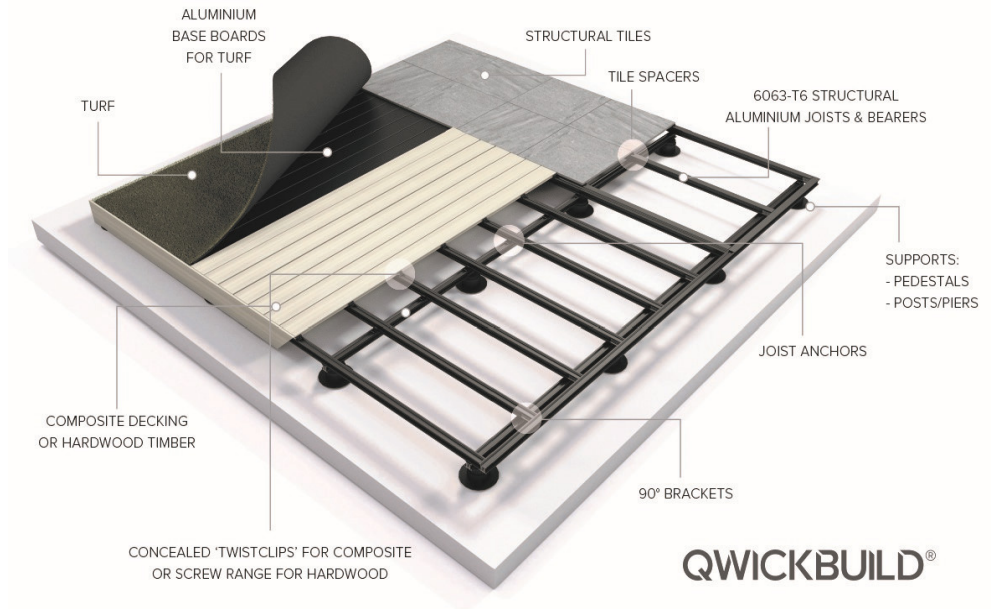




BRANZ Appraised
Appraisal No. 1034 [2019]

QWICKBUILD DECK FRAMING SYSTEM

Appraisal No. 1034 [2019]



BRANZ Appraisals

Technical Assessments of products for building and construction.



DECK / TILE / TURF + FRAMING SYSTEM

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Product

- 2.1 The Qwickbuild Deck Framing System is a system of aluminium joists, bearers, trims, grates, clips and fixings to construct a sub-structure for the support of strip decking, decking tiles and turf base boards for synthetic turf.

Scope

- 2.1 Qwickbuild Deck Framing System has been appraised for use as an exterior deck framing system installed over low slope roofs and balconies. The system has also been appraised for use on pedestals fixed to concrete spot footings, or fixed to a foundation system in accordance with NZS 3604: 2011.
- 2.2 Attachment of barriers to the Qwickbuild Deck Framing System has not been assessed and is outside the scope of this Appraisal.

Building Regulations

New Zealand Building Code [NZBC]

- 3.1 In the opinion of BRANZ, Qwickbuild Deck Framing System, 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. The Qwickbuild Deck Framing System meets the requirements for loads arising from self-weight, imposed gravity loads arising from use, earthquake impact [i.e. B1.3.3 (a), (b), (f), (g) and (j)]. See Paragraphs 8.1 - 8.6.

Clause B2 DURABILITY: Performance B2.3.1(a), not less than 50 years, B2.3.1(b), 15 years and B2.3.2. The Qwickbuild Deck Framing System meets these requirements. See Paragraph 9.1.

Clause F2 HAZARDOUS BUILDING MATERIALS: Performance F2.3.1. The Qwickbuild Deck Framing System meets this requirement and will not present a health hazard to people.



Technical Specification

4.1 The following components and accessories used with the Qwickbuild Deck Framing System are supplied by Outdure International Limited:

Qwickbuild 6063-T6 Structural Powder Coated Aluminium Components

All aluminium components available in powder coated black or mill finish.

- Qwickbuild Joist and Bearer Framing Profiles: 45 mm width x 28, 45, 90, 135 or 180 mm depth 5800 mm lengths or available in custom lengths, manufactured in a proprietary extrusion for receiving Qwickbuild components.
- Qwickbuild Smooth Curve "Smooth Curve Boundary Joist" 45 and 90: 45 mm width x 45 or 90 mm depth x 5800 mm length or available in custom lengths, 4.5mm thick aluminium angle for creating a curved boundary joist.
- Qwickbuild Double Joist Bracket: 200mm long bracket for the support of end joins in decking boards.
- Qwickbuild Qwickgrate: 138 mm width x 23 mm depth x 2800 mm length or available in custom lengths, aluminium removable grate for access / ventilation, supplied with aluminium snap-mount for fixing to joists.
- Qwickbuild Aluminium Trim: 32 mm width x 72 depth and 50 width x 68 depth x 2500 mm length, 2.5mm thick flashing for edges.
- Qwickbuild Turf Baseboards: 138 mm width x 8 mm depth x 2800 mm length or available in custom lengths, decking baseboard to provide structural support for synthetic turf.
- Qwickbuild Sleeve: 24 mm width x 34 mm depth x 200 mm length, Sleeve for butt joining ends of joists and bearers.

Qwickbuild 304 Stainless Steel Electrophoresis Coated Components

All stainless steel components available in black, satin and plain finish.

- Qwickbuild 90 Bracket: Connects aluminium profiles at 90 degrees or angles as required.
- Qwickbuild Joist Anchor: Connects joists to bearer.
- Qwickbuild Brace Cleat Flush: Connects aluminium profiles end to end.
- Qwickbuild Brace Cleat: Connects aluminium profiles one above another.
- Qwickbuild 270 Bracket: Connects aluminium profiles at 90 degrees.
- Qwickbuild Joist Joiner: Connects offset parallel aluminium profiles.
- Qwickbuild Breaker Board 138: Connects aluminium profiles for accommodating a decking breaker board
- Qwickbuild Picture Frame Bracket: Connects aluminium profiles for accommodating a picture frame decking board.
- Qwickbuild Starter Snap Clip: Fastens perimeter decking board with groove for concealed fastening to joist.
- Qwickbuild Tile Retainer Bracket: Retains perimeter structural tile on joist.
- Qwickbuild Tile Retainer Snap Clip: Retains perimeter structural tile on joist.

Qwickbuild Polypropylene Components

All polypropylene components are black.

- Qwickclip Twist 6, 8 and 10: Fastens decking board with grooved edge for concealed fastening to joist with 6, 8 or 10mm gaps.
- Qwickbuild Twist Turf: Fastens Qwickbuild Turf Baseboard to joist with a 6mm gap.
- Qwickbuild Straight Tile 5mm Spacer: For attaching to joists for locating and spacing structural tiles.
- Qwickbuild Cross Tile 5mm Spacer: For attaching to joists and spacing structural tile corners.
- Maxi 01: 25 - 40 mm adjustable height support pedestal.
- Maxi 02: 40 - 70 mm adjustable height support pedestal.
- Maxi 03: 60 - 100 mm adjustable height support pedestal.
- Maxi 04: 90 - 160 mm adjustable height support pedestal.



- Maxi 05: 150 - 270 mm adjustable height support pedestal.
- Star T: 8 - 15 mm adjustable height support pedestal.
- Star B 5mm: 5 mm Base for the Star T, can be stacked up to 3 high.
- Pad 12: 12mm high support pedestal.

Qwickbuild Rubber Components

All rubber components are black.

- Tile Rubber Bead: EPDM Rubber strip for separating structural tiles from joists.
- Spacer 3mm Acoustic: Self adhesive disc for adhering to the base of support pedestals.
- Maxi Leveller 3mm: For shimming the height or levelling of support pedestals.
- Spacer 3mm: For shimming the height or levelling of support pedestals.

Qwickbuild 304 Stainless Steel Fasteners with Electrophoresis Coating

All fasteners with black satin finish, unless otherwise stated.

- 20mm CSK Screw: 20mm screw with Torx 15, 7mm Head - For securing clip in aluminium channel in horizontal and vertical applications and for pinning screw to centralise decking board movement [included with Qwickclip Twist]
- 16mm Hex Screw: 16mm screw with 3/8" hex Head - For fastening all Qwickbuild brackets to joists and bearers.
- 30mm Hex Screw: 30mm screw with 3/8" hex head - For fastening all Qwickbuild brackets to timber framing.
- 65mm Hex Screw: 65mm screw with 3/8" hex head - For fastening Qwickbuild framing to timber framing, or adjustable pedestals.
- QB-F45mm Flat head screw: 45mm screw with Torx 20 flat head - For fastening composite decking to aluminium joists [Available with a Brown, Brass or Grey head].
- QG-F20mm Flat Head Screw: 20mm screw with 12mm phillips flat head - For fastening synthetic turf to turf baseboards.
- QB-F30mm Flat Head Screw: 30mm screw with 12mm phillips flat head - For fastening turf baseboards to aluminium joists.
- QB-36-9mm CSK Torx Screw: 36mm screw with 9mm head and T20 torx socket - For fastening hardwood [18 - 24mm] to aluminium [uncoated stainless steel colour].
- QB-36-12mm CSK Hex Screw: 36mm screw with 12mm head and 4mm hex socket - For fastening hardwood decking [18 - 24mm] to aluminium [uncoated stainless steel colour].
- QB-45-9mm CSK Torx Screw: 45mm screw with 9mm head and T20 torx socket - For fastening hardwood [24-40mm] to aluminium [uncoated stainless steel colour].
- QB-45-12mm CSK Hex Screw: 45mm screw with 12mm head and 4mm hex socket - For fastening hardwood decking [24 - 40mm] to aluminium [uncoated stainless steel colour].

Qwickbuild Drivers and Driver Packs

- DB-Driver Pack - Decking Driver Pack 1: [4] Torx 15 Drivers and [2] Torx 20 Drivers.
- HW-Driver Pack - Hardwood Driver Pack: [2] 4mm Hex Drivers and [1] 3/8" Hex Nut Driver.
- QB-Driver Pack - Qwickbuild Driver Pack 1: [2] Torx 15 Drivers, [2] Torx 20 Drivers and [1] 3/8" Hex Nut Driver.
- 3/8" Hex Nut 120mm Driver: For driving 3/8" Hex head screws

Handling and Storage

- 5.1 Handling and storage of all materials supplied by Outdure® NZ or the building contractor, whether on site or off site, is under the control of the building contractor. Qwickbuild Deck Framing System aluminium components must be stored flat, off the ground and supported on a level platform. Care must be taken to avoid bending or damaging the aluminium framing members prior to installation. Qwickbuild polypropylene components must be protected from damage and weather and stored in clean, dry conditions away from direct exposure to sunlight.

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 Technical Literature which 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 The Qwickbuild Deck Framing System is intended for use as an exterior deck sub-structure to support decking boards, structural tiles or turf base boards for synthetic turf or a combination of these surfaces. Aluminium joists support the surfaces and the joists are supported by aluminium bearers. The aluminium bearers can be supported by conventional timber piles or proprietary pedestals.

Surface Options

7.2 The Qwickbuild Deck Framing System can be used to support the following surfaces or combination of:

- Composite decking boards: Outdure® has a range of composite decking boards that incorporate an edge groove for interfacing with the Qwickbuild Deck Framing System for a concealed fixing with the Quickclip twist accessory.
- Hardwood decking boards: Hardwood decking boards can be used with the Qwickbuild Deck Framing System by fixing to joists with screws. Due to the effect of large numbers of screw fixings on the aluminium members durability, hardwood decking boards are not suitable for use with the Qwickbuild Deck Framing System in Corrosion Zone D of NZS 3604.
- Treated timber decking: Timber decking treated with copper-based treatments such as Chromated copper arsenate [CCA] or Alkaline copper quaternary [AQC] are not suitable for use with the Qwickbuild Deck Framing System.
- Synthetic turf on Turf baseboards: Turf baseboards attach to the aluminium joists with Qwickclip twist accessories with synthetic turf then screw fixed to the Turf baseboards.
- Structural tiles: Structural tiles can be installed onto the Qwickbuild Deck Framing System with Qwickbuild Tile Rubber beads and Qwickbuild tile spacers. Structural tiles need to be of sufficient strength to receive the designed live loads when supported by the Qwickbuild Deck Framing System. The structural tile supplier is required to warrant them for use with the Qwickbuild Deck Framing System.

Note: The decking boards, structural tiles and synthetic turf are outside the scope of this Appraisal. The aluminium turf baseboards are however covered by the Appraisal.

Timber Piles

7.3 The Qwickbuild deck Framing System can be installed on conventional timber piles. The piles must be designed to NZS 3604 or to a Specific Engineering Design (SED). The Qwickbuild Deck Framing System when installed on timber piles will require bracing. This can be achieved by timber stringer[s] attached to the building, anchor piles, cantilever piles or braced piles, and combinations of these. For braced piles the diagonal brace must be attached to the top of a pile not the aluminium structure. Refer to NZS 3604 Section 7.4.2 for deck bracing requirements.

7.4 If structural tiles are installed over piles the additional dead load from the structural tiles will require specific engineering design of the supporting structure.

7.5 Timber stringers attached to the building will need to be detailed to meet the weathertightness requirements of NZBC E2 - External Moisture. Details for typical wall claddings are provided in NZBC Acceptable Solution E2/AS1, Paragraph 7.2.



- 7.6 The aluminium joists and bearers require physical separation from timber piles and stringers with a layer of Damp Proof Course.

Support Pedestals and Enclosed Membrane Decks

- 7.7 The Qwickbuild Deck Framing System can be installed on support pedestals fixed to concrete footings as detailed in the Technical Literature.
- 7.8 The Qwickbuild Deck Framing System can be installed on support pedestals resting on above ground enclosed decks with membrane surfaces. The membrane will need to be verified as compatible with the polypropylene pedestals and an isolation pad used where required. The underlying structure will also need to be designed to accommodate pedestal point loads of the Qwickbuild Deck Framing System and selected surface[s].

Structure

Structural Design

- 8.1 The structural design of the Qwickbuild Deck Framing System is completed in-house by Outdure®. It is the responsibility of the designer to accurately provide all required parameters to Outdure® for the correct design of the structure, including but not limited to the following: Plan layout for deck, specification of deck surface[s], cross-sectional information of allowable height for structure, interfaces with buildings structure and openings, and any supporting structures.

Mass

- 8.2 The mass of the Qwickbuild Deck Framing System and any selected surface[s] and the distribution over supporting structure provided by Outdure®, where required for the design of underlying supporting structures of piles or membrane decks.
- 8.3 The Qwickbuild Deck Framing System must be specifically designed to support any heavy items. Eg, pools, water tanks, planter boxes, etc. Specific detail of any heavy items will need to be provided to Outdure® when designing the structure to verify suitability. The support of any heavy items by the Qwickbuild Deck Framing System is outside the scope of this Appraisal.

Wind Uplift

- 8.4 When the Qwickbuild Deck Framing System is installed on above ground enclosed decks, care should be taking to avoid any design detailing that will allow excessive amounts of wind under the decking surface, as the system is resting on the supporting surface to facilitate inspection and maintenance.

Bracing

- 8.5 Bracing to resist earthquake forces is required when the Qwickbuild Deck Framing System is installed on timber piles. Refer to Section 7.4.2 of NZS 3604 for requirements. When structural tiles are used or live loads greater than 2 kPa are expected, specific engineering design (SED) of the supporting structure is required.

Durability

- 9.1 The expected service life of the Qwickbuild Deck Framing System when subject to normal conditions of environment and use is not less than 50 years when installed on timber piles and not less than 15 years when installed on the support pedestals.
- 9.2 Commencing from installation, polypropylene components must not be directly exposed to sunlight for more than 60 days before installation of the decking surface to provide protection from direct sunlight exposure.

Maintenance

- 10.1 The Qwickbuild Deck Framing System requires normal maintenance to achieve the expected service life as detailed in the Qwickbuild Maintenance Guide and Schedule document.

Access Routes

- 11.1 When the Qwickbuild Deck Framing System forms an access route, designers will need to ensure they meet the requirements of NZBC Clause D1 - Access Routes for the specific situation.

External Moisture

- 12.1 Designers need to ensure that when the Qwickbuild Deck Framing System is attached to an exterior wall structure with a stringer or installed over a weathertight enclosed deck surface it is detailed in accordance with all relevant requirements of NZBC Acceptable Solution E2/AS1.
- 12.2 The Qwickbuild Deck Framing System requires a minimum 12 mm clearance from all exterior walls, parapet walls and joinery.

Safety from Falling

- 13.1 The Qwickbuild Deck Framing System must not be installed in a way that will form a change in level of more than 1.0 m without the provision of a barrier to provide safety from falling. Attachment of barriers to the Qwickbuild Deck Framing System has not been assessed and is outside the scope of this Appraisal.

Installation Information

Installation Skill Level Requirements

- 14.1 All design and building work must be carried out in accordance with the Technical Literature and this Appraisal by competent and experienced tradespersons conversant with the Qwickbuild Deck Framing System. 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

Qwickbuild Deck Framing System Installation

- 15.1 The Qwickbuild Deck Framing System aluminium framing members may be cut when required with a circular saw with a fine-toothed blade at a slow speed. Cutting lubricant is also recommended.
- 15.2 The Qwickbuild Deck Framing System aluminium framing members are connected using the stainless steel brackets and self-drilling screws. Care must be taken to avoid over-tightening of screws.
- 15.3 The Qwickbuild Deck Framing System aluminium framing members require a layer of DPC to be installed as a separating layer when attaching to any treated timber.
- 15.4 The Qwickbuild Deck Framing System must be appropriately detailed when attaching to the exterior wall of a building with a timber stringer. The designer and builder must ensure that the stringer attachment details will meet compliance with NZBC E2 – External Moisture. Details for common cladding types are provided in NZBC Acceptable Solution E2/AS1.
- 15.5 The Qwickbuild Deck Framing System and any attached decking, structural pavers, or artificial turf must be finished a minimum of 12 mm clear of any external wall, joinery or parapet wall.

Pedestals

- 15.6 The Qwickbuild pedestals have tabs on the base that can be removed to allow the pedestals to be placed close to edges. Ensure the surfaces of pedestals that will be in contact with the membrane surface are smooth and free from any sharp edges that could damage the membrane [sand rough edges where necessary]. An isolation pad is required between the pedestal and any membrane surface. This is typically an additional piece of the membrane placed under the pedestal.

Note: Avoid cutting aluminium over decking membranes. Ensure all aluminium swarf created from cutting and screw driving is collected and disposed of. Aluminium swarf is sharp and can damage roofing membranes and other building materials if not removed. Ensure all loose screws, components and debris are removed from below the Qwickbuild Deck Framing System prior to closing in with decking surface. Additional debris created from decking surface installations should be removed from below the deck as work proceeds.

- 15.7 The Qwickbuild Deck Framing System aluminium framing members are attached to the pedestals with 65mm Hex screws. Ensure all framing is level before attaching to support pedestals. Care must be taken not to damage the underlying membrane roof when drilling for and installing the screws into pedestals.
- 15.8 The pedestals must be protected from direct sunlight by the installation of the decking surface as soon as is practicable after installation. Pedestals must be protected from direct sunlight exposure within 60 days of installation.

Synthetic Turf and Turf Baseboards

- 15.9 The Outdure® Turf Baseboards are installed onto Qwickbuild aluminium framing with Qwickbuild self-drilling screws, followed by synthetic turf fixed to turf baseboards with Qwickbuild self-drilling screws. The synthetic turf is not within the scope of this Appraisal.

Inspections

- 15.10 The Technical Literature must be referred to during the inspection of the Qwickbuild Deck Framing System installations.
- 15.11 A final check that the membrane surface is clear from all debris should be done after completion of the deck.

Health and Safety

- 16.1 The Qwickbuild Deck Framing System should be handled in accordance with the Technical Literature.
- 16.2 Safe use and handling procedures for the Qwickbuild Deck Framing System and the components that make up the system are provided in the Technical Literature.

Basis of Appraisal

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

Tests

- 17.1 Comprehensive strength tests have been carried out on the pedestals by independent laboratories. The results of these tests have been reviewed by BRANZ and found to be satisfactory.

Other Investigations

- 18.1 Structural and durability opinions were given by BRANZ technical experts.
- 18.2 An assessment was made of the durability of the polypropylene support chairs by BRANZ technical experts.
- 18.3 Site inspections were carried out by BRANZ to assess the practicability of installation.
- 18.4 The Technical Literature has been examined by BRANZ and found to be satisfactory.

Quality

- 19.1 The manufacture of The Qwickbuild Deck Framing System 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.
- 19.2 The quality of materials, components and accessories supplied by Outdure International Limited T/A Outdure® NZ is the responsibility of Outdure International Limited. T/A Outdure® NZ.
- 19.3 Quality of installation on site of components and accessories supplied by Outdure International Limited T/A Outdure® NZ and the building contractor is the responsibility of the installer.



- 19.4 The structural design of the Qwickbuild Framing System is the responsibility of Outdure International Limited T/A Outdure® NZ. However, it is the responsibility of the designer to provide accurate input information for the design of the Qwickbuild Deck Framing System and to ensure any underlying structure is designed to receive any loads from the Qwickbuild Deck Framing System.
- 19.5 Designers are responsible for the building design, and building contractors are responsible for the quality of installation in accordance with the instructions of Outdure International Limited T/A Outdure® NZ.

Sources of Information

- 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.



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13 December 2019

QWICKBUILD DECK FRAMING
SYSTEM



In the opinion of BRANZ, **Qwickbuild Deck Framing System** 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 **Outdure International Limited T/A Outdure® NZ**, 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. **Outdure International Limited T/A Outdure® NZ:**
 - 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 **Outdure International Limited T/A Outdure® NZ**.
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 **Outdure International Limited T/A Outdure® NZ** or any third party.

For BRANZ

Chelydra Percy

Chief Executive

Date of Issue:

13 December 2019