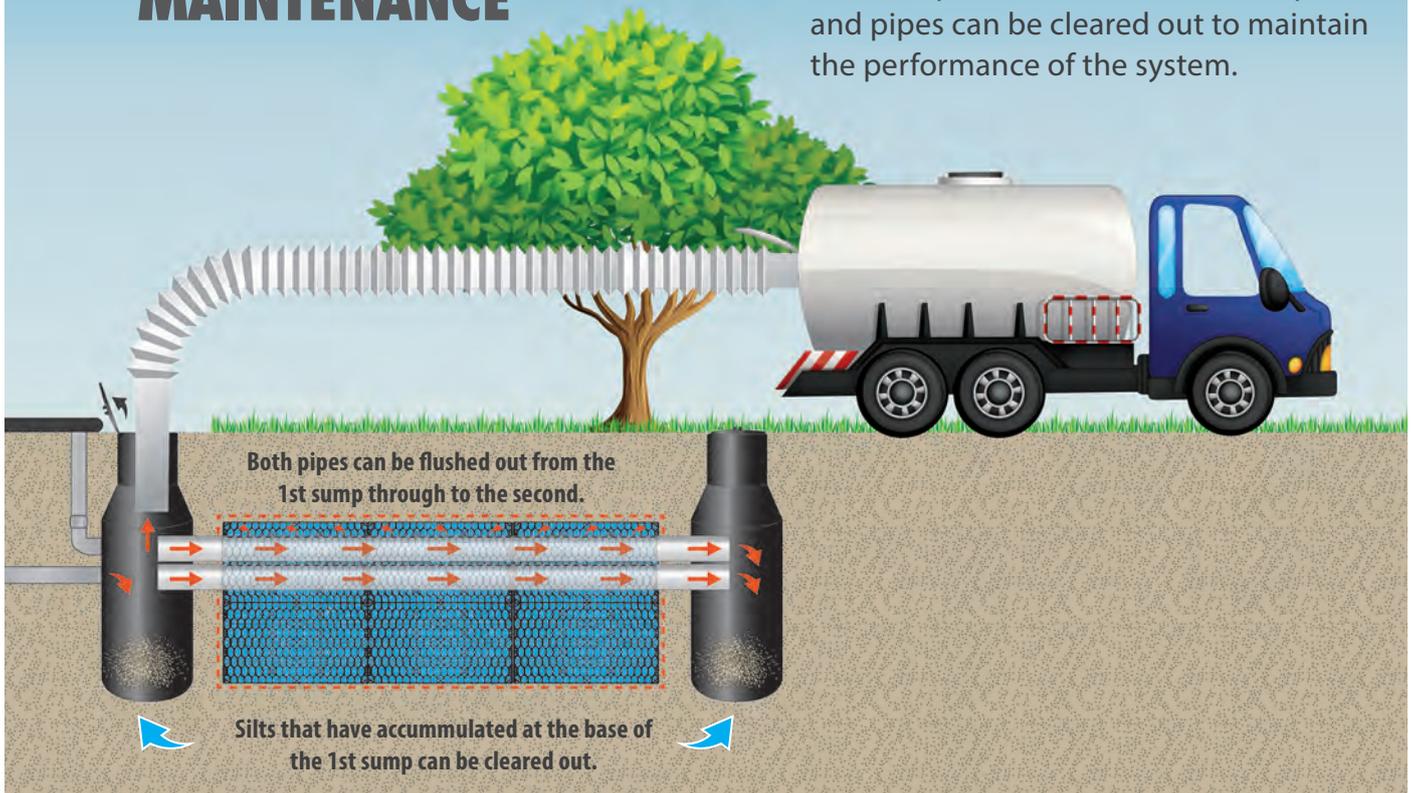
*Supplied by others (typically and cast iron lid and frame)

SMARTSOAK LINEAR ACCESS - HOW IT WORKS DAILY OPERATION

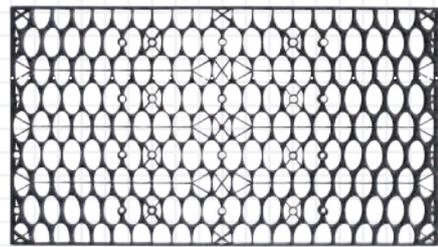
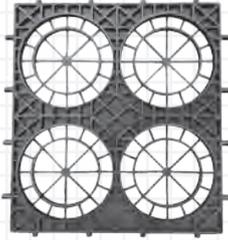


MAINTENANCE

When required, the SmartSoak sumps and pipes can be cleared out to maintain the performance of the system.



COMPONENTS SMARTSOAK SYSTEM KIT



LINEAR ACCESS PLATES

400mm x 440mm

1 x SmartSoak Kit includes:
 3.5m³ Kit: 15 LA Plates
 5m³ Kit: 15 LA Plates
 7m³ Kit: 15 LA Plates
 10m³ Kit: 15 LA Plates

SMALL PLATES

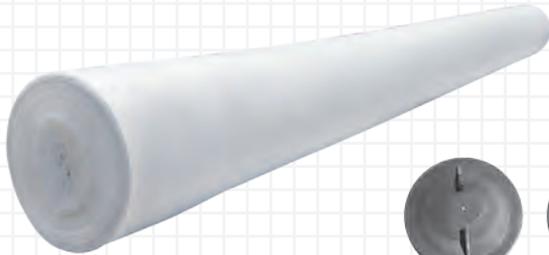
400mm x 440mm

1 x SmartSoak Kit includes:
 3.5m³ Kit: 135 Small Plates
 5m³ Kit: 195 Small Plates
 7m³ Kit: 285 Small Plates
 10m³ Kit: 405 Small Plates

LARGE PLATES

400mm x 715mm

1 x SmartSoak Kit includes:
 3.5m³ Kit: 105 Large Plates
 5m³ Kit: 147 Large Plates
 7m³ Kit: 210 Large Plates
 10m³ Kit: 294 Large Plates



DURAFORCE® GEOTEXTILE

AS410

1 x SmartSoak Kit includes:
 1 x DuraForce AS410
 1.9m x 50m Roll

SUMP CAPS*

250mm (d)

1 x SmartSoak Kit includes:
 2 x Sump Caps

SMARTSOAK SUMP TANKS

1.3m x 450mm (d)

1 x SmartSoak Kit includes:
 2 x SmartSoak Sumps

LINEAR ACCESS PIPES

150mm x 2.7m (SN4)

1 x SmartSoak Kit includes:
 2 x Top Perforated Pipes



Note: All components on this page are not shown to scale.*Trafficable lid and frames supplied by others

TRAFFICABLE APPLICATIONS - DURAGRID X 30/30 GEOGRID:

3.5m³ kit = 3.95m x 3.8m
 5m³ kit = 3.95m x 4.6m
 7m³ kit = 3.95m x 5.8m
 10m³ kit = 3.95m x 7m

Note: Dimensions allow for extending 900mm beyond SmartSoak footprint.



CIRTEX INDUSTRIES LTD

Head Office 16 Queen Street | Kopu
Thames 3578 | NZ

Postal Address

PO Box 470 | Thames 3540 | NZ

0800 CIRTEX (247 839)

WWW.CIRTEX.CO.NZ

DISCLAIMER

The information provided in this publication is correct to the best knowledge of the company and is given out in good faith. The information presented herein is intended only as a general guide to the use of such products and no liability is accepted by Cirtex Industries Ltd for any loss or damage however arising, which results either directly or indirectly from the use of such information. Cirtex Industries Ltd has a policy of continuous development so information and product specifications may change without notice.



APPROVALS:

SmartSoak® RainSmart® stormwater modules are pre-approved for use with Auckland Council and Waikato Local Authority SHARED SERVICES.





SMARTSOAK®

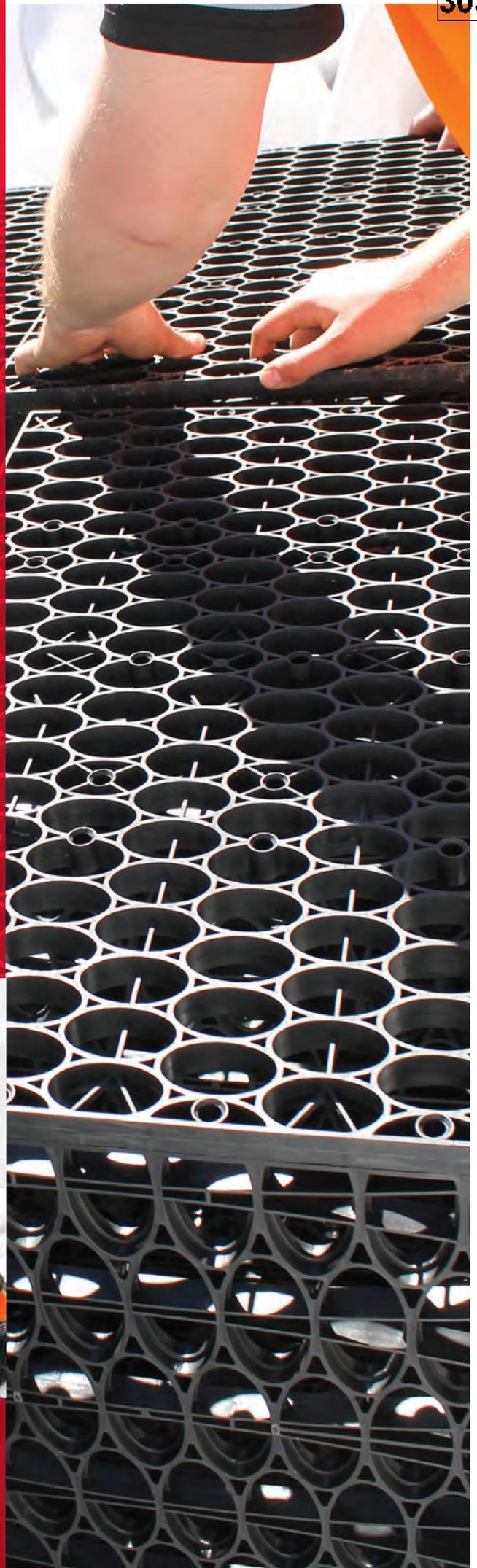
RESIDENTIAL STORMWATER
MANAGEMENT SYSTEM

INSTALLATION GUIDELINES

G 111 002 | VERSION 1 | AUGUST 2022



0800 247 839 | WWW.CIRTEX.CO.NZ



INSTALLATION SMARTSOAK® SOAKAGE SYSTEM

This guide is generic in nature and would be superseded by any project specific installation guidance.



1 EXCAVATION

Excavate the trench to the required dimensions (refer to product brochure) ensuring excavation footprint is wide enough to allow for small compactor around the edge of the SmartSoak modules (typically 300-500mm). Trench depth must allow for 600mm cover over the modules for trafficable applications and 300mm for non-trafficable applications.



2 PREPARE THE BASE

Place, level and compact 50-100mm of bedding material consisting of coarse sand or free draining aggregate with a maximum particle size of 20mm at base of excavation (a free draining coarse sand often works well).



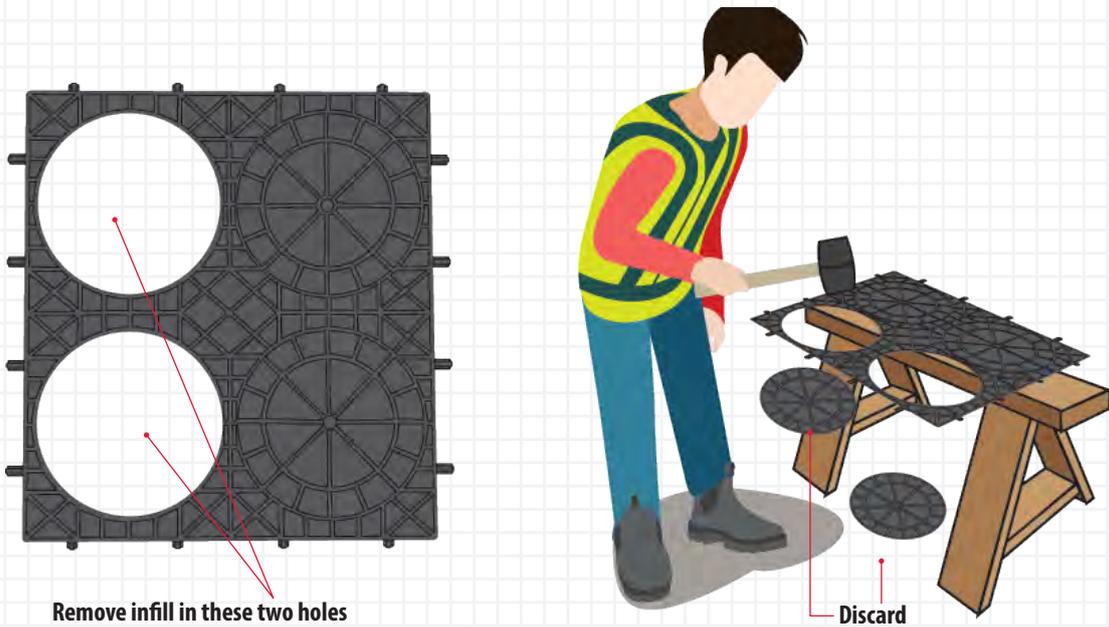
3 LINE THE EXCAVATION

Line base and sides of excavation with DuraForce® AS410 Non-Woven Geotextile. Check your engineer drawings to check whether an impermeable liner is required or not.

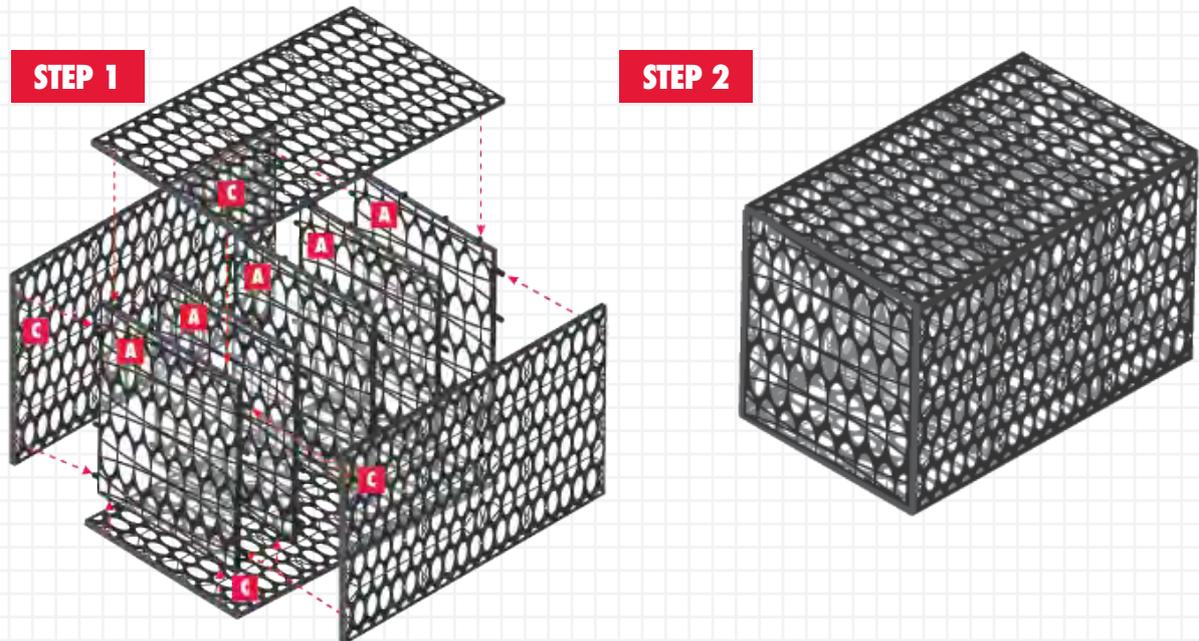


4 LINEAR ACCESS PLATE PREPARATION

You should have received 15 square plates with perforated holes in that have sacrificial infill. Using your rubber mallet (or knife) gently tap out 2 of these infills while resting the other 2 on a sawhorse/bench.



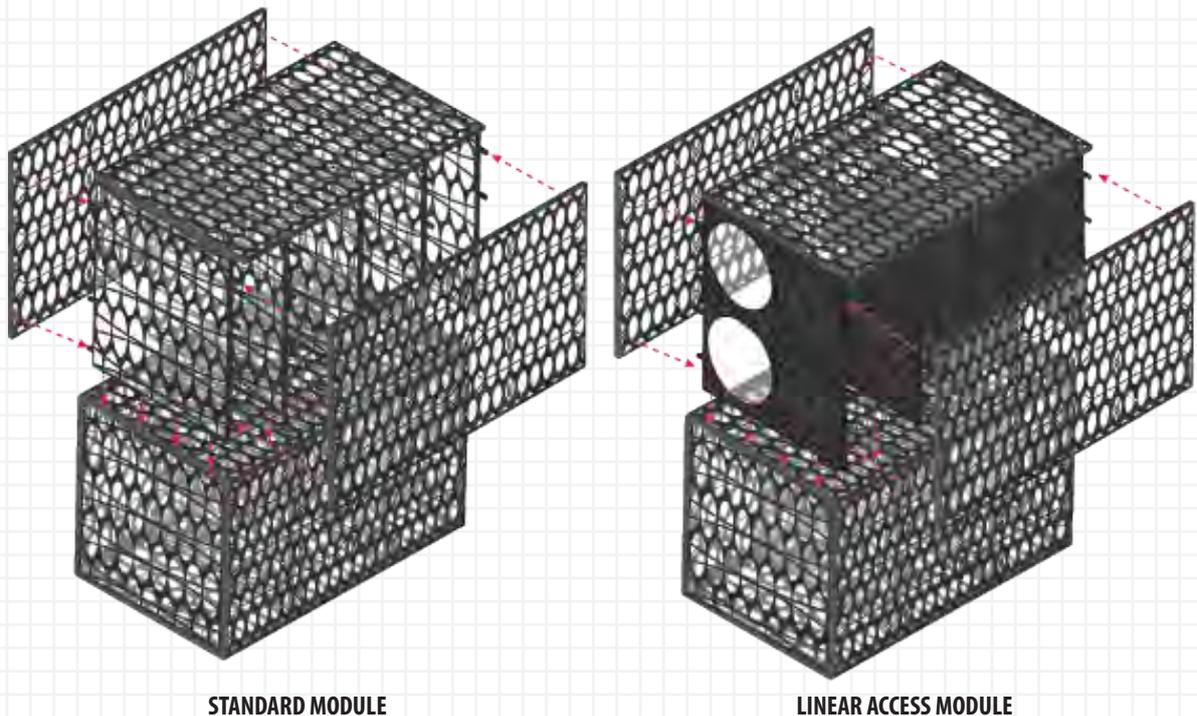
5 DOUBLE MODULE ASSEMBLY GUIDE



Using a rubber mallet complete the module base layer by applying firstly a rectangle plate on top, and then on the other side (in this order).

STEP 3 MODULE ASSEMBLY - COMPLETE TOP LAYER

Using the top of the module are coded in step 5, press an additional 5 plates in using your rubber mallet and finish by adding, rectangle plates to top and sides. In the top layer of 3 of these modules you will need to use the linear access plates with preferred holes. All other modules will have standard square plates.



STANDARD MODULE

LINEAR ACCESS MODULE



For impermeable system installation contact Cirtex®

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STEP 4 MODULE ASSEMBLY - END RESULT

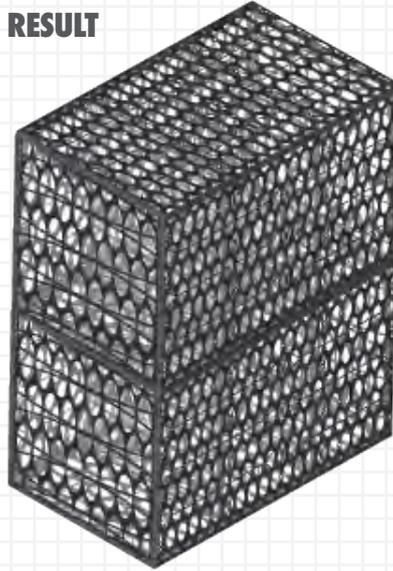
Once assembly of the modules is complete you should have 3 linear access modules and a number of standard modules to suit:

3.5m³ = 12 standard modules

5m³ = 18 standard modules

7m³ = 27 standard modules

10m³ = 39 standard modules



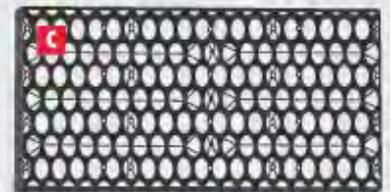
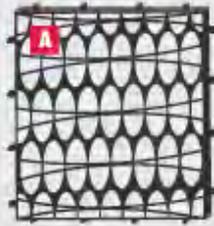
STANDARD MODULE



LINEAR ACCESS MODULE

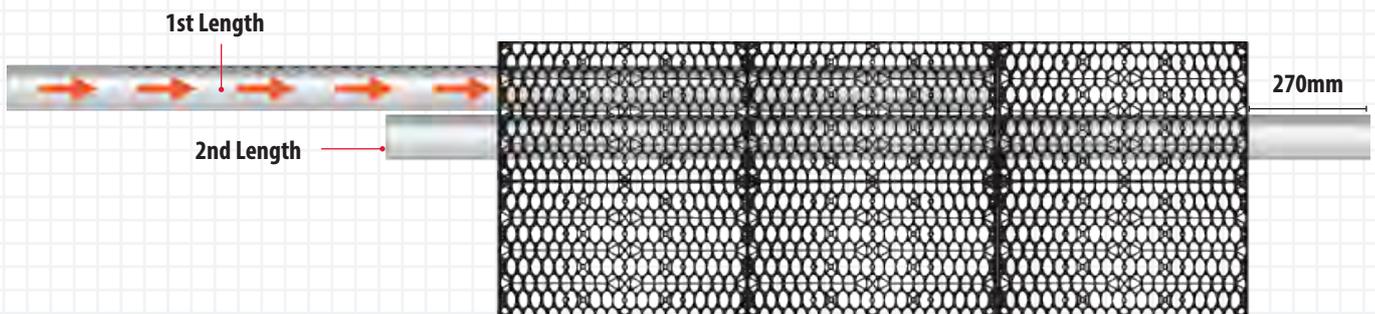
Components you will need

- A** Small Plate
- B** Linear Access Plate
- C** Large Plate
- D** Rubber Mallet



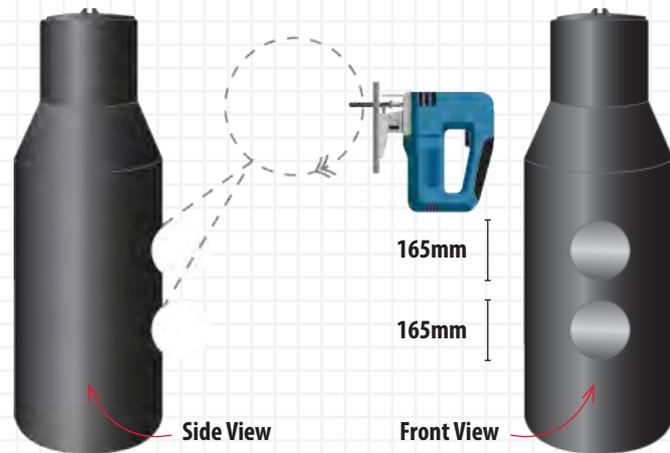
6 INSERT LINEAR ACCESS PIPES

Insert the two 2.7m lengths of pipe into the linear access modules (using the holes created). The pipe should be positioned centrally with 270mm of pipe sticking out each end. The perforations must be facing upwards. Cable tying the modules together can help with this process.



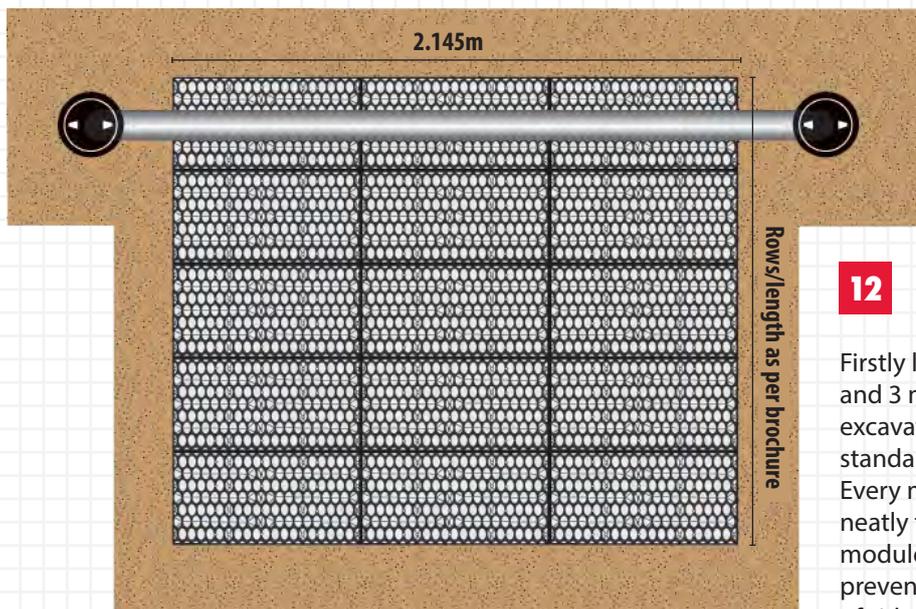
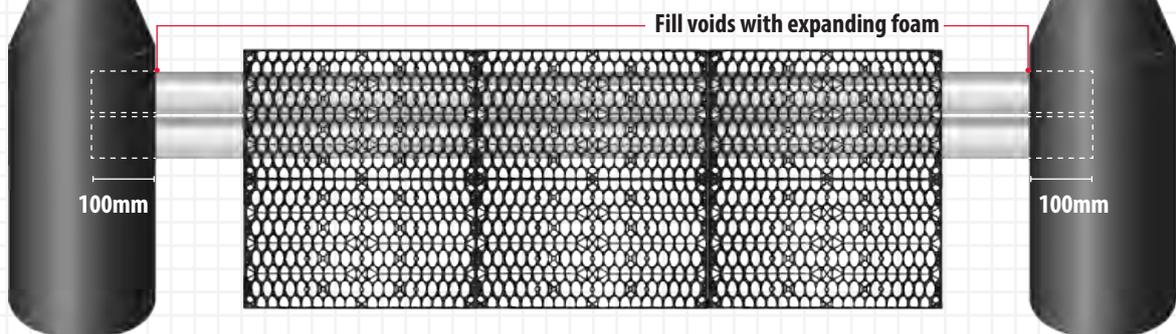
10 PREPARE SMARTSOAK SUMPS

Once you have determined the depth of the modules and sumps, mark out 2 x 165mm dia holes in both sumps to allow them to be connected to the linear access pipe. Cut out holes using a jigsaw (or similar). It is recommended to drill a starter hole before attempting to cut.



11 CONNECT SUMPS TO LINEAR ACCESS PIPES

Insert the linear access pipes into the cut holes on each end by approximately 100mm. Any voids around the edge of the pipe at the sump connection must be filled with an expanding foam (or similar).



IMPORTANT

For trafficable applications set sump down by approx 150mm.

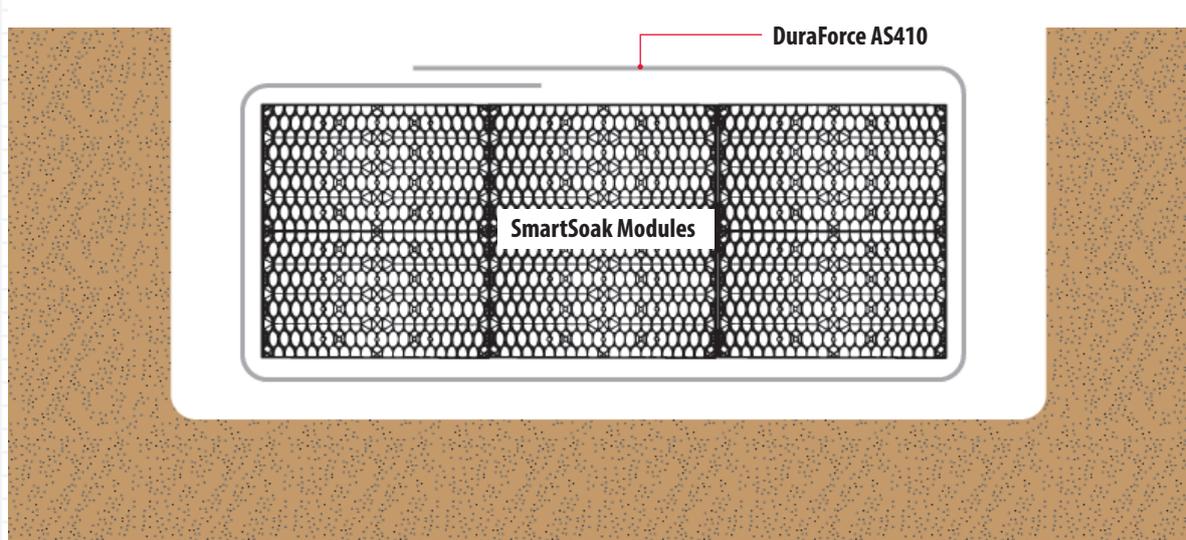
12 MODULE PLACEMENT

Firstly lift the SmartSoak sumps, pipes and 3 modules into the geotextile lined excavation, then continue to place the standard modules into the excavation. Every module should be positioned neatly together and then the perimeter modules can be cable tied together to prevent movement during compaction of sides.



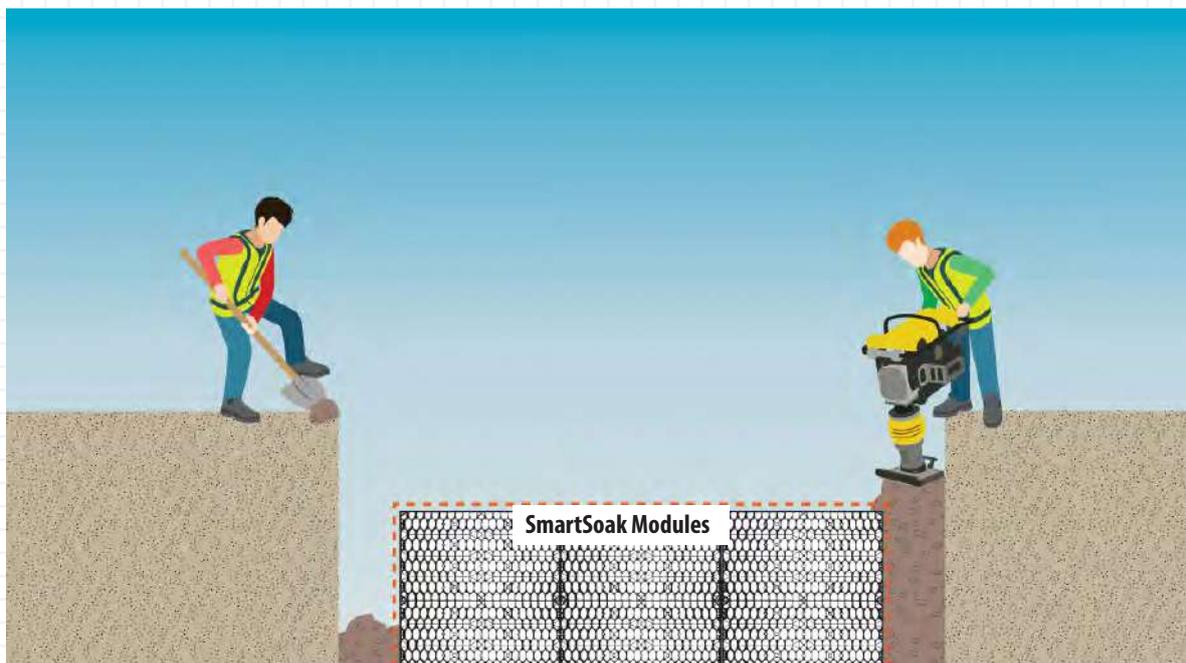
13 WRAP MODULES

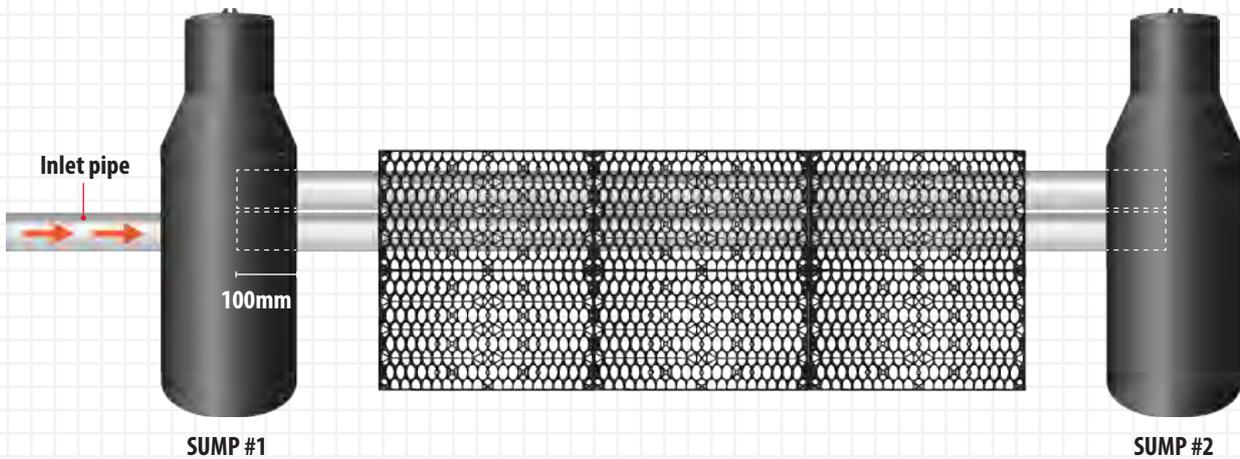
Using the excess DuraForce AS410 geotextile on the sides of the excavation wrap up the module sides and up over the top. Maintain a minimum of 300mm overlap at any joins.



14 BACKFILL SIDES

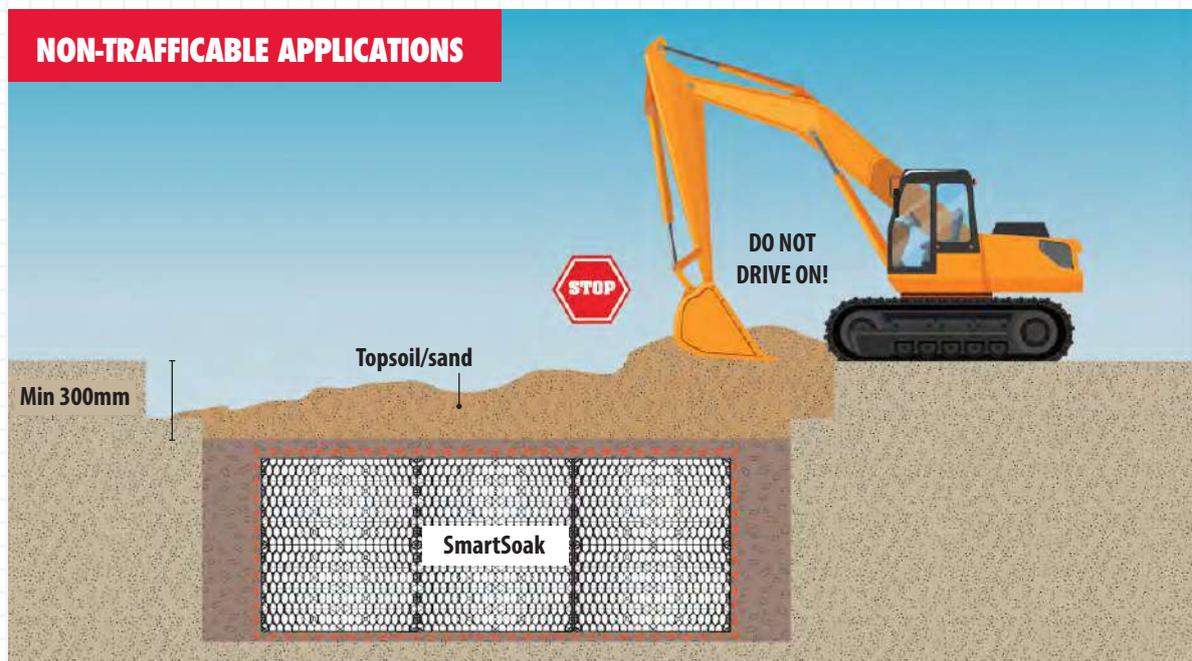
Backfill sides of SmartSoak tank using coarse sand or similar material to height of modules (particle size must be 20mm or less in size and **not** clay/topsoil). Compact in 300mm lifts using plate compactor or vibrating tamper.





15 CONNECTION TO SITE PIPE WORK

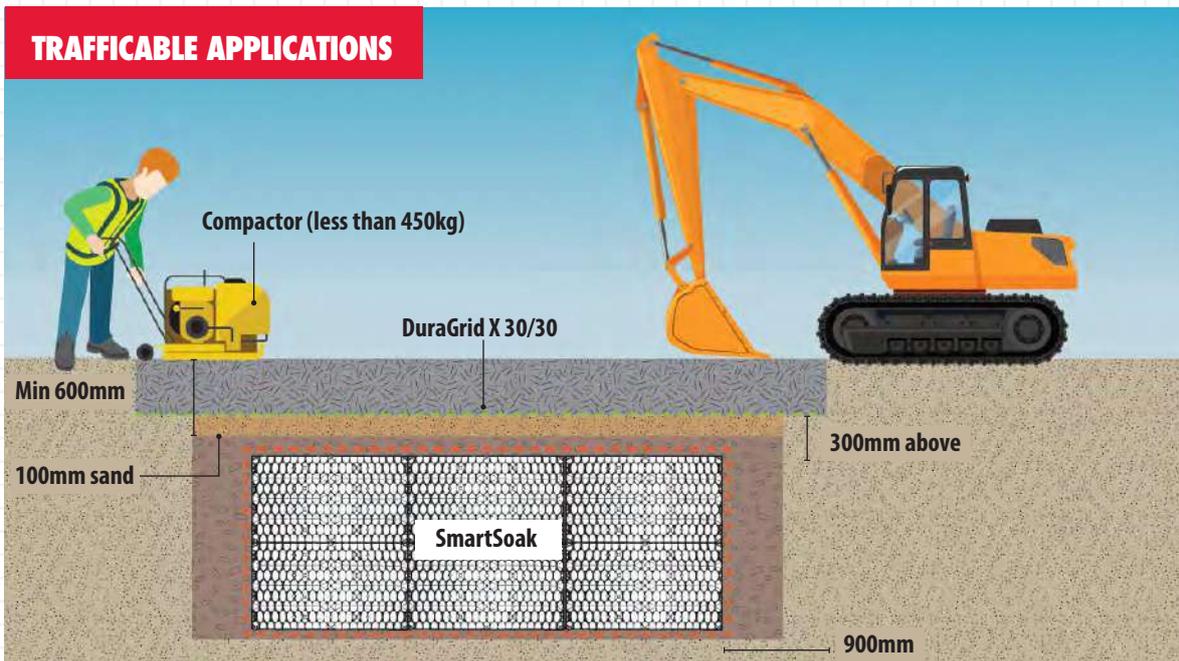
Connect the inlet pipe to one of the SmartSoak sumps ensuring it is a minimum of 300mm of the base. Refer back to step 10 to refresh yourself with the pipe connection steps.



16A BACKFILL TOP - NON-TRAFFICABLE APPLICATIONS

Place and compact fill material on top using topsoil/sand. A **minimum** of 300mm depth must be maintained at all times.



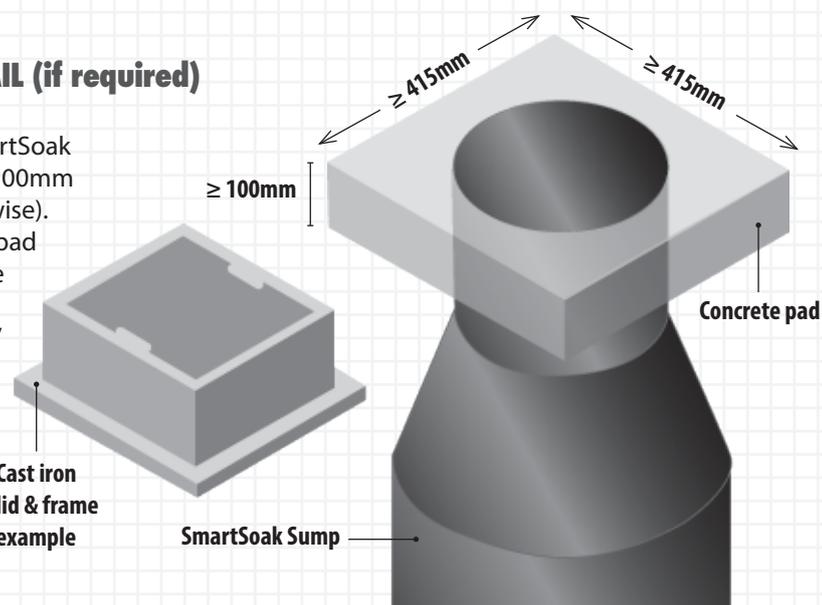


16B BACKFILL TOP - TRAFFICABLE APPLICATIONS

1. Place a 100mm layer of sand over the tank, followed by a 200mm layer of quality crushed rock e.g. GAP40/GAP65 and compact using a walk behind plate compactor (less than 450kg).
2. Then place a layer of DuraGrid X geogrid on top ensuring that it extends 900mm beyond the tank edges (on all sides).
3. Assess depth of SmartSoak sumps in relation to final surface depth and ensure you leave sufficient space to later construct the surface lid and frame as per step 17.
4. Place final layer(s) of quality crushed rock and compact in 300mm layers. The total cover depth above the tank must be a minimum of 600mm and a maximum of 2m total.

17 SMARTSOAK LID FINISHING DETAIL (if required)

1. Place concrete pad ring around each SmartSoak sump a minimum of 415mm x 415mm x 100mm thick (unless engineer has advised otherwise).
2. Place cast iron lid and frame on concrete pad (centrally over the sump) and lay concrete haunching.
3. Complete desired surfacing e.g. concrete/asphalt.



TIP

Cast iron lid and frames are supplied by others.



CIRTEX
GAIN MORE GROUND

CIRTEX INDUSTRIES LTD

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WWW.CIRTEX.CO.NZ

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APPROVALS:

SmartSoak® RainSmart® stormwater modules are pre-approved for use with Auckland Council and Waikato Local Authority SHARED SERVICES.

DESIGN CERTIFICATE

Technical basis for structural design methodology contained in designIT for houses - New Zealand.

designIT for houses, New Zealand has been developed by experienced timber engineers to assist designers in selecting appropriate sizes of structural laminated veneer lumber products manufactured by Carter Holt Harvey LVL Limited (including hySPAN, hy90, hyONE and hyJOIST) and other generic stress grades of timber, to be used as structural elements for the construction of buildings that fall within the scope of NZS 3604.

The design methodology used for the software complies with the loading and general design requirements contained within AS/NZS 1170 and with timber structural design in accordance with NZS 3603:1993 including Amendment 4 (Verification method B1/VM1, 6.1).

designIT relies on the accurate input of span and loading information by the user. Where accurate inputs are submitted the product and/or stress grade and the size given will comply with the structural requirements of the New Zealand Building Code (NZBC), provided the installation is in accordance with the installation requirements provided by designIT and/or in product literature and/or NZS 3604, or specific engineering design, as appropriate.

Futurebuild LVL and SG8 components, when used and treated to the required treatment levels prescribed in NZS 3602 and NZS 3604, as modified by Acceptable Solution B2/AS1, will comply with the requirements of the NZBC (Acceptable Solution B2/AS1, 3.2).

References:

1. NZS 3603:1993 Timber Structures Standard.
2. NZS 3604:2011 Timber-framed buildings.
3. AS/NZS 1170.0 - 2002 Structural design actions, Part 0: General principles.
4. AS/NZS 1170.1 - 2002 Structural design actions, Part 1: Permanent, imposed and other actions.
5. AS/NZS 1170.2 - 2021 Structural design actions, Part 2: Wind actions.
6. AS/NZS 1170.3 - 2003 Structural design actions, Part 3: Snow and ice actions.
7. AS 1720.1 - 2010 Timber structures. Part 1: Design methods.
8. AS 1720.3:2016 Timber structures. Part 3: Design criteria for timber-framed residential buildings.

This Design Certificate, and any associated warranty/certification, is void where there has been substitution of alternate products not detailed within the Member Specification.

Version date: 12 August, 2023

For further information or advice contact:

Carter Holt Harvey LVL Limited,
173 Captain Springs Road, Onehunga. Auckland
Telephone: 0800 808 131
Email: designit@futurebuild.co.nz
Web: <https://futurebuild.co.nz/>

Specifier details:

Specifier:	Grant Baxter
Business name:	Onboard and Online Limited
Address:	PO Box 74 Paraparaumu Wellington 5254
Email:	grant@onboard.co.nz
Contact:	Phone: 049021210

Project and site details:

Project:	NEW HOUSE
Site address:	Lot 43 Anderson Park Waikanae
Design wind zone	High
Snow loading	Design snow zone: N1, Altitude: 0 m (sub-alpine), Ground snow load, $S_g^{1,2} = 0.0$ kPa

1. designIT does not include any allowance for the effects of drifting and sliding of snow.
2. Snow loads are applied to roofed over structures only, the design of exposed floors/decks are not covered by designIT.

MEMBER DESIGN DETAILS

Member 1

- 1) **Member code and description** S1 - Studs - In single or upper load bearing walls

- 2) Date prepared** 11 October 2023
- 3) Serviceability criteria** AS 1720.1: 2010 and AS 1720.3: 2016
- 4) Design inputs**
- | | |
|-------------------------|---|
| Stud height | 4200 mm |
| Stud spacing | 400 mm |
| Roof type and mass | Light roof and ceiling - 40 kg/m ² |
| Roof load width 'RLW' | 2.0 m |
| Rafter or truss spacing | 900 mm |
- 5) Member specification**
- | | |
|----------------------------|---|
| Size, stress grade/product | Use 190 x 45 SG8 |
| Material type | Dry softwood, machine stress graded and verified (NZS 3622) |
| Assumed design density | < 480 kg/m ² |

6) Serviceability

Load case	Limit ³ on average deflection ²	Estimated average deflection ²	Rigidity ratio ⁴
Wind load - W_s^*	20.0 mm	8.8 mm	2.3

*Critical serviceability load case

See 'Notes for interpretation of serviceability data' at the end of this report

7) Reactions

Load case	k_1^1	Limit States Design Reaction ^{2,3}	
		End kN ⁴	Horizontal kN
1.35G	0.60	-1.0	
1.2G + 1.5Q	0.80	-1.5	
1.2G + W_u + $\Psi_c Q$	1.00	-2.5	0.9
0.9G + W_u	1.00	0.4	0.7

8) Installation requirements

- Wall studs to be noggged at maximum 1350 mm
- Notching of wall studs is not permitted.

Member 2

- 1) Member code and description** WB1 - Wind beam
- 2) Date prepared** 11 October 2023
- 3) Serviceability criteria** AS 1720.1: 2010 and AS 1720.3: 2016
- 4) Design inputs**
- | | |
|--------------------------|---------|
| Span (mm) | 2090 mm |
| Upper storey wall height | 2420 mm |
| Lower storey wall height | 2420 mm |
| Nominal wall thickness | 90 mm |
| Floor depth | 300 mm |

5) Member specification

Size, stress grade/product Use 300 x 90 hyONE
Material type Structural Laminated Veneer Lumber to AS/NZS 4357

6) Serviceability

Load case	Limit ³ on average deflection ²	Estimated average deflection ²	Rigidity ratio ⁴
Long term load - G + $\Psi_L Q^*$	10.5 mm	1.6 mm	6.4

*Critical serviceability load case

See 'Notes for interpretation of serviceability data' at the end of this report

7) Reactions

Load case	k_1^1	Limit States Design Reaction ^{2,3}
		End kN ⁴
W_u	1.00	3.0

8) Installation requirements

- Wall plates & wind beams must be in a single length (i.e. not joined) across the void width or length
- Wall plates & wind beams to be fixed at both ends
- Wall plates to be laminated together and to wind beam with minimum 1 row of nails at 150 centres

Notes for interpretation of serviceability data

1. 'average deflection' is an engineering concept based upon a notional estimated load, notional member rigidity and, in some cases, an approximate model of material response to environmental conditions. These parameters are, 'standardised' in AS 1170 and AS 1720.
2. Deflection is the flexural response to load 'out-of-level' measurements of installations are not necessarily deflections and can incorporate 'initial out-of-straightness', whether intended or not. Furthermore, loads can be higher/lower than the notional estimate and in any comparison with measured levels, material variability needs to also be considered. AS 1720 gives the following basis for estimation of upper bound deflections for various materials.

No 1 Framing – visually graded to NZS 3631	Average + 100%
SG grades - mechanically graded to AS/NZS 1748	Average + 43%
GL grades for glulam to AS 1328	Average + 33%
LVL to AS/NZS 4357 (includes hySPAN and hyJOIST)	Average +18%
3. The limits referred are those specified in AS 1720.3 for the stated load case.
4. 'Rigidity ratio' expresses the rigidity of the specified beam relative to the rigidity of a notional beam just meeting the serviceability requirements detailed.

Notes for interpretation of reaction data

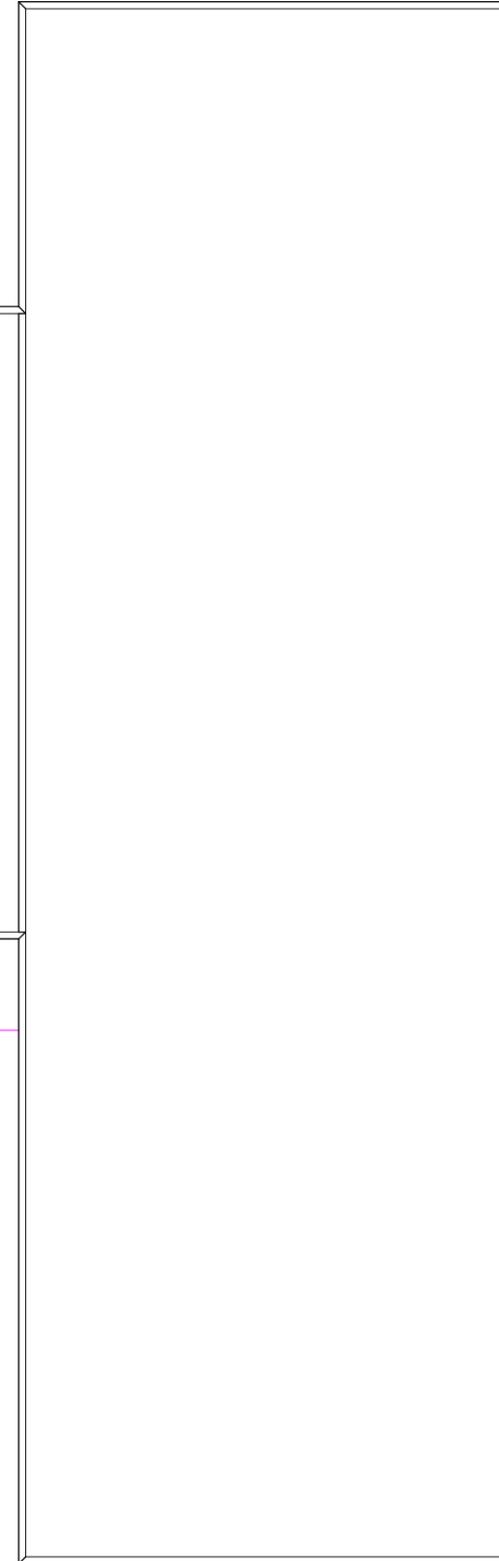
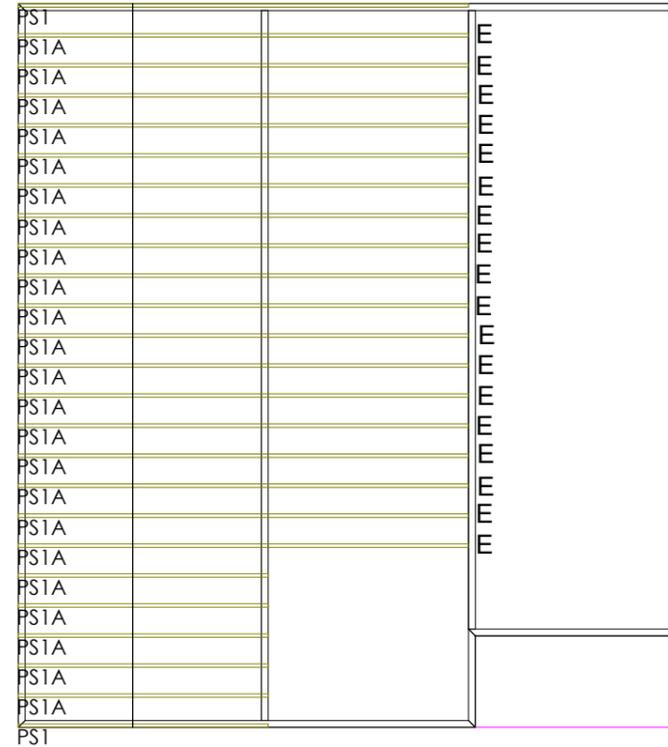
1. Duration of load factor ' k_1 ' for strength as per NZS 3603:1993
2. Negative (-) reactions relate to the 'gravity' or 'downwards' force on the support
3. Positive reactions relate to the 'upwards' forces or 'tie-down' requirement on the support
4. End reaction includes allowance for overhang/cantilever where one has been designed

Truss Fixings

-  X - LUMBERLOK JH47x90 Joist Hanger
-  Z - LUMBERLOK JH47x120 Joist Hanger
-  P - LUMBERLOK JH47x190 Joist Hanger
-  E - LUMBERLOK JH95x165 Joist Hanger
-  O - Pair of LUMBERLOK CT200 Ceiling Ties
-  H - LUMBERLOK CT400 Cyclone Tie
-  B - LUMBERLOK CT600 Cyclone Tie
-  M - Pair of LUMBERLOK Multi Grips
-  NP - LUMBERLOK Nailon Plate
-  N - LUMBERLOK N21 Diagonal Cleat
-  W - Pair of LUMBERLOK CPC40 Cleats
-  K - LUMBERLOK TTP 16kN Truss to Top Plate set
-  G - LUMBERLOK TTP 9kN Truss to Top Plate set

Layout is null and void if trusses not supplied by PlaceMakers

BC230628
Further Information Received
12/10/23



NOTES:

All other areas must have at the minimum 2/ 90x3.15mm skew nails + 2 wire dogs (4.7kN) for truss to top plate connections.

Refer to:
LUMBERLOK Timber Connectors Characteristic Loadings Data brochure 03/4

Posi struts to be connected to top plate of frame with pairs of Multigrips



Site Address :
New Home
Lot 43 Anderson Park
Waikanae

Sheet Title :
**For Building Consent
Truss Fixings**

Date : 12 Oct,2023	Drawn : Steve Carson
Scale : 1: 100	System : MiTek 20/20

Job Details:

Roof Pitch	: 30.000 Deg
Roof Material	: Longrun Iron .5mm
Ceiling Material	: Standard
Wind Zone	: High
Roof Snow Load	: 0.000 kPa

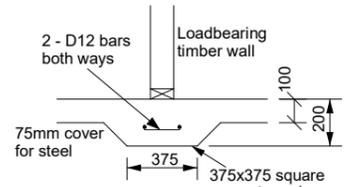
Truss Centres	: 600 mm
Roof Live Load	: 0.250kPa
Floor Live Load	: kPa
Wind Speed	: 44.0 m/s



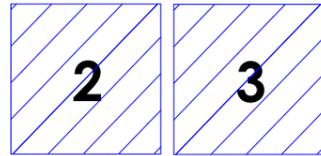
Job Title :	23-529
Sheet :	1
Revision Number :	

PrimeCad v4.7.346

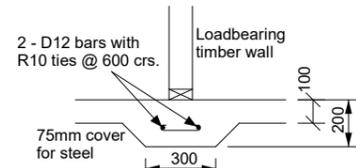
Slab Thickening Details



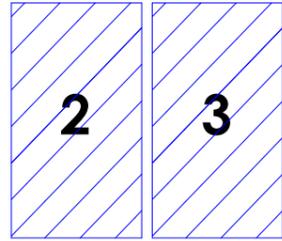
TYPE FP1 - 375x375mm Pad



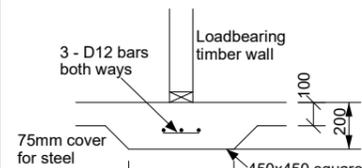
Number of Understuds



TYPE FS1 - 300mm Strip footing



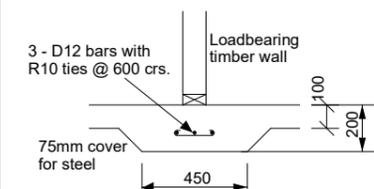
Number of Understuds



TYPE FP2 - 450x450mm Pad



Number of Understuds



TYPE FS2 - 450mm Strip footing



Number of Understuds

NOTES:

All point loads exceeding 10.0kN are indicated.

All walls shown to be considered load bearing.

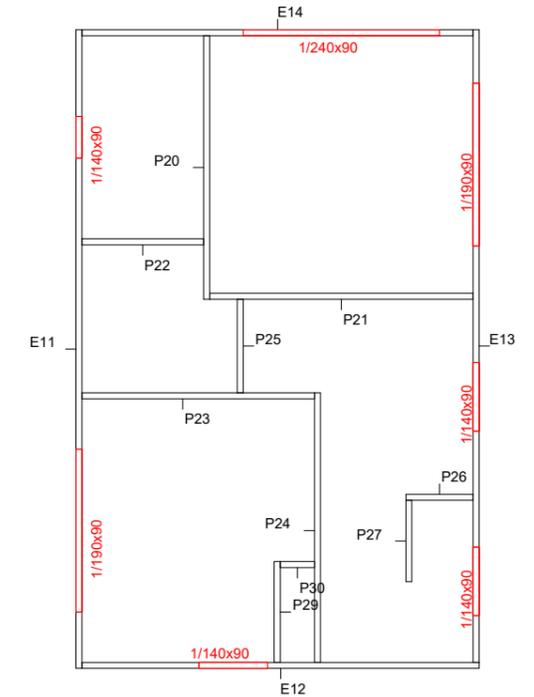
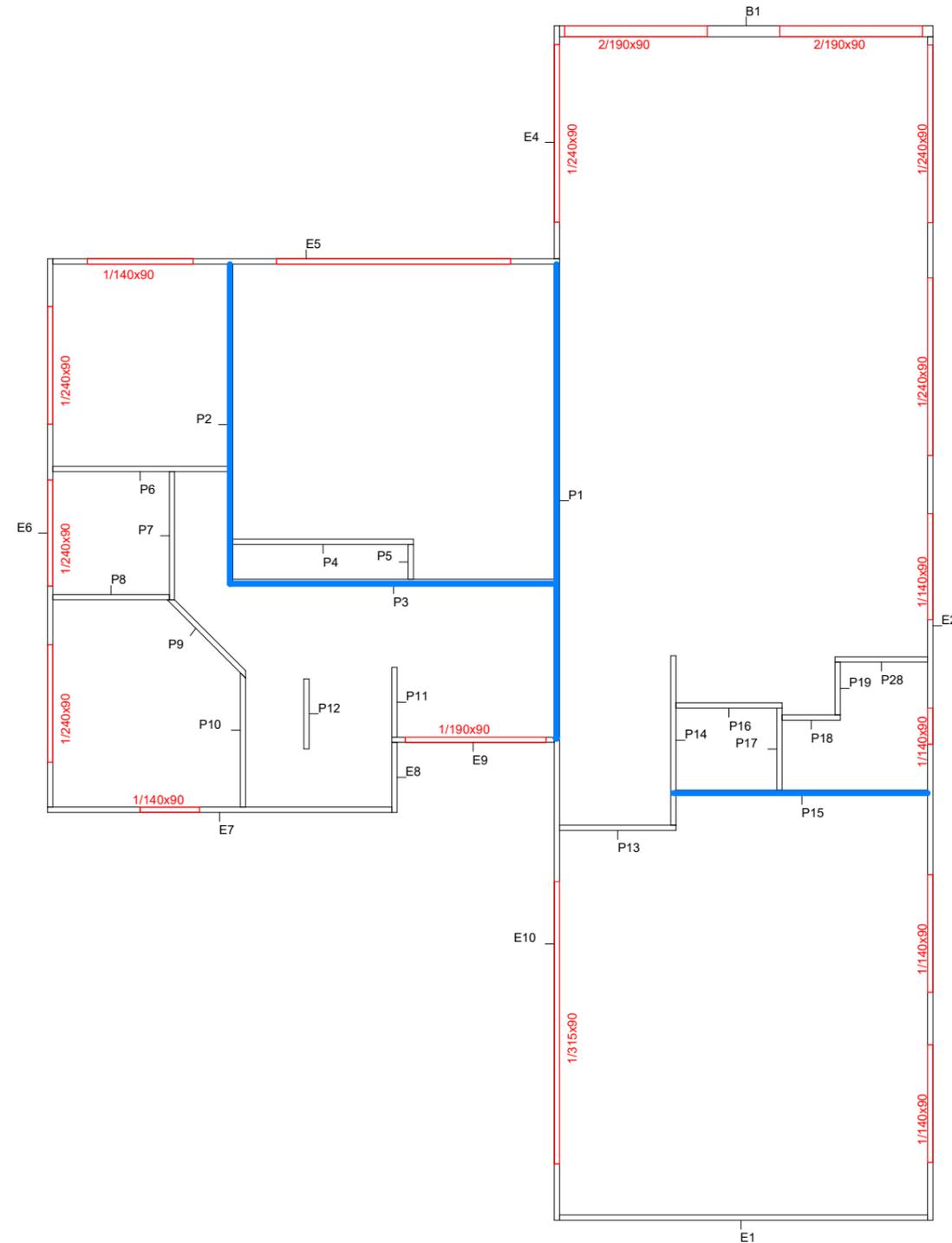
The numbers found within the hatched area are the number of studs required below each truss.

Refer to:

GANG-NAIL Internal Load Bearing on Concrete Floor Slabs brochure 10/2011

Layout is null and void if trusses not supplied by PlaceMakers

BC230628
Further Information Received
12/10/23



Load bearing walls as per architects plans



Site Address :
New Home
Lot 43 Anderson Park
Waikanae

Sheet Title :
For Building Consent
Slab Thickening

Date : 12 Oct,2023 Drawn : Steve Carson
Scale : 1: 100 System : MiTek 20/20

Job Details:
Roof Pitch : 30.000 Deg
Roof Material : Longrun Iron .5mm
Ceiling Material : Standard
Wind Zone : High
Roof Snow Load : 0.000 kPa

Truss Centres : 900 mm
Roof Live Load : 0.250kPa
Floor Live Load : kPa
Wind Speed : 44.0 m/s

PrimeCad v4.7.346

Job Title :
23-529FT

Sheet :
1

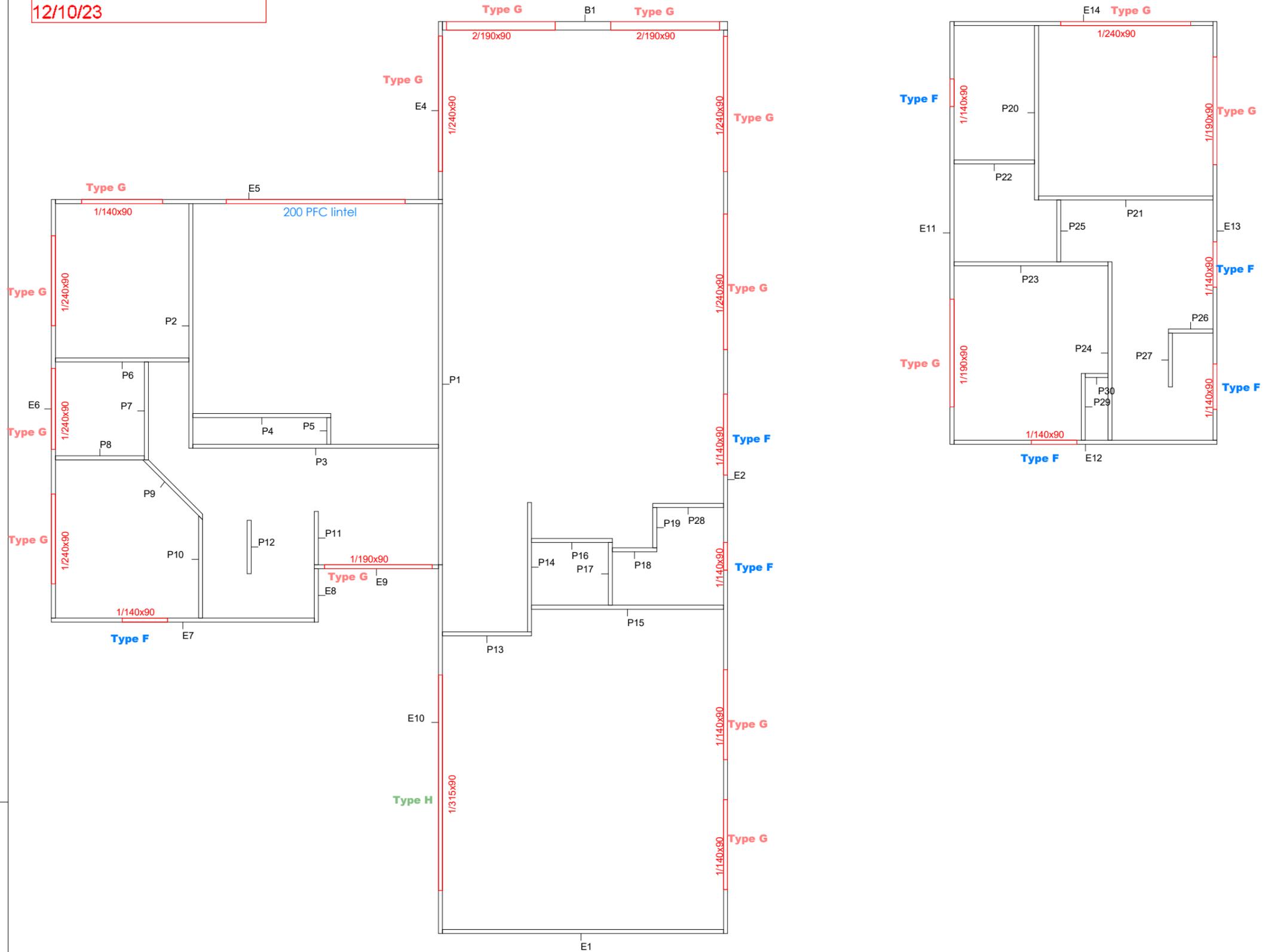
Revision Number :

Layout is null and void if trusses not supplied by PlaceMakers

Lintel Fixing Details

- TYPE E
1.4kN
- TYPE F
4.0kN
- TYPE G
7.5kN
- TYPE H
13.5kN

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Further Information Received
12/10/23



NOTES:
Refer to:
Lintel Fixing Schedule 01/2018
pages 73 & 74, Structural Fixings
On-site Guide for Building Code
Compliance 2018 Edition

(Alternative to NZS 3604:2011
Table 8.14 & Figure 8.12)



Site Address :
New Home
Lot 43 Anderson Park
Waikanae

Sheet Title :
For Building Consent
Lintel Fixing

Date : 12 Oct,2023 Drawn : Steve Carson
Scale : 1: 100 System : MiTek 20/20

Job Details:
Roof Pitch : 30.000 Deg
Roof Material : Longrun Iron .5mm
Ceiling Material : Standard
Wind Zone : High
Roof Snow Load : 0.000 kPa

Truss Centres : 900 mm
Roof Live Load : 0.250kPa
Floor Live Load : kPa
Wind Speed : 44.0 m/s

PrimeCad v4.7.346

Job Title :
23-529FT

Sheet :
2

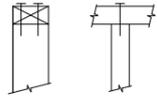
Revision Number :

Stud to top plate fixing details

Type A is minimum fixing required unless specified otherwise

FIXING TYPE A
0.7kN

2/90x3.33 plain steel wire nails driven vertically into stud.

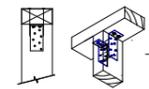


FIXING TYPE B
4.7kN

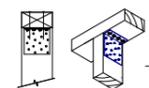
2 x 90mm x 3.15 dia. plain steel wire nails driven vertically into stud.

Plus 2x LUMBERLOK CPC40

AND

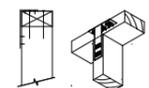


OR



Plus LUMBERLOK 6 kN Stud Anchor (CPC80)

OR

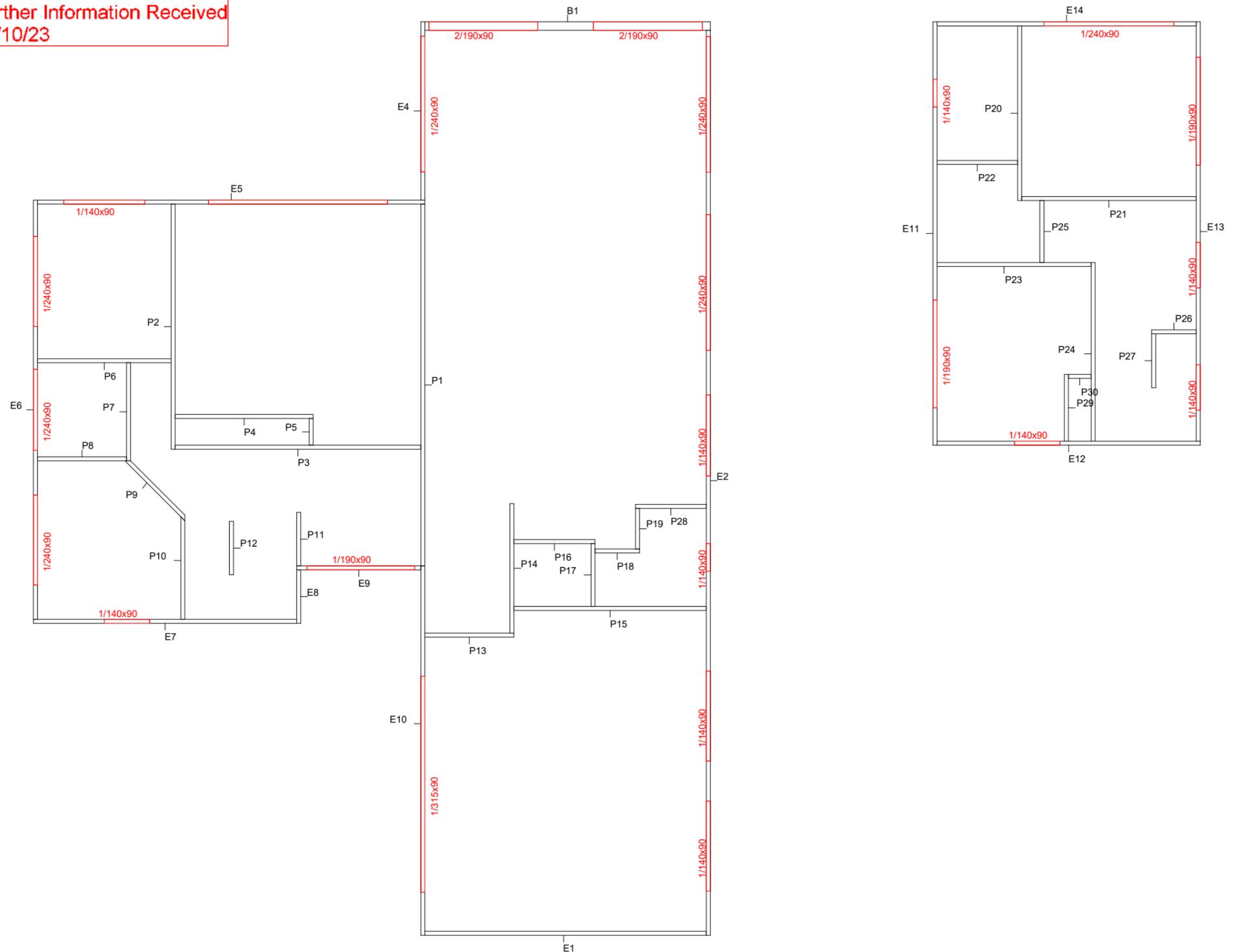


Plus LUMBERLOK Stud Strap (One face only)

Recommended for internal wall options to avoid lining issues.

BC230628
Further Information Received
12/10/23

All stud to top plate fixings - Type B 4.7kn



NOTES:

Refer to:
LUMBERLOK Wall Fixing Chart - Stud to Top Plate Fixing Schedule 09/2011

(Alternative to NZS3604:2011 Table 8.18)



Site Address :
New Home
Lot 43 Anderson Park
Waikanae

Sheet Title :
**For Building Consent
Stud To Top Plate Fixing**

Date : 12 Oct,2023 Drawn : Steve Carson
Scale : 1: 100 System : MiTek 20/20

Job Details:
Roof Pitch : 30.000 Deg
Roof Material : Longrun Iron .5mm
Ceiling Material : Standard
Wind Zone : High
Roof Snow Load : 0.000 kPa

Truss Centres : 900 mm
Roof Live Load : 0.250kPa
Floor Live Load : kPa
Wind Speed : 44.0 m/s



Job Title :
23-529FT
Sheet :
3
Revision Number :

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Truss Fixings

-  X - LUMBERLOK JH47x90 Joist Hanger
-  Z - LUMBERLOK JH47x120 Joist Hanger
-  P - LUMBERLOK JH47x190 Joist Hanger
-  E - LUMBERLOK JH95x165 Joist Hanger
-  O - Pair of LUMBERLOK CT200 Ceiling Ties
-  H - LUMBERLOK CT400 Cyclone Tie
-  B - LUMBERLOK CT600 Cyclone Tie
-  M - Pair of LUMBERLOK Multi Grips
-  NP - LUMBERLOK Nailon Plate
-  N - LUMBERLOK N21 Diagonal Cleat
-  W - Pair of LUMBERLOK CPC40 Cleats
-  K - LUMBERLOK TTP 16kN Truss to Top Plate set
-  G - LUMBERLOK TTP 9kN Truss to Top Plate set

BC230628
Further Information Received
12/10/23

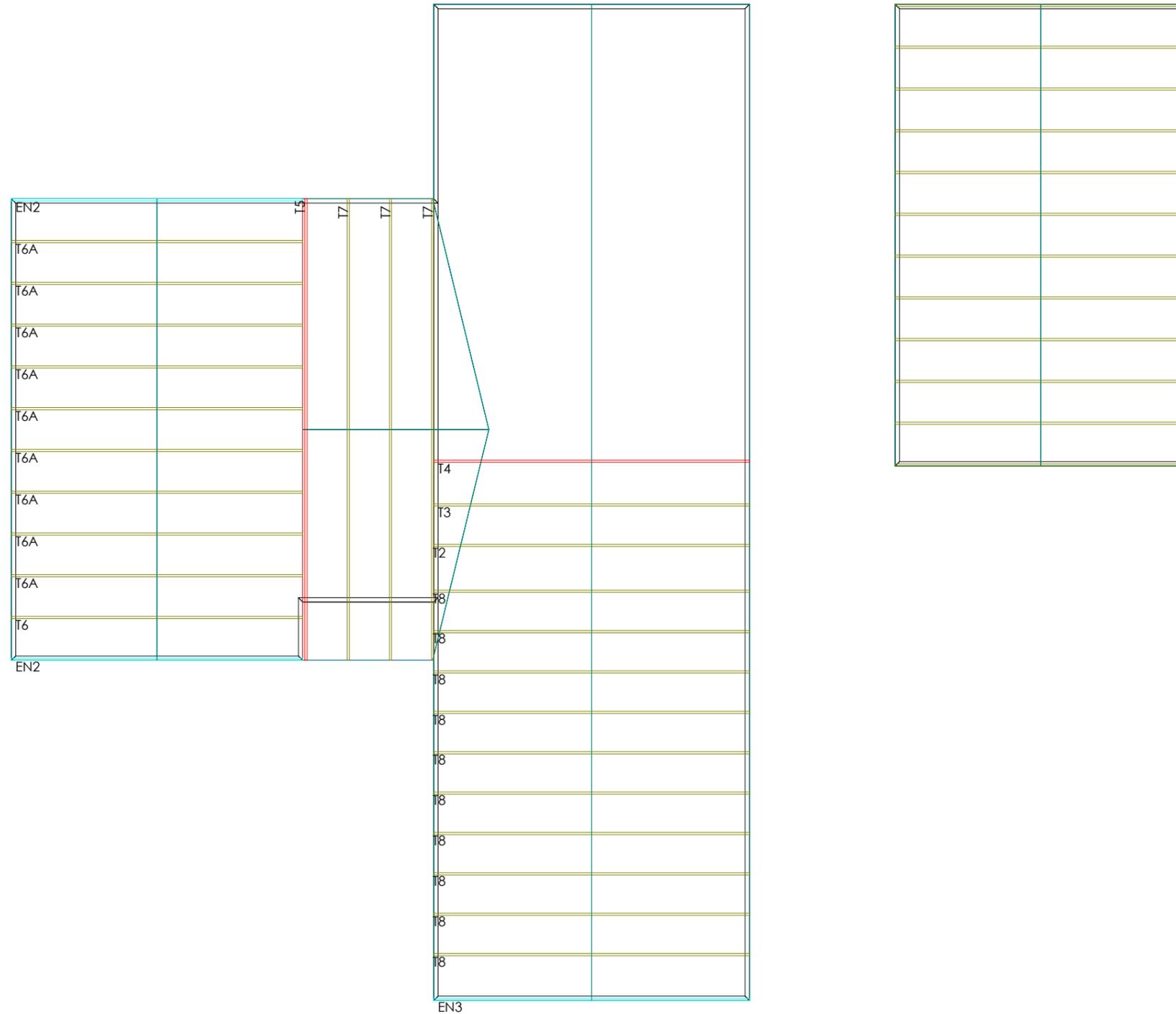
NOTES:

All other areas must have at the minimum 2/ 90x3.15mm skew nails + 2 wire dogs (4.7kN) for truss to top plate connections.

Refer to:
 LUMBERLOK Timber Connectors Characteristic Loadings Data brochure 03/4

Layout is null and void if trusses not supplied by PlaceMakers

All truss to top plate connections - pairs of CPC40 cleats



Site Address :
New Home
 Lot 43 Anderson Park
 Waikanae

Sheet Title :
For Building Consent
Truss Fixings

Date : 12 Oct,2023 Drawn : Steve Carson
 Scale : 1: 100 System : MiTek 20/20

Job Details:
 Roof Pitch : 30.000 Deg
 Roof Material : Longrun Iron .5mm
 Ceiling Material : Standard
 Wind Zone : High
 Roof Snow Load : 0.000 kPa

Truss Centres : 900 mm
 Roof Live Load : 0.250kPa
 Floor Live Load : kPa
 Wind Speed : 44.0 m/s

PrimeCad v4.7.346



Job Title :
23-529FT

Sheet :
4

Revision Number :



Correspondence from : **AUCKLAND**
40 Neales Road, East Tamaki 2013
PO Box 58-014, Botany 2163
Phone: 09 274 7109
Fax: 09 274 7100

CHRISTCHURCH
14 Pilkington Way, Wigram 8042
PO Box 8387, Riccarton 8440
Phone: 03 348 8691
Fax: 03 348 0314

www.mitekznz.co.nz

Printed: 10:58:37 12 Oct 2023

MiTek 20/20 Engineering 4.7.346.0

PRODUCER STATEMENT for MiTek 20/20[®] TRUSS DESIGN - Version 4.7

BC230628
Further Information Received
12/10/23

ISSUED BY: **MiTek New Zealand Limited**
TO: **PlaceMakers Wellington Frame & Truss**
IN RESPECT OF: **MiTek[®] Truss Designs**

This producer statement covers the MiTek 20/20[®] truss design and the structural performance of the GANG-NAIL[®] connector plate for the job reference **23-529** and may be used by a Building Consent Authority to assist in determining compliance with the New Zealand Building Code.

The MiTek 20/20[®] truss design program has been developed by MiTek New Zealand Limited for the design of MiTek[®] timber roof, floor and attic trusses in New Zealand. The truss designs computed by MiTek 20/20[®] are prepared using sound and widely accepted engineering principles, and in accordance with compliance documents of the New Zealand Building Code and Verification Method B1/VM1; and internationally accepted standard ANSI/TPI 1 - 2002 as an alternative solution, to satisfy the requirements of Clause B1 of the New Zealand Building Code.

On behalf of MiTek New Zealand Limited, and subject to:

- i) All proprietary products meeting their performance specification requirements
- ii) The provision of adequate roof bracing and overall building stability
- iii) Correct selection and placement of GANG-NAIL connector plates
- iv) Correct input of Truss Design Data as shown in the Fabricator Design Statement for this job
- v) The design being undertaken by the accredited fabricator under the terms of the software licence
- vi) Timber is graded to the requirements of NZS 3603:1993
- vii) Minimum timber treatment for these MiTek[®] trusses shall be in accordance with B2/AS1 Table 1A and the relevant sections of NZS 3602:2003

I believe on reasonable grounds that the trusses, if constructed in accordance with the MiTek 20/20[®] truss design and shop drawings, will comply with the relevant provisions of the New Zealand Building Code.

MiTek New Zealand Limited holds a current policy of Professional Indemnity Insurance no less than \$500,000.

On behalf of MiTek New Zealand Limited, **Date: Thursday, 12 October 2023**

In Ling Ng, BE (Hons), CPEng, IntPE, MIPENZ (ID: 146585)
TECHNICAL SERVICES MANAGER, MiTek New Zealand Limited

Job: 23-529

Client: Placemakers Levin
Phone:Site: New Home
Lot 43 Anderson Park
WaikanaeDescription:
Building Consent No.:
MiTek 20/20 Engineering 4.7.346.0

MiTek New Zealand Limited

Phone:

Printed: 10:58:37 12 Oct 2023

MITEK FABRICATOR DESIGN STATEMENT

This statement is issued by MiTek accredited fabricator **PlaceMakers Wellington Frame & Truss**, being licensed to use the MiTek 20/20[®] software, to the client listed above and may be used by the Building Consent Authority to assist in determining compliance with the New Zealand Building Code.

MiTek 20/20[®] TRUSS DESIGN DATA

The MiTek 20/20[®] computer design for this job is based on the following design parameters entered into the program. The Fabricator shall ensure that these job details are current and relevant to the project for the design of the MiTek[®] trusses.

Job Details

Importance Level : 2

Design Working Life : 50 years

Floor Truss

Timber Group: Master Inventory

FloorMaterial: 20mm Particle Board
Dead Load: 0.200 kPa
Restraints: Continuous**Ceiling**Material: Standard
Dead Load: 0.200 kPa
Restraints: 600 mm centres**Occupancy Live Load**Distributed: Quf = 1.500 kPa
Concentrated: Qcf = 1.800 kN

The minimum timber treatment for these MiTek[®] trusses shall be in accordance with B2/AS1 Table 1A and the relevant sections of NZS 3602:2003. The timber for these MiTek[®] trusses shall be graded to the requirements of NZS 3603:1993. Proprietary fixings and timber connectors shall be selected in accordance with NZS3604:2011 Section 4 - Durability.

MiTek[®] Truss List

Legend: * = detail only, ? = input only, ~~xxx~~ = failed design, Ø = non certified, Unmarked trusses = designed successfully, LB = lateral bracing required
GB = gable brace required

Floor	Qty	Span (mm)	Depth (mm)	Spacing (mm)
PS1A	23	6000	302	394

Total quantity : 23

BC230628
Further Information Received
12/10/23

The computer design input has been carried out by:

Signed: 

Date: ...Thursday, 12 October 2023....

Name of Detailer:

Qualifications and Title:

On behalf of: PlaceMakers Wellington Frame & Truss





Correspondence from : **AUCKLAND**
40 Neales Road, East Tamaki 2013
PO Box 58-014, Botany 2163
Phone: 09 274 7109
Fax: 09 274 7100

CHRISTCHURCH
14 Pilkington Way, Wigram 8042
PO Box 8387, Riccarton 8440
Phone: 03 348 8691
Fax: 03 348 0314

www.mitek.nz

Printed: 12:03:08 12 Oct 2023

MiTek 20/20 Engineering 4.7.346.0

PRODUCER STATEMENT for MiTek 20/20[®] TRUSS DESIGN - Version 4.7

BC230628
Further Information Received
12/10/23

ISSUED BY: **MiTek New Zealand Limited**
TO: **PlaceMakers Wellington Frame & Truss**
IN RESPECT OF: **MiTek[®] Truss Designs**

This producer statement covers the MiTek 20/20[®] truss design and the structural performance of the GANG-NAIL[®] connector plate for the job reference **23-529FT** and may be used by a Building Consent Authority to assist in determining compliance with the New Zealand Building Code.

The MiTek 20/20[®] truss design program has been developed by MiTek New Zealand Limited for the design of MiTek[®] timber roof, floor and attic trusses in New Zealand. The truss designs computed by MiTek 20/20[®] are prepared using sound and widely accepted engineering principles, and in accordance with compliance documents of the New Zealand Building Code and Verification Method B1/VM1; and internationally accepted standard ANSI/TPI 1 - 2002 as an alternative solution, to satisfy the requirements of Clause B1 of the New Zealand Building Code.

On behalf of MiTek New Zealand Limited, and subject to:

- i) All proprietary products meeting their performance specification requirements
- ii) The provision of adequate roof bracing and overall building stability
- iii) Correct selection and placement of GANG-NAIL connector plates
- iv) Correct input of Truss Design Data as shown in the Fabricator Design Statement for this job
- v) The design being undertaken by the accredited fabricator under the terms of the software licence
- vi) Timber is graded to the requirements of NZS 3603:1993
- vii) Minimum timber treatment for these MiTek[®] trusses shall be in accordance with B2/AS1 Table 1A and the relevant sections of NZS 3602:2003

I believe on reasonable grounds that the trusses, if constructed in accordance with the MiTek 20/20[®] truss design and shop drawings, will comply with the relevant provisions of the New Zealand Building Code.

MiTek New Zealand Limited holds a current policy of Professional Indemnity Insurance no less than \$500,000.

On behalf of MiTek New Zealand Limited, **Date: Thursday, 12 October 2023**

In Ling Ng, BE (Hons), CPEng, IntPE, MIPENZ (ID: 146585)
TECHNICAL SERVICES MANAGER, MiTek New Zealand Limited

Job: 23-529FT

Client: Placemakers Levin
Phone:Site: New Home
Lot 43 Anderson Park
WaikanaeDescription:
Building Consent No.:
MiTek 20/20 Engineering 4.7.346.0

Phone:

Printed: 12:03:08 12 Oct 2023

MITEK FABRICATOR DESIGN STATEMENT

This statement is issued by MiTek accredited fabricator **PlaceMakers Wellington Frame & Truss**, being licensed to use the MiTek 20/20® software, to the client listed above and may be used by the Building Consent Authority to assist in determining compliance with the New Zealand Building Code.

MiTek 20/20® TRUSS DESIGN DATA

The MiTek 20/20® computer design for this job is based on the following design parameters entered into the program. The Fabricator shall ensure that these job details are current and relevant to the project for the design of the MiTek® trusses.

Job Details

Importance Level : 2

Design Working Life : 50 years

Roof Truss

Timber Group: MSGx45 H1.2

Pitch: 30.000 deg

Nominal Overhang: 0 mm

Roof**Ceiling****Wind**Material: Longrun Iron .5mm
Dead Load: 0.210 kPa
Restraints: 900 mm centres
Live Load: Qur = 0.250 kPa
Qc = 1.100 kNMaterial: Standard
Dead Load: 0.200 kPa
Restraints: 600 mm centres
Live Load: Qc = 1.400 kNArea: High (44.0 m/s)
Pressure Coeff: Cpe = varies; Cpi = -0.30, 0.20**Occupancy Live Load**Distributed: Quf = 1.500 kPa
Concentrated: Qcf = 1.800 kN**Attic Floor**Material: 20mm Particle Board
Dead Load: 0.200 kPa
Restraints: Continuous**Attic Room Ceiling**Material: Standard
Dead Load: 0.300 kPa
Restraints: 400 mm centres**Attic Wall**Material: Gib Board
Dead Load: 0.300 kPa
Restraints: Continuous

The minimum timber treatment for these MiTek® trusses shall be in accordance with B2/AS1 Table 1A and the relevant sections of NZS 3602:2003. The timber for these MiTek® trusses shall be graded to the requirements of NZS 3603:1993. Proprietary fixings and timber connectors shall be selected in accordance with NZS3604:2011 Section 4 - Durability.

MiTek® Truss List

Legend: * = detail only, ? = input only, Fxx = failed design, Ø = non certified, Unmarked trusses = designed successfully, LB = lateral bracing required
GB = gable brace required

Truss	Qty	Span (mm)	Pitch (deg)	Spacing (mm)	Truss	Qty	Span (mm)	Pitch (deg)	Spacing (mm)
T7	3	9410	8.000	870	EN1A	1	6000	30.000	864 GB
T5	1D	9500	8.000	900	EN2	2	6000	30.000	860 GB
EN3	1	6500	30.000	900 GB	T1	10	6000	30.000	864
T2	1	6500	30.000	900	T6	1	6000	30.000	860
T3	1	6500	30.000	900	T6A	9	6000	30.000	860
T4	1	6500	30.000	900					
T8	10	6500	30.000	831					
EN1	1	6000	30.000	864 GB					

Total quantity : 42

BC230628
Further Information Received
12/10/23

The computer design input has been carried out by:

Signed: 

Date: ...Thursday, 12 October 2023....

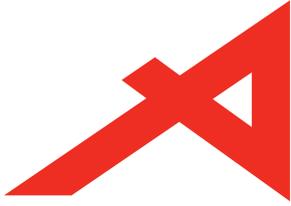
Name of Detailer:

Qualifications and Title:

On behalf of: PlaceMakers Wellington Frame & Truss



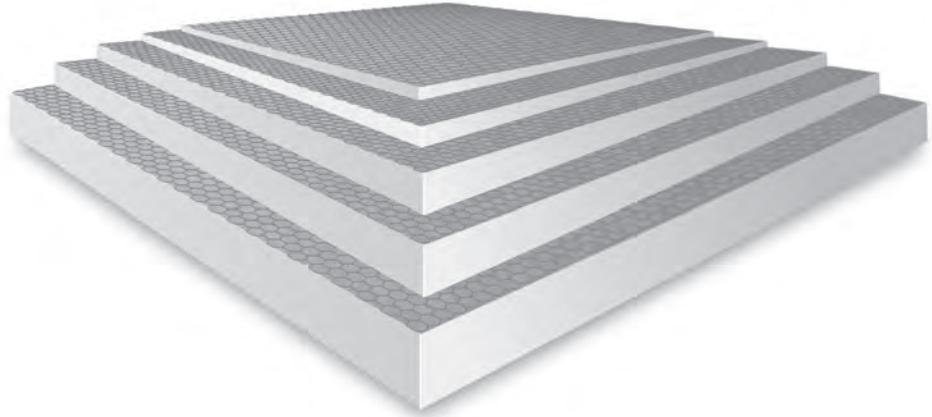
BC230628
Further Information Received
12/10/23



BRANZ Appraised

Appraisal No. 895 [2018]

MARMOX BUILDING PRODUCTS



Appraisal No. 895 (2018)

Amended 18 November 2020

BRANZ Appraisals

Technical Assessments of products for building and construction.



Marmox New Zealand Ltd

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Avondale

Auckland 1050

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Email: info@marmox.co.nz

Web: www.marmox.co.nz



BRANZ

BRANZ

1222 Moonshine Rd,

RD1, Porirua 5381

Private Bag 50 908

Porirua 5240,

New Zealand

Tel: 04 237 1170

branz.co.nz



Product

- 1.1 Marmox Building Products are a range of extruded polystyrene foam boards finished on both sides with a polymer-modified mortar facing reinforced with a glassfibre mesh. The boards are for use as an intermediate substrate to ceramic and natural stone tiling on internal floors.
- 1.2 Marmox Building Products are also available pre-fabricated into shower bases, shower niches, footrests and hobs.

Scope

- 2.1 Marmox Building Products have been appraised for use as an intermediate substrate to tiling for interior areas when applied to timber, plywood, fibre cement or concrete floors.

Building Regulations

New Zealand Building Code (NZBC)

- 3.1 In the opinion of BRANZ, Marmox Building Products, if designed, used, installed and maintained in accordance with the statements and conditions of this Appraisal, will meet or contribute to meeting the following provisions of the NZBC:

Clause B2 DURABILITY: Performance B2.3.1 (b) 15 years and B2.3.2. Marmox Building Products meet these requirements. See Paragraph 9.1.

Clause E3 INTERNAL MOISTURE: Performance E3.3.3. Marmox Building Products contribute to meeting this requirement. See Paragraphs 12.1-12.4.

Clause F2 HAZARDOUS BUILDING MATERIALS: Performance F2.3.1. Marmox Building Products meet this requirement.



BRANZ Appraisal
Appraisal No. 895 [2018]
23 October 2018

MARMOX BUILDING PRODUCTS

Technical Specification

- 4.1 Marmox Building Products are made from extruded polystyrene, each side faced with a nominal 0.75 mm thick polymer-modified cement mortar reinforced with a glassfibre mesh.
- 4.2 The boards are available in the sizes given in Table 1.

Table 1: Nominal dimensions and weights

Thickness [mm]*	Board dimensions [mm]	Weight per board [kg]	kg/m ²
6	600 x 1,250	2.0	2.7
10	600 x 1,250	2.2	2.9

* Insulation boards of thicknesses 20 mm, 30 mm and 50 mm are also available but have longer lead times.

- 4.3 Marmox Building Products are also available as pre-formed shower bases [Table 2], shower niches [Table 3], footrests and hobs [Table 4]. See Tables 2, 3 and 4 for profiles and sizes.
- 4.4 Accessories used with Marmox Building Products which are supplied by the building contractor, and outside the scope of this Appraisal are:
- **Cement based tile adhesive** - for fixing Marmox Building Products to the substrate.
 - **Marmox fixings washers** - 38 mm diameter metal washers or 40 mm diameter plastic washers and screws, for fixing the boards to the substrate. Screws used must be at least 20 mm longer than the board thickness to be fixed.
 - **Glassfibre mesh tape** - for application over joints between boards.
 - **Waterproof membrane** - a BRANZ Appraised waterproofing membrane appraised for use in wet areas.
 - **Tile adhesive** - a flexible waterproof tile adhesive for bonding the stone or ceramic tiles to the Marmox Building Products.

Details of these accessories for use with Marmox Building Products must be obtained from Marmox New Zealand Ltd.

Table 2: Shower Bases

Centre Drains	Offset Drains	Channel Drains	Wedge Trays
			
Sizes	Sizes	Sizes	Sizes
900 x 900 x 25 mm	900 x 900 x 25 mm	Traverse Drains	1,000 x 1,000 x 25 mm
1,000 x 1,000 x 25 mm	1,000 x 1,000 x 25 mm	1,000 x 1,000 x 25 mm	1,200 x 1,200 x 22 mm
1,200 x 1,200 x 25 mm	1,200 x 1,200 x 25 mm	1,200 x 1,200 x 25 mm	1,200 x 1,600 x 26 mm
1,000 x 1,500 x 25 mm	1,000 x 1,500 x 25 mm	1,000 x 1,500 x 25 mm	
1,000 x 2,000 x 25 mm	1,000 x 2,000 x 25 mm	1,000 x 2,000 x 25 mm	
		Longitudinal Drains	
		1,000 x 1,500 x 25 mm	
		1,000 x 2,000 x 25 mm	

Table 3: Shower Niches


Sizes
930 x 330 mm
630 x 330 mm
330 x 330 mm

Table 4: Shower Hobs


Sizes
65 x 65 mm - lengths 1,100, 1,600 and 2,100 mm
50 x 35 mm - lengths 1,100, 1,600 and 2,100 mm

Handling and Storage

- 5.1 Marmox Building Products are supplied in cardboard boxes. They must be stored inside, up off concrete floors, in dry conditions, out of direct sunlight and extremes of temperature. Care must be taken to avoid damage to the edges, ends and surfaces of the boards. The boards must always be carried on edge.

Technical Literature

- 6.1 Refer to the Appraisals listing on the BRANZ website for details of the current Technical Literature for the Marmox Building Products. The Technical Literature must be read in conjunction with this Appraisal. All aspects of design, use, installation and maintenance contained in the Technical Literature and within the scope of this Appraisal must be followed.

Design Information

General

- 7.1 Marmox Building Products are designed as a tile substrate fixed over new or existing floors to provide a flat, even surface for the direct adhesion of ceramic or stone floor tiles. Where a waterproofing membrane is specified for wet areas, Marmox Building Products are suitable for use as a base for the waterproofing membrane.
- 7.2 Once fixed in place, tiles may be directly adhered to the boards and grouted to provide an impervious and easily cleaned surface. Alternatively a waterproof membrane may be installed over the boards with the tiles adhered to the membrane. Marmox New Zealand Ltd should be consulted for suitable accessories.
- 7.3 If present, mould or fungal growth on the substrate should be treated prior to fixing the boards. Marmox New Zealand Ltd should be consulted for suitable anti-fungal products.



- 7.4 Movement and control joints may be required depending on the shape and size of the building or room, and the tile finish specified. Design guidelines can be found in the BRANZ Good Practice Guide – Tiling.

Wet Areas

- 7.5 Wet areas are spaces where sanitary fixtures and sanitary appliances are located such as bathrooms, toilets, laundries and kitchens. The two general categories of wet areas are as follows:
1. Water Splash – These are areas subject to intermittent splashing of water such as around baths, vanities, tubs and sinks.
 2. Shower Areas – These are areas subject to frequent and heavy water splash such as enclosed showers, unenclosed shower zones and showers over baths.
- 7.6 Marmox Building Products may be used in both wet area categories described above. Shower Areas must include a BRANZ Appraised wet area waterproofing membrane system under the tiles.

Structure

- 8.1 For best results it is essential that the floor structure is sound and not 'springy'. Any movement in the floor after tiling will cause the tile joints to move and crack, thus allowing moisture and dirt to penetrate the tile surface. Although flexible adhesives must be used to adhere the tiles to the substrate, they must not be used to accommodate deflection beyond the limits of this Appraisal.
- 8.2 Timber framing systems must comply with NZS 3604, with joist spans reduced by approximately 20% of those set out in NZS 3604, or floor framing systems to a specific engineering design complying with the NZBC.
- 8.3 All floors, new and existing, will be structurally suitable for tiling when the maximum deflection of the floor joists is 1/360th of the span.
- 8.4 The boards are capable of resisting a uniformly distributed load of 1.5 kN/m² with minimal deflection.
- 8.5 The level of resistance to concentrated loads will depend upon the size and strength of the tiles used to cover the boards.
- 8.6 Tiling must not be carried out until the flooring and timber framing is dry enough to ensure the majority of the shrinkage has occurred. Generally this will require timber moisture content of between 12 and 14% in air-conditioned spaces, and between 16 and 18% for other spaces, when tiles are laid. For new timber-framed floors, the use of kiln-dried framing is strongly recommended.

Durability

Serviceable Life

- 9.1 Where Marmox Building Products are used as an underlay for waterproofing membranes, they will be durable for at least 15 years, provided the tiling and waterproofing systems are maintained to ensure the boards and fixings remain dry in service. Tiles, adhesives, grouts and waterproofing membranes have not been assessed and are outside the scope of this Appraisal.

Maintenance

- 10.1 No maintenance of Marmox Building Products will be required, provided significant substrate movement does not occur and the tile finish remains intact. Regular checks must be made of the tiled areas to ensure they are sound and will not allow moisture to penetrate. Any cracks or damage must be repaired immediately by repairing the tiles, grout and sealant.
- 10.2 Drainage outlets must be maintained to operate effectively, and the tile finishes must be kept clean.

Prevention of Fire Occurring

- 11.1 Separation or protection must be provided to Marmox Building Products from heat sources such as fireplaces, heating appliances, flues and chimneys. Part 7 of NZBC Acceptable Solutions C/AS1 and C/AS2, and NZBC Verification Method C/VM1 provide methods for separation and protection of combustible materials from heat sources.



Internal Moisture

- 12.1 Surfaces must be finished with ceramic or stone tile finishes. A means of code compliance to NZBC Clause E3.3.3 is given in NZBC Acceptable Solution E3/AS1, Paragraph 3.1.1 b).
- 12.2 Falls in showers and shower areas must be a minimum of 1 in 50. In unenclosed showers, falls must extend a minimum of 1,500 mm out from the shower rose. Floor wastes and drainage flanges must be provided and the floor must fall to the outlet.
- 12.3 A BRANZ Appraised waterproofing membrane must be used in all shower areas. The membrane must completely cover shower bases, and for unenclosed showers it must extend a minimum of 1,500 mm out from the shower rose. Further design guidance on waterproofing wet areas, including waterproofing junctions can be obtained from AS 3740 and the BRANZ Good Practice Guide - Tiling.
- 12.4 To minimise internal condensation, adequate levels of ventilation and thermal resistance must be provided to all spaces where moisture may be generated.

Control Joints

- 13.1 Movement control joints must be provided in the following situations:
 - to coincide with any existing structural movement control joints in the floor structure; and,
 - at maximum 5 m centres in any direction; and,
 - across any doorways or openings where tiling is carried through; and,
 - to coincide with changes of direction in the floor such as will occur in 'L' shaped rooms; and,
 - around the perimeter of the tiled area where it abuts another material or surface.
- 13.2 Control joints should be spaced towards the centre of the floor if possible, so that an equal amount of floor is each side of the joint.
- 13.3 For guidance on all aspects of control joint detailing and construction refer to the BRANZ Good Practice Guide - Tiling.

Installation Information

Installation Skill Level Requirement

- 14.1 Installation of Marmox Building Products must be completed by, or under the supervision of, Licensed Building Practitioners with the relevant Licence Class, in accordance with the instructions given within the Marmox New Zealand Ltd Technical Literature and this Appraisal.

Preparation

- 15.1 Existing floor coverings must be removed before Marmox Building Products are installed, and the floor must be substantially flat. If any floorboards are cupped, misaligned or warped, the whole floor must be coarse-sanded. Loose flooring must be re-nailed, and damaged, rotten or unsound flooring or floor framing must be replaced.
- 15.2 The relative humidity of concrete substrates must be 75% or less before installation of the boards. The concrete can be checked for dryness using a hygrometer as set out in BRANZ Bulletin No. 585.
- 15.3 The floor must be free of dirt, dust and grease before installing Marmox Building Products.

System Installation

- 16.1 It is recommended that the installer dry fit the Marmox Building Products and pre-formed products before final fixing to ensure a good fit. Boards may be loosely laid out on the floor to 'mimic' the actual location of the boards and show where cuts and joints will be made. The boards are laid in a staggered pattern to ensure that four corners never meet at one point. Sheet joints are butted together.
- 16.2 Board joints must not coincide with substrate joints.
- 16.3 The boards must not bridge movement control joints. These must be carried through the board/tile bed and sealed in an appropriate manner.
- 16.4 The boards can be cut with either a hand knife or a saw. When working in enclosed areas, precautions should be taken to ensure dust levels are controlled.



Fixing to concrete and fibre cement floors

- 16.5 A suitable cementitious adhesive is applied to the prepared floor in a straight line using a notched trowel.
- 16.6 Starting in a corner, the boards are laid in a brick bond pattern, leaving a gap of about 5 mm between the board and the wall or skirting board to allow for expansion.
- 16.7 The joints between the boards are taped with a glassfibre mesh tape.

Fixing to plywood and timber floors

- 16.8 The boards are fixed in accordance with the method described for fixing the boards to concrete and other solid floors. However a 10 mm gap should be left between the boards and the wall or skirting board to allow for expansion of the floor.
- 16.9 Alternatively, provided the floor is flat, boards at least 10 mm thick can be mechanically fixed using the Marmox washers and suitable screws. At least 15 fixings per short board (600 x 1,250 mm) must be used when not using an adhesive.
- 16.10 Joints between boards are taped with a glassfibre mesh tape.

Installation in Wet Areas

- 17.1 BRANZ recommends the entire floor be covered by a waterproof membrane for bath, shower and spa rooms where timber, plywood or particleboard floors are used.
- 17.2 Shower areas must include a BRANZ Appraised wet area waterproofing membrane system under the tiles.

Tiling

- 18.1 Before tiling commences, waterproof membranes, screeds to form falls, and floor waste outlets, where required, must be installed. Waterproof membranes must be installed in accordance with the supplier's instructions and be fully cured before tiling.
- 18.2 Tiling must be carried out using a flexible tile adhesive in accordance with the tile adhesive manufacturer's instructions.
- 18.3 Tiling must be undertaken in accordance with AS 3958.1 and the BRANZ Good Practice Guide – Tiling.

Health and Safety

- 19.1 Safe use and handling procedures for Marmox Building Products are provided in the Technical Literature. The materials must be used in conjunction with the relevant Material Safety Data Sheet.

Basis of Appraisal

The following is a summary of the technical investigations carried out:

Tests

- 20.1 The following testing of Marmox Building Products has been undertaken by the following organisations:
 - Housing and Building National Research Centre (HBRC), Egypt – board density, compressive strength, linear coefficient of thermal expansion, water absorption and water vapour permeability.
 - British Board of Agrément (BBA), United Kingdom – impact resistance of tile covered boards (soft and hard body impact), compressive strength, flexural strength of wet and dry samples, compressive creep.
 - Sintef, Norway – bending moment, bending stiffness, resistance to soft body impacts, water vapour permeability.

Test methods and results have been reviewed by BRANZ and found to be satisfactory.



BRANZ Appraisal
Appraisal No. 895 [2018]
23 October 2018

MARMOX BUILDING PRODUCTS



Other Investigations

- 21.1 An assessment was made of the durability of Marmox Building Products by BRANZ technical experts.
- 21.2 Site inspections were carried out by BRANZ to assess the practicability of installation.
- 21.3 The Technical Literature for Marmox Building Products has been examined by BRANZ and found to be satisfactory.

Quality

- 22.1 The manufacture of Marmox Building Products has not been examined by BRANZ, but details regarding the quality and composition of the materials used were obtained by BRANZ and found to be satisfactory.
- 22.2 The quality of supply to the market is the responsibility of Marmox New Zealand Ltd.
- 22.3 Designers are responsible for the building design, and building contractors are responsible for the quality of installation of the framing systems and substrates.
- 22.4 The quality on site is the responsibility of the Licenced Building Practitioner.
- 22.5 Building owners are responsible for the maintenance of the tile finish in accordance with the instructions of Marmox New Zealand Ltd.

Sources of Information

- AS 3740 – 2010 Waterproofing of wet areas within residential buildings.
- AS 3958.1: 2007 Guide to the installation of ceramic tiles.
- AS/NZS 1170: 2002 Structural design actions.
- AS/NZS 2908.2: 2000 Cellulose-cement products – flat sheet.
- AS/NZS 2269: 2012 Plywood – Structural.
- BRANZ Bulletin No. 585. Measuring Moisture in Timber and Concrete.
- Good Practice Guide - Tiling (3rd Edition), BRANZ, 2015.
- NZS 3101: 2006 The design of concrete structures.
- NZS 3602: 2003 Timber and wood-based products for use in building.
- NZS 3604: 2011 Timber-framed buildings.
- NZS 4229: 2013 Concrete masonry buildings not requiring specific engineering design.
- Ministry of Business, Innovation and Employment Record of amendments - Acceptable Solutions, Verification Methods and handbooks.
- The Building Regulations 1992.

Amendments

Amendment No. 1, dated 18 November 2020

This Appraisal has been amended to update the Technical Specifications and Appraisal Title.



BRANZ Appraisal
Appraisal No. 895 [2018]
23 October 2018

MARMOX BUILDING PRODUCTS



In the opinion of BRANZ, **Marmox Building Products** are fit for purpose and will comply with the Building Code to the extent specified in this Appraisal provided they are used, designed, installed and maintained as set out in this Appraisal.

The Appraisal is issued only to **Marmox New Zealand Ltd**, and is valid until further notice, subject to the Conditions of Appraisal.

Conditions of Appraisal

1. This Appraisal:
 - a) relates only to the product as described herein;
 - b) must be read, considered and used in full together with the Technical Literature;
 - c) does not address any Legislation, Regulations, Codes or Standards, not specifically named herein;
 - d) is copyright of BRANZ.
2. **Marmox New Zealand Ltd:**
 - a) continues to have the product reviewed by BRANZ;
 - b) shall notify BRANZ of any changes in product specification or quality assurance measures prior to the product being marketed;
 - c) abides by the BRANZ Appraisals Services Terms and Conditions;
 - d) warrants that the product and the manufacturing process for the product are maintained at or above the standards, levels and quality assessed and found satisfactory by BRANZ pursuant to BRANZ's Appraisal of the product.
3. BRANZ makes no representation or warranty as to:
 - a) the nature of individual examples of, batches of, or individual installations of the product, including methods and workmanship;
 - b) the presence or absence of any patent or similar rights subsisting in the product or any other product;
 - c) any guarantee or warranty offered by **Marmox New Zealand Ltd**.
4. Any reference in this Appraisal to any other publication shall be read as a reference to the version of the publication specified in this Appraisal.
5. BRANZ provides no certification, guarantee, indemnity or warranty, to **Marmox New Zealand Ltd** or any third party.

For BRANZ

A handwritten signature in blue ink, appearing to read 'Chelydra Percy'.

Chelydra Percy
Chief Executive
Date of Issue:
23 October 2018

TABLE OF CONTENTS

6811WM WARMUP MARMOX INSULATED UNDERLAY SYSTEM

2



masterspec

Verified spec ID: **306817-332069**

This specification has been produced using Masterspec software and completed on 14/10/2023.
Scan to verify or go to masterspec.co.nz/verify

6811WM WARMUP MARMOX INSULATED UNDERLAY SYSTEM

1 GENERAL

This section relates to Warmup New Zealand Ltd Marmox insulated underlay system for interior applications as an insulated substrate for ceramic or stone tiling.

It includes:

- insulated underlay boards
- insulated shower bases, hobs, niches and footrest
- components and accessories to complete installation

Documents

1.1 DOCUMENTS

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

- [NZBC E3/AS1-AS2](#) Internal moisture
[AS ISO 13007](#) Ceramic tiles — Grouts and adhesives, Part 1: Terms, definitions and specifications for adhesives

1.2 MANUFACTURER/SUPPLIER DOCUMENTS

Manufacturer and supplier documents relating to this part of the work:

- Marmox brochure
Marmox Board Technical Properties
Marmox Board Material Safety Data Sheet
Marmox Multiboard Installation Instructions
Marmox Ready to tile over Shower Base Installation Instructions
Marmox Pre-fabricated Shower Niche Installation Instructions
Marmox Shower System technical drawings
[BRANZ Appraisal No.895](#) - Marmox Building Products
Manufacturer/supplier contact details
Company: Warmup New Zealand Limited
Web: www.warmup.co.nz
Email: info@warmup.co.nz
Telephone: 09 820 2500

Warranties

1.3 WARRANTY - MANUFACTURER/SUPPLIER

Provide a material manufacturer/supplier warranty:
20 years For Marmox insulated underlay boards

- Provide this warranty on the manufacturer/supplier standard form (if not available then use the standard form in the general section 1237WA WARRANTY AGREEMENT)
- Commence the warranty from the date of purchase.

Refer to the general section 1237 WARRANTIES for additional requirements.

1.4 WARRANTY - INSTALLER/APPLICATOR

Provide an installer/applicator warranty:
5 years For installation

- Provide this warranty on the installer/applicator standard form (if not available then use the standard form in the general section 1237WA WARRANTY AGREEMENT)
- Commence the warranty from the date of practical completion of the contract works.

Refer to the general section 1237 WARRANTIES for additional requirements.

Requirements

1.5 QUALIFICATIONS GENERALLY

Refer to 1270 CONSTRUCTION for requirements relating to qualifications.

1.6 NO SUBSTITUTIONS

Substitutions are not permitted to any of the specified systems, components and associated products listed in this section.

Compliance information

1.7 INFORMATION REQUIRED FOR CODE COMPLIANCE

Provide the following compliance documentation: -

- Manufacturer / supplier warranty
- Installer / applicator warranty
- Producer Statement - Construction from the applicator / installer
- Other information required by the BCA in the Building Consent Approval documents.

2 PRODUCTS

Materials

2.1 INSULATED SHOWER BASES

Marmox Ready to Tile Over Shower Base, extruded polystyrene board with flame retardant additive faced both sides with 0.5mm thick polymer modified cement mortar reinforced with glass fibre mesh and pre-fabricated with 1:40 maximum falls to drain cutout.

2.2 SHOWER BASE EXTENSION FILLETS

Marmox Ready to Tile Over Shower Base extension fillets, extruded polystyrene board with flame retardant additive faced both sides with 0.5mm thick polymer modified cement mortar reinforced with glass fibre mesh and pre-fabricated with 1:40 maximum falls.

Components

2.3 CEMENTITIOUS ADHESIVE

Lightweight high performance cementitious adhesive to AS ISO 13007, Class 2 - Improved adhesive and S2 - Highly deformable.

2.4 WATERPROOFING MEMBRANE

Refer to 6221 TILING SYSTEMS or relevant tiling section for the supply and installation of waterproofing membrane system.

2.5 GLASS FIBRE MESH TAPE

Refer to waterproofing membrane manufacturer for glass fibre mesh tape specification.

3 EXECUTION

Conditions

3.1 DELIVERY, STORAGE & HANDLING OF PRODUCTS

Refer to 1270 CONSTRUCTION for requirements relating to delivery, storage and handling of products.

3.2 ROUTINE MATTERS

Refer to 1250 TEMPORARY WORKS & SERVICES for protection requirements.
Refer to 1270 CONSTRUCTION for requirements relating to defective or damaged work, removal of protection and cleaning.

3.3 PRE-INSTALLATION REQUIREMENTS

Check work previously carried out and confirm it is of the required standard for this part of the work.

Moisture content:	75% RH maximum for concrete substrates
	12-14% maximum for timber, plywood and fibre cement substrates in air-conditioned spaces
	16-18% maximum for timber, plywood and fibre cement substrates in non air-conditioned spaces

Installation - generally

- 3.4 STANDARDS AND TOLERANCES
Refer to the general section 1270 CONSTRUCTION for general requirements.
- 3.5 INSTALLATION GENERALLY
To Marmox installation instructions and BRANZ Appraisal No.895.
- 3.6 CUTTING BOARDS
Cut boards where required using a hand knife or saw.

Installation - showers

- 3.7 FIT SHOWER BASE
Dry fit shower base and extension fillets where required on substrate prior to adhering. Provide 5mm expansion gap between base and perimeter wall. Lift base and apply cementitious adhesive to substrate using an 8mm notched trowel in accordance with the manufacturer's instructions. Place base back in position and apply pressure to remove air voids below base without forcing adhesive out from underside. Remove any excess adhesive from top surface of base.

Installation - waterproofing

- 3.8 GLASS FIBRE TAPE JOINTS
Refer to 6221 TILING SYSTEMS or relevant tiling section.
- 3.9 INSTALL WATERPROOFING MEMBRANE
To [NZBC E3/AS1-AS2](#). Refer to 6221 TILING SYSTEMS or relevant tiling section.

Completion & Commissioning

- 3.10 COMPLETION MATTERS
Refer to 1270 CONSTRUCTION for completion requirements and if required commissioning requirements.



**RECORD OF TITLE
 UNDER LAND TRANSFER ACT 2017
 FREEHOLD
 Historical Search Copy**



R. W. Muir
 Registrar-General
 of Land

Identifier 921363
Land Registration District Wellington
Date Issued 03 March 2020

Prior References
 WN806/24

Estate Fee Simple
Area 11.7627 hectares more or less
Legal Description Lot 2 Deposited Plan 544253

Original Registered Owners

Helen Josephine Anderson, David John Crombie and Enid Joy McKenzie

Interests

Appurtenant hereto is a right to convey water created by Easement Instrument 11673511.4 - 3.3.2020 at 8:58 am
 11909719.2 Surrender of the easement created by Easement Instrument 11673511.4 - 2.11.2020 at 12:16 pm
 12025507.1 CAVEAT BY SPARK NEW ZEALAND TRADING LIMITED - 26.2.2021 at 4:05 pm
 12057149.1 Transfer to Anderson Park Estates Ltd - 1.4.2021 at 10:19 am



BC230628
Received by
Kapiti Coast District Council
13/09/2023

KCDC147561 - Request For More Information

Submission RFI - 1

Created in form section:

Where Is The Building Work

Request Details

The site information with regards to exposure and wind are not correct. We don't have Low of either of these in the Kapiti area. Please use the site-specific designation for this site. This can be found on the BRANZ website by looking up the address in the BRANZ maps.

Response

Application form revised.

Raised By

Scott Kyle

Submitted

Mon 28 Aug 2023, 2:04 PM

Responded

Tue 12 Sep 2023, 8:54 PM

Acknowledged

Wed 13 Sep 2023, 8:53 AM

Submission RFI - 2

Created in form section:

Where Is The Building Work

Request Details

As per Simpli's and our requirements, please see the blow guidance from Simpli. Please use the links in Simpli.

Document Upload Process

Only one document can be uploaded against each document category. You need to merge all documents into a single PDF per category (e.g. all architectural plans must be merged into a single document).

Several free online PDF merger tools are available on the [internet](#) one such tool is [Smallpdf](#). With Smallpdf, you can merge documents into a single file.

For a full list of the document categories and what should be included in each category click [here](#).

Click [here](#) for help and frequently asked questions.

Response

Full working drawings attached as one file.

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Kapiti Coast District Council
13/09/2023

Raised By

Scott Kyle

Submitted

Mon 28 Aug 2023, 2:04 PM

Responded

Tue 12 Sep 2023, 8:54 PM

Acknowledged

Wed 13 Sep 2023, 8:53 AM

Submission RFI - 3

Created in form section:

Where Is The Building Work

Request Details

Lot 43, Anderson Park, Waikanae is a location within a site and not an address.

Please provide the address for the site, is it 110 Ngarara Road, Waikanae?

Response

The site is within the new subdivision of 110 Ngarara Road, Waikanae.

Raised By

Scott Kyle

Submitted

Mon 28 Aug 2023, 2:04 PM

Responded

Tue 12 Sep 2023, 8:54 PM

Acknowledged

Wed 13 Sep 2023, 8:54 AM

Submission RFI - 4

Request Details

Please respond to the questions raised, This application will be rejected in 7 days if no further information is received. Please contact us on Phone: 04 296 4700 or 0800 486 486 if you need further advise.

Response

Responses attached

Raised By

Scott Kyle

Submitted

Fri 8 Sep 2023, 2:50 PM

Responded

Tue 12 Sep 2023, 8:54 PM

Acknowledged

Wed 13 Sep 2023, 8:54 AM

BC230628
Received by
Kapiti Coast District Council
13/09/2023



Building Consent - Form 2 - 230628

Submission Details

Submission Ref	KCDC147561
Status	Lodged
Project Description	To construct a new two storey dwelling with four bedrooms and double garage.
Building Complexity	R2
Date Submitted	Fri 25 Aug 2023, 7:31 PM
Application Fee	\$ 10,347.13
Building Consent Authority	Kapiti Coast District Council
Site Address	110 Ngarara Road, Waikanae
Consent Number	230628
Submitter	Onboard & Online Ltd (Grant Baxter)
Legal Description	LOT 2 DP 544253

Building Consent - Form 2

Application for project information memorandum and/or building consent
[Section 33](#) or [section 45](#), Building Act 2004

How to complete this form:

1. Completed sections turn green
2. The submit button become available after all sections has been completed
3. Required fields are marked with an asterisk (*)
4. You can save and close the application if you need to complete it later
5. The review and submit buttons takes you to the final step before you submit the application.

KCDC

What Are You Applying For

What are you applying for. Select all that apply. *

- | | |
|---|---|
| <input checked="" type="checkbox"/> Building Consent | <input type="checkbox"/> Project Information Memorandum (PIM) |
| <input type="checkbox"/> National Multiproof Building Consent | <input type="checkbox"/> Staged Building Consent |

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What Building Work Are You Doing

What type of building work are you doing *

Residential
 Multi-Residential
 Commercial / Industrial

Residential *

<input checked="" type="checkbox"/> New detached dwelling	<input type="checkbox"/> Plumbing works	<input type="checkbox"/> Major alterations / additions - any work that includes altering or attaching to the exterior of a building
<input type="checkbox"/> Minor alterations - any internal work that does not include altering the exterior of the building	<input type="checkbox"/> Garage / detached carport	<input type="checkbox"/> Seismic strengthening
<input type="checkbox"/> Other		

Select all applicable boxes. If your building work is not listed, select Other and provide details.

Does the design feature a modular component by an accredited manufacturer as per the BuiltReady scheme?

Yes
 No

Where Is The Building Work

What is the street address *

110 Ngarara Road, Waikanae

Legal Description *

LOT 43

Deposited Plan

DP

Building Name

Location of building within site/block including near street access

Middle

Are you building in a zone that requires a land-use Resource Consent *

Yes
 No

Is the subdivision of an existing site involved *

Yes
 No

Does the building or site have any cultural or heritage significance, or is it a marae? *

Yes
 No

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Who Owns The Building Or Land

Owner name *

Owner title

If the property is owned by an organisation, capture the organisation's name.

Owner's contact person

Owner email address *

Required if the owner is an organisation

Owner contact number *

Owner mobile number

Owner's street address *

Owner mailing address *

Proof of Ownership

The [Building \(Forms\) Regulations 2004](#) requires evidence of ownership to be provided, proof of ownership less than 3 months old ensures the ownership is current.

Proof of ownership *

 Record of Title (RT) Other

Click [here](#) to request a RT from from Land Information New Zealand.

Request a Record of Title (RT) from the Building Consent Authority (BCA) or Council *

 Yes No

Check with the Building Consent Authority (BCA) before requesting a RT directly from them.

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Who Is The Applicant

Is the application being made on behalf of the owner *

Yes No

Agent Contact Information

Please note that the nominated first point of contact must be in New Zealand.

Who should the invoice be sent to? *

Owner Agent Other

Who is the first point of contact for further correspondence *

Owner Agent Other

Who should invoices be made out to? *

Agent name *

Agent title

If the agent is an organisation, capture the organisation's name

Agent's contact person

Agent's relationship to owner *

Required if the agent is an organisation

Agent email address *

Agent contact number *

Agent mobile number

Agent's street address *

Agent mailing address *

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Who's Involved In The Build

Please supply names, registration and contact details of the designer, architect, structural engineer and other key individuals involved in your project (such as carpenter, plumber, gasfitter).

For commercial applications, the details of the fire safety designer who produced the 'fire report' must be provided.

Select who's involved *

 Licensed Building Practitioner
 Other

Are non licenced building practitioners involved in the project? Select Other and provide their details.

Licensed Building Practitioner/s (LBP)

Name *	Company	
Grant Baxter	Onboard & Online Ltd	
Email address *	Contact number *	
grant@onboard.co.nz	04 9021210	
Street address	Mailing address	
Po Box 74, Paraparaumu, Wellington 5452, New Zealand	Po Box 74, Paraparaumu, Wellington 5452, New Zealand	
Licensed Building Practitioner *	Other	
Designer		
License class *	LBP registration number *	
<ul style="list-style-type: none"> Brick and Block Laying Carpentry Design 1 <li style="background-color: #000080; color: white;">Design 2 Design 3 External Plastering Foundations Roofing Site 1 Site 2 	110030	

Select one or more licence classes in the list

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What Are The Specifics Of The Site

What is the wind zone *

<input type="radio"/> Low	<input type="radio"/> Medium	<input checked="" type="radio"/> High	<input type="radio"/> Very High	<input type="radio"/> Extra High	<input type="radio"/> Specific Design
---------------------------	------------------------------	---------------------------------------	---------------------------------	----------------------------------	---------------------------------------

What is the exposure zone *

<input type="radio"/> Low(B)	<input checked="" type="radio"/> Medium(C)	<input type="radio"/> High/Sea spray(D)
------------------------------	--	---

Does the proposed building work cover two or more allotments *

<input type="radio"/> Yes	<input checked="" type="radio"/> No	
---------------------------	-------------------------------------	--

Are there public drains on the site *

<input type="radio"/> Yes	<input checked="" type="radio"/> No	
---------------------------	-------------------------------------	--

Is the site subject to natural or created hazards such as erosion, subsidence, flooding, slips, cut and fill or contamination *

<input type="radio"/> Yes	<input checked="" type="radio"/> No	
---------------------------	-------------------------------------	--

Are there any alterations to land contours (e.g. earthworks) *

<input type="radio"/> Yes	<input checked="" type="radio"/> No	
---------------------------	-------------------------------------	--

Are there new or altered connections to public utilities *

<input checked="" type="radio"/> Yes	<input type="radio"/> No	
--------------------------------------	--------------------------	--

Are there new or altered locations and/or external dimensions of buildings *

<input checked="" type="radio"/> Yes	<input type="radio"/> No	
--------------------------------------	--------------------------	--

Is there new or altered access for vehicles *

<input checked="" type="radio"/> Yes	<input type="radio"/> No	
--------------------------------------	--------------------------	--

Is the building work over or adjacent to any road or public place *

<input type="radio"/> Yes	<input checked="" type="radio"/> No	
---------------------------	-------------------------------------	--

Does the building work involve the disposal of storm-water or wastewater *

<input checked="" type="radio"/> Yes	<input type="radio"/> No	
--------------------------------------	--------------------------	--

Is the building work over any existing drains or sewers or in close proximity to wells or water mains *

<input type="radio"/> Yes	<input checked="" type="radio"/> No	
---------------------------	-------------------------------------	--

Are there any other matters known to the applicant that may require authorisation from the territorial authority *

<input type="radio"/> Yes	<input checked="" type="radio"/> No	
---------------------------	-------------------------------------	--

--

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 13/09/2023

What Are The Details Of The Building Work

Provide a full description of the building work *

To construct a new two storey dwelling with four bedrooms and double garage.	
--	--

Estimated value of the building work (including GST) *

\$ 900000	
-----------	--

What is the intended life of the building *

50+ years

Limited Life

Proposed Use

You must select at least one of the following seven proposed use 'types'. Where you select Housing, Communal residential or Communal non-residential, you must also specify a proposed use 'sub type'

Housing

Housing selections *

Detached dwellings

Multi-unit dwelling

Group dwelling

Outbuildings

Ancillary

Will the building work affect an existing building and/or parts of an existing building *

Yes

No

Total number of floor levels *

2

Levels below ground (if applicable)

0

Total floor area (all levels) *

270

m2

Is the building used for anything other than a single household unit? *

Yes

No

If this consent includes any residential units. How many new residential units will be created? *

1

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Does the project include Restricted Building Work *

Yes

No

Are you applying for Owner/Builder exemption to complete the Restricted Building Work *

Yes

No

CERTIFICATE OF DESIGN WORK

Your building consent application needs to include a Certificate of Design Work.

These forms can be completed online by:

- Complete and submit this application
- Navigate to the forms section in the submitted consent application
- Select "New Submission"
- Complete all additional submissions.

Have you discussed this project with the Building Consent Authority prior to applying?

Yes No

Does the building work involve a swimming pool?

Yes No

Does the building work involve any Recladding?

Yes No

What Clauses Of The Building Code Does Your Work Comply With

NOTE:

- Unless otherwise noted below, your application will be assessed under Acceptable Solutions.
- You are required to indicate what code clause(s) your building work complies with.
- If you are using another means of compliance, please provide details of the standard(s) that your building work complies with and the means of compliance in the space provided.

You can view building related standards on the [Standards New Zealand](#) website.

* I understand that this application is to be assessed against Acceptable Solutions, unless otherwise stated in this section.

B - Stability

- B1 - STRUCTURE
- B2 - DURABILITY

Verification Methods	Alternative Solutions	Additional information
B1/AS1 B2/AS1	<input type="text"/>	<input type="text"/>
<i>Include relevant code clauses and means of compliance</i>	<i>Include relevant code clauses and means of compliance or details of any waiver and modifications (including applicable code clauses)</i>	

C - Protection from fire

D - Access

- D1 - ACCESS ROUTES
- D2 - MECHANICAL INSTALLATION FOR ACCESS

Verification Methods	Alternative Solutions	Additional information
D1/AS1	<input type="text"/>	<input type="text"/>
<i>Include relevant code clauses and means of compliance</i>	<i>Include relevant code clauses and means of compliance or details of any waiver and modifications (including applicable code clauses)</i>	

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E - Moisture

- E1 - SURFACE WATER
- E2 - EXTERNAL MOISTURE
- E3 - INTERNAL MOISTURE

Verification Methods

E2/AS1
E3/AS1

Include relevant code clauses and means of compliance

Alternative Solutions

[Empty text box]

Include relevant code clauses and means of compliance or details of any waiver and modifications (including applicable code clauses)

Additional information

[Empty text box]

F - Safety of users

- F1 - HAZARDOUS AGENTS ON SITE
- F2 - HAZARDOUS BUILDING MATERIALS
- F3 - HAZARDOUS SUBSTANCES AND PROCESSES
- F4 - SAFETY FROM FALLING
- F5 - CONSTRUCTION AND DEMOLITION HAZARDS
- F6 - VISIBILITY IN ESCAPE ROUTES
- F7 - WARNING SYSTEMS
- F8 - SIGNS
- F9 - RESTRICTING ACCESS TO RESIDENTIAL POOLS

Verification Methods

F7/AS1

Include relevant code clauses and means of compliance

Alternative Solutions

[Empty text box]

Include relevant code clauses and means of compliance or details of any waiver and modifications (including applicable code clauses)

Additional information

[Empty text box]

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G - Services and facilities

- G1 - PERSONAL HYGIENE
- G2 - LAUNDERING
- G3 - FOOD PREPARATION AND PREVENTION OF CONTAMINATION
- G4 - VENTILATION
- G5 - INTERIOR ENVIRONMENT
- G6 - AIRBORNE AND IMPACT SOUND
- G7 - NATURAL LIGHT
- G8 - ARTIFICIAL LIGHT
- G9 - ELECTRICITY
- G10 - PIPED SERVICES
- G11 - GAS AS AN ENERGY SOURCE
- G12 - WATER SUPPLIES
- G13 - FOUL WATER
- G14 - INDUSTRIAL LIQUID WASTE
- G15 - SOLID WASTE

Verification Methods

Alternative Solutions

Additional information

G1/AS1
 G2/AS1
 G3/AS1
 G4/AS1
 G7/AS1
 G9/AS1
 G11/AS1
 G12/AS1
 G13/AS1

[Empty text box]

[Empty text box]

Include relevant code clauses and means of compliance or details of any waiver and modifications (including applicable code clauses)

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Include relevant code clauses and means of compliance

H - Energy efficiency

- H1 - ENERGY EFFICIENCY

Verification Methods

Alternative Solutions

Additional information

H1/AS1

[Empty text box]

[Empty text box]

Include relevant code clauses and means of compliance

Include relevant code clauses and means of compliance or details of any waiver and modifications (including applicable code clauses)

Specific Buildings

What Specified Systems Are In The Building?

Does your building work involve or affect any Specified Systems (SS)? *

Yes No

[Empty text box]

Have You Attached All Required Documentation

Document Upload Process

Only one document can be uploaded against each document category. You need to merge all documents into a single PDF per category (e.g. all architectural plans must be merged into a single document).

Several free online PDF merger tools are available on the [internet](#) one such tool is [Smallpdf](#). With Smallpdf, you can merge documents into a single file.

For a full list of the document categories and what should be included in each category click [here](#).

Click [here](#) for help and frequently asked questions.

Document Categories for Residential Applications

The following document categories are associated with a residential application:

- **Architectural Plans**
- **Architectural Specifications**

If you have selected structural requirement/s for the application, the following document categories will also be available.

- **Structural Plans**
- **Structural Specifications**

Do you have structural engineering documents? *

Yes No

* I have the documentation ready and combined into the appropriate categories

Structural Plans - Atkinson_SK1_SK2.pdf
Structural Specifications - Atkinson_truss.pdf

Do you have any other documents not related to the above categories? *

Yes No

Supporting Documentation - Ardex_appraisal_2022.pdf
Supporting Documentation - Shadowclad_installation_2021.pdf
Supporting Documentation - Shadowclad_appraisal_March_2021.pdf
Supporting Documentation - Covertek_215_appraisal.pdf
Supporting Documentation - Watergate_codemark_2025.pdf
Supporting Documentation - Maxstone_technical_bulletin.pdf
Supporting Documentation - Lot_43_Anderson_Park_-_Design_Memorandum.pdf
Supporting Documentation - Atkinson_PS1_Design_Lot_43_Anderson_Park_Waikanae.pdf
Supporting Documentation - XPOD_installation.pdf
Supporting Documentation - Lot_43_Anderson_Park_-_Revised_bracing_calcs.pdf
Supporting Documentation - Lot_43_Anderson_Park_-_Bedroom_bracing_calcs.pdf
Supporting Documentation - Lot_43_Anderson_Park_-_CGW_report.pdf
Supporting Documentation - Foundation_PS1.pdf
Supporting Documentation - Foundation_calcs.pdf
Supporting Documentation - Foundation_design.pdf

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Declaration

Privacy Information

The information you have provided on this form is required so that your application can be processed under the Building Act 2004. The Council, Territorial Authority (TA) or Building Consent Authority (BCA) collates statistics relating to building work and has a statutory obligation to provide information to third parties. The information is stored on a public register, which must be supplied to whoever requests the information. Under the Privacy Act 2020, you have the right to see, and correct personal information Councils, TAs and BCAs holds about you.

You can view the Simpli [Privacy Statement here](#)

In providing this information, you agree to your details being used for customer surveys carried out by the Council, BCA or TA.

Terms of Use

By making this submission you agree to the Simpli portal [terms and conditions](#).

Your application fees

The Council, BCA or TA may charge fees for your application. These will include statutory levies to BRANZ and the Ministry of Business, Innovation & Employment.

A fee schedule can be found on the BCA's website, refer to the link in the details panel on the right. Your fees will be advised when the BCA accepts your submission.

You must not commence the building work until the consent has been issued and uplifted.

*** I acknowledge and agree with the above statements.**

Name *

Date *

G Baxter

25/08/2023

Submitter Declaration

Submitter Name

Grant Baxter

Date

25/08/2023

I understand that by ticking the following boxes, I am agreeing to the following statements:

- * As the agent I confirm that I am submitting this application on behalf of and with the authority of the owner and confirm that all the information within the application is, to the best of my knowledge, true and correct.**
- * I request that you issue a building consent for the building work described in this application.**

BC230628
Received by
Kapiti Coast District Council
13/09/2023

PLANNING PROCESSING CHECKSHEET

Building Consent Number: BC230628



Property Information			
Property Address:	110 Ngarara Road, Waikanae		
Legal Description:	LOT 2 DP 544253		
Planning Zone:	General Residential		
Precinct			
Building Project:	To construct a new two storey dwelling with four bedrooms and double garage		
	Yes	No	Action Required
Record of Title	Y		
Easements	Y		
Section 221	Y		RC not 224 yet

District Plan Items to Check				
	Yes	No	Qualifying matters	Page
Historic Heritage Register				HH-R6
Eco site/Native Veg			Check PDP tree list	ECO-R7
Notable Trees				TREE-R4
Outstanding Features and Landscapes			Gross floor area no greater than 60m ² Height no greater than 6 metres	NFL-R2
Flood Hazards				NH-FLOOD-R2 and NH-FLOOD-R3
Min Floor Level			Check Latest Flood Extent layer	NH-FLOOD-R3
EQ Hazard				NH-EQ-R22
Airport Zones				AIRPZ-R4, AIRPZ-R5 and AIRPZ-R6
	Complies?		Standards Required	Page
Number of units/site	Y		No more than 3	GRZ-Rx1.1
Building Height	Y			GRZ-Rx1.2 and GRZ-Rx2.2
HIRB	Y			GRZ-Rx1.3
Setbacks	Y		Front – 3m, 3.5 Side – 4.7m, 6m Rear – 15.3m	GRZ-Rx1.4
Building Coverage	Y		36.7%	GRZ-Rx1.5
Outdoor living space (per unit)	Y		RFI showing complying	GRZ-Rx1.6 and GRZ-Rx1.7
Outlook space (per unit)	Y		Living room needs to be at least 4 meters from boundary	GRZ-Rx1.8
Windows to street	Y		Rear lot	GRZ-Rx1.9
Landscaped area	Y		Minimum of 20% of a developed site with grass or plants and can include the canopy of trees	GRZ-Rx1.10 and GRZ-Rx1.11
Earthworks	Y		Flat site, no excavation or retaining req.	EW-R2.1&2, 4A.1.1.2 & NH-FLOOD-R4
Water Tank	Y		10,000l	INF-MENU-R28.1
Stormwater system	Y		Rainsmart Soak pit	INF-MENU-P17

Parking/Manoeuvrability Access			If main connector or in s221 – onsite turning to exit in forward gear 3.5-9m wide	TR-Park R19 TR-R3
Retaining Walls			Not a building if 1.5m or less in height	GRZ-R3
Noise Corridor				NOISE R14
National Grid Yard (HVT lines)				INF MENU R30 INF MENU R31

Other Provisions				
	Yes	No	Action required	Page
Boundary Activity				
Type				
Application forms sent			Apply Section 37 and advise Plan Vetting Team	
Existing Resource Consent			RM200227	
Resource Consent required			Apply Section 37 and advise Plan Vetting Team	
Marginal / Temporary				
DIF Required?	Y		http://ed.otcs/lisapi.dll/Overview/1275242	
Calculate DIF Fees			USE CALCULATOR SHEET , print and attach	Amount
Send DIF letter out			Date sent	
Additional Comments				
20/09/23 – RFI for outlook, outdoor & landscape				
22/09/23 – RFI received – signed off				
Decision: (tick item which applies)				
<input type="checkbox"/> Application complies with District Plan requirements				
<input checked="" type="checkbox"/> Application does not comply with District Plan – BC to be issued subject to s37				
Officers Name: Kirstie Spiller		Officers Signature: 		Date: 22/09/23

GoGet Inspection Audit Report

Consent No: **230628**

Applicant: **Grant Baxter**

Site Address: **110 Ngarara Road, Waikanae**

Work Type: **To construct a new two storey dwelling with four bedrooms and double garage**

Inspection Type: **Drainage**

Inspection Outcome: **Fail**

Inspected By: **Luke Natrass**

Inspection Date: **24 May 2024 9:57 a.m.**

Duration: **60 minutes**

Inspection Element	Status
General	Fail
:	
Pipe diameter 100mm for both sewer and stormwater, all primed and glued	Pass
Bedding material In sand	Pass
Gully trap org to South face	Pass
Connections/angles all swept junctions and inspections in place were required	Pass
Branch length As required	Pass
Direction/fall storm water to non potable water tank then to engineered soakpit , sewer to 50mm sewer pump	Pass
Holding water Under water test , sighted bung being pulled	Pass
Terminal vent 100mm on exterior and 50mm through roof	Pass
Registration number Peter 18044	Pass
Stormwater sumps to be checked t final	N/A
Elevated drainage External stack fixed and connected to exterior south face	Pass
Soak pit Engineered soak pit , sighted photos , ps4 to be provided	Pass
Agent/owner written approval	N/A
non compliance discussed onsite spoke with Peter re having to sight sewer pump connection at final	Pass
Next Inspection required	N/A
Other To sight sewer pump at final inspection	Fail



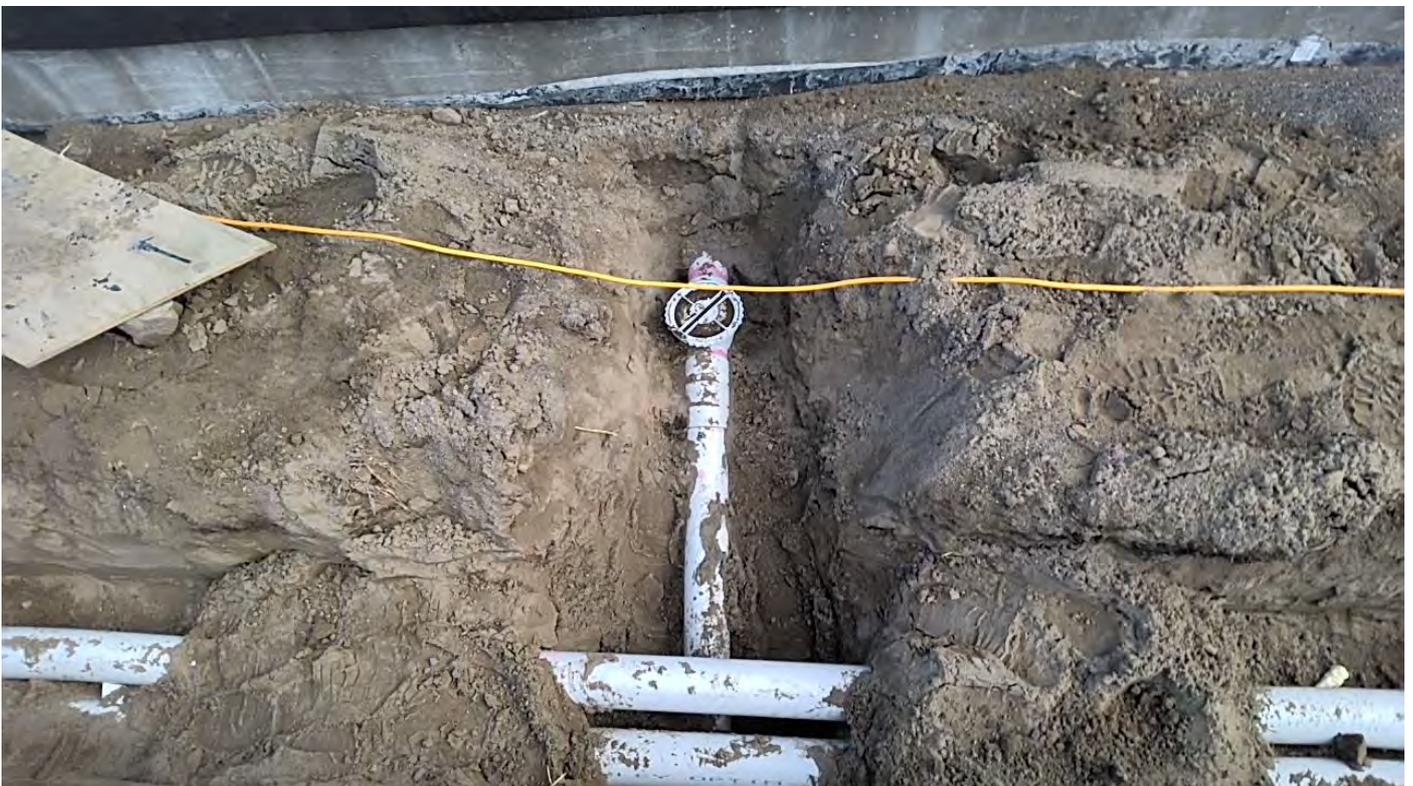
Inlet to water tank
Taken at 9:46 AM on Friday 24/05/2024



Taken at 9:47 AM on Friday 24/05/2024



50mm lateral not yet installed
Taken at 9:48 AM on Friday 24/05/2024



Sewer with inspection eye
Taken at 9:48 AM on Friday 24/05/2024



Taken at 9:49 AM on Friday 24/05/2024



Taken at 9:49 AM on Friday 24/05/2024



Strm water

Taken at 9:49 AM on Friday 24/05/2024



Taken at 9:50 AM on Friday 24/05/2024



Sewer

Taken at 9:50 AM on Friday 24/05/2024



Sewer and org

Taken at 9:51 AM on Friday 24/05/2024



Taken at 9:52 AM on Friday 24/05/2024



Taken at 9:52 AM on Friday 24/05/2024



Taken at 9:54 AM on Friday 24/05/2024

SITE NOTICE

Consent No: **230628**
 Applicant: **T Atkinson**
 Site Address: **110 Ngarara Road, Waikanae**
 Work Type: **To construct a new two storey dwelling with four bedrooms and double garage**
 Building Category: **R3**

Inspection Type: **Drainage**
 Inspection Outcome: **Fail**
 Inspected By: **Luke Natrass**
 Inspection Date: **24 May 2024**

Failed Items

General :
 Other **To sight sewer pump at final inspection**

Passed Items

General :
 Pipe diameter **100mm for both sewer and stormwater, all primed and glued**
 Bedding material **In sand**
 Gully trap **org to South face**
 Connections/angles **all swept junctions and inspections in place were required**
 Branch length **As required**
 Direction/fall **storm water to non potable water tank then to engineered soakpit , sewer to 50mm sewer pump**
 Holding water **Under water test , sighted bung being pulled**
 Terminal vent **100mm on exterior and 50mm through roof**
 Registration number **Peter 18044**
 Elevated drainage **External stack fixed and connected to exterior south face**
 Soak pit **Engineered soak pit , sighted photos , ps4 to be provided**
 non compliance discussed onsite **spoke with Peter re having to sight sewer pump connection at final**

GoGet Inspection Audit Report

Consent No: **230628**

Applicant: **Grant Baxter**

Site Address: **48 Anderson Park Drive, Waikanae**

Work Type: **To construct a new two storey dwelling with four bedrooms and double garage**

Inspection Type: **Final Inspection**

Inspection Outcome: **Fail**

Inspected By: **Jeremy Lincoln**

Inspection Date: **31 July 2024 3:14 p.m.**

Duration: **15 minutes**

Inspection Element

Status

Exterior

Fail

Cladding painted/sealed

Pass

Shadowclad & bandsawn weatherboards painted black.

Still satisfy the NZBC for 15 years

GoGet Inspection Audit Report

Consent No: **230628**

Applicant: **Grant Baxter**

Site Address: **48 Anderson Park Drive, Waikanae**

Work Type: **To construct a new two storey dwelling with four bedrooms and double garage**

Inspection Type: **Final Inspection**

Inspection Outcome: **Fail**

Inspected By: **Jeremy Lincoln**

Inspection Date: **5 August 2024 8:56 a.m.**

Duration: **15 minutes**

Inspection Element	Status
Exterior	Fail
Penetrations - flashings	Pass
AC unit, Plumbing stack, Hose taps, air extraction hoods all installed.	
Chorus cable at corner of garage to have flange fitted	
Photo recieved	
Interior	Fail
Non potable water signs	Pass
non pot signage, photos recieved	

SITE NOTICE

Consent No: **230628**
Applicant: **T Atkinson**
Site Address: **48 Anderson Park Drive, Waikanae**
Work Type: **To construct a new two storey dwelling with four bedrooms and double garage**
Building Category: **R3**

Inspection Type: **Final Inspection**
Inspection Outcome: **Fail**
Inspected By: **Jeremy Lincoln**
Inspection Date: **31 July 2024**

Failed Items

Exterior

All previous inspections/notes passed
Penetrations - flashings

Previous items to be addressed

AC unit, Plumbing stack, Hose taps, air extraction hoods all installed.

Chorus cable at corner of garage to have flange fitted

Interior

All previous inspections/notes passed
Non potable water signs

Passed Items

Exterior

Cladding painted/sealed

**Shadowclad & bandsawn weatherboards painted black.
Still satisfy the NZBC for 15 years**

SITE NOTICE

Consent No: **230628**
Applicant: **T Atkinson**
Site Address: **48 Anderson Park Drive, Waikanae**
Work Type: **To construct a new two storey dwelling with four bedrooms and double garage**
Building Category: **R3**

Inspection Type: **Final Inspection**
Inspection Outcome: **Fail**
Inspected By: **Jeremy Lincoln**
Inspection Date: **5 August 2024**

Failed Items

Exterior

All previous inspections/notes passed

Interior

All previous inspections/notes passed

Passed Items

Exterior

Penetrations - flashings

Previous items to be addressed

AC unit, Plumbing stack, Hose taps, air extraction hoods all installed.

Chorus cable at corner of garage to have flange fitted

Photo recieved

Interior

Non potable water signs

non pot signage, photos recieved

GoGet Inspection Audit Report

Consent No: **230628**

Applicant: **Grant Baxter**

Site Address: **48 Anderson Park Drive, Waikanae**

Work Type: **To construct a new two storey dwelling with four bedrooms and double garage**

Inspection Type: **Final Inspection**

Inspection Outcome: **Pass**

Inspected By: **Jeremy Lincoln**

Inspection Date: **24 September 2024 12:30 p.m.**

Duration: **15 minutes**

Inspection Element	Status
Exterior	Pass
All previous inspections/notes passed	Pass
Brought forward from Preslab: CRESCO engineer, SED slab. Engineer's report to be provided at prewrap.	
PS\$ CWR provided for slab	
Interior	Pass
All previous inspections/notes passed	Pass
Postline - New braces confirmed by engineer to replace O5 as noted in postline. Evidence to be provided these braces were installed. Diaphragm broken into three, inspector asked for updated drawing. Will discuss with builder over the phone	
Engineers PS\$ & CWR provided	



Kapiti Coast District Council
175 Rimu Road
Private Bag 60601
Paraparaumu 5254
Phone (04) 296 4700

SITE NOTICE

Consent No: **230628**
Applicant: **T Atkinson**
Site Address: **48 Anderson Park Drive, Waikanae**
Work Type: **To construct a new two storey dwelling with four bedrooms and double garage**
Building Category: **R3**

Inspection Type: **Final Inspection**
Inspection Outcome: **Pass**
Inspected By: **Jeremy Lincoln**
Inspection Date: **24 September 2024**

Passed Items

Exterior

All previous inspections/notes passed

**Brought forward from Preslab:
CRESCO engineer, SED slab.
Engineer's report to be provided at prewrap.**

PS\$ CWR provided for slab

Interior

All previous inspections/notes passed

Postline - New braces confirmed by engineer to replace O5 as noted in postline. Evidence to be provided these braces were installed. Diaphragm broken into three, inspector asked for updated drawing. Will discuss with builder over the phone

Engineers PS\$ & CWR provided

GoGet Inspection Audit Report

Consent No: **230628**

Applicant: **Grant Baxter**

Site Address: **48 Anderson Park Drive, Waikanae**

Work Type: **To construct a new two storey dwelling with four bedrooms and double garage**

Inspection Type: **Drainage**

Inspection Outcome: **Pass**

Inspected By: **Jeremy Lincoln**

Inspection Date: **31 July 2024 10:48 a.m.**

Duration: **15 minutes**

Inspection Element

Status

General

Pass

:

Other

Pass

To sight sewer pump at final inspection

Sighted at final



septic pump station
Taken at 10:47 AM on Wednesday 31/07/2024



septic holding tank
Taken at 10:47 AM on Wednesday 31/07/2024

GoGet Inspection Audit Report

Consent No: **230628**

Applicant: **Grant Baxter**

Site Address: **48 Anderson Park Drive, Waikanae**

Work Type: **To construct a new two storey dwelling with four bedrooms and double garage**

Inspection Type: **Final Inspection**

Inspection Outcome: **Fail**

Inspected By: **Jeremy Lincoln**

Inspection Date: **31 July 2024 11:28 a.m.**

Duration: **45 minutes**

Inspection Element	Status
Exterior	Fail
All previous inspections/notes passed	Fail
Previous items to be addressed	
Drawings	Pass
Additional information/plan	N/A
Sub-floor ventilation	N/A
Roof fixings	Pass
Roof has been screwed off as required for the roofing type	
Spouting and down-pipes	Pass
All installed and connected to stormwater	
Deck structure	N/A
Deck underway, not part of consent	
Flashings - roof	Pass
Roof has been flashed as required	
Kick outs installed a bottom of aprons	
Penetrations - flashings	Fail
AC unit, Plumbing stack, Hose taps, air extraction hoods all installed.	
Chorus cable at corner of garage to have flange fitted	
Barriers	N/A
Gully dishes	Pass
X1 ORG, Charged by waste	
Stormwater and site drainage	Pass
To non pot tank	
Drive direct to soakpit	
Handrails	N/A
Wastes to gully	N/A
Fixings - durability	Pass
Steps/stairs	N/A
Terminal vents/AAVs	Pass
80DN to stack	
Brick veneer cladding	N/A
Cladding painted/sealed	Fail
Shadowclad & bandsawn weatherboards painted black	
Flashings - windows/doors	Pass
All windows and doors flashed as required	
Cladding ground clearance	Pass
Landscaping not completed	

Non compliance discussed onsite With Tim	Pass
Final check complete	N/A
Other	N/A
Interior	Fail
All previous inspections/notes passed	Fail
Drawings	Pass
Additional information/plan	N/A
Service areas-floors/walls	Pass
Kitchen, entry, bathrooms and laundry floors sealed as required	
Stair design	Pass
Stairs in place and have a consistent rise and going as required	
Handrails	Pass
Barriers from falling	Pass
Lighting	Pass
Windows and light fixtures in place for natural and artificial lighting	
Laundering	Pass
Cooking facilities	Pass
Smoke detectors	Pass
Fitted within 3m of all sleeping and at least once on each level, sited and tested, integrated system installed	
Food storage/preparation	Pass
Ventilation	Pass
Opening windows, ducted fans to bathroom and laundry and range hood to kitchen as required	
HWC flues	N/A
HWC restraint	Pass
X3	
Tempering valve	Pass
A tempering valve is fitted and the temperature of the hot water to sanitary fixtures has been checked for appropriate temperature of.....	
Glazing - human impact	Pass
Safety glass installed to windows and doors where required including shower screens	
Window restrictors	Pass
Upstairs opening windows above 1500	
Hot water temp	Pass
49	
Solid fuel heater	N/A
Water supply tank	Pass
Inground	
Trap seals and AAVS	Pass
All vanities, sinks and tubs are trapped as required	
Cistern flushing	Pass
X3	
Toilets flushing as required and running off non potable water	
WC pan connection	Pass
Toilet bolted and sealed as required	
Non potable water signs	Fail
Septic system	Pass
Pump system & holding tank to 50DN lateral	
Window labels	Pass
Non compliance discussed onsite With Tim	Pass

Final check complete	N/A
Other	N/A
Intertenancy/commercial	N/A
Other	N/A



Taken at 10:50 AM on Wednesday 31/07/2024



Taken at 10:50 AM on Wednesday 31/07/2024



Taken at 10:50 AM on Wednesday 31/07/2024



Taken at 10:51 AM on Wednesday 31/07/2024



Taken at 10:51 AM on Wednesday 31/07/2024



Taken at 10:52 AM on Wednesday 31/07/2024



Taken at 10:52 AM on Wednesday 31/07/2024



Taken at 10:52 AM on Wednesday 31/07/2024



deck structure abutment

Taken at 10:53 AM on Wednesday 31/07/2024



Taken at 10:53 AM on Wednesday 31/07/2024



Taken at 10:53 AM on Wednesday 31/07/2024



Taken at 10:54 AM on Wednesday 31/07/2024



Taken at 10:54 AM on Wednesday 31/07/2024



drive strp drain to sump

Taken at 10:59 AM on Wednesday 31/07/2024



in ground non pot tank
Taken at 10:59 AM on Wednesday 31/07/2024



window flashing to stone veneer
Taken at 11:03 AM on Wednesday 31/07/2024



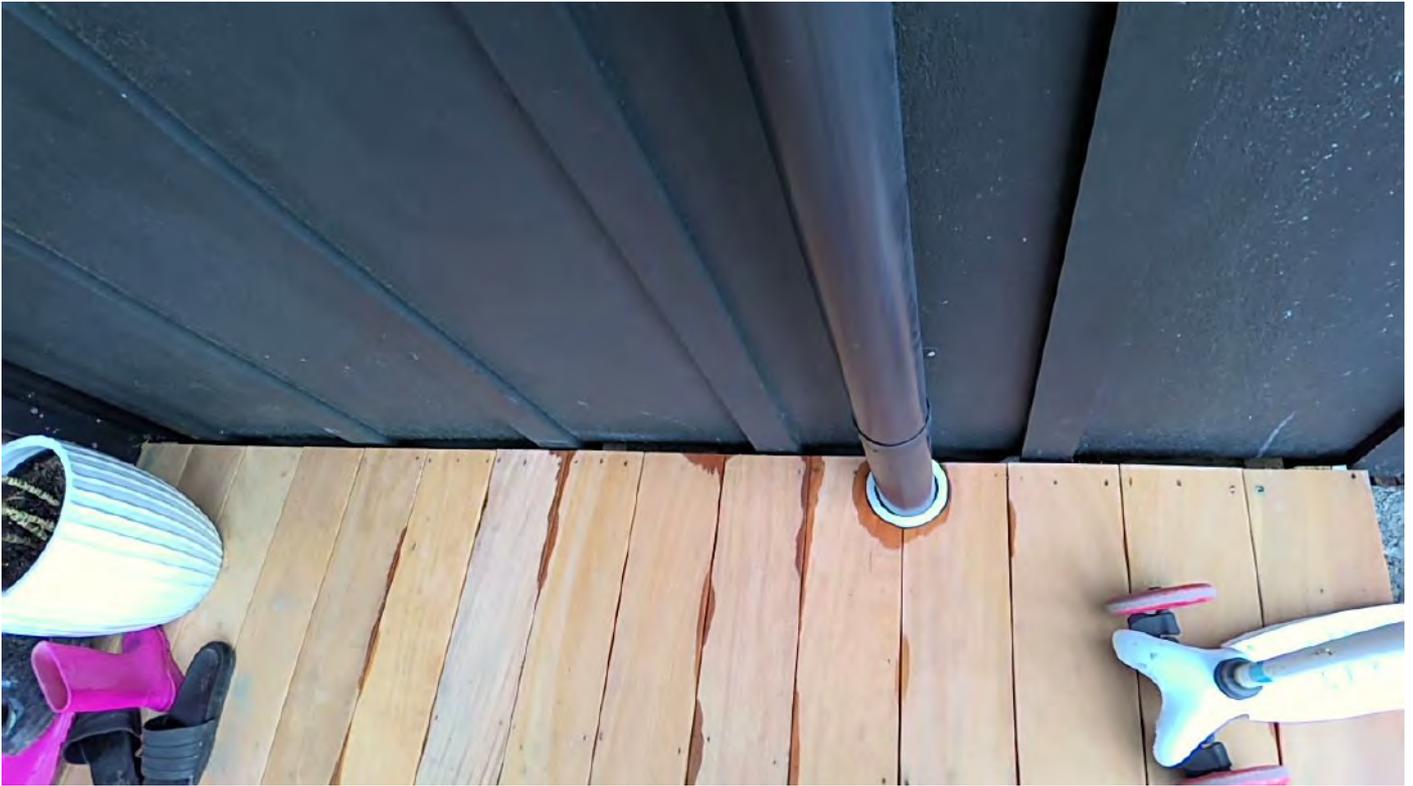
typical window flashing

Taken at 11:03 AM on Wednesday 31/07/2024



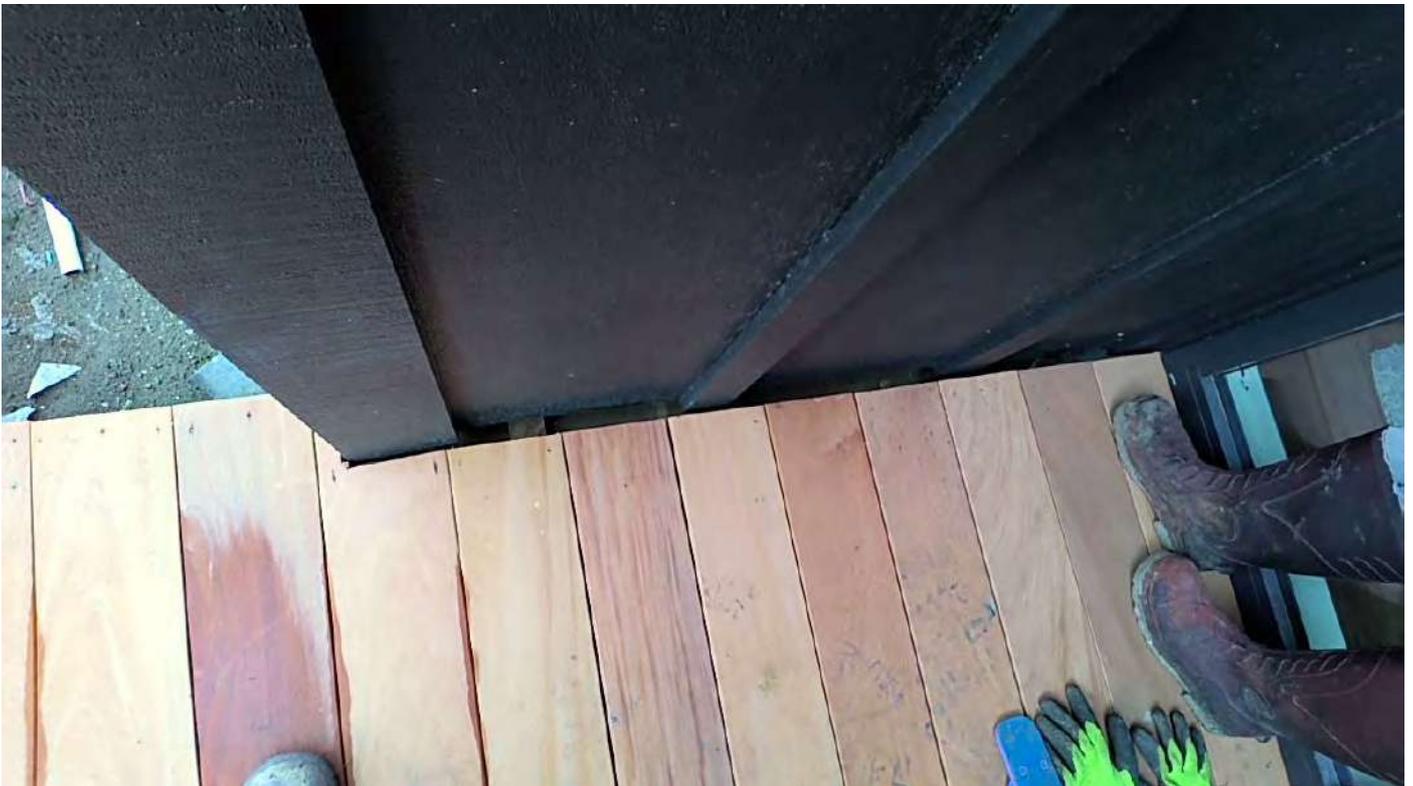
drive strip drain, back fall from garage door

Taken at 11:04 AM on Wednesday 31/07/2024



deck abutment

Taken at 11:08 AM on Wednesday 31/07/2024



deck abutment

Taken at 11:08 AM on Wednesday 31/07/2024



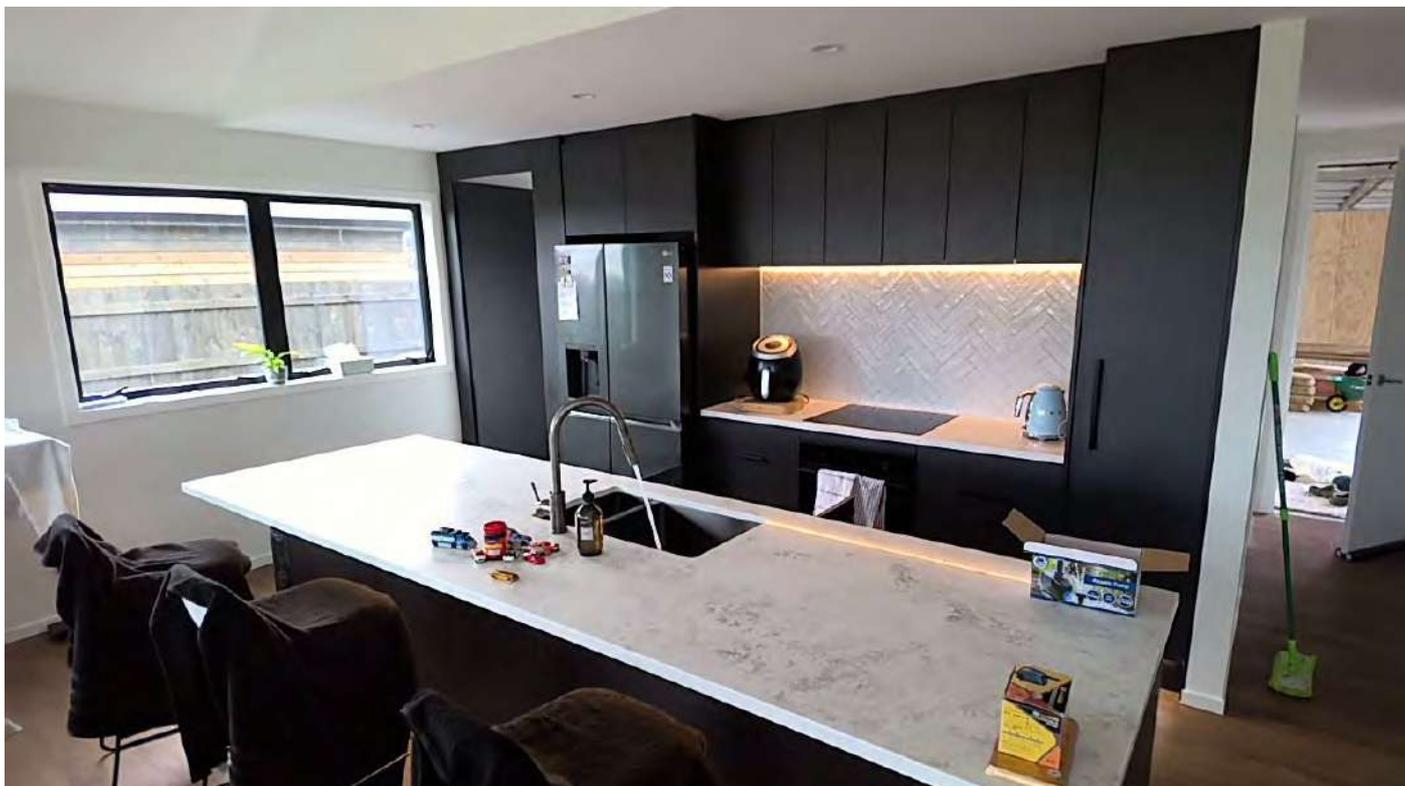
laundry facility

Taken at 11:09 AM on Wednesday 31/07/2024



WC facility

Taken at 11:11 AM on Wednesday 31/07/2024



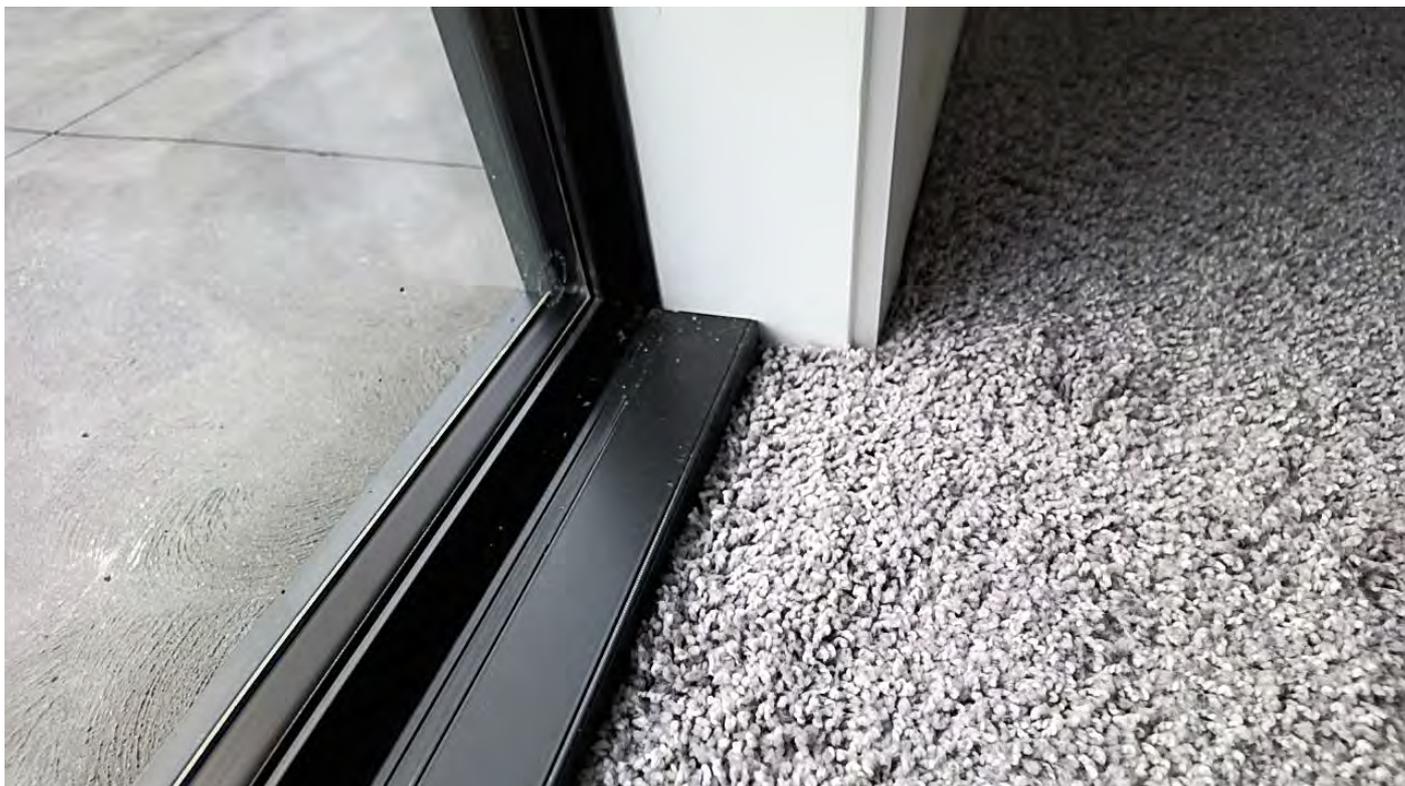
kitch facility

Taken at 11:12 AM on Wednesday 31/07/2024



kitch bench abutment sealant to wall

Taken at 11:13 AM on Wednesday 31/07/2024



typical safety glass etch
Taken at 11:14 AM on Wednesday 31/07/2024



Taken at 11:15 AM on Wednesday 31/07/2024



Taken at 11:16 AM on Wednesday 31/07/2024



main bthrm

Taken at 11:17 AM on Wednesday 31/07/2024



sealant to bath wall abutment
Taken at 11:17 AM on Wednesday 31/07/2024



Taken at 11:19 AM on Wednesday 31/07/2024



stair from lower floor
Taken at 11:20 AM on Wednesday 31/07/2024



stairwell from upper landing
Taken at 11:20 AM on Wednesday 31/07/2024



upper floor roof view

Taken at 11:20 AM on Wednesday 31/07/2024



ensuite

Taken at 11:22 AM on Wednesday 31/07/2024



upper flr smoke in landing within 3m of bedroom
Taken at 11:24 AM on Wednesday 31/07/2024



smoke within 3 m of sleeping grd flr
Taken at 11:24 AM on Wednesday 31/07/2024



upstairs opening windows, above minimum hieght
Taken at 11:26 AM on Wednesday 31/07/2024



sealant above shower liners
Taken at 11:30 AM on Wednesday 31/07/2024

SITE NOTICE

Consent No: **230628**
 Applicant: **T Atkinson**
 Site Address: **48 Anderson Park Drive, Waikanae**
 Work Type: **To construct a new two storey dwelling with four bedrooms and double garage**
 Building Category: **R3**

Inspection Type: **Drainage**
 Inspection Outcome: **Pass**
 Inspected By: **Jeremy Lincoln**
 Inspection Date: **31 July 2024**

Passed Items

General	:
Other	To sight sewer pump at final inspection
	Sighted at final

Inspection Type: **Final Inspection**
 Inspection Outcome: **Fail**
 Inspected By: **Jeremy Lincoln**
 Inspection Date: **31 July 2024**

Failed Items

Exterior

All previous inspections/notes passed
 Penetrations - flashings

Cladding painted/sealed

Previous items to be addressed

AC unit, Plumbing stack, Hose taps, air extraction hoods all installed.

**Chorus cable at corner of garage to have flange fitted
 Shadowclad & bandsawn weatherboards painted black**

Interior

All previous inspections/notes passed
 Non potable water signs

Passed Items

Exterior

Drawings
 Roof fixings

Spouting and down-pipes
 Flashings - roof

Gully dishes

Roof has been screwed off as required for the roofing type

All installed and connected to stormwater

Roof has been flashed as required

Kick outs installed a bottom of aprons

X1 ORG, Charged by waste

Stormwater and site drainage	To non pot tank
Fixings - durability	Drive direct to soakpit
Terminal vents/AAVs	80DN to stack
Flashings - windows/doors	All windows and doors flashed as required
Cladding ground clearance	Landscaping not completed
Non compliance discussed onsite	With Tim
Interior	
Drawings	
Service areas-floors/walls	Kitchen, entry, bathrooms and laundry floors sealed as required
Stair design	Stairs in place and have a consistent rise and going as required
Handrails	
Barriers from falling	
Lighting	Windows and light fixtures in place for natural and artificial lighting
Laundering	
Cooking facilities	
Smoke detectors	Fitted within 3m of all sleeping and at least once on each level, sited and tested, integrated system installed
Food storage/preparation	
Ventilation	Opening windows, ducted fans to bathroom and laundry and range hood to kitchen as required
HWC restraint	X3
Tempering valve	A tempering valve is fitted and the temperature of the hot water to sanitary fixtures has been checked for appropriate temperature of.....
Glazing - human impact	Safety glass installed to windows and doors where required including shower screens
Window restrictors	Upstairs opening windows above 1500
Hot water temp	49
Water supply tank	Inground
Trap seals and AAVS	All vanities, sinks and tubs are trapped as required
Cistern flushing	X3
WC pan connection	Toilets flushing as required and running off non potable water
Septic system	Toilet bolted and sealed as required
Window labels	Pump system & holding tank to 50DN lateral
Non compliance discussed onsite	With Tim

GoGet Inspection Audit Report

Consent No: **230628**

Applicant: **Grant Baxter**

Site Address: **48 Anderson Park Drive, Waikanae**

Work Type: **To construct a new two storey dwelling with four bedrooms and double garage**

Inspection Type: **Postline / Wet area Pre Application**

Inspection Outcome: **Pass**

Inspected By: **Stew Nelson**

Inspection Date: **17 September 2024 4:30 p.m.**

Duration: **0 minutes**

Inspection Element	Status
General	Pass
Sheet bracing	Pass
Not as per consented plans	
Sheet heights	N/A

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Consent No: **230628**

Applicant: **Grant Baxter**

Site Address: **48 Anderson Park Drive, Waikanae**

Work Type: **To construct a new two storey dwelling with four bedrooms and double garage**

Inspection Type: **Final Inspection**

Inspection Outcome: **Fail**

Inspected By: **Stew Nelson**

Inspection Date: **17 September 2024 4:32 p.m.**

Duration: **0 minutes**

Inspection Element

Status

Interior

Fail

All previous inspections/notes passed

Fail

Postline - New braces confirmed by engineer to replace O5 as noted in postline. Evidence to be provided these braces were installed. Diaphragm broken into three, inspector asked for updated drawing. Will discuss with builder over the phone

SITE NOTICE

Consent No: **230628**
Applicant: **T Atkinson**
Site Address: **48 Anderson Park Drive, Waikanae**
Work Type: **To construct a new two storey dwelling with four bedrooms and double garage**
Building Category: **R3**

Inspection Type: **Postline / Wet area Pre Application**
Inspection Outcome: **Pass**
Inspected By: **Stew Nelson**
Inspection Date: **17 September 2024**

Passed Items

General

Sheet bracing **Not as per consented plans**

Inspection Type: **Final Inspection**
Inspection Outcome: **Fail**
Inspected By: **Stew Nelson**
Inspection Date: **17 September 2024**

Failed Items

Exterior

All previous inspections/notes passed

**Brought forward from Preslab:
CRESCO engineer, SED slab.
Engineer's report to be provided at prewrap.**

Interior

All previous inspections/notes passed

Postline - New braces confirmed by engineer to replace O5 as noted in postline. Evidence to be provided these braces were installed. Diaphragm broken into three, inspector asked for updated drawing. Will discuss with builder over the phone

GoGet Inspection Audit Report

Consent No: **230628**

Applicant: **Grant Baxter**

Site Address: **110 Ngarara Road, Waikanae**

Work Type: **To construct a new two storey dwelling with four bedrooms and double garage**

Inspection Type: **Postline / Wet area Pre Application**

Inspection Outcome: **Fail**

Inspected By: **Luke Natrass**

Inspection Date: **24 April 2024 10:31 a.m.**

Duration: **60 minutes**

Inspection Element	Status
General	Fail
Sighted previous inspection notes	Pass
Sighted previous inspection notes	
Conforms with approved drawings	Fail
Updated bracing plan required as change from consent , garage bracing changed from eco ply to strand board , o5 brace wall going into scullery not there as wall changed , main ensuite shower changed from membrane to some sort of 3 part acrylic liner system and therefore requires updated plans and specs for system , bracing plan shows one large ceiling diaphragm but now broken up into three diaphragms so updated drawing required , still awaiting engineers site reports from previous failed inspections	
Confirm additional information/amended plan	N/A
Sheet bracing	Fail
Not as per consented plans	
Sheet fixings	N/A
Fire/acoustic separation	N/A
Agent/owner written approval	N/A
Wet area substrate system	Fail
Consented plans show wet area membrane to ensuite ,	
LBP number	Pass
132778 kerry	
non compliance discussed onsite	Pass
spoke with builders on site re requiring updated bracing plan and to re check the garage bracing	
Next Inspection required	Pass
re check garage bracing	



Ceiling diaphragm
Taken at 9:51 AM on Wednesday 24/04/2024



Taken at 10:01 AM on Wednesday 24/04/2024



Taken at 10:01 AM on Wednesday 24/04/2024

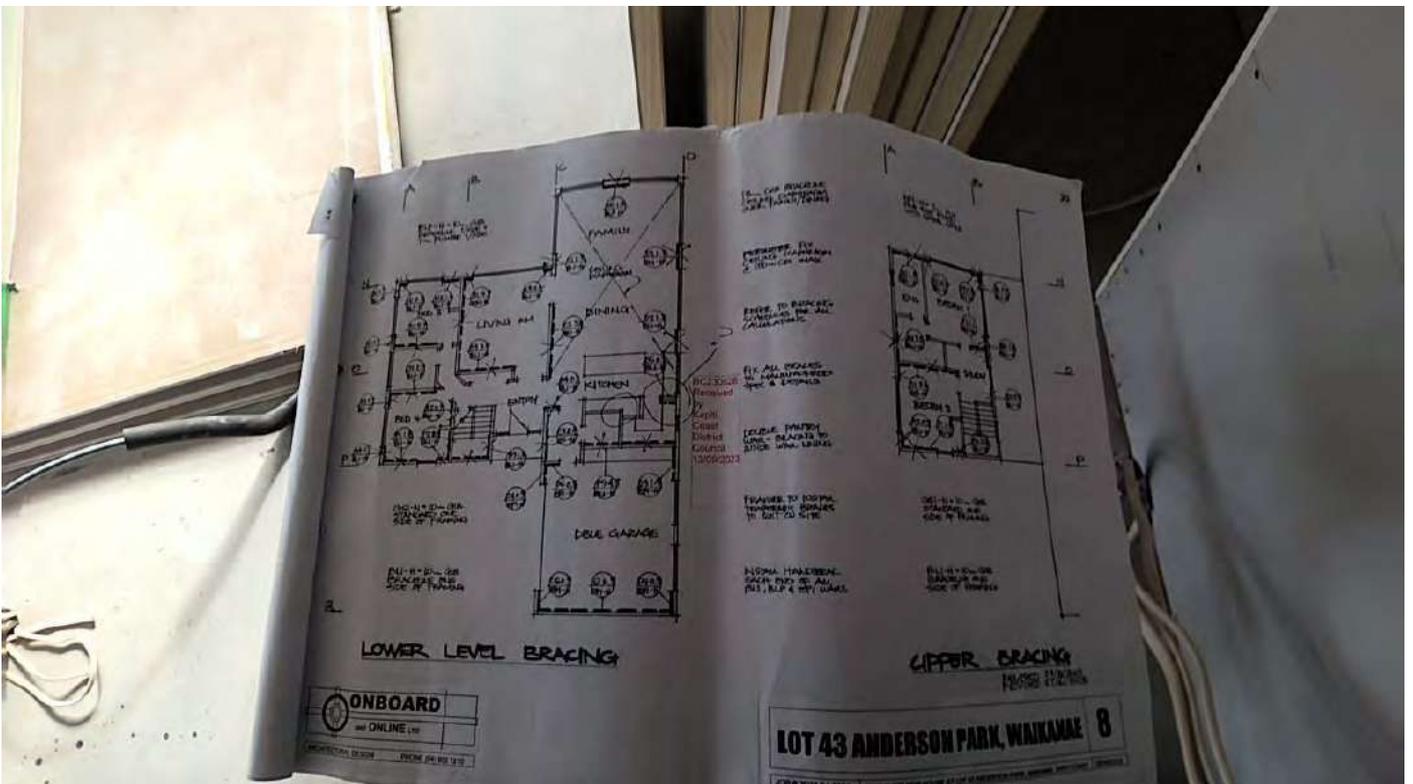


Acrylic liner to be installed

Taken at 10:02 AM on Wednesday 24/04/2024



Taken at 10:04 AM on Wednesday 24/04/2024



Taken at 10:23 AM on Wednesday 24/04/2024

GoGet Inspection Audit Report

Consent No: **230628**

Applicant: **Grant Baxter**

Site Address: **110 Ngarara Road, Waikanae**

Work Type: **To construct a new two storey dwelling with four bedrooms and double garage**

Inspection Type: **Postline / Wet area Pre Application**

Inspection Outcome: **Fail**

Inspected By: **Meng Xu**

Inspection Date: **10 May 2024 11:25 a.m.**

Duration: **60 minutes**

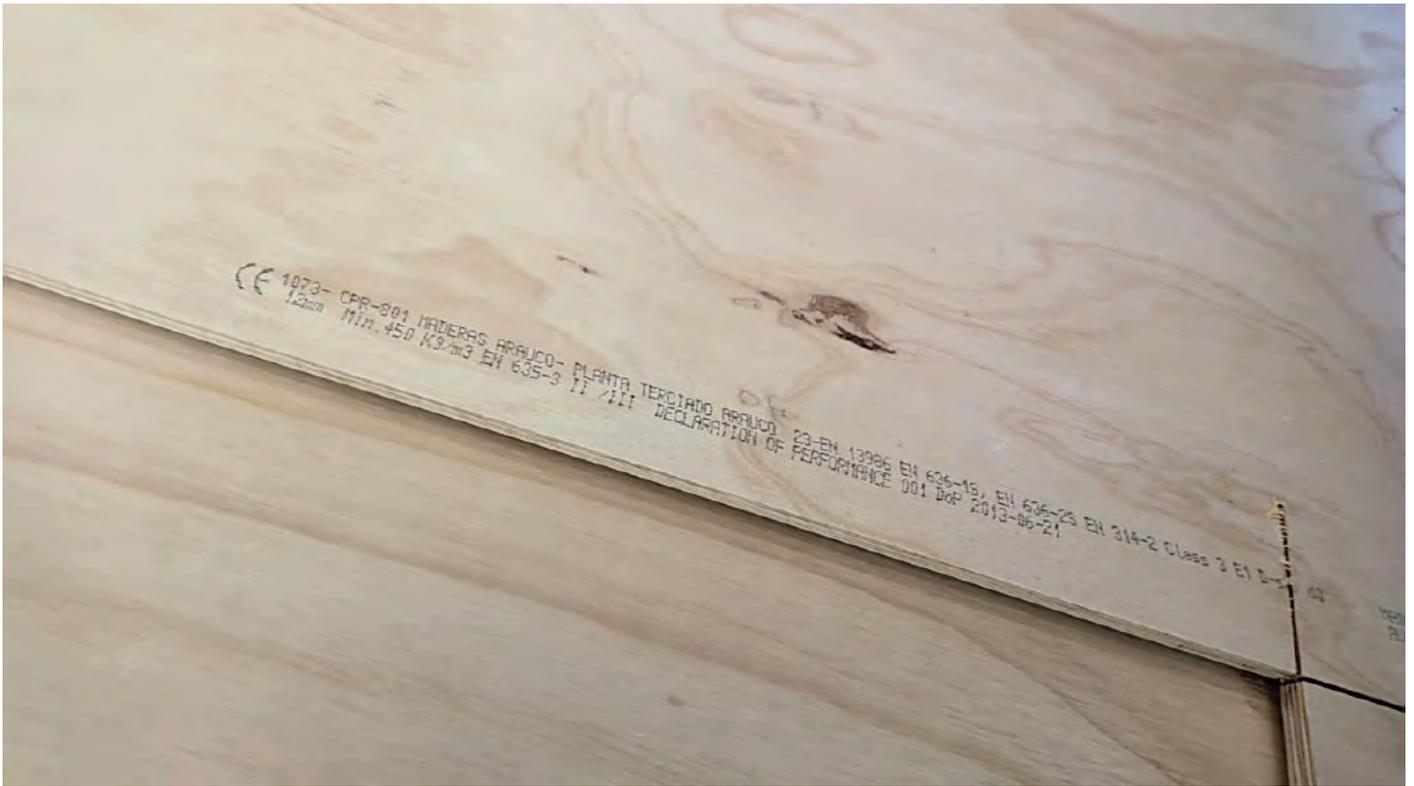
Inspection Element	Status
General	Fail
Conforms with approved drawings	Fail
Updated bracing plan required as change from consent , o5 brace wall going into scullery not there as wall changed , main ensuite shower changed from membrane to some sort of 3 part acrylic liner system and therefore requires updated plans and specs for system , bracing plan shows one large ceiling diaphragm but now broken up into three diaphragms so updated drawing required , still awaiting engineers site reports from previous failed inspections	
Wet area substrate system	Fail
Consented plans show wet area membrane to ensuite	
Next Inspection required	N/A
Other	Pass
Partial post inspection for garage only. 12mm plywood sheets installed and fixed as per bracing plan and ecoply fixing specifications.	



Taken at 11:16 AM on Friday 10/05/2024



Taken at 11:16 AM on Friday 10/05/2024



Taken at 11:17 AM on Friday 10/05/2024



Taken at 11:17 AM on Friday 10/05/2024

SITE NOTICE

Consent No: **230628**
Applicant: **T Atkinson**
Site Address: **110 Ngarara Road, Waikanae**
Work Type: **To construct a new two storey dwelling with four bedrooms and double garage**
Building Category: **R3**

Inspection Type: **Postline / Wet area Pre Application**
Inspection Outcome: **Fail**
Inspected By: **Luke Natrass**
Inspection Date: **24 April 2024**

Failed Items

General

Conforms with approved drawings

Updated bracing plan required as change from consent , garage bracing changed from eco ply to strand board , o5 brace wall going into scullery not there as wall changed , main ensuite shower changed from membrane to some sort of 3 part acrylic liner system and therefore requires updated plans and specs for system , bracing plan shows one large ceiling diaphragm but now broken up into three diaphragms so updated drawing required , still awaiting engineers site reports from previous failed inspections

Sheet bracing

Not as per consented plans

Wet area substrate system

Consented plans show wet area membrane to ensuite ,

Passed Items

General

Sighted previous inspection notes

Sighted previous inspection notes

LBP number

132778 kerry

non compliance discussed onsite

spoke with builders on site re requiring updated bracing plan and to re check the garage bracing

Next Inspection required

re check garage bracing

SITE NOTICE

Consent No: **230628**
Applicant: **T Atkinson**
Site Address: **110 Ngarara Road, Waikanae**
Work Type: **To construct a new two storey dwelling with four bedrooms and double garage**
Building Category: **R3**

Inspection Type: **Postline / Wet area Pre Application**
Inspection Outcome: **Fail**
Inspected By: **Meng Xu**
Inspection Date: **10 May 2024**

Failed Items

General

Conforms with approved drawings

Updated bracing plan required as change from consent , o5 brace wall going into scullery not there as wall changed , main ensuite shower changed from membrane to some sort of 3 part acrylic liner system and therefore requires updated plans and specs for system , bracing plan shows one large ceiling diaphragm but now broken up into three diaphragms so updated drawing required , still awaiting engineers site reports from previous failed inspections

Sheet bracing

Not as per consented plans

Wet area substrate system

Consented plans show wet area membrane to ensuite

Passed Items

General

Other

Partial post inspection for garage only. 12mm plywood sheets installed and fixed as per bracing plan and ecoply fixing specifications.

GoGet Inspection Audit Report

Consent No: **230628**

Applicant: **Grant Baxter**

Site Address: **110 Ngarara Road, Waikanae**

Work Type: **To construct a new two storey dwelling with four bedrooms and double garage**

Inspection Type: **Pre Clad**

Inspection Outcome: **Fail**

Inspected By: **Anthony Wilson**

Inspection Date: **20 February 2024 2:47 p.m.**

Duration: **30 minutes**

Inspection Element	Status
General	Fail
Inspection notes	Fail
Drawings	Pass
Additional information/plan	N/A
Fire Separations	N/A
Building wrap type	Pass
Flexible sealing tape	Pass
Deck membrane fixed in accordance with specification	N/A
Head flashings 90% complete, ok to continue provided all are completed to the same spec.	Pass
Sill flashings Wanz bars	Pass
Back flashings	N/A
Saddle flashings Kick outs to be formed at ends of apron flashings	Fail
Internal/external corner flashings	N/A
Jamb flashings	N/A
Capillary clearances	N/A
Flashing penetrations Not yet done	Fail
Ground/Deck Cladding Clearance	Pass
Additional strapping to wrap	N/A
Batten timber treatment H3	Pass
Cavity closers	Pass
Battens in place	Pass
Battens structural fixing	N/A
Cavity spacers	N/A
Cavity spacers size and slope	N/A
LBP number	Pass
Agent/owner written approval	N/A
non compliance discussed onsite	N/A
Next Inspection required	N/A
Other	N/A



South wall

Taken at 2:18 PM on Tuesday 20/02/2024



Taken at 2:19 PM on Tuesday 20/02/2024

SITE NOTICE

Consent No: **230628**
Applicant: **T Atkinson**
Site Address: **110 Ngarara Road, Waikanae**
Work Type: **To construct a new two storey dwelling with four bedrooms and double garage**
Building Category: **R3**

Inspection Type: **Pre Clad**
Inspection Outcome: **Fail**
Inspected By: **Anthony Wilson**
Inspection Date: **20 February 2024**

Failed Items

General

Inspection notes	
Saddle flashings	Kick outs to be formed at ends of apron flashings
Flashing penetrations	Not yet done

Passed Items

General

Drawings	
Building wrap type	
Flexible sealing tape	
Head flashings	90% complete, ok to continue provided all are completed to the same spec.
Sill flashings	Wanz bars
Ground/Deck Cladding Clearance	
Batten timber treatment	H3
Cavity closers	
Battens in place	
LBP number	

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Consent No: **230628**

Applicant: **Grant Baxter**

Site Address: **110 Ngarara Road, Waikanae**

Work Type: **To construct a new two storey dwelling with four bedrooms and double garage**

Inspection Type: **Pre Wrap (Roof structure)**

Inspection Outcome: **Fail**

Inspected By: **Anthony Wilson**

Inspection Date: **13 February 2024 2:56 p.m.**

Duration: **30 minutes**

Inspection Element	Status
General (Roof structure)	Fail
Roof areas and trusses.	
SED section under supervision of engineer	
Inspection notes (Roof structure)	Pass
Drawings (Roof structure)	Pass
Additional information/plan (Roof structure)	Fail
Site report from engineer to follow once engineered section is complete.	
Fire Separations (Roof structure)	N/A
Cladding type identified (Roof structure)	Pass
Long run	
Framing moisture meets cladding requirements (Roof structure)	N/A
Stud spacing appropriate for cladding (Roof structure)	N/A
Exterior sheet bracing and angle brace fixing (Roof structure)	N/A
Bottom plate connections (Roof structure)	N/A
Building wrap type (Roof structure)	N/A
Roof Cross Bracing (Roof structure)	Pass
Purlin fixing (Roof structure)	Fail
SED section to be done and sited by engineer	
Decking substrate (Roof structure)	N/A
Top Plate Connection (Roof structure)	N/A
Lintel Connections (Roof structure)	N/A
Truss connections (Roof structure)	N/A
Column posts (Roof structure)	N/A
LBP number (Roof structure)	N/A
Agent/owner written approval (Roof structure)	N/A
non compliance discussed onsite (Roof structure)	N/A
Next Inspection required (Roof structure)	N/A
Other (Roof structure)	N/A



Top most roof
Taken at 2:47 PM on Tuesday 13/02/2024



Taken at 2:48 PM on Tuesday 13/02/2024



SED section of roof
Taken at 2:48 PM on Tuesday 13/02/2024

SITE NOTICE

Consent No: **230628**
Applicant: **T Atkinson**
Site Address: **110 Ngarara Road, Waikanae**
Work Type: **To construct a new two storey dwelling with four bedrooms and double garage**
Building Category: **R3**

Inspection Type: **Pre Wrap (Roof structure)**
Inspection Outcome: **Fail**
Inspected By: **Anthony Wilson**
Inspection Date: **13 February 2024**

Failed Items

General

Additional information/plan

Purlin fixing

Roof areas and trusses.

SED section under supervision of engineer

Site report from engineer to follow once engineered section is complete.

SED section to be done and sited by engineer

Passed Items

Inspection notes

Drawings

Cladding type identified

Roof Cross Bracing

Long run

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Consent No: **230628**

Applicant: **Grant Baxter**

Site Address: **48 Anderson Park Drive, Waikanae**

Work Type: **To construct a new two storey dwelling with four bedrooms and double garage**

Inspection Type: **Pre Wrap (Roof structure)**

Inspection Outcome: **Fail**

Inspected By: **Jeremy Lincoln**

Inspection Date: **7 August 2024 12:10 p.m.**

Duration: **15 minutes**

Inspection Element	Status
General (Roof structure) Roof areas and trusses. SED section under supervision of engineer	Fail
Roofing type (Roof structure) longrun	Pass
Purlin fixing (Roof structure) SED section to be done and sited by engineer	Pass
Engineers PS4 & site notes provided for trusses, purlin fixing not noted	
14 Gauge purlin screws can be seen in inspectors photos	

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Consent No: **230628**

Applicant: **Grant Baxter**

Site Address: **48 Anderson Park Drive, Waikanae**

Work Type: **To construct a new two storey dwelling with four bedrooms and double garage**

Inspection Type: **Postline / Wet area Pre Application**

Inspection Outcome: **Fail**

Inspected By: **Jeremy Lincoln**

Inspection Date: **7 August 2024 12:26 p.m.**

Duration: **15 minutes**

Inspection Element

Status

General

Fail

Conforms with approved drawings

Pass

Updated bracing plan required as change from consent , o5 brace wall going into scullery not there as wall changed , main ensuite shower changed from membrane to some sort of 3 part acrylic liner system and therefore requires updated plans and specs for system , bracing plan shows one large ceiling diaphragm but now broken up into three diaphragms so updated drawing required , still awaiting engineers site reports from previous failed inspections

Carried forward to final

Wet area substrate system

Pass

Consented plans show wet area membrane to ensuite

Replaced with wet area panel product, specs supplied

SITE NOTICE

Consent No: **230628**
 Applicant: **T Atkinson**
 Site Address: **48 Anderson Park Drive, Waikanae**
 Work Type: **To construct a new two storey dwelling with four bedrooms and double garage**
 Building Category: **R3**

Inspection Type: **Postline / Wet area Pre Application**
 Inspection Outcome: **Fail**
 Inspected By: **Jeremy Lincoln**
 Inspection Date: **7 August 2024**

Failed Items

General

Sheet bracing

Not as per consented plans

Passed Items

General

Conforms with approved drawings

Updated bracing plan required as change from consent , o5 brace wall going into scullery not there as wall changed , main ensuite shower changed from membrane to some sort of 3 part acrylic liner system and therefore requires updated plans and specs for system , bracing plan shows one large ceiling diaphragm but now broken up into three diaphragms so updated drawing required , still awaiting engineers site reports from previous failed inspections

Carried forward to final

Wet area substrate system

Consented plans show wet area membrane to ensuite

Replaced with wet area panel product, specs supplied

Inspection Type: **Pre Wrap (Roof structure)**
 Inspection Outcome: **Fail**
 Inspected By: **Jeremy Lincoln**
 Inspection Date: **7 August 2024**

Failed Items

General

Additional information/plan

Roof areas and trusses.

SED section under supervision of engineer

Site report from engineer to follow once engineered section is complete.

Passed Items

Roofing type

longrun

Purlin fixing

SED section to be done and sited by engineer

**Engineers PS4 & site notes provided for trusses,
purlin fixing not noted**

**14 Gauge purlin screws can be seen in inspectors
photos**

GoGet Inspection Audit Report

Consent No: **230628**

Applicant: **Grant Baxter**

Site Address: **110 Ngarara Road, Waikanae**

Work Type: **To construct a new two storey dwelling with four bedrooms and double garage**

Inspection Type: **Pre Wrap (Wall framig)**

Inspection Outcome: **Pass**

Inspected By: **Luke Natrass**

Inspection Date: **19 January 2024 1:37 p.m.**

Duration: **45 minutes**

Inspection Element	Status
General (Wall framig)	Pass
Wall framing pre wrap only	
Inspection notes (Wall framig) sighted previous inspection notes	Pass
Drawings (Wall framig) plans on site and reviewed	Pass
Additional information/plan (Wall framig)	N/A
Fire Separations (Wall framig) not part of this consent	N/A
Cladding type identified (Wall framig)	Pass
Framing moisture meets cladding requirements (Wall framig) As required	Pass
Stud spacing appropriate for cladding (Wall framig) As required for the cladding type	Pass
Exterior sheet bracing and angle brace fixing (Wall framig) Ep1 ply braces in place and nailed off with round Head stainless steel nails	Pass
Bottom plate connections (Wall framig) Concrete bolts and handi brackets in place were required All bottom plate connections fixed in compliance with the building consent documentation	Pass
Building wrap type (Wall framig) Tecton flexible. Wrap	Pass
Roof Cross Bracing (Wall framig) not accessed at this inspection	N/A
Purlin fixing (Wall framig) not accessed at this inspection	N/A
Decking substrate (Wall framig)	N/A
Top Plate Connection (Wall framig) not accessed at this inspection	N/A
Lintel Connections (Wall framig) Metal straps in place and nailed off as required	Pass
Truss connections (Wall framig) not accessed at this inspection	N/A
Column posts (Wall framig)	N/A
LBP number (Wall framig) Finton	Pass
Agent/owner written approval (Wall framig)	N/A
non compliance discussed onsite (Wall framig)	N/A
Next Inspection required (Wall framig) pre wrap roof	Pass
Other (Wall framig)	Pass

All aspects relating to this inspection have been assessed and checked against the consented documentation and deemed to comply.



Handi brackets

Taken at 1:38 PM on Friday 19/01/2024



Lintel straws in place

Taken at 1:39 PM on Friday 19/01/2024



Taken at 1:41 PM on Friday 19/01/2024



Taken at 1:41 PM on Friday 19/01/2024



Taken at 1:42 PM on Friday 19/01/2024



Taken at 1:43 PM on Friday 19/01/2024



Taken at 1:43 PM on Friday 19/01/2024



Concrete bolts

Taken at 1:44 PM on Friday 19/01/2024



Taken at 1:47 PM on Friday 19/01/2024



Taken at 1:47 PM on Friday 19/01/2024



Taken at 1:48 PM on Friday 19/01/2024



Taken at 1:49 PM on Friday 19/01/2024



Taken at 1:50 PM on Friday 19/01/2024



Taken at 1:51 PM on Friday 19/01/2024



Taken at 2:24 PM on Friday 19/01/2024

SITE NOTICE

Consent No: **230628**
 Applicant: **T Atkinson**
 Site Address: **110 Ngarara Road, Waikanae**
 Work Type: **To construct a new two storey dwelling with four bedrooms and double garage**
 Building Category: **R3**

Inspection Type: **Pre Wrap (Roof structure)**
 Inspection Outcome: **Not Inspected**
 Inspected By: **Luke Natrass**
 Inspection Date: **19 January 2024**

Inspection Type: **Pre Wrap (Wall framig)**
 Inspection Outcome: **Pass**
 Inspected By: **Luke Natrass**
 Inspection Date: **19 January 2024**

Passed Items

General

Inspection notes

Drawings

Cladding type identified

Framing moisture meets cladding requirements

Stud spacing appropriate for cladding

Exterior sheet bracing and angle brace fixing

Bottom plate connections

Building wrap type

Lintel Connections

LBP number

Next Inspection required

Other

Wall framing pre wrap only

sighted previous inspection notes

plans on site and reviewed

As required

As required for the cladding type

Ep1 ply braces in place and nailed off with round Head stainless steel nails

Concrete bolts and handi brackets in place were required

All bottom plate connections fixed in compliance with the building consent documentation

Tecton flexible. Wrap

Metal straps in place and nailed off as required

Finton

pre wrap roof

All aspects relating to this inspection have been assessed and checked against the consented documentation and deemed to comply.

GoGet Inspection Audit Report

Consent No: **230628**

Applicant: **Grant Baxter**

Site Address: **48 Anderson Park Drive, Waikanae**

Work Type: **To construct a new two storey dwelling with four bedrooms and double garage**

Inspection Type: **Pre Wrap (Roof structure)**

Inspection Outcome: **Pass**

Inspected By: **Stew Nelson**

Inspection Date: **17 September 2024 4:13 p.m.**

Duration: **0 minutes**

Inspection Element	Status
General (Roof structure) Roof areas and trusses. SED section under supervision of engineer	Pass
Additional information/plan (Roof structure) Site report sighted at CCC stage. Has noted, approved to issue PS4. SORG	Pass

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Consent No: **230628**

Applicant: **Grant Baxter**

Site Address: **48 Anderson Park Drive, Waikanae**

Work Type: **To construct a new two storey dwelling with four bedrooms and double garage**

Inspection Type: **Pre Clad**

Inspection Outcome: **Pass**

Inspected By: **Stew Nelson**

Inspection Date: **17 September 2024 4:14 p.m.**

Duration: **0 minutes**

Inspection Element	Status
General	Pass
Inspection notes	Pass
See prewrap notes	

SITE NOTICE

Consent No: **230628**
Applicant: **T Atkinson**
Site Address: **48 Anderson Park Drive, Waikanae**
Work Type: **To construct a new two storey dwelling with four bedrooms and double garage**
Building Category: **R3**

Inspection Type: **Preline Building**
Inspection Outcome: **Pass**
Inspected By: **Stew Nelson**
Inspection Date: **17 September 2024**

Passed Items

General

Sighted previous inspection notes **Site notes received from engineer, approval given**
Conforms with approved drawings
Confirm additional information/amended plan

Inspection Type: **Pre Wrap (Roof structure)**
Inspection Outcome: **Pass**
Inspected By: **Stew Nelson**
Inspection Date: **17 September 2024**

Passed Items

General

Additional information/plan **Roof areas and trusses.
SED section under supervision of engineer
Site report sighted at CCC stage. Has noted, approved to issue PS4. SORG**

Inspection Type: **Pre Clad**
Inspection Outcome: **Pass**
Inspected By: **Stew Nelson**
Inspection Date: **17 September 2024**

Passed Items

General

Inspection notes **See prewrap notes**

GoGet Inspection Audit Report

Consent No: **230628**

Applicant: **Grant Baxter**

Site Address: **48 Anderson Park Drive, Waikanae**

Work Type: **To construct a new two storey dwelling with four bedrooms and double garage**

Inspection Type: **Final Inspection**

Inspection Outcome: **Fail**

Inspected By: **Jeremy Lincoln**

Inspection Date: **6 August 2024 8:20 a.m.**

Duration: **15 minutes**

Inspection Element

Status

Exterior

Fail

All previous inspections/notes passed

Fail

Brought forward from Preslab:

CRESCO engineer, SED slab.

Engineer's report to be provided at prewrap.

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Consent No: **230628**

Applicant: **Grant Baxter**

Site Address: **48 Anderson Park Drive, Waikanae**

Work Type: **To construct a new two storey dwelling with four bedrooms and double garage**

Inspection Type: **Pre-Slab Building**

Inspection Outcome: **Pass**

Inspected By: **Jeremy Lincoln**

Inspection Date: **6 August 2024 8:21 a.m.**

Duration: **15 minutes**

Inspection Element	Status
General	Pass
Engineers details required	Pass
CRESCO engineer, SED slab.	
Engineer's report to be provided at prewrap.	
moved to final	
Engineers site report	N/A

GoGet Inspection Audit Report

Consent No: **230628**

Applicant: **Grant Baxter**

Site Address: **48 Anderson Park Drive, Waikanae**

Work Type: **To construct a new two storey dwelling with four bedrooms and double garage**

Inspection Type: **Pre Wrap (Roof structure)**

Inspection Outcome: **Fail**

Inspected By: **Jeremy Lincoln**

Inspection Date: **6 August 2024 9:57 a.m.**

Duration: **15 minutes**

Inspection Element

Status

General (Roof structure)

Fail

Roof areas and trusses.

SED section under supervision of engineer

Purlin fixing (Roof structure)

Fail

SED section to be done and sited by engineer

Engineers PS4 & site notes provided for trusses, purlin fixing not noted

SITE NOTICE

Consent No: **230628**
 Applicant: **T Atkinson**
 Site Address: **48 Anderson Park Drive, Waikanae**
 Work Type: **To construct a new two storey dwelling with four bedrooms and double garage**
 Building Category: **R3**

Inspection Type: **Pre-Slab Building**
 Inspection Outcome: **Pass**
 Inspected By: **Jeremy Lincoln**
 Inspection Date: **6 August 2024**

Passed Items

General

Engineers details required

**CRESCO engineer, SED slab.
 Engineer's report to be provided at prewrap.**

moved to final

Inspection Type: **Pre Wrap (Roof structure)**
 Inspection Outcome: **Fail**
 Inspected By: **Jeremy Lincoln**
 Inspection Date: **6 August 2024**

Failed Items

General

Additional information/plan

**Roof areas and trusses.
 SED section under supervision of engineer
 Site report from engineer to follow once engineered
 section is complete.**

Purlin fixing

SED section to be done and sited by engineer

**Engineers PS4 & site notes provided for trusses,
 purlin fixing not noted**

Inspection Type: **Final Inspection**
 Inspection Outcome: **Fail**
 Inspected By: **Jeremy Lincoln**
 Inspection Date: **6 August 2024**

Failed Items

Exterior

All previous inspections/notes passed

**Brought forward from Preslab:
 CRESCO engineer, SED slab.
 Engineer's report to be provided at prewrap.**

Interior

All previous inspections/notes passed

GoGet Inspection Audit Report

Consent No: **230628**

Applicant: **Grant Baxter**

Site Address: **110 Ngarara Road, Waikanae**

Work Type: **To construct a new two storey dwelling with four bedrooms and double garage**

Inspection Type: **Pre Clad**

Inspection Outcome: **Fail**

Inspected By: **Gareth McCullagh**

Inspection Date: **15 April 2024 9:34 a.m.**

Duration: **30 minutes**

Inspection Element	Status
General	Fail
Inspection notes Engineer inspecting living area roof and still to confirm amended plans	Fail
Saddle flashings In place	Pass
Flashing penetrations	Pass



Taken at 9:33 AM on Monday 15/04/2024



Taken at 9:34 AM on Monday 15/04/2024



Taken at 9:34 AM on Monday 15/04/2024

GoGet Inspection Audit Report

Consent No: **230628**

Applicant: **Grant Baxter**

Site Address: **110 Ngarara Road, Waikanae**

Work Type: **To construct a new two storey dwelling with four bedrooms and double garage**

Inspection Type: **Preline Building**

Inspection Outcome: **Fail**

Inspected By: **Gareth McCullagh**

Inspection Date: **15 April 2024 9:49 a.m.**

Duration: **30 minutes**

Inspection Element	Status
General	Fail
Sighted previous inspection notes Still to sort out prewrap roof living	Fail
Conforms with approved drawings	Fail
Confirm additional information/amended plan	Fail
Fire Separations	N/A
Max moisture content 16-18%	Pass
Ventilation to rooms Window sizes and openings as per consented documentation	Pass
Timber treatment H1.2	Pass
Lintel/beam size and fixing	Pass
Insulation Pink batts 7 in ceiling and 2.6 walls	Pass
Top plate connection	N/A
Ceiling batten spacing 600mm centres	Pass
Stud spacing	Pass
Bracing connections	Pass
Air seals Rod and foamed	Pass
Bottom plate fixings	Pass
Building closed in Building closed in adequately to allow lining	Pass
Grade of timber framing	Pass
Framing cut outs	N/A
wet area substrate	N/A
insert or inbuilt fireplace	N/A
LBP number Keri Graham	Pass
Agent/owner written approval	N/A
non compliance discussed onsite Spoke to builder	Pass
Next Inspection required	N/A
Other	Fail



Taken at 9:43 AM on Monday 15/04/2024



Taken at 9:43 AM on Monday 15/04/2024



Taken at 9:43 AM on Monday 15/04/2024



Taken at 9:44 AM on Monday 15/04/2024



Taken at 9:44 AM on Monday 15/04/2024



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Taken at 9:44 AM on Monday 15/04/2024



Taken at 9:45 AM on Monday 15/04/2024



Taken at 9:45 AM on Monday 15/04/2024



Taken at 9:45 AM on Monday 15/04/2024



Taken at 9:45 AM on Monday 15/04/2024



Taken at 9:45 AM on Monday 15/04/2024



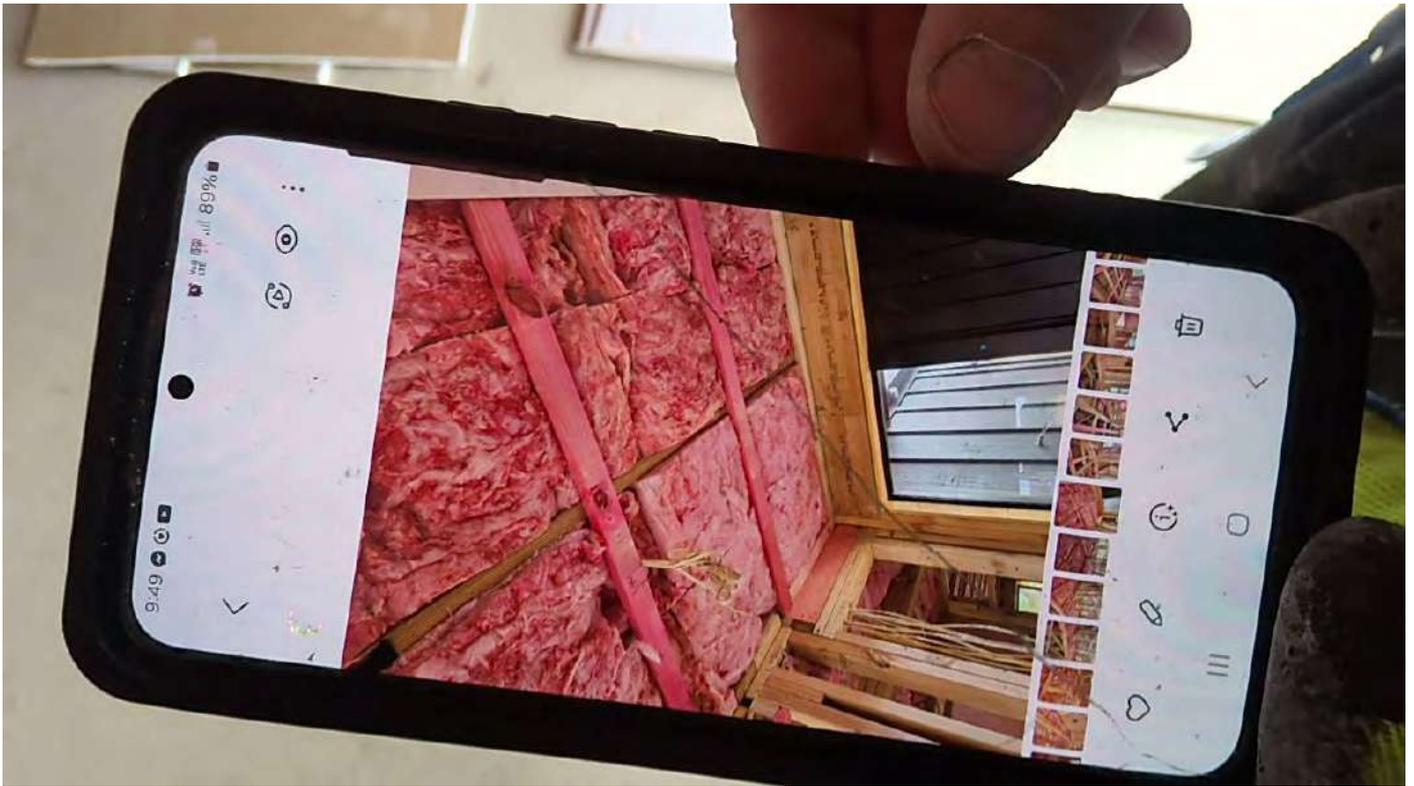
Taken at 9:46 AM on Monday 15/04/2024



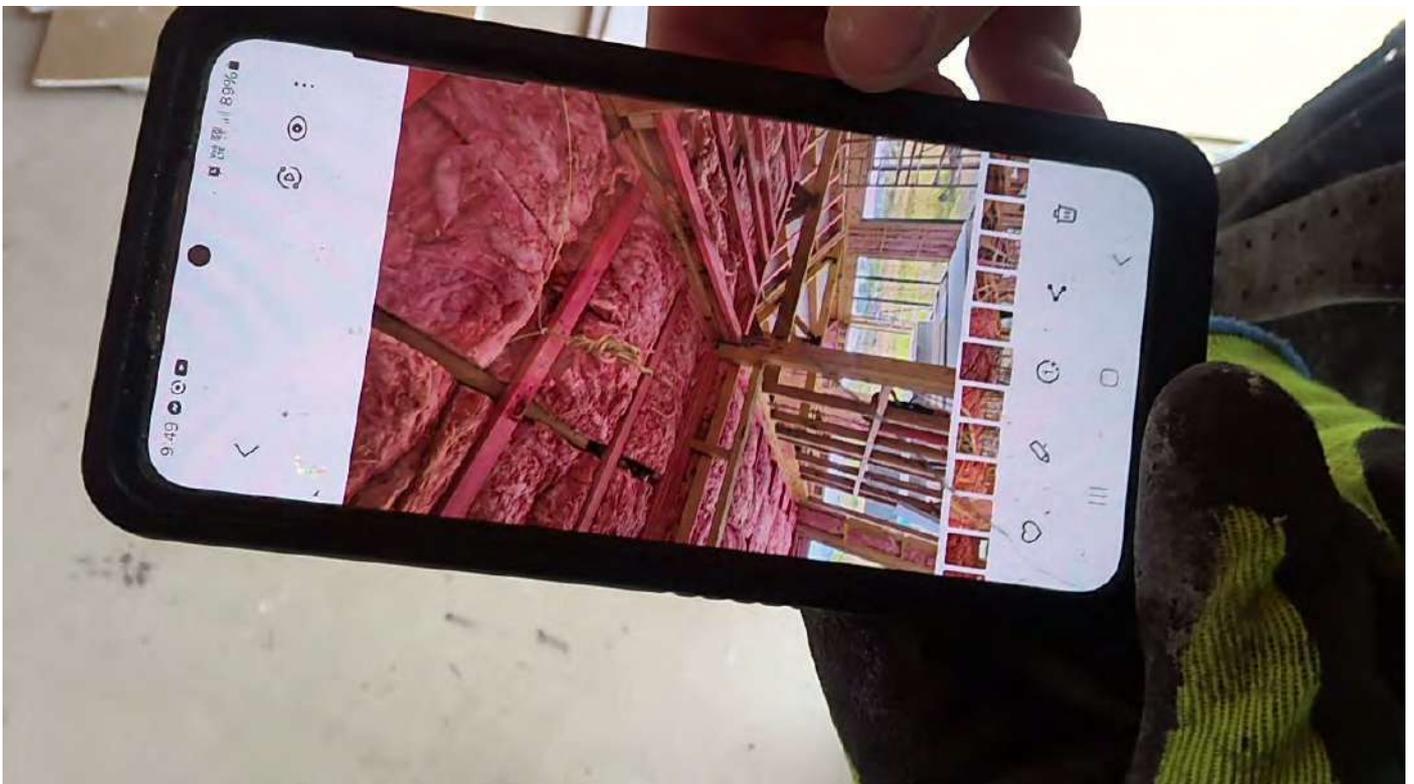
Taken at 9:46 AM on Monday 15/04/2024



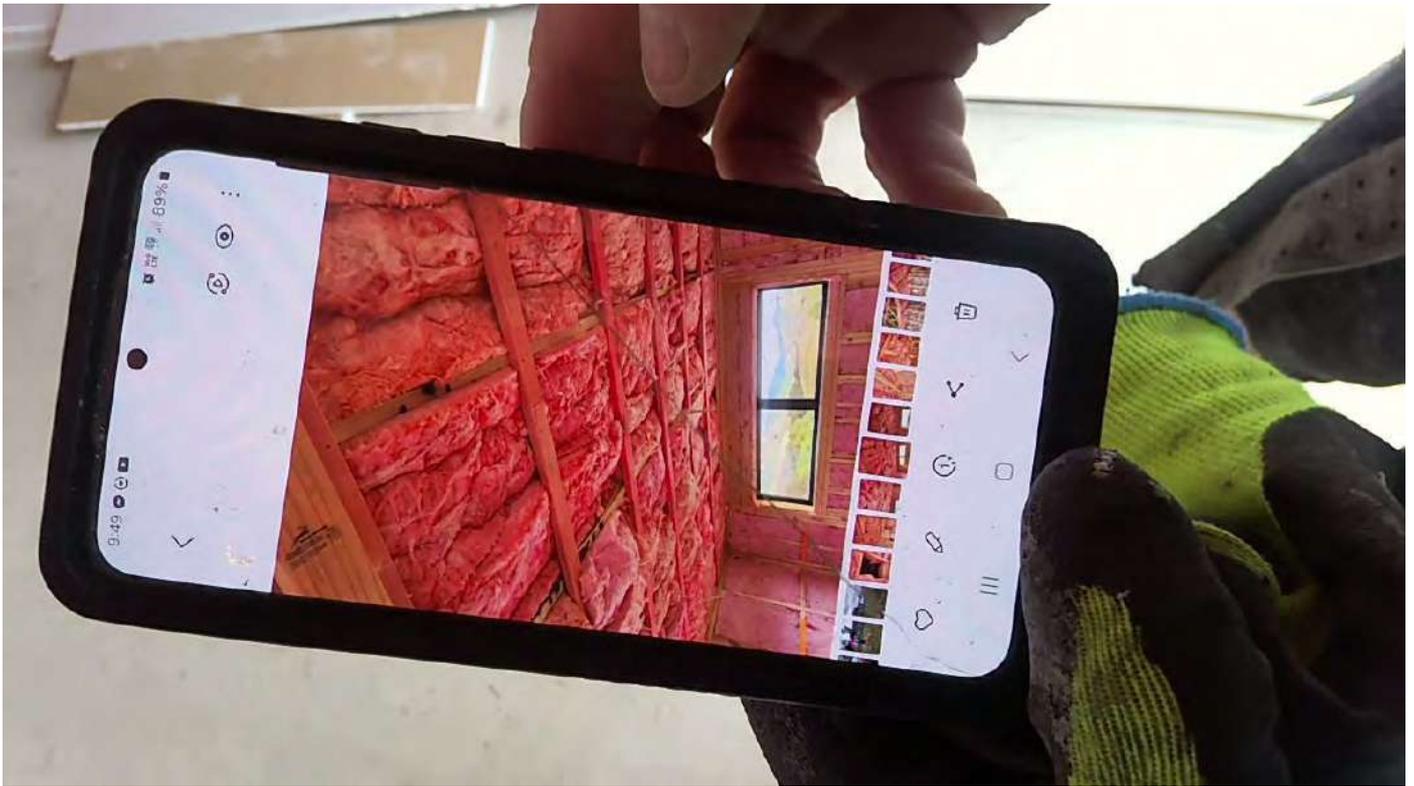
Taken at 9:46 AM on Monday 15/04/2024



Taken at 9:49 AM on Monday 15/04/2024



Taken at 9:49 AM on Monday 15/04/2024



Taken at 9:49 AM on Monday 15/04/2024

SITE NOTICE

Consent No: **230628**
 Applicant: **T Atkinson**
 Site Address: **110 Ngarara Road, Waikanae**
 Work Type: **To construct a new two storey dwelling with four bedrooms and double garage**
 Building Category: **R3**

Inspection Type: **Preline Building**
 Inspection Outcome: **Fail**
 Inspected By: **Gareth McCullagh**
 Inspection Date: **15 April 2024**

Failed Items

General

Sighted previous inspection notes	Still to sort out prewrap roof living
Conforms with approved drawings	
Confirm additional information/amended plan	
Other	

Passed Items

General

Max moisture content	16-18%
Ventilation to rooms	Window sizes and openings as per consented documentation
Timber treatment	H1.2
Lintel/beam size and fixing	
Insulation	Pink batts 7 in ceiling and 2.6 walls
Ceiling batten spacing	600mm centres
Stud spacing	
Bracing connections	
Air seals	Rod and foamed
Bottom plate fixings	
Building closed in	Building closed in adequately to allow lining
Grade of timber framing	
LBP number	Keri Graham
non compliance discussed onsite	Spoke to builder

Inspection Type: **Pre Clad**
 Inspection Outcome: **Fail**
 Inspected By: **Gareth McCullagh**
 Inspection Date: **15 April 2024**

Failed Items

General

Inspection notes

Engineer inspecting living area roof and still to confirm amended plans

Passed Items

General

Saddle flashings
Flashing penetrations

In place

GoGet Inspection Audit Report

Consent No: **230628**

Applicant: **Grant Baxter**

Site Address: **110 Ngarara Road, Waikanae**

Work Type: **To construct a new two storey dwelling with four bedrooms and double garage**

Inspection Type: **Preline Plumbing**

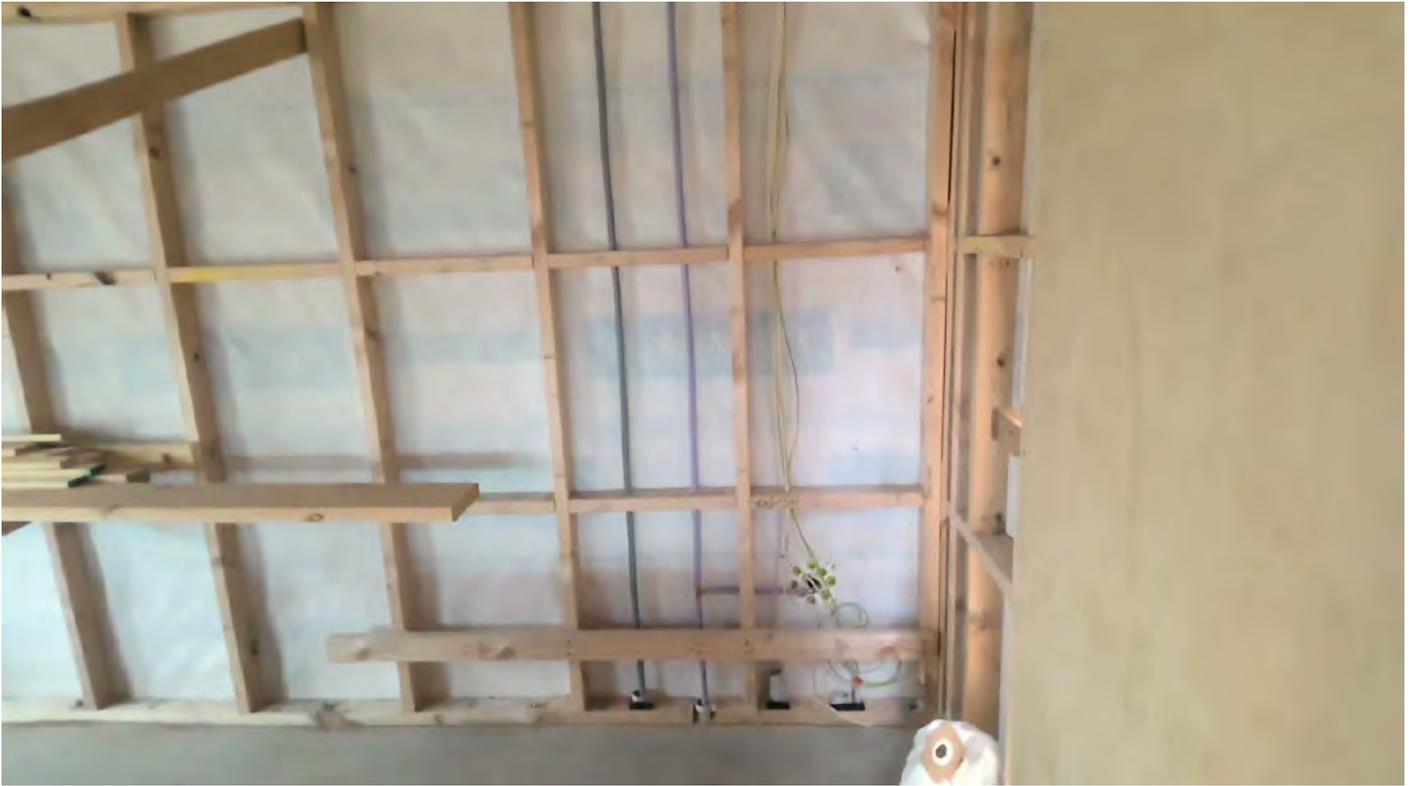
Inspection Outcome: **Pass**

Inspected By: **Gareth McCullagh**

Inspection Date: **27 March 2024 9:05 a.m.**

Duration: **30 minutes**

Inspection Element	Status
General	Pass
Sighted previous inspection notes	Pass
Conforms with approved drawings	Pass
Confirm additional information/amended plan	N/A
Plumber 18044	Pass
Soil pipe size and test Sized correctly	Pass
Pipes fixed/supported All clipped and secured	Pass
System used AS3500 Non potable to toilets and hosedaps	Pass
TPR line Changed to hwc from infinity due to access for bottles	N/A
Inbuilt S/W pipes tested	N/A
Vents terminated One outside and one internal	Pass
Pressure test All dux segura 20-15mm tested	Pass
Back flow preventor	N/A
Waste pipe size and test	Pass
Floor wastes	N/A
Shut off valves	N/A
Fire wraps and collars	N/A
LBP number	N/A
Agent/owner written approval	N/A
non compliance discussed onsite	N/A
Next Inspection required	N/A
Other All aspects relating to this inspection have been assessed and checked against the consented documentation and deemed to comply.	Pass



Mains in
Taken at 8:52 AM on Wednesday 27/03/2024



Taken at 8:52 AM on Wednesday 27/03/2024



Terminal vent

Taken at 8:53 AM on Wednesday 27/03/2024



Taken at 8:53 AM on Wednesday 27/03/2024



Taken at 8:53 AM on Wednesday 27/03/2024

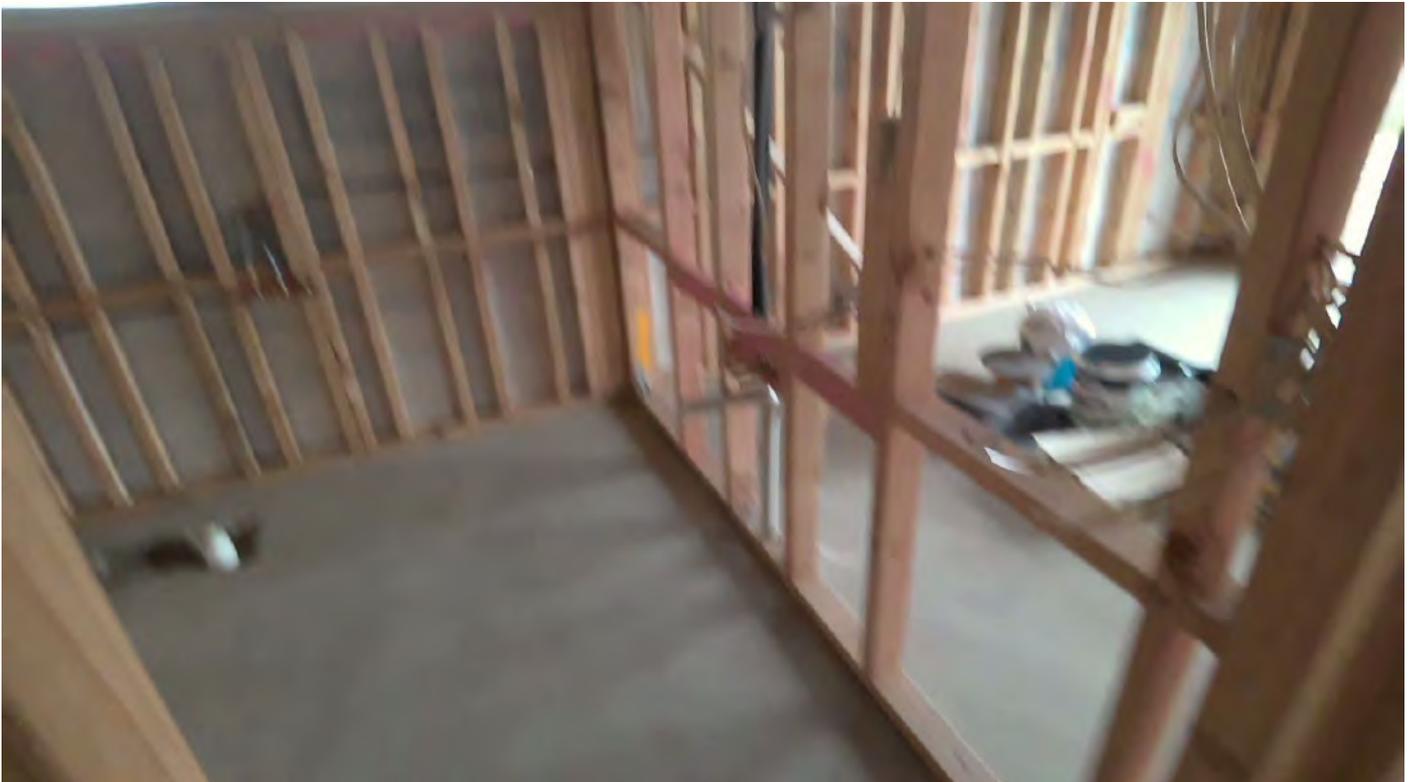


Cylinder

Taken at 8:53 AM on Wednesday 27/03/2024



Taken at 8:54 AM on Wednesday 27/03/2024



Taken at 8:54 AM on Wednesday 27/03/2024



Taken at 8:54 AM on Wednesday 27/03/2024



Stack or ensuite

Taken at 8:56 AM on Wednesday 27/03/2024



Taken at 8:57 AM on Wednesday 27/03/2024



Taken at 8:57 AM on Wednesday 27/03/2024



Ensuite

Taken at 8:57 AM on Wednesday 27/03/2024



Taken at 8:59 AM on Wednesday 27/03/2024

SITE NOTICE

Consent No: **230628**
Applicant: **T Atkinson**
Site Address: **110 Ngarara Road, Waikanae**
Work Type: **To construct a new two storey dwelling with four bedrooms and double garage**
Building Category: **R3**

Inspection Type: **Preline Plumbing**
Inspection Outcome: **Pass**
Inspected By: **Gareth McCullagh**
Inspection Date: **27 March 2024**

Passed Items

General

Sighted previous inspection notes

Conforms with approved drawings

Plumber

18044

Soil pipe size and test

Sized correctly

Pipes fixed/supported

All clipped and secured

System used

AS3500

Non potable to toilets and hoesetaps

Vents terminated

One outside and one internal

Pressure test

All dux segura 20-15mm tested

Waste pipe size and test

Other

All aspects relating to this inspection have been assessed and checked against the consented documentation and deemed to comply.

GoGet Inspection Audit Report

Consent No: **230628**

Applicant: **Grant Baxter**

Site Address: **110 Ngarara Road, Waikanae**

Work Type: **To construct a new two storey dwelling with four bedrooms and double garage**

Inspection Type: **Pre-Slab Building**

Inspection Outcome: **Fail**

Inspected By: **Ken Tran**

Inspection Date: **29 November 2023 2:41 p.m.**

Duration: **60 minutes**

Inspection Element	Status
General	Fail
Engineers details required CRESCO engineer, SED slab. Engineer's report to be provided at prewrap.	Fail
Rebate for brick veneer	N/A
Ground clearance 300mm above GL at time of inspection.	Pass
Concrete cover	Pass
Driveway S/W control	N/A
Sand blinding	Pass
Slab thickenings Ribraft slab.	Pass
Vapour barrier	Pass
Bottom plate fixings	N/A
Steel reinforcing HD12 being installed at time of inspection, engineer to provide supervision.	Pass
Bar chairs	Pass
DPC penetrations taped	Pass
Minimum floor level	N/A
Registration numbers	N/A
Siting Boundary pegs on site, siting confirmed.	Pass
Sub slab insulation	N/A
In-slab heating	N/A
LBP number BP132234 Hayden Goodin.	Pass
Agent/owner written approval	N/A
non compliance discussed onsite	N/A
Next Inspection required Prewrap.	Pass
Other	N/A



site

Taken at 2:13 PM on Wednesday 29/11/2023



boundary peg on site

Taken at 2:13 PM on Wednesday 29/11/2023



se72 mesh

Taken at 2:15 PM on Wednesday 29/11/2023



general slab

Taken at 2:15 PM on Wednesday 29/11/2023



3m

Taken at 2:16 PM on Wednesday 29/11/2023



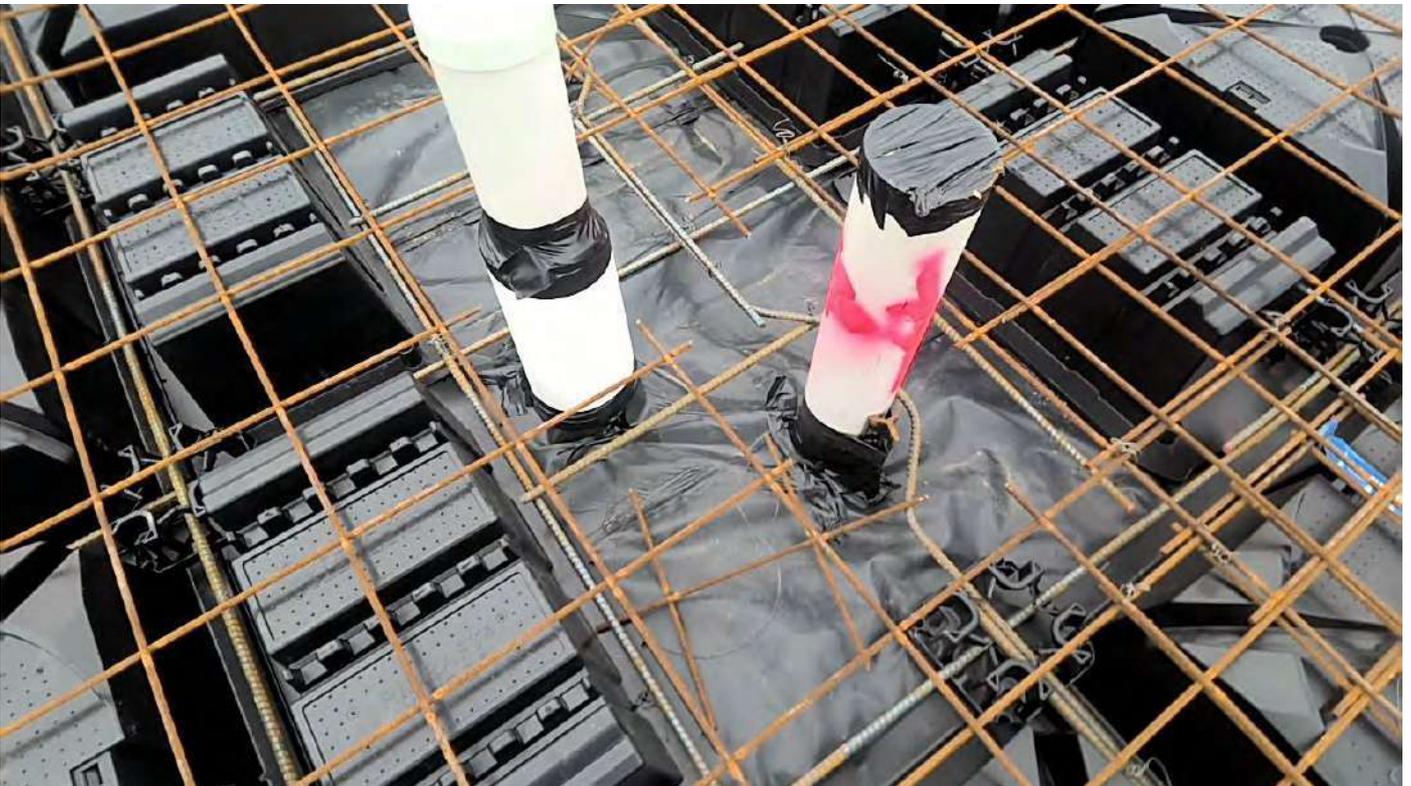
6m

Taken at 2:17 PM on Wednesday 29/11/2023



reo lapped tied

Taken at 2:21 PM on Wednesday 29/11/2023



penetrations taped

Taken at 2:21 PM on Wednesday 29/11/2023

SITE NOTICE

Consent No: **230628**
Applicant: **T Atkinson**
Site Address: **110 Ngarara Road, Waikanae**
Work Type: **To construct a new two storey dwelling with four bedrooms and double garage**
Building Category: **R3**

Inspection Type: **Pre-Slab Building**
Inspection Outcome: **Fail**
Inspected By: **Ken Tran**
Inspection Date: **29 November 2023**

Failed Items

General

Engineers details required **CRESCO engineer, SED slab.
Engineer's report to be provided at prewrap.**

Passed Items

General

Ground clearance **300mm above GL at time of inspection.**
Concrete cover
Sand blinding
Slab thickenings **Ribraft slab.**
Vapour barrier
Steel reinforcing **HD12 being installed at time of inspection, engineer to provide supervision.**

Bar chairs
DPC penetrations taped
Siting **Boundary pegs on site, siting confirmed.**
LBP number **BP132234 Hayden Goodin.**
Next Inspection required **Prewrap.**

GoGet Inspection Audit Report

Consent No: **230628**

Applicant: **Grant Baxter**

Site Address: **110 Ngarara Road, Waikanae**

Work Type: **To construct a new two storey dwelling with four bedrooms and double garage**

Inspection Type: **Pre-Slab Plumbing**

Inspection Outcome: **Pass**

Inspected By: **Jeremy Lincoln**

Inspection Date: **24 November 2023 12:27 p.m.**

Duration: **45 minutes**

Inspection Element	Status
General	Pass
Secondary flow path	N/A
Pipe material All PVC	Pass
Pipe protection poly	Pass
TPR line Infinity	N/A
Plumbing layout	Pass
Pipes supported	Pass
Wastes and drains X3 40DNs to org	Pass
Water/air Water	Pass
Leak check	Pass
Registration numbers 18044	Pass
Agent/owner written approval Advised to chat to owner/ designer about external stack	Pass
non compliance discussed onsite With Peter	Pass
Next Inspection required Preslab.	Pass
Other	N/A
Site Inspection	N/A



Main Run

Taken at 12:19 PM on Friday 24/11/2023



Main run

Taken at 12:19 PM on Friday 24/11/2023



Bathroom cluster 40DN wastes to ORG boss
Taken at 12:21 PM on Friday 24/11/2023

SITE NOTICE

Consent No: **230628**
 Applicant: **T Atkinson**
 Site Address: **110 Ngarara Road, Waikanae**
 Work Type: **To construct a new two storey dwelling with four bedrooms and double garage**
 Building Category: **R3**

Inspection Type: **Pre-Slab Plumbing**
 Inspection Outcome: **Pass**
 Inspected By: **Jeremy Lincoln**
 Inspection Date: **24 November 2023**

Passed Items

General

Pipe material	All PVC
Pipe protection	poly
Plumbing layout	
Pipes supported	
Wastes and drains	X3 40DNs to org
Water/air	Water
Leak check	
Registration numbers	18044
Agent/owner written approval	Advised to chat to owner/ designer about external stack
non compliance discussed onsite	With Peter
Next Inspection required	Preslab.

FILE NOTE

Request for Further Information Notification

Building Consent No: 230628

Site Address: 110 Ngarara Road, Waikanae

Valuation Ref: 1494126602

Description: To construct a new two storey dwelling with four bedrooms and double garage

Building Consent Request for Information

The following RFIs were sent to the portal on 25 September 2023:

PLUMBING AND DRAINAGE

1. Please show compliance with F5 Site Safety.
2. Please confirm if the Engineers PS1 includes the Barrier Design on sheet 15 in the Architectural Plans.
3. Please detail Mechanical Ventilation to the Kitchen Hob as per G4.3.3. and please provide the minimum flow rate / air changes required in accordance with G4/AS1.
4. Please specify Plumbing & Drainage Pipe Materials to demonstrate compliance with B2/AS1 and G12/AS1 requirements.
5. Please supply details and Tank specifications showing suitable foundations for the proposed water tank noted that can be capable of carrying up to 10,000 Ltr tanks that will demonstrate compliance with NZBC Clause B1 & B2.
6. A Rinnai Infinity Hot Water Supply System is detailed. Please supply product specifications and show locations of the Gas Bottles storage in accordance with Appendix J, NZS 5601.1
7. Please supply an Inspections Monitoring Schedule for all SED works and confirm that a PS4 will be issued on completion of the works by the overseeing engineers.
8. Please supply calculations and sizing and any product specifications of the new Soakpit design that will have adequate volume with appropriate filling and lining to the pit to comply with NZBC Clause E1.
Please note as per CGW Site Suitability Report all retention is to SED.
9. Please provide a designIT Certificate for the PyrdaSpan Floor joists and detail all Floor Joists fixings in accordance with B1 (Joist to Beam, Joist to Top Plate etc).
10. Please supply details of sub-floor Lateral Bracing as per NZS3604:2011, Section 7 Part 7.1.2 to demonstrate compliance with NZBC Clause B1.
11. Please provide a Truss Plan/Certificate/Calculations along with a PS1 and fixing details in accordance with B1.
12. Please revise the spacing of the top and bottom purlins to 600mm so the end span of roofing will comply with NZBC E2/AS1 table 11
13. Please supply the Fixing details for the 290x45mm Rafters which i assume will be joining/spliced together over the Exposed Trusses and please also supply any MiTek product literature that may be required.

14. Please supply DesignIT Certificate for Stair void area studs, Wind Beam and Raked Gable End Wall of Family room etc.
15. Please confirm Lintel Fixings hold down type details as per Pyrda L5 for all Lintels?
16. Please supply all Bracing Specs and Product Literature/Appraisals in accordance with B1.
17. Please provide construction details on the upstairs timber floor tiled area.
Please demonstrate that the fall to tiled shower complies with requirements of E3/AS1 clause 3.3.5. and supply the waste details to include the construction and waterproofing details required to demonstrate compliance with NZBC Clause E3
18. Please provide information on the membrane coverage for the tile shower area.
19. Please detail Gutter to Wall junction as per E2/AS1 figure 8B
20. To make it clear for the contractors onsite.
Please detail the actual flashings cover sizes, as the note on sheet 17 states cover to VH and EH and the SED wind zone for this build has been calculated to High.
21. Please see the following KCDC guideline for rainwater storage requirements.
<https://www.kapiticoast.govt.nz/media/rppdgzdz/k%C4%81piti-rainwater-and-greywater-cop-guidelines-646219.pdf>
Section 5.1.1 shows a checklist of acceptable solutions.
1) please ensure all relevant items are proposed/provided in the documentation.
22. Please detail Water supply pipe materials to comply with G12/AS1 table 1:
23. The distance of the 100mm diameter line servicing the Kitchen appears to be over 10m in length. Please detail a vent in accordance with Clause 3.9.2 or 6.9 AS/NZS 3500.

Marcus Lundon (Contractor)

Date: 25 September 2023

FILE NOTE

Request for Further Information Notification

Building Consent No: 230628

Site Address: 110 Ngarara Road, Waikanae

Valuation Ref: 1494126602

Description: To construct a new two storey dwelling with four bedrooms and double garage

Building Consent Request for Information

The following RFIs were sent to the portal on 13 October 2023:

PLUMBING AND DRAINAGE

1. Please provide the Full Marmox shower Tray Specifications and Branz Appraisal Certificate.
2. Thankyou for the Mitek Truss and Frame details, however the Mitek Lintel details(sizes) don't correlate with the Architectural Frame plan(lintel sizes) on sheet 3.
Please supply align details for the proposed correct Lintel Sizes.
3. Please confirm no load bearing thickening's are required under internal load bearing walls as the Mitek Truss design shows internal load bearing thickening's.

Marcus Lundon (Contractor)

Date: 13 October 2023

FILE NOTE

Request for Further Information Notification

Building Consent No: 230628

Site Address: 110 Ngarara Road, Waikanae

Valuation Ref: 1494126602

Description: To construct a new two storey dwelling with four bedrooms and double garage

Building Consent Request for Information

The following RFIs were sent to the portal on 13 October 2023:

PLUMBING AND DRAINAGE

1. Please provide the Full Marmox shower Tray Specifications and Branz Appraisal Certificate.
2. Thankyou for the Mitek Truss and Frame details, however the Mitek Lintel details(sizes) don't correlate with the Architectural Frame plan(lintel sizes) on sheet 3.

Please supply align details for the proposed correct Lintel Sizes.

3. Please confirm no load bearing thickening's are required under internal load bearing walls as the Mitek Truss design shows internal load bearing thickening's. Sheet S5 in the Cresco slab design states no thickenings required.

Please also confirm what inspections will be undertaken by the engineer for the slab design as the PS1 states CM3.

Marcus Lundon (Contractor)

Date: 13 October 2023



Statement of Compliance with the NZ Building Code

Consent No: 230628

ISSUED BY: **Kapiti Coast District Council**

PROJECT

Site Address: 48 Anderson Park Drive, Waikanae
Legal Description: Lot 43 DP 592074
Work Description: To construct a new two storey dwelling with four bedrooms and double garage
Building Category: R3

OWNER

Name(s): T Atkinson
Address: 8 Hurley Road, Paraparaumu Beach, Paraparaumu

- [P] Application for CCC received and accepted
- [P] Consent description accurate and reflects amendments (if relevant).
- [P] Confirm owner named on Building Consent application is current owner
- [NA] Confirm new owner details and evidence of ownership are correctly documented
- [NA] Confirm all required inspections completed and documented in GoGet
- [P] If inspection(s) have been missed, have they been compensated for?
- [P] If supervision was required for any inspection - did it occur?
- [P] Work in accordance with approved consent and approved amendments
- [NA] Have any notices to fix been uplifted?
- [P] Supporting documentation required in building consent addenda received
- [NA] Quality assurance documentation
- [P] Restricted building work
- [NA] Owner Builder declaration supplied
- [P] Additional information required and received
- [NA] Earthquake prone building
- [NA] Swimming Pool details updated
- [NA] Warnings and Bans
- [NA] Supervision review
- [P] Code Compliance Certificate Sign Off
- [P] All Amendments have been approved & issued
- [P] Where applicable, the compliance schedule and compliance schedule statement has been updated or new statement issued
- [P] Approve to issue Code Compliance Certificate if all fees paid
- [P] Approve to issue Certificate of Acceptance if all fees paid
- [P] Approve to issue Certificate of Public Use if all fees paid

LICENSED BUILDING PRACTITIONERS:

Designer 1	BP110030	Grant Baxter
Designer 2	CPENG1025559	Fabio Parodi
Carpentry 1	BP132778	

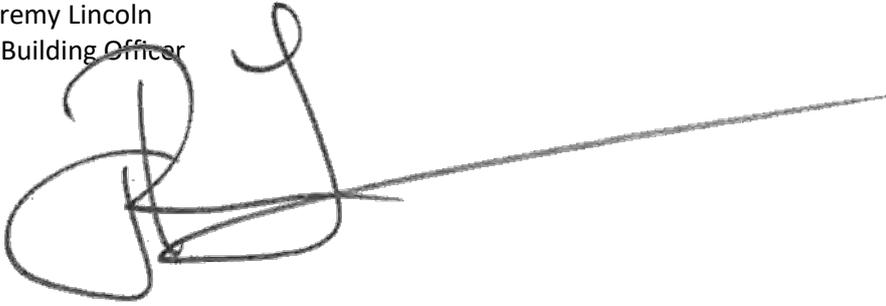
Foundations 1	BP132234
Roofing 1	BP131079
Plumber	18044
Drainlayer	18044
Electrician	E19808

On review of the documentation and inspection notes it can be considered on reasonable grounds that all work has been completed in compliance with the building consent.

Signed:

Date: 24 September 2024

Name: Jeremy Lincoln
Position: Building Officer

A handwritten signature in black ink, appearing to be 'JL', with a long horizontal line extending to the right.

STATEMENT PIPED SERVICES AND PLUMBING STACKS



Construction Review

Send or deliver this form to: Kapiti Coast District Council,
175 Rimu Road, Paraparaumu 5032
Private Bag 60601, Paraparaumu 5254
For enquiries, phone 04 296 4700 (Toll Free: 0800 486 486)

TO BE COMPLETED BY THE INSTALLER

Issued by: Peter Bartholomew

Registration number: 18044

In respect of Piped Services installed in accordance with G12/AS1 as shown on the approved plans or as per the attached amended plan and Sanitary Plumbing Stacks installed in accordance with G13/AS1 or AS/NZS 3500.2.2

Installed at: Lot 42 Anderson Park

Building Consent No: 230628

BC230628
Received by
Kapiti Coast District Council
21/06/2024
via Email

As a certified plumber, currently holding an annual practicing license, certify that I, or personnel under my control, have carried out the installation of the above system and I believe on reasonable grounds that the installation complies with the New Zealand Building Code. Both hot and cold systems have been pressure tested for a period of 15 minutes at a pressure of 1500 kPa.

Name: Peter Bartholomew Signature: [Signature]

Address: 72 Raumati Road Date: 21 June 2024

Phone: _____ Fax: _____

Mobile: 021 259 8830 Email: info@a-good-plumber.co.nz

Kāpiti Coast District Council Office Use Only

Statement author authenticated and current registration verified. Verification and Registration checked through public register on www.pgdb.co.nz.

Date:

Name:

Signature:

**STATEMENT
DRAINAGE WORK INSTALLED**
Construction Review



Send or deliver this form to: Kapiti Coast District Council,
175 Rimu Road, Paraparaumu 5032; Private Bag 60601, Paraparaumu 5254
For enquiries, phone 04 296 4700 (Toll Free: 0800 486 486)

TO BE COMPLETED BY THE INSTALLER

Issued by: Peter Bartholomew

Registration number: 18044

Tick applicable



In respect of: Stormwater Drains installed in accordance with E1 AS1 as shown on the approved plans or as per the attached amended plan.



In respect of: Private Sewer Drains installed in accordance with G13 AS2 or AS/NZS 3500 .2.2 as shown on the approved plans or as per the attached amended plan.

Installed at: lot 12, Anderson Park

Building Consent No: 230628

As a certified drainlayer, currently holding an ^{BC230628} ^{Received by} ^{Kapiti Coast District Council} ^{21/06/2021} ^{via email} ^{ma@mbd} practicing license, I certify that I, or personnel under my control, have carried out the installation of the above system and I believe on reasonable grounds that the installation complies with the New Zealand Building Code.

Name: Peter Bartholomew Signature: [Signature]

Address: 72 Raumati Road Date: 21 June 2021

Phone: [Number] Fax:

Mobil: 021 259 8830 Email: info@agoodplumber.co.nz

Note: Fully dimensioned as built drain plan to be supplied.(scale 1:100)
Drains may be laid and backfilled without inspection provided that the drain is left under test with a min of 1.0 m head and the inspection at the lateral left exposed.

Kāpiti Coast District Council Office Use Only

Statement author authenticated and current registration verified. Verification and Registration checked through public register on www.pgdb.co.nz.

Name:

Signature

Date:



**LICENSED
BUILDING
PRACTITIONERS**
Building confidence

BC230628
Received by
Kapiti Coast District Council
22/07/2024
via Email

MEMORANDUM FROM LICENSED BUILDING PRACTITIONER: RECORD OF BUILDING WORK

Section 88, Building Act 2004

Please fill in the form as fully and correctly as possible.

If there is insufficient room on the form for requested details, please continue on another sheet and attach the additional sheet(s) to this form.

THE BUILDING

Street address: *Lot 43 Anderson Park*

Suburb:

Town/city: *Waikanae*

Postcode:

THE PROJECT

Building consent number:

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

THE OWNERS

Name(s):

Mailing address:

Suburb:

PO Box/Private Bag:

Town/City:

Postcode:

Phone:

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Email address:



MINISTRY OF BUSINESS,
INNOVATION & EMPLOYMENT
HĪKINA WHAKATUTUKI

Te Kāwanatanga o Aotearoa
New Zealand Government

RECORD OF WORK THAT IS RESTRICTED BUILDING WORK

PRIMARY STRUCTURE:

Work that is restricted building work	Description of restricted building work	Carried out or supervised
Tick	If necessary, describe the restricted building work	Tick whether you carried out the restricted building work or supervised someone else carrying out the restricted building work
<input type="checkbox"/> Foundations and subfloor framing		<input type="checkbox"/> Carried out <input type="checkbox"/> Supervised
<input type="checkbox"/> Walls		<input type="checkbox"/> Carried out <input type="checkbox"/> Supervised
<input type="checkbox"/> Roof		<input type="checkbox"/> Carried out <input type="checkbox"/> Supervised
<input type="checkbox"/> Columns and beams		<input type="checkbox"/> Carried out <input type="checkbox"/> Supervised
<input type="checkbox"/> Bracing		<input type="checkbox"/> Carried out <input type="checkbox"/> Supervised
<input type="checkbox"/> Other		<input type="checkbox"/> Carried out <input type="checkbox"/> Supervised

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EXTERNAL MOISTURE MANAGEMENT SYSTEMS:

Work that is restricted building work	Description of restricted building work	Carried out or supervised
Tick	If necessary, describe the restricted building work	Tick whether you carried out the restricted building work or supervised someone else carrying out the restricted building work
<input type="checkbox"/> Damp proofing		<input type="checkbox"/> Carried out <input type="checkbox"/> Supervised
<input checked="" type="checkbox"/> Roof cladding or roof cladding system		<input checked="" type="checkbox"/> Carried out <input checked="" type="checkbox"/> Supervised
<input type="checkbox"/> Ventilation system (for example, subfloor or cavity)		<input type="checkbox"/> Carried out <input type="checkbox"/> Supervised
<input type="checkbox"/> Wall cladding or wall cladding system		<input type="checkbox"/> Carried out <input type="checkbox"/> Supervised
<input type="checkbox"/> Waterproofing		<input type="checkbox"/> Carried out <input type="checkbox"/> Supervised
<input type="checkbox"/> Other		<input type="checkbox"/> Carried out <input type="checkbox"/> Supervised

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Producer statement

Warranty

Our windows and doors comply with the building code

All products supplied by First Windows & Doors meet or exceed the requirements of the New Zealand Building Code and New Zealand Standards; NZS4211, Performance of Windows, and NZS4223, Glazing in Buildings - Parts 1-4 incl.

This means our windows and doors have been designed and successfully tested to perform in New Zealand's most diverse conditions, and will:

- **satisfy the strength and deflection requirements of the standards**
- **deliver the desired levels of weathertightness appropriate to the prescribed wind zones**
- **meet the air leakage requirements necessary to provide comfort and efficiency**
- **include glazing of appropriate weight, strength and safety to satisfy not only the expected wind load but also accidental human impact.**

In accordance with the Terms and Conditions of Warranty, a warranty for all First Windows & Doors products is provided, under normal conditions of use, against failure of materials and/or workmanship for a period of 5 years.

The surface finishing of the aluminium extrusion is covered by a separate Performance Warranty which is dependent on the actual finish selected.

A window and door hardware/component warranty protects against defects in manufacturing, functionality and surface finish for a period of 5 years, provided care and maintenance guidelines have been followed. Plated (soft) finishes are excluded from the warranty.

Please note

This warranty is subject to correct installation, as outlined in the Building Code Acceptable Solution Clause E2/AS1 External Moisture, or an approved alternative solution.

Homeowner details

Name	Timothy Atkinson
Mobile	0279193505
Email	timothyatkinson@gmail.com

Site details

Address / lot number	Lot 43, Anderson Park, Waikanae
----------------------	---------------------------------

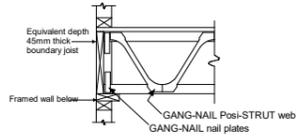
Product details

Delivery date	12 February 2024
Glass Products used	Solux-E
Joinery Products used	Residential Series ThermalHEART
Joinery colour	Flax Pod Matt
Warranty number	24-03-140880F

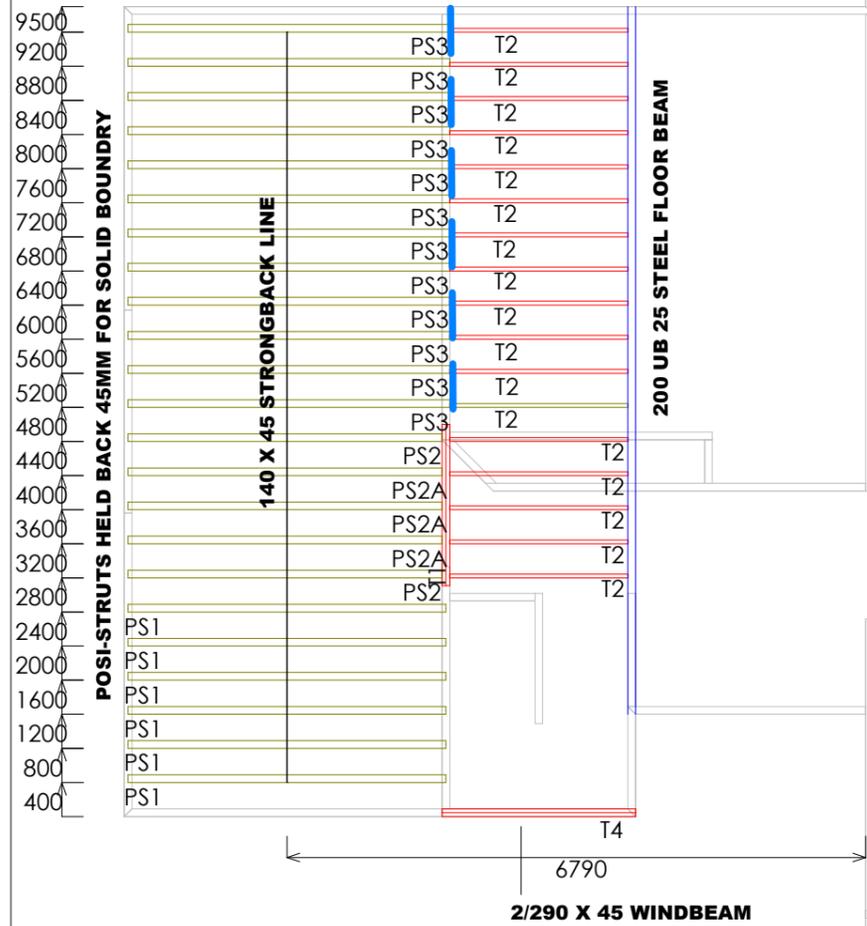
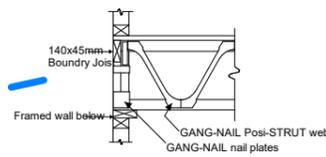
Manufacturer details

Name	Kalós Windows & Doors
Address	23 The Cutting Way, Milson, Palmerston North

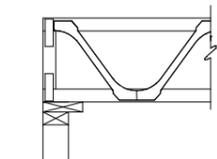
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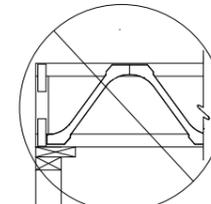
PS3 POSI-STRUTS POCKETED FOR 140 X 45 RIBBON TO ALLOW FOR T2 JOISTS TO BE HUNG USING 90 X 45 JOIST HANGERS



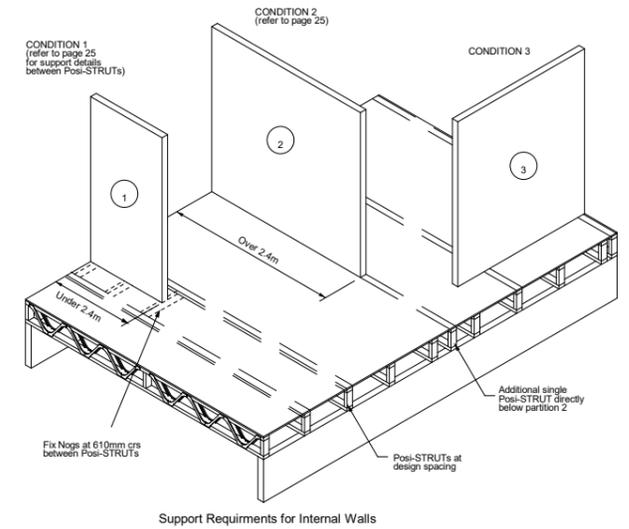
140 X 45 RIBBON



Correct Truss Placement



Incorrect Truss Placement



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IT IS THE BUILDERS RESPONSABILITY TO ENSURE THAT POSI-STRUTS DO NOT INTERFERE WITH WASTES AND TRAPS, POSI-STRUTS MUST NOT BE ALTERED IN ANY WAY WITHOUT CONSULTATION WITH F&T, ANY POSI-STRUTS ALTERED WITHOUT PRIOR NOTICE MAY INCURE DESIGN COSTS TO RECTIFY



Site Address :
ATKINSON
LOT 43
ANDERSON PARK
WAIKANAE

Sheet Title :
For CONSTRUCTION
Buildable Truss Layout

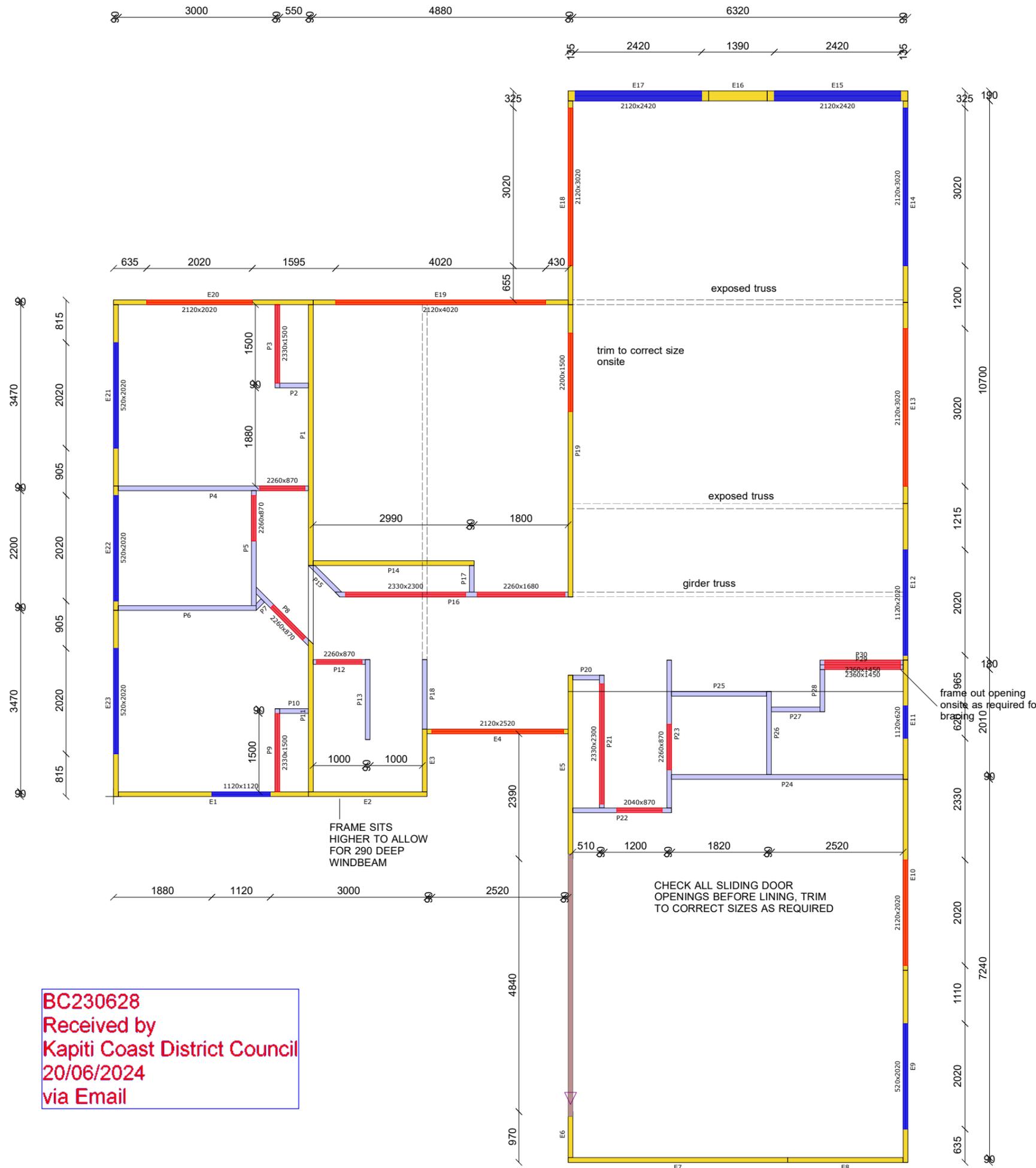
Date : 22 Nov,2023 Drawn :
 Scale : 1: 100 System : MiTek 20/20

Job Details:
 Roof Pitch : 30 Deg
 Roof Material : Galv Iron .5mm
 Ceiling Material : Standard
 Wind Zone : Very High
 Roof Snow Load : 0.000 kPa

Truss Centres : 600 mm
 Roof Live Load : 0.250kPa
 Floor Live Load : kPa
 Wind Speed : 50.0 m/s

PrimeCad v4.7.346

Job Title :
23-529F
 Sheet :
1
 Revision Number :



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 via Email

Treatment:

Ext Walls H1.2 w/ H3.1 BP
Int Walls H1.2
Walls with 'H' in label to be H3.1

Please Note :

These plans are provided solely to enable the builder to erect the prenil on site. They are not intended for any other purpose and PlaceMakers will not accept any liability arising from any other use of these plans.
Builder to read pre-cut plans in conjunction with architectural plans.
 Builder should ensure that ALL OSH approved safety practices are carried out when erecting framing.
Builder to read to check all opening/ lintel sizes and braces on site before enclosing.
FRAME ORIENTATION: Frame markings are on the same side as the number on the plan.
 PlaceMakers will not accept any charges for remedial work unless a written order is issued before any work is commenced. A copy of the order is to accompany any invoice to Wellington Frame & Truss.

All internal door trims 2060 unless otherwise listed

If Experiencing Problems, Contact:

Steve Carson

Phone: 027 225 9539
 Email: steve.c@wbg.co.nz



Kapiti Frame & Truss

5 Bush Street
 Levin

Customer:
PLACEMAKERS KAPITI

Address:
**43 Anderson Park
 Waikanae**

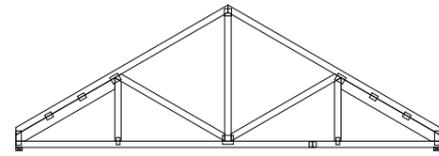
Job No:
23-529 Atkinson

4/12/2023

AS BUILT | Level: **Ground** | Drawn:

FILE SITE FACTORY

T1

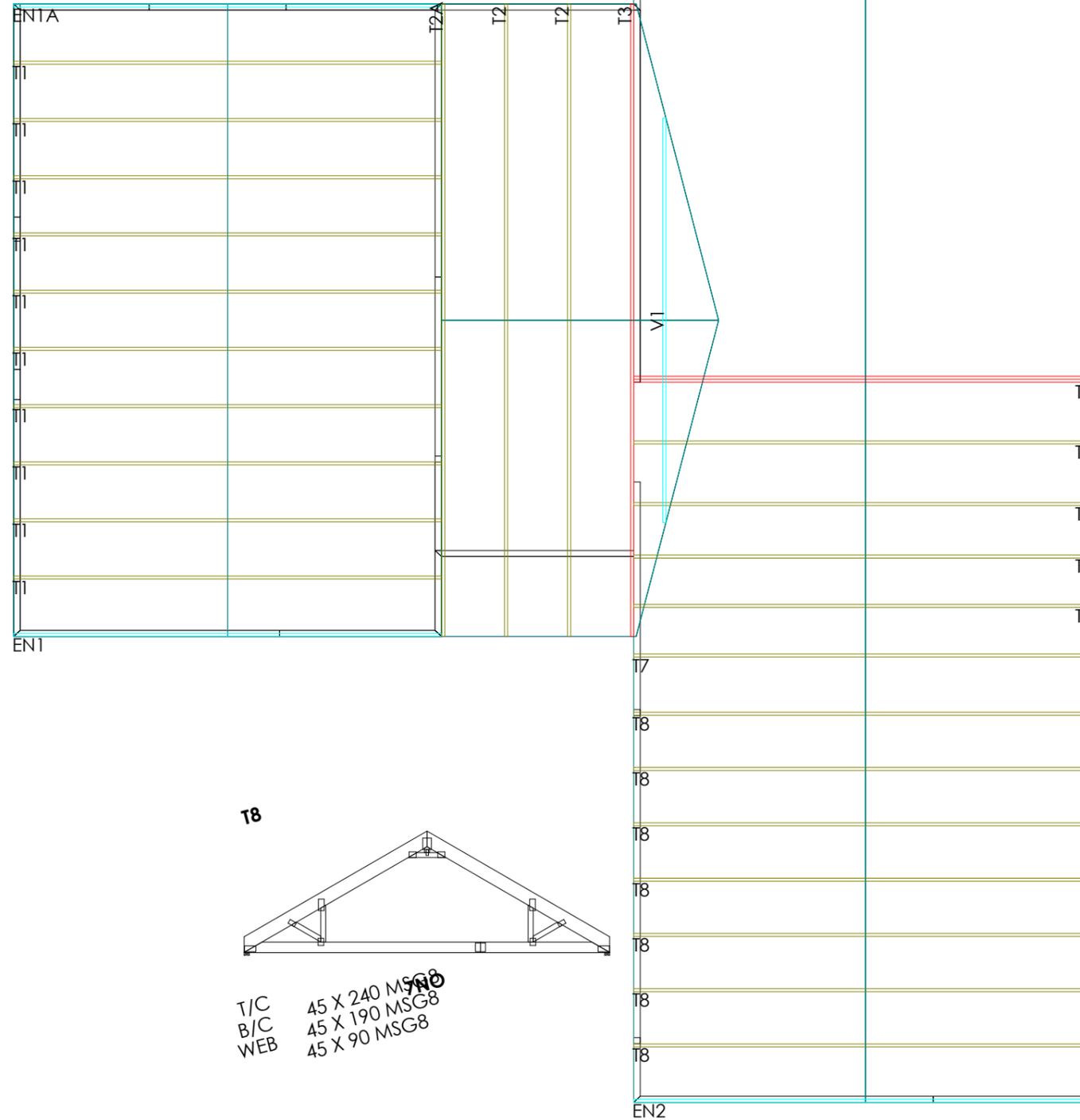


T/C 45 X 90 MSG8
B/C 45 X 90 MSG8
WEB 45 X 90 MSG8

2745 1860 975 90

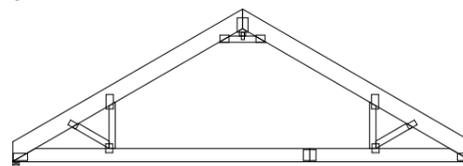
90
860
1719
2579
3438
4298
5157
6017
6876
7736
8595
9455
9500

UPPER LEVEL TRUSSES



10820
9893
8965
8177
7433
6690
5814
4984
4153
3323
2492
1661
831

T8



T/C 45 X 240 MSG8
B/C 45 X 190 MSG8
WEB 45 X 90 MSG8

EN2

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via Email

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Site Address :
AITKINSON
LOT 43
ANDERSON PARK
WAIKANAE

Sheet Title :
For construction
Buildable Truss Layout

Date : 11 Dec, 2023
Scale : 1: 100
Drawn :
System : MiTek 20/20

Job Details:
Roof Pitch : 30.000 Deg
Roof Material : Galv Iron .5mm
Ceiling Material : Standard
Wind Zone : High
Roof Snow Load : 0.000 kPa

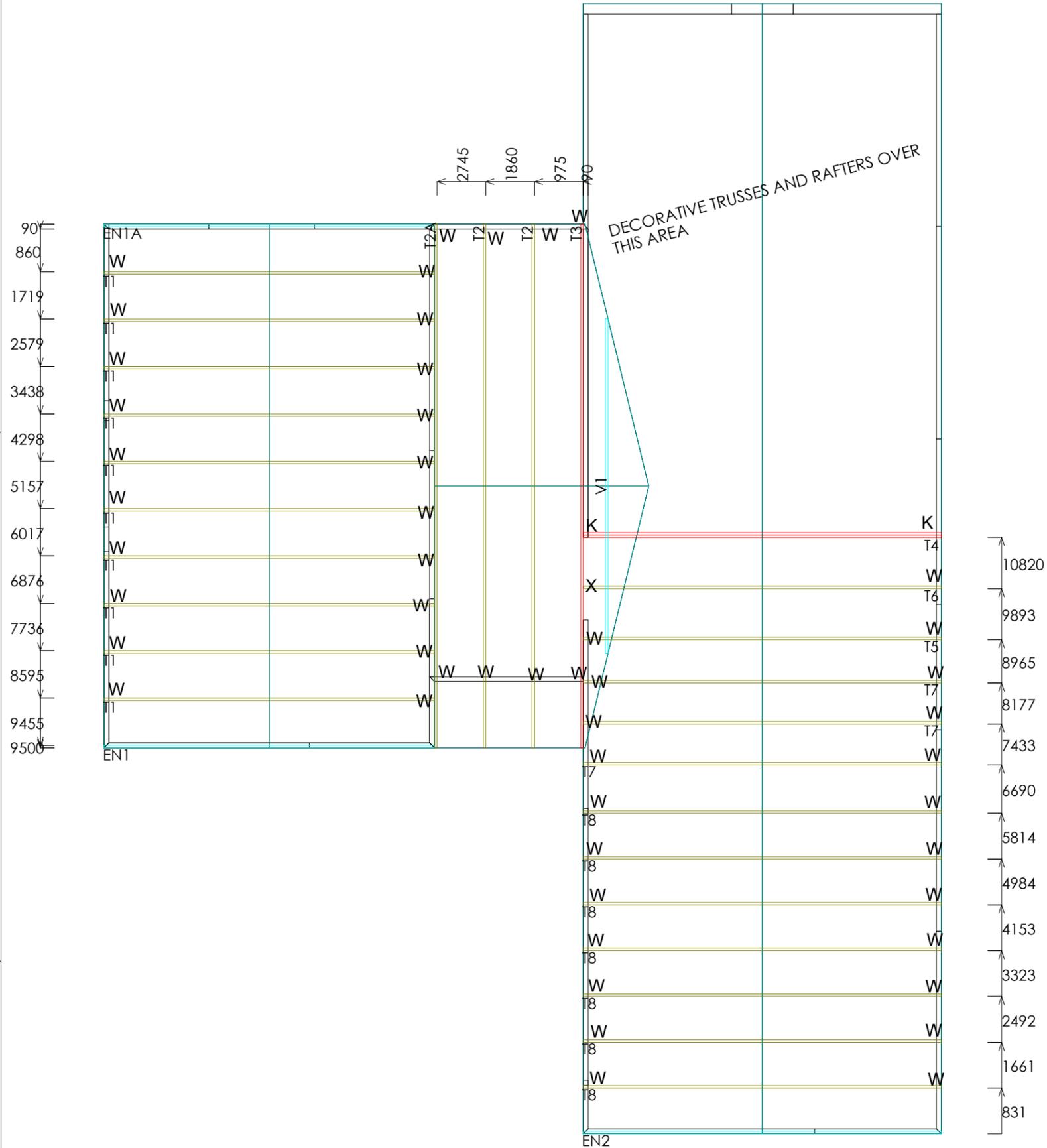
Truss Centres : 900 mm
Roof Live Load : 0.250kPa
Floor Live Load : kPa
Wind Speed : 44.0 m/s



Job Title :
23-529
Sheet :
1
Revision Number :

Truss Fixings

-  X - LUMBERLOK JH47x90 Joist Hanger
-  Z - LUMBERLOK JH47x120 Joist Hanger
-  P - LUMBERLOK JH47x190 Joist Hanger
-  E - LUMBERLOK JH95x165 Joist Hanger
-  O - Pair of LUMBERLOK CT200 Ceiling Ties
-  H - LUMBERLOK CT400 Cyclone Tie
-  B - LUMBERLOK CT600 Cyclone Tie
-  M - Pair of LUMBERLOK Multi Grips
-  NP - LUMBERLOK Nailon Plate
-  N - LUMBERLOK N21 Diagonal Cleat
-  W - Pair of LUMBERLOK CPC40 Cleats
-  K - LUMBERLOK TTP 16kN Truss to Top Plate set
-  G - LUMBERLOK TTP 9kN Truss to Top Plate set



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NOTES:

All other areas must have at the minimum 2/ 90x3.15mm skew nails + 2 wire dogs (4.7kN) for truss to top plate connections.

Refer to:
 LUMBERLOK Timber Connectors Characteristic Loadings Data brochure 03/4



Site Address :
 AITKINSON
 LOT 43
 ANDERSON PARK
 WAIKANAE

Sheet Title :
**For construction
 Truss Fixings**

Date : 11 Dec,2023 Drawn :
 Scale : 1: 100 System : MiTek 20/20

Job Details:
 Roof Pitch : 30.000 Deg
 Roof Material : Galv Iron .5mm
 Ceiling Material : Standard
 Wind Zone : High
 Roof Snow Load : 0.000 kPa

Truss Centres : 900 mm
 Roof Live Load : 0.250kPa
 Floor Live Load : kPa
 Wind Speed : 44.0 m/s

PrimeCad v4.7.346

Job Title :
23-529

Sheet :
2

Revision Number :



Treatment:

Ext Walls H1.2 w/ H3.1 BP
 Int Walls H1.2
 Walls with 'H' in label to be H3.1

Please Note :

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Address:

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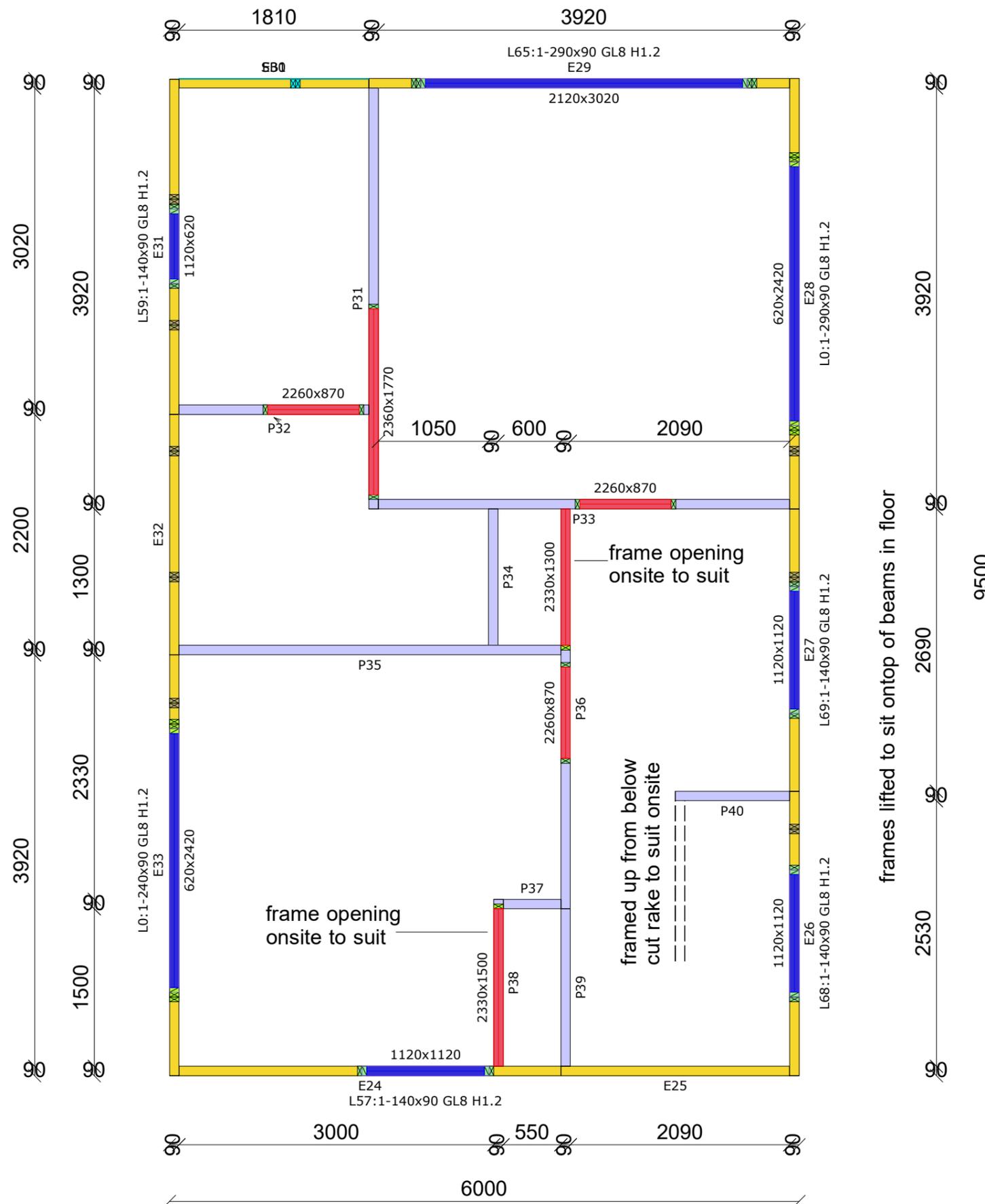
Job No:

23-529 Atkinson

4/12/2023

AS BUILT | Level: **Top** | Drawn:

FILE SITE FACTORY



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MANUFACTURER STATEMENT

This statement is issued by **Placemakers Wellington Frame & Truss** to the client listed above, and may be used by the Building Consent Authority to assist in determining compliance with the New Zealand Building Code.

The MITek® trusses for the job reference **23-529** have been fabricated in accordance with the MITek 20/20® truss design, truss layout and shop drawing output and the specifications for timber defined therein, and are covered by the Producer Statement issued by MITek New Zealand Limited and the MITek Fabricator Design Statement.

Summary of fabricated MITek® Trusses in accordance with MITek 20/20® output

These MITek® trusses must be erected in accordance with the Truss Layout. Proper erection bracing must be installed to hold the trusses true and plumb and in a safe condition until permanent bracing is fixed. All permanent bracing and fixing must be installed before any loads are applied.

Job Details
 Importance Level : 2
 Design Working Life : 50 years

Roof
 Material: Galv Iron .5mm
 Dead Load: 0.210 kPa
 Restraints: 900 mm centres
 Live Load: Q_l = 0.250 kPa
 Q_c = 1.100 kN

Ceiling
 Material: Standard
 Dead Load: 0.200 kPa
 Restraints: 600 mm centres
 Live Load: Q_l = 1.400 kN
Occupancy Live Load
 Distributed: Q_l = 1.500 kPa
 Concentrated: Q_{cl} = 1.800 kPa

Attic Floor
 Material: 20mm Particle Board
 Dead Load: 0.200 kPa
 Restraints: Continuous

Attic Room Ceiling
 Material: Standard
 Dead Load: 0.300 kPa
 Restraints: 400 mm centres

Attic Wall
 Material: Glb Board
 Dead Load: 0.300 kPa
 Restraints: Continuous

MITek® Truss List
 Legend: * = detail only, ? = input only, T.xx = failed design, Ø = non certified, Unmarked trusses = designed successfully, LB = lateral bracing required
 GB = gable brace required, CF = Chemical Free Treatment

Roof Truss

Treatment: Top Chords - H1.2			Bottom Chords - H1.2			Webs - H1.2			
Truss	Qty	Span (mm)	Pitch (deg)	Spacing (mm)	Truss	Qty	Span (mm)	Pitch (deg)	Spacing (mm)
EN1	1	6000	30,000	860 GB	T5	1	6500	30,000	900
EN1A	1	6000	30,000	860 GB	T6	1	6500	30,000	883
EN2	1	6500	30,000	900 GB	T7	3	6500	30,000	743
T1	10	6000	30,000	860	V1	1	6073	8,000	900
T2	2	9500	8,000	885					
T2A	1	9500	8,000	885					
T3	1	9500	8,000	885					
T4	1	6500	30,000	900					

Roof Truss quantity : 24

Attic Truss

Treatment: Top Chords - H1.2			Bottom Chords - H1.2			Webs - H1.2			Wall Webs - H1.2			Collar Tie - H1.2		
Floor	Qty	Span (mm)	Depth (mm)	Spacing (mm)	Floor	Qty	Span (mm)	Depth (mm)	Spacing (mm)	Truss	Qty	Span (mm)	Depth (mm)	Spacing (mm)
T8	7	6500	0	831										

Attic Truss quantity : 7

Total quantity : 31

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The MITek® trusses are fabricated under the supervision of:
 Signed: 

Date: 10/12/2023
 On behalf of : Placemakers Wellington Frame & Truss





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1

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Panel marking and cutting Page 5

Installing wall panels Page 6

Warranty Page 7

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2 Introduction

Thank you for purchasing a Fibre Systems Product. As a 100% New Zealand owned and operated company with over 34 years experience, we appreciate your support, and we're sure you will find this product of the highest quality.

This installation manual is designed to provide you as much assistance as possible during the installation process. If at any stage you encounter confusion, we invite you to contact us at your earliest convenience. One of our technicians will be more than happy to talk you through any questions you may have. Our contact details are at the back page of this manual.

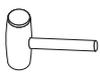
It is important to consider the implications not only to voided warranty, but also potential water leakage if installation is not carried out correctly. It's always better to be safe than sorry.

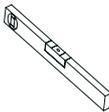
This product has been manufactured to meet all of our quality assurance standards.

This product is also covered by our full 10 year "NO NONSENSE" warranty. The full details of this can be found on Page 7 of this manual.

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3 Tools Required

	Marking Tool
	Drill
	Hammer

	Tape Measure
	Level
	Caulking Gun / Silicone

** We recommend the use SIKA Sikasil NG Arctic White Silicone
And SIKA Showerbond

Safety / Warnings

Warning - These wall panels are fragile on the edge. If they are mis-handled or cut with the wrong tools, the edges and sheet can easily be damaged.

Safety - Please take all possible steps to ensure that the correct Personal Protection Equipment is used, and that care is taken during the installation of this product.

4

Wall preparation and panel marking

Wall preparation

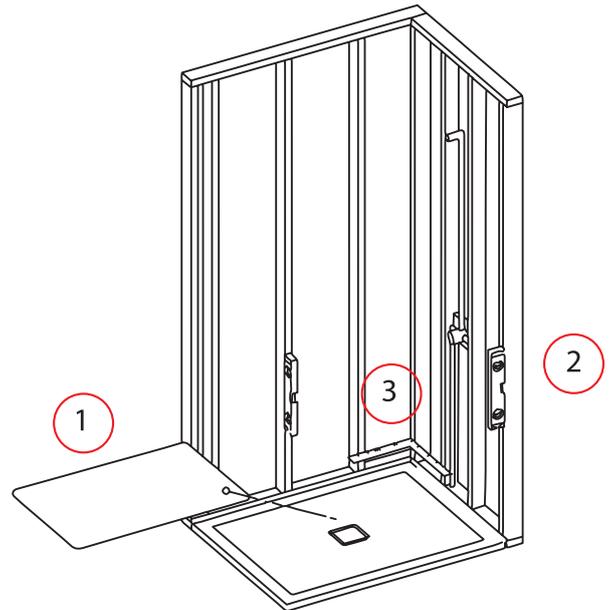
Prior to lining the frames with gypsum board, it is critical to ensure the framing is plumb and square.

It is critical to ensure the shower tray has been installed as per the manufacturer's instructions and is level to provide a flat level surface for the panels to fit to.

1. COVER THE SHOWER TRAY with cardboard to protect it from damage
2. Check all framing is vertically plumb, and with a straight edge check for bowing or irregularities in the framing.
3. Ensure the corner(s) is at 90 ° and the framing is vertically straight

Line the walls, and leave UNPAINTED and free of any dust or debris.

Attempting to install Panels onto Painted or dusty surfaces will cause poor adhesion, and void warranty

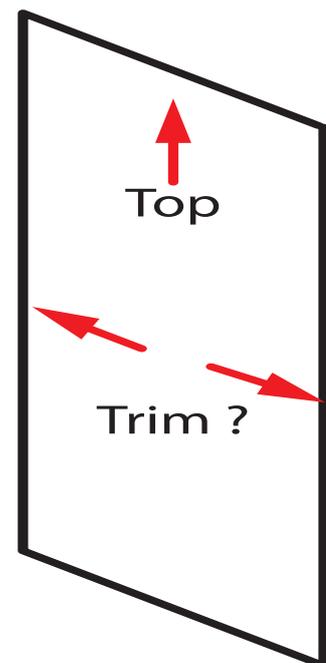


FULLY INSPECT ALL PANELS PRIOR TO CUTTING

Panel pattern matching

It is critical to lay out all panels standing up, and to identify the pattern so it can be matched together. This is **also important** for Slate patterned panels as the slate texture finish runs in a uniform direction on every panel.

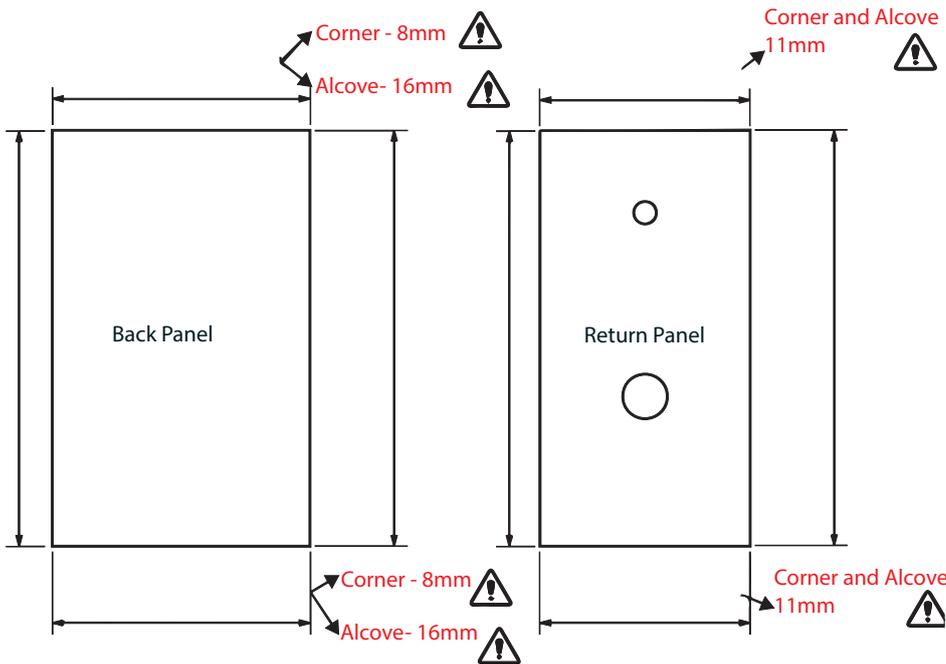
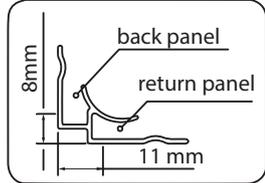
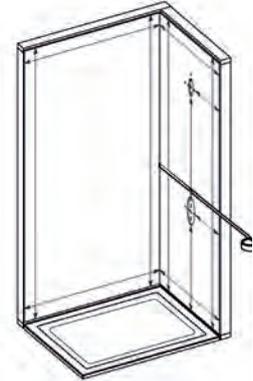
Mark the TOP of each panel.



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5 Panel marking and cutting

Carefully mark out the required width of the panels, and all penetrations. Allow for the corner joiner clearances as per the example below. It is critical to subtract the correct value when measuring the applicable sheet width to suit the corner joiners. Remember an ALCOVE is a 3 Sided Liner installation (2 side sheets and 1 back sheet). And a corner shower is a 2 Sided sheet installation.



Trimming to suit corners which are not vertically plumb.

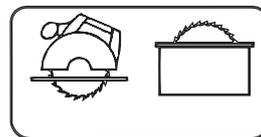
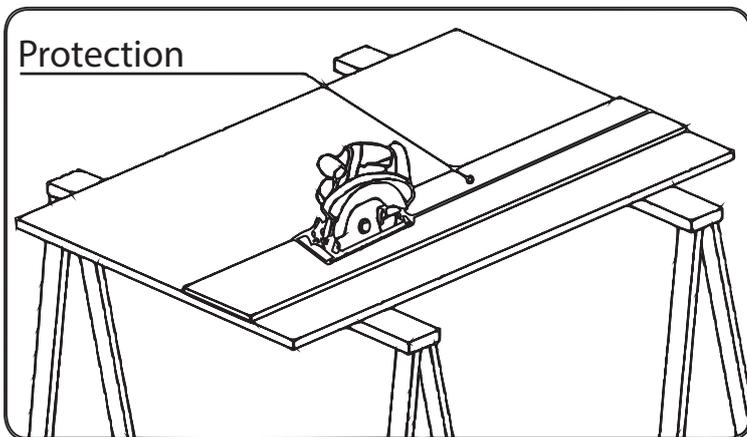
Another method of achieving a perfect fit into corner which is not vertically plumb is to -

- Use a level and mark a line from the outside of the shower tray all the way up to the top of the wall linings.
- Adhere the corner joiner into the corner using SIKA SHOWERBOND
- Measure from the line to the edge of the corner joiner at the top, middle and bottom of the wall.
- ADD onto those measurements the internal joiner clearance.

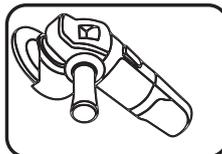
To cut the wall linings

Pinnacle wall panels can be cut with either a circular saw or table saw fitted with a fine tooth (144+ tooth blade), and angle grinder fitted with a Stainless Steel cutting blade, and can be drilled with a fine tooth Steel hole saw.

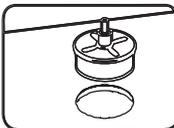
Carefully place the sheet flat and use a small sheet of wood to protect the finish surface of the panel whilst cutting. If the edge is not 100% smooth after trimming, then it can be gently sanded with 150 grit paper to finish.



Circular or table saw with 144t blade



Angle grinder with S/S cutting blade

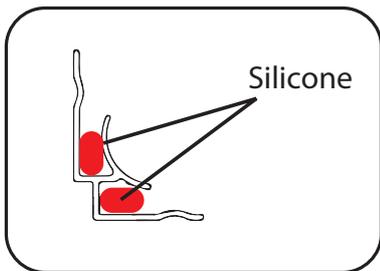


Hole Saw with fine tooth Steel bit

6 Installing wall panels

2 Sided Installation

1. Measure and mark the finished height of the panels on the Gypsum wall linings.
2. Run a generous bead of SIKA SHOWERBOND approx 50mm below the top and approx 50mm above the bottom of the linings.
3. Install the Corner Joiner into the internal corner, and press this into the corner until it fits tightly to the gypsum wall linings, and finishes tightly onto the tray surface.
4. Run 2 generous (6-8mm diameter) vertical beads of SIKA SHOWERBOND approx 40mm from each side of the corner joiner. It is advisable to also install the SIKA NG SILICONE onto your shower trays up stand. Follow the manufacturer's instructions.
5. Run 5-6mm diameter Vertical beads of SIKA SHOWERBOND adhesive at 80mm apart. DO NOT run horizontal beads, and DO NOT loop the beads at the top or bottom. **Failure to install the adhesive properly will void warranty.**
6. Install 2 beads of SIKA NG SILICONE into the corner joiner as per the diagram below -

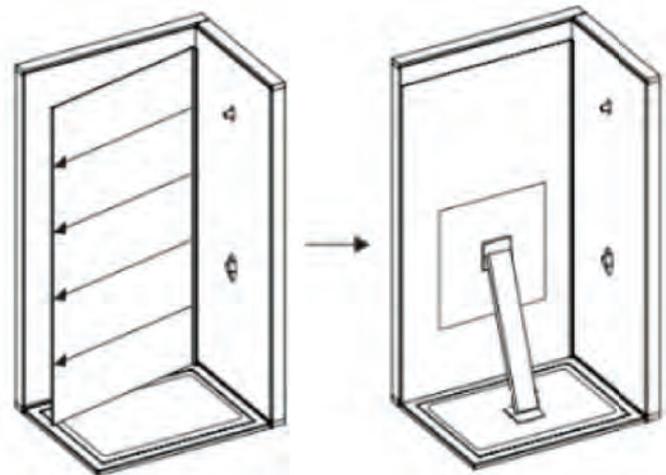
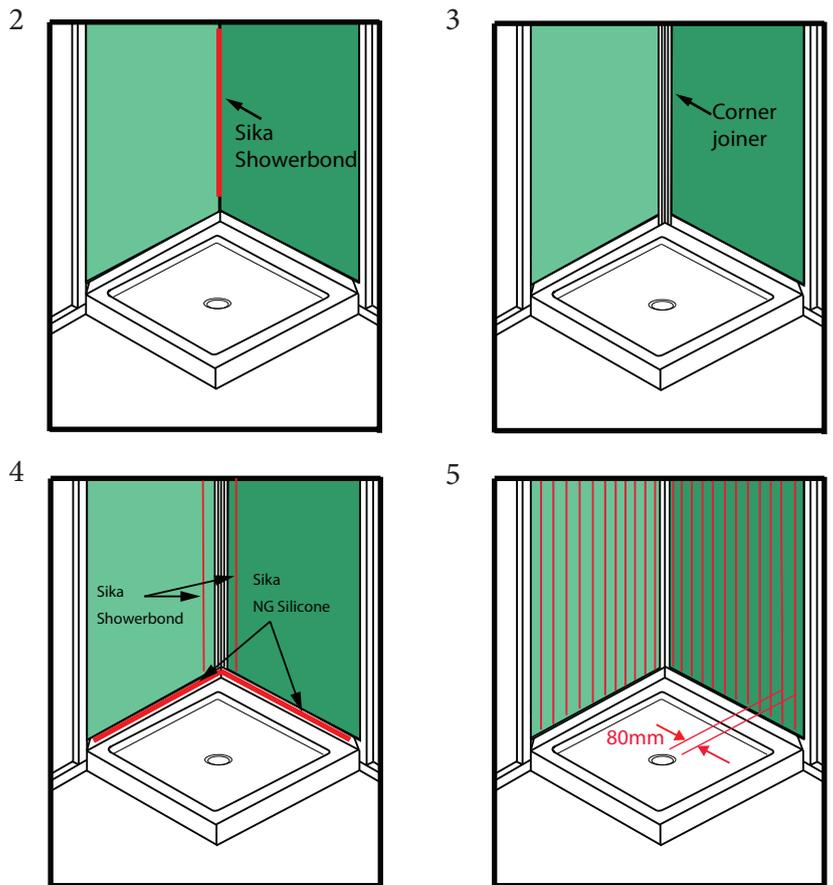


7. Insert the panel into the corner joiner then push it back onto the wall gently, using a cloth to push gently.

We recommend wrapping a soft towel around a small length of framing timber and using this as a tool so the panel can be pushed harder back onto the wall.

Work from the outside into the corner slowly and apply plenty of pressure as you work over the entire sheet.
8. Repeat the process for the second panel, and clean off any excess silicone.
9. Once both panels are installed brace them into position, and allow the adhesive to cure.

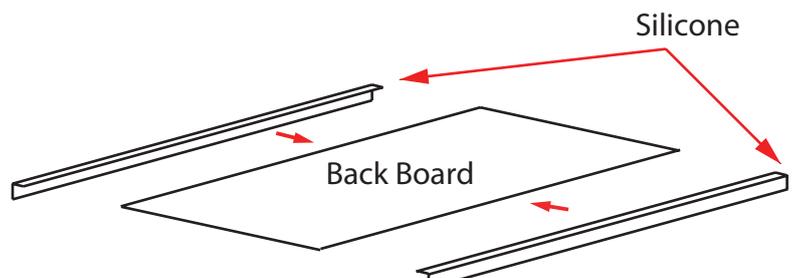
You will need the room to be at 20° C for 24 hours for the adhesive to fully cure.



! ALCOVE BACK WALL INSTALLATION !

If you are installing an alcove shower.

1. Install both corner joiners onto the back wall panel with SIKA NG SILICONE, as above.
2. Then run a bead of SIKA SHOWERBOND on the internal corners of the gypsum walls to adhere the corner joiners to the gypsum wall linings
3. Install the wall adhesive and silicone as per the above steps, then the back panel and both corner joiners can then be installed as one unit, and the corner joiners can be adjusted to better fit the corners once in place.



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7 Warranty

All bathroomware products supplied by Fibre Systems carry our quality assurance and product warranty. We use the highest quality materials available and manufacture these in accordance with New Zealand specifications and requirements to ensure that all products are fit for the intended purpose for which they are designed. Our customer's peace of mind is of paramount importance to us.

Warranty Periods

Pinnacle Shower Trays and Wall Linings 10 years

Warranty Exclusions

The product must be installed according to the instructions supplied.
The water supply temperature applied to the product must not exceed 55 degrees Celsius.
Commercial applications are restricted to a 2 year warranty on all products

8 Cleaning

Pinnacle Shower Trays and Wall Linings are manufactured to exacting standards from material composed of Resin, Fillers, and reinforced with Glass fibre. By its design it is very robust and chemical resistant, and to clean only a soft damp cloth with non-abrasive cleaning products should be used on the surface of your shower tray.

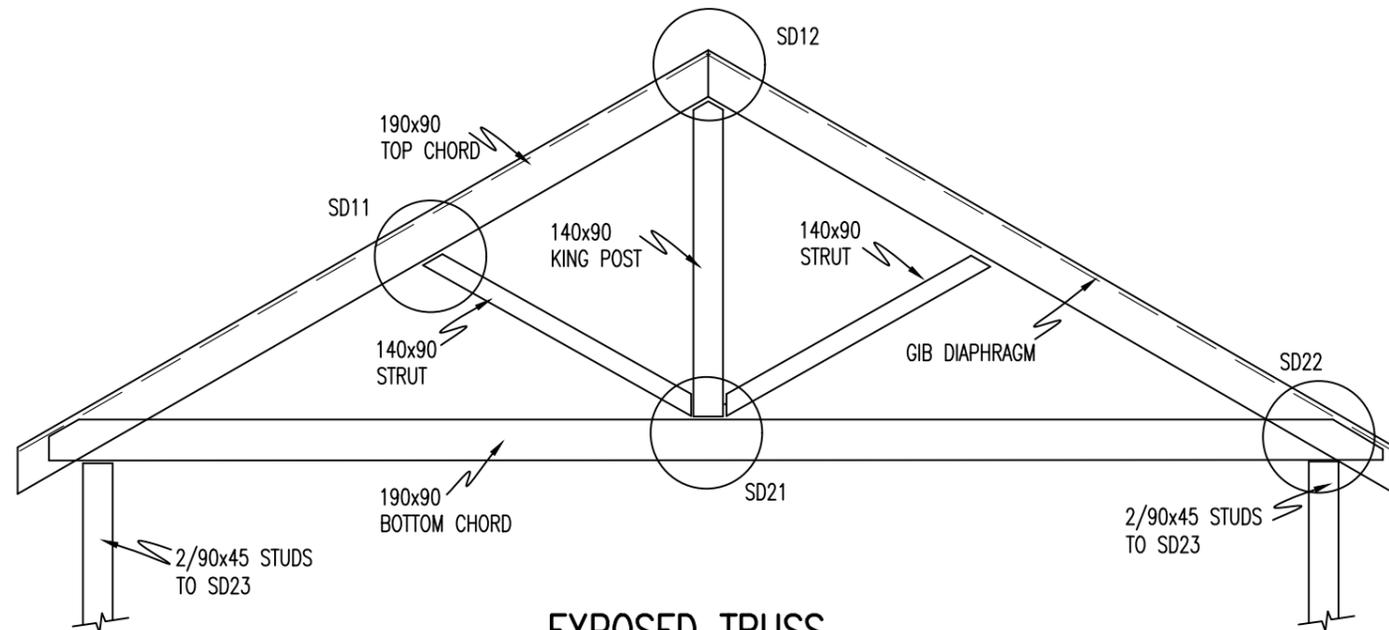
9 Aftersales service

We trust you have found this manual helpful during the installation of this product. However if you have any questions at all regarding your product, please feel free to contact us.

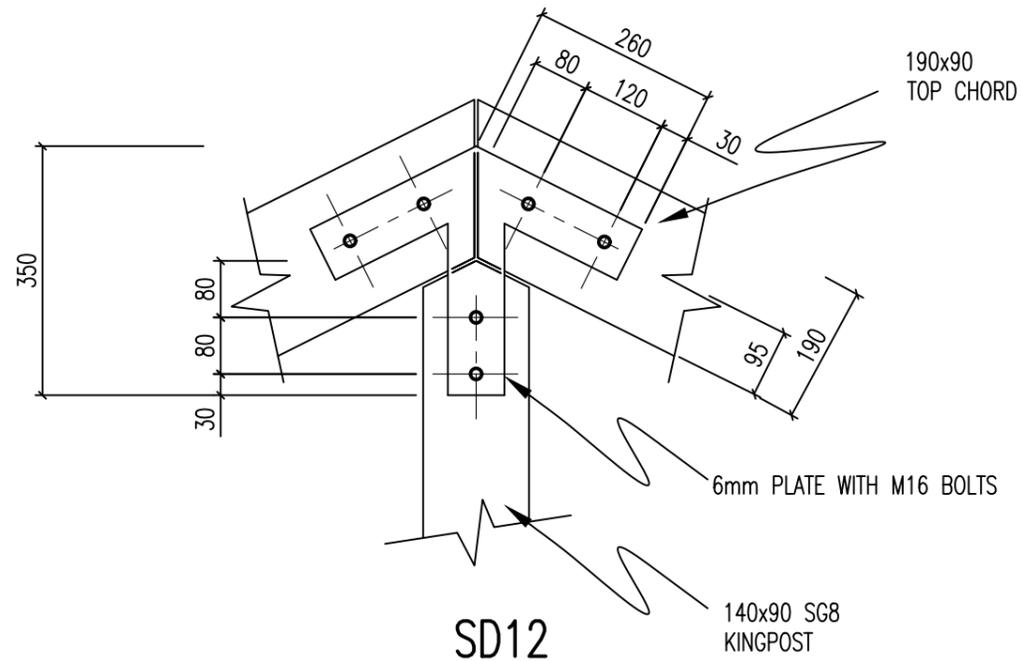
Phone 09-274-7423

Fibre Systems Ltd
77 Cryers Road
East Tamaki
Auckland

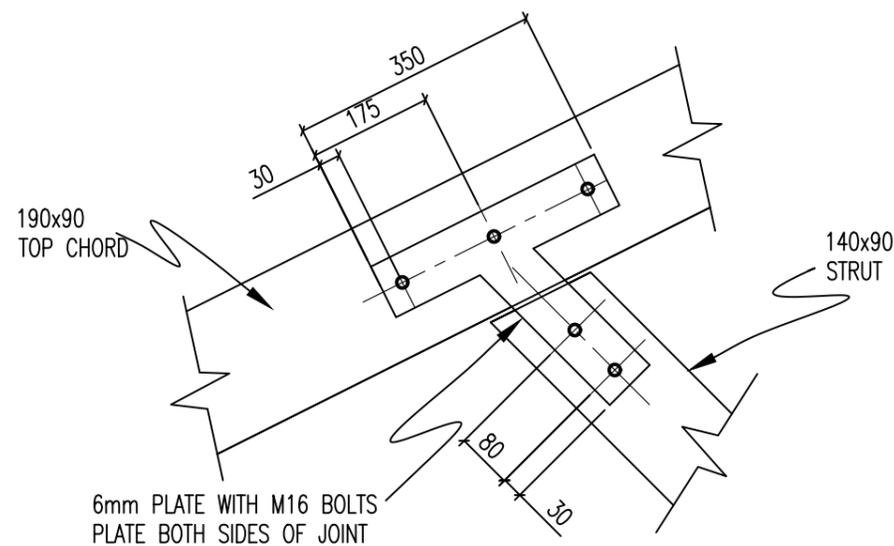
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EXPOSED TRUSS
DIAGRAMATIC



SD12



SD11

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A	DRAFT	PB	15/06
B	CONSENT SS4	PB	11/10
D	SD22	PB	3/05

NOTES:
REFER TO ONBOARD ARCHITECTURAL DESIGN PLANS FOR DETAILS AND DIMENSIONS

ANY DISCREPANCIES WITH THE ENGINEERS AND ARCHITECTS DRAWINGS SHALL BE REFERRED TO THE ENGINEER BEFORE PROCEEDING

ANY VARIATION FROM THESE DRAWINGS OR SUBSTITUTION OF SPECIFIED PRODUCTS SHALL REQUIRE ENGINEERS APPROVAL PRIOR TO PROCEEDING

ALL WORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH THE CURRENT CODE OF PRACTICE

THE STABILITY OF THE STRUCTURE DURING CONSTRUCTION SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR

THE CONTRACTOR TO PROVIDE 24 HOURS NOTICE FOR ALL INSPECTIONS AT WHICH TIME ALL WORK TO BE INSPECTED SHALL BE COMPLETE

CONTRACTOR SHALL DETERMINE FROM THE TERTIARY AUTHORITY WHAT INSPECTIONS ARE REQUIRED BY THE ENGINEER

THE CLIENT SHALL PROVIDE A COPY TO THE TA AND RETAIN A COPY FOR THEIR OWN RECORDS

Base Consulting Engineers Limited



279 Oxford Street
P O Box 434
Levin 5540

Telephone Levin 06-367 0088
Paraparaumu 04-297 0088
Mobile 027 44 44 080

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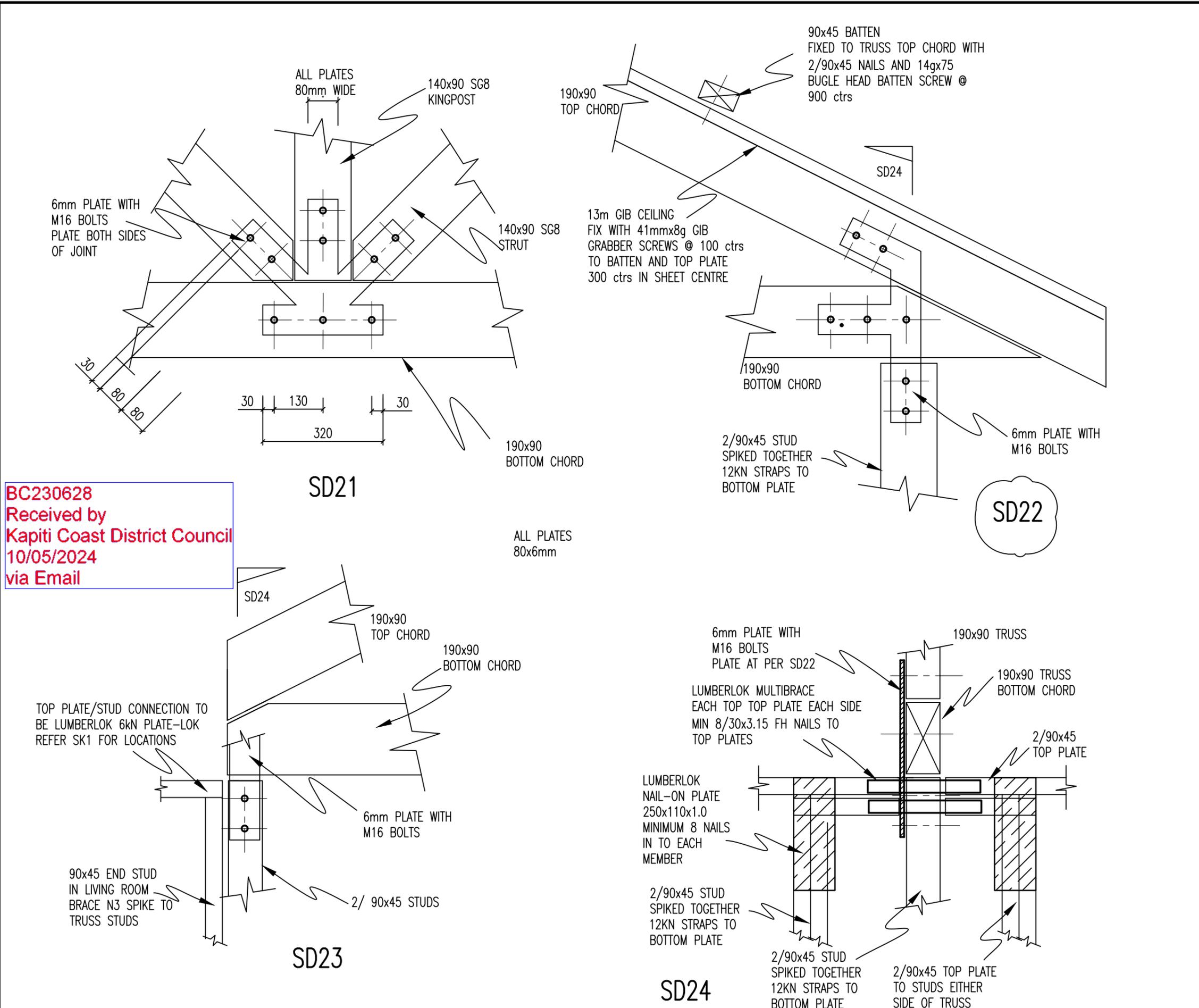
STRUCTURAL DETAILS

ATKINSON DWELLING
Lot 43
ANDERSON PARK
WAIKANAЕ

SCALE
AS SHOWN

	NAME	DATE	DRAWING NUMBER
FIELDWORK			23055 SS1
DESIGNED	PB	7/6/23	
DRAWN	PB	8/6/23	
CHECKED	PB	15/6/23	

SHEET 1 OF 4 SHEETS



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No.	AMENDMENT	NAME	DATE
A	DRAFT	PB	15/06
B	CONSENT SS4	PB	11/10

D SD22 PB 3/05

NOTES

REFER TO THE ONBOARD ARCHITECTURAL DRAWINGS FOR DIMENSIONS AND DETAILS.
 DO NOT SCALE OFF THIS DRAWING

CHECK ALL DIMENSIONS ON SITE PRIOR TO FABRICATION

ALL WORKMANSHIP AND MATERIALS SHALL COMPLY WITH NZS3602 AND NZS3603. LIGHT TIMBER FRAME CONSTRUCTION SHALL BE IN ACCORDANCE WITH NZS3604.
 CHEMICAL PRESERVATION OF ROUND AND SAWN TIMBER SHALL BE IN ACCORDANCE WITH 3640

ALL SAWN AND GLUE LAMINATED TIMBER TO BE GRADE SG8 UNLESS NOTED OTHERWISE

ALL BOLTED CONNECTIONS TO HAVE 50x50x3 WASHERS WHERE IN CONTACT WITH TIMBER

PROVIDE MINIMUM 24 HOURS NOTICE FOR INSPECTIONS BY ENGINEER AT WHICH TIME ALL WORK TO BE INSPECTED SHALL BE COMPLETED

PROPRIETARY FIXINGS AND TIMBER CONNECTORS SHALL BE SELECTED IN ACCORDANCE WITH NZS3604:20211 SECTION 4-DURABILITY

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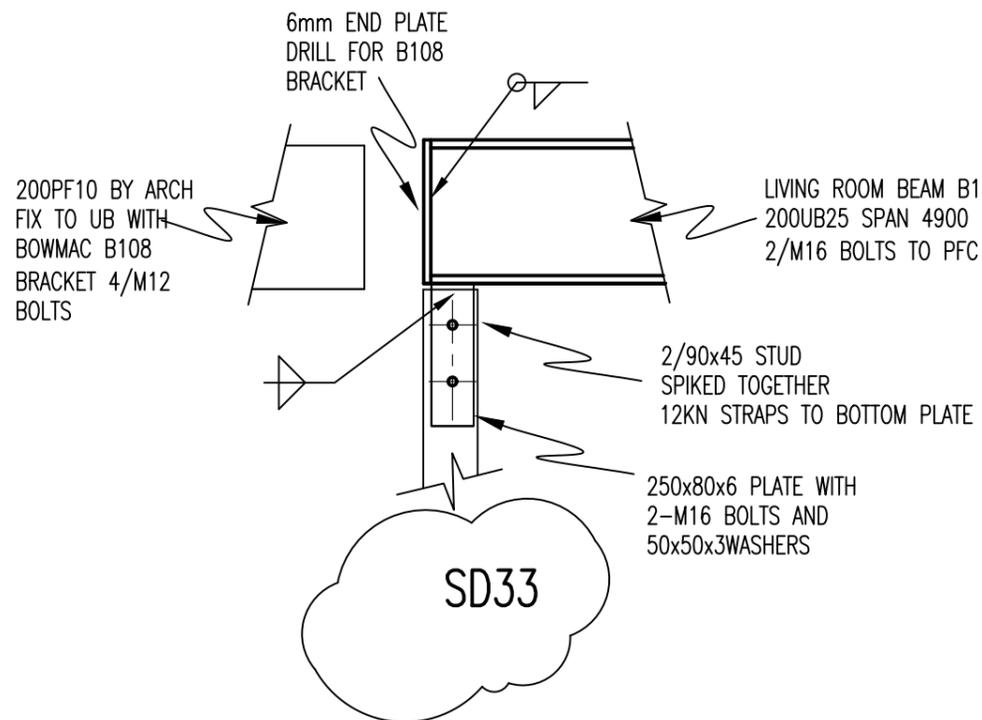
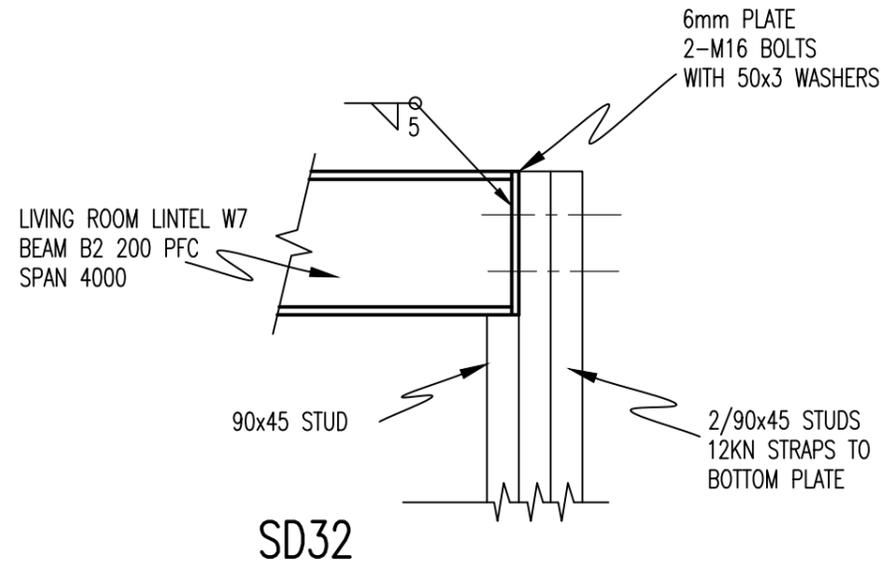
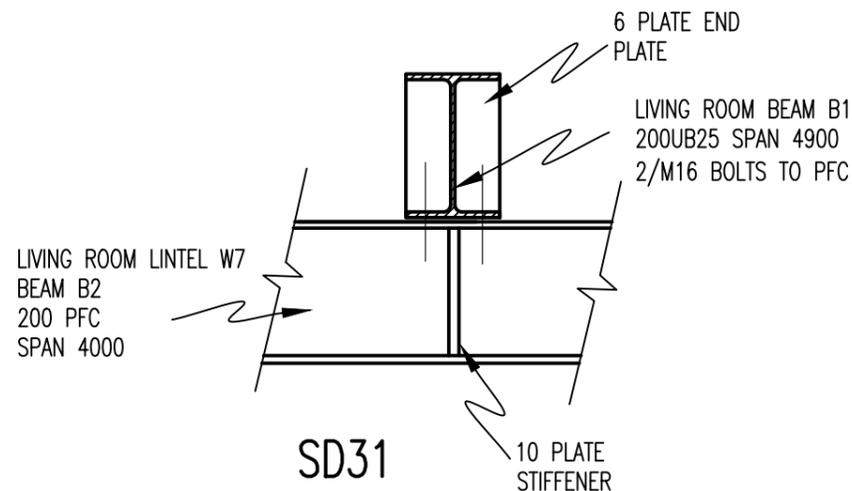


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STRUCTURAL DETAILS			
ATKINSON DWELLING Lot 43 ANDERSON PARK WAIKANAE			
SCALE AS SHOWN			
	NAME	DATE	DRAWING NUMBER
FIELDWORK			23055 SS2
DESIGNED	PB	7/6/23	
DRAWN	PB	8/6/23	
CHECKED	PB	15/6/23	
			SHEET 2 OF 4 SHEETS



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PROPRIETARY FIXINGS AND TIMBER CONNECTORS SHALL BE SELECTED IN ACCORDANCE WITH NZS3604:2011 SECTION 4-DURABILITY

STEEL PROTECTION NOTES

INTERNAL STEELWORK TO HAVE PROTECTION TO NZS-TS-3404 TABLE 4.
 ABRASIVE CLEAN TO CLASS 2½ IZS1 SYSTEM OR EQUIVALENT

STEEL NOT ENCLOSED SHALL BE SAND BLASTED FOLLOWING WHICH SURFACE PREPARATION IS TO COMPRISE CORROSION PROTECTION TO BE RESENE ARMOURCOTE ACC6 IN ACCORDANCE WITH THE MANUFACTURERS SPECIFICATION.

REGULAR MAINTENANCE IS REQUIRED FOR ALL STRUCTURAL STEEL TO ENSURE COMPLIANCE IS TO NZ BUILDING CODE ACCEPTABLE SOLUTION B2/AS2.1.3 DURABILITY FOR CORROSION ZONE D

SERVICES AND SITE SAFETY

THE CONTRACTOR SHALL COMPLY WITH THE HEALTH AND SAFETY ACT AND SITE SAFE REQUIREMENTS

ANY EXISTING SERVICES SHALL BE LOCATED BY THE CONTRACTOR AND IF IN CONFLICT WITH THE STRUCTURE, SHALL NOTIFY THE ENGINEER

ALL NEW SERVICES IN TO THE STRUCTURE SHALL BE PROTECTED WITH FLEXIBLE CONNECTIONS

THE STABILITY OF THE STRUCTURE DURING CONSTRUCTION SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR

No.	AMENDMENT	NAME	DATE
A	DRAFT	PB	15/06
B	CONSENT SS4	PB	11/10
C	SD33	PB	19/12
D	SD22	PB	3/05

NOTES

REFER TO THE ONBOARD ARCHITECTURAL DRAWINGS FOR DIMENSIONS AND DETAILS.
 DO NOT SCALE OFF THIS DRAWING

CHECK ALL DIMENSIONS ON SITE PRIOR TO FABRICATION

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 CHEMICAL PRESERVATION OF ROUND AND SAWN TIMBER SHALL BE IN ACCORDANCE WITH 3640

ALL SAWN AND GLUE LAMINATED TIMBER TO BE GRADE S68 UNLESS NOTED OTHERWISE

ALL BOLTED CONNECTIONS TO HAVE 50x50x3 WASHERS WHERE IN CONTACT WITH TIMBER

PROVIDE MINIMUM 24 HOURS NOTICE FOR INSPECTIONS BY ENGINEER AT WHICH TIME ALL WORK TO BE INSPECTED SHALL BE COMPLETED

PROPRIETARY FIXINGS AND TIMBER CONNECTORS SHALL BE SELECTED IN ACCORDANCE WITH NZS3604:20211 SECTION 4-DURABILITY

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STRUCTURAL DETAILS

ATKINSON DWELLING
 Lot 43
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SCALE
 AS SHOWN

	NAME	DATE	DRAWING NUMBER
FIELDWORK			23055 SS3
DESIGNED	PB	7/6/23	
DRAWN	PB	8/6/23	
CHECKED	PB	15/6/23	

SHEET 3 OF 4 SHEETS

No.	AMENDMENT	NAME	DATE
A	DRAFT	PB	15/06
B	CONSENT SS4	PB	11/10

D SD22 PB 3/05

NOTES

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STRUCTURAL DETAILS

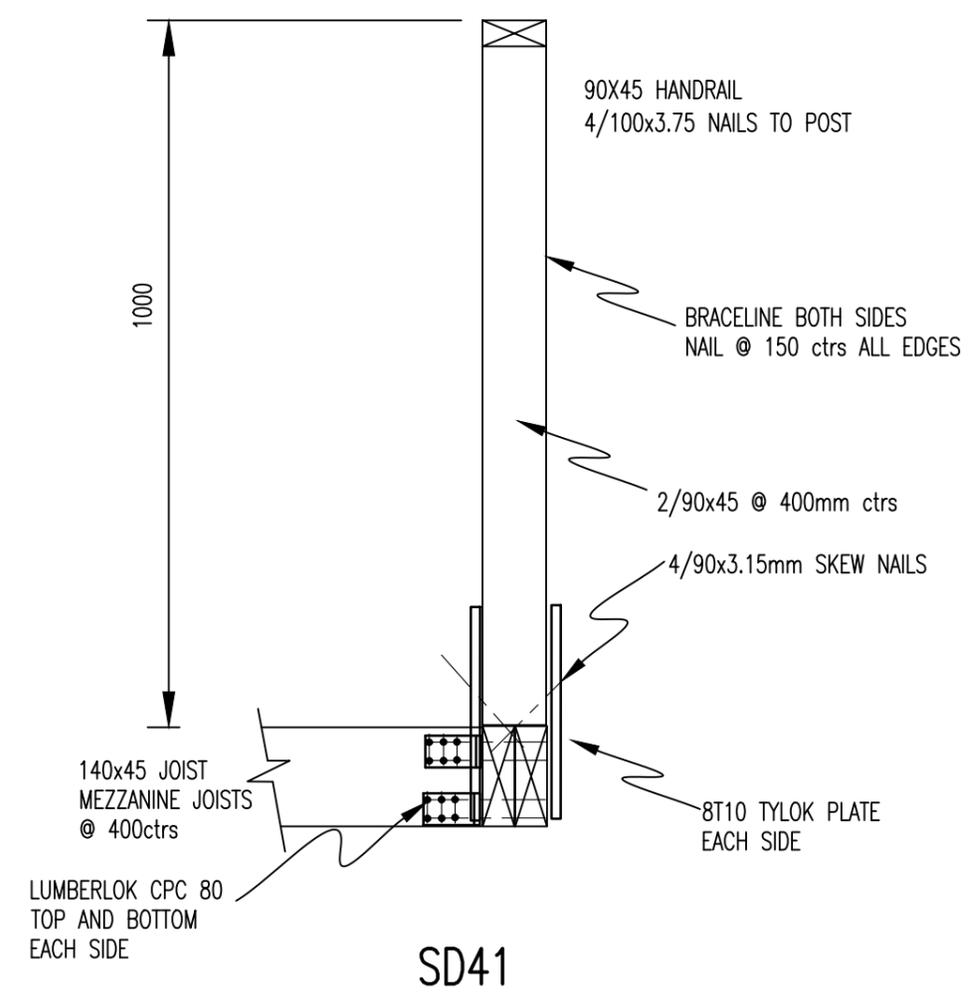
ATKINSON DWELLING
Lot 43
ANDERSON PARK
WAIKANAE

SCALE
AS SHOWN

	NAME	DATE	DRAWING NUMBER
FIELDWORK			23055 SS4
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DRAWN	PB	8/6/23	
CHECKED	PB	15/6/23	

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association
consulting
engineering



PRODUCER STATEMENT – PS1 DESIGN

BUILDING CODE CLAUSE(S): B1/VM1/VM4
ISSUED BY: BASE CONSULTING ENGINEERS LTD.
(Engineering Design Firm)

JOB NUMBER: 23056

TO: T. ATKINSON
(Owner/Developer)

TO BE SUPPLIED TO: KAPITI COAST DISTRICT COUNCIL
(Building Consent Authority)

IN RESPECT OF: ATKINSON DWELLING
(Description of Building Work)

AT: LOT 43 ANDERSON PARK, WAIKANAE
(Address, Town/City)

LEGAL DESCRIPTION:

N/A

We have been engaged by the owner/developer referred to above to provide *(Extent of Engagement):*

The Structural Design for: Ceiling Diaphragm

in respect of the requirements of the Clause(s) of the Building Code specified above for Part only , as specified in the Schedule, of the proposed building work.

The design carried out by us has been prepared in accordance with:

- Compliance documents issued by the Ministry of Business, Innovation & Employment *(Verification method/acceptable solution)* AS/NZS: 1170; NZS: 3603 and/or;
- Alternative solution as per the attached Schedule.

The proposed building work covered by this producer statement is described on the drawings specified in the Schedule, together with the specification, and other documents set out in the Schedule.

On behalf of the Engineering Design Firm, and subject to:

- Site verification of the following design assumptions: CGW Report 21852-RPT-G-002- A
- All proprietary products meeting their performance specification requirements;

I believe on reasonable grounds that:

- the building, if constructed in accordance with the drawings, specifications, and other documents provided or listed in the Schedule, will comply with the relevant provisions of the Building Code and that;
- the persons who have undertaken the design have the necessary competency to do so.

I recommend the CM 2 level of **construction monitoring**.

I, *(Name of Engineering Design Professional)* PETER BOLTON, am:

- CPEng number 56179

and hold the following qualifications BE CIVIL

The Engineering Design Firm holds a current policy of Professional Indemnity Insurance no less than \$200,000

The Engineering Design Firm is not a member of ACE New Zealand.

SIGNED BY *(Name of Engineering Design Professional):* PETER BOLTON

(Signature below)

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ON BEHALF OF *(Engineering Design Firm):* BASE CONSULTING ENGINEERS LTD.

Date: 03/05/2024

Note: This statement has been prepared solely for the Building Consent Authority named above and shall not be relied upon by any other person or entity. Any liability in relation to this statement accrues to the Engineering Design Firm only. As a condition of reliance on this statement, the Building Consent Authority accepts that the total maximum amount of liability of any kind arising from this statement and all other statements provided to the Building Consent Authority in relation to this building work, whether in tort or otherwise, is limited to the sum of \$200,000.

This form is to accompany **Form 2 of the Building (Forms) Regulations 2004** for the application of a Building Consent.

SCHEDULE to PS1

Please include an itemised list of all referenced documents, drawings, or other supporting materials in relation to this producer statement below:

24024- Design and Drawings; Schedule of Construction Monitoring

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GUIDANCE ON USE OF PRODUCER STATEMENTS

Information on the use of Producer Statements and Construction Monitoring Guidelines can be found on the Engineering New Zealand website

<https://www.engineeringnz.org/engineer-tools/engineering-documents/producer-statements/>

Producer statements were first introduced with the Building Act 1991. The producer statements were developed by a combined task committee consisting of members of the New Zealand Institute of Architects (NZIA), Institution of Professional Engineers New Zealand (now Engineering New Zealand), Association of Consulting and Engineering New Zealand (ACE NZ) in consultation with the Building Officials Institute of New Zealand (BOINZ). The original suite of producer statements has been revised at the date of this form to ensure standard use within the industry.

The producer statement system is intended to provide Building Consent Authorities (BCAs) with part of the reasonable grounds necessary for the issue of a Building Consent or a Code Compliance Certificate, without necessarily having to duplicate review of design or construction monitoring undertaken by others.

PS1 DESIGN Intended for use by a suitably qualified independent engineering design professional in circumstances where the BCA accepts a producer statement for establishing reasonable grounds to issue a Building Consent;

PS2 DESIGN REVIEW Intended for use by a suitably qualified independent engineering design review professional where the BCA accepts an independent design professional's review as the basis for establishing reasonable grounds to issue a Building Consent;

PS3 CONSTRUCTION Forms commonly used as a certificate of completion of building work are Schedule 6 of NZS 3910:2013 or Schedules E1/E2 of NZIA's SCC 2011²

PS4 CONSTRUCTION REVIEW Intended for use by a suitably qualified independent engineering construction monitoring professional who either undertakes or supervises construction monitoring of the building works where the BCA requests a producer statement prior to issuing a Code Compliance Certificate.

This must be accompanied by a statement of completion of building work (Schedule 6).

The following guidelines are provided by ACE New Zealand and Engineering New Zealand to interpret the Producer Statement.

Competence of Engineering Professional

This statement is made by an engineering firm that has undertaken a contract of services for the services named, and is signed by a person authorised by that firm to verify the processes within the firm and competence of its personnel.

The person signing the Producer Statement on behalf of the engineering firm will have a professional qualification and proven current competence through registration on a national competence-based register such as a Chartered Professional Engineer (CPEng).

Membership of a professional body, such as Engineering New Zealand provides additional assurance of the designer's standing within the profession. If the engineering firm is a member of ACE New Zealand, this provides additional assurance about the standing of the firm.

Persons or firms meeting these criteria satisfy the term "suitably qualified independent engineering professional".

Professional Indemnity Insurance

As part of membership requirements, ACE New Zealand requires all member firms to hold Professional Indemnity Insurance to a minimum level.

The PI Insurance minimum stated on the front of this form reflects standard practice for the relationship between the BCA and the engineering firm.

Professional Services during Construction Phase

There are several levels of service that an engineering firm may provide during the construction phase of a project (CM1-CM5 for engineers³). The building Consent Authority is encouraged to require that the service to be provided by the engineering firm is appropriate for the project concerned.

Requirement to provide Producer Statement PS4

Building Consent Authorities should ensure that the applicant is aware of any requirement for producer statements for the construction phase of building work at the time the building consent is issued as no design professional should be expected to provide a producer statement unless such a requirement forms part of the Design Firm's engagement.

Refer Also:

- ¹ Conditions of Contract for Building & Civil Engineering Construction NZS 3910: 2013
- ² NZIA Standard Conditions of Contract SCC 2011
- ³ Guideline on the Briefing & Engagement for Consulting Engineering Services (ACE New Zealand/Engineering New Zealand 2004)
- ⁴ PN01 Guidelines on Producer Statements

www.acenz.org.nz

www.engineeringnz.org

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Form 2A

**Memorandum from licensed building practitioner: Certificate of design work
 Section 45 and Section 30C, Building Act 2004**

Please fill in the form as fully and correctly as possible.

If there is insufficient room on the form for requested details, please continue on another sheet and attach the additional sheet(s) to this form.

THE BUILDING

Street address: LOT 43 ANDERSON PARK

Town/City: WAIKANAE

Postcode:

THE OWNER

Name: T. ATKINSON

Mailing address:

Suburb:

PO Box/Private Bag:

Town/City:

Postcode:

Phone number:

Email address:

BASIS FOR PROVIDING THIS MEMORANDUM

I am providing this memorandum in my role as the: Please tick the option that applies (✓)	
<input type="checkbox"/>	sole designer of all of the RBW design outlined in this memorandum – I carried out all of the RBW design myself – no other person will be providing any additional memoranda for the project
<input type="checkbox"/>	lead designer who carried out some of the RBW design myself but also supervised other designers – this memorandum covers their RBW design work as well as mine, and no other person will be providing any additional memoranda for the project
<input type="checkbox"/>	lead designer for all but specific elements of RBW – this memorandum only covers the RBW design work that I carried out or supervised and the other designers will provide their own memoranda relating to their specific RBW design
<input checked="" type="checkbox"/>	specialist designer who carried out specific elements of RBW design work as outlined in this memorandum – other designers will be providing a memorandum covering the remaining RBW design work

IDENTIFICATION OF DESIGN WORK THAT IS RESTRICTED BUILDING WORK (RBW)

I, Peter Bolton, carried out the following design work that is restricted building work

PRIMARY STRUCTURE: B1

Design work that is restricted building work	Description	Carried out/ supervised	Reference to plans and specifications
Tick(✓) if included Cross (X) if excluded	[If appropriate, provide details of the restricted building work]	[Specify whether you carried out this design work or supervised]	[If appropriate, specify references]

		<i>someone else carrying out this design work]</i>	
--	--	--	--

Primary structure

All RBW Design work relating to B1	()		() Carried out () Supervised	
Foundations and subfloor framing	()		() Carried out () Supervised	
Walls	()		() Carried out () Supervised	
Roof	()		() Carried out () Supervised	
Columns and beams	()		() Carried out () Supervised	
Bracing	()		() Carried out () Supervised	
Other	(√)	Ceiling Diaphragm	(√) Carried out () Supervised	23056

EXTERNAL MOISTURE MANAGEMENT SYSTEMS: E2

All RBW design work relating to E2	()		() Carried out () Supervised	
Damp proofing	()		(√) Carried out () Supervised	
Roof cladding or roof cladding system	()		() Carried out () Supervised	
Ventilation (for example subfloor or cavity)	()		() Carried out () Supervised	
Wall cladding or wall cladding system	()		() Carried out () Supervised	
Waterproofing	()		() Carried out () Supervised	
Other	()		() Carried out () Supervised	

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FIRE SAFETY SYSTEMS: C1 – C6

Emergency warning systems, evacuation and fire	()		() Carried out () Supervised	
--	-----	--	-----------------------------------	--

service operation systems, suppression or control systems, or other			
---	--	--	--

Note: The design of fire safety systems is only restricted building work when it involves small-to-medium apartment buildings as defined by the Building (Definition of Restricted Building Work) Order 2011.

Note: continue on another page if necessary.

WAIVERS AND MODIFICATIONS

Waivers or modifications of the building code are required () Yes (√) No

If Yes, provide details of the waivers or modifications below:

Clause	Waiver/modification required
<i>[List relevant clause numbers of building code]</i>	<i>[Specify nature of waiver or modification of building code]</i>

Note: continue on another page if necessary.

ISSUED BY

Name: Peter Bolton	LBP or Registration number:56179
The practitioner is a: () Design LBP () Registered architect (√) Chartered Professional Engineer	
Design Entity or Company (optional): Base Consulting Engineers Ltd	
Mailing address (if different from below):	
Street address / Registered office: 279 Oxford Street	
Suburb:	Town/City: Levin
PO Box/Private Bag:	Postcode:
Phone number:	Mobile:0274 444 080
After Hours: BC230628	Fax:
Email address: peter@baseconsulting.co.nz	Website:

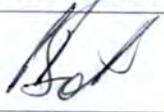
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DECLARATION

I Peter Bolton [name of practitioner], CPEng,

state that I have applied the skill and care reasonably required of a competent design professional in carrying out or supervising the Restricted Building Work (RBW) described in this form, and that based on this, I also state that the RBW:

- Complies with the building code; or
- Complies with the building code subject to any waiver or modification of the building code recorded on this form.

Signature: 

Date: 03 May 2024

To the Kapiti Coast District Council: 03 May 2024

To whom it may concern,

B2 compliance in respect of: Atkinson Dwelling

At: Lot 43 Anderson Park, Waikanae

You have requested a Producer Statement/other means of compliance for Construction Review for Clause B2 of the Building Code – Durability.

The purpose of this letter is to confirm that direct construction monitoring by Base Consulting Engineers Ltd in relation to Clause B2 (Durability) of the Building Code for the above project, has been limited in that material protection or treatment is typically carried out by specialist suppliers and requires specific quality assurance by the suppliers. However, we can confirm the specifically designed structural elements that were included in the design documentation prepared by Base Consulting Engineers Ltd. comply with the applicable verification methods:

Material	Means of Compliance	Details
Reinforced concrete	B1/VM1	Compliance with cover and concrete quality requirements for B1/VM1 are in accordance with NZS3101:2006
Structural timber	B1/VM1	The timber has been specified in accordance with NZS3640:2004. The quality of timber treatment is dependent on the QA systems of manufacturers, suppliers and the onsite contractors and sub-contractors. Refer to the contractor's PS3 and QA records where available.
Mild steel structure	B1/VM1	Protective coatings have been specified in accordance with AS/NZS 2312:2014 and SNZ TS 3404:2018. The quality of mild steel protective coatings is dependent on: <ul style="list-style-type: none">▪ Steel preparation▪ Quality and production consistency of the coating products▪ QA of the application and curing▪ QA of the handling, protection and repair Refer to: <ul style="list-style-type: none">▪ Contractor's and sub-contractor's PS3s and QA records where available▪ Third-party inspection and test results

Yours sincerely,

Peter Bolton CMEngNZ CPEng # 56179



For and on behalf of

Base Consulting Engineers Ltd

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via Email



Job Atterson Ceiling Diaphragm
Lot 43 Anderson Park, Wairarapa

By P. RAYTON

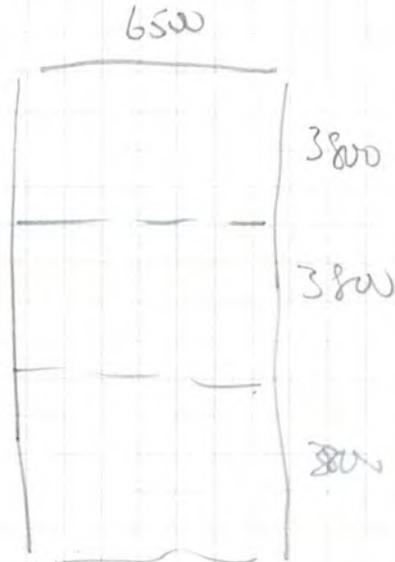
Date 1/5/24

CONSIDER CEILING DIAPHRAGM

Layout

Bracing Requirements

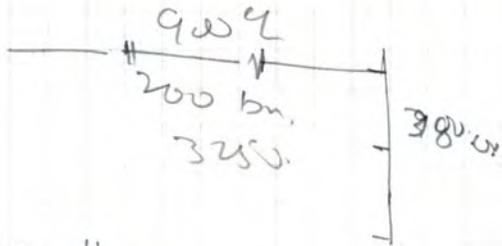
See PA/B2 - previously provided
- bracing diaphragm designed



Page B1
B2
B3
original
calcs

from discussions - construction

200 br. = $200 \times \frac{1}{20} = 10 \text{ kN/edge}$



load / batt

$= 10 \times \frac{1}{3} = 3.33 \text{ kN/batt}$
 $= 2.76 \text{ kN/batt}$

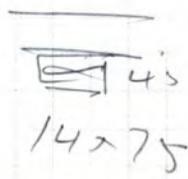
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Capacity

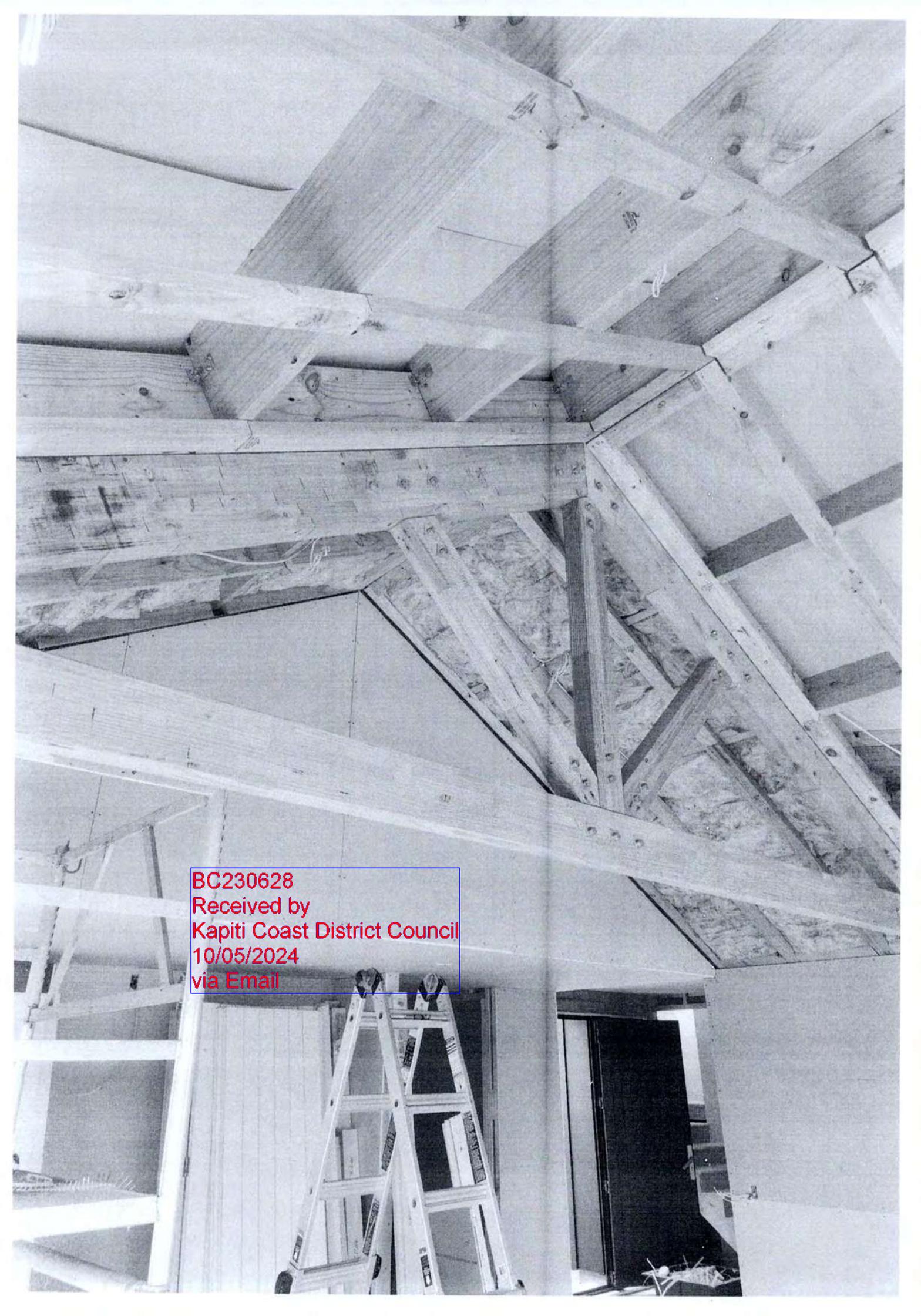
$\phi R_n = 2.0 \times 0.85 \times 0.504 = 0.8$ too low

add battens screws.

$\phi R_n = 2.66 \times 0.85 = 2.3$
 $\frac{2.3}{3.1} = 0.74$



Add
14x75
buckle head
batten screws
@ 900
to battens
to 90x45



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CONSTRUCTION MONITORING REPORT

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PROJECT: **Atkinson Dwelling**

JOB: **23062**

CONTRACTOR: **Finton Greggains**

CONTRACTORS SITE REPRESENTATIVE : **Finton Greggains**

DATE: **16:04:24**

TIME: **9:15am**

INSPECTION No: **#1**

WEATHER CONDITIONS : **fine**

LOCATION: **Lot 43 Anderson Park**

Waikanae

NOTES & PHOTOGRAPHS:

1.1 General Project Overview

Site visit as requested to check timber roof truss and roof beams
Builder +2 on site

1.2 Specific Elements Inspected

BCE plans SS1 and SS2 for truss, member sizes correct, plate and bolt sizes correct
with the exception of SD22.

configuration of framing required rearrangement of bolted truss to top plate connection.

As discussed with builder 30 January, additional plates and Bowmac brackets used.

This is all satisfactory as shown in photos below.

For the roof beams as per SS3, beams are correct,

200PFC for lintel, 200UB25 for beam.

Connection details are all satisfactory.

1.3 Miscellaneous

OK to issue PS4



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Multi studs under truss



GibBrac to truss studs



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200UB25 beam



Peter Bolton
CMEngNZ CPEng
Base Consulting Engineers Ltd



association
consulting
engineering



PRODUCER STATEMENT – PS4 CONSTRUCTION REVIEW

BUILDING CODE CLAUSE(S): B1/VM1/VM4

JOB NUMBER: 23062

ISSUED BY: BASE CONSULTING ENGINEERS LTD.
(Construction Monitoring Firm)

TO: T. ATKINSON
(Owner/Developer)

TO BE SUPPLIED TO: KAPITI COAST DISTRICT COUNCIL
(Building Consent Authority)

IN RESPECT OF: ATKINSON DWELLING
(Description of Building Work)

AT: LOT 43 ANDERSON PARK, WAIKANAE
(Address, Town/City)

LEGAL DESCRIPTION:

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N/A

We have been engaged by the owner/developer referred to above to provide CM 2 level of construction monitoring relating to the Clause(s) named above of the Building Code for the building work which is covered by PS1(s) issued by BASE CONSULTING ENGINEERS LTD. (Engineering Design Firm) and which is described in the documents relating to the Building Consent No. and those relating to Building Consent Amendment(s) No. issued during the course of the works.

We have sighted these Building Consents and the conditions attached to them.
If any of the fields above are too small, please write "refer the Schedule".

Authorised instructions/variation(s) detailed/listed in the Schedule have been issued during the course of the works.

On the basis of these review(s) and information supplied by the contractor during the course of the works and on behalf of the engineering firm undertaking this Construction Monitoring, I believe on reasonable grounds that the building works covered by the above-mentioned PS1(s) have been completed in accordance with the relevant requirements of the Building Consent and Building Consent Amendments identified above or in the Schedule on page 2, with respect to Clause(s) of the Building Code. I also believe on reasonable grounds that the persons who have undertaken this construction review have the necessary competency to do so.

I, (Name of Construction Monitoring Professional) PETER BOLTON, am:

- CPEng number 56179
- I hold the following qualifications BE CIVIL

The Construction Monitoring Firm holds a current policy of Professional Indemnity Insurance no less than \$200,000 The Construction Monitoring Firm is not a member of ACE New Zealand.

SIGNED BY (Name of Construction Monitoring Professional): PETER BOLTON
(Signature below):

ON BEHALF OF (Construction Monitoring Firm): BASE CONSULTING ENGINEERS LTD.

Date: 16/04/24

Note: This statement has been prepared solely for the Building Consent Authority named above and shall not be relied upon by any other person or entity. Any liability in relation to this statement accrues to the Construction Monitoring Firm only. As a condition of reliance on this statement, the Building Consent Authority accepts that the total maximum amount of liability of any kind arising from this statement and all other statements provided to the Building Consent Authority in relation to this building work, whether in tort or otherwise, is limited to the sum of \$200,000.

This form is to accompany Forms 6 or 8 of the Building (Forms) Regulations 2004 for the issue of a Code Compliance Certificate.

THIS FORM AND ITS CONDITIONS ARE COPYRIGHT TO ACE NEW ZEALAND AND ENGINEERING NEW ZEALAND

SCHEDULE to PS4

Please include an itemised list of all referenced documents, drawings, or other supporting materials in relation to this producer statement below:

Construction Monitoring Report: 23062

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GUIDANCE ON USE OF PRODUCER STATEMENTS

Information on the use of Producer Statements and Construction Monitoring Guidelines can be found on the Engineering New Zealand website

<https://www.engineeringnz.org/engineer-tools/engineering-documents/producer-statements/>

Producer statements were first introduced with the Building Act 1991. The producer statements were developed by a combined task committee consisting of members of the New Zealand Institute of Architects (NZIA), Institution of Professional Engineers New Zealand (now Engineering New Zealand), Association of Consulting and Engineering New Zealand (ACE NZ) in consultation with the Building Officials Institute of New Zealand (BOINZ). The original suite of producer statements has been revised at the date of this form to ensure standard use within the industry.

The producer statement system is intended to provide Building Consent Authorities (BCAs) with part of the reasonable grounds necessary for the issue of a Building Consent or a Code Compliance Certificate, without necessarily having to duplicate review of design or construction monitoring undertaken by others.

PS1 DESIGN Intended for use by a suitably qualified independent engineering design professional in circumstances where the BCA accepts a producer statement for establishing reasonable grounds to issue a Building Consent;

PS2 DESIGN REVIEW Intended for use by a suitably qualified independent engineering design review professional where the BCA accepts an independent design professional's review as the basis for establishing reasonable grounds to issue a Building Consent;

PS3 CONSTRUCTION Forms commonly used as a certificate of completion of building work are Schedule 6 of NZS 3910:2013 or Schedules E1/E2 of NZIA's SCC 2011²

PS4 CONSTRUCTION REVIEW Intended for use by a suitably qualified independent engineering construction monitoring professional who either undertakes or supervises construction monitoring of the building works where the BCA requests a producer statement prior to issuing a Code Compliance Certificate.

This must be accompanied by a statement of completion of building work (Schedule 6).

The following guidelines are provided by ACE New Zealand and Engineering New Zealand to interpret the Producer Statement.

Competence of Engineering Professional

This statement is made by an engineering firm that has undertaken a contract of services for the services named, and is signed by a person authorised by that firm to verify the processes within the firm and competence of its personnel.

The person signing the Producer Statement on behalf of the engineering firm will have a professional qualification and proven current competence through registration on a national competence-based register such as a Chartered Professional Engineer (CPEng).

Membership of a professional body, such as Engineering New Zealand provides additional assurance of the designer's standing within the profession. If the engineering firm is a member of ACE New Zealand, this provides additional assurance about the standing of the firm.

Persons or firms meeting these criteria satisfy the term "suitably qualified independent engineering professional".

Professional Indemnity Insurance

As part of membership requirements, ACE New Zealand requires all member firms to hold Professional Indemnity Insurance to a minimum level.

The PI Insurance minimum stated on the front of this form reflects standard practice for the relationship between the BCA and the engineering firm.

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Professional Services during Construction Phase

There are several levels of service that an engineering firm may provide during the construction phase of a project (CM1-CM5 for engineers³). The building Consent Authority is encouraged to require that the service to be provided by the engineering firm is appropriate for the project concerned.

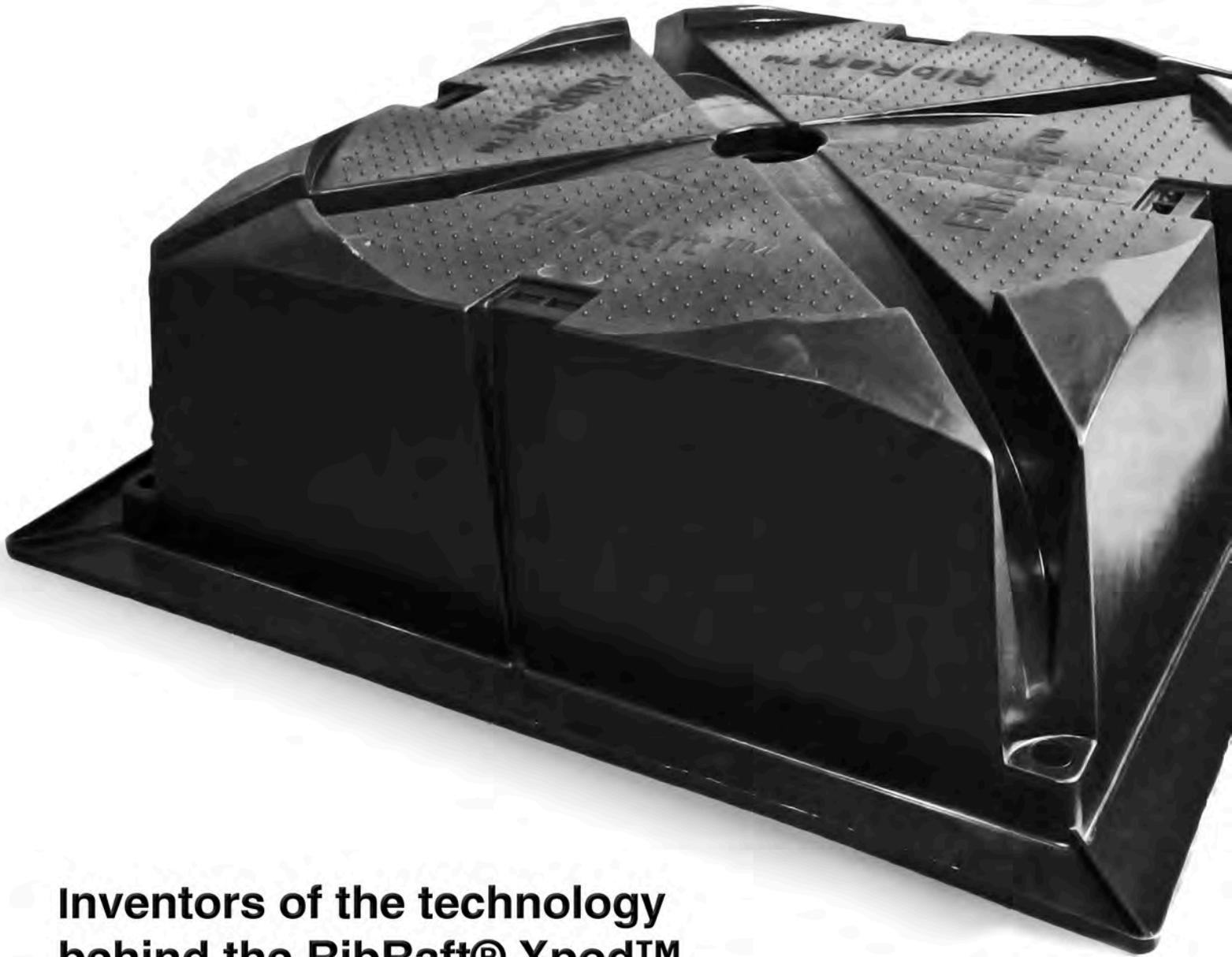
Requirement to provide Producer Statement PS4

Building Consent Authorities should ensure that the applicant is aware of any requirement for producer statements for the construction phase of building work at the time the building consent is issued as no design professional should be expected to provide a producer statement unless such a requirement forms part of the Design Firm's engagement.

Refer Also:

- ¹ Conditions of Contract for Building & Civil Engineering Construction NZS 3910: 2013
- ² NZIA Standard Conditions of Contract SCC 2011
- ³ Guideline on the Briefing & Engagement for Consulting Engineering Services (ACE New Zealand/Engineering New Zealand 2004)
- ⁴ PN01 Guidelines on Producer Statements

www.acenz.org.nz
www.engineeringnz.org



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as we know the RibRaft® Xpod™ Foundation System best.

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LOT 42 AT 110 NGARARA RD - WAIKANAE

PROJECT

7545 C001 A

07.08.23

FPA

JOB

DOCUMENT REV.

DATE

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Foundation Design - Calculation Note

Introduction

This calculation note has been prepared using the Wafflesuite® software.

In particular, a non-linear finite element analysis for a soil-structure interaction has been carried out using the Liquefaction-Induced Parabolic Method (L.I.P.S.), in compliance with MBIE/NZGS Module 4 “Earthquake resistant foundation design” and MBIE Guidance “Repairing and rebuilding houses affected by the Canterbury earthquakes” for the specific soil conditions (ref. to “Soil Performance” Paragraph) and foundation type (Ribraft® XPod™).

For this specific design, the Verification Method that has been adopted to demonstrate compliance with NZBC consists of AS/NZS 1170 used in conjunction with the relevant cited material standards as modified by Verification Method B1/VM1, B1/VM4, B1/AS1.

NZS3101 - 2006 was used to determine the capacities of the structural sections.

The following combinations of actions have been considered in the analysis:

ULS and SLS (waffle raft):

$E_d = [G + 0.3Q + L]$ permanent, imposed actions and soil loss of support actions

ULS (Short-term actions on soil):

$E_d = [1.2G + 1.5Q]$ permanent and imposed actions

SLS (Long-term actions on soil):

$E_d = [G + 0.4Q]$ permanent and imposed actions

This document and the annexed plans shall be read in conjunction with the Ribraft® XPod™ Designers guide issued by Firth Industries and it is accompanied by a Producer Statement Design.

Software Disclaimer

Anyone who distributes this document is a suitably qualified professional who has read the Wafflesuite® User Terms, understands them and agrees to be bound by them.

Wafflesuite® is a software developed by Cresco Group www.cresco-group.com

Project Information

Client:	Tim Atkinson
Job Number:	7545
Project address- Street:	Lot 42 at 110 Ngarara Rd
Project address - Town/City:	Waikanae
Project address - Local Authority:	Kapiti Coast District Council

Soil Performance

Stable/Soft Soil:	No
Expansive Soil:	No
Liquefaction Prone Soil:	Yes
Ultimate Bearing Capacity:	200 kPa
Building Platform Stiffness:	10000 kPa/m
Natural Soil Unit Weight:	18 kN/m
Liquefaction Potential	TC2-LIKE
Total Liquefaction Settlements at ULS:	100 mm
Total Liquefaction Settlements at SLS:	50 mm

Foundation Type

Waffle raft system:	XPOD-750
Edge Beam Protrusion Beyond Waffle Raft Overall Standard Depth:	NIL
Foundation type:	Shallow
Engineered Fill Thickness Below Ground Level (BGL):	200 mm
Engineered Fill Thickness Above Ground Level (AGL):	0 mm
Fill Unit Weight :	22 kN/m

Load Analysis

Rectangle 1

1 storey
Lightweight roof
Standard Edge Beams

EL1	EL2	EB1	EB2
12.8 m	12.8 m	6.3 m	6.3 m
1. Cladframe	1. Cladframe	1. Cladframe	1. Cladframe
G = 2.4 kN/m	G = 2.4 kN/m	G = 1.8 kN/m	G = 1.8 kN/m
Q = 0.9 kN/m	Q = 0.9 kN/m	Q = 0.3 kN/m	Q = 0.3 kN/m

User defined additional loads:

Load #1: G= 1.4 kN/m Q= 2.3 kN/m

Load #2: G= 1.4 kN/m Q= 2.3 kN/m

Rectangle 2

1 storey
Lightweight roof
Standard Edge Beams

EL1	EL2	EB1	EB2
15.9 m	15.9 m	10.25 m	10.25 m
1. Cladframe	1. Cladframe	1. Cladframe	1. Cladframe
G = 1.4 kN/m	G = 1.4 kN/m	G = 2.4 kN/m	G = 2.1 kN/m
Q = 0.3 kN/m	Q = 0.3 kN/m	Q = 0.9 kN/m	Q = 0.7 kN/m

User defined additional loads:

Load #1: G= 2.9 kN/m Q= 1.3 kN/m

Load #2: G= 0.9 kN/m Q= 0.5 kN/m

Load #3: G= 0.9 kN/m Q= 0.5 kN/m

Load #4: G = 6.7 kN Q = 4.2 kN

Load #5: G = 4.4 kN Q = 2.8 kN

Load #6: G= 1.4 kN/m Q= 2.3 kN/m

Load #7: G= 1.4 kN/m Q= 2.3 kN/m

Rib Reinforcing Summary

Rectangle 1		
	TOP Reinforcing	BTM Reinforcing
RB*	SE72 + 1 HD12 @rib	1 HD12 @rib
RL*	SE72	1 HD12 @rib
RB1	SE72	1 HD12 @rib
RB2	SE72	1 HD12 @rib
Rectangle 2		
	TOP Reinforcing	BTM Reinforcing
RL*	SE72	1 HD12 @rib
RB*	SE72	1 HD12 @rib

Design Summary

LIQUEFACTION POTENTIAL	TC2-LIKE
TOTAL LIQUEFACTION SETTLEMENTS AT ULS	100 mm
TOTAL LIQUEFACTION SETTLEMENTS AT SLS	50 mm
ULTIMATE BEARING CAPACITY	200 kPa
WAFFLE RAFT TYPE	RIBRAFT X-POD 750
TOP SLAB THICKNESS (T)	85 mm
WAFFLE RAFT OVERALL DEPTH (H)	300 mm
RIB SPACING	750 mm
INTERNAL RIB AVERAGE WIDTH	135 mm
EDGE BEAM MINIMUM WIDTH (B)	300 mm
INTERNAL RIB BTM REINFORCING (M1)	1 HD12
INTERNAL RIB TOP REINFORCING (M2)	1 HD12 (WHERE SPECIFIED)
EDGE BEAM BTM REINFORCING (M3)	2 HD12
EDGE BEAM TOP REINFORCING (M4)	1 HD12
SLAB FABRIC	SE72 TOP
CONCRETE STRENGTH (fc')	20 MPa (Firth mixcode IP2019X)
DESIGNED WITH WAFFLESUITE	REF CRSA-8514-0823

Checks Summary

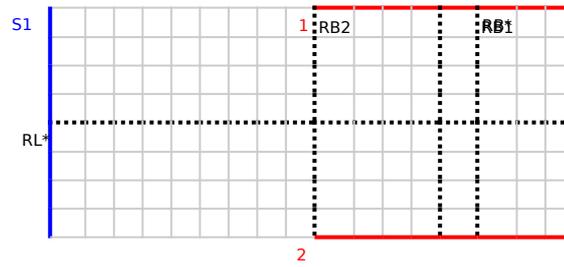
Rib

Deflection ratio = 1 in 262 < 1 in 200 over 2 m cantilever
 $M^*, \text{hog} = 13.7 \text{ kNm} < \Phi M_{u, \text{hog}} = 22 \text{ kNm}$
 $M^*, \text{sag} = 10.9 \text{ kNm} < \Phi M_{u, \text{sag}} = 17.6 \text{ kNm}$
 $V^*, \text{max} = 9 \text{ kN} < \Phi V_u = 17 \text{ kN}$
 $P^*, \text{short term} = 14.5 \text{ kPa} < \text{DBC} = 100 \text{ kPa}$
 $P^*, \text{long term} = 9.6 \text{ kPa} < \text{ABC} = 66.7 \text{ kPa}$

Edge Beam

Deflection ratio = 1 in 291 < 1 in 200 over 2 m cantilever
 $M^*, \text{hog} = 22.7 \text{ kNm} < \Phi M_{u, \text{hog}} = 23 \text{ kNm}$
 $M^*, \text{sag} = 15.5 \text{ kNm} < \Phi M_{u, \text{sag}} = 28 \text{ kNm}$
 $V^*, \text{max} = 13.9 \text{ kN} < \Phi V_u = 39.6 \text{ kN}$
 $P^*, \text{short term} = 25.3 \text{ kPa} < \text{DBC} = 100 \text{ kPa}$
 $P^*, \text{long term} = 16.1 \text{ kPa} < \text{ABC} = 66.7 \text{ kPa}$

Rectangle 1 - Loss of Support 1



Loads

Loads in accordance with paragraph "Load Analysis"

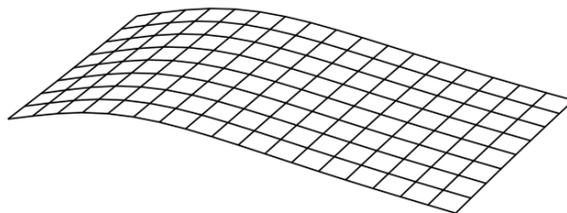
Notes

S: Line where maximum loss of support occurs

RL: Rib for analysis along L

RB: Rib for analysis along B

The loads shown on this diagram are additional to the edge loads induced by the external walls and to the uniform surface load induced by the waffle raft.



Edge Beam (EL) - Summary

Deflection ratio = 1 in 355 < 1 in 200 over 2 m cantilever

$M^*,\text{hog} = 18.9 \text{ kNm} < \Phi M_{u,\text{hog}} = 23 \text{ kNm}$

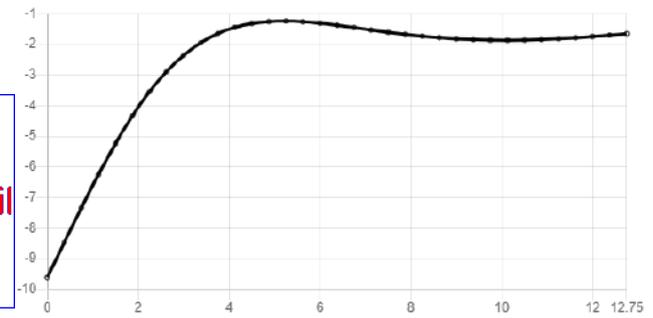
$M^*,\text{sag} = 1.6 \text{ kNm} < \Phi M_{u,\text{sag}} = 28 \text{ kNm}$

$V^*,\text{max} = 12.2 \text{ kN} < \Phi V_u = 39.6 \text{ kN}$

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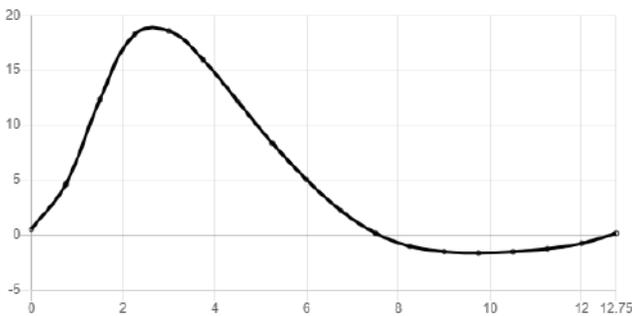
Edge Beam (EL) - Deflection

[X:m, Y:mm]



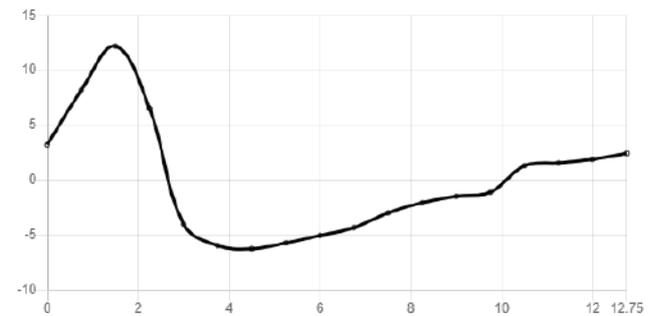
Edge Beam (EL) - Bending Moment (M*)

[X:m, Y:kNm/rib]



Edge Beam (EL) - Shear Force (V*)

[X:m, Y:kN/rib]



Edge Beam (EB) - Summary

Deflection ratio check not required along this direction

$M^*,\text{hog} = 0.6 \text{ kNm} < \Phi M_{u,\text{hog}} = 23 \text{ kNm}$

$M^*,\text{sag} = 1.7 \text{ kNm} < \Phi M_{u,\text{sag}} = 28 \text{ kNm}$

$V^*,\text{max} = 3.2 \text{ kN} < \Phi V_u = 39.6 \text{ kN}$

Edge Beam (EB) - Deflection

[X:m, Y:mm]



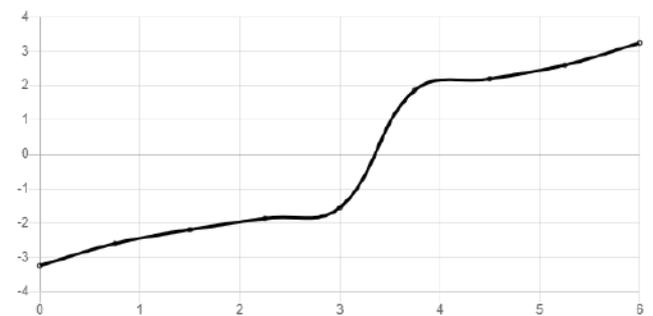
Edge Beam (EB) - Bending Moment (M*)

[X:m, Y:kNm/rib]



Edge Beam (EB) - Shear Force (V*)

[X:m, Y:kN/rib]



Rib (RL*) - Summary

Deflection ratio = 1 in 340 < 1 in 200 over 2 m cantilever

$M^*,\text{hog} = 10.8 \text{ kNm} < \Phi M_{u,\text{hog}} = 13.5 \text{ kNm}$

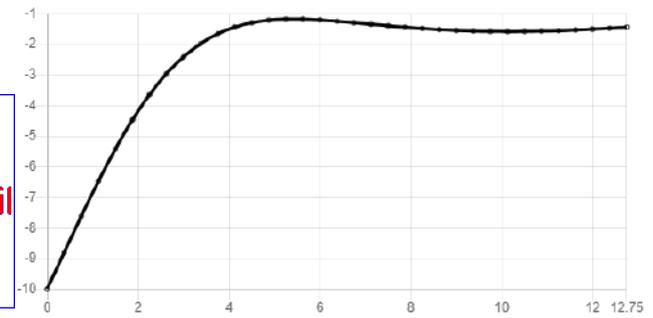
$M^*,\text{sag} = 0.9 \text{ kNm} < \Phi M_{u,\text{sag}} = 15 \text{ kNm}$

$V^*,\text{max} = 6.9 \text{ kN} < \Phi V_u = 17 \text{ kN}$

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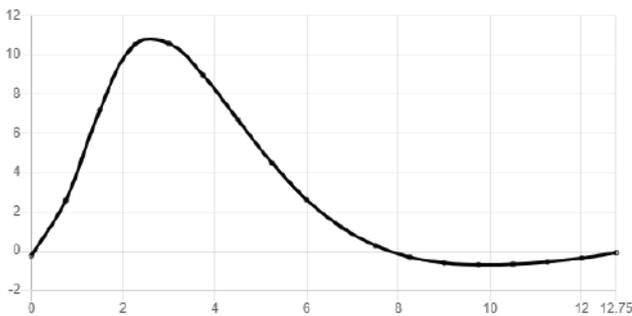
Rib (RL*) - Deflection

[X:m, Y:mm]



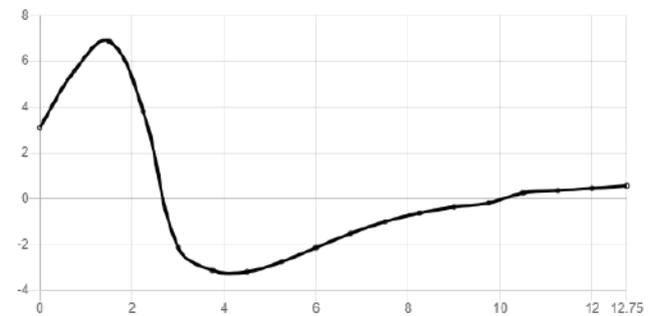
Rib (RL*) - Bending Moment (M*)

[X:m, Y:kNm/rib]



Rib (RL*) - Shear Force (V*)

[X:m, Y:kN/rib]



Rib (RB*) - Summary

Deflection ratio check not required along this direction

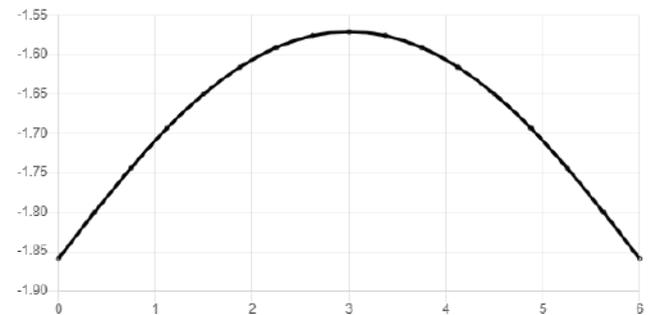
$M^*,\text{hog} = 0.8 \text{ kNm} < \Phi M_{u,\text{hog}} = 13.5 \text{ kNm}$

$M^*,\text{sag} = 0.7 \text{ kNm} < \Phi M_{u,\text{sag}} = 15 \text{ kNm}$

$V^*,\text{max} = 1.3 \text{ kN} < \Phi V_u = 17 \text{ kN}$

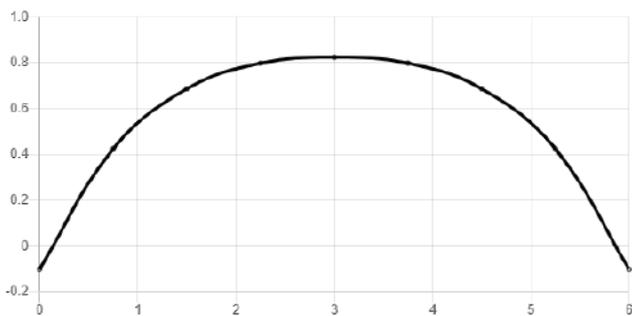
Rib (RB*) - Deflection

[X:m, Y:mm]



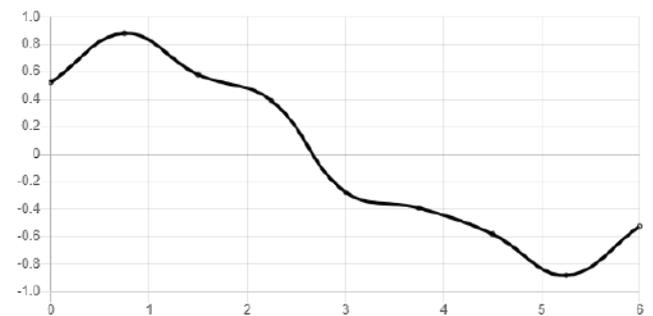
Rib (RB*) - Bending Moment (M*)

[X:m, Y:kNm/rib]



Rib (RB*) - Shear Force (V*)

[X:m, Y:kN/rib]



Rib (RB1) - Summary

Deflection ratio check not required along this direction

$M^*, \text{hog} = 0.8 \text{ kNm} < \Phi M_{u, \text{hog}} = 13.5 \text{ kNm}$

$M^*, \text{sag} = 0.1 \text{ kNm} < \Phi M_{u, \text{sag}} = 15 \text{ kNm}$

$V^*, \text{max} = 1.2 \text{ kN} < \Phi V_u = 17 \text{ kN}$

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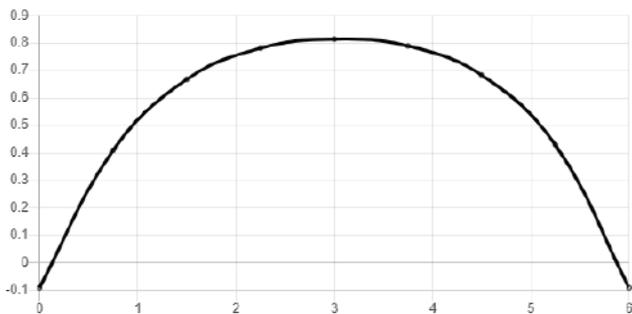
Rib (RB1) - Deflection

[X:m, Y:mm]



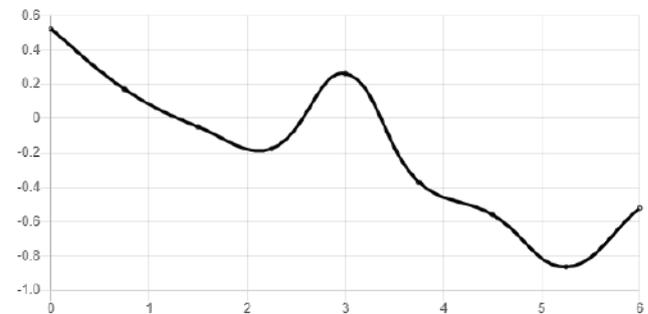
Rib (RB1) - Bending Moment (M*)

[X:m, Y:kNm/rib]



Rib (RB1) - Shear Force (V*)

[X:m, Y:kN/rib]



Rib (RB2) - Summary

Deflection ratio check not required along this direction

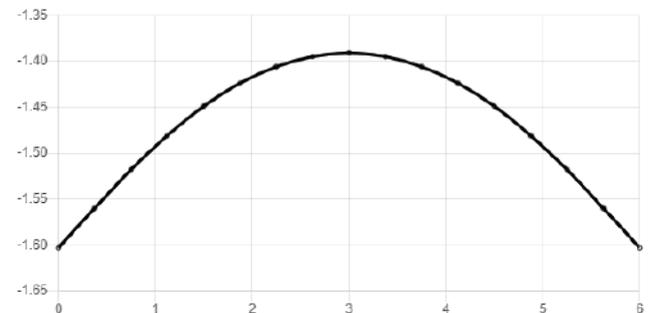
$M^*, \text{hog} = 0.5 \text{ kNm} < \Phi M_{u, \text{hog}} = 13.5 \text{ kNm}$

$M^*, \text{sag} = 0 \text{ kNm} < \Phi M_{u, \text{sag}} = 15 \text{ kNm}$

$V^*, \text{max} = 0.7 \text{ kN} < \Phi V_u = 17 \text{ kN}$

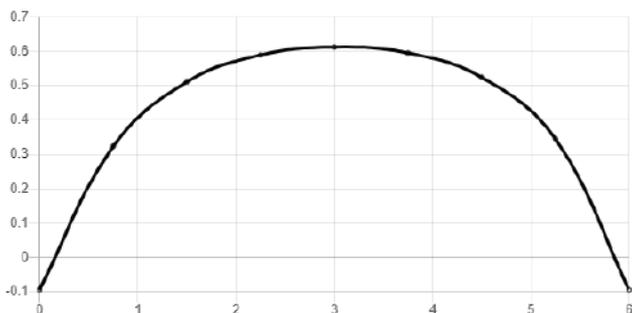
Rib (RB2) - Deflection

[X:m, Y:mm]



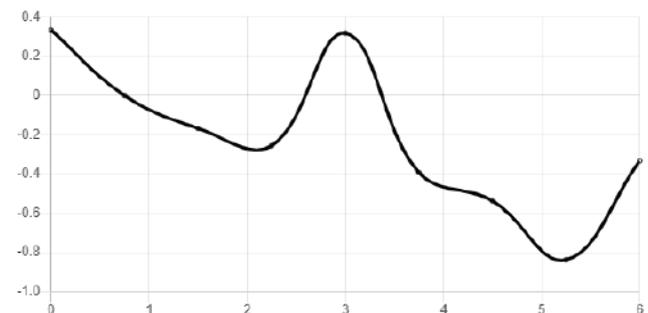
Rib (RB2) - Bending Moment (M*)

[X:m, Y:kNm/rib]

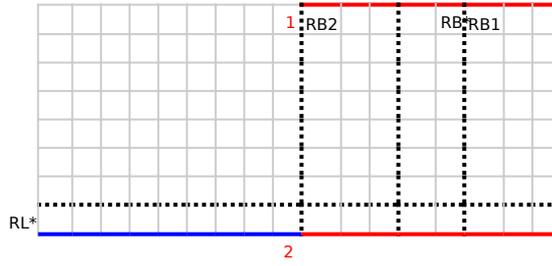


Rib (RB2) - Shear Force (V*)

[X:m, Y:kN/rib]



Rectangle 1 - Loss of Support 2



Loads

Loads in accordance with paragraph "Load Analysis"

S2

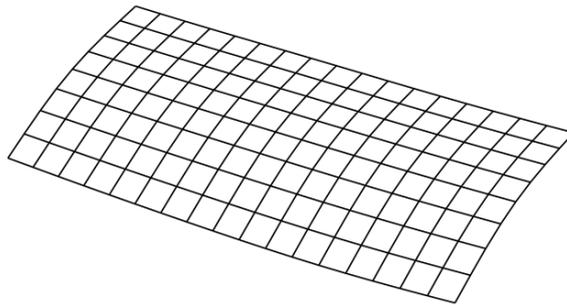
Notes

S: Line where maximum loss of support occurs

RL: Rib for analysis along L

RB: Rib for analysis along B

The loads shown on this diagram are additional to the edge loads induced by the external walls and to the uniform surface load induced by the waffle raft.



Edge Beam (EL) - Summary

Deflection ratio check not required along this direction

$M^*, \text{hog} = 1.2 \text{ kNm} < \Phi M_{u, \text{hog}} = 23 \text{ kNm}$

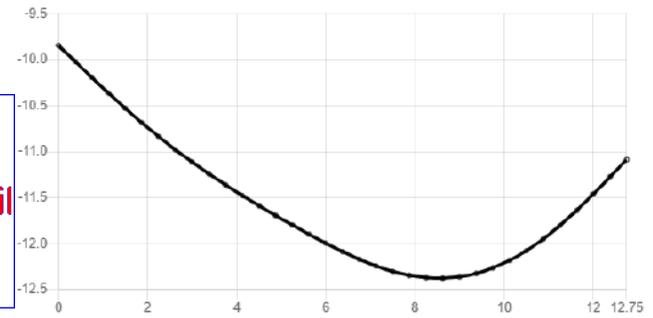
$M^*, \text{sag} = 3.2 \text{ kNm} < \Phi M_{u, \text{sag}} = 28 \text{ kNm}$

$V^*, \text{max} = 5.3 \text{ kN} < \Phi V_u = 39.6 \text{ kN}$

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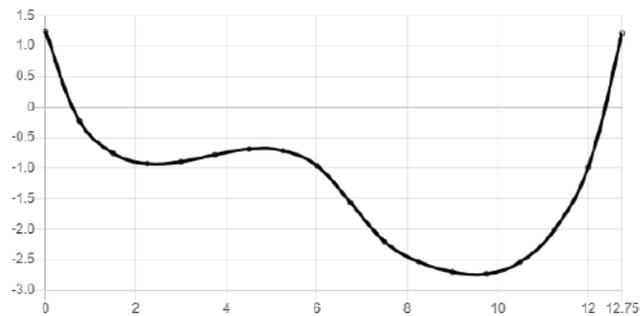
Edge Beam (EL) - Deflection

[X:m, Y:mm]



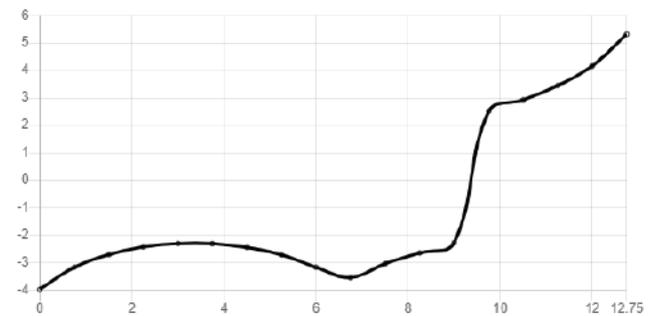
Edge Beam (EL) - Bending Moment (M*)

[X:m, Y:kNm/rib]



Edge Beam (EL) - Shear Force (V*)

[X:m, Y:kN/rib]



Edge Beam (EB) - Summary

Deflection ratio = 1 in 291 < 1 in 200 over 2 m cantilever

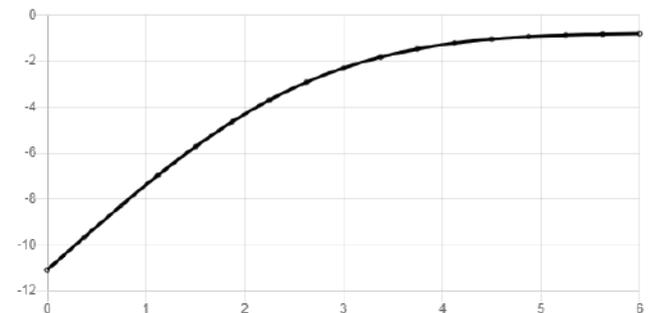
$M^*, \text{hog} = 22.4 \text{ kNm} < \Phi M_{u, \text{hog}} = 23 \text{ kNm}$

$M^*, \text{sag} = 0 \text{ kNm} < \Phi M_{u, \text{sag}} = 28 \text{ kNm}$

$V^*, \text{max} = 13.9 \text{ kN} < \Phi V_u = 39.6 \text{ kN}$

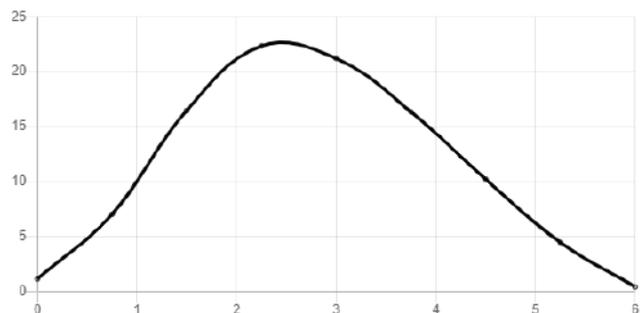
Edge Beam (EB) - Deflection

[X:m, Y:mm]



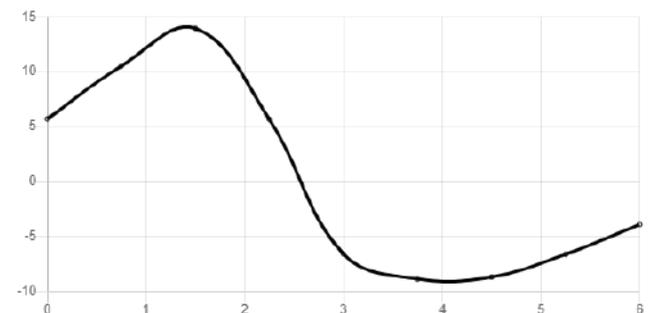
Edge Beam (EB) - Bending Moment (M*)

[X:m, Y:kNm/rib]



Edge Beam (EB) - Shear Force (V*)

[X:m, Y:kN/rib]



Rib (RL*) - Summary

Deflection ratio check not required along this direction

$M^*,\text{hog} = 0.2 \text{ kNm} < \Phi M_{u,\text{hog}} = 13.5 \text{ kNm}$

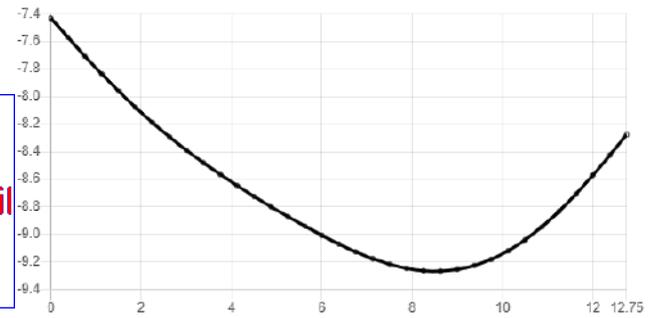
$M^*,\text{sag} = 1.3 \text{ kNm} < \Phi M_{u,\text{sag}} = 15 \text{ kNm}$

$V^*,\text{max} = 1.6 \text{ kN} < \Phi V_u = 17 \text{ kN}$

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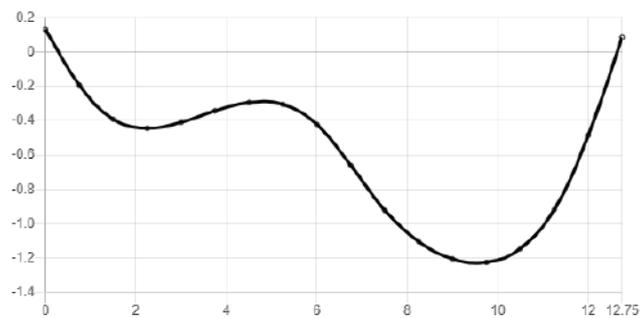
Rib (RL*) - Deflection

[X:m, Y:mm]



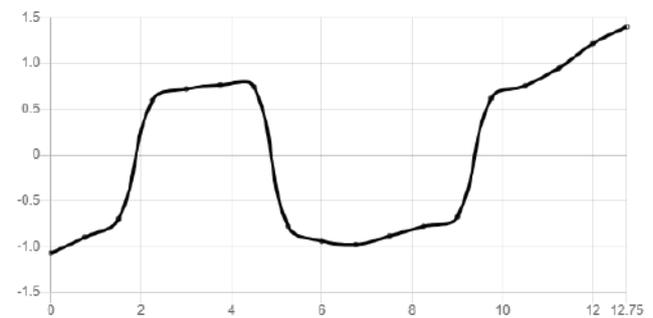
Rib (RL*) - Bending Moment (M*)

[X:m, Y:kNm/rib]



Rib (RL*) - Shear Force (V*)

[X:m, Y:kN/rib]



Rib (RB*) - Summary

Deflection ratio = 1 in 262 < 1 in 200 over 2 m cantilever

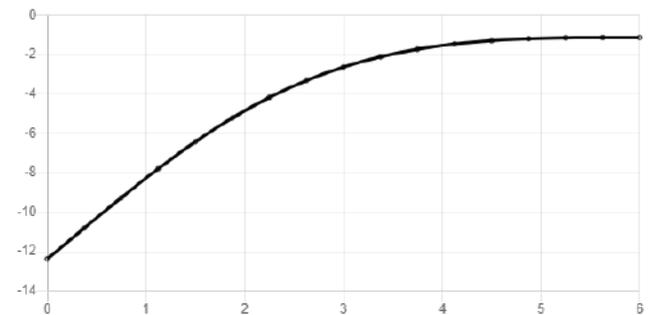
$M^*,\text{hog} = 13.7 \text{ kNm} < \Phi M_{u,\text{hog}} = 22 \text{ kNm}$

$M^*,\text{sag} = 0.4 \text{ kNm} < \Phi M_{u,\text{sag}} = 17.6 \text{ kNm}$

$V^*,\text{max} = 9 \text{ kN} < \Phi V_u = 17 \text{ kN}$

Rib (RB*) - Deflection

[X:m, Y:mm]



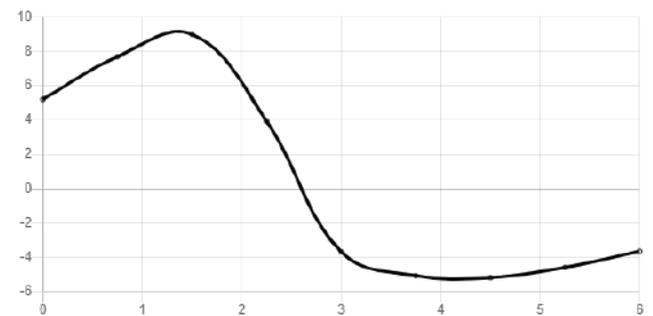
Rib (RB*) - Bending Moment (M*)

[X:m, Y:kNm/rib]



Rib (RB*) - Shear Force (V*)

[X:m, Y:kN/rib]



Rib (RB1) - Summary

Deflection ratio = 1 in 268 < 1 in 200 over 2 m cantilever

$M^*, \text{hog} = 13.5 \text{ kNm} < \Phi M_{u, \text{hog}} = 13.5 \text{ kNm}$

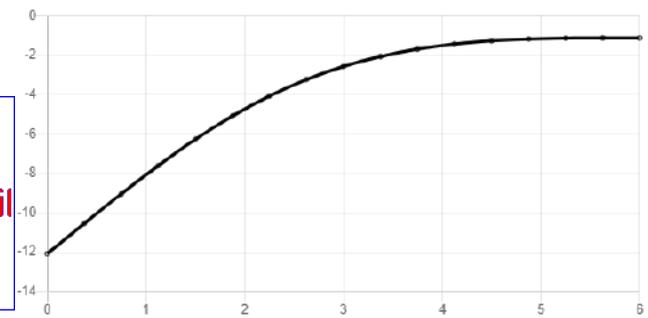
$M^*, \text{sag} = 0.3 \text{ kNm} < \Phi M_{u, \text{sag}} = 15 \text{ kNm}$

$V^*, \text{max} = 8.7 \text{ kN} < \Phi V_u = 17 \text{ kN}$

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Rib (RB1) - Deflection

[X:m, Y:mm]



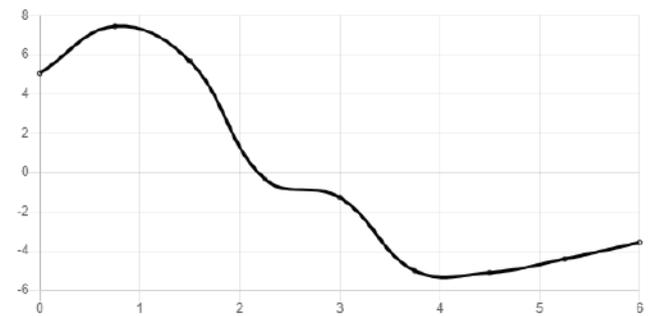
Rib (RB1) - Bending Moment (M*)

[X:m, Y:kNm/rib]



Rib (RB1) - Shear Force (V*)

[X:m, Y:kN/rib]



Rib (RB2) - Summary

Deflection ratio = 1 in 267 < 1 in 200 over 2 m cantilever

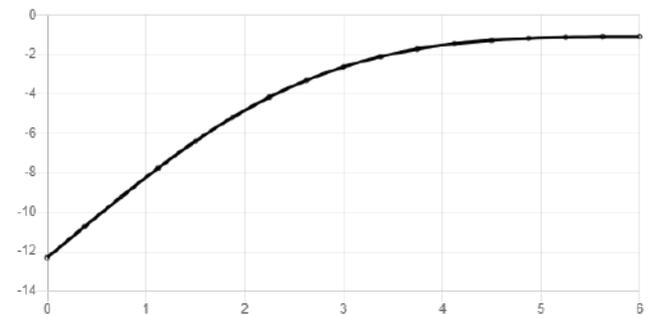
$M^*, \text{hog} = 13.3 \text{ kNm} < \Phi M_{u, \text{hog}} = 13.5 \text{ kNm}$

$M^*, \text{sag} = 0.3 \text{ kNm} < \Phi M_{u, \text{sag}} = 15 \text{ kNm}$

$V^*, \text{max} = 8.7 \text{ kN} < \Phi V_u = 17 \text{ kN}$

Rib (RB2) - Deflection

[X:m, Y:mm]



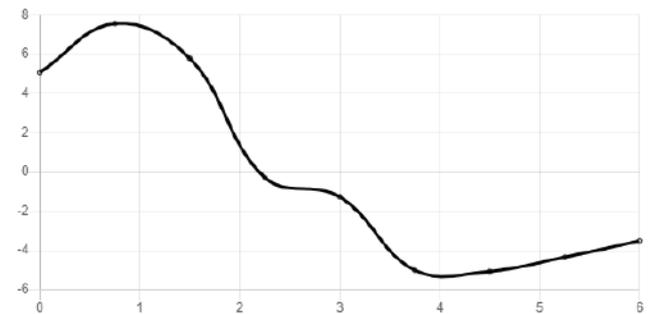
Rib (RB2) - Bending Moment (M*)

[X:m, Y:kNm/rib]

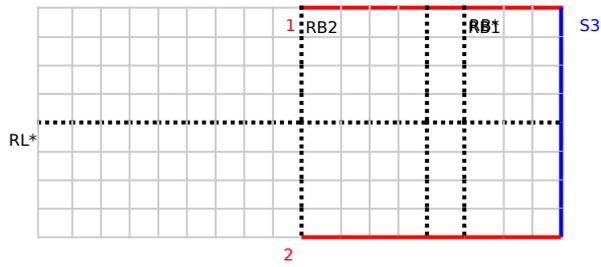


Rib (RB2) - Shear Force (V*)

[X:m, Y:kN/rib]



Rectangle 1 - Loss of Support 3



Loads

Loads in accordance with paragraph "Load Analysis"

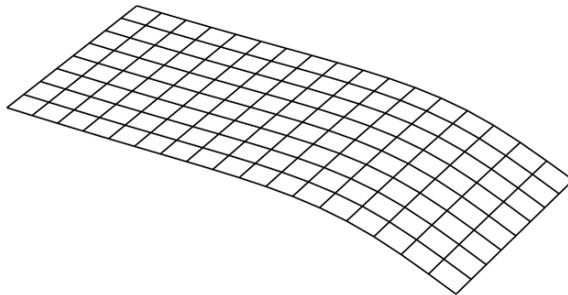
Notes

S: Line where maximum loss of support occurs

RL: Rib for analysis along L

RB: Rib for analysis along B

The loads shown on this diagram are additional to the edge loads induced by the external walls and to the uniform surface load induced by the waffle raft.



Edge Beam (EL) - Summary

Deflection ratio = 1 in 338 < 1 in 200 over 2 m cantilever

$M^*, \text{hog} = 19.6 \text{ kNm} < \Phi M_{u, \text{hog}} = 23 \text{ kNm}$

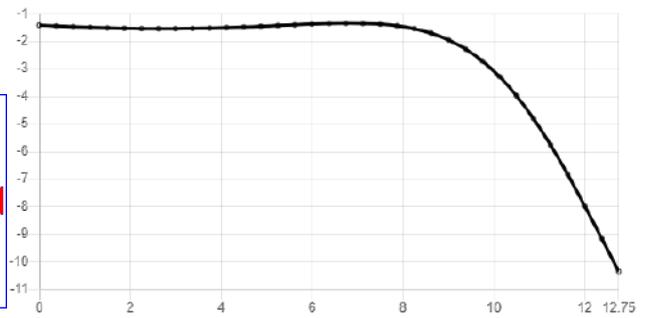
$M^*, \text{sag} = 0.9 \text{ kNm} < \Phi M_{u, \text{sag}} = 28 \text{ kNm}$

$V^*, \text{max} = 13.4 \text{ kN} < \Phi V_u = 39.6 \text{ kN}$

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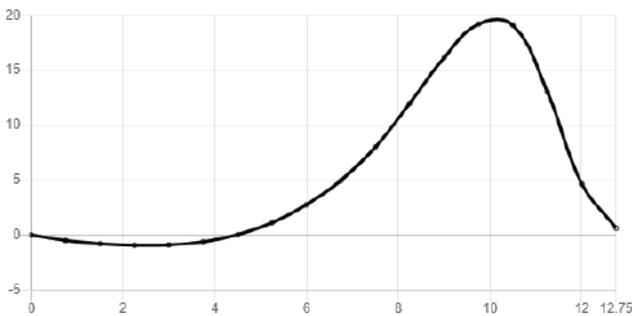
Edge Beam (EL) - Deflection

[X:m, Y:mm]



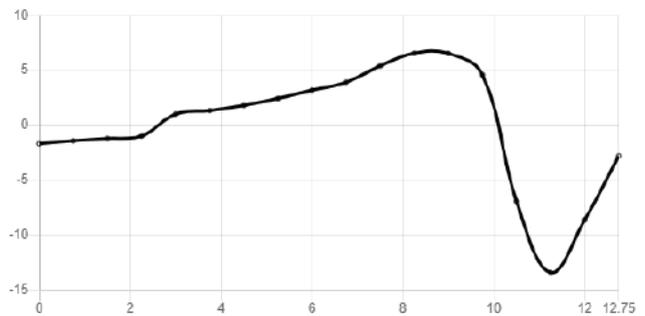
Edge Beam (EL) - Bending Moment (M*)

[X:m, Y:kNm/rib]



Edge Beam (EL) - Shear Force (V*)

[X:m, Y:kN/rib]



Edge Beam (EB) - Summary

Deflection ratio check not required along this direction

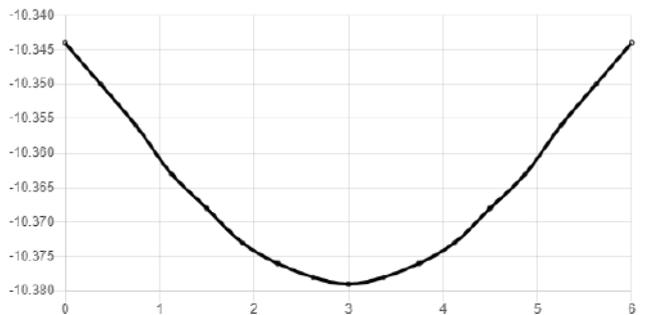
$M^*, \text{hog} = 0.7 \text{ kNm} < \Phi M_{u, \text{hog}} = 23 \text{ kNm}$

$M^*, \text{sag} = 0.1 \text{ kNm} < \Phi M_{u, \text{sag}} = 28 \text{ kNm}$

$V^*, \text{max} = 2.4 \text{ kN} < \Phi V_u = 39.6 \text{ kN}$

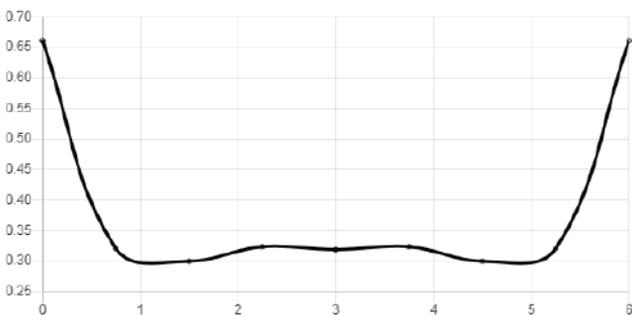
Edge Beam (EB) - Deflection

[X:m, Y:mm]



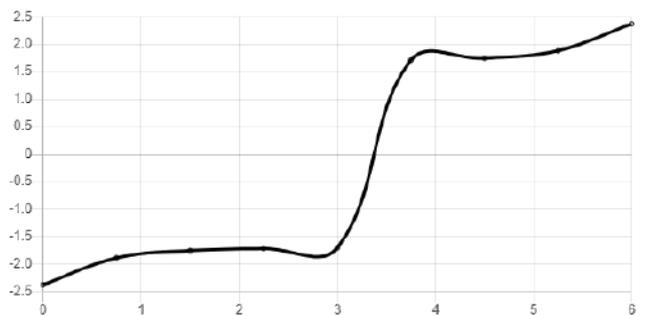
Edge Beam (EB) - Bending Moment (M*)

[X:m, Y:kNm/rib]



Edge Beam (EB) - Shear Force (V*)

[X:m, Y:kN/rib]



Rib (RL*) - Summary

Deflection ratio = 1 in 325 < 1 in 200 over 2 m cantilever

$M^*, \text{hog} = 11.4 \text{ kNm} < \Phi M_{u, \text{hog}} = 13.5 \text{ kNm}$

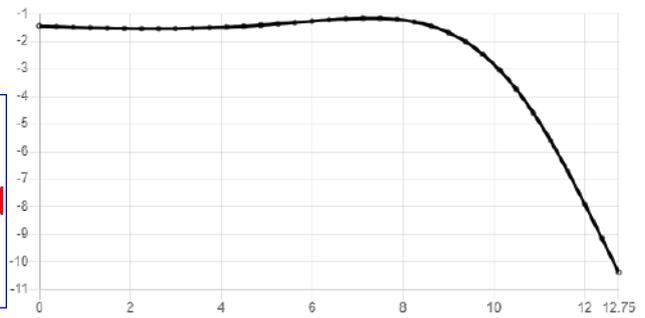
$M^*, \text{sag} = 0.6 \text{ kNm} < \Phi M_{u, \text{sag}} = 15 \text{ kNm}$

$V^*, \text{max} = 7.3 \text{ kN} < \Phi V_u = 17 \text{ kN}$

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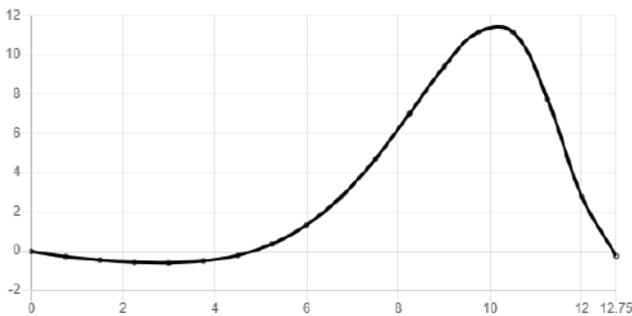
Rib (RL*) - Deflection

[X:m, Y:mm]



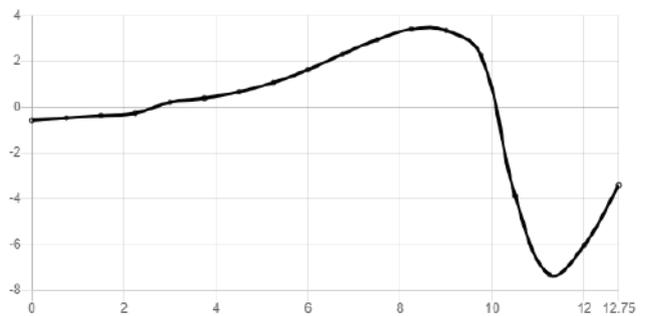
Rib (RL*) - Bending Moment (M*)

[X:m, Y:kNm/rib]



Rib (RL*) - Shear Force (V*)

[X:m, Y:kN/rib]



Rib (RB*) - Summary

Deflection ratio check not required along this direction

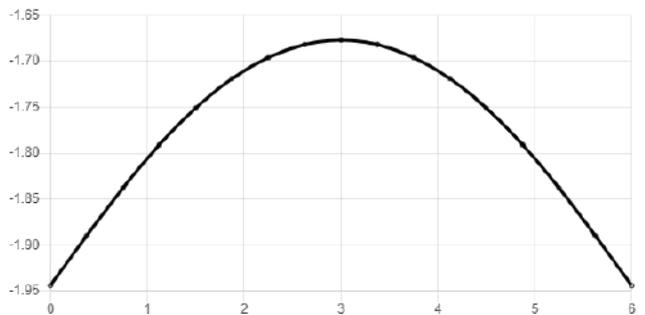
$M^*, \text{hog} = 0.8 \text{ kNm} < \Phi M_{u, \text{hog}} = 13.5 \text{ kNm}$

$M^*, \text{sag} = 0.2 \text{ kNm} < \Phi M_{u, \text{sag}} = 15 \text{ kNm}$

$V^*, \text{max} = 1.9 \text{ kN} < \Phi V_u = 17 \text{ kN}$

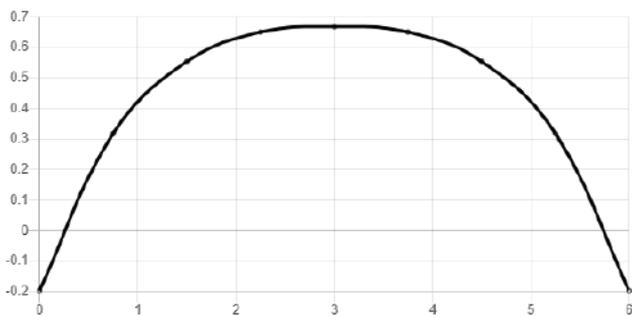
Rib (RB*) - Deflection

[X:m, Y:mm]



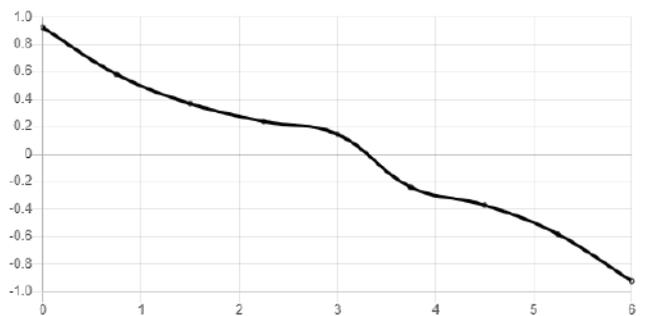
Rib (RB*) - Bending Moment (M*)

[X:m, Y:kNm/rib]



Rib (RB*) - Shear Force (V*)

[X:m, Y:kN/rib]



Rib (RB1) - Summary

Deflection ratio check not required along this direction

$M^*,\text{hog} = 0.8 \text{ kNm} < \Phi M_{u,\text{hog}} = 13.5 \text{ kNm}$

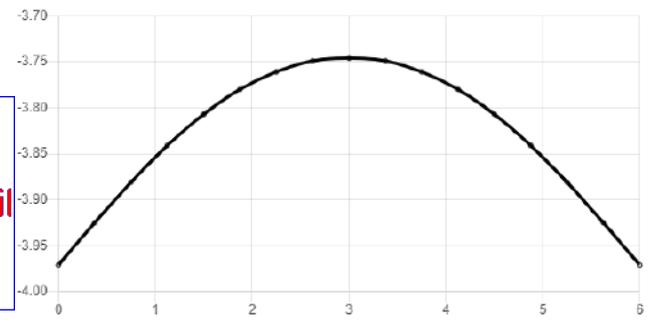
$M^*,\text{sag} = 0.2 \text{ kNm} < \Phi M_{u,\text{sag}} = 15 \text{ kNm}$

$V^*,\text{max} = 1.9 \text{ kN} < \Phi V_u = 17 \text{ kN}$

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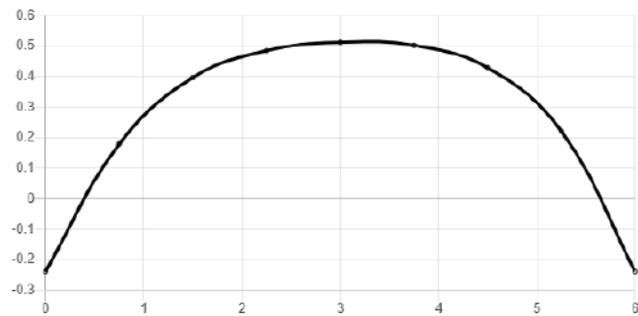
Rib (RB1) - Deflection

[X:m, Y:mm]



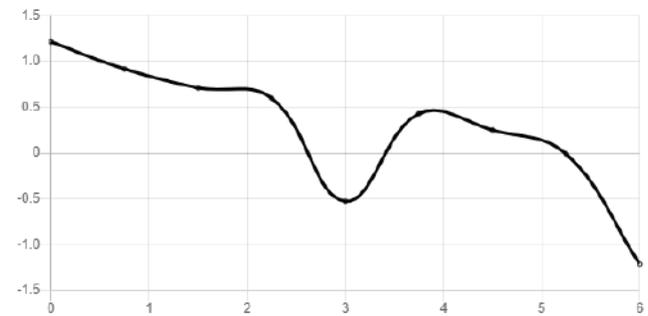
Rib (RB1) - Bending Moment (M*)

[X:m, Y:kNm/rib]



Rib (RB1) - Shear Force (V*)

[X:m, Y:kN/rib]



Rib (RB2) - Summary

Deflection ratio check not required along this direction

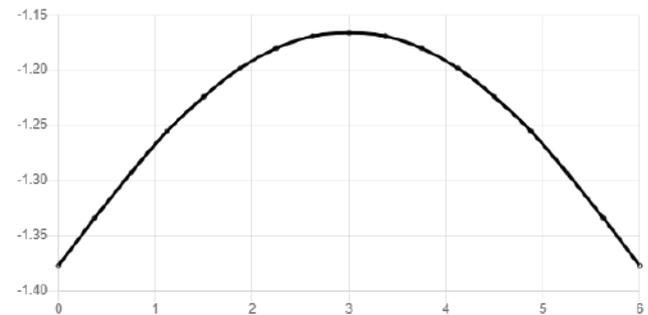
$M^*,\text{hog} = 0.5 \text{ kNm} < \Phi M_{u,\text{hog}} = 13.5 \text{ kNm}$

$M^*,\text{sag} = 0 \text{ kNm} < \Phi M_{u,\text{sag}} = 15 \text{ kNm}$

$V^*,\text{max} = 0.7 \text{ kN} < \Phi V_u = 17 \text{ kN}$

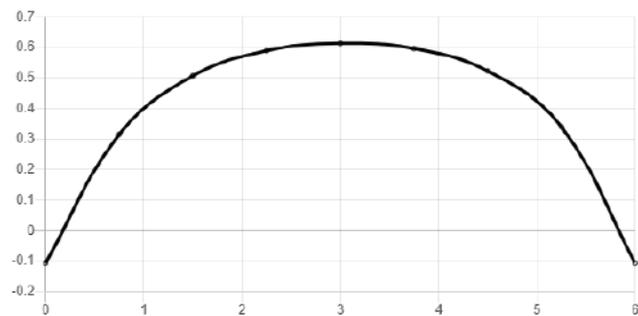
Rib (RB2) - Deflection

[X:m, Y:mm]



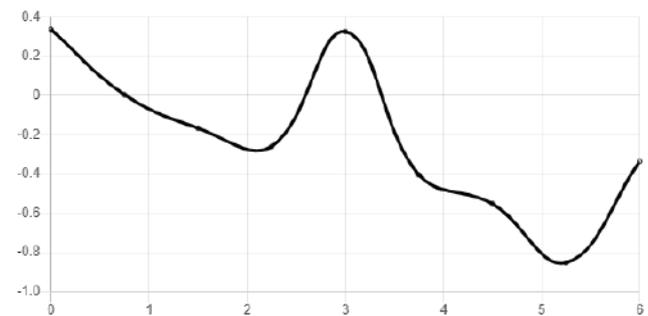
Rib (RB2) - Bending Moment (M*)

[X:m, Y:kNm/rib]

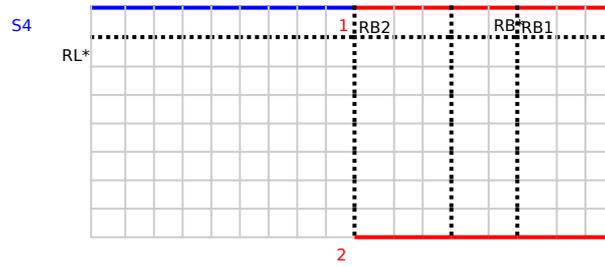


Rib (RB2) - Shear Force (V*)

[X:m, Y:kN/rib]



Rectangle 1 - Loss of Support 4



Loads

Loads in accordance with paragraph "Load Analysis"

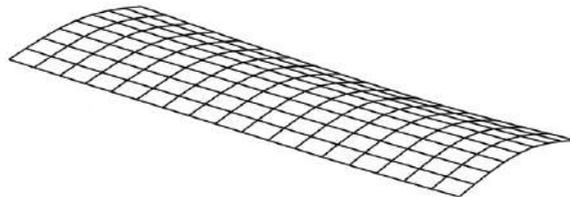
Notes

S: Line where maximum loss of support occurs

RL: Rib for analysis along L

RB: Rib for analysis along B

The loads shown on this diagram are additional to the edge loads induced by the external walls and to the uniform surface load induced by the waffle raft.



Edge Beam (EL) - Summary

Deflection ratio check not required along this direction

$M^*,\text{hog} = 1.2 \text{ kNm} < \Phi M_{u,\text{hog}} = 23 \text{ kNm}$

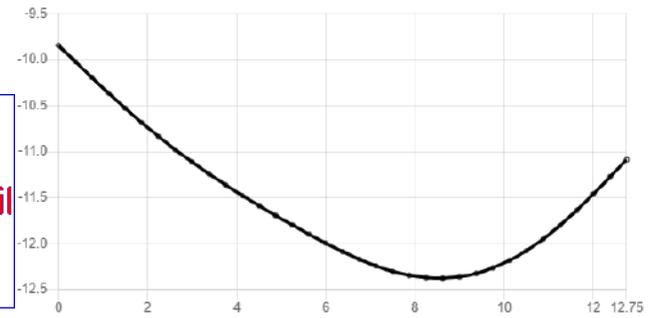
$M^*,\text{sag} = 3.2 \text{ kNm} < \Phi M_{u,\text{sag}} = 28 \text{ kNm}$

$V^*,\text{max} = 5.3 \text{ kN} < \Phi V_u = 39.6 \text{ kN}$

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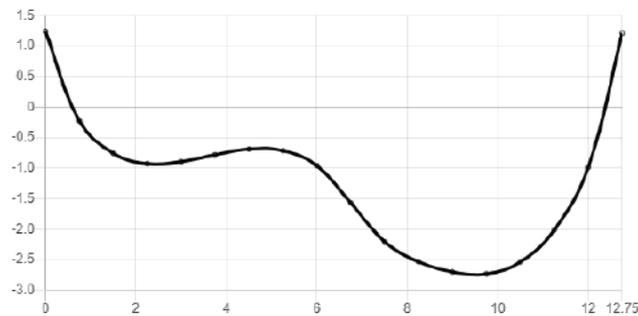
Edge Beam (EL) - Deflection

[X:m, Y:mm]



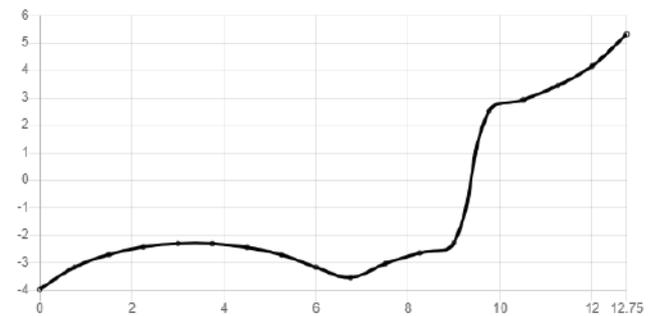
Edge Beam (EL) - Bending Moment (M*)

[X:m, Y:kNm/rib]



Edge Beam (EL) - Shear Force (V*)

[X:m, Y:kN/rib]



Edge Beam (EB) - Summary

Deflection ratio = 1 in 291 < 1 in 200 over 2 m cantilever

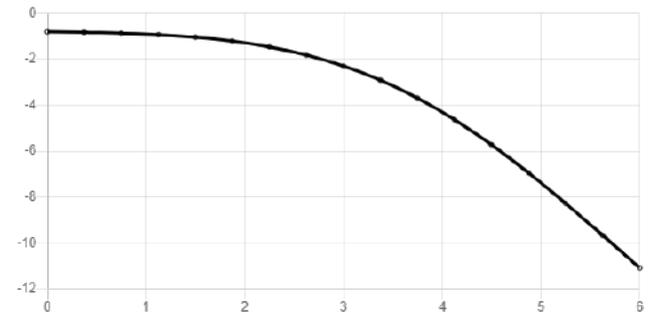
$M^*,\text{hog} = 22.4 \text{ kNm} < \Phi M_{u,\text{hog}} = 23 \text{ kNm}$

$M^*,\text{sag} = 0 \text{ kNm} < \Phi M_{u,\text{sag}} = 28 \text{ kNm}$

$V^*,\text{max} = 13.9 \text{ kN} < \Phi V_u = 39.6 \text{ kN}$

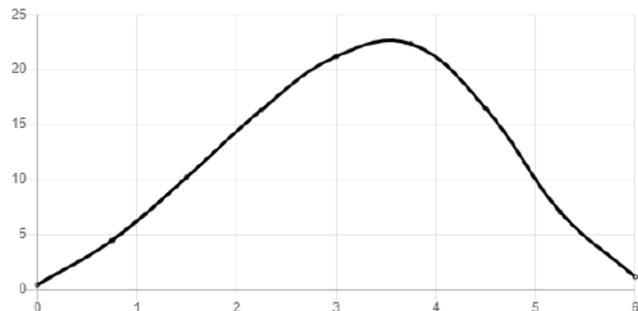
Edge Beam (EB) - Deflection

[X:m, Y:mm]



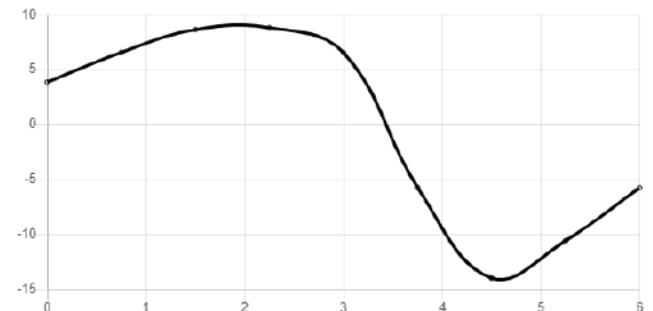
Edge Beam (EB) - Bending Moment (M*)

[X:m, Y:kNm/rib]



Edge Beam (EB) - Shear Force (V*)

[X:m, Y:kN/rib]



Rib (RL*) - Summary

Deflection ratio check not required along this direction

$M^*, hog = 0.2 \text{ kNm} < \Phi M_{u, hog} = 13.5 \text{ kNm}$

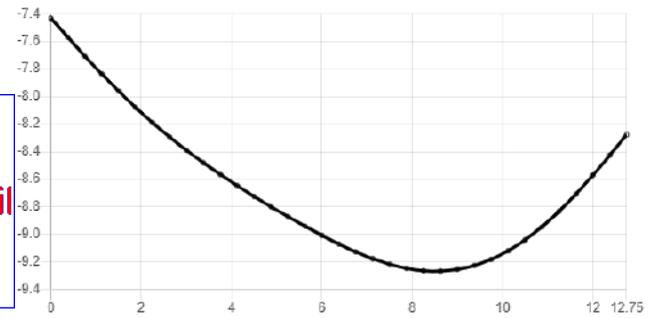
$M^*, sag = 1.3 \text{ kNm} < \Phi M_{u, sag} = 15 \text{ kNm}$

$V^*, max = 1.6 \text{ kN} < \Phi V_u = 17 \text{ kN}$

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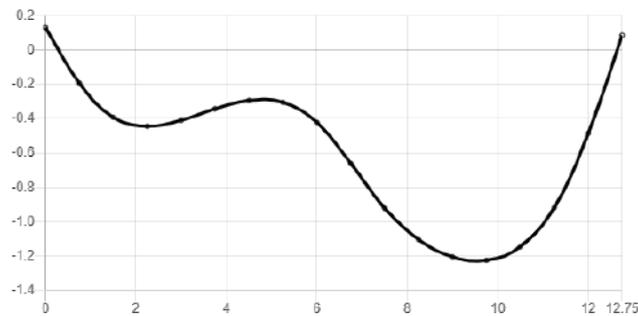
Rib (RL*) - Deflection

[X:m, Y:mm]



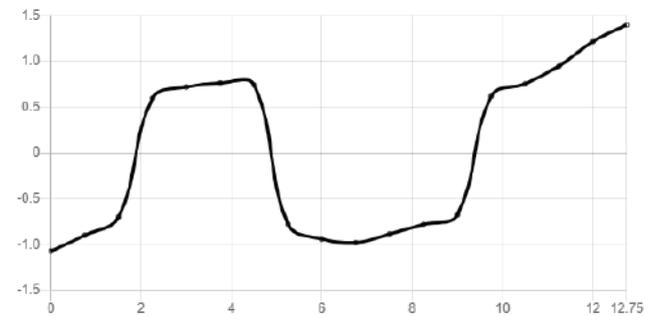
Rib (RL*) - Bending Moment (M*)

[X:m, Y:kNm/rib]



Rib (RL*) - Shear Force (V*)

[X:m, Y:kN/rib]



Rib (RB*) - Summary

Deflection ratio = 1 in 262 < 1 in 200 over 2 m cantilever

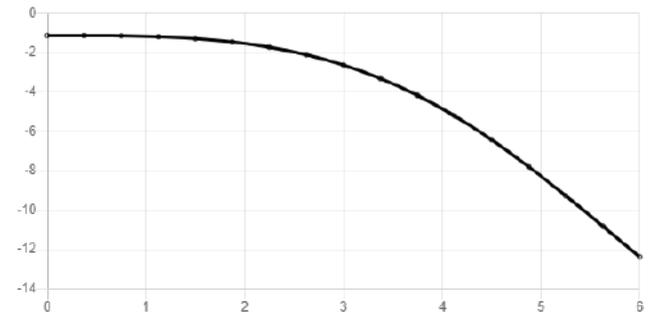
$M^*, hog = 13.7 \text{ kNm} < \Phi M_{u, hog} = 22 \text{ kNm}$

$M^*, sag = 0.4 \text{ kNm} < \Phi M_{u, sag} = 17.6 \text{ kNm}$

$V^*, max = 9 \text{ kN} < \Phi V_u = 17 \text{ kN}$

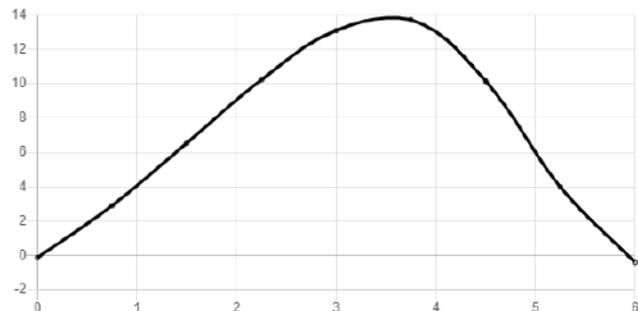
Rib (RB*) - Deflection

[X:m, Y:mm]



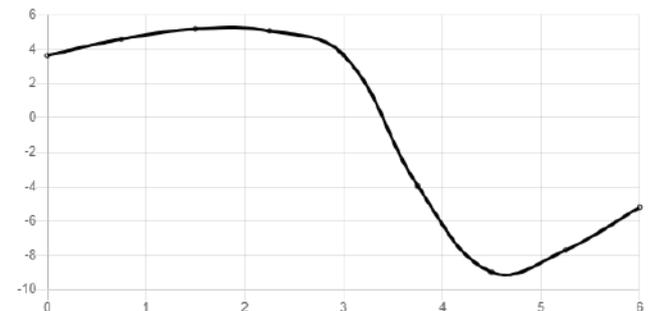
Rib (RB*) - Bending Moment (M*)

[X:m, Y:kNm/rib]



Rib (RB*) - Shear Force (V*)

[X:m, Y:kN/rib]



Rib (RB1) - Summary

Deflection ratio = 1 in 268 < 1 in 200 over 2 m cantilever

$M^*,\text{hog} = 13.5 \text{ kNm} < \Phi M_{u,\text{hog}} = 13.5 \text{ kNm}$

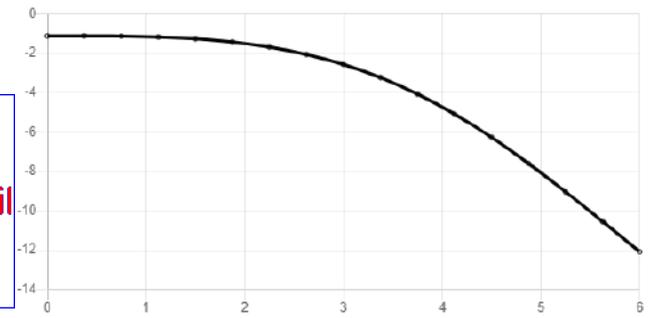
$M^*,\text{sag} = 0.3 \text{ kNm} < \Phi M_{u,\text{sag}} = 15 \text{ kNm}$

$V^*,\text{max} = 8.7 \text{ kN} < \Phi V_u = 17 \text{ kN}$

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Rib (RB1) - Deflection

[X:m, Y:mm]



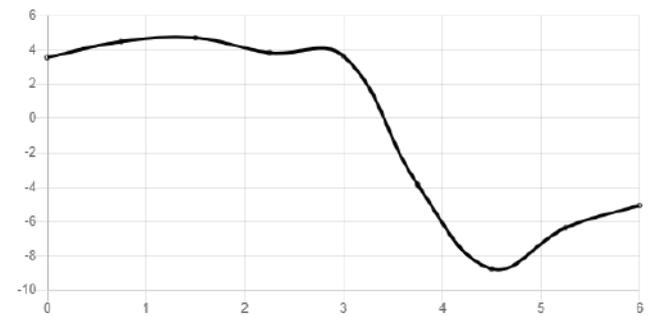
Rib (RB1) - Bending Moment (M*)

[X:m, Y:kNm/rib]



Rib (RB1) - Shear Force (V*)

[X:m, Y:kN/rib]



Rib (RB2) - Summary

Deflection ratio = 1 in 267 < 1 in 200 over 2 m cantilever

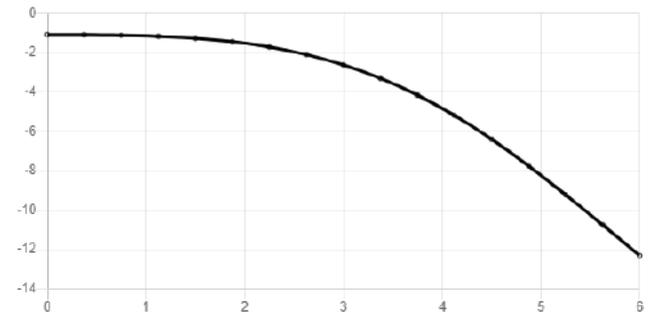
$M^*,\text{hog} = 13.3 \text{ kNm} < \Phi M_{u,\text{hog}} = 13.5 \text{ kNm}$

$M^*,\text{sag} = 0.3 \text{ kNm} < \Phi M_{u,\text{sag}} = 15 \text{ kNm}$

$V^*,\text{max} = 8.7 \text{ kN} < \Phi V_u = 17 \text{ kN}$

Rib (RB2) - Deflection

[X:m, Y:mm]



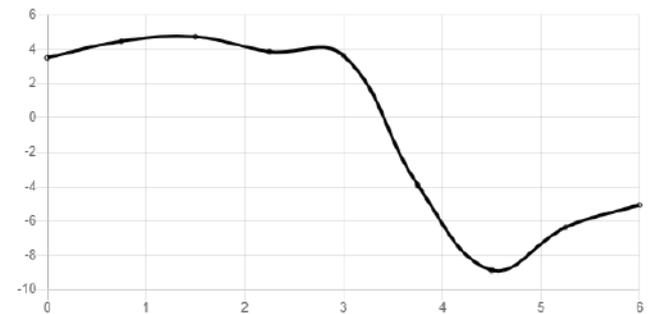
Rib (RB2) - Bending Moment (M*)

[X:m, Y:kNm/rib]

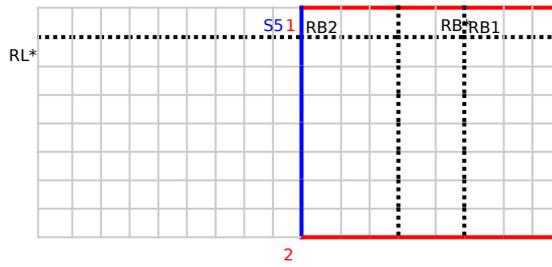


Rib (RB2) - Shear Force (V*)

[X:m, Y:kN/rib]



Rectangle 1 - Loss of Support 5



Loads

Loads in accordance with paragraph "Load Analysis"

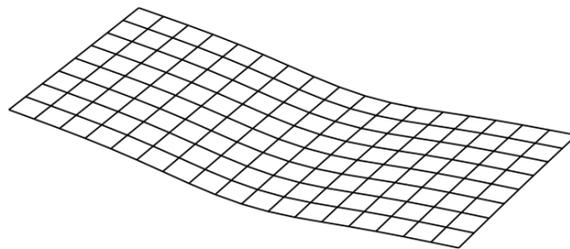
Notes

S: Line where maximum loss of support occurs

RL: Rib for analysis along L

RB: Rib for analysis along B

The loads shown on this diagram are additional to the edge loads induced by the external walls and to the uniform surface load induced by the waffle raft.



Edge Beam (EL) - Summary

Deflection ratio = 1 in 1669 < 1 in 400 over 4 m length

$M^*, hog = 4.7 \text{ kNm} < \Phi M_{u, hog} = 23 \text{ kNm}$

$M^*, sag = 14.1 \text{ kNm} < \Phi M_{u, sag} = 28 \text{ kNm}$

$V^*, max = 11.3 \text{ kN} < \Phi V_u = 39.6 \text{ kN}$

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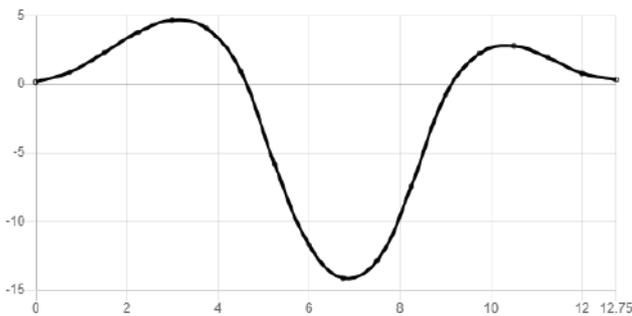
Edge Beam (EL) - Deflection

[X:m, Y:mm]



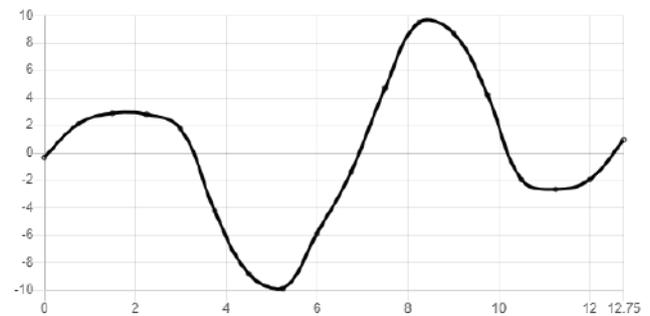
Edge Beam (EL) - Bending Moment (M*)

[X:m, Y:kNm/rib]



Edge Beam (EL) - Shear Force (V*)

[X:m, Y:kN/rib]



Edge Beam (EB) - Summary

Deflection ratio check not required along this direction

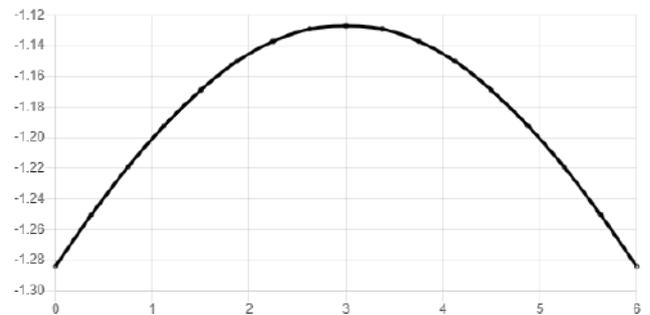
$M^*, hog = 0.9 \text{ kNm} < \Phi M_{u, hog} = 23 \text{ kNm}$

$M^*, sag = 0 \text{ kNm} < \Phi M_{u, sag} = 28 \text{ kNm}$

$V^*, max = 1.1 \text{ kN} < \Phi V_u = 39.6 \text{ kN}$

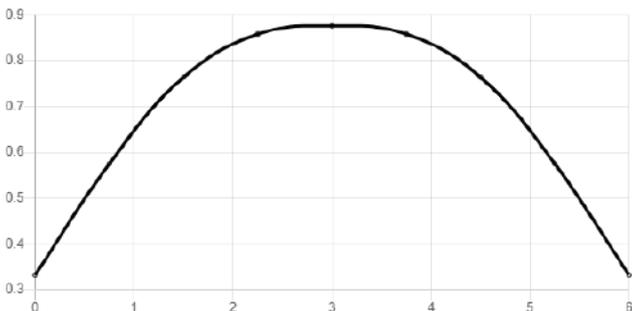
Edge Beam (EB) - Deflection

[X:m, Y:mm]



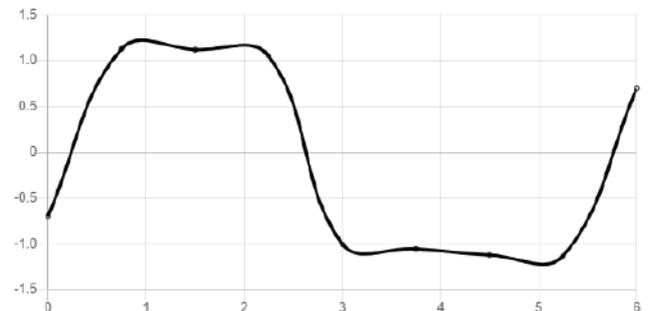
Edge Beam (EB) - Bending Moment (M*)

[X:m, Y:kNm/rib]



Edge Beam (EB) - Shear Force (V*)

[X:m, Y:kN/rib]



Rib (RL*) - Summary

Deflection ratio = 1 in 1755 < 1 in 400 over 4 m length

$M^*, \text{hog} = 2.6 \text{ kNm} < \Phi M_{u, \text{hog}} = 13.5 \text{ kNm}$

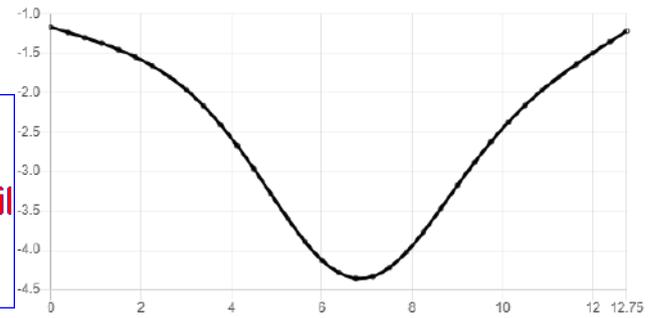
$M^*, \text{sag} = 7.9 \text{ kNm} < \Phi M_{u, \text{sag}} = 15 \text{ kNm}$

$V^*, \text{max} = 6.1 \text{ kN} < \Phi V_u = 17 \text{ kN}$

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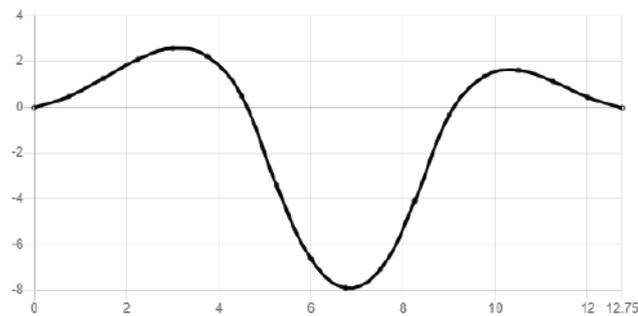
Rib (RL*) - Deflection

[X:m, Y:mm]



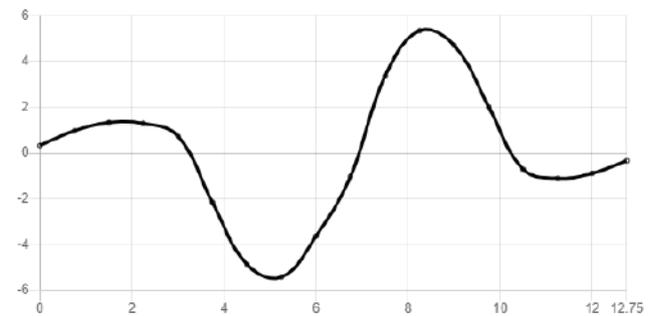
Rib (RL*) - Bending Moment (M*)

[X:m, Y:kNm/rib]



Rib (RL*) - Shear Force (V*)

[X:m, Y:kN/rib]



Rib (RB*) - Summary

Deflection ratio check not required along this direction

$M^*, \text{hog} = 0.9 \text{ kNm} < \Phi M_{u, \text{hog}} = 13.5 \text{ kNm}$

$M^*, \text{sag} = 0.2 \text{ kNm} < \Phi M_{u, \text{sag}} = 15 \text{ kNm}$

$V^*, \text{max} = 1.6 \text{ kN} < \Phi V_u = 17 \text{ kN}$

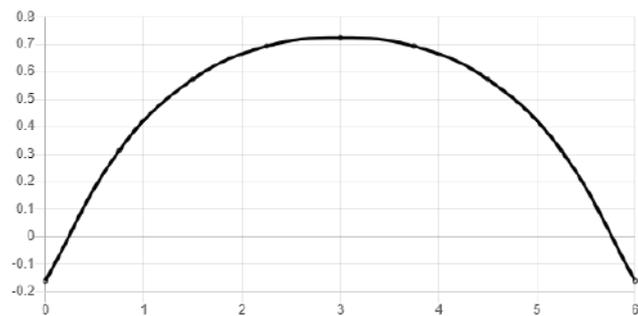
Rib (RB*) - Deflection

[X:m, Y:mm]



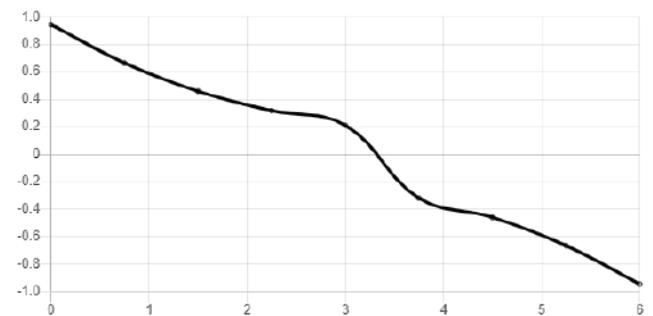
Rib (RB*) - Bending Moment (M*)

[X:m, Y:kNm/rib]



Rib (RB*) - Shear Force (V*)

[X:m, Y:kN/rib]



Rib (RB1) - Summary

Deflection ratio check not required along this direction

$M^*, \text{hog} = 0.8 \text{ kNm} < \Phi M_{u, \text{hog}} = 13.5 \text{ kNm}$

$M^*, \text{sag} = 0.1 \text{ kNm} < \Phi M_{u, \text{sag}} = 15 \text{ kNm}$

$V^*, \text{max} = 1.3 \text{ kN} < \Phi V_u = 17 \text{ kN}$

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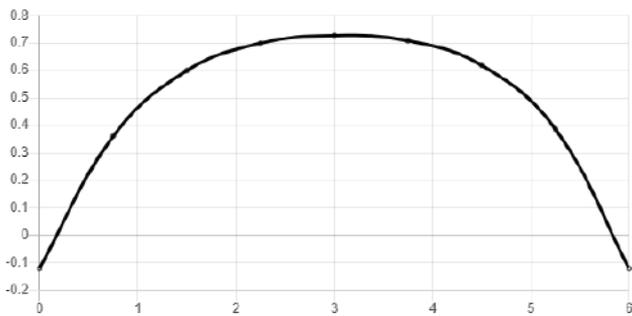
Rib (RB1) - Deflection

[X:m, Y:mm]



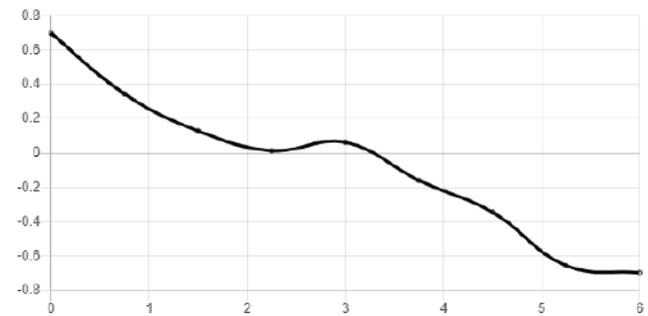
Rib (RB1) - Bending Moment (M*)

[X:m, Y:kNm/rib]



Rib (RB1) - Shear Force (V*)

[X:m, Y:kN/rib]



Rib (RB2) - Summary

Deflection ratio check not required along this direction

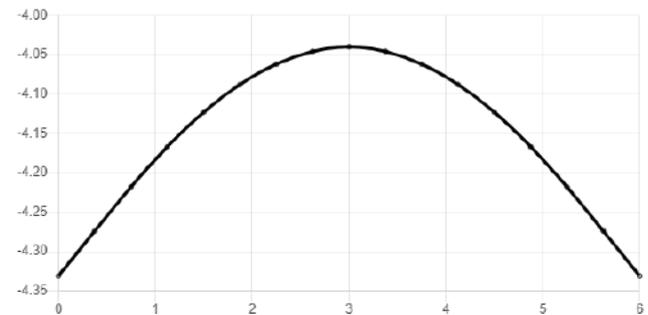
$M^*, \text{hog} = 0.6 \text{ kNm} < \Phi M_{u, \text{hog}} = 13.5 \text{ kNm}$

$M^*, \text{sag} = 0 \text{ kNm} < \Phi M_{u, \text{sag}} = 15 \text{ kNm}$

$V^*, \text{max} = 1.1 \text{ kN} < \Phi V_u = 17 \text{ kN}$

Rib (RB2) - Deflection

[X:m, Y:mm]



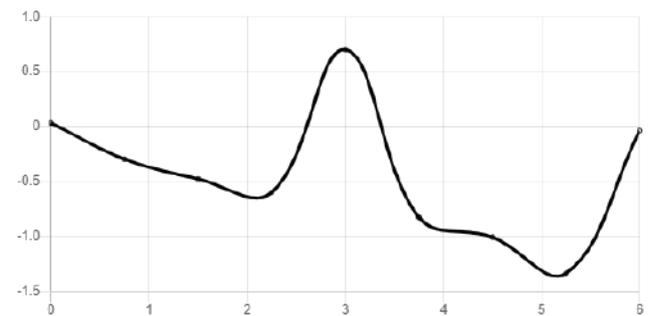
Rib (RB2) - Bending Moment (M*)

[X:m, Y:kNm/rib]

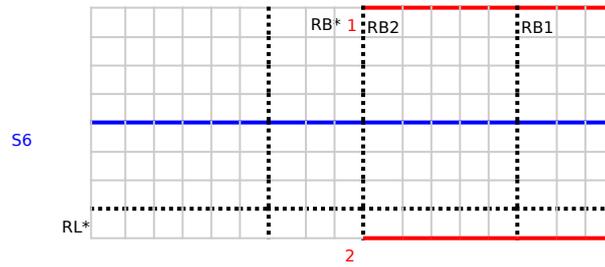


Rib (RB2) - Shear Force (V*)

[X:m, Y:kN/rib]



Rectangle 1 - Loss of Support 6



Loads

Loads in accordance with paragraph "Load Analysis"

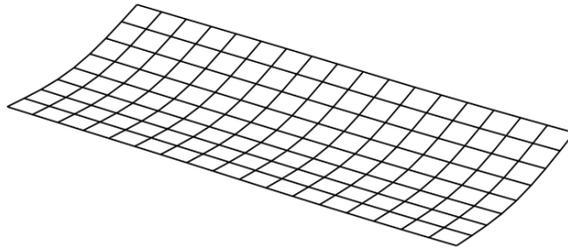
Notes

S: Line where maximum loss of support occurs

RL: Rib for analysis along L

RB: Rib for analysis along B

The loads shown on this diagram are additional to the edge loads induced by the external walls and to the uniform surface load induced by the waffle raft.



Edge Beam (EL) - Summary

Deflection ratio check not required along this direction

$M^*, hog = 0.6 \text{ kNm} < \Phi M_{u, hog} = 23 \text{ kNm}$

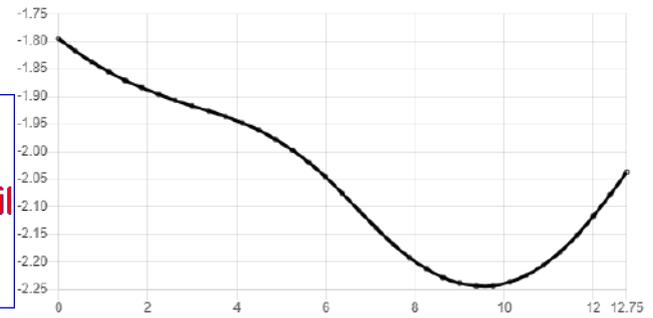
$M^*, sag = 0.8 \text{ kNm} < \Phi M_{u, sag} = 28 \text{ kNm}$

$V^*, max = 2.3 \text{ kN} < \Phi V_u = 39.6 \text{ kN}$

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Edge Beam (EL) - Deflection

[X:m, Y:mm]



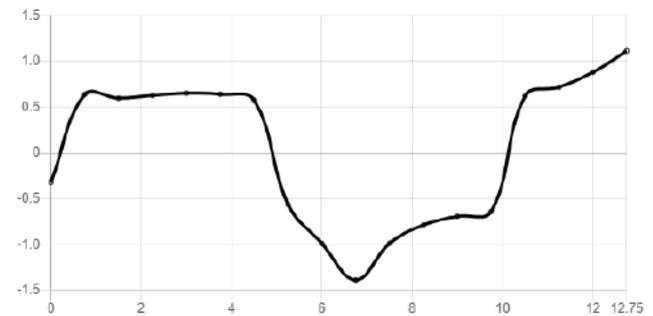
Edge Beam (EL) - Bending Moment (M*)

[X:m, Y:kNm/rib]



Edge Beam (EL) - Shear Force (V*)

[X:m, Y:kN/rib]



Edge Beam (EB) - Summary

Deflection ratio = 1 in 1589 < 1 in 400 over 4 m length

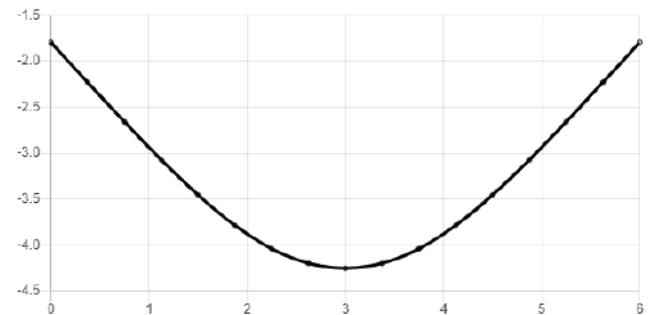
$M^*, hog = 0 \text{ kNm} < \Phi M_{u, hog} = 23 \text{ kNm}$

$M^*, sag = 15.5 \text{ kNm} < \Phi M_{u, sag} = 28 \text{ kNm}$

$V^*, max = 10 \text{ kN} < \Phi V_u = 39.6 \text{ kN}$

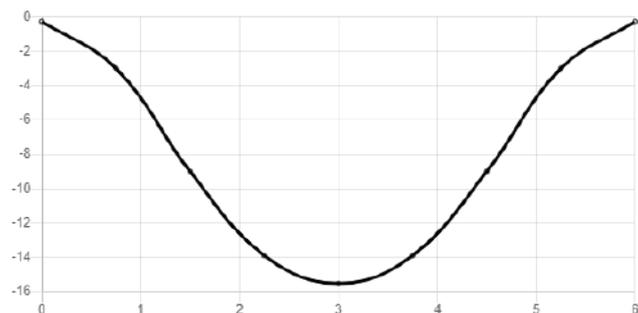
Edge Beam (EB) - Deflection

[X:m, Y:mm]



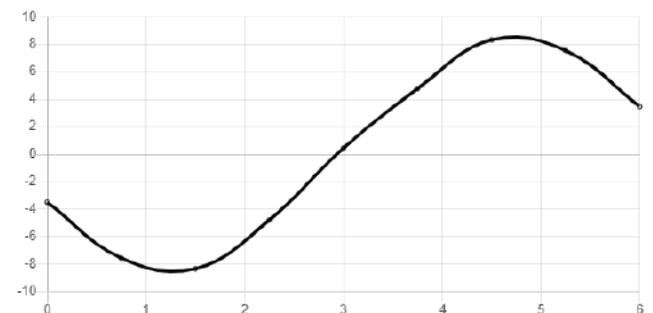
Edge Beam (EB) - Bending Moment (M*)

[X:m, Y:kNm/rib]



Edge Beam (EB) - Shear Force (V*)

[X:m, Y:kN/rib]



Rib (RL*) - Summary

Deflection ratio check not required along this direction

$M^*, hog = 0.2 \text{ kNm} < \Phi M_{u, hog} = 13.5 \text{ kNm}$

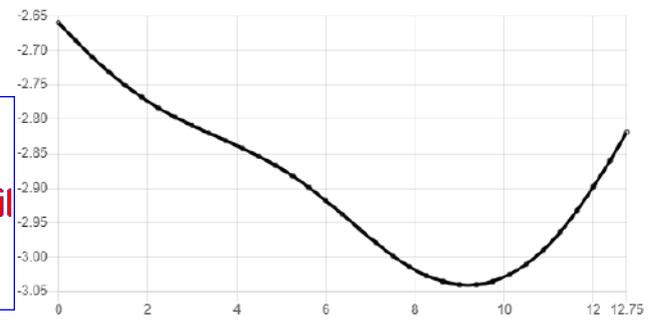
$M^*, sag = 0.5 \text{ kNm} < \Phi M_{u, sag} = 15 \text{ kNm}$

$V^*, max = 1.2 \text{ kN} < \Phi V_u = 17 \text{ kN}$

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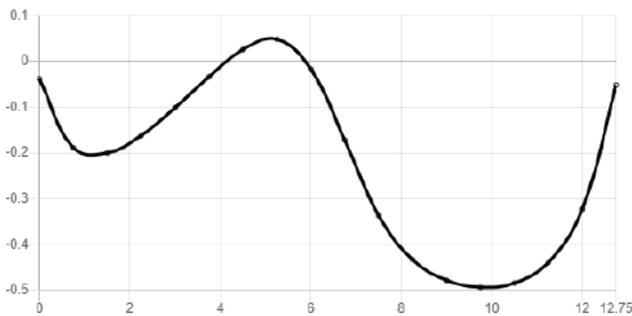
Rib (RL*) - Deflection

[X:m, Y:mm]



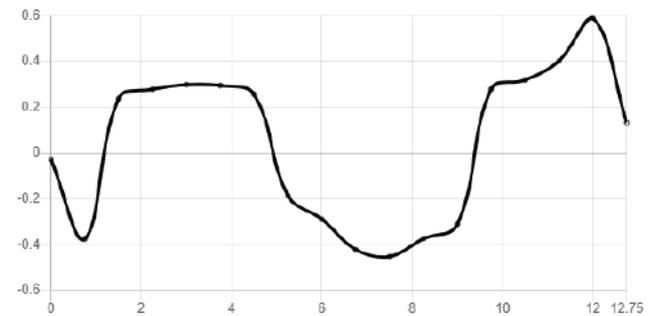
Rib (RL*) - Bending Moment (M*)

[X:m, Y:kNm/rib]



Rib (RL*) - Shear Force (V*)

[X:m, Y:kN/rib]



Rib (RB*) - Summary

Deflection ratio = 1 in 1523 < 1 in 400 over 4 m length

$M^*, hog = 0.1 \text{ kNm} < \Phi M_{u, hog} = 13.5 \text{ kNm}$

$M^*, sag = 9.2 \text{ kNm} < \Phi M_{u, sag} = 15 \text{ kNm}$

$V^*, max = 5.8 \text{ kN} < \Phi V_u = 17 \text{ kN}$

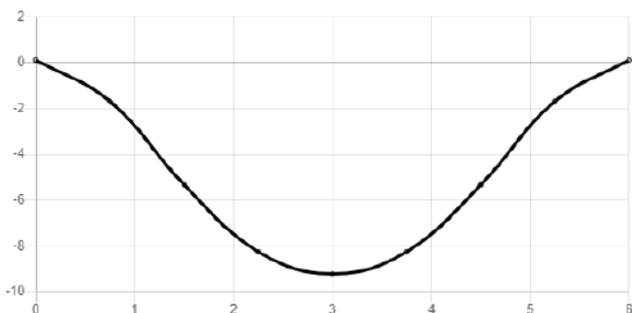
Rib (RB*) - Deflection

[X:m, Y:mm]



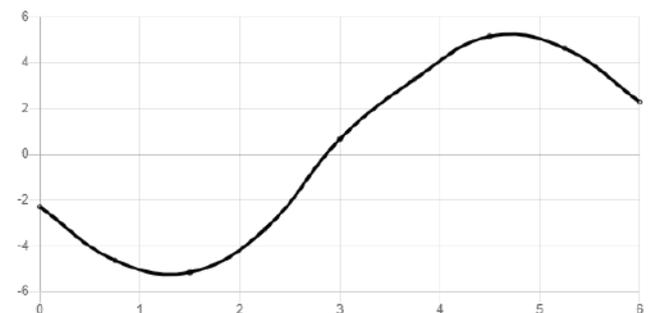
Rib (RB*) - Bending Moment (M*)

[X:m, Y:kNm/rib]



Rib (RB*) - Shear Force (V*)

[X:m, Y:kN/rib]



Rib (RB1) - Summary

Deflection ratio = 1 in 1680 < 1 in 400 over 4 m length

$M^*, hog = 0 \text{ kNm} < \Phi M_{u, hog} = 13.5 \text{ kNm}$

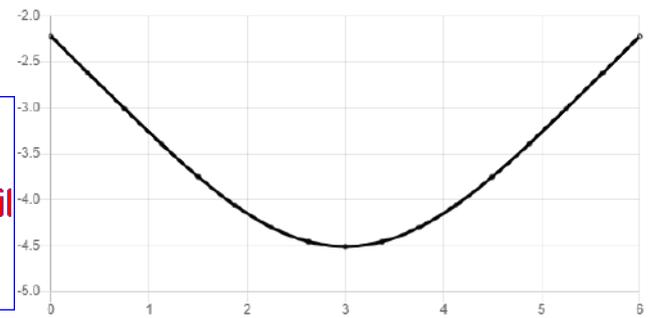
$M^*, sag = 8.5 \text{ kNm} < \Phi M_{u, sag} = 15 \text{ kNm}$

$V^*, max = 5.5 \text{ kN} < \Phi V_u = 17 \text{ kN}$

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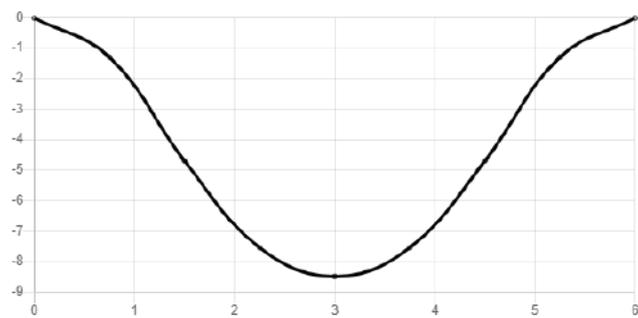
Rib (RB1) - Deflection

[X:m, Y:mm]



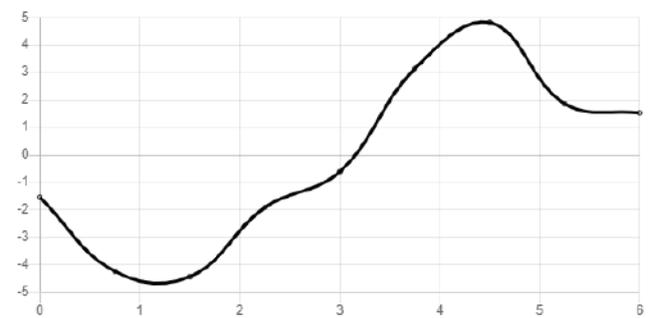
Rib (RB1) - Bending Moment (M*)

[X:m, Y:kNm/rib]



Rib (RB1) - Shear Force (V*)

[X:m, Y:kN/rib]



Rib (RB2) - Summary

Deflection ratio = 1 in 1575 < 1 in 400 over 4 m length

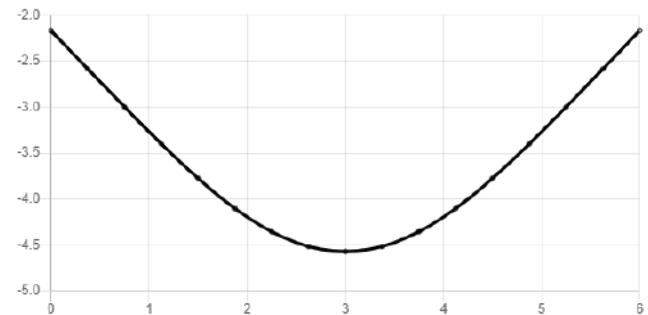
$M^*, hog = 0 \text{ kNm} < \Phi M_{u, hog} = 13.5 \text{ kNm}$

$M^*, sag = 9 \text{ kNm} < \Phi M_{u, sag} = 15 \text{ kNm}$

$V^*, max = 5.7 \text{ kN} < \Phi V_u = 17 \text{ kN}$

Rib (RB2) - Deflection

[X:m, Y:mm]



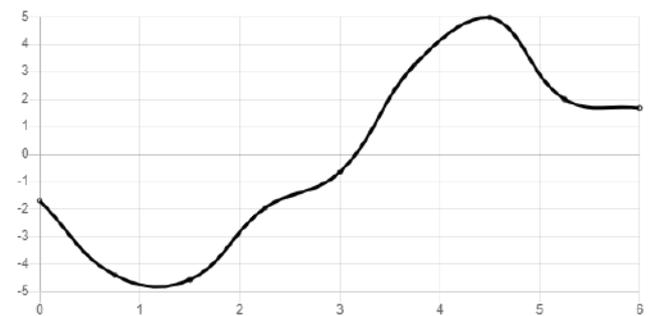
Rib (RB2) - Bending Moment (M*)

[X:m, Y:kNm/rib]



Rib (RB2) - Shear Force (V*)

[X:m, Y:kN/rib]



Rectangle 1 - Pressure Analysis (Short Term)

Rib

Pressure at the foundation/building platform interface:

$P^*(z=0)$, short term = 30 kPa

Pressure on natural soil

Engineered Fill Thickness = 200 mm

P^* , short term = 13.7 kPa < DBC = 100 kPa

Edge Beam

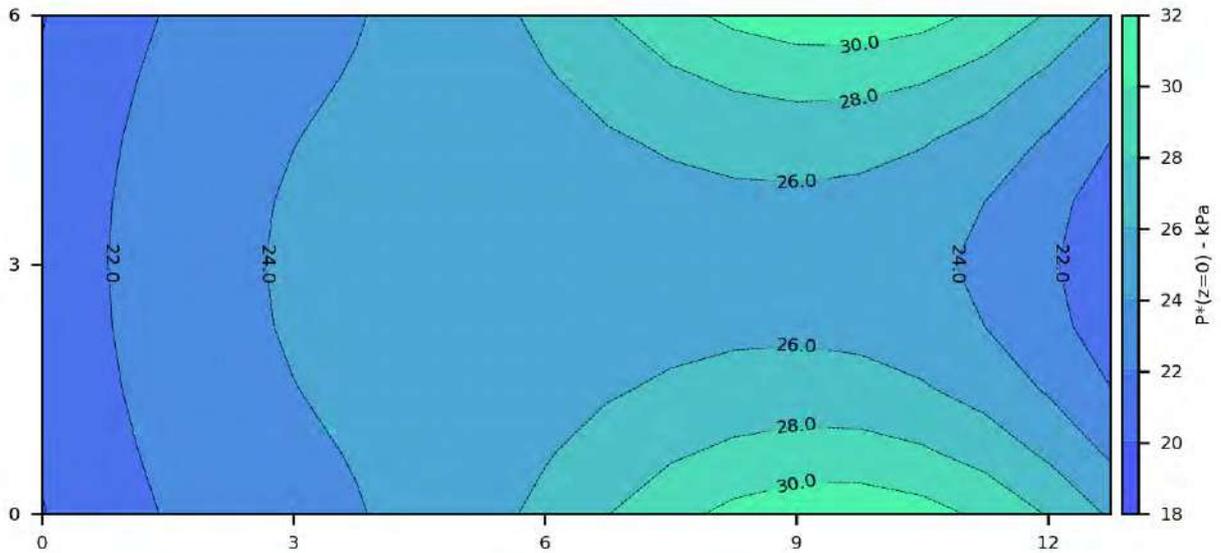
Pressure at the foundation/building platform interface:

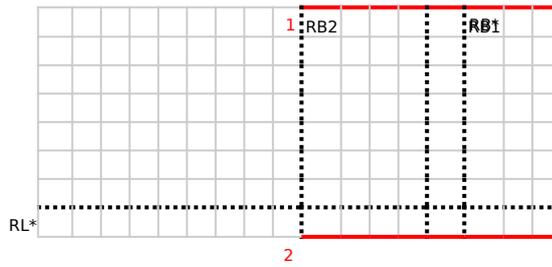
$P^*(z=0)$, short term = 31.3 kPa

Pressure on natural soil

Engineered Fill Thickness = 200 mm

P^* , short term = 25.3 kPa < DBC = 100 kPa





Loads

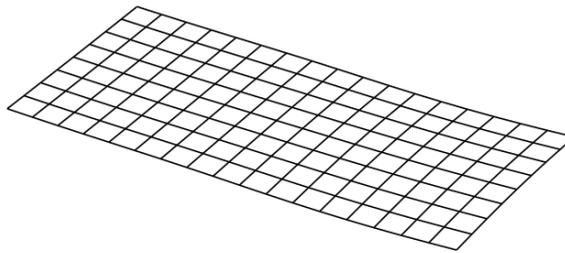
Loads in accordance with paragraph "Load Analysis"

Notes

RL: Rib for analysis along L

RB: Rib for analysis along B

The loads shown on this diagram are additional to the edge loads induced by the external walls and to the uniform surface load induced by the waffle raft.



Edge Beam (EL) - Summary

Deflection check not applicable for a ULS Short Term combination.

Refer to Long Term combination check.

$M^*,\text{hog} = 1.2 \text{ kNm} < \Phi M_{u,\text{hog}} = 23 \text{ kNm}$

$M^*,\text{sag} = 2.2 \text{ kNm} < \Phi M_{u,\text{sag}} = 28 \text{ kNm}$

$V^*,\text{max} = 4.3 \text{ kN} < \Phi V_u = 39.6 \text{ kN}$

Edge Beam (EL) - Deflection

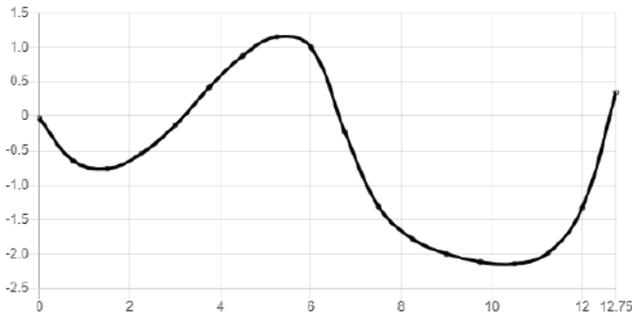
[X:m, Y:mm]

Deflection diagram not applicable for a ULS Short Term combination.

Refer to Long Term combination diagram.

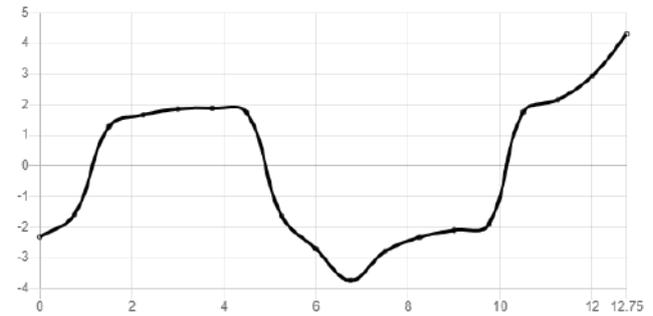
Edge Beam (EL) - Bending Moment (M*)

[X:m, Y:kNm/rib]



Edge Beam (EL) - Shear Force (V*)

[X:m, Y:kN/rib]



Edge Beam (EB) - Summary

Deflection check not applicable for a ULS Short Term combination.

Refer to Long Term combination check.

$M^*,\text{hog} = 2.7 \text{ kNm} < \Phi M_{u,\text{hog}} = 23 \text{ kNm}$

$M^*,\text{sag} = 0 \text{ kNm} < \Phi M_{u,\text{sag}} = 28 \text{ kNm}$

$V^*,\text{max} = 3.2 \text{ kN} < \Phi V_u = 39.6 \text{ kN}$

Edge Beam (EB) - Deflection

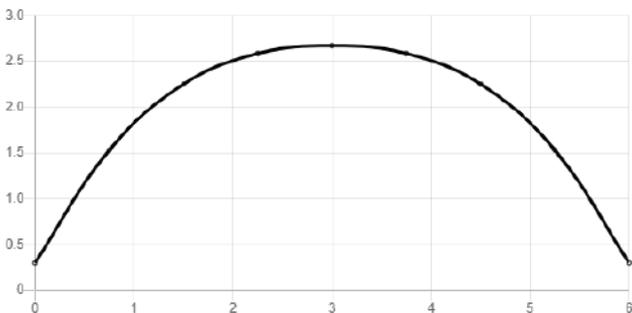
[X:m, Y:mm]

Deflection diagram not applicable for a ULS Short Term combination.

Refer to Long Term combination diagram.

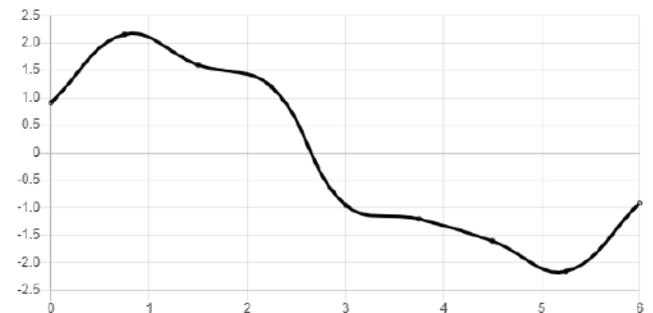
Edge Beam (EB) - Bending Moment (M*)

[X:m, Y:kNm/rib]



Edge Beam (EB) - Shear Force (V*)

[X:m, Y:kN/rib]



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Rib (RL*) - Summary

Deflection check not applicable for a ULS Short Term combination.

Refer to Long Term combination check.

$$M^*,\text{hog} = 0.4 \text{ kNm} < \Phi M_{u,\text{hog}} = 13.5 \text{ kNm}$$

$$M^*,\text{sag} = 1.1 \text{ kNm} < \Phi M_{u,\text{sag}} = 15 \text{ kNm}$$

$$V^*,\text{max} = 1.6 \text{ kN} < \Phi V_u = 17 \text{ kN}$$

Rib (RL*) - Deflection

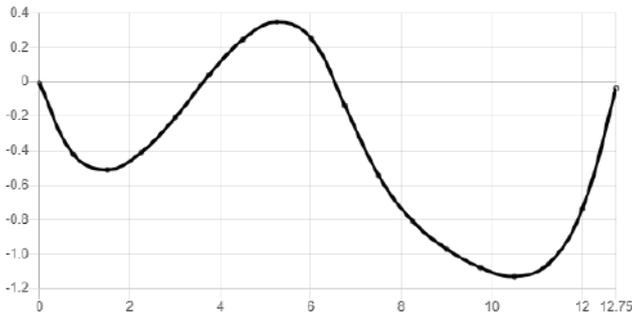
[X:m, Y:mm]

Deflection diagram not applicable for a ULS Short Term combination.

Refer to Long Term combination diagram.

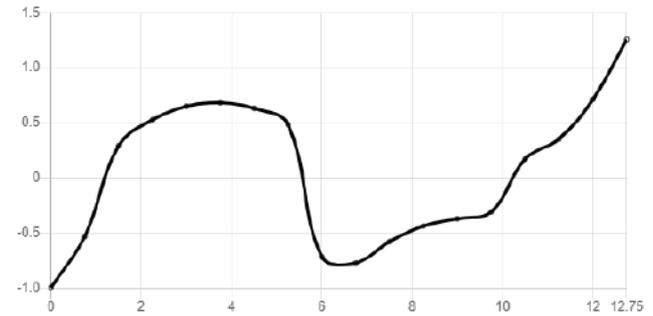
Rib (RL*) - Bending Moment (M*)

[X:m, Y:kNm/rib]



Rib (RL*) - Shear Force (V*)

[X:m, Y:kN/rib]



Rib (RB*) - Summary

Deflection check not applicable for a ULS Short Term combination.

Refer to Long Term combination check.

$$M^*,\text{hog} = 1.8 \text{ kNm} < \Phi M_{u,\text{hog}} = 13.5 \text{ kNm}$$

$$M^*,\text{sag} = 0.3 \text{ kNm} < \Phi M_{u,\text{sag}} = 15 \text{ kNm}$$

$$V^*,\text{max} = 2.3 \text{ kN} < \Phi V_u = 17 \text{ kN}$$

Rib (RB*) - Deflection

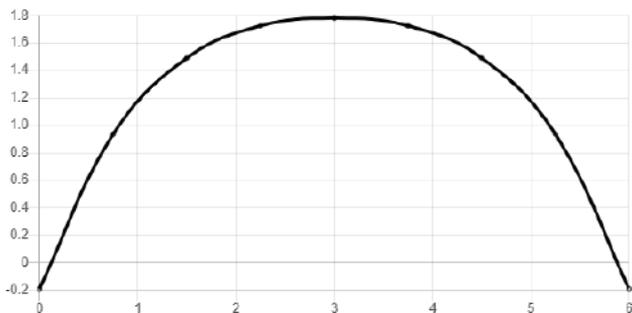
[X:m, Y:mm]

Deflection diagram not applicable for a ULS Short Term combination.

Refer to Long Term combination diagram.

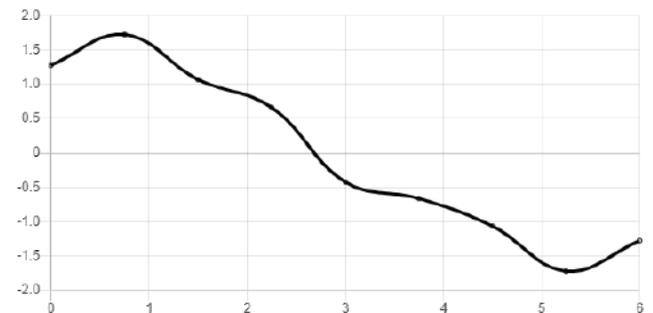
Rib (RB*) - Bending Moment (M*)

[X:m, Y:kNm/rib]



Rib (RB*) - Shear Force (V*)

[X:m, Y:kN/rib]



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Rib (RB1) - Summary

Deflection check not applicable for a ULS Short Term combination.

Refer to Long Term combination check.

$$M^*,\text{hog} = 1.8 \text{ kNm} < \Phi M_{u,\text{hog}} = 13.5 \text{ kNm}$$

$$M^*,\text{sag} = 0.2 \text{ kNm} < \Phi M_{u,\text{sag}} = 15 \text{ kNm}$$

$$V^*,\text{max} = 2.3 \text{ kN} < \Phi V_u = 17 \text{ kN}$$

Rib (RB1) - Deflection

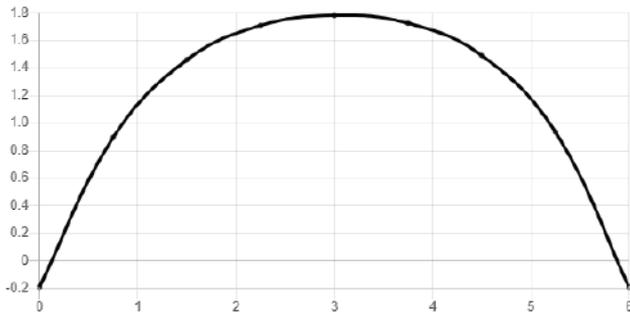
[X:m, Y:mm]

Deflection diagram not applicable for a ULS Short Term combination.

Refer to Long Term combination diagram.

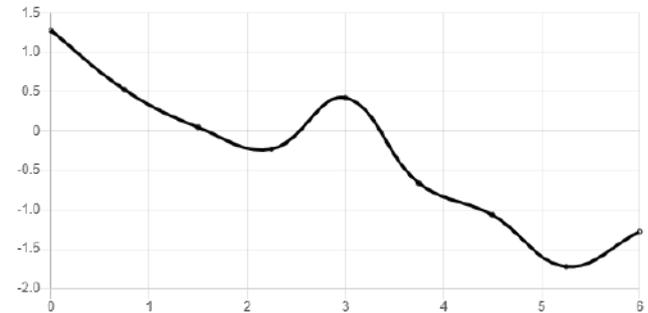
Rib (RB1) - Bending Moment (M*)

[X:m, Y:kNm/rib]



Rib (RB1) - Shear Force (V*)

[X:m, Y:kN/rib]



Rib (RB2) - Summary

Deflection check not applicable for a ULS Short Term combination.

Refer to Long Term combination check.

$$M^*,\text{hog} = 0.9 \text{ kNm} < \Phi M_{u,\text{hog}} = 13.5 \text{ kNm}$$

$$M^*,\text{sag} = 0 \text{ kNm} < \Phi M_{u,\text{sag}} = 15 \text{ kNm}$$

$$V^*,\text{max} = 1.4 \text{ kN} < \Phi V_u = 17 \text{ kN}$$

Rib (RB2) - Deflection

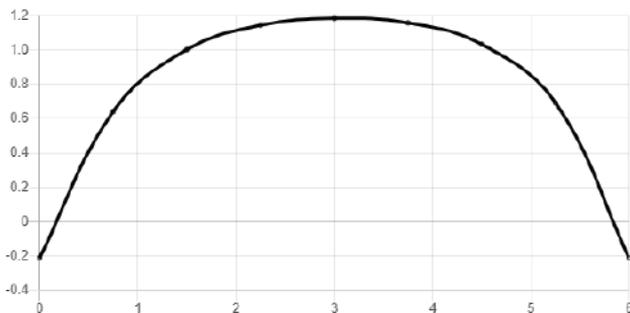
[X:m, Y:mm]

Deflection diagram not applicable for a ULS Short Term combination.

Refer to Long Term combination diagram.

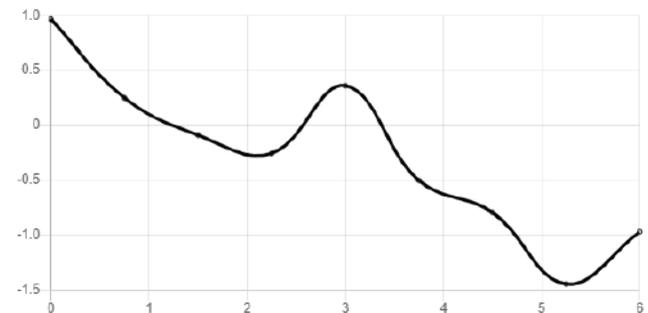
Rib (RB2) - Bending Moment (M*)

[X:m, Y:kNm/rib]



Rib (RB2) - Shear Force (V*)

[X:m, Y:kN/rib]



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Rectangle 1 - Pressure Analysis (Long Term)

Rib

Pressure at the foundation/building platform interface:

$P^*(z=0)$, long term = 18.9 kPa

Pressure on natural soil

Engineered Fill Thickness = 200 mm

P^* , long term = 8.9 kPa < ABC = 66.7 kPa

Edge Beam

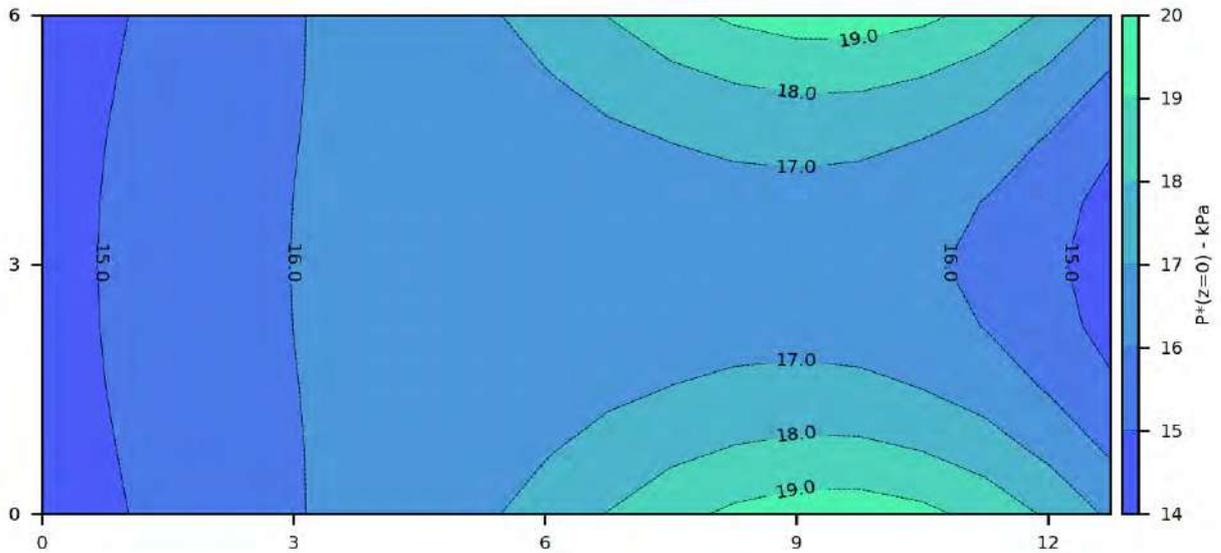
Pressure at the foundation/building platform interface:

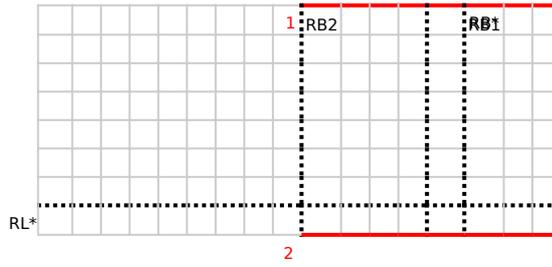
$P^*(z=0)$, long term = 19.5 kPa

Pressure on natural soil

Engineered Fill Thickness = 200 mm

P^* , long term = 16.1 kPa < ABC = 66.7 kPa





Loads

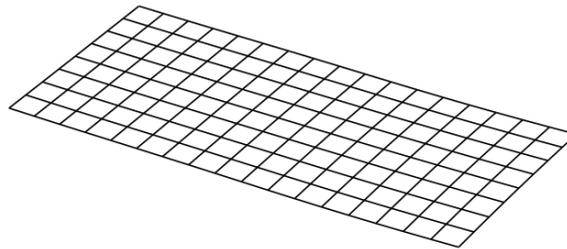
Loads in accordance with paragraph "Load Analysis"

Notes

RL: Rib for analysis along L

RB: Rib for analysis along B

The loads shown on this diagram are additional to the edge loads induced by the external walls and to the uniform surface load induced by the waffle raft.



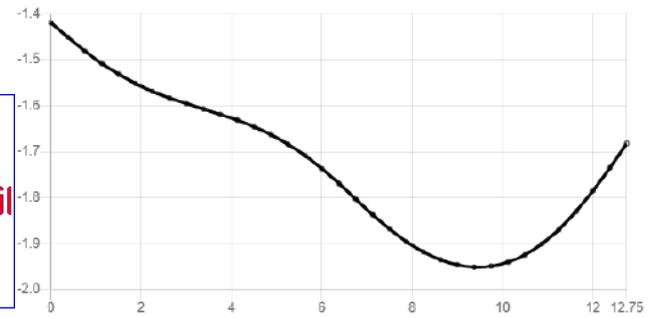
Edge Beam (EL) - Summary

$\Delta = 0.5 \text{ mm} < \Delta_{\text{max}} = 40 \text{ mm}$
 $M^*_{\text{,hog}} = 0.5 \text{ kNm} < \Phi M_{u,\text{hog}} = 23 \text{ kNm}$
 $M^*_{\text{,sag}} = 1 \text{ kNm} < \Phi M_{u,\text{sag}} = 28 \text{ kNm}$
 $V^*_{\text{,max}} = 2.4 \text{ kN} < \Phi V_u = 39.6 \text{ kN}$

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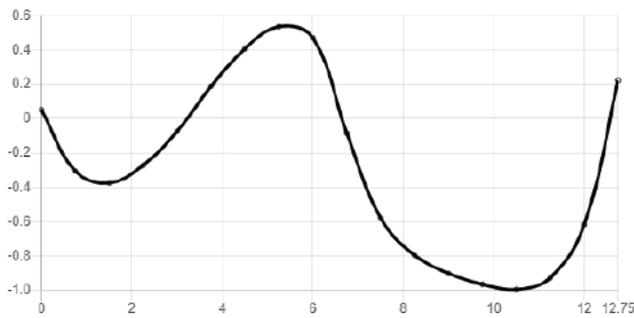
Edge Beam (EL) - Deflection

[X:m, Y:mm]



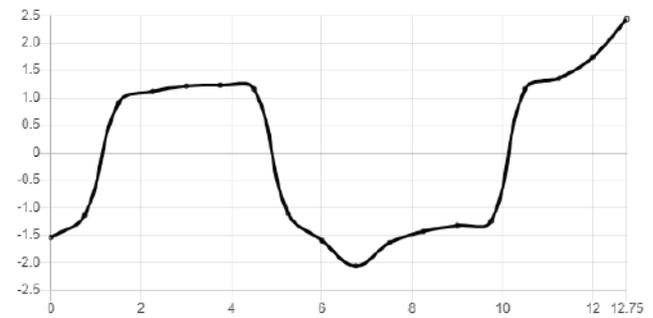
Edge Beam (EL) - Bending Moment (M*)

[X:m, Y:kNm/rib]



Edge Beam (EL) - Shear Force (V*)

[X:m, Y:kN/rib]

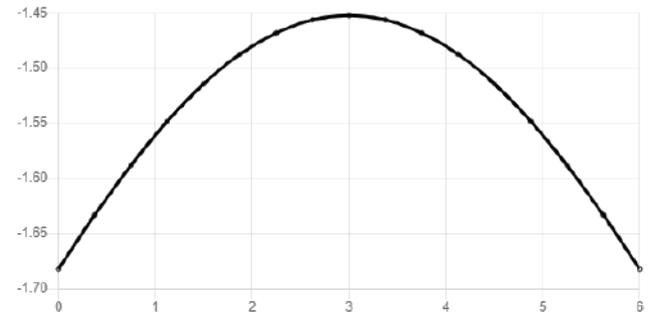


Edge Beam (EB) - Summary

$\Delta = 0.2 \text{ mm} < \Delta_{\text{max}} = 21 \text{ mm}$
 $M^*_{\text{,hog}} = 1.3 \text{ kNm} < \Phi M_{u,\text{hog}} = 23 \text{ kNm}$
 $M^*_{\text{,sag}} = 0 \text{ kNm} < \Phi M_{u,\text{sag}} = 28 \text{ kNm}$
 $V^*_{\text{,max}} = 1.7 \text{ kN} < \Phi V_u = 39.6 \text{ kN}$

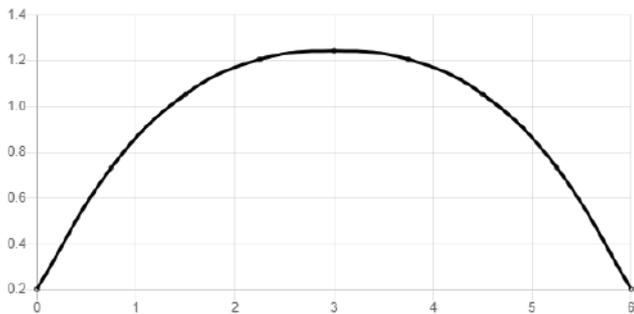
Edge Beam (EB) - Deflection

[X:m, Y:mm]



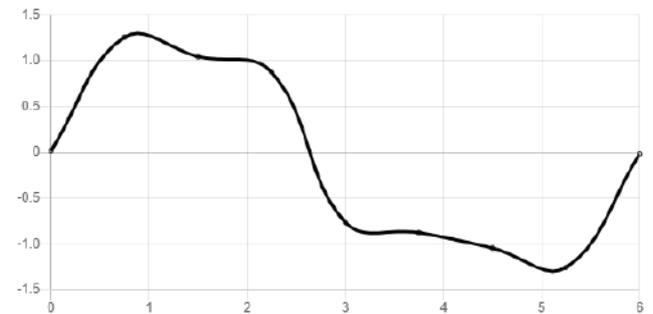
Edge Beam (EB) - Bending Moment (M*)

[X:m, Y:kNm/rib]



Edge Beam (EB) - Shear Force (V*)

[X:m, Y:kN/rib]



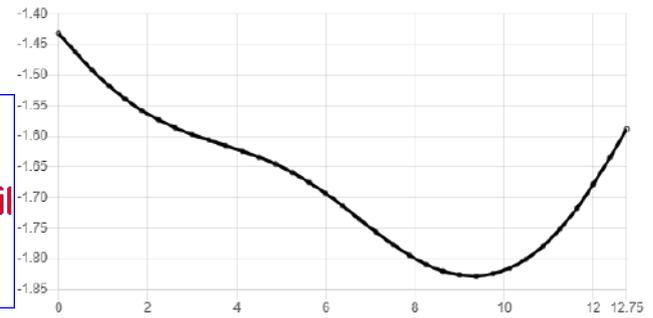
Rib (RL*) - Summary

$\Delta = 0.4 \text{ mm} < \Delta_{\text{max}} = 40 \text{ mm}$
 $M^*_{\text{,hog}} = 0.2 \text{ kNm} < \Phi M_{u,\text{hog}} = 13.5 \text{ kNm}$
 $M^*_{\text{,sag}} = 0.5 \text{ kNm} < \Phi M_{u,\text{sag}} = 15 \text{ kNm}$
 $V^*_{\text{,max}} = 0.9 \text{ kN} < \Phi V_u = 17 \text{ kN}$

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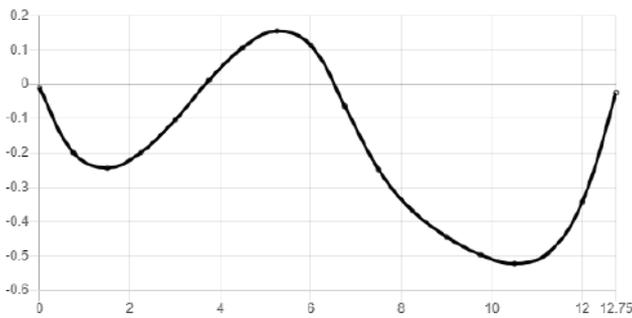
Rib (RL*) - Deflection

[X:m, Y:mm]



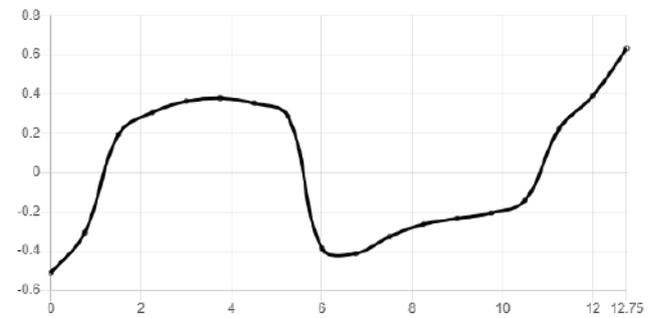
Rib (RL*) - Bending Moment (M*)

[X:m, Y:kNm/rib]



Rib (RL*) - Shear Force (V*)

[X:m, Y:kN/rib]

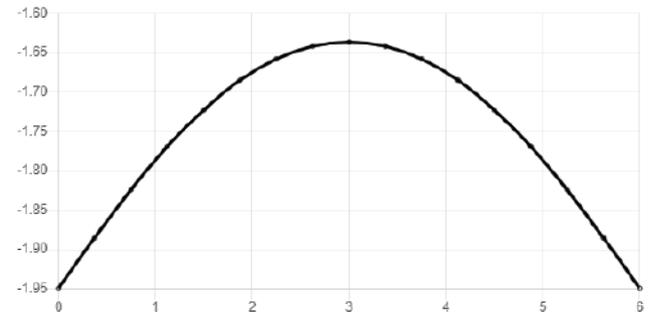


Rib (RB*) - Summary

$\Delta = 0.3 \text{ mm} < \Delta_{\text{max}} = 21 \text{ mm}$
 $M^*_{\text{,hog}} = 0.9 \text{ kNm} < \Phi M_{u,\text{hog}} = 13.5 \text{ kNm}$
 $M^*_{\text{,sag}} = 0.1 \text{ kNm} < \Phi M_{u,\text{sag}} = 15 \text{ kNm}$
 $V^*_{\text{,max}} = 1.3 \text{ kN} < \Phi V_u = 17 \text{ kN}$

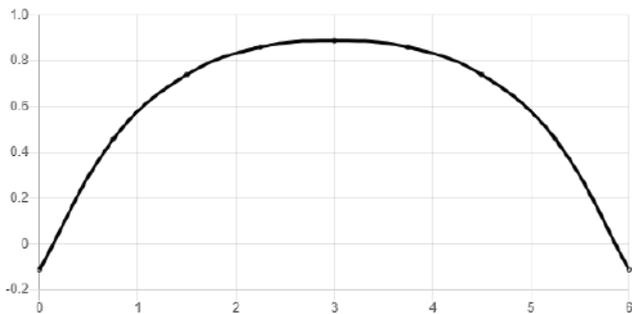
Rib (RB*) - Deflection

[X:m, Y:mm]



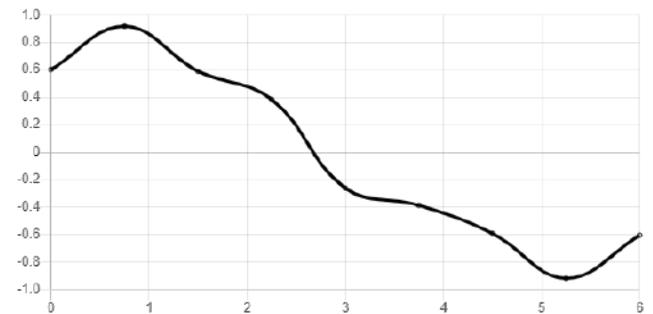
Rib (RB*) - Bending Moment (M*)

[X:m, Y:kNm/rib]



Rib (RB*) - Shear Force (V*)

[X:m, Y:kN/rib]



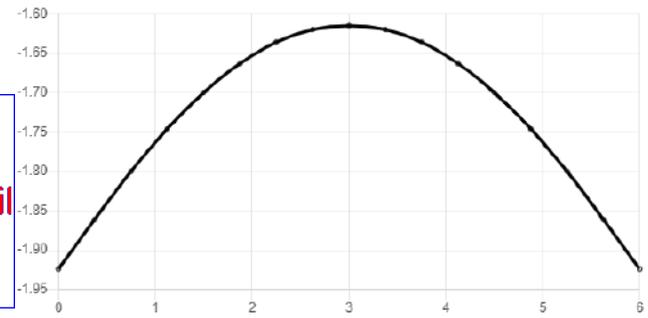
Rib (RB1) - Summary

$\Delta = 0.3 \text{ mm} < \Delta_{\text{max}} = 21 \text{ mm}$
 $M^*, \text{hog} = 0.9 \text{ kNm} < \Phi M_{u, \text{hog}} = 13.5 \text{ kNm}$
 $M^*, \text{sag} = 0.1 \text{ kNm} < \Phi M_{u, \text{sag}} = 15 \text{ kNm}$
 $V^*, \text{max} = 1.3 \text{ kN} < \Phi V_u = 17 \text{ kN}$

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Rib (RB1) - Deflection

[X:m, Y:mm]



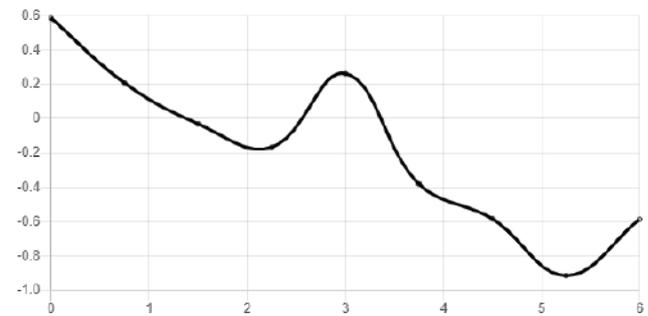
Rib (RB1) - Bending Moment (M*)

[X:m, Y:kNm/rib]



Rib (RB1) - Shear Force (V*)

[X:m, Y:kN/rib]



Rib (RB2) - Summary

$\Delta = 0.2 \text{ mm} < \Delta_{\text{max}} = 21 \text{ mm}$
 $M^*, \text{hog} = 0.5 \text{ kNm} < \Phi M_{u, \text{hog}} = 13.5 \text{ kNm}$
 $M^*, \text{sag} = 0 \text{ kNm} < \Phi M_{u, \text{sag}} = 15 \text{ kNm}$
 $V^*, \text{max} = 0.8 \text{ kN} < \Phi V_u = 17 \text{ kN}$

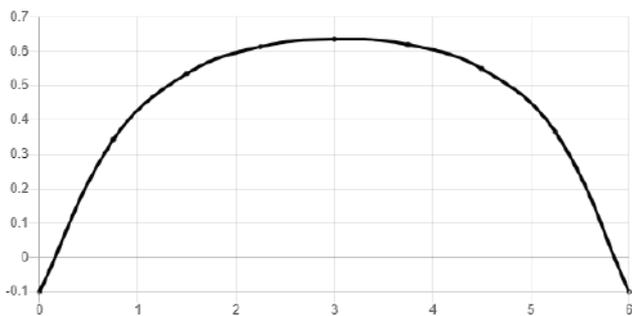
Rib (RB2) - Deflection

[X:m, Y:mm]



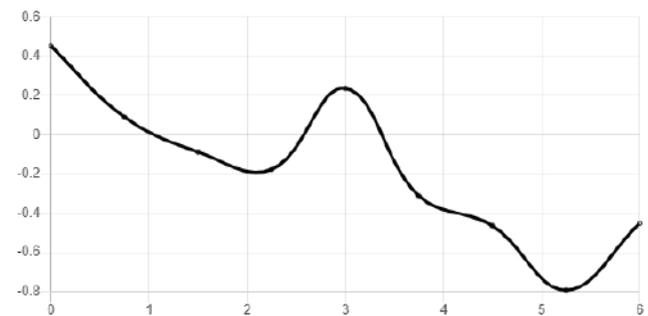
Rib (RB2) - Bending Moment (M*)

[X:m, Y:kNm/rib]

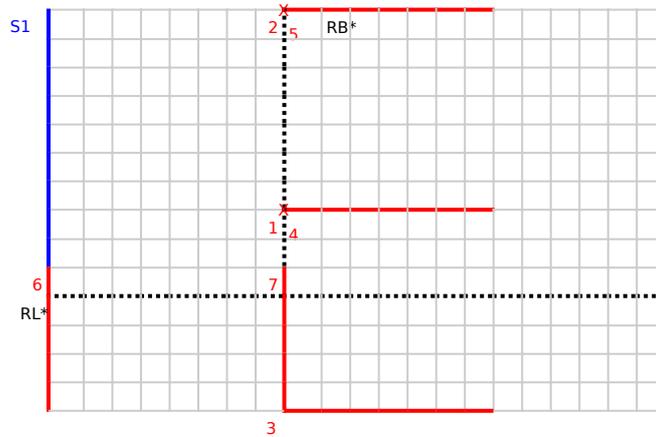


Rib (RB2) - Shear Force (V*)

[X:m, Y:kN/rib]



Rectangle 2 - Loss of Support 1



Loads

Loads in accordance with paragraph "Load Analysis"

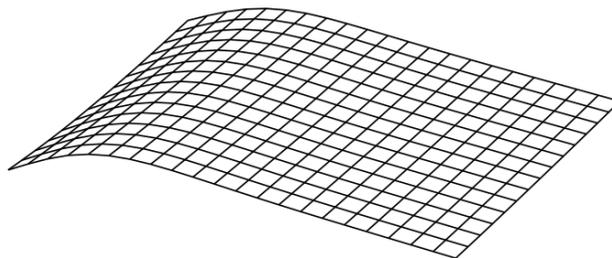
Notes

S: Line where maximum loss of support occurs

RL: Rib for analysis along L

RB: Rib for analysis along B

The loads shown on this diagram are additional to the edge loads induced by the external walls and to the uniform surface load induced by the waffle raft.



Edge Beam (EL) - Summary

Deflection ratio = 1 in 299 < 1 in 200 over 2 m cantilever

$M^*, hog = 22.7 \text{ kNm} < \Phi M_{u, hog} = 23 \text{ kNm}$

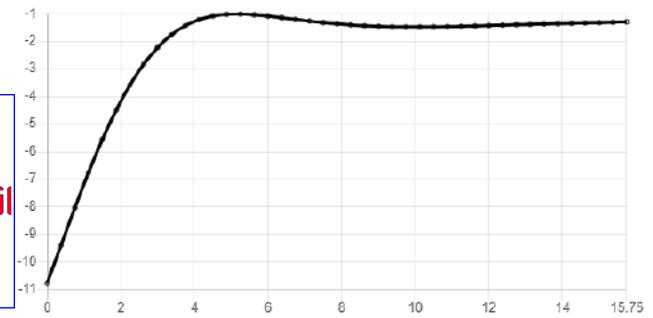
$M^*, sag = 1.1 \text{ kNm} < \Phi M_{u, sag} = 28 \text{ kNm}$

$V^*, max = 13.6 \text{ kN} < \Phi V_u = 39.6 \text{ kN}$

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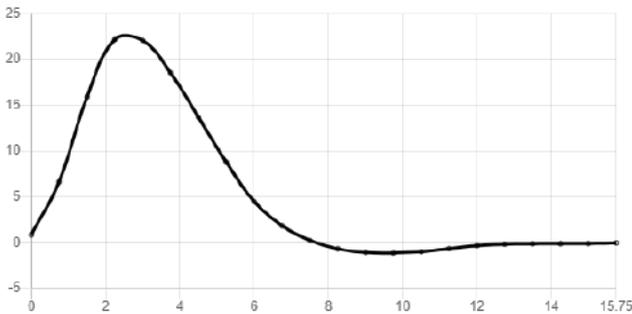
Edge Beam (EL) - Deflection

[X:m, Y:mm]



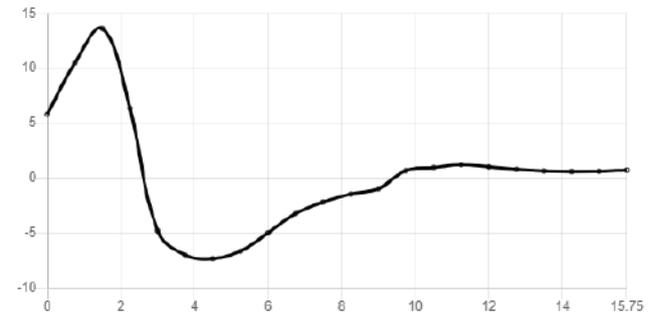
Edge Beam (EL) - Bending Moment (M*)

[X:m, Y:kNm/rib]



Edge Beam (EL) - Shear Force (V*)

[X:m, Y:kN/rib]



Edge Beam (EB) - Summary

Deflection ratio check not required along this direction

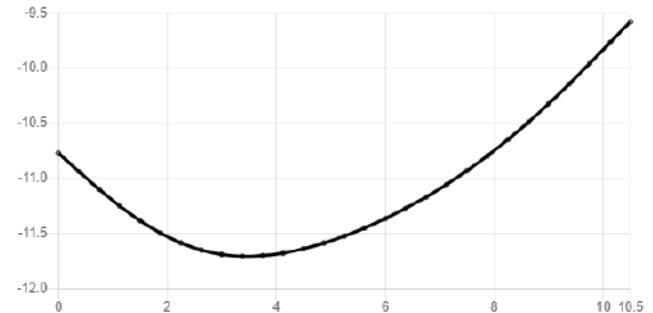
$M^*, hog = 1.3 \text{ kNm} < \Phi M_{u, hog} = 23 \text{ kNm}$

$M^*, sag = 3.4 \text{ kNm} < \Phi M_{u, sag} = 28 \text{ kNm}$

$V^*, max = 5.4 \text{ kN} < \Phi V_u = 39.6 \text{ kN}$

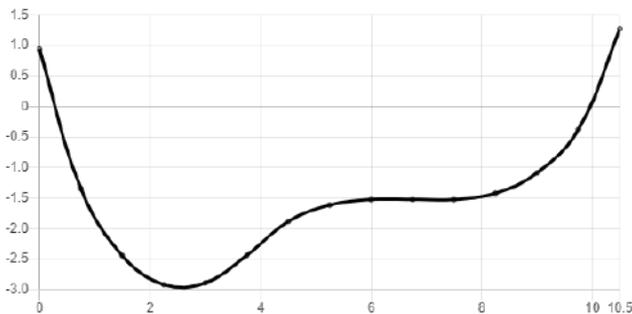
Edge Beam (EB) - Deflection

[X:m, Y:mm]



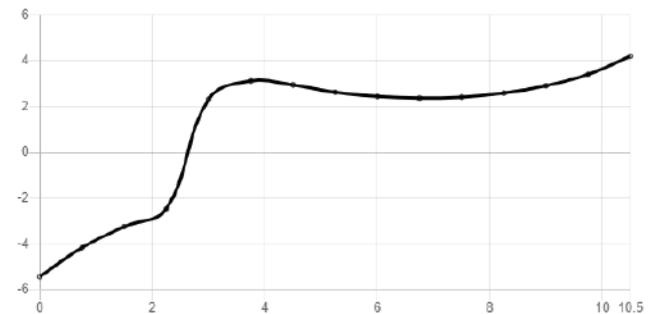
Edge Beam (EB) - Bending Moment (M*)

[X:m, Y:kNm/rib]



Edge Beam (EB) - Shear Force (V*)

[X:m, Y:kN/rib]



Rib (RL*) - Summary

Deflection ratio = 1 in 279 < 1 in 200 over 2 m cantilever

$M^*,\text{hog} = 13.3 \text{ kNm} < \Phi M_{u,\text{hog}} = 13.5 \text{ kNm}$

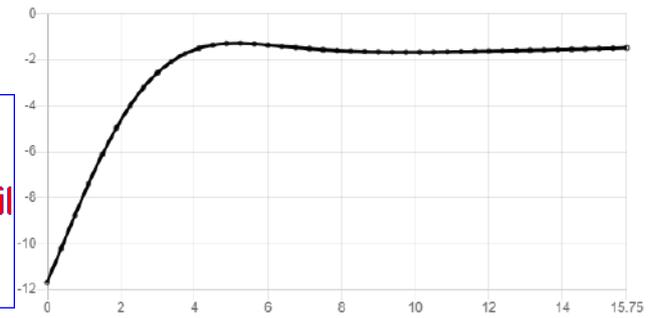
$M^*,\text{sag} = 0.8 \text{ kNm} < \Phi M_{u,\text{sag}} = 15 \text{ kNm}$

$V^*,\text{max} = 8.4 \text{ kN} < \Phi V_u = 17 \text{ kN}$

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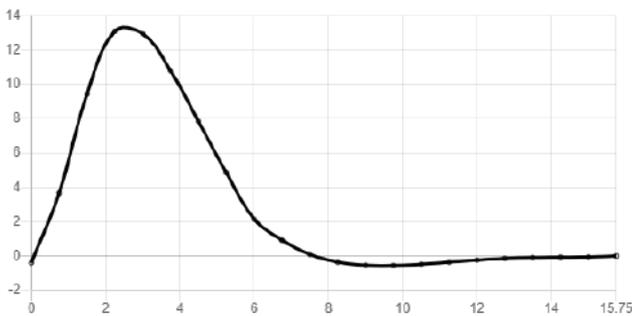
Rib (RL*) - Deflection

[X:m, Y:mm]



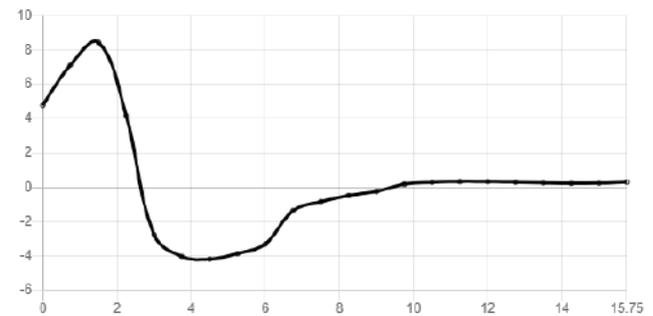
Rib (RL*) - Bending Moment (M*)

[X:m, Y:kNm/rib]



Rib (RL*) - Shear Force (V*)

[X:m, Y:kN/rib]



Rib (RB*) - Summary

Deflection ratio check not required along this direction

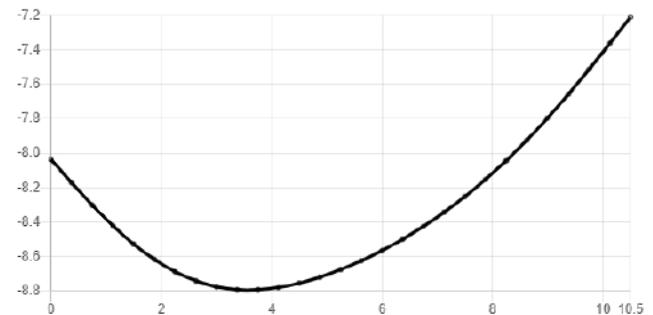
$M^*,\text{hog} = 0.5 \text{ kNm} < \Phi M_{u,\text{hog}} = 13.5 \text{ kNm}$

$M^*,\text{sag} = 2.1 \text{ kNm} < \Phi M_{u,\text{sag}} = 15 \text{ kNm}$

$V^*,\text{max} = 2.8 \text{ kN} < \Phi V_u = 17 \text{ kN}$

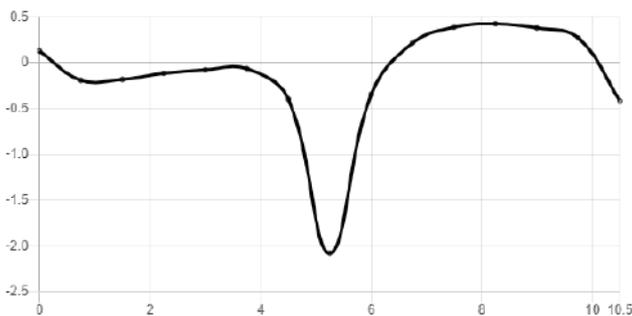
Rib (RB*) - Deflection

[X:m, Y:mm]



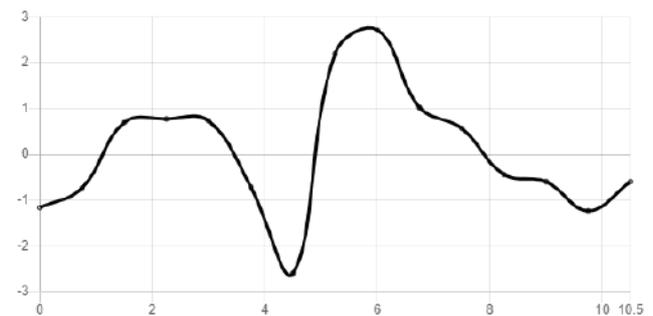
Rib (RB*) - Bending Moment (M*)

[X:m, Y:kNm/rib]



Rib (RB*) - Shear Force (V*)

[X:m, Y:kN/rib]



Edge Beam (EL) - Summary

Deflection ratio check not required along this direction

$M^*, hog = 0.5 \text{ kNm} < \Phi M_{u, hog} = 23 \text{ kNm}$

$M^*, sag = 2.1 \text{ kNm} < \Phi M_{u, sag} = 28 \text{ kNm}$

$V^*, max = 3.3 \text{ kN} < \Phi V_u = 39.6 \text{ kN}$

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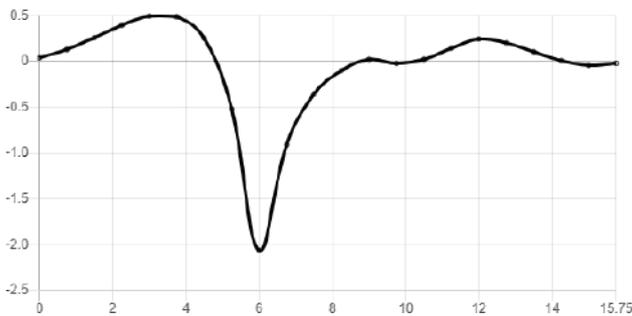
Edge Beam (EL) - Deflection

[X:m, Y:mm]



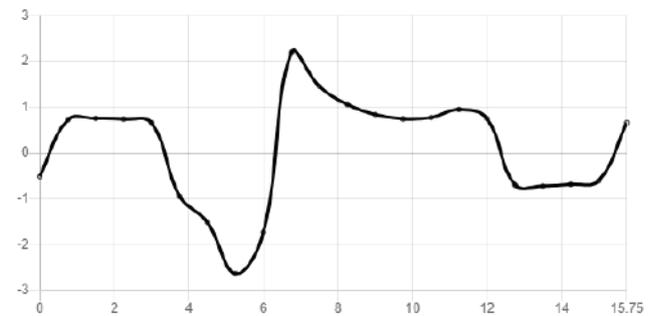
Edge Beam (EL) - Bending Moment (M*)

[X:m, Y:kNm/rib]



Edge Beam (EL) - Shear Force (V*)

[X:m, Y:kN/rib]



Edge Beam (EB) - Summary

Deflection ratio = 1 in 342 < 1 in 200 over 2 m cantilever

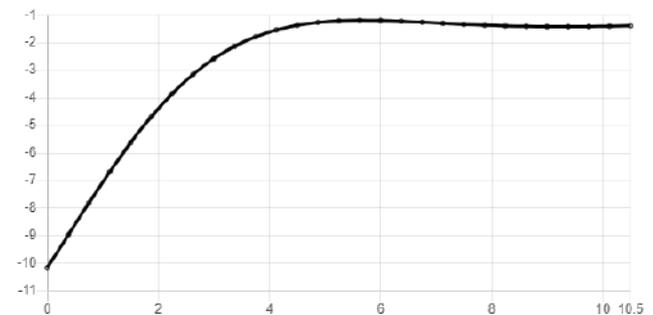
$M^*, hog = 19.2 \text{ kNm} < \Phi M_{u, hog} = 23 \text{ kNm}$

$M^*, sag = 0.7 \text{ kNm} < \Phi M_{u, sag} = 28 \text{ kNm}$

$V^*, max = 13 \text{ kN} < \Phi V_u = 39.6 \text{ kN}$

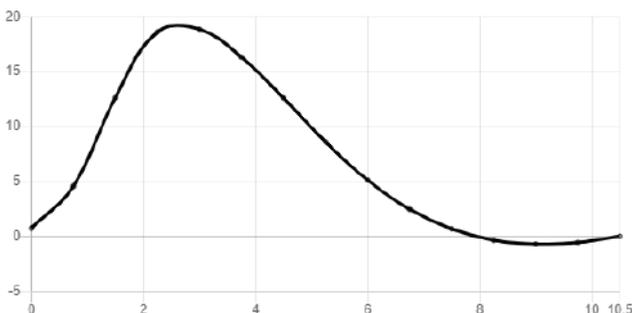
Edge Beam (EB) - Deflection

[X:m, Y:mm]



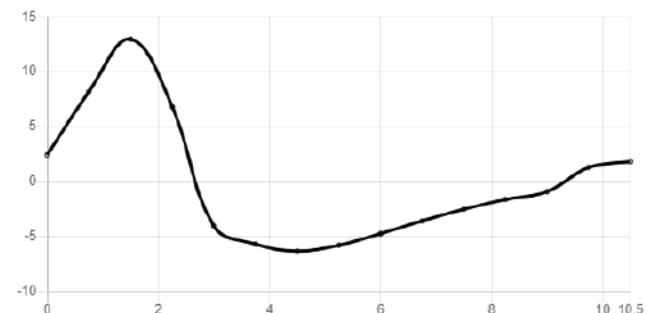
Edge Beam (EB) - Bending Moment (M*)

[X:m, Y:kNm/rib]



Edge Beam (EB) - Shear Force (V*)

[X:m, Y:kN/rib]



Rib (RL*) - Summary

Deflection ratio check not required along this direction

$M^*, hog = 0.7 \text{ kNm} < \Phi M_{u, hog} = 13.5 \text{ kNm}$

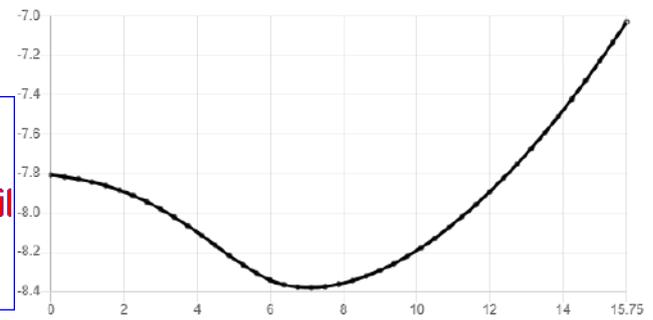
$M^*, sag = 1.6 \text{ kNm} < \Phi M_{u, sag} = 15 \text{ kNm}$

$V^*, max = 2.7 \text{ kN} < \Phi V_u = 17 \text{ kN}$

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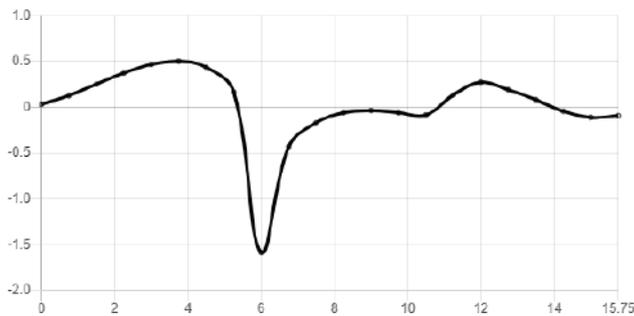
Rib (RL*) - Deflection

[X:m, Y:mm]



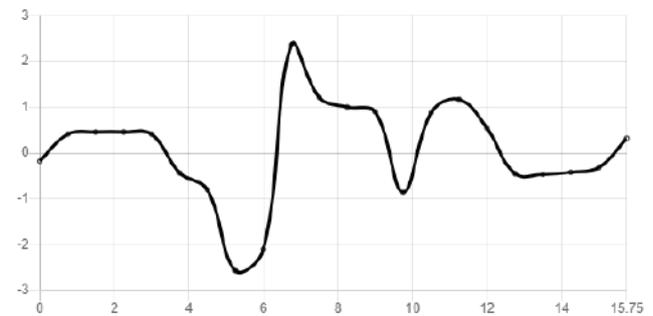
Rib (RL*) - Bending Moment (M*)

[X:m, Y:kNm/rib]



Rib (RL*) - Shear Force (V*)

[X:m, Y:kN/rib]



Rib (RB*) - Summary

Deflection ratio = 1 in 306 < 1 in 200 over 2 m cantilever

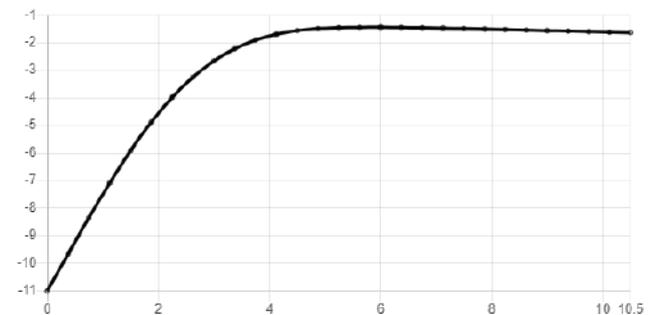
$M^*, hog = 12.2 \text{ kNm} < \Phi M_{u, hog} = 13.5 \text{ kNm}$

$M^*, sag = 0.4 \text{ kNm} < \Phi M_{u, sag} = 15 \text{ kNm}$

$V^*, max = 8.1 \text{ kN} < \Phi V_u = 17 \text{ kN}$

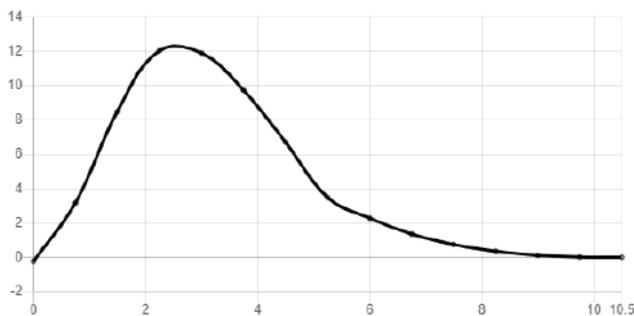
Rib (RB*) - Deflection

[X:m, Y:mm]



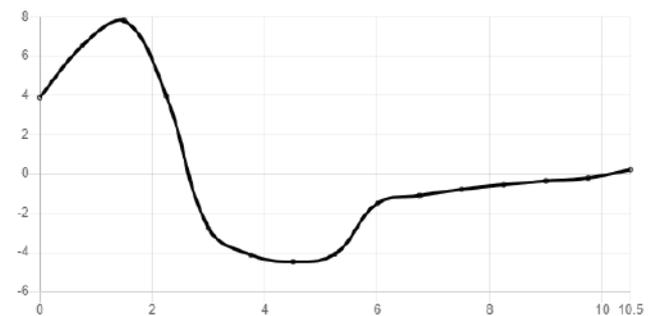
Rib (RB*) - Bending Moment (M*)

[X:m, Y:kNm/rib]

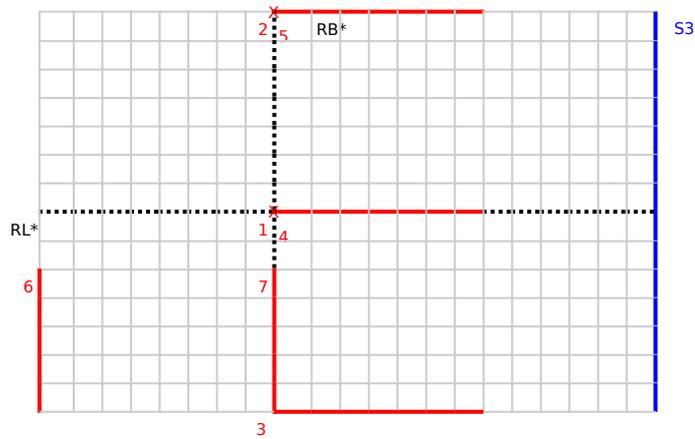


Rib (RB*) - Shear Force (V*)

[X:m, Y:kN/rib]



Rectangle 2 - Loss of Support 3



Loads

Loads in accordance with paragraph "Load Analysis"

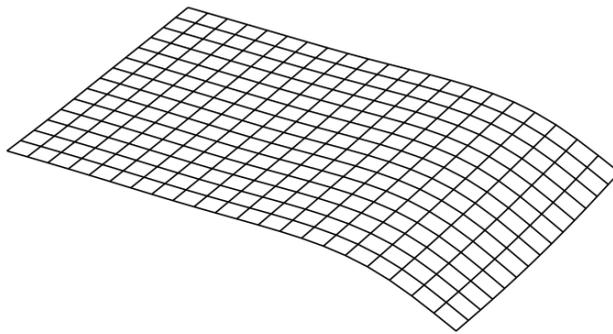
Notes

S: Line where maximum loss of support occurs

RL: Rib for analysis along L

RB: Rib for analysis along B

The loads shown on this diagram are additional to the edge loads induced by the external walls and to the uniform surface load induced by the waffle raft.



Edge Beam (EL) - Summary

Deflection ratio = 1 in 352 < 1 in 200 over 2 m cantilever

$M^*, hog = 19.3 \text{ kNm} < \Phi M_{u, hog} = 23 \text{ kNm}$

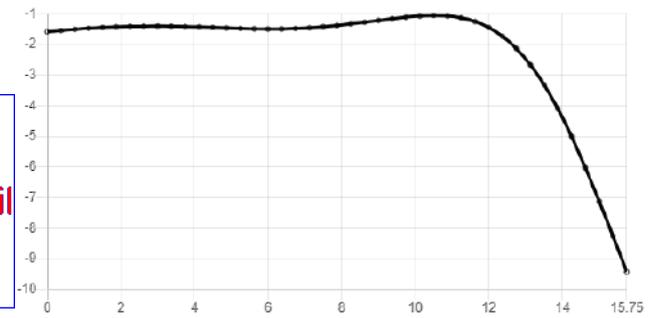
$M^*, sag = 2.9 \text{ kNm} < \Phi M_{u, sag} = 28 \text{ kNm}$

$V^*, max = 11.5 \text{ kN} < \Phi V_u = 39.6 \text{ kN}$

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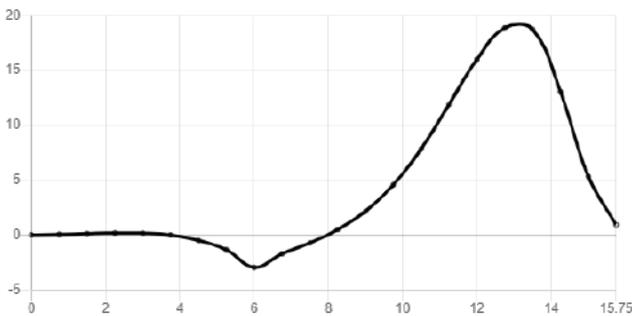
Edge Beam (EL) - Deflection

[X:m, Y:mm]



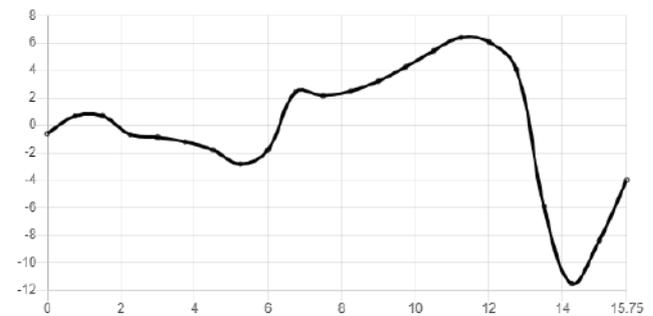
Edge Beam (EL) - Bending Moment (M*)

[X:m, Y:kNm/rib]



Edge Beam (EL) - Shear Force (V*)

[X:m, Y:kN/rib]



Edge Beam (EB) - Summary

Deflection ratio check not required along this direction

$M^*, hog = 1 \text{ kNm} < \Phi M_{u, hog} = 23 \text{ kNm}$

$M^*, sag = 2.3 \text{ kNm} < \Phi M_{u, sag} = 28 \text{ kNm}$

$V^*, max = 4 \text{ kN} < \Phi V_u = 39.6 \text{ kN}$

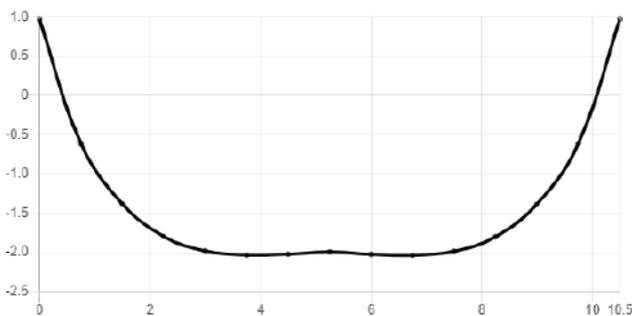
Edge Beam (EB) - Deflection

[X:m, Y:mm]



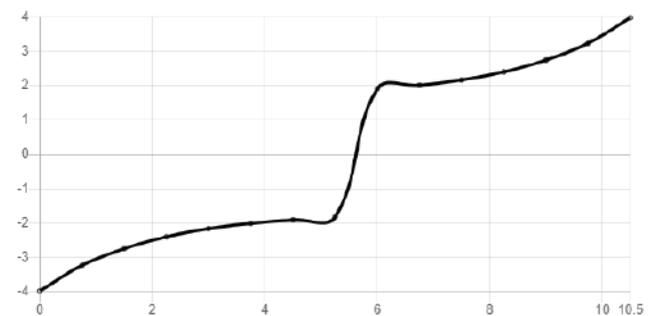
Edge Beam (EB) - Bending Moment (M*)

[X:m, Y:kNm/rib]



Edge Beam (EB) - Shear Force (V*)

[X:m, Y:kN/rib]



Rib (RL*) - Summary

Deflection ratio = 1 in 311 < 1 in 200 over 2 m cantilever

$M^*,\text{hog} = 11.9 \text{ kNm} < \Phi M_{u,\text{hog}} = 13.5 \text{ kNm}$

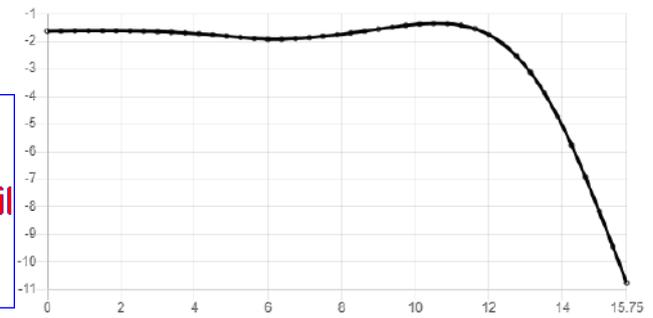
$M^*,\text{sag} = 2.1 \text{ kNm} < \Phi M_{u,\text{sag}} = 15 \text{ kNm}$

$V^*,\text{max} = 7.6 \text{ kN} < \Phi V_u = 17 \text{ kN}$

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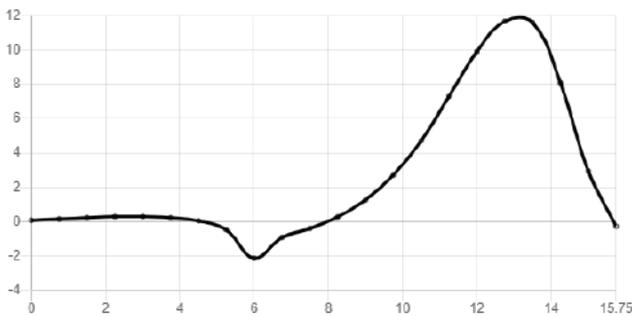
Rib (RL*) - Deflection

[X:m, Y:mm]



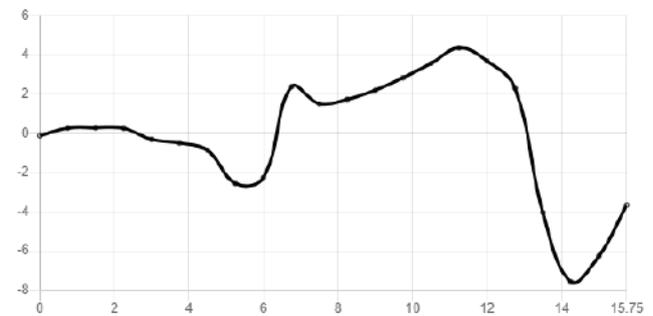
Rib (RL*) - Bending Moment (M*)

[X:m, Y:kNm/rib]



Rib (RL*) - Shear Force (V*)

[X:m, Y:kN/rib]



Rib (RB*) - Summary

Deflection ratio check not required along this direction

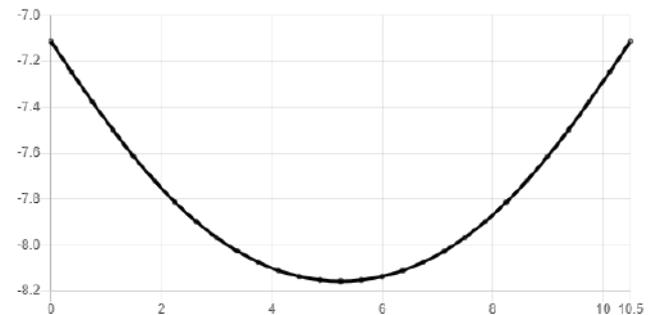
$M^*,\text{hog} = 0.5 \text{ kNm} < \Phi M_{u,\text{hog}} = 13.5 \text{ kNm}$

$M^*,\text{sag} = 2.1 \text{ kNm} < \Phi M_{u,\text{sag}} = 15 \text{ kNm}$

$V^*,\text{max} = 3 \text{ kN} < \Phi V_u = 17 \text{ kN}$

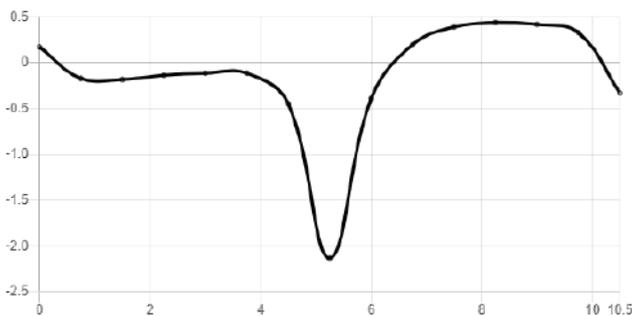
Rib (RB*) - Deflection

[X:m, Y:mm]



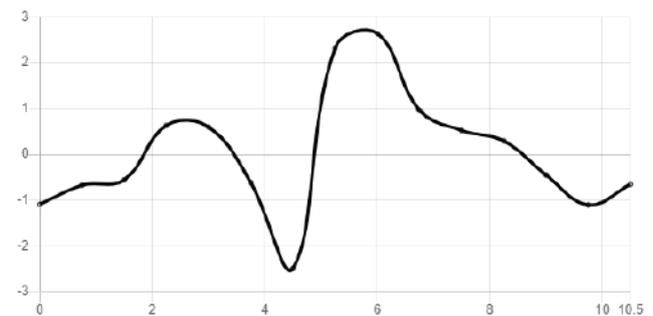
Rib (RB*) - Bending Moment (M*)

[X:m, Y:kNm/rib]



Rib (RB*) - Shear Force (V*)

[X:m, Y:kN/rib]



Edge Beam (EL) - Summary

Deflection ratio check not required along this direction

$M^*, \text{hog} = 1.1 \text{ kNm} < \Phi M_{u, \text{hog}} = 23 \text{ kNm}$

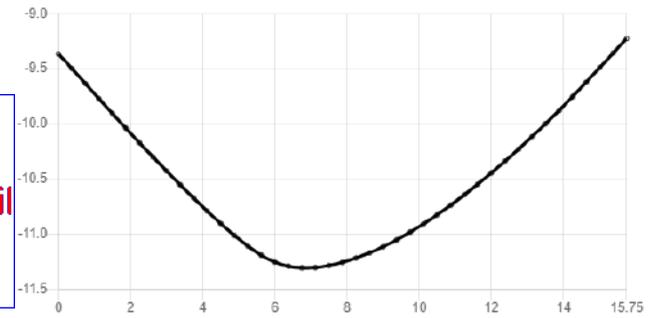
$M^*, \text{sag} = 3.5 \text{ kNm} < \Phi M_{u, \text{sag}} = 28 \text{ kNm}$

$V^*, \text{max} = 4.1 \text{ kN} < \Phi V_u = 39.6 \text{ kN}$

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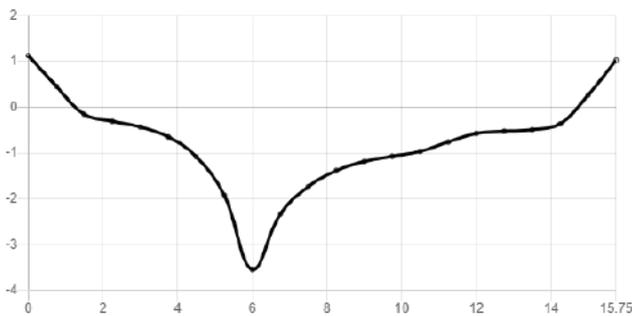
Edge Beam (EL) - Deflection

[X:m, Y:mm]



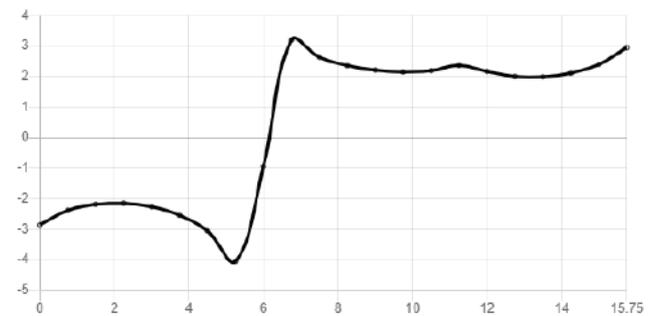
Edge Beam (EL) - Bending Moment (M*)

[X:m, Y:kNm/rib]



Edge Beam (EL) - Shear Force (V*)

[X:m, Y:kN/rib]



Edge Beam (EB) - Summary

Deflection ratio = 1 in 363 < 1 in 200 over 2 m cantilever

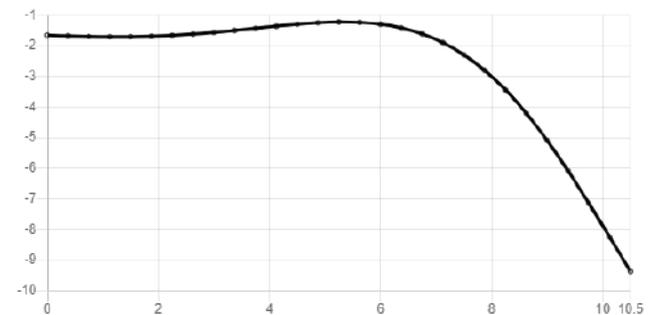
$M^*, \text{hog} = 18.7 \text{ kNm} < \Phi M_{u, \text{hog}} = 23 \text{ kNm}$

$M^*, \text{sag} = 1.4 \text{ kNm} < \Phi M_{u, \text{sag}} = 28 \text{ kNm}$

$V^*, \text{max} = 11.6 \text{ kN} < \Phi V_u = 39.6 \text{ kN}$

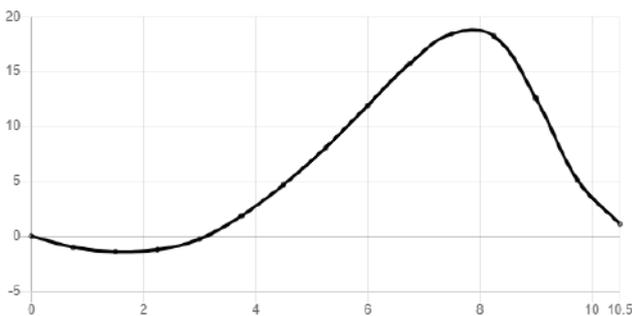
Edge Beam (EB) - Deflection

[X:m, Y:mm]



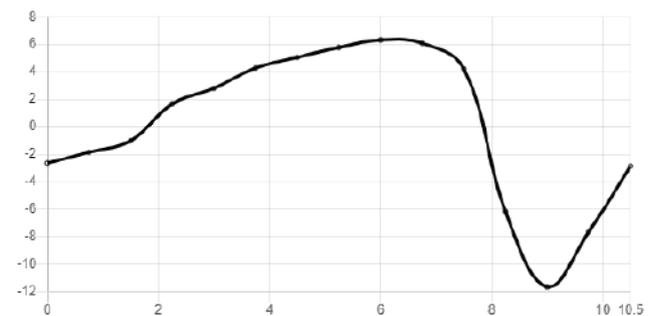
Edge Beam (EB) - Bending Moment (M*)

[X:m, Y:kNm/rib]



Edge Beam (EB) - Shear Force (V*)

[X:m, Y:kN/rib]



Rib (RL*) - Summary

Deflection ratio check not required along this direction

$M^*, \text{hog} = 0.6 \text{ kNm} < \Phi M_{u, \text{hog}} = 13.5 \text{ kNm}$

$M^*, \text{sag} = 1.6 \text{ kNm} < \Phi M_{u, \text{sag}} = 15 \text{ kNm}$

$V^*, \text{max} = 2.7 \text{ kN} < \Phi V_u = 17 \text{ kN}$

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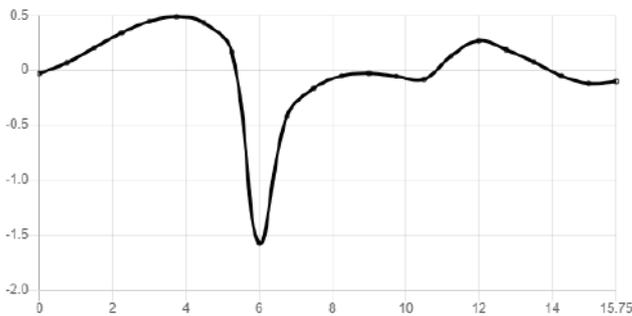
Rib (RL*) - Deflection

[X:m, Y:mm]



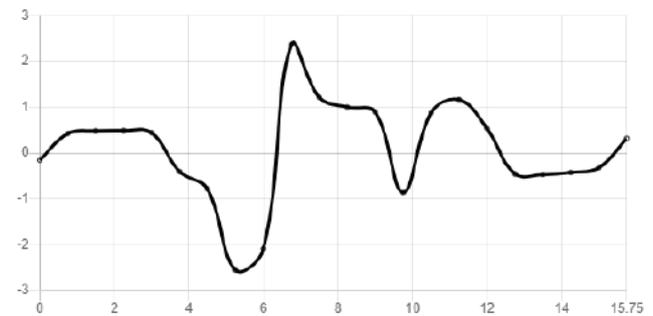
Rib (RL*) - Bending Moment (M*)

[X:m, Y:kNm/rib]



Rib (RL*) - Shear Force (V*)

[X:m, Y:kN/rib]



Rib (RB*) - Summary

Deflection ratio = 1 in 294 < 1 in 200 over 2 m cantilever

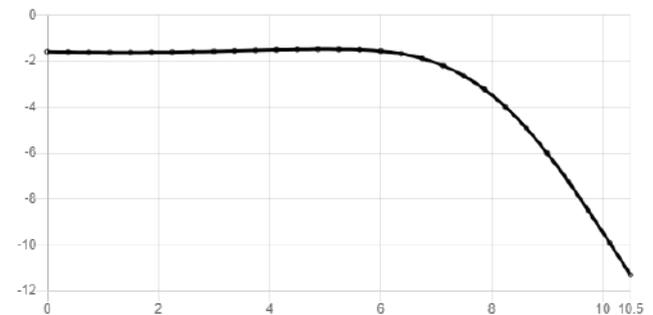
$M^*, \text{hog} = 12.8 \text{ kNm} < \Phi M_{u, \text{hog}} = 13.5 \text{ kNm}$

$M^*, \text{sag} = 0.7 \text{ kNm} < \Phi M_{u, \text{sag}} = 15 \text{ kNm}$

$V^*, \text{max} = 8.2 \text{ kN} < \Phi V_u = 17 \text{ kN}$

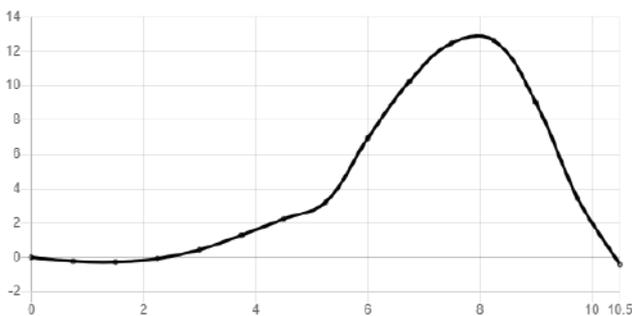
Rib (RB*) - Deflection

[X:m, Y:mm]



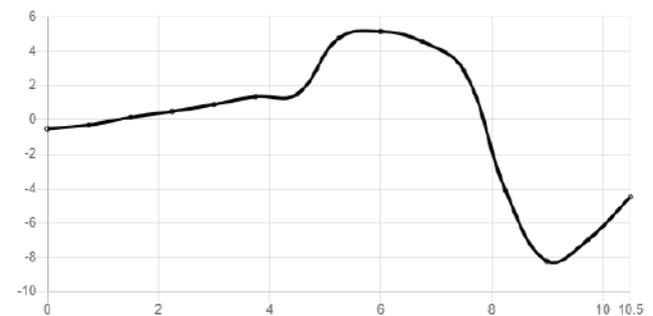
Rib (RB*) - Bending Moment (M*)

[X:m, Y:kNm/rib]

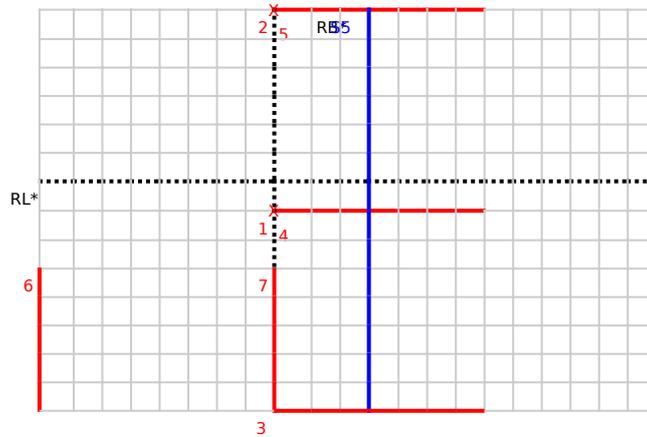


Rib (RB*) - Shear Force (V*)

[X:m, Y:kN/rib]



Rectangle 2 - Loss of Support 5



Loads

Loads in accordance with paragraph "Load Analysis"

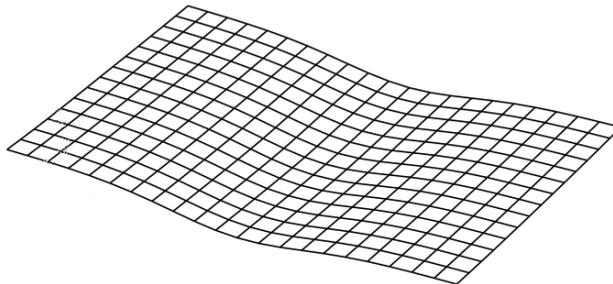
Notes

S: Line where maximum loss of support occurs

RL: Rib for analysis along L

RB: Rib for analysis along B

The loads shown on this diagram are additional to the edge loads induced by the external walls and to the uniform surface load induced by the waffle raft.



Edge Beam (EL) - Summary

Deflection ratio = 1 in 1846 < 1 in 400 over 4 m length

$M^*, hog = 5.7 \text{ kNm} < \Phi M_{u, hog} = 23 \text{ kNm}$

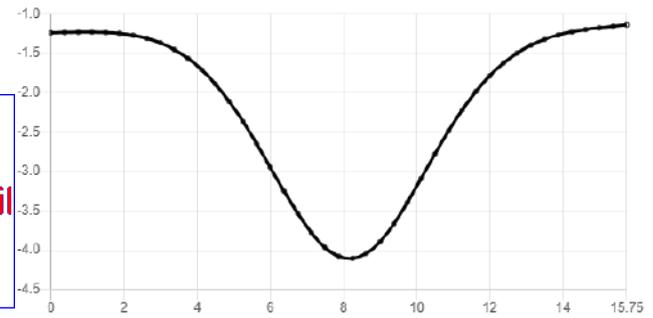
$M^*, sag = 13.4 \text{ kNm} < \Phi M_{u, sag} = 28 \text{ kNm}$

$V^*, max = 10.7 \text{ kN} < \Phi V_u = 39.6 \text{ kN}$

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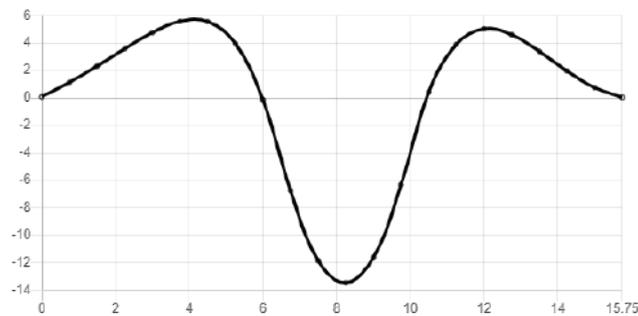
Edge Beam (EL) - Deflection

[X:m, Y:mm]



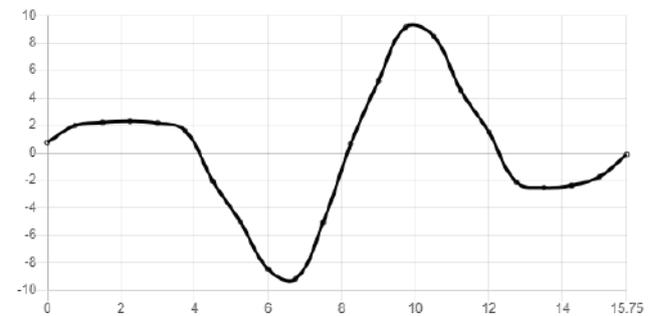
Edge Beam (EL) - Bending Moment (M*)

[X:m, Y:kNm/rib]



Edge Beam (EL) - Shear Force (V*)

[X:m, Y:kN/rib]



Edge Beam (EB) - Summary

Deflection ratio check not required along this direction

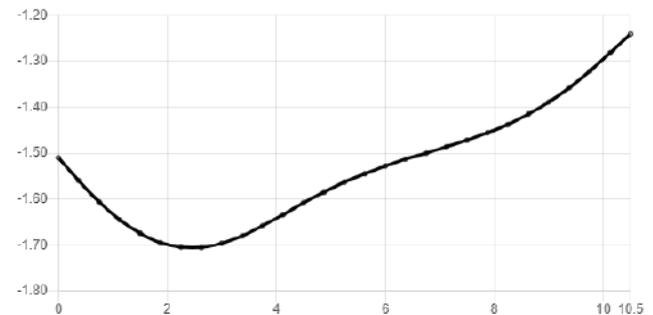
$M^*, hog = 0.3 \text{ kNm} < \Phi M_{u, hog} = 23 \text{ kNm}$

$M^*, sag = 1.4 \text{ kNm} < \Phi M_{u, sag} = 28 \text{ kNm}$

$V^*, max = 2.7 \text{ kN} < \Phi V_u = 39.6 \text{ kN}$

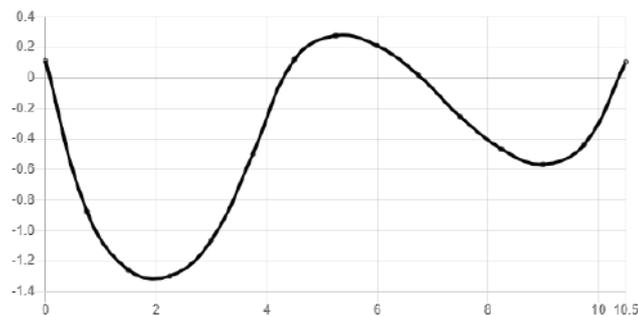
Edge Beam (EB) - Deflection

[X:m, Y:mm]



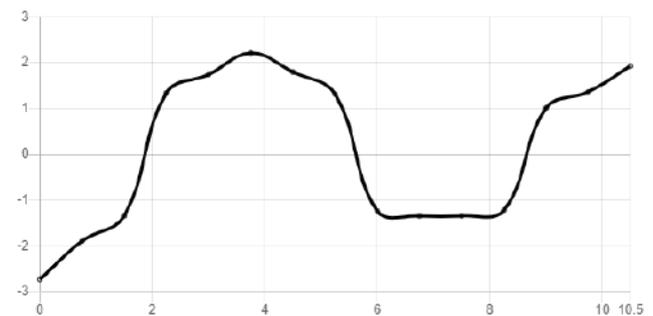
Edge Beam (EB) - Bending Moment (M*)

[X:m, Y:kNm/rib]



Edge Beam (EB) - Shear Force (V*)

[X:m, Y:kN/rib]



Rib (RL*) - Summary

Deflection ratio = 1 in 1649 < 1 in 400 over 4 m length

$M^*, hog = 3.6 \text{ kNm} < \Phi M_{u, hog} = 13.5 \text{ kNm}$

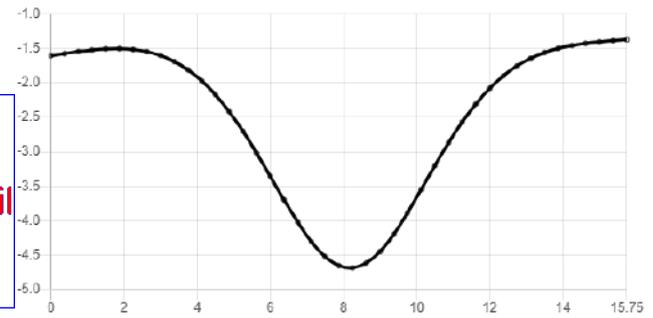
$M^*, sag = 8.4 \text{ kNm} < \Phi M_{u, sag} = 15 \text{ kNm}$

$V^*, max = 6.5 \text{ kN} < \Phi V_u = 17 \text{ kN}$

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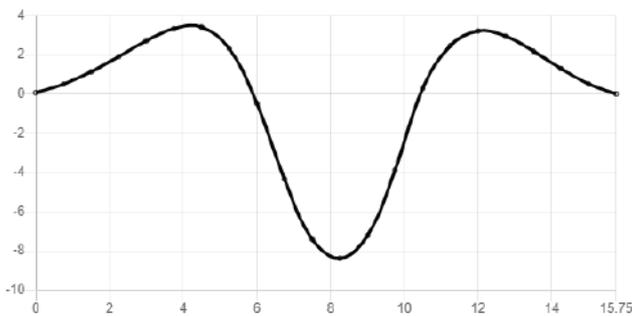
Rib (RL*) - Deflection

[X:m, Y:mm]



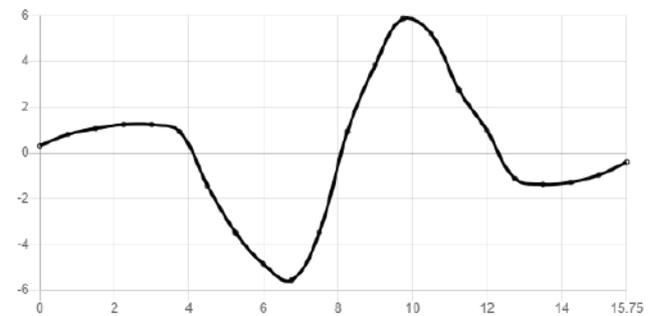
Rib (RL*) - Bending Moment (M*)

[X:m, Y:kNm/rib]



Rib (RL*) - Shear Force (V*)

[X:m, Y:kN/rib]



Rib (RB*) - Summary

Deflection ratio check not required along this direction

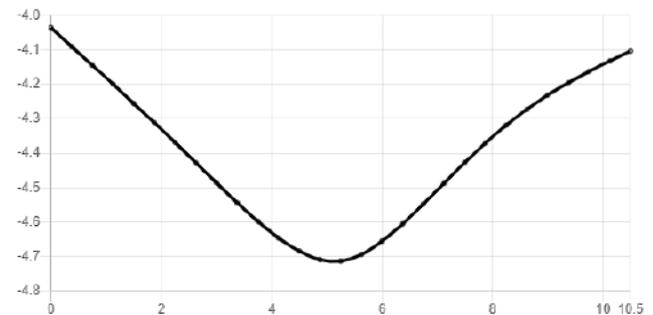
$M^*, hog = 0.5 \text{ kNm} < \Phi M_{u, hog} = 13.5 \text{ kNm}$

$M^*, sag = 2.4 \text{ kNm} < \Phi M_{u, sag} = 15 \text{ kNm}$

$V^*, max = 3.5 \text{ kN} < \Phi V_u = 17 \text{ kN}$

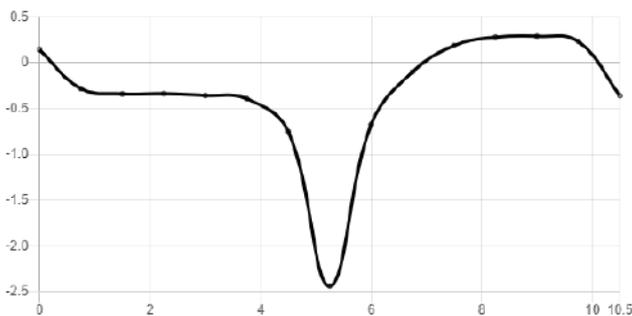
Rib (RB*) - Deflection

[X:m, Y:mm]



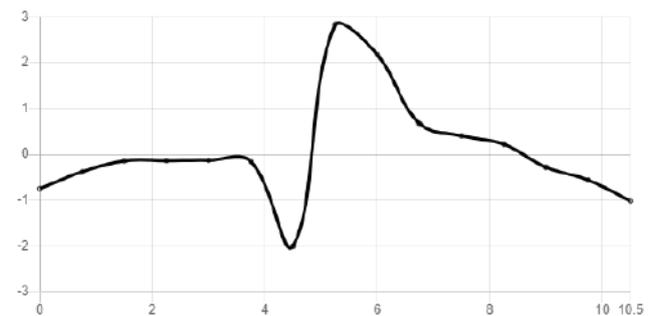
Rib (RB*) - Bending Moment (M*)

[X:m, Y:kNm/rib]

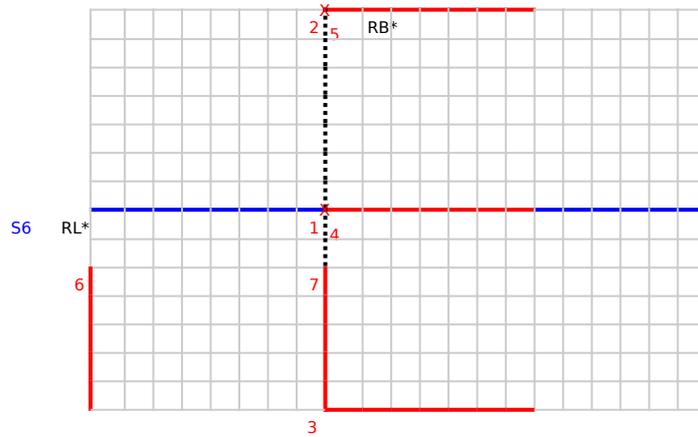


Rib (RB*) - Shear Force (V*)

[X:m, Y:kN/rib]



Rectangle 2 - Loss of Support 6



Loads

Loads in accordance with paragraph "Load Analysis"

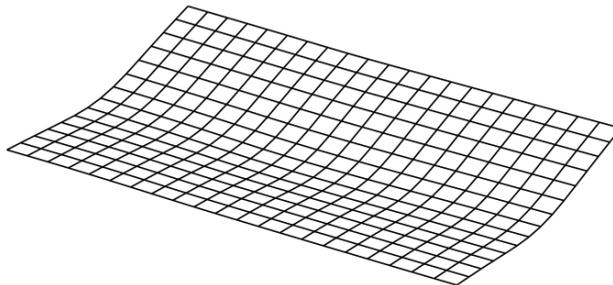
Notes

S: Line where maximum loss of support occurs

RL: Rib for analysis along L

RB: Rib for analysis along B

The loads shown on this diagram are additional to the edge loads induced by the external walls and to the uniform surface load induced by the waffle raft.



Edge Beam (EL) - Summary

Deflection ratio check not required along this direction

$M^*, \text{hog} = 0.4 \text{ kNm} < \Phi M_{u, \text{hog}} = 23 \text{ kNm}$

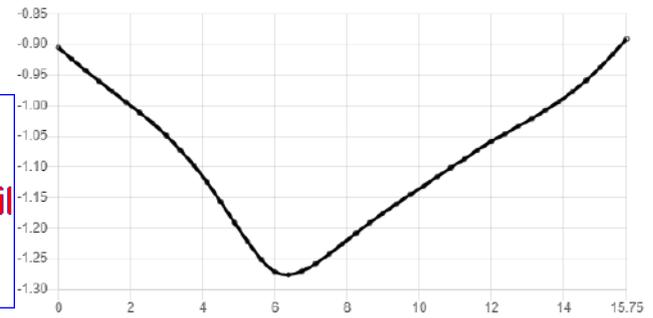
$M^*, \text{sag} = 2 \text{ kNm} < \Phi M_{u, \text{sag}} = 28 \text{ kNm}$

$V^*, \text{max} = 2.9 \text{ kN} < \Phi V_u = 39.6 \text{ kN}$

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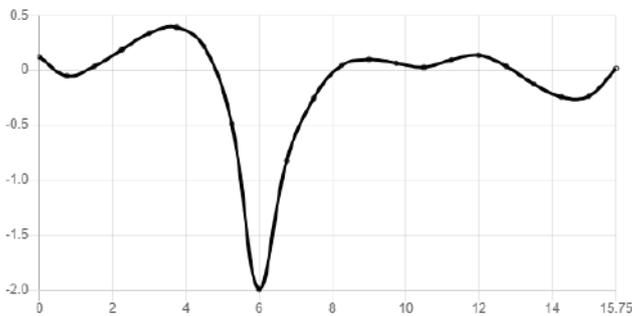
Edge Beam (EL) - Deflection

[X:m, Y:mm]



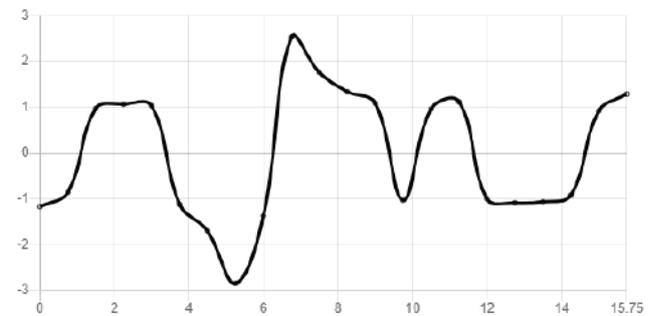
Edge Beam (EL) - Bending Moment (M*)

[X:m, Y:kNm/rib]



Edge Beam (EL) - Shear Force (V*)

[X:m, Y:kN/rib]



Edge Beam (EB) - Summary

Deflection ratio = 1 in 1775 < 1 in 400 over 4 m length

$M^*, \text{hog} = 1.9 \text{ kNm} < \Phi M_{u, \text{hog}} = 23 \text{ kNm}$

$M^*, \text{sag} = 14.2 \text{ kNm} < \Phi M_{u, \text{sag}} = 28 \text{ kNm}$

$V^*, \text{max} = 10.5 \text{ kN} < \Phi V_u = 39.6 \text{ kN}$

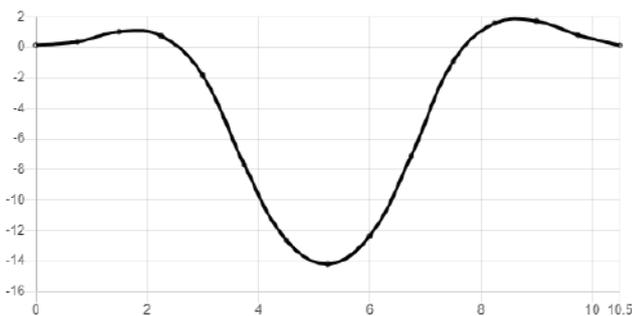
Edge Beam (EB) - Deflection

[X:m, Y:mm]



Edge Beam (EB) - Bending Moment (M*)

[X:m, Y:kNm/rib]



Edge Beam (EB) - Shear Force (V*)

[X:m, Y:kN/rib]



Rib (RL*) - Summary

Deflection ratio check not required along this direction

$M^*,\text{hog} = 0.7 \text{ kNm} < \Phi M_{u,\text{hog}} = 13.5 \text{ kNm}$

$M^*,\text{sag} = 1.8 \text{ kNm} < \Phi M_{u,\text{sag}} = 15 \text{ kNm}$

$V^*,\text{max} = 3.1 \text{ kN} < \Phi V_u = 17 \text{ kN}$

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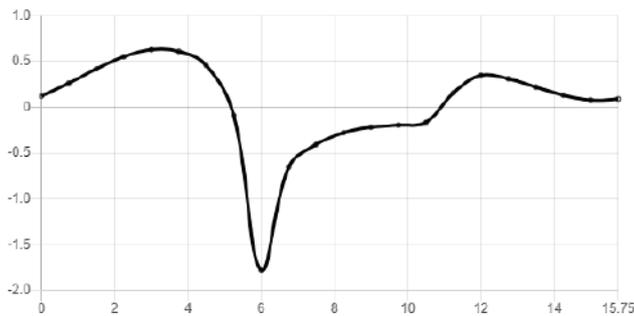
Rib (RL*) - Deflection

[X:m, Y:mm]



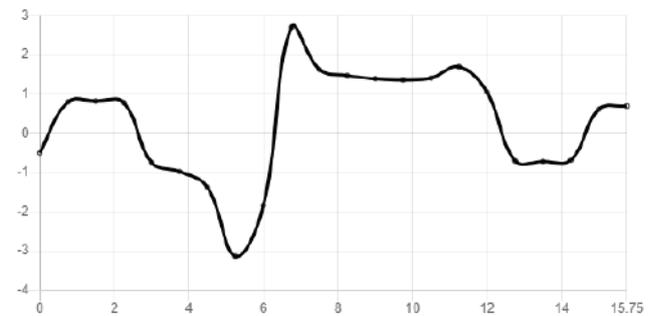
Rib (RL*) - Bending Moment (M*)

[X:m, Y:kNm/rib]



Rib (RL*) - Shear Force (V*)

[X:m, Y:kN/rib]



Rib (RB*) - Summary

Deflection ratio = 1 in 1469 < 1 in 400 over 4 m length

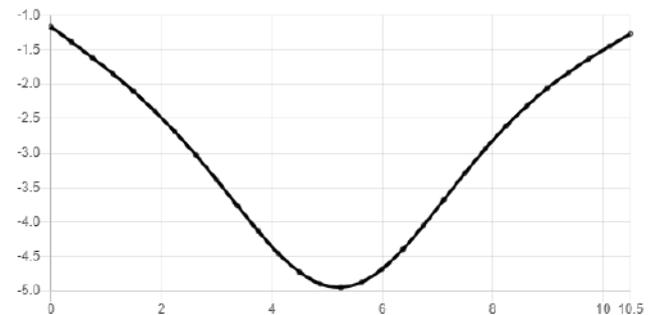
$M^*,\text{hog} = 2 \text{ kNm} < \Phi M_{u,\text{hog}} = 13.5 \text{ kNm}$

$M^*,\text{sag} = 10.9 \text{ kNm} < \Phi M_{u,\text{sag}} = 15 \text{ kNm}$

$V^*,\text{max} = 6.8 \text{ kN} < \Phi V_u = 17 \text{ kN}$

Rib (RB*) - Deflection

[X:m, Y:mm]



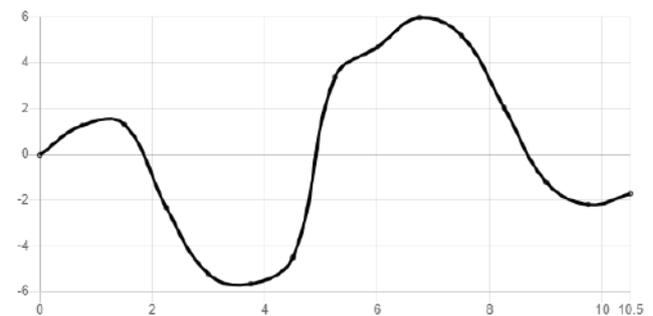
Rib (RB*) - Bending Moment (M*)

[X:m, Y:kNm/rib]



Rib (RB*) - Shear Force (V*)

[X:m, Y:kN/rib]



Rectangle 2 - Pressure Analysis (Short Term)

Rib

Pressure at the foundation/building platform interface:

$P^*(z=0)$, short term = 31.7 kPa

Pressure on natural soil

Engineered Fill Thickness = 200 mm

P^* , short term = 14.5 kPa < DBC = 100 kPa

Edge Beam

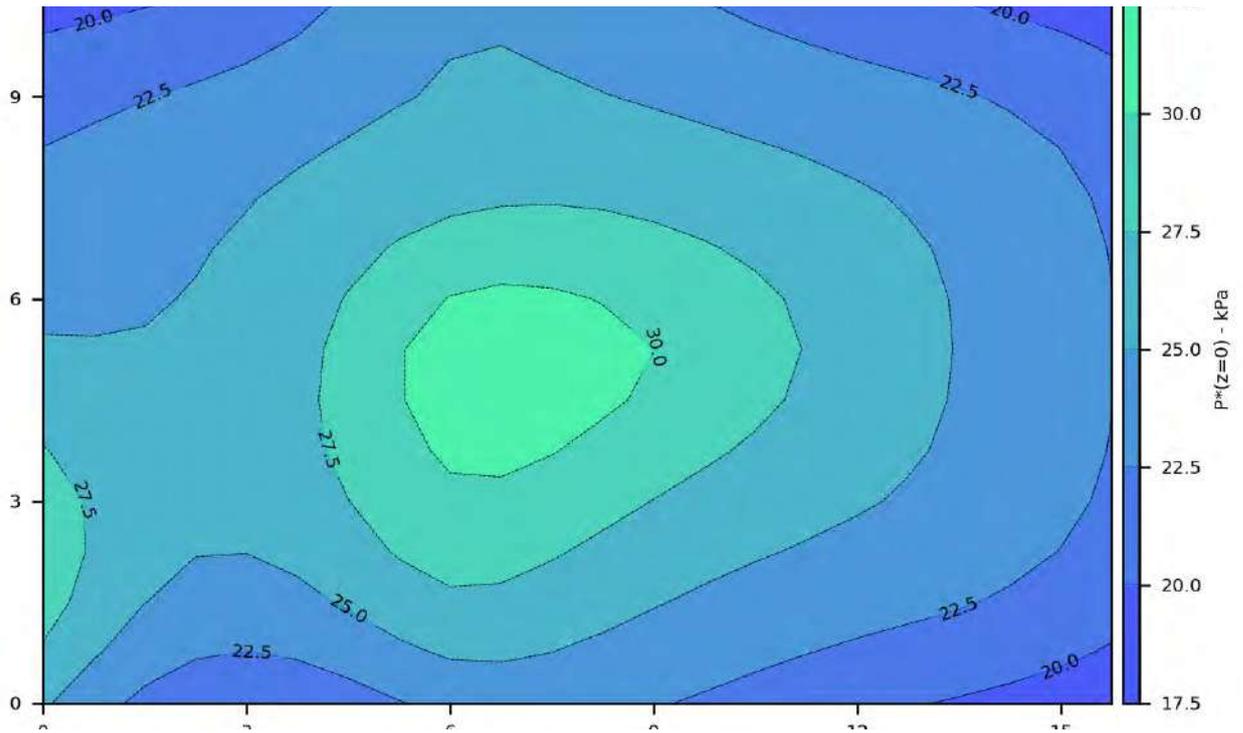
Pressure at the foundation/building platform interface:

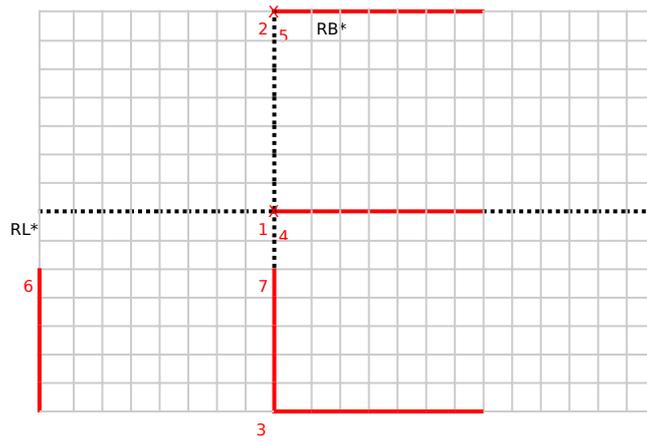
$P^*(z=0)$, short term = 29 kPa

Pressure on natural soil

Engineered Fill Thickness = 200 mm

P^* , short term = 23.5 kPa < DBC = 100 kPa





Loads

Loads in accordance with paragraph "Load Analysis"

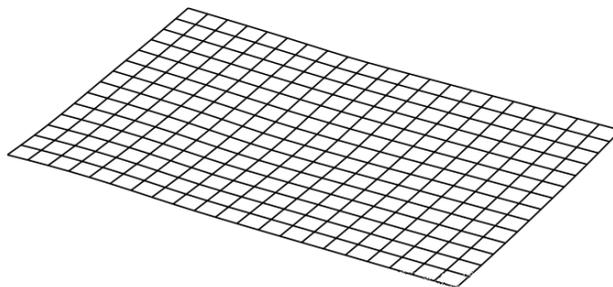
Notes

RL: Rib for analysis along L

RB: Rib for analysis along B

The loads shown on this diagram are additional to the edge loads induced by the external walls and to the uniform surface load induced by the waffle raft.

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Edge Beam (EL) - Summary

Deflection check not applicable for a ULS Short Term combination.

Refer to Long Term combination check.

$M^*,\text{hog} = 0.8 \text{ kNm} < \Phi M_{u,\text{hog}} = 23 \text{ kNm}$

$M^*,\text{sag} = 3.7 \text{ kNm} < \Phi M_{u,\text{sag}} = 28 \text{ kNm}$

$V^*,\text{max} = 5.5 \text{ kN} < \Phi V_u = 39.6 \text{ kN}$

Edge Beam (EL) - Deflection

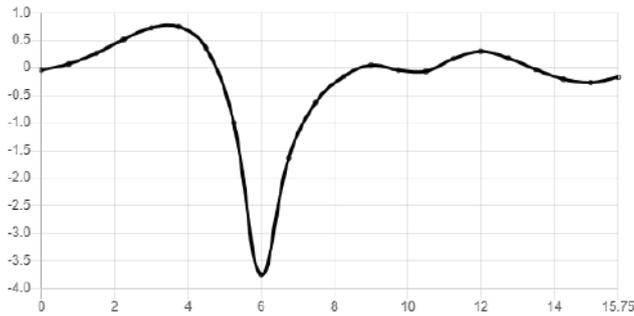
[X:m, Y:mm]

Deflection diagram not applicable for a ULS Short Term combination.

Refer to Long Term combination diagram.

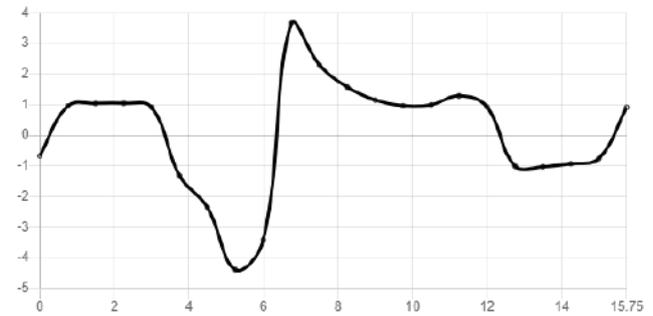
Edge Beam (EL) - Bending Moment (M*)

[X:m, Y:kNm/rib]



Edge Beam (EL) - Shear Force (V*)

[X:m, Y:kN/rib]



Edge Beam (EB) - Summary

Deflection check not applicable for a ULS Short Term combination.

Refer to Long Term combination check.

$M^*,\text{hog} = 0.7 \text{ kNm} < \Phi M_{u,\text{hog}} = 23 \text{ kNm}$

$M^*,\text{sag} = 2.9 \text{ kNm} < \Phi M_{u,\text{sag}} = 28 \text{ kNm}$

$V^*,\text{max} = 4.6 \text{ kN} < \Phi V_u = 39.6 \text{ kN}$

Edge Beam (EB) - Deflection

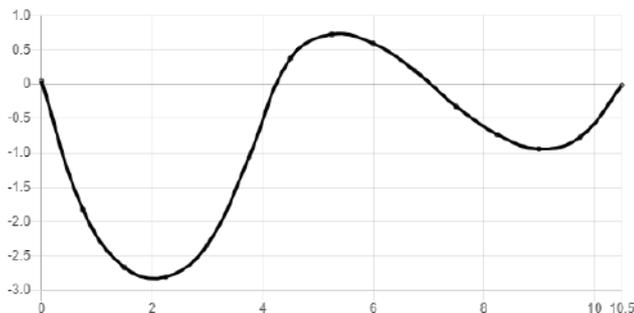
[X:m, Y:mm]

Deflection diagram not applicable for a ULS Short Term combination.

Refer to Long Term combination diagram.

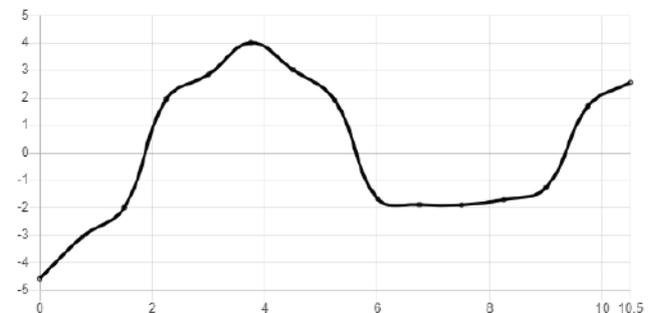
Edge Beam (EB) - Bending Moment (M*)

[X:m, Y:kNm/rib]



Edge Beam (EB) - Shear Force (V*)

[X:m, Y:kN/rib]



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Rib (RL*) - Summary

Deflection check not applicable for a ULS Short Term combination.

Refer to Long Term combination check.

$$M^*,\text{hog} = 1.4 \text{ kNm} < \Phi M_{u,\text{hog}} = 13.5 \text{ kNm}$$

$$M^*,\text{sag} = 3 \text{ kNm} < \Phi M_{u,\text{sag}} = 15 \text{ kNm}$$

$$V^*,\text{max} = 5 \text{ kN} < \Phi V_u = 17 \text{ kN}$$

Rib (RL*) - Deflection

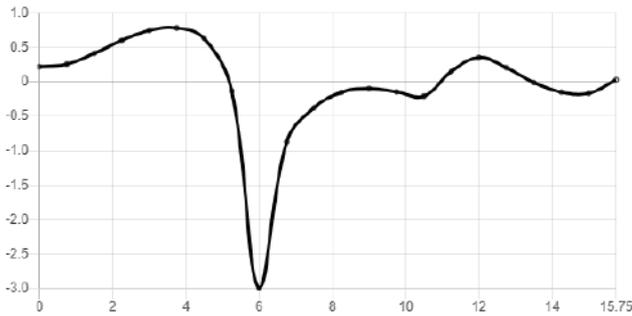
[X:m, Y:mm]

Deflection diagram not applicable for a ULS Short Term combination.

Refer to Long Term combination diagram.

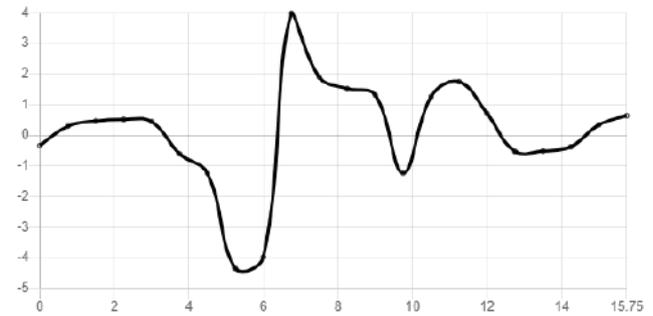
Rib (RL*) - Bending Moment (M*)

[X:m, Y:kNm/rib]



Rib (RL*) - Shear Force (V*)

[X:m, Y:kN/rib]



Rib (RB*) - Summary

Deflection check not applicable for a ULS Short Term combination.

Refer to Long Term combination check.

$$M^*,\text{hog} = 0.7 \text{ kNm} < \Phi M_{u,\text{hog}} = 13.5 \text{ kNm}$$

$$M^*,\text{sag} = 3.8 \text{ kNm} < \Phi M_{u,\text{sag}} = 15 \text{ kNm}$$

$$V^*,\text{max} = 5.2 \text{ kN} < \Phi V_u = 17 \text{ kN}$$

Rib (RB*) - Deflection

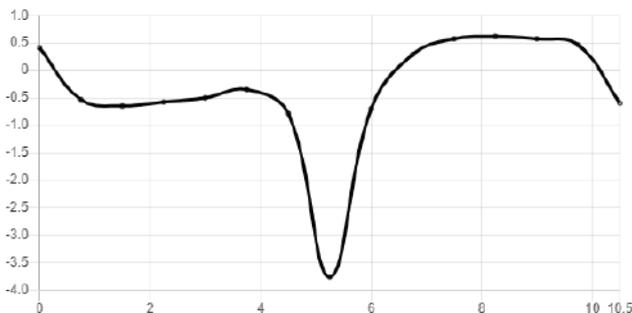
[X:m, Y:mm]

Deflection diagram not applicable for a ULS Short Term combination.

Refer to Long Term combination diagram.

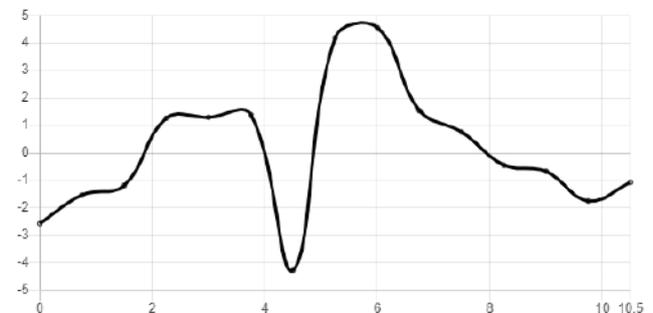
Rib (RB*) - Bending Moment (M*)

[X:m, Y:kNm/rib]



Rib (RB*) - Shear Force (V*)

[X:m, Y:kN/rib]



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Rectangle 2 - Pressure Analysis (Long Term)

Rib

Pressure at the foundation/building platform interface:

$P^*(z=0)$, long term = 20.2 kPa

Pressure on natural soil

Engineered Fill Thickness = 200 mm

P^* , long term = 9.6 kPa < ABC = 66.7 kPa

Edge Beam

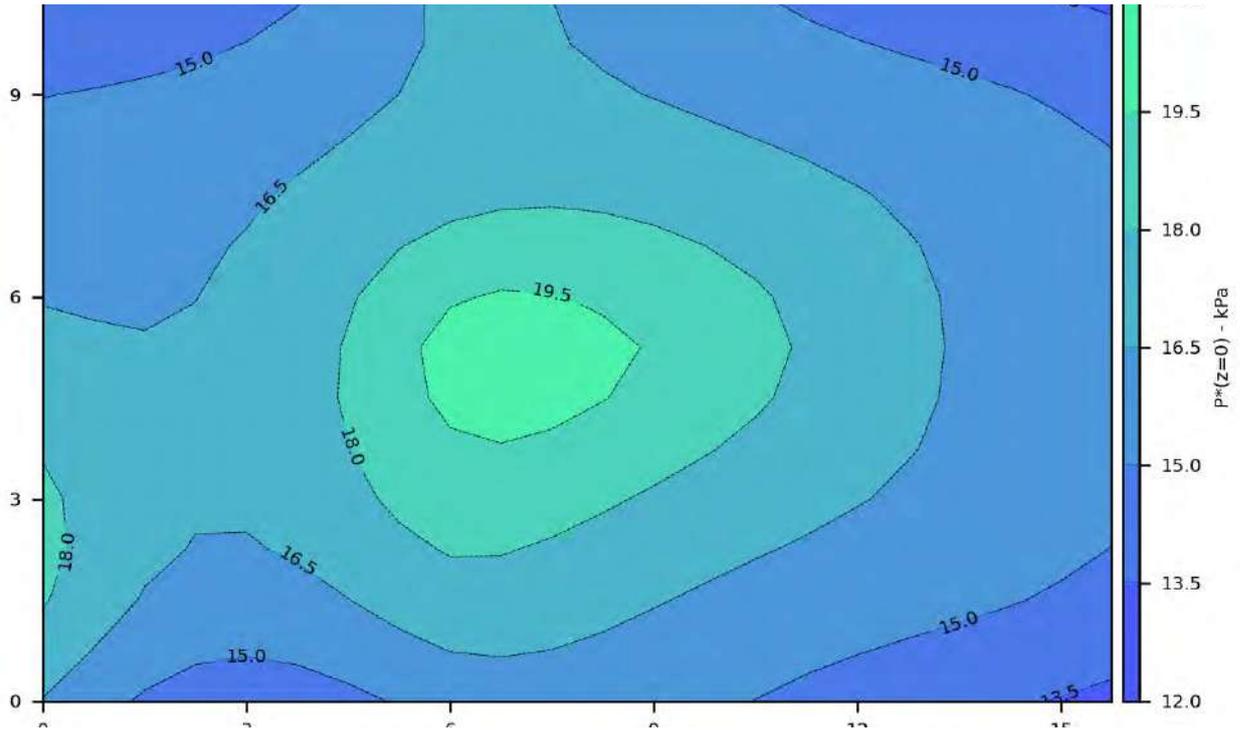
Pressure at the foundation/building platform interface:

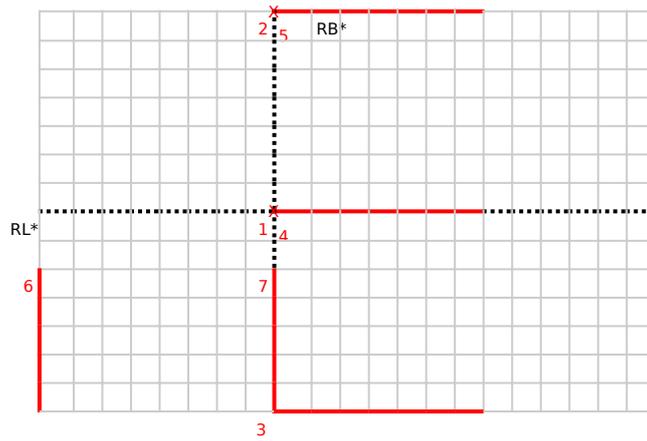
$P^*(z=0)$, long term = 18.4 kPa

Pressure on natural soil

Engineered Fill Thickness = 200 mm

P^* , long term = 15.2 kPa < ABC = 66.7 kPa





Loads

Loads in accordance with paragraph "Load Analysis"

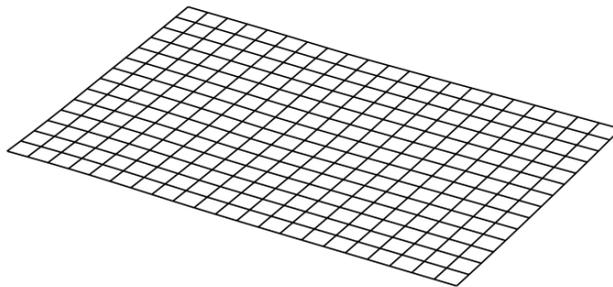
Notes

RL: Rib for analysis along L

RB: Rib for analysis along B

The loads shown on this diagram are additional to the edge loads induced by the external walls and to the uniform surface load induced by the waffle raft.

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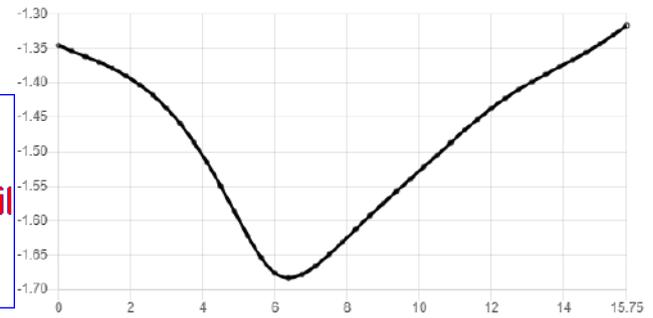
Edge Beam (EL) - Summary

$\Delta = 0.4 \text{ mm} < \Delta_{\text{max}} = 40 \text{ mm}$
 $M^*, \text{hog} = 0.5 \text{ kNm} < \Phi M_{u, \text{hog}} = 23 \text{ kNm}$
 $M^*, \text{sag} = 2.2 \text{ kNm} < \Phi M_{u, \text{sag}} = 28 \text{ kNm}$
 $V^*, \text{max} = 3.4 \text{ kN} < \Phi V_u = 39.6 \text{ kN}$

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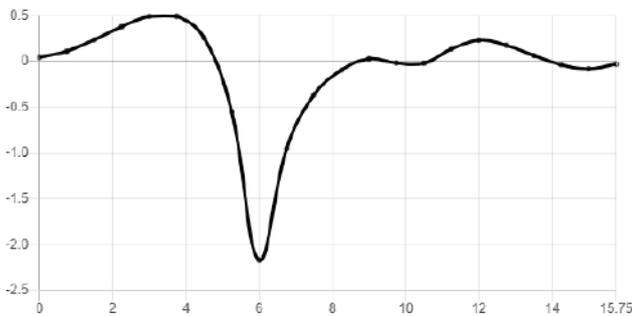
Edge Beam (EL) - Deflection

[X:m, Y:mm]



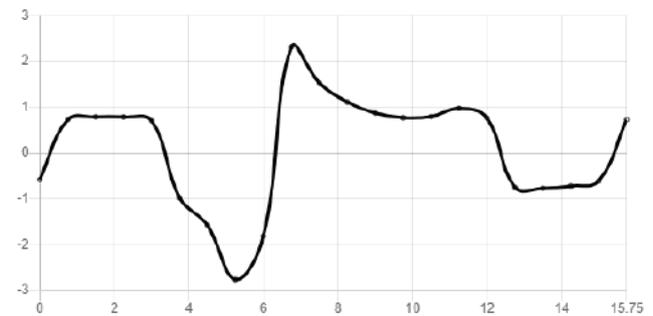
Edge Beam (EL) - Bending Moment (M*)

[X:m, Y:kNm/rib]



Edge Beam (EL) - Shear Force (V*)

[X:m, Y:kN/rib]

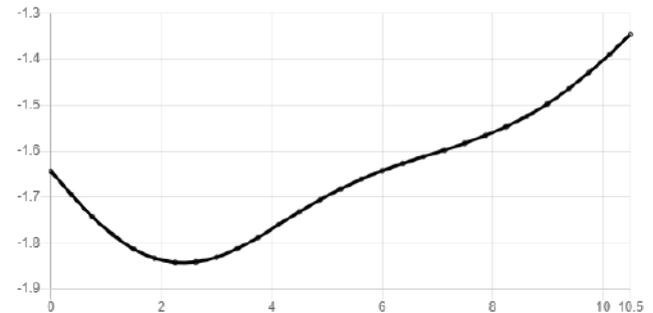


Edge Beam (EB) - Summary

$\Delta = 0.5 \text{ mm} < \Delta_{\text{max}} = 34.2 \text{ mm}$
 $M^*, \text{hog} = 0.3 \text{ kNm} < \Phi M_{u, \text{hog}} = 23 \text{ kNm}$
 $M^*, \text{sag} = 1.4 \text{ kNm} < \Phi M_{u, \text{sag}} = 28 \text{ kNm}$
 $V^*, \text{max} = 2.6 \text{ kN} < \Phi V_u = 39.6 \text{ kN}$

Edge Beam (EB) - Deflection

[X:m, Y:mm]



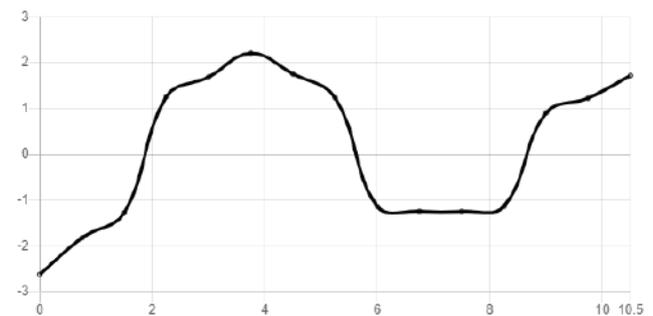
Edge Beam (EB) - Bending Moment (M*)

[X:m, Y:kNm/rib]



Edge Beam (EB) - Shear Force (V*)

[X:m, Y:kN/rib]



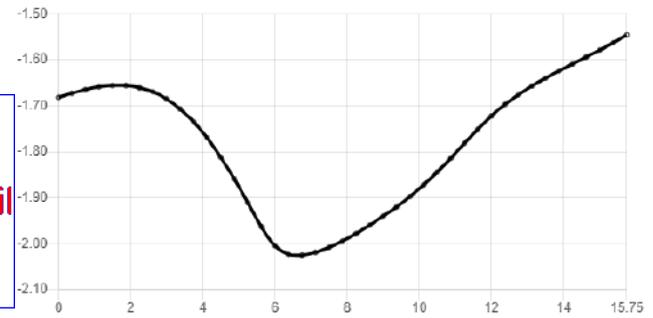
Rib (RL*) - Summary

$\Delta = 0.5 \text{ mm} < \Delta_{\text{max}} = 40 \text{ mm}$
 $M^*_{\text{,hog}} = 0.7 \text{ kNm} < \Phi M_{u,\text{hog}} = 13.5 \text{ kNm}$
 $M^*_{\text{,sag}} = 1.7 \text{ kNm} < \Phi M_{u,\text{sag}} = 15 \text{ kNm}$
 $V^*_{\text{,max}} = 3 \text{ kN} < \Phi V_u = 17 \text{ kN}$

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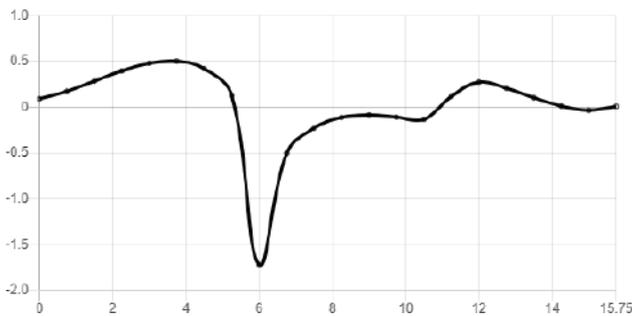
Rib (RL*) - Deflection

[X:m, Y:mm]



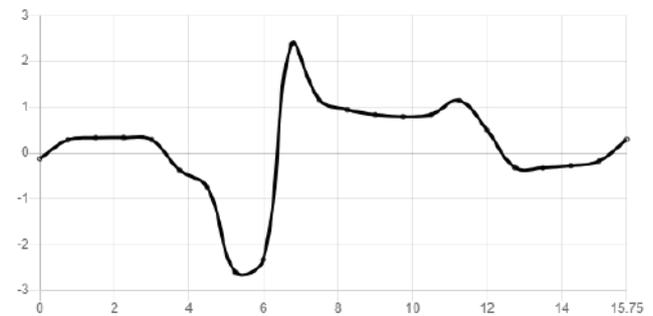
Rib (RL*) - Bending Moment (M*)

[X:m, Y:kNm/rib]



Rib (RL*) - Shear Force (V*)

[X:m, Y:kN/rib]



Rib (RB*) - Summary

$\Delta = 0.4 \text{ mm} < \Delta_{\text{max}} = 34.2 \text{ mm}$
 $M^*_{\text{,hog}} = 0.5 \text{ kNm} < \Phi M_{u,\text{hog}} = 13.5 \text{ kNm}$
 $M^*_{\text{,sag}} = 2.3 \text{ kNm} < \Phi M_{u,\text{sag}} = 15 \text{ kNm}$
 $V^*_{\text{,max}} = 3.1 \text{ kN} < \Phi V_u = 17 \text{ kN}$

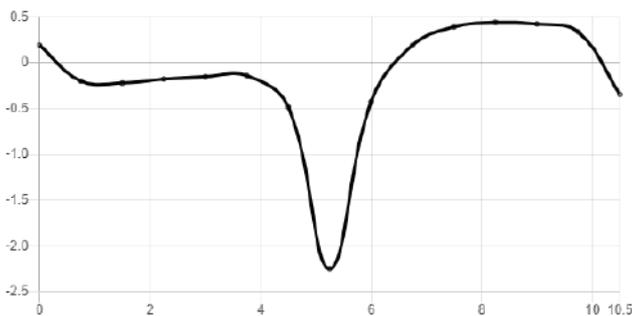
Rib (RB*) - Deflection

[X:m, Y:mm]



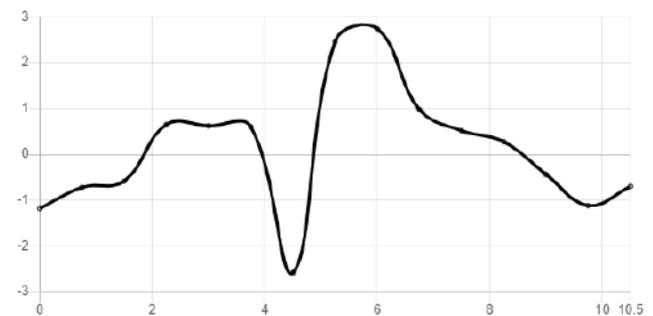
Rib (RB*) - Bending Moment (M*)

[X:m, Y:kNm/rib]



Rib (RB*) - Shear Force (V*)

[X:m, Y:kN/rib]



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