

Control of Condensation in Buildings

Product Information Sheet

Tasman District Council
BUILDING CONSENT AUTHORITY
APPROVED DOCUMENTS
Consent Number BC 160489
Signed *[Signature]*
Date 23/06/2016
ALL WORK IS TO COMPLY WITH THE NZ BUILDING CODE
DO NOT MAKE CHANGES WITHOUT PRIOR APPROVAL

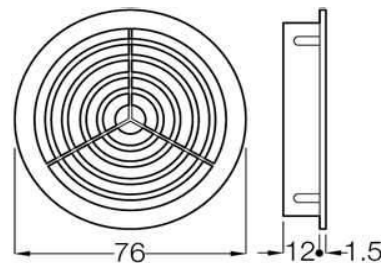
Circular Soffit Vents – G700

Description

Circular Soffit Vents can be utilised for new build projects but are most commonly used as the easiest solution for existing soffits on houses with condensation problems. Standard fixing for this product is a simple push twist action into a 70mm hole drilled in the soffit board.

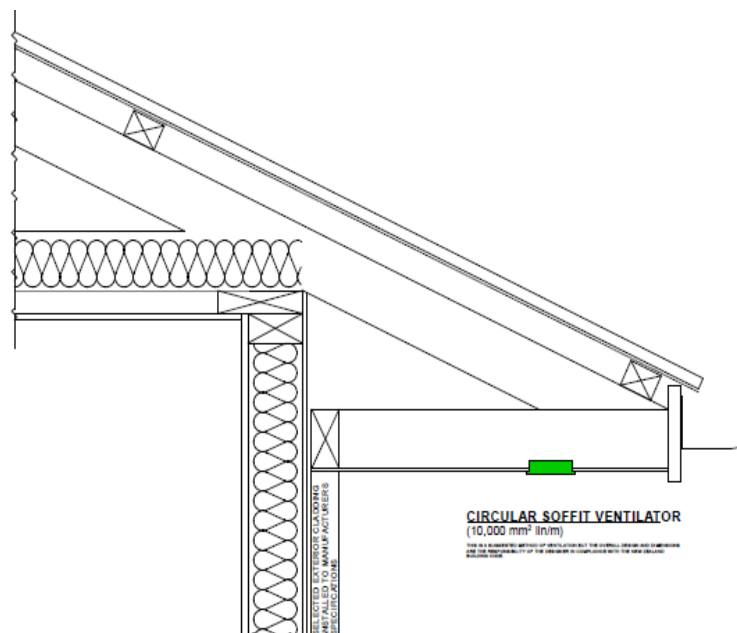
The vent features evenly spaced 4mm slots small enough to prohibit large insects gaining access but wide enough not to be blocked by debris, paint or water droplets.

This product should be used in conjunction with the Eaves Vent (EV25) to ensure continuous airflow into the roof void.

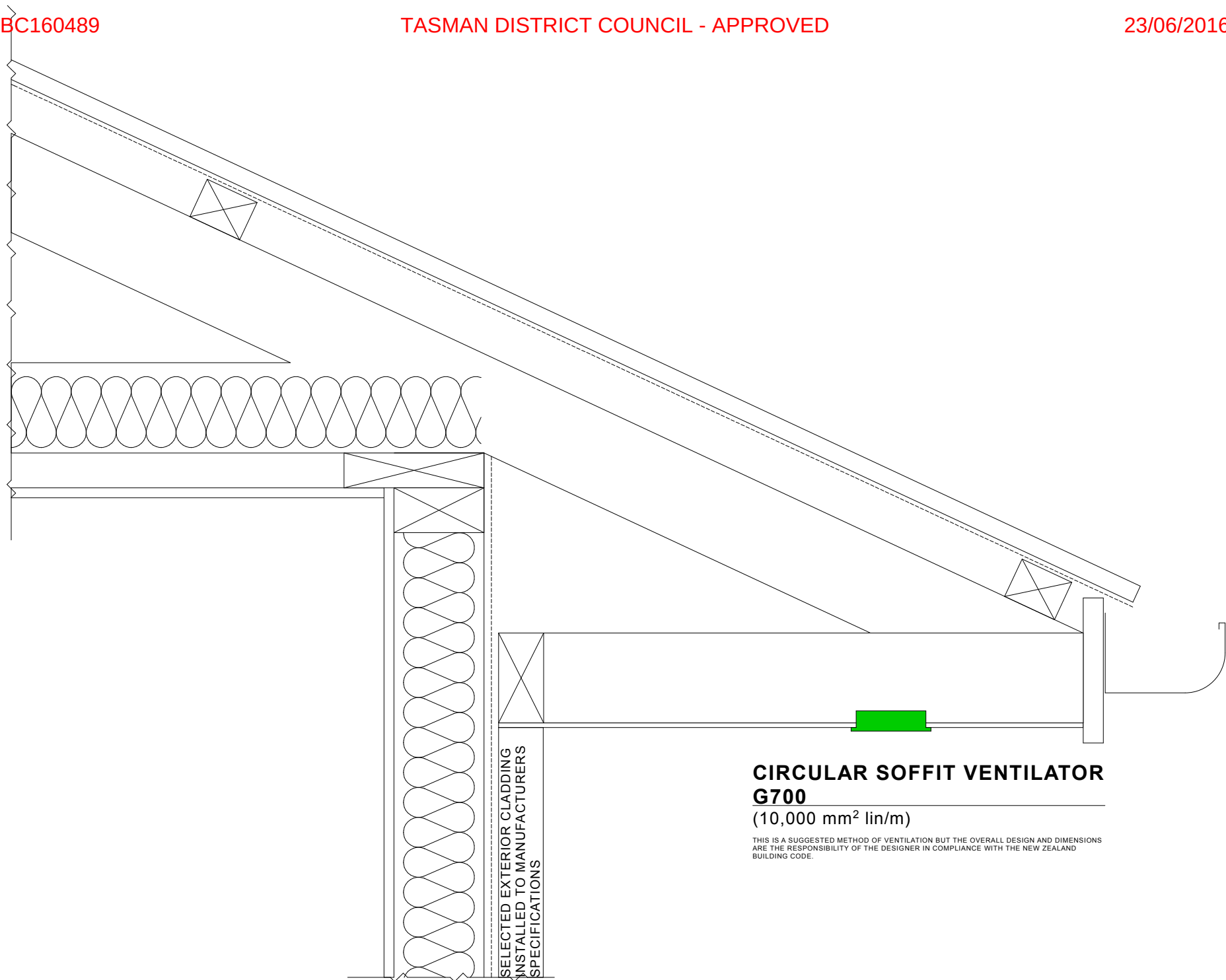


Product Specification

- 2150mm² of airflow per G700 unit
- To achieve 10,000mm²/m of free airflow, the G700 should be fitted at 200mm centres
- To achieve 25,000mm²/m of free airflow, the G700 should be fitted at 86mm staggered centres
- Push fit into 70mm diameter hole in soffit board



Note: These diagrams are for guidance purposes only. The overall design is the responsibility of the designer as there are often other factors to consider.



**CIRCULAR SOFFIT VENTILATOR
G700**
(10,000 mm² lin/m)

THIS IS A SUGGESTED METHOD OF VENTILATION BUT THE OVERALL DESIGN AND DIMENSIONS
ARE THE RESPONSIBILITY OF THE DESIGNER IN COMPLIANCE WITH THE NEW ZEALAND
BUILDING CODE.



LV75 ROOF SPACE VENT

The Metrotile LV75 roof space vent is designed to provide an integrated outlet for the passive release of moisture laden air from the roof space. When used in conjunction with venting at the eaves, it creates a simple in/out airflow pattern to adequately ventilate the roof space. In many parts of Europe (with similar temperature variations to New Zealand), this type of venting is mandatory for the removal of moisture created inside all residential homes (from cooking, bathrooms, heating etc). In New Zealand it is fast becoming recognised that increasingly air-tight construction methods are allowing less of the natural moisture created on our homes to be released. This moisture laden air often ends up in the roof space where it can condense on the roof.

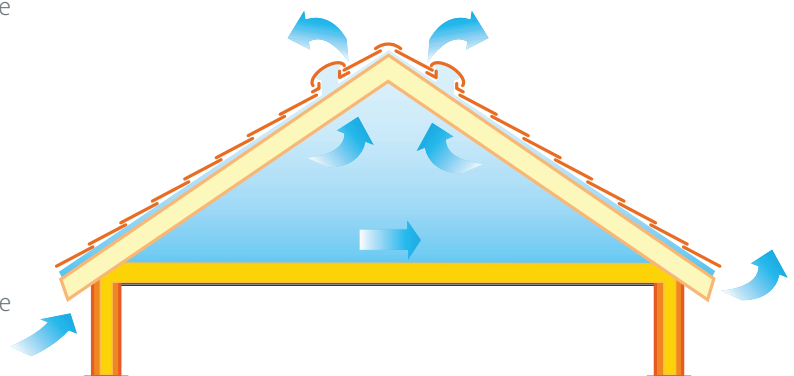
The LV75 Vent forms part of our High Performance Roofing System. This vent is designed to match the roof profiles and to be positioned within 1 metre of the ridgeline, and on the opposite side to the prevailing wind. The natural draw created by wind pressure helps to remove air from within the roof space. The unique design of our roofing system means no penetration needs to be cut in the roof, and no need for ancillary trades to get up on the roof after the roofer has completed the install.

Metrotile recommends 1 x LV75 Roof Space Vent every third tile within 1 metre of all ridge lines, this will equate to 1 vent every 4th truss spacing (or every 3.6m) at the ridge line. This should be matched with the same vent space area at the eaves to create adequate air flow within the roof space.

It requires no further flashing, and is installed by a qualified roofer who is trained to install the weather-tight roofing system.

Unique Design

- Integrated with the Metrotile roof profiles
- Coated in the same colour as the Zinalume satin or stone-chip textured profile
- Built in protective grille to keep out debris, birds, leaves and rodents
- Allows natural airflow from the roof space to help remove moisture from the home, creating a healthier living environment, and protecting the structure from moisture damage.



LV75 ROOF SPACE VENT

Superior Performance

- No penetration cut in the roof, and fits easily near the ridge line where warm/moist air will accumulate in the roof space
- Installed by a qualified roofer, no need for ancillary trades to get up on the roof
- Integrated underlay flashing available to ensure the weather-tight integrity of the roofing system, and to keep the roof space bug/vermin free.

Easy Installation

Install easily into the roof, because the vent has been moulded to match in with the Metrotile tile profiles. There is no need for roof surface preparation, the need to fit special flashings, or mould flexible flashings by hand to fit the shape of the roof profile.

Integrated underlay flashing available to ensure the weather-tight integrity of the roofing system, and to keep the roof space bug/vermin free.

Specifications

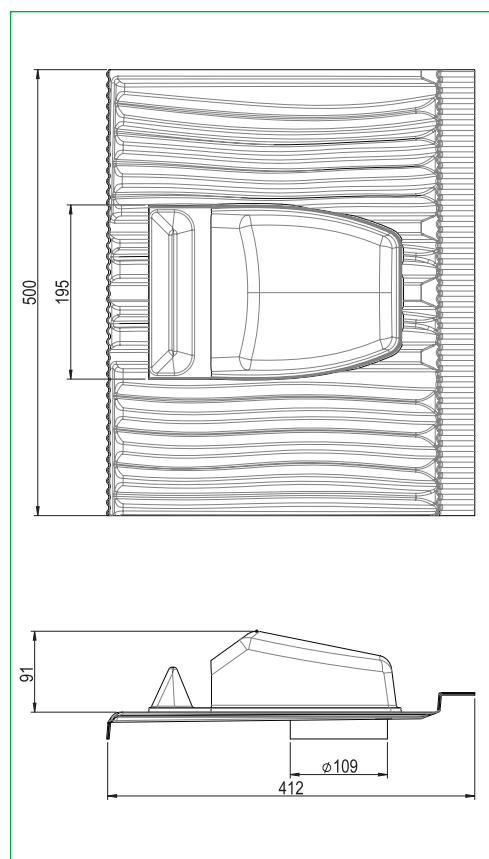
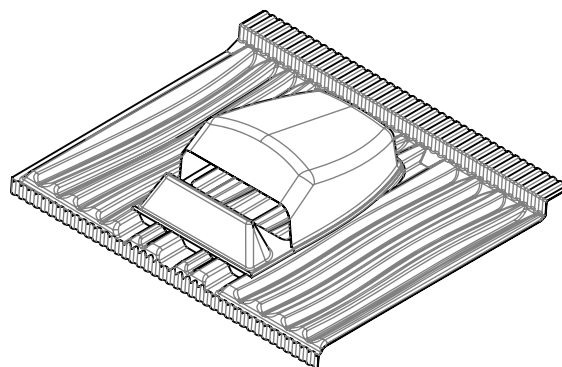
Material	High Impact Polystyrene
Pipe fixed	Ø75mm
Roof Pitch	15°-60°
Effective Space	7,500 mm² ventilation area
Weight	1.0kg

Products & Accessories

Part Number	Description	Image
LV75SHAKE	LV75 Roof Space Vent to fit Metrotile Shake or Royal roof profile	
LV75CLASS	LV75 Roof Sapce Vent to fit Metrotile Classic roof profile	
LV75TUDOR	LV75 Roof Space Vent to fit Metrotile Tudor roof profile	
UV2000	Underlay penetration sleeve with insect grille	

Dimensions

LV75 Shake/Royal Roof Space Vent



Metrotile
ROOFING SYSTEMS

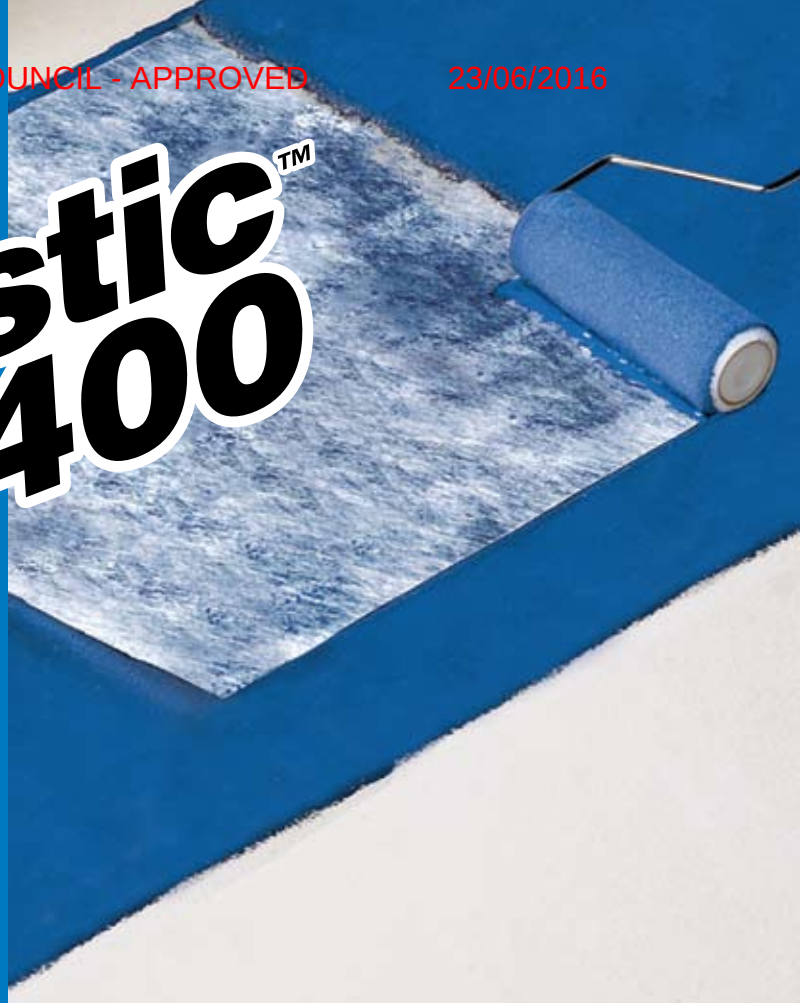
*New Zealand's most experienced
roofing brand*





Mapelastastic 400™

Professional, Liquid-Rubber Waterproofing and Crack-Isolation Membrane



DESCRIPTION

Mapelastastic 400 is a flexible, thin, load-bearing, waterproofing and crack-isolation membrane system for protecting adjacent rooms and floors below from water damage. *Mapelastastic 400* consists of a premixed, quick-drying, liquid-applied styrene butadiene rubber (SBR) and a thin, absorbent polyester reinforcing fabric. It is designed for installation under ceramic tile or stone in residential and commercial interior floors, walls and ceilings, as well as residential and commercial exterior floors and walls. For common problem areas such as a change in plane or material (coves, corners, drains, etc.), *Mapelastastic 400* can be combined with MAPEI's *Mapeband*™ accessories (cove roll and drain flash) to provide additional waterproofing protection.

FEATURES AND BENEFITS

- Liquid rubber and fabric combine for a durable, reliable, time-tested waterproofing system.
- Dual-purpose: Provides waterproofing and crack isolation in one product
- Quick-drying: Install ceramic tile or stone after 1 to 3 hours.
- Flood-test as shower pan liner after 48 hours of drying time.
- Easily applied with a roller or brush
- Compatible with MAPEI cement and epoxy mortars and grouts

INDUSTRY STANDARDS AND APPROVAL

ANSI: Exceeds A118.10 requirements for waterproofing membranes for thin-set ceramic tile, and exceeds A118.12 requirements for crack-isolation membranes for thin-set ceramic tile

ASTM C627 (Robinson): Extra heavy service rating

IAPMO: Listed for use as shower pan liner

LEED Points Contribution

LEED Points

MR Credit 5, Regional Materials*	Up to 2 points
IEQ Credit 4.2, Low-Emitting Materials – Paints & Coatings	1 point

* Using this MAPEI product may help contribute to LEED certification of projects in the categories shown above. Points are awarded based on contributions of all project materials.

WHERE TO USE

- For general waterproofing of residential/commercial interior walls, floors and ceilings, as well as exterior floors and walls
- Tub and shower surrounds, countertops, kitchens, laundry rooms and bathrooms in residential and commercial applications
- Freshwater pools, fountains and water features (if completely covered by ceramic tile)
- Cantilevered balconies or decks not directly over occupied space
- Balconies and decks over occupied space when used in conjunction with primary waterproofing
- Steam rooms when used in conjunction with a vapor barrier. Refer to the TCA handbook's sections on steam rooms (SR613-09 and SR614-09) or TTMAC 321SR.
- For in-plane crack isolation up to 1/8" (3 mm) over nonstructural cracks

Mapelastic 400™



LIMITATIONS

- Do not use over in-plane cracks beyond 1/8" (3 mm) or where vertical out-of-plane movement occurs. (Contact MAPEI's Technical Services for recommendations.)
- Do not use over substrates containing asbestos; plywood in exterior applications; or substrates consisting of plank wood flooring, presswood, particleboard, chipboard, oriented strand board (OSB), pressure-treated plywood, oil-treated plywood, Luaun plywood, Masonite or similar dimensionally unstable materials.
- Do not apply directly over gypsum-based floor-patching or leveling compounds, sheet vinyl, existing ceramic, porcelain or natural stone, vinyl composition tile (VCT), self-stick tile, laminate surfaces, metal, fiberglass or poured epoxy floors.
- Do not use where excessive substrate moisture and/or where negative hydrostatic pressure exists. Maximum allowable moisture is 5 lbs. per 1,000 sq. ft. (2,27 kg per 92.9 m²) per 24 hours per ASTM F1869 or up to 75% relative humidity as measured per ASTM F2170.
- Do not use: premixed setting materials over *Mapelastic 400*; on storage tanks; solvent-based materials such as sealants and adhesives with *Mapelastic 400*; or as a single-application roof-deck membrane, wear surface or primary waterproofing membrane on balconies or decks over occupied space.

Consult MAPEI's Technical Services Department for installation recommendations regarding substrates and conditions not listed.

SUITABLE SUBSTRATES

Interior and exterior

- Fully cured concrete at least 28 days old (see "Limitations" section)
- Masonry walls of cement block or brick
- Cured cement mortar beds
- Cement backer units (CBUs)

Interior only

- Gypsum wallboard (walls only, in approved application areas only)
- Leveling coats
- Properly prepared radiant-heated substrates
- Properly prepared unglazed ceramic tile, cement terrazzo floors and gypsum underlayments. Note: Existing cement terrazzo and unglazed ceramic tile must be abraded. Both must then be skimcoated with an appropriate MAPEI latex or polymer-modified mortar.
- PVC, copper, brass and stainless steel pipe penetrations (abraded)
- Exterior-grade plywood (for interior residential floors and countertops in dry areas only)

Tile Council of North America (TCNA) Statement on Deflection Criteria

Floor systems, including the framing system and subfloor panels, over which tile will be installed should be in conformance with the IRC [International Residential Code] for residential applications, the IBC [International Building Code] for commercial applications, or applicable building codes.

Note: The owner should communicate in writing to the project design professional and general contractor the "intended use" of the tile installation, in order to enable the project design professional and general contractor to make necessary allowances for the expected live load, concentrated loads, impact loads, and dead loads including the weight of the tile and setting bed. The tile installer shall not be responsible for any floor framing or subfloor installation not compliant with applicable building codes, unless the tile installer or tile contractor designs and installs the floor framing or subfloor.

SURFACE PREPARATION

- Refer to MAPEI's Surface Preparation Requirements document for tile and stone installation systems at www.mapei.com.
- All recommended substrates must be structurally sound, stable, clean and free of any substance preventing adhesion.
- Do not use chemicals (acid etching or stripping) to prepare approved substrates.
- Concrete substrates should have a concrete surface profile (CSP) of #2 per the ICRI (International Concrete Repair Institute). Mechanically clean and profile by diamond-cup grinding or other engineer-approved method when necessary.
- Substrate and room temperatures must be between 45°F and 95°F (7°C and 35°C) during and at least 24 hours after application.

MIXING

Note: Choose all appropriate safety equipment before use. Refer to Material Safety Data Sheet (MSDS) for more information.

1. Mix by hand before using.
2. Do not dilute with any other material.
3. Promptly wash tools with water after mixing.

PRODUCT APPLICATION

- MAPEI's *Mapeband* accessories (cove roll and drain flashing) may also be used with *Mapelastick 400* in any of the areas shown below (see the section "Optional Use of *Mapeband* Accessories").

Pretreat coves, corners and changes in plane:

- Precut 6" x 75' (15 cm x 22.9 m) roll of MAPEI's *Reinforcing Fabric* (part of the 5-gallon [18.9-L] kit only) or *Mapeband* cove roll for inside and outside vertical corners, and for cove corners. For coves, wrap fabric 2" (5 cm) onto floor, and 4" (10 cm) up the wall. For inside or outside vertical corners, apply 3" (7.5 cm) of fabric to each wall.
- With paintbrush, apply a liberal coat of *Mapelastick 400* liquid, about 6" (15 cm) on each side of inside or outside corners or coves.
- Place fabric into liquid. For corners, allow 3" (7.5 cm) of fabric on each side of corner. For coves, place fabric 4" (10 cm) up the wall and 2" (5 cm) on the floor. Overlap all fabric seams and ends by 2" (5 cm).
- Use brush to work fabric into corners. Apply pressure over fabric until liquid comes through. Work out any wrinkles or bubbles.
- Apply a liberal coat of liquid over fabric until completely covered. Create a uniform, void-free surface.

Pretreat existing cracks:

- Using a 3/8" (10 mm) nap roller or paintbrush, apply a liberal coat of liquid at least 9" to 10" (23 to 25 cm) wide over crack.
- Place *Mapelastick 400* reinforcing fabric 6" (15 cm) wide into liquid. Overlap all fabric seams and ends by 2" (5 cm).
- Using brush or roller, apply pressure on fabric until liquid comes through.
- Apply liberal topcoat of liquid over fabric until completely covered. Create a uniform, void-free surface.

Pretreat drains:

- Review drain manufacturer's instructions for waterproof membrane installation in conjunction with these instructions.
- Drains must have locking (bolt-down) collar and weep holes.
- Loosen bolts on locking collar and remove from flange.
- Precut a 38" x 38" (97 x 97 cm) piece of MAPEI's *Reinforcing Fabric*. Set aside.
- Apply liberal coat of liquid around and over drain flange using brush or roller, covering an area slightly larger than precut fabric.
- Place fabric (or *Mapeband* drain flashing) into liquid.
- Using brush or roller, apply pressure over fabric until liquid comes through.
- Apply a liberal topcoat of liquid over fabric until completely covered. Create a uniform, void-free surface.

Pretreat pipes and other penetrations:

- Pack openings around pipes or penetrations with proper size of backer rod, slightly below substrate surface.
- Apply commercial-grade silicone or urethane sealant over backer rod against pipe or penetration (finishing slightly below substrate line).
- Let sealant dry. Apply liberal coat of liquid over sealant and around pipe or penetration with brush.
- Cut fabric to fit around penetration. Place fabric into liquid on floor or wall. Overlap all ends by 2" (5 cm). Using brush, apply pressure over fabric until liquid comes through fabric.
- Apply a liberal topcoat of liquid into fabric surrounding pipe or penetration. Create a uniform, void-free surface.

Waterproofing walls:

Interior gypsum wallboard, cement backer units (CBUs) and any other suitable wall substrates require 2 coats of liquid. MAPEI's *Reinforcing Fabric* is optional for walls, but all corners, coves and penetrations on walls must be pretreated with the complete system (liquid and fabric) as outlined above.

Waterproofing the main area:

- After all pre-treated or other waterproofed areas are completely dry, inspect corners, coves, cracks, drains, pipes and *Mapelastick 400* liquid. Touch up pinholes or areas where fabric not completely covered. Let dry.
- Lay out floor area that the *Reinforcing Fabric* will cover (length and width) including 2" (5 cm) overlaps.
- Apply liberal coat of liquid (including areas previously treated) with roller or brush.
- Place MAPEI's *Reinforcing Fabric* into liquid. With roller or brush, apply pressure to fabric. Work out any wrinkles or bubbles. Force liquid to come through fabric. Overlap all seams and ends of additional fabric by 2" (5 cm).
- Apply liberal coat of liquid over fabric until completely covered. Create a uniform, void-free surface.
- Let liquid dry completely (until black). Apply a second liberal topcoat to entire area. Ensure that no holes, voids or fabric shows through. Let dry. Inspect entire area. Touch up with liquid if necessary.
- After inspection and touchup, use a sharp knife to cut out membrane from drain opening (throat). Locate and punch through bolt holes. Carefully lift membrane up from drain flange at throat. Apply commercial-grade silicone or urethane sealant bead between membrane and drain flange, about 1/2" (12 mm) in from the drain opening. Carefully press lifted membrane into sealant.
- Bolt drain collar into place while sealant is fresh. See drain manufacturer's installation instructions for additional details.
- Where *Mapelastick 400* coating ends on penetrations, apply silicone or urethane sealant bead.

CLEANUP

Remove excess *Mapelastick 400* (while fresh) with damp sponge, soap and warm water. Completely dried material may be mechanically removed.

PROTECTION

- Protect membrane from contamination, rain, freezing, excessive heat, sun exposure and other trades before and during tile or stone installation.
- Do not let primer freeze in pail.

FLOOD TESTING (PER ASTM D5957)

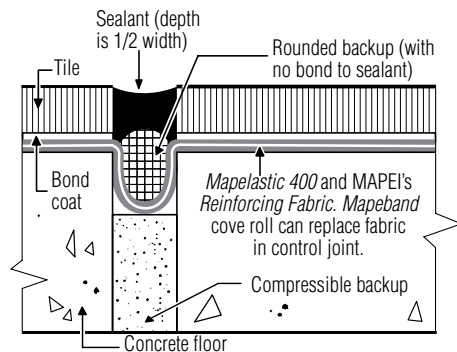
If flood testing is required, let *Mapelastick 400* cure for at least 48 hours at 73°F (23°C) and 50% relative humidity. Actual curing time depends on air and substrate temperature, substrate porosity and humidity. Expect shorter drying times in warmer conditions, and longer drying times in cooler conditions.

INSTALLING CERAMIC TILE OR NATURAL STONE

- Mapelastick 400* is ready to receive thin-set mortars for tile or stone when dry to touch (about 1 to 3 hours after applying second coat).
- Let *Mapelastick 400* cure at least 8 hours before installing medium-bed mortars (for large tile or stone), screeds (for leveling floors) or epoxy adhesives.

3. For tile and stone installations, use a MAPEI polymer-modified mortar meeting ANSI A118.4 or ANSI A118.11 industry standards, or an epoxy mortar meeting ANSI A118.3.

EXPANSION AND CONTROL JOINTS



1. Do not cover substrate expansion or control joints with mortar or tile. Provide where specified per most current TCA handbook for ceramic tile installation, Detail EJ-171.
2. If waterproofing integrity is required in expansion and control joints, provide per the above drawing. MAPEI's *Mapelastic 400* and MAPEI's *Reinforcing Fabric* or *Mapeband* should be embedded into the *Mapelastic 400* liquid, allowed to dry, and filled with an appropriate joint sealant or an expansion molding system.
3. Protect tilework with metal strips (edge metal) along both edges of structural building expansion joints. Contact MAPEI's Technical Services for more information.

OPTIONAL USE OF MAPEBAND ACCESSORIES

- MAPEI's *Mapeband* accessories (cove roll and drain flashing) are waterproof, vapor-proof, thin, elastic, deformable, rubber-coated fabric pieces that are fully compatible with *Mapelastic 400* and provide the ultimate in "change-of-plane" waterproofing protection for coves, corners and drains. The accessories are ideal for environments requiring waterproofing, as well as where temperature extremes, freeze/thaw conditions, vibrations and other conditions can cause waterproofing problems.
- *Mapeband* cove roll can be used in place of MAPEI's *Reinforcing Fabric* on coves, corners and control joints. The "felt side" should face down.
- *Mapeband* drain flashing can be used in place of MAPEI's *Reinforcing Fabric* around drains.
- See *Mapeband*'s Technical Data Sheet for installation details.

Product Performance Properties at 73°F (23°C) and 50% relative humidity

Laboratory Tests	Results
Freeze/thaw stability at 0°F (-18°C)	Stable 5 cycles
Flash point	Nonflammable
Weight	10 lbs. per U.S. gal. (1,2 kg per L)
Elongation (without fabric)	500%
Bond strength (using Kerabond™ mixed with Keralastic™ for porcelain tiles)	
7 days dry	Exceeds ANSI A118.10 industry standards
7 days dry + 7 days in water	Exceeds ANSI A118.10 industry standards
28 days dry	Exceeds ANSI A118.10 industry standards
12 weeks dry	Exceeds ANSI A118.10 industry standards
Color	Blue when wet; black when dry and ready for installation of surfacing material. Note: Material spreads on blue and turns black when ready for installation of surfacing material.
Storage	Store in cool, dry place. Protect from freezing.

Shelf Life and Application Properties

Surface drying time between coats	When black in color and dry to the touch: about 30 to 45 minutes
Ready for tile	About 1 to 3 hours
Curing time before flood testing	
For shower pans	After 2 days
For fountains, pools, etc.	After 5 days
Liquid shelf life	2 years when stored in original container
Fabric shelf life	Unlimited (in box)

Packaging (Mapelastic 400)

Product Code	Size	Approximate Product Coverage*
33553	1 U.S. gal. (3,79 L) kit – Includes 1 U.S. gal. (3,79 L) pail of <i>Mapelastic 400</i> ; and a 1' x 45' (30 cm x 13,7 m) roll of <i>Reinforcing Fabric</i>	50 sq. ft. (4,65 m²)
33568	5 U.S. gal. (18,9 L) kit – Includes 5 U.S. gal. (18,9 L) pail of <i>Mapelastic 400</i> ; a 6" x 75' (15 cm x 22,9 m) roll of <i>Reinforcing Fabric</i> ; and a 38" x 75' (97 cm x 22,9 m) roll of <i>Reinforcing Fabric</i>	250 sq. ft. (23,2 m²)
33577 (special-order)	55 U.S. gal. (208 L) drum; <i>Reinforcing Fabric</i> sold separately (see below)	2,750 sq. ft. (255 m²)

* Liquid coverages shown are for estimating purposes only. Actual jobsite coverage depends on substrate conditions, temperature, humidity, concrete profile and porosity, type of equipment used, thickness applied, handling and application procedures.

Packaging (MAPEI's Reinforcing Fabric)

Product Code	Size	Product Coverage
0170004	6" x 75' (15 cm x 22,9 m)	37.5 sq. ft. (3,48 m²)
0170007	38" x 75' (97 cm x 22,9 m)	237.5 sq. ft. (22,1 m²)

Packaging (MAPEI's Mapeband accessories)

Product Code	Size	Product Coverage
02101000	Drain flashing 16.75" x 16.75" (42.5 x 42.5 cm)	1.94 sq. ft. (0,18 m²)
02401000	Cove roll 3" x 163' (7,5 cm x 49,7 m)	40.7 sq. ft. (3,78 m²)

**Mapelastic
400™**

Mapelastic[™] 400



RELATED DOCUMENTS

Reference guide: Surface Preparation
Requirements for tile and stone
installation systems

RGTO309*

* At www.mapei.com.

STATEMENT OF RESPONSIBILITY

Before using, user shall determine the suitability of the product for its intended use and user alone assumes all risks and liability whatsoever in connection therewith. **ANY CLAIM SHALL BE DEEMED WAIVED UNLESS MADE IN WRITING TO US WITHIN FIFTEEN (15) DAYS FROM DATE IT WAS, OR REASONABLY SHOULD HAVE BEEN, DISCOVERED.**

We proudly support the following industry organizations:



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Deerfield Beach, Florida 33442
Phone: 1-888-US-MAPEI
(1-888-876-2734)

Technical Services
1-800-992-6273 (U.S. and Puerto Rico)
1-800-361-9309 (Canada)

Customer Service
1-800-42-MAPEI (1-800-426-2734)

For the most current **BEST-BACKED™** product data and warranty information, visit www.mapei.com.

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The perfect flashing for all tray roofs

- ✓ The large base of the Dektite Soaker dramatically reduces rainwater back up on very low or very high roof pitches and deep ribbed roofing profiles.
- ✓ Dektite Soakers are ready to use straight from the box.
- ✓ Faster to flash than old fashioned methods.
- ✓ The unique corrosion resistant aluminium flange is ideal for low pitch and deep profile roofs, providing a positive leak-proof seal.
- ✓ EPDM withstands temperatures from -50°C - 115°C and up to 150°C intermittently.

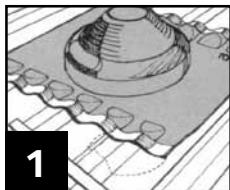
IMPORTANT:

For any pitch above 40° do not cut below the first three sizing ribs on the 603, 605 and 606

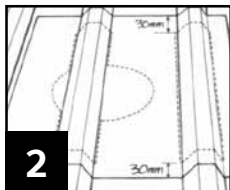


Code	Base (mm)	Pipe (mm)	Pitch	Pipe (mm)	Pitch
DF 602	410 x 360	75-160	0-60°		
DF 603	485 x 460	114-165	0-60°	114-255	0-40°
DF 605	708 x 635	250-358	0-60°	250-410	0-40°
DF 606	1006 x 905	380-470	0-60°	380-610	0-40°

Installation Instructions:



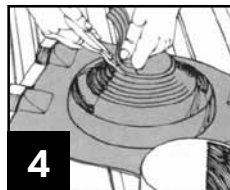
Mark position of pipe on roofing sheet, centre Dektite Soaker over mark ensuring word "top" is towards highest part of roof, and form Dektite Soaker flanges to roof profile.



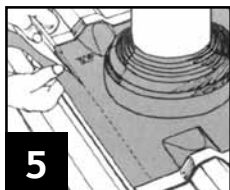
Mark ribs or corrugations to be removed to allow adequate drainage around cone. Allow at least 30mm all round to fasten Dektite Soaker's aluminium strips to roofing sheet.



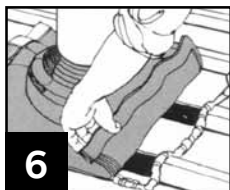
Cut out marked portions of roof, filing away sharp edges and install pipe securely in place. Where required, support cut sections of sheet with additional framing.



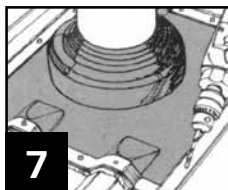
Trim Dektite Soaker cone to suit pipe size with sharp tin snips and slide down pipe using water as lubricant.



Form Dektite Soaker base into contours of roofing sheet, positioning loose strips on either side of cone in best position to ensure drainage of pan or tray. Trim excess EPDM from outside of loose strips. Trimming should be considered prior to cutting of the roof sheet.



Apply a generous bead of neutral-cure silicone sealant to underside of Dektite Soaker base along entire perimeter (refer to page 13 for silicone types).



Fasten flashing to roof using washers self-drilling screws, ensuring Dektite Soaker forms flat trough for water run-off. Fix integral aluminium strips from centre outwards before attaching loose strips provided.



Quote No. : NE-7522- Ver 4
 Quote Date: 13/08/2015
 Modified Date : 20/08/2015
 Contact : **David Clarence**
 Mobile : 027 530 1000
 E-Mail : david.clarence@nulooks

NULOOK SOLUTIONS

Phone : Fax : E-mail :

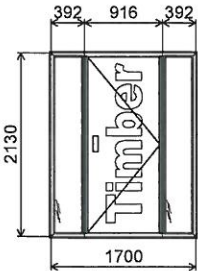
Project Title : **ORH-Philp**

ORANGE RESIDENTIAL HOMES
272 Queen Street
Richmond 7050

Site Contact :
 Deliver to : **184 Horton Rd**
Beulah Estate

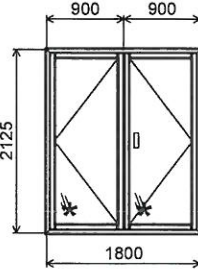
Mobile : **021704859**
 Phone : **035439002** Fax :

Items :

Item	Description	Quantity
1	 Entry FRAME COLOUR : To Be Advised FAB50 (TB/FLASHING :NO Flashing FRAME TYPE : WeatherTight™ TRIM SIZE : 2150mm x 1720mm WIND ZONE : High WEIGHT : 75.31 kg LINER : H3 Paint Quality 19mm Thick Architraved Mitre Cut GLASS : Clear Float Double Glazed WANZ COMPONENTS : None OPEN : OPENIN HEIGHT FROM FLOOR : 0 WALL THICKNESS : 180 SILL LINER : FALSE	1

COMMENTS

	1 x Comp30 2 B advised	Windsor 9021BN Apex Winsor Lever & Bo
1.1	Cedar entry door panel	1
1.2	Fit groupset	1
1.3	Fit door panel	1

2	 Garage FRAME COLOUR : To Be Advised FAB50 (TB/FLASHING :NO Flashing FRAME TYPE : WeatherTight™ TRIM SIZE : 2145mm x 1820mm WIND ZONE : High WEIGHT : 35.22 kg LINER : H3 Paint Quality 19mm Thick Architraved Mitre Cut GLASS : Clear Float Glass WANZ COMPONENTS : None OPEN : OPENOUT HEIGHT FROM FLOOR : 0 WALL THICKNESS : 180 SILL LINER : FALSE	1
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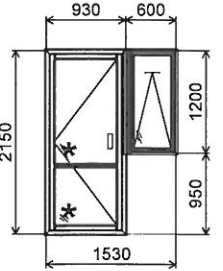
COMMENTS

2 x Comp30 2 B advised	Interlock Surf Flush Bolt with DTip - 30 Col
1 x Comp30 2 B advised	OPT 30mm 4pt S/T K/T Aria COLOURS

Quote No. : NE-7522- Ver 4
 Quote Date: 13/08/2015
 Modified Date : 20/08/2015

2.1 * SiteGlazing - Ground Floor - Up to 3.00 Sqm

1

3		Laundry FRAME COLOUR : To Be Advised FAB50 (TB/ FLASHING :NO Flashing FRAME TYPE : WeatherTight™ TRIM SIZE : 2170mm x 1550mm WIND ZONE : High WEIGHT : 33.44 kg LINER : H3 Paint Quality 19mm Thick Architraved Mitre Cut GLASS : Clear Float Double Glazed WANZ COMPONENTS : None OPEN : OPENOUT WALL THICKNESS : 180 SILL LINER : TRUE	1
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COMMENTS

1 x Comp30 2 B advised Aria RH Opposing Tongue Venting - Color
 1 x Comp30 2 B advised OPT 30mm 4pt S/T K/T Aria COLOURS

3.1 * SiteGlazing - Ground Floor - Up to 3.00 Sqm

1

3.2 * SiteGlazing - Ground Floor - Up to 3.00 Sqm

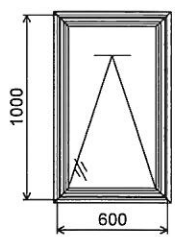
1

3.3 Allowance for cat door

1

3.4 Fit cat door

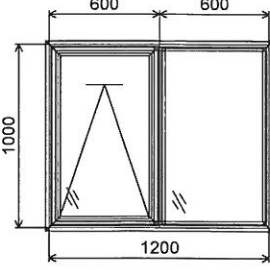
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4		WC FRAME COLOUR : To Be Advised FAB50 (TB/ FLASHING :NO Flashing FRAME TYPE : WeatherTight™ TRIM SIZE : 1020mm x 620mm WIND ZONE : High WEIGHT : 13.51 kg LINER : H3 Paint Quality 19mm Thick Architraved Mitre Cut GLASS : ETCHCL04/TCL04 WANZ COMPONENTS : 55mm E13366 Support Bar HEIGHT FROM FLOOR : 1000 WALL THICKNESS : 180 SILL LINER : TRUE	1
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COMMENTS

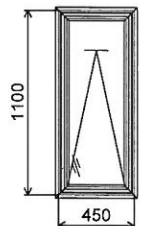
1 x Comp30 2 B advised Aria RH Opposing Tongue Venting - Color

Quote No. : NE-7522- Ver 4
 Quote Date: 13/08/2015
 Modified Date : 20/08/2015

5		Bath 1 FRAME COLOUR : To Be Advised FAB50 (TB/FLASHING :NO Flashing FRAME TYPE : WeatherTight™ TRIM SIZE : 1020mm x 1220mm WIND ZONE : High WEIGHT : 26.39 kg LINER : H3 Paint Quality 19mm Thick Architraved Mitre Cut GLASS : ETCHCL04/TCL04 WANZ COMPONENTS : 55mm E13366 Support Bar HEIGHT FROM FLOOR : 1000 WALL THICKNESS : 180 SILL LINER : TRUE
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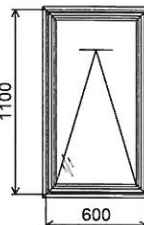
COMMENTS

1 x Comp30 2 B advised Aria RH Opposing Tongue Venting - Coloi

6		WIR 1 FRAME COLOUR : To Be Advised FAB50 (TB/FLASHING :NO Flashing FRAME TYPE : WeatherTight™ TRIM SIZE : 1120mm x 470mm WIND ZONE : High WEIGHT : 11.28 kg LINER : H3 Paint Quality 19mm Thick Architraved Mitre Cut GLASS : Clear Float Double Glazed WANZ COMPONENTS : 55mm E13366 Support Bar HEIGHT FROM FLOOR : 800 WALL THICKNESS : 180 SILL LINER : TRUE
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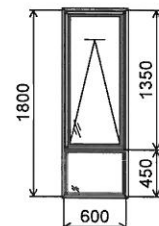
COMMENTS

1 x Comp30 2 B advised Aria RH Opposing Tongue Venting - Coloi

7		ENS 1 FRAME COLOUR : To Be Advised FAB50 (TB/FLASHING :NO Flashing FRAME TYPE : WeatherTight™ TRIM SIZE : 1120mm x 620mm WIND ZONE : High WEIGHT : 14.77 kg LINER : H3 Paint Quality 19mm Thick Architraved Mitre Cut GLASS : ETCHCL04/TCL04 WANZ COMPONENTS : 55mm E13366 Support Bar HEIGHT FROM FLOOR : 1000 WALL THICKNESS : 180 SILL LINER : TRUE
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COMMENTS

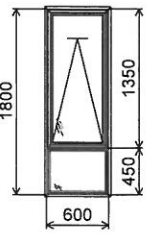
1 x Comp30 2 B advised Aria RH Opposing Tongue Venting - Coloi

8		Bed 1 1 FRAME COLOUR : To Be Advised FAB50 (TB/FLASHING :NO Flashing FRAME TYPE : WeatherTight™ TRIM SIZE : 1820mm x 620mm WIND ZONE : High WEIGHT : 26.36 kg LINER : H3 Paint Quality 19mm Thick Architraved Mitre Cut GLASS : Grey Float Double Glazed WANZ COMPONENTS : 55mm E13366 Support Bar HEIGHT FROM FLOOR : 200 WALL THICKNESS : 180 SILL LINER : TRUE
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COMMENTS Tinted Glass

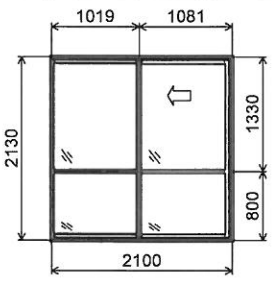
1 x Comp30 2 B advised Aria RH Opposing Tongue Venting - Coloi

Quote No. : NE-7522- Ver 4
 Quote Date: 13/08/2015
 Modified Date : 20/08/2015

9		Bed 1 FRAME COLOUR : To Be Advised FAB50 (TB/ FLASHING :NO Flashing FRAME TYPE : WeatherTight™ TRIM SIZE : 1820mm x 620mm WIND ZONE : High WEIGHT : 26.36 kg LINER : H3 Paint Quality 19mm Thick Architraved Mitre Cut GLASS : Grey Float Double Glazed WANZ COMPONENTS : 55mm E13366 Support Bar HEIGHT FROM FLOOR : 200 WALL THICKNESS : 180 SILL LINER : TRUE	1
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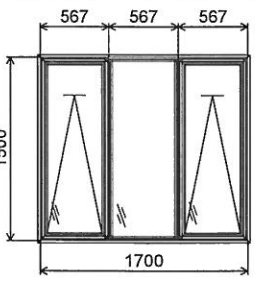
COMMENTS Tinted glass

1 x Comp30 2 B advised Aria RH Opposing Tongue Venting - Color

10		Bed 1 Urban slider FRAME COLOUR : To Be Advised FAB50 (TB/ FLASHING :NO Flashing FRAME TYPE : WeatherTight™ TRIM SIZE : 2150mm x 2120mm WIND ZONE : High WEIGHT : 124.29 kg LINER : H3 Paint Quality 19mm Thick Architraved Mitre Cut GLASS : Grey Float Double Glazed WANZ COMPONENTS : None BEADED PANEL : FALSE HEIGHT FROM FLOOR : 0 SILL LINER : FALSE WALL THICKNESS : 180	1
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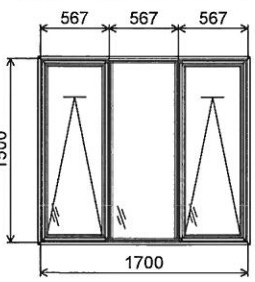
COMMENTS Tinted glass

1 x Comp30 2 B advised Aria Endeavour Mortice Lock

11		Bed 3 FRAME COLOUR : To Be Advised FAB50 (TB/ FLASHING :NO Flashing FRAME TYPE : WeatherTight™ TRIM SIZE : 1520mm x 1720mm WIND ZONE : High WEIGHT : 60.44 kg LINER : H3 Paint Quality 19mm Thick Architraved Mitre Cut GLASS : Grey Float Double Glazed WANZ COMPONENTS : 55mm E13366 Support Bar HEIGHT FROM FLOOR : 500 WALL THICKNESS : 180 SILL LINER : TRUE	1
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COMMENTS Tinted glass

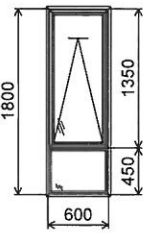
2 x Comp30 2 B advised Aria RH Opposing Tongue Venting - Color

12		Bed 2 FRAME COLOUR : To Be Advised FAB50 (TB/ FLASHING :NO Flashing FRAME TYPE : WeatherTight™ TRIM SIZE : 1520mm x 1720mm WIND ZONE : High WEIGHT : 60.44 kg LINER : H3 Paint Quality 19mm Thick Architraved Mitre Cut GLASS : Grey Float Double Glazed WANZ COMPONENTS : 55mm E13366 Support Bar HEIGHT FROM FLOOR : 500 WALL THICKNESS : 180 SILL LINER : TRUE	1
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COMMENTS Tinted glass

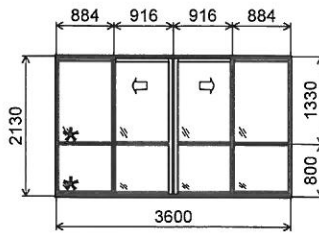
2 x Comp30 2 B advised Aria RH Opposing Tongue Venting - Color

Quote No. : NE-7522- Ver 4
 Quote Date: 13/08/2015
 Modified Date : 20/08/2015

13		Lounge	1
FRAME COLOUR : To Be Advised FAB50 (TB/ FLASHING : NO Flashing FRAME TYPE : WeatherTight™ TRIM SIZE : 1820mm x 620mm WIND ZONE : High WEIGHT : 26.36 kg LINER : H3 Paint Quality 19mm Thick Architraved Mitre Cut GLASS : Grey Float Double Glazed WANS COMPONENTS : 55mm E13366 Support Bar HEIGHT FROM FLOOR : 200 WALL THICKNESS : 180 SILL LINER : TRUE			

COMMENTS Tinted glass

1 x Comp30 2 B advised Aria RH Opposing Tongue Venting - Color

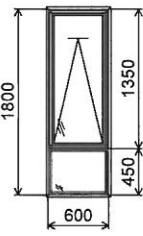
14		Lounge Urban slider	1
FRAME COLOUR : To Be Advised FAB50 (TB/ FLASHING : NO Flashing FRAME TYPE : WeatherTight™ TRIM SIZE : 2150mm x 3620mm WIND ZONE : High WEIGHT : 171.78 kg LINER : H3 Paint Quality 19mm Thick Architraved Mitre Cut GLASS : GY05/CL05 WANS COMPONENTS : None BEADED PANEL : FALSE HEIGHT FROM FLOOR : 0 SILL LINER : FALSE WALL THICKNESS : 180			

COMMENTS Tinted glass

1 x Comp30 2 B advised Aria Endeavour Mortice Lock
 1 x Comp30 2 B advised Aria Endeavour Mortice Dummy

14.1	* SiteGlazing - Ground Floor - Up to 3.00 Sqm	1
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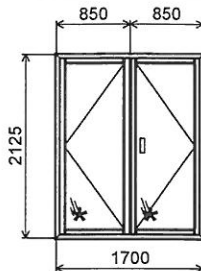
14.2	* SiteGlazing - Ground Floor - Up to 3.00 Sqm	1
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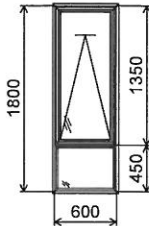
15		Lounge	1
FRAME COLOUR : To Be Advised FAB50 (TB/ FLASHING : NO Flashing FRAME TYPE : WeatherTight™ TRIM SIZE : 1820mm x 620mm WIND ZONE : High WEIGHT : 26.36 kg LINER : H3 Paint Quality 19mm Thick Architraved Mitre Cut GLASS : Grey Float Double Glazed WANS COMPONENTS : 55mm E13366 Support Bar HEIGHT FROM FLOOR : 200 WALL THICKNESS : 180 SILL LINER : TRUE			

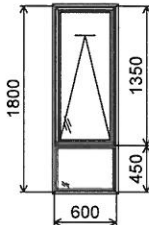
COMMENTS Tinted glass

1 x Comp30 2 B advised Aria RH Opposing Tongue Venting - Color

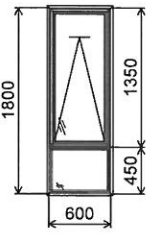
Quote No. : NE-7522- Ver 4
 Quote Date: 13/08/2015
 Modified Date : 20/08/2015

16		Dining1 FRAME COLOUR : To Be Advised FAB50 (TB/FLASHING :NO Flashing FRAME TYPE : WeatherTight™TRIM SIZE : 2145mm x 1720mm WIND ZONE : HighWEIGHT : 34.7 kg LINER : H3 Paint Quality 19mm Thick Architraved Mitre Cut GLASS : Grey Float Double Glazed WANZ COMPONENTS : None OPEN : OPENOUT HEIGHT FROM FLOOR : 0 WALL THICKNESS : 180 SILL LINER : FALSE
COMMENTS	Tinted glass	2 x Comp30 2 B advisedInterlock Surf Flush Bolt with DTip - 30 Col 1 x Comp30 2 B advisedOPT 30mm 4pt S/T K/T Aria COLOURS
16.1	* SiteGlazing - Ground Floor - Up to 3.00 Sqm	1

17		Dining1 FRAME COLOUR : To Be Advised FAB50 (TBFLASHING :NO Flashing FRAME TYPE : WeatherTight™TRIM SIZE : 1820mm x 620mm WIND ZONE : HighWEIGHT : 26.36 kg LINER : H3 Paint Quality 19mm Thick Architraved Mitre Cut GLASS : Grey Float Double Glazed WANZ COMPONENTS : 55mm E13366 Support Bar HEIGHT FROM FLOOR : 200 WALL THICKNESS : 180 SILL LINER : TRUE	
COMMENTS	Tinted glass	1 x Comp30 2 B advisedAria RH Opposing Tongue Venting - Color	

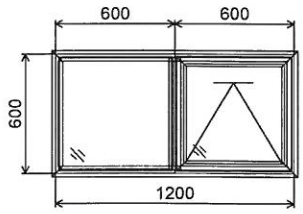
18		Dining1 FRAME COLOUR : To Be Advised FAB50 (TBFLASHING :NO Flashing FRAME TYPE : WeatherTight™TRIM SIZE : 1820mm x 620mm WIND ZONE : HighWEIGHT : 26.36 kg LINER : H3 Paint Quality 19mm Thick Architraved Mitre Cut GLASS : Grey Float Double Glazed WANZ COMPONENTS : 55mm E13366 Support Bar HEIGHT FROM FLOOR : 200 WALL THICKNESS : 180 SILL LINER : TRUE	
COMMENTS	Tinted glass	1 x Comp30 2 B advised	Aria RH Opposing Tongue Venting - Color

Quote No. : NE-7522- Ver 4
 Quote Date: 13/08/2015
 Modified Date : 20/08/2015

19		Dining FRAME COLOUR : To Be Advised FAB50 (TB FRAME TYPE : WeatherTight™ WIND ZONE : High GLASS : Grey Float Double Glazed WANS COMPONENTS : 55mm E13366 Support Bar HEIGHT FROM FLOOR : 200 WALL THICKNESS : 180 SILL LINER : TRUE	FLASHING :NO Flashing TRIM SIZE : 1820mm x 620mm WEIGHT : 26.36 kg LINER : H3 Paint Quality 19mm Thick Architraved Mitre Cut	1
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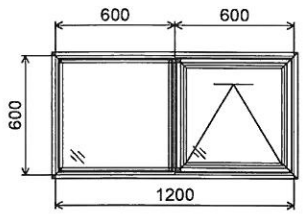
COMMENTS Tinted glass

1 x Comp30 2 B advised Aria RH Opposing Tongue Venting - Coloi

20		Stair FRAME COLOUR : To Be Advised FAB50 (TB FRAME TYPE : WeatherTight™ WIND ZONE : High GLASS : Clear Float Glass Double Glazed WANS COMPONENTS : 55mm E13366 Support Bar HEIGHT FROM FLOOR : 1400 WALL THICKNESS : 180 SILL LINER : TRUE	FLASHING :NO Flashing TRIM SIZE : 620mm x 1220mm WEIGHT : 16.5 kg LINER : H3 Paint Quality 19mm Thick Architraved Mitre Cut	1
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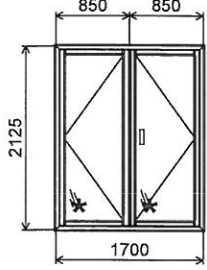
COMMENTS

1 x Comp30 2 B advised Aria RH Opposing Tongue Venting - Coloi

21		Library FRAME COLOUR : To Be Advised FAB50 (TB FRAME TYPE : WeatherTight™ WIND ZONE : High GLASS : Clear Float Glass Double Glazed WANS COMPONENTS : 55mm E13366 Support Bar HEIGHT FROM FLOOR : 1400 WALL THICKNESS : 180 SILL LINER : TRUE	FLASHING :NO Flashing TRIM SIZE : 620mm x 1220mm WEIGHT : 16.5 kg LINER : H3 Paint Quality 19mm Thick Architraved Mitre Cut	1
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COMMENTS

1 x Comp30 2 B advised Aria RH Opposing Tongue Venting - Coloi

22		Library FRAME COLOUR : To Be Advised FAB50 (TB FRAME TYPE : WeatherTight™ WIND ZONE : High GLASS : Grey Float Double Glazed WANS COMPONENTS : None OPEN : OPENOUT HEIGHT FROM FLOOR : 0 WALL THICKNESS : 180 SILL LINER : FALSE	FLASHING :NO Flashing TRIM SIZE : 2145mm x 1720mm WEIGHT : 34.7 kg LINER : H3 Paint Quality 19mm Thick Architraved Mitre Cut	1
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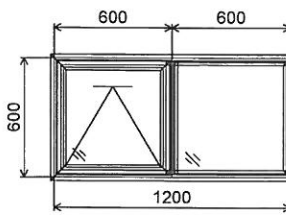
COMMENTS Tinted glass

2 x Comp30 2 B advised Interlock Surf Flush Bolt with DTip - 30 Col
 1 x Comp30 2 B advised OPT 30mm 4pt S/T K/T Aria COLOURS

Quote No. : NE-7522- Ver 4
 Quote Date: 13/08/2015
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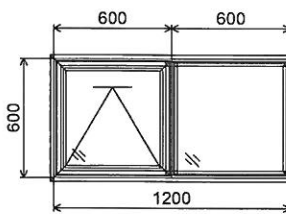
22.1 * SiteGlazing - First Floor - Up to 3.00 Sqm

1

23		Library FRAME COLOUR : To Be Advised FAB50 (TB/ FLASHING :NO Flashing FRAME TYPE : WeatherTight™ TRIM SIZE : 620mm x 1220mm WIND ZONE : High WEIGHT : 16.5 kg LINER : H3 Paint Quality 19mm Thick Architraved Mitre Cut GLASS : Clear Float Glass Double Glazed WANZ COMPONENTS : 55mm E13366 Support Bar HEIGHT FROM FLOOR : 1400 WALL THICKNESS : 180 SILL LINER : TRUE	1
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COMMENTS

1 x Comp30 2 B advised Aria RH Opposing Tongue Venting - Colou

24		Library FRAME COLOUR : To Be Advised FAB50 (TB/ FLASHING :NO Flashing FRAME TYPE : WeatherTight™ TRIM SIZE : 620mm x 1220mm WIND ZONE : High WEIGHT : 16.5 kg LINER : H3 Paint Quality 19mm Thick Architraved Mitre Cut GLASS : Clear Float Glass Double Glazed WANZ COMPONENTS : 55mm E13366 Support Bar HEIGHT FROM FLOOR : 1400 WALL THICKNESS : 180 SILL LINER : TRUE	1
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COMMENTS

1 x Comp30 2 B advised Aria RH Opposing Tongue Venting - Colou

25	Aria LH Opposing Tongue Venting - Colours	4
26	Allowance for site measure.	1
27	Allowance for site delivery.	1
28	Allowance for site glazing as per the schedule.	1
29	Allowance to install & adjust sliding panels only	1
30	Thank you for the opportunity to quote this job.	1

Quote Comments	Number of Units = 24	Nett Total :	\$20,699.73
		GST @ 15 % :	\$3,104.96
		Total :	\$23,804.68

This quotation is provided under the terms of the Construction Contracts Act 2002.

If you would like to pay by direct credit our banking details are
 GLASS AND WINDOW SOLUTIONS LTD 02-0704-0110734-00

11/09/15

SPECIFICATIONS for Concept Plan #14076
For Home of Geraint & Linda Philp
at Lot 2, 184 Hortons Road, Beulah Ridge, Tasman

FOUNDATIONS	DESCRIPTION	NOTES /COLOUR
SITE	Flat & level site assumed. A Provisional Sum \$460.00 for site scrape has been allowed for	Foundations 350mm deep & raised 225mm out
FOUNDATION TYPE	Reinforced Concrete.	
FLOOR	Mesh reinforced Concrete to ground and 20mm Strandfloor to upper floor	
VERANDAH FLOOR	No verandah or patio included	
FINISH TO FOUNDATION	Fair face concrete as poured by builder	
STEPS	None in this design	
ENGINEERS REPORT	Provisional Sum of \$2,000.00 included for a Structural Engineer	
ARCHITECT APPROVAL	Provisional Sum of \$1,500.00 for Architects sign off as required	
EXTERIOR	DESCRIPTION	NOTES
CLADDING	Mesh Reinforced Solid Plaster over 30mm Polystyrene on H3 50x25 cavity battens. Owner to select plaster style.	Fine Terylene* or Medium Terylene* choose finish.
COLOUR	Owner to select plaster colour. High-build paint system	C*
COLUMNS/PILLARS	2 Of 180x180mm Prolam laminated posts to upstairs deck as shown on plan	
GABLE & HEAD BOARD	Solid plaster gable to library as shown in plan	
ROOFING	DESCRIPTION	NOTES
ROOF TYPE	Roman tiles in Textured finish	C*
PROFILE	Barrel trim	
UNDERLAY	Heavy duty roofing underlay	
ROOF PITCH & WIND ZONE	15° & 37.5° roof pitch. Very high wind zone allowance included	
FASCIA & GUTTER	F180 Fascia system with 120 Box or Quarter Round* gutter with PVC downpipes. Select colour & gutter profile*	C*
SOFFITS	Hardieflex	C*
EXTERIOR JOINERY	DESCRIPTION	NOTES
WINDOW TYPE	17 Window Units, 2 Hinged Door units, 3 French door units & 2 Sliding Urban door units. Colour match handles on aluminium doors.	ARIA venting opposing tongue colour matched catches
FINISH / COLOUR	Powdercoat - (Standard Colours)	C*
WINDOW/DOOR LINERS	Paint grade pine window liners	C*
ARCHITRAVES	60x12mm Bevelled architraves to all doors and windows	
REBATED DOORS	All external doors rebated	
FRONT DOOR	Cedar T&G front Door Windsor 9021 satin chrome Futura Lever Entry Set	C*
CAT DOOR	Cat door to laundry door	
DOUBLE GLAZING	Included (excluding garage)	
TINT GLASS	Included from dining to bedroom 1 ensuite wall & upstairs front door.	
DRAFT COPY	*PLEASE FILL IN COLOURS	APPROVED:

11/09/15

INSULATION	DESCRIPTION	NOTES
FLOOR	Moist stop 250 micron polythene moisture barrier	
WALLS	R2.4 Pink Batts & Polystyrene (excluding garage external walls)	
CEILING	R3.6 Pink Batts (excluding garage)	
SILENCER BATTS	Silencer Batts to mid floor	
CEILING	DESCRIPTION	NOTES
GIBBOARD	13mm	
GIB FINISH / COLOUR	Paint grade - Level 4 Finish	C*
CORNICE	55mm Gib Cove with square stopped to upstairs library	
BATHROOM	13mm Aqualine Gib board	
GARAGE	None, exposed trusses	
CEILING BATTENS	Steel	
STUD HEIGHT	2.55m To dining, lounge, kitchen, exposed beams to upstairs library ceiling and 2.4m to balance of house	
INT WALLS	DESCRIPTION	NOTES/COLOURS
WALLS FRAMING	90x45 Radiata MSG8 H1.2 KD frames and trusses. Studs at 600 crs, Dwangs at 800crs and Trusses at 900 crs.	Very High Wind Zone allowance
STEEL BEAM	250UB31 Steel beam included	Note: Engineer to confirm
LINING TO HOUSE	10mm Gib board - Level 4 paint finish	C*
PONY WALL	1200mm High Pony Wall to ensuite	C*
SOFTLINE CORNERS	Not Included	
BULKHEAD	Bulkhead to kitchen back wall as shown on plan	
INT JOINERY	DESCRIPTION	NOTES
INTERIOR DOORS	Tasman interior doors with paint finish in MDF flat jambs.	C*
ARCHITRAVES	60x12mm Bevelled Architraves to all doors and windows	
CAVITY SLIDERS	Tasman cavity sliders to walk in pantry & hall linen cupboard	
CUPBOARD DOOR	Tasman single door to entry & library cupboard. Tasman double doors to laundry cupboard	Note: Doors 990mm high
WARDROBE DOORS TYPE	Tasman double doors to bedroom 2 and 3 wardrobes	
PANEL SLIDING DOORS	None in this design	
WARDROBE FITTINGS	Standard Wire Shelf & Rail system in each wardrobe	
CUPBOARD SHELVING	4 MDF Shelves in hall linen cupboard & library cupboard	
SKIRTING	90x12mm Bevelled MDF with Pine in 'wet' areas	C*
STAIRS	MDF Stairs as per plan with paint grade pine hand rail	C*
KITCHEN JOINERY	DESCRIPTION	NOTES
KITCHEN QUOTED	\$15,899.00 Joinery, Benchtops & Installation. Excluding appliances.	Orange Joinery Ltd Nayland Rd Stoke
The above figure has been allowed for in the price, but you will be charged for what you order. The following is an indication of what you could expect for the above figure.		
CUPBOARD DOORS/ COLOUR	16mm Melteca or Melamine (Standard Colours) including fridge space and 'seen' panels facing dining area.	C*
HANDLE TYPE	Variety of handles to choose from - consult Joiner	C*
EDGE TAPE	2mm PVC Edge tape	
CABINET	White Melamine Inside	
BENCH TOP	30mm thick "Black Pearl" Granite bench top	C*
STEEL DRAWER RUNNERS	Hettich Multitech Steel Sided with soft close attachments to cutlery drawer bank only	
DISHWASHER SPACE	Yes.	
SINK & DRAINER	Franke Pacifica stainless 1 1/2 Bowl & Drainer.	
	Kitchen continued onto next page.....	
DRAFT COPY	*PLEASE FILL IN COLOURS	APPROVED:

11/09/15

	Kitchen continued from previous page.....	
SINK FAUCET TAP	Kohler sink mixer	C* July Or Viteo
RANGEHOOD	Yes- ducted and fitted	
CUTLERY DRAWER UNIT	450mm Cutlery drawer unit	
OVEN TOWER	600mm Oven tower unit with drawer below, microwave & cupboard above	
WALK IN PANTRY	Walk in pantry with 2 shelves below and 3 above a 37mm Laminate top, pantry top units to 2100mm high	
TALL UNITS	Tall units 2400mm high with NO cornice up to bulkhead	
CUPBOARD ABOVE FRIDGE SPACE	750mm Cupboard above fridge space	*Note Owner to confirm fridge size with joiner
BASE UNIT	545mm Base unit	
TWIN BIN UNIT	400mm Twin bin unit	
POT DRAWER UNITS	2 of 722mm Pot drawer units	
BATHROOM	DESCRIPTION	
CONSULTATION	Free 1 hour consultation is included. Contact Andrea at 'Mico's' for this service.	
VANITY	Boston Floor Standing Vanity	C* Charred Oak, Driftwood or White
VANITY DESCRIPTION	900mm with 2 Drawers	
VANITY TOP	Vitreous China	White
BASIN MIXER	Kohler Basin Mixer	C* July or Viteo
BATH	Sorrento II 1670 Bath	White
BATH MIXER	Kohler Bath Mixer	C* July or Viteo
BATH SPOUT	Broadway 185mm bath spout	
SHOWER	Englefield Valencia –Angle corner model with 2 glass sides & a glass door	White
SHOWER FRAME/LINING COLOUR	1000 x 1000 Moulded shower tray	White
SHOWER MODEL	Angle corner model with easy clean trap & contour wall. * Select corner or side contour wall.	*C
SHOWER DOOR MOVEMENT	Pivot door-safety glass with chrome handle	
SHOWER SLIDE	Methven FU2011 Satinjet Shower Slide	Chrome
SHOWER MIXER	Kohler Shower Mixer	C* July or Viteo
LAUNDRY	DESCRIPTION	NOTES
BUILT IN UNIT	Custom made 37mm round edged Laminate benchtop with a single bowl 900x900mm Melteca corner base unit, 400mm base unit, 800mm sink unit, 600mm dryer space & 600mm washing machine space	Orange Joinery quote 14/08/2014 \$2,879.00
SINK MIXER	Kohler sink mixer	C* July or Viteo
TOILET	DESCRIPTION	NOTES
TOILET	Caroma Stylus Alto back to wall toilet with soft close seat	White
BASIN	Evo wall Basin & chrome bottle trap	
BASIN MIXER	Kohler basin mixer	C* July or Viteo
ENSUITE	DESCRIPTION	NOTES
VANITY	Boston Floor Standing Vanity	C* Charred Oak, Driftwood or White
VANITY DESCRIPTION	1200mm with 2 drawers	
VANITY TOP	Vitreous China	White
BASIN MIXER	Kohler Basin Mixer	C* July or Viteo
SHOWER	Custom made 1800x1000mm Tile Shower with 3 shower walls	See Page 6 for Tiling By Hubbers Flooring
FIXED GLASS WALL	10mm Clear Toughened Glass 2000x1000mm fixed glass wall with a 2000x150mm return	
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TOILET	Caroma Stylus Alto back to wall toilet with soft close seat	White
SHOWER WASTE	TK100SC Tile shower waste	Chrome
SHOWER SLIDE	Methven FU2011 Satinjet Shower Slide	Chrome
SHOWER MIXER	Kohler Shower Mixer	C* July or Viteo
PLUMBING	DESCRIPTION	NOTES/COLOUR
WATER SUPPLY TYPE	See below	
APPROX DISTANCE WATER SUPPLY	20m allowed in quotation	
WATER CONNECTION	20mm	
HOT WATER CYLINDER SIZE	300L HWC	
HWC TYPE	Electric mains pressure, solar ready cylinder	
HWC POSITION	Under stairs	
GUTTERING TYPE	Colour steel Gutter/Fascia	
DOWNPIPES	PVC Round	C*
DISHWASHER PLUMBING	Yes	
SINK	One & 1/2 Bowl & Drainer	
EXTERIOR TAPS	3 as per plan	
INTERIOR PIPE WORK	Polybutylene pipework	
WATER PUMP & UV FILTER	UV filter system & pump supply & installation included	By Plumbing Services
TOTAL TOILETS	2	
DRAINAGE	DESCRIPTION	NOTES
SEWER/STORMWATER/ SEPTIC/TRENCHING & WATER TANKS	Included within Provisional Sum \$40,629.00 for 130m of sewer & stormwater drains for the house, 2 x 25,000L buried concrete water tanks with 100mm firefighting cam locks to each tank, 1 x Hynds lifestyle 2000 air rated septic tank with 400 metres of drip line for the irrigation fields & a rock swale for water run off	*Note: Tanks may need to be installed prior to slab being poured depending on site position
BACK-FILLING	Drains back-filled with on-site material only.	
SEPTIC DESIGN	Provisional Sum \$1,500.00 for Septic design	
CONNECTION FEES	Water or drainage connection fees not included.	If applicable – payable by Owner
HEATING	DESCRIPTION	NOTES
FREESTANDING FIRE	Woodsman Aspen 3055 wood burner including heat saver Flue kit and heat shield, 2 nd storey penetration kit, galvanised casing 250x1200mm extensions and stainless steel flue 150x1200mm extensions	By Placemakers
HEAT PUMP	Fujitsu ASTG22 LVCB Hi Wall Heat pump with a heating capacity of 7.2kw and cooling capacity of 6.3kw including installation and base unit	By Placemakers
APPLIANCES	DESCRIPTION	NOTES
COOK TOP	Smeg SI5643B 60cm induction cook top	Stainless Steel Surround
OVEN	Smeg SA579X 60cm 9 function single oven	Stainless Steel
RANGEHOOD	Classique CLRH90LEDSS 90cm Canopy Rangehood with ducting to exterior.	Stainless Steel
DISHWASHER TYPE	Smeg DWA214X Freestanding dishwasher	Stainless Steel
WASTE DISPOSAL	Not Included	
PAINTING & DECORATING	DESCRIPTION	NOTES
DECORATOR	Quotation allows for White Based paint selections and up to four colours on the interior.	DULUX OR RESENE
WALLS	Dulux Wash & Wear 101	
CEILINGS	Dulux flat ceiling paint	
DOORS, REVEALS, SKIRTINGS & SILLS	Dulux Enamel paint finish	
EXTERIOR PAINTING	High-build paint system with weatherproof warranties included for Solid Plaster, soffits & downpipes	
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ELECTRICAL	DESCRIPTION	NOTES/COLOUR
TOTAL LIGHTS	62	
DOWN LIGHTS	35 Of IC Rated 12W LED Downlights	White
UNDER STAIR BULKHEAD LIGHTS	2 Bulkhead Fittings in under stair cupboards	
BULKHEAD LIGHTS	3 Outside Bulkhead Fittings (AL512)	
BATON HOLDERS	2 Baton holders & shades in garage	
UP/DOWN LIGHTS	5 Stainless Steel Up/Down exterior lights	
HANGING LIGHTS	3 Hanging lights over kitchen island & 2 Hanging lights to library at \$100.00 + GST each	
FEATURE LIGHTS	2 Feature lights to entry & dining at \$100.00 + GST each	
VANITY LIGHT	1 Vanity light at \$100.00 + GST to ensuite	
CIRCULAR FLURO LIGHT	2 Circular Fluro lights to pantry & library Cupboards	
MODELLA FLURO	1 Modella Fluro to walk in robe	
2- WAY SWITCHING CIRCUITS	7 Of 2-way switch circuits	
3- WAY SWITCHING CIRCUITS	1 Of 2-way switch circuits	
DOUBLE PLUGS	26	
SINGLE PLUGS	6 (Mainly for appliances in kitchen)	
MAINS CABLE	60m Of 2/16mm N/S Mains cable	
SWITCH/PLUG FACE PLATES	White	
TV PLUGS	5 Outlets. Aerial not included	
NEAT HEAT LIGHT & FAN	1 To bathroom	
BATHROOM HEATER	1 Bathroom fan heater to ensuite	
EXTRACTION FANS	2 Ducted extraction fans to laundry & ensuite	
HEATED TOWEL RAILS	2	
WIRING FOR GARAGE	Included	
NO. TELEPHONE OUTLETS	3 (1 Outlet is for Sky TV)	
SMOKE ALARMS	3 Battery powered domestic smoke alarms	
COMPLIANCE/CONNECTION FEES	Included	
AUTO GARAGE DOOR OPENER	Included	
FIBRE SUB- DIVISION	Not included	
WATER PUMP POINT	Included to 20m from house	
SEPTIC FEED	Included to 15m from house	
ELECTRICAL MAINS	DESCRIPTION	NOTES
POWER MAINS DISTANCE	Approximately 60m 2/16mm N/S mains cable allowed for	
UNDERGROUND	Yes (trenching included in drainage Provisional Sum)	
METER BOX	Galvanised steel meter box- painted	
SWITCH BOARD	Circuit Breakers	
ELECTRICAL MAINS CONNECTION	Included	
TEMPORARY POWER SUPPLY	Included	
TELEPHONE CABLE/WIRE	Builder to arrange laying of cable and trenching, plus interior wiring for phones.	Final connection arranged and paid for by Owner .
FINISHING TOUCHES	DESCRIPTION	NOTES/COLOUR
CAVITY HANDLES	'Windsor' Circular cavity locks	
DOOR STOPS	Miles Nelson 701SC door stops included	Satin Chrome
TOILET ROLL HOLDERS	Yes 2 of Cosmo toilet roll holders	Chrome
HAND TOWEL HOLDER	Yes 1 of Cosmo Hand towel holder to toilet	Chrome
TOWEL RAILS	Yes – 2 of 7 Bar Ladder Heated Towel Rails by Electrician	Chrome
MIRRORS OVER VANITIES	Yes – 1 of 1200x1000mm to the ensuite, 1 of 900x1100mm to the bathroom & 1 of 500x1100mm to the toilet, frameless polished edge mirrors	
	Finishing Touches continued onto next page.....	
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	...Finishing touches continued from previous page	
HOME INTERIOR CLEAN	Yes, full interior clean prior to hand over including the interior and exterior of the windows	
GLASS SPLASHBACK	750x1400mm Low iron toughened glass splashback to kitchen back wall	C*
CHATTEL PACK	DESCRIPTION	NOTES
COLOUR CONSULTATION	Free 2 hour colour consultation is included. Contact 'Hubbers Flooring' for this service.	NOTE: Colour Consultation is only included when chattels are purchased from Hubbers Flooring
DRAPES	Window dressings for house per plan as quoted by Hubbers 10/09/15 quote #82126	'Hubbers Flooring' Sum \$12,468.00 included
CARPET	'Costa Bella' carpet to dining, lounge, 3 bedrooms, wardrobes, stairway, upstairs library and hall including linen cupboards all on extra heavy duty underlay	'Hubbers Flooring' Sum \$9,100.00 included
VINYL PLANKS	'Expona' vinyl planks flat laid to kitchen, pantry, laundry, under stairs cupboard, bathroom and toilet all included with diamond grinding	'Hubbers Flooring' Sum \$2,950.00 included
TILES	'450x450mm' Tiles to shower ensuite floor including three walls to 2000H with 100mm coving to balance of ensuite floor. '450x450mm' Tiles flat laid to entrance all tiling including diamond grinding. '450x450mm' Tiles flat laid to a 1mx1m raised hearth including trim	'Hubbers Flooring' Sum \$6,545.00 included
	NB: Hubbers Flooring guarantees the installation of your carpet and vinyl for the life of the product; exceptions being floor movement and deterioration though water damage. All tile installations are also guaranteed for 5 years, exception being floor movement.	
GARAGE	DESCRIPTION	NOTES
GARAGE LENGTH	As per plan	
GARAGE WIDTH	As per plan	
GARAGE FLOOR FINISH	Construction Surface	
GARAGE WALL LINING	Gib board	
GARAGE CEILING LINING	None. Exposed trusses	
GARAGE DECORATED	Yes	C*
GARAGE DOOR / COLOUR	4800mm Defender Ribline, Flatline or Colonial* Insulated Sectional Garage Door(Standard Colour Range)	C* *Select Profile
EXTRAS	OWNER TO SPECIFY	
LANDSCAPING	Not included. Spoil stockpiled on site for owner to spread or dispose of.	
SCAFFOLDING	Included	
DRIVEWAY	97.07m2 New gravel over new hardfill and 76.92m2 New gravel over existing hardfill	
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NOTES		
“Provisional Sum” – refers to an amount that is an estimate for particular works where the extent of those works has not yet been specified and/or there is still an unknown factor in respect of the works. This sum has been included in the price of the house and includes GST. When the work is completed and we have the full cost, an account for any shortfall will be issued or a credit raised for any surplus to the “Provisional Sum” allowance that has been included in the quotation.		
FIXED PRICE CONTRACT	Quotation is valid for 20 days if signed in accordance with our standard Building Agreement and that no Variations are made prior to completion.	
PLANS DRAWING FEES	Included to Building Consent stage.	
BUILDING CONSENT FEE	Included. PLEASE NOTE Resource Consents, Development Levies or one-off connection fees are NOT included.	
CONSTRUCTION INSURANCE	House under construction fully insured until completion by builder.	NB Materials supplied by Owner may not be covered by our Insurer
GUARANTEE	The home includes a 10 year Certified Builders Guarantee	12 Month maintenance period follow completion
QUALITY JOB MANAGEMENT	Orange Residential Homes Ltd has a full-time Project Manager to liase with & ensure the building of your home is an easy and enjoyable experience.	
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KOPINE® HIGH DENSITY PARTICLEBOARD

UltraLock FLOORING

SPECIFICATION &
INSTALLATION GUIDE

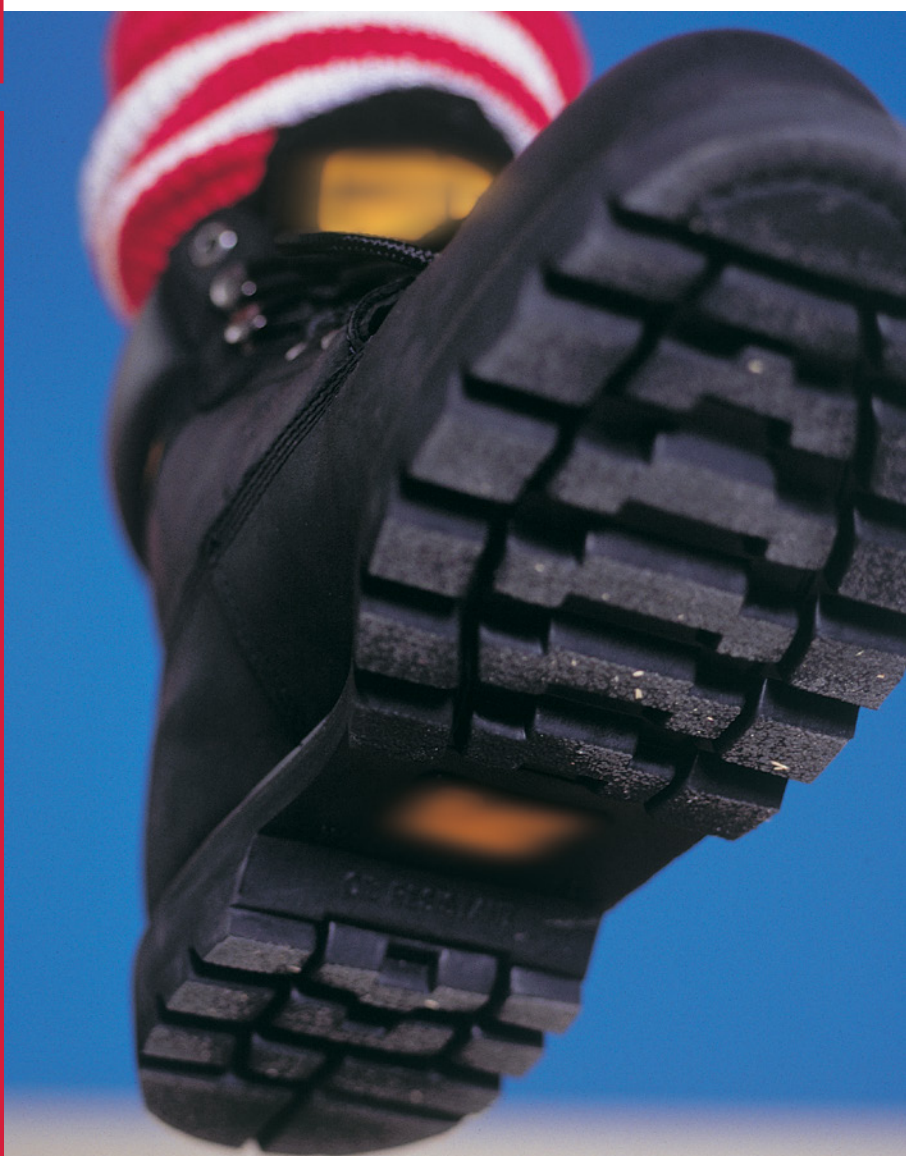
MAY 2014

**KOPINE® HIGH DENSITY
PARTICLEBOARD**

UltraLock FLOORING

Contents

1.0	Kopine® UltraLock Flooring System.....	3
1.1	Technical Information.....	4
1.2	Product Description and Range.....	4
1.3	Kopine UltraLock Flooring Method.....	5
1.4	Building Materials for use with Kopine UltraLock.....	5
1.5	Sustainability.....	5
2.0	Design Considerations	6
2.1	Design Responsibility	6
2.2	Ground Clearance.....	6
2.3	Heavy Loadings.....	6
2.4	Floor Frame Spacings.....	6
2.5	Expansion Gaps.....	6
2.6	Large Floor Areas	7
2.7	Floor Diaphragms	7
2.8	Ventilation.....	7
2.9	Underside Coating.....	8
2.10	Insulating with Foil.....	8
2.11	Surfacing for Wet Areas.....	8
2.12	Spread of Fire.....	8
2.13	Heat and Fire Safety.....	8
2.14	Floor Heating Systems.....	8
2.15	Insects – Fungus	8
2.16	Structure.....	9
2.17	Durability	9
2.18	Health and Safety	9
2.19	Storage and Handling.....	9
2.20	Limitations	9
3.0	Installation	10
3.1	Sheet Layout.....	10
3.2	Glue Application	10
3.3	Laying the First Row.....	10
3.4	Laying Further Rows	10
3.5	Fixing.....	11
3.6	Adhesive Fastening	12
3.7	Clear Finishing Preparation	12
4.0	Finishing.....	13
4.1	Clear Finishing	13
4.2	Glue Fixed Floor Coverings	13
5.0	Maintenance	14



1.0 KOPINE® ULTRALOCK FLOORING SYSTEM

The Kopine® Ultralock flooring system is a unique approach to wood panel floors which results in a strong, quiet, floor that is cost effective, performs well and is easy and safe to lay. The patented system uses glue to fix the panel edges which bonds the panels together to form a continuous flooring membrane. The adhesive, which is supplied with the panel (and included in the price) eliminates the need for nogs or intermediate fixings, saving time and money. The glue also provides an effective seal against the ingress of moisture into the joints to significantly reduce the chance of edge peaking that requires additional sanding.

Kopine Ultralock flooring products meets class 2 and are tested to AS/NZS 1860, but with panel square tolerance within 1 mm per metre.



Stronger

Ultralock flooring joints have superior shear strength to traditional tongue and groove joints.



Squeaks Less

With Ultralock's patented glue joint the risk of a squeaking floor is substantially reduced.



Water Resistant Joints

The fully glued joint significantly reduces the risk of edge peaking.



No Nogs/Dwangs

Save time and money with the ability to bypass the need for nogs or dwangs.



Easy and Safe

The small sheet sizes (3600/2400 x 1200 mm) make the floor easy and safe to lay.

The information contained in this manual relates to specific Kopine® branded particleboard products manufactured by Carter Holt Harvey® Woodproducts and cannot be relied upon when using other particleboard products however similar they appear.

Alternative particleboard products can differ in a number of ways which may not be immediately obvious and substituting them for Kopine products is not appropriate and may in extreme cases lead to premature failure and/or buildings which do not meet the requirements of the New Zealand Building Code.

1.1 TECHNICAL INFORMATION

Kopine® is a registered trade mark owned by Carter Holt Harvey® Limited trading as CHH Woodproducts New Zealand

This guide contains important information on the installation and maintenance of the Kopine Ultralock Flooring System.

The information contained in this guide is current as at May 2014 and replaces all previous publications relating to the Kopine Ultralock flooring system.

Carter Holt Harvey reserves the right to revise this brochure without any notice.

Carter Holt Harvey has used its reasonable endeavours to ensure the accuracy and reliability of the information contained in this brochure, and to the extent permitted by law, will not be liable for any inaccuracies, omissions or errors in this information nor for any actions taken in reliance on this information.

When specifying or installing the Kopine Ultralock flooring system visit www.chhwoodproducts.co.nz or call 0800 326 759 to ensure you have the current specification material.

1.2 PRODUCT DESCRIPTION AND RANGE

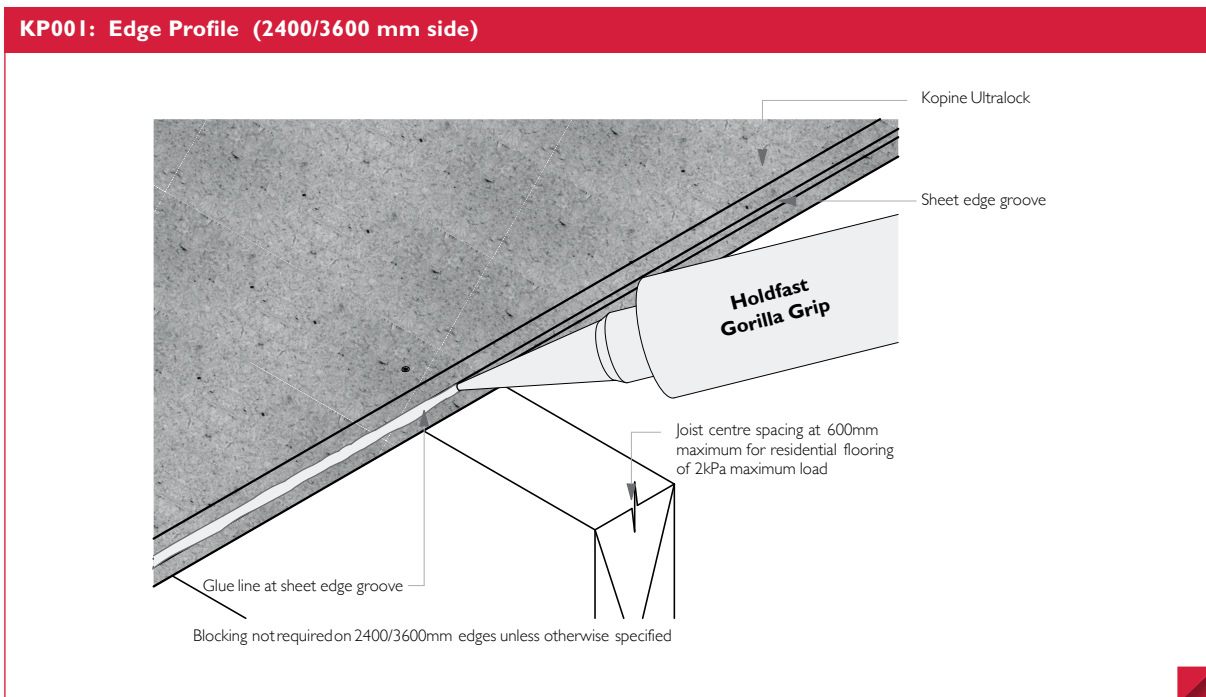
Kopine Ultralock panels are reconstituted wood panels manufactured by bonding pine wood particles with a melamine urea formaldehyde resin using a combination of heat and pressure.

TABLE 1: KOPINE® ULTRALOCK PARTICLEBOARD FLOORING PROPERTIES

Dimensions		
Size (mm)	2400 x 1200	3600 x 1200
Nominal Thickness (mm)	20 mm	20 mm
Sheets per pack	50	20
Sheet weight (kg)	41	61
Tolerances		
Board squareness	Length of sheet diagonals does not differ more than 1.5 mm	
Thickness	+/- 0.4 mm	
Length and width	+/- 1.5 mm	
Sheet edges	2.0 mm max. deviation from line	
Physical properties		
Density	> 670 kg/m ³	
Internal bond ¹	> 500 kPa	
Modulus of rupture ¹	> 17 MPa	
Modulus of elasticity ¹	> 2650 MPa	
Moisture content (at dispatch)	5 – 13 %	
Surface water absorption ¹	< 210 g/m ²	
Thickness swell (24 hour soak) ¹	< 14 %	
Extractable formaldehyde	EI:≤1.5 mg/L when tested in accordance with AS/NZS 4266.16.	
Surface	Upper surface is sanded, underside is sanded	
Thermal insulation	R = 0.13 m ² C/W	

1. Physical properties based on lower 5th percentile values in relation to particleboard flooring panels when tested internally (based on the procedures stated in AS/ NZS 4266)

1.3 KOPINE® ULTRALOCK FLOORING METHOD



1.4 BUILDING MATERIALS FOR USE WITH KOPINE® ULTRALOCK

Holdfast Gorilla Grip Express Adhesive

Holdfast Gorilla Grip Express, supplied by Holdfast, is a fast curing, one component, polyurethane based adhesive with high bond strength. It bonds deeply into the panel fibres, even on damp surfaces. Holdfast Gorilla Grip Express cures to a transparent glue line and gives added protection against moisture penetration into the joint significantly decreasing the risk of edge swell or peaking. The glue is temperature resistant to 100°C. For more information contact Holdfast Manufacturing on 0800 701 080.

Construction adhesives are supplied in 310 ml cartridges and will fit any standard glue gun.

Cartridges are included as part of the Kopine® Ultralock flooring system.

Joists

The choice of joists will play a part in determining the performance

of the flooring system. Moisture content of the joists must be less than 18%. It is highly recommended that joists be either Machine Stress Graded, high temperature kiln dried timber such as Laserframe, OR where longer spans and higher performance is required, use hyJOIST® or hySPAN® from the Futurebuild® range of products.

Note: The Kopine Ultralock flooring system provides maximum performance using the specified components only combined with the installation instructions detailed in this guide. Substitute components have not been tested and may not perform to the same standard and are not recommended.

Glue Application

When applying glue to sheet edge joints sufficient glue must be applied so glue squeezes out of the joints, top and bottom, as the panels are pushed together.

1.5 SUSTAINABILITY

Kopine Ultralock is manufactured from radiata pine. It is grown on tree farms managed on a sustainable basis.

New Zealand plantations are managed in compliance with the New Zealand Forest Accord.

2.0 DESIGN CONSIDERATIONS

2.1 DESIGN RESPONSIBILITY

The specifier for the project must ensure that the details in the specification are appropriate for the intended application and that

additional detailing is provided for specific design or any areas that fall outside the scope and specifications of this literature.

2.2 GROUND CLEARANCE

A minimum clearance of 550 mm must be provided between the underside of the flooring and the surface of the ground.

Refer NZS 3604:2011. Inspection access is also required.

2.3 HEAVY LOADINGS

For concentrated loads over 180 kg or uniformly distributed loads over 200 kg/m², a structural engineer should be consulted.

2.4 FLOOR FRAME SPACINGS

Kopine® Ultralock particle board flooring is suitable for residential flooring applications with a maximum frame spacing of 600 mm for a maximum 1.8 kN live load.

Live loads above 2.0 kPa / 1.8 kN are required to be specific designed using Kopine Ultralock flooring properties as per table 1

of this literature.

For greater strength and stiffness consider a frame spacing of 400 mm centres or 450 mm centres where 3600 x 1200 mm sheets are used.

2.5 EXPANSION GAPS

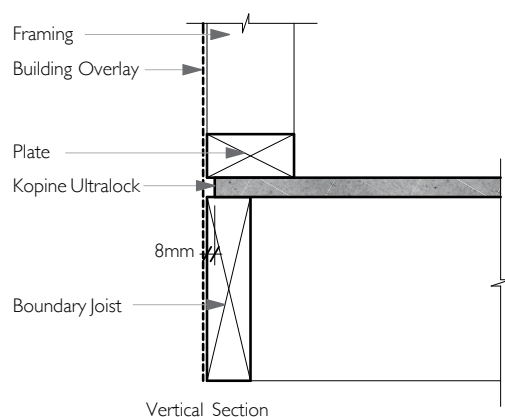
Regardless of the size of the floor, an 8 mm expansion gap must be provided between the panel edges and any fixed elements e.g. masonry walls, bottom plates etc. This is important to allow for any linear expansion and applies whether pre or post laying.

Where the effects of expansion in the flooring may be critical with

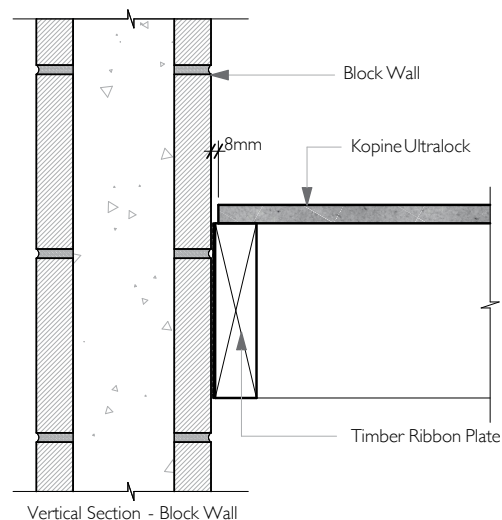
respect to achieving the desired floor or wall finishes, then it is recommended that expansion joints be incorporated into the design.

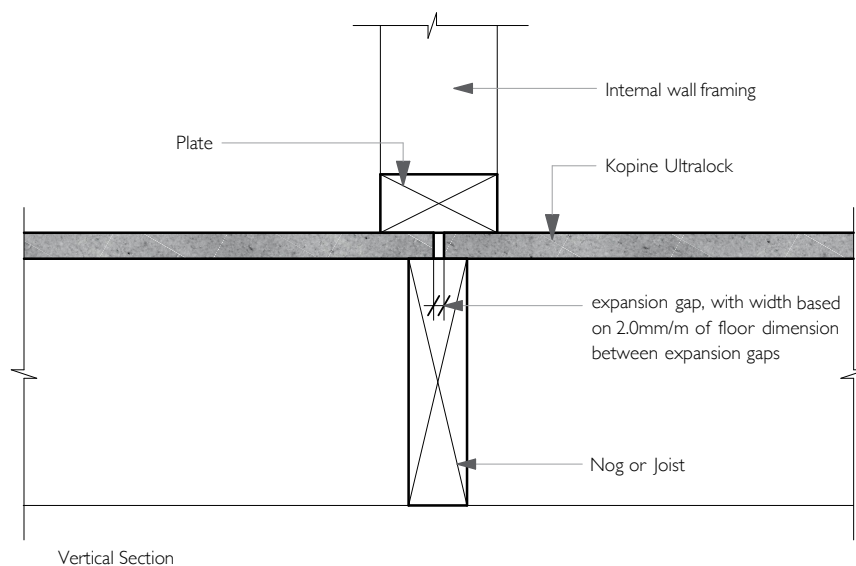
Allow expansion of 2.0 mm/m of floor dimension utilising the details given under 'Large Floor Areas' section.

KP002: Expansion Gap at Exterior Wall



KP003: Expansion Gap at Exterior Block Wall



KP004: Expansion Gap at Internal Wall

2.6 LARGE FLOOR AREAS

As with all wood products, particleboard floors will expand and contract with changes in moisture content of the panels. For large floor areas provision **must** be made for expansion of the panels in addition to the perimeter gaps.

It is recommended that expansion joints should be designed into the floor at a minimum of 20 mm per 10 metre of floor at a maximum of 10 metre spacings or smaller gaps with closer spacing to give an equivalent space.

Where floors are laid in wet conditions, consideration should be given to decreasing the distance between expansion joints.

To lay the floor, the following procedure should be followed:

- Commence from the centre of the building from a straight square line and lay the floor out in a staggered brick like pattern as described under "Installation"
- Where expansion gaps are required on solid 45 mm thick joists they shall be placed over double joist or nog – i.e. if required on the short edge of the panel, a double joist; if

required on the long edge of the panel, fix a row of nogs

- Where expansion gaps are required on 63 mm or 90 mm hyJOIST floor joists, additional joists are not required
- Close the building in as soon as practicable (within 8 weeks) without filling expansion gaps, and allow sufficient time for the floor to dry out and become conditioned. During the exposure period, clear any surface water quickly – do not allow it to pond. Bottom plates should be removed from doorways to assist water removal
- Protect from extreme weather during the close in process (8 week period)
- After drying out, fill the expansion gap with a strip of Kopine® particleboard flooring from the same batch. Glue edges with Gorilla Grip Adhesive and screw fix to joist or nogs/dwangs

Kopine Ultralock panels are designed to be laid across joists and glued together at the edges. This continuous glue bond eliminates the need for further edge support such as timber nogging. All end joints (short edges) must be made over a joist and glued.

2.7 FLOOR DIAPHRAGMS

Kopine Ultralock is suitable for use as a floor diaphragm within the scope of NZS 3604.

2.8 VENTILATION

Cross-flow ventilation must comply with NZS 3604 6.14 Prevention of Dampness.

Ventilation openings must be evenly distributed around the entire perimeter – in the foundation and/or substructure walling.

A ground cover vapour barrier must be installed in sub-floor areas where:

- The ground will be permanently or seasonally damp
- The airflow is obstructed by party walls, internal foundation walls or attached terraces
- Points on the ground are greater than 7.5 metres from a ventilation opening

Refer to NZS 3604 – 6.14.3

2.9 UNDERSIDE COATING

The underside of Kopine® Ultralock panels facing the ground must not be coated with any form of sealant and only perforated foil or other approved product is to be used as insulation. This allows the sheet to breathe.

2.10 INSULATING WITH FOIL

Under floor insulation must meet the requirements of clause H1 of the New Zealand Building Code.

If foil is used and you intend glue fixing to the joists, the foil will need to be cut to allow daubs of glue to be applied.

2.11 SURFACING FOR WET AREAS

In water-serviced areas such as laundries, bathrooms, toilets and showers the floor must be covered with a moisture-impervious membrane, coved at the walls, extending under toilet pans.

Vinyl tiles, carpet or clear coatings must not be used in these areas. Refer Acceptable Solution E3/AS1.

2.12 SPREAD OF FIRE

Kopine Ultralock can be used where the NZ Building Code requires no specific fire protection criteria.

2.13 HEAT AND FIRE SAFETY

The floor must be protected from heat sources such as free-standing heaters, space heaters, hot air ducts and pipes containing hot water or steam. Floor temperature must not be allowed to exceed 35°C for prolonged periods. NZ Building Code C1.3.2 specifies how the floor must be separated from

fireplaces, flues, chimneys and fuel burning appliances. Consult appliance manufacturers to determine minimum clearances which will ensure the floor does not exceed 50°C for short periods or 35°C for longer.

2.14 FLOOR HEATING SYSTEMS

Over Floor Heating Systems

Over floor heating e.g. under carpet or tiles, may be used with Kopine Ultralock, provided the floor surface temperature does not exceed 35°C. Care must be taken to ensure that the floor temperature is normally maintained at or less than the recommended long-term maximum of 35°C. In these applications, care must be taken to ensure that flooring is laid over dry framing and is well protected from the weather until the building is closed in. Laying of the flooring after close

in is recommended. Any failure of the heating system is the responsibility of the floor heating system manufacturer.

Under Floor Heating Systems

Under NO CIRCUMSTANCES should any floor heating system be attached to the underside of the Kopine Ultralock or be attached or placed between joists or any cavities of the floor framing.

2.15 INSECTS – FUNGUS

The risk of damage from insects such as borer or termites is very low. For best results ensure the moisture content does

not exceed 18% for prolonged periods and install in accordance with the ventilation requirements of NZS 3604.

2.16 STRUCTURE

Kopine® Ultralock is manufactured to AS/NZS 1860 and as such complies with B1 of NZ Building Code. The long-term

performance of the floor depends almost entirely on the dryness and flatness of the subfloor and the standard of fixing.

2.17 DURABILITY

When used in accordance with the instructions and recommendations in this guide and in accordance with

NZS 3602, Kopine Ultralock will meet the durability performance requirements of NZ Building Code.

2.18 HEALTH & SAFETY

Kopine Ultralock should be handled as per the Particle Board Material Safety Data Sheet (MSDS) downloadable from www.chhwoodproducts.co.nz

Storage and work areas should be well ventilated and dust cleared regularly by vacuum or wet sweeping methods.

If skin irritation occurs, wear long-sleeved shirts, trousers and comfortable work gloves.

For respiratory protection, wear dust masks which comply

with AS/NZS 1715 and AS/NZS 1716, EN 143:2000 and EN 149:2001, ANSI 288 or national equivalent.

For eye protection wear safety glasses which comply with AS/NZS 1337.

Holdfast Gorilla Grip Express Adhesive: Observe normal industrial hygiene measures and for further information refer to MSDS sheet available from Holdfast Manufacturing, 0800 701 080.

2.19 STORAGE & HANDLING

Kopine® Ultralock:

- May be exposed to weathering for up to 8 weeks during the construction process. It must not be exposed for longer periods and should be protected from extreme weather during construction
- Must not be installed over timber supports with moisture content over 18%
- Is not suitable for use as a substrate for roofing or decking membranes
- Interior surfaces must be sealed with polyurethane or covered with carpet or sheet vinyl prior to occupation of the building
- Joints must be supported by nogs/dwangs beneath concentrated loads

Before Installation

Protect the panels from weather and keep dry before laying. Store the pack clear of the ground on level bearers.

A breather-type cover must be supported clear of the panel surface allowing air to circulate freely around the pack.

Handling

- Use gloves when handling product to avoid splinters

After Installation

Kopine Ultralock may be exposed to weather for up to 8 weeks. For best results keep exposure to a minimum.

Clear surface water from the floor quickly – do not allow it to pond. Remove the bottom plate from doorways to make clearing easier.

To allow moisture to evaporate freely, do not apply sealers, tape or other impervious sheet materials to a pre-laid floor while it is exposed.

Dimensional changes of up to 0.2% in sheet length and width may occur in response to humidity changes.

2.20 LIMITATIONS

The information contained in this document is current as at May 2014 and is based on data available to CHH Woodproducts at the time of going to print. All photographic images are intended to provide a general impression only and should not be relied upon as an accurate example of Kopine Ultralock installed in accordance with this document or NZ Building Code compliance documents.

This publication replaces all previous CHH Woodproducts design information and literature relating to Kopine Ultralock panel installation. CHH Woodproducts reserves the right to change the information contained in this document without prior notice.

It is important that you visit www.chhwoodproducts.co.nz or call 0800 326 759 to confirm that you have the most up to date information available. CHH Woodproducts has used all reasonable endeavours to ensure the accuracy and reliability of the information contained in this document. To the extent permitted by law, Carter Holt Harvey® and its employees are not liable for any inaccuracies, omissions or errors including due to negligence in this information nor for any actions or emission taken in reliance on this information.

3.0 INSTALLATION

3.1 SHEET LAYOUT

Joists should be at no more than 600 mm centres. For greater strength and stiffness, set joists at 400 mm centres for 2400 mm length or 450 mm centres for 3600 mm length sheets.

All panel edges must be square and free from dirt, grease and standing water.

Lay sheets in a staggered, brick-like pattern with panels at right angles to joists.

Sheets must be continuous over at least two spaces (three framing members).

For panels at floor edges where a continuous span coverage is not possible, sheet edges must be supported by blocking.

3.2 GLUE APPLICATION

Holdfast Gorilla Grip Express is the only tested adhesive recommended for use with the Kopine® Ultralock flooring system and is supplied with the product.

Wet conditions

Holdfast Gorilla Grip Express adhesive can be successfully applied in wet weather and temperatures down to 5°C although best results are achieved in dry conditions over 10°C. Ensure panel edges are free of surface water. Ensure that water is not ponding over the glue line until the adhesive has formed a skin.

The glue bead should be applied in a continuous run of at least 5 mm diameter.

Glue is required to be applied to all edges of the panel.

The glue bead size is right when glue squeezes out of the joint, top and bottom, as the panels are pushed together.

Fix panels within 15 minutes of glue being applied. If glued panels are moved apart after 15 minutes, fresh glue must be applied before the joint is made again.

Panel movement during the curing of the adhesive will affect the glue bond. Keep traffic off the joints for a minimum 2 hours particularly if joists are at 600 mm centres or in cold climatic conditions. If traffic over panels is essential during the glue curing process, travel over joists only or lay planks across the floor.

3.3 LAYING THE FIRST ROW

Establish a straight, square line from one corner of the floor. Lay the first panel down this line, across the joists. Fix to joists as per fixing spacings in section 3.5 Fixing. Apply a generous glue bead to the short edge of the fixed panel. Push the next

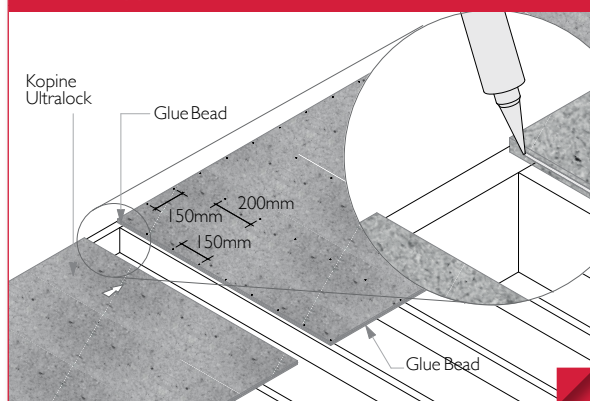
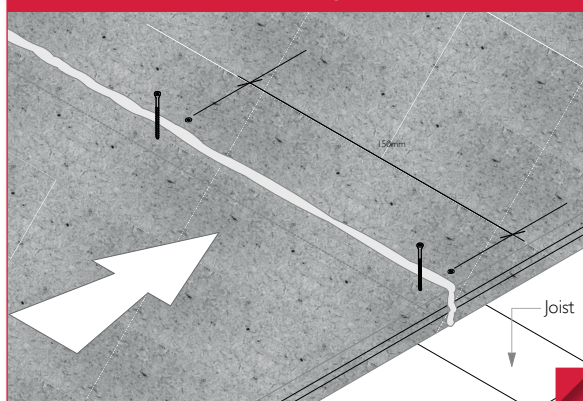
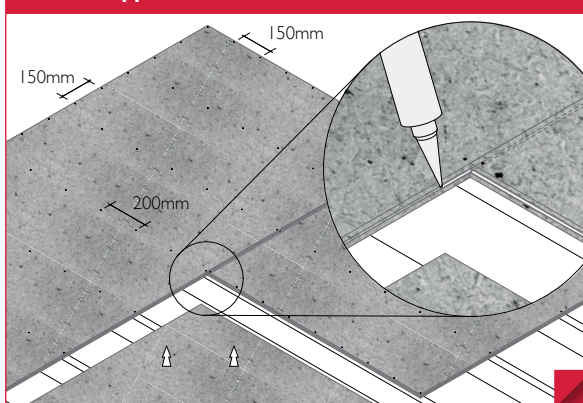
panel into position and nail lightly to ensure mating edges are flat. Lever the panel up tight to squeeze out glue until the joint is completely closed. Screw the panel down. Remove light nailing. Clean off excess glue.

3.4 LAYING FURTHER ROWS

Apply a generous glue bead to mating edges of fixed panels as per details on page 11.

Place the panels so the "this side to joists" stamp faces down.

Allow for a linear expansion gap at a minimum of 8 mm between the edge of the floor panel and any fixed components.

KP005: Application First Row**KP006: Application Glue Fixing****KP007: Application Glue Removal****KP008: Application Further Rows**

3.5 FIXING

The long-term performance of the floor depends almost entirely on the dryness and flatness of the subfloor and the standard of fixing.

Correct fixing achieves a tight, permanent joint between the panels and joists – after the joists have finished drying and shrinking.

We recommend adhesive fastening to the joists with Holdfast Gorilla Nail Power in addition to your preferred fixing method from the options below. Power-driven staples must not be used.

- Nails or screws should be spaced at 150 mm centres along the short edge of the sheets and around the perimeter of the entire floor, and at 200 mm centres along intermediate joists
- Fixings must be a minimum of 10 mm from the panel edge
- While all the specified fixing methods are approved, screw fastening will provide the best result
- Completely fix sheets at time of initial laying – corner fixing alone is not adequate to hold sheets firmly while glue cures

Screw Fastening

Use a minimum of No.8 x 50 mm countersunk screws (50 mm minimum).

While these screws can drill their own hole, it is recommended to pre-drill the panels. A lower torque setting reduces the risk of overdriving and tearing the threads loose in the timber. Overdriven screws must be removed and set in a new position.

Screw fixing gives the tightest result of all the methods, but re-tightening may be needed after the joists have finished drying.

Hand-driven Nails

Use a minimum of 60 x 2.8 mm hot-dipped galvanised jolt head nails or 60 x 3.15 mm hot-dipped galvanised csk annular grooved flooring nails.

Drive nails at a slight angle (alternating) and parallel to the sheet edge for improved lateral holding. Nail vertically at corners.

Nails should be hammered flush when laying then punched below the surface just before sanding. This will tighten the panels onto the joists, taking up any shrinkage, and will reduce squeaking.

Power-driven Nails

Use a minimum of only 65 x 2.8 mm hot-dipped galvanised annular grooved flooring nails. A depth adjuster attachment should be used on the nail gun and adjusted to ensure that the nails do not penetrate more than 2 mm below the surface of the panel. Do not rely on the nails to pull panels down tight on the joists – panels must be in contact with the joist before the nail is fired.

Nails must be punched below the surface just prior to sanding. This will take up any shrinkage of the timber joists and reduce the likelihood of squeaking.

3.6 ADHESIVE FASTENING

Adhesive fastening is recommended in addition to the above fixing options. CHH Woodproducts recommends adhesive fastening with Holdfast Gorilla Nail Power when gluing Kopine® Ultralock to floor joists. This will reduce the risk of squeaking in upper subfloors caused by joist shrinkage.

In ground floor applications where foil insulation is used, apply adhesive to the floor joists through 25 mm square cut outs in the foil at 300 mm centres. Cut outs can be made by taping two

builders knives together and making two cuts along and across the top of the joist, through the foil.

For upper floors that do not require foil or similar insulation, apply a 10 mm bead of Holdfast Gorilla Nail Power foam to the joists, covering the whole length of the joist. Fasten sheets fully within 15 minutes of applying the adhesive to ensure a tight bond to the joists. Refer to manufacturer's instructions for more detail.

3.7 CLEAR FINISHING PREPARATION

If clear finishing is planned, to avoid colour variation, do not mix batches of sheets. To prevent stains, avoid prolonged contact with sawdust piles, stacked timber, steel scaffolding, cement, strapping or nails especially if rusting is likely.

Avoid spills of tea, coffee, paint or cement. Keep the period of exposure short.

4.0 FINISHING

Kopine® Ultralock panels must be sealed with polyurethane or covered with carpet or sheet vinyl before the building is occupied. Lightly sand with 40-80 grit paper before laying floor coverings or clear finishing.

Do not over-sand. Excessive sanding can reduce structural strength and lead to colour variation, visible when the floor is clear finished.

4.1 CLEAR FINISHING

- Punch nails then carefully sand the entire floor
- Remove dust from the floor and skirtings with a broom and vacuum cleaner
- Apply the first polyurethane coat, following manufacturer's instructions
- Fill nail holes with a filler such as DAP wood dough
- Apply further coats, lightly sanding between each coat
- Follow manufacturer's instructions to complete

4.2 GLUE FIXED FLOOR COVERINGS

Refer to floor covering manufacturer's specific requirements.

5.0 MAINTENANCE

Regular underfloor inspections must be made. Any sign of moisture or mould on the floors or lower parts of walls must be investigated and corrective action taken. Plumbing leaks, moisture migration or leakage from external sources must be rectified. Moisture concentration in wall cavities must be repaired and recurrence prevented.

Keep vents in the perimeter foundation walls clear of vegetation and other obstructions to allow proper subfloor ventilation at all times. Keep subfloor vapour barriers and insulation foil in a serviceable and effective condition. Floor coverings and coatings

must protect the whole floor surface. In water-serviced areas the moisture-impervious floor covering or coating must be maintained so water cannot reach the particleboard.

Floor wastes must be kept unobstructed and drain to the outside of the building.

After flooding

Dry the floor quickly. Lift carpets and slit insulation foil drapes so all water drains.

NOTES



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May 2014





BALUSTRADE PRODUCER STATEMENT

Specifically prepared on:

07 June 2016

For the following project;

Project: philp

SPECIFIERS NAME

Company: K.A.D

Phone: 035391066

Fax:

E-mail:

CLIENT DETAILS

Name:

Phone:

Fax:

E-mail:

PRODUCER STATEMENT – PS1 - DESIGN**Issued By:** ALAN H. THOMAS – CONSULTING ENGINEER**Issued To:** TO WHOM IT MAY CONCERN**Date:** 07 June 2016**Project:** philp**Site Address:** 184 Horton rd**Legal Description:**

This statement applies to the **Aluma** balustrading as supplied by Unex Systems (NZ) Ltd for the

first floor balcony

(1) Construction details are to be in accordance with the **Aluma Fabricator's Manual**. The maximum post spacing must not exceed the distance given on the following Manual pages, copies enclosed.

Aluma page 3.21.1, Aluma page 4.11.1, Aluma page 5.21.1, Aluma page 2.9.3

(2) I, Alan H Thomas hold a current Professional Indemnity Insurance policy for no less than \$200,000 and have been engaged by Unex Systems (NZ) Ltd to provide design services for their **Aluma** balustrading in respect of Clauses B1 and F2 of the Building Regulations. The design has been prepared in accordance with Clauses B1/VM1 and B1/AS1. The design of the load carrying members and their connections have been verified by load testing where applicable.

Materials and corrosion consultants have been engaged by Unex Systems (NZ) Ltd to provide a Durability Appraisal in respect of the requirements of clause B2 of the New Zealand Building Code. The appraisal has been prepared in accordance with verification method B2/VM1 of the approved documents issued by the Department of Building and Housing, compliance with Clause B2 relies entirely on this appraisal.

I believe on reasonable grounds that subject to:

1. All proprietary products meeting their performance specification requirements.
2. The general arrangement and dimensions of the balustrade members, post spacing, fixing details and assembly methods being in accordance with the instructions in the current **Aluma Fabricator's Manual** and the above details,

the design of the balustrade and its fixings (excluding the supporting structure) complies with clauses B1, B2, F2 and F4 of the New Zealand Building Code.

Signed by ALAN H THOMAS

(Qualifying Engineer in accordance with Clause 1.0.3(e) of B1/VM1). Auckland Council registration number 1838.
CONSULTING ENGINEER

Southern Building Controls Group Author number PSA/2010/45.

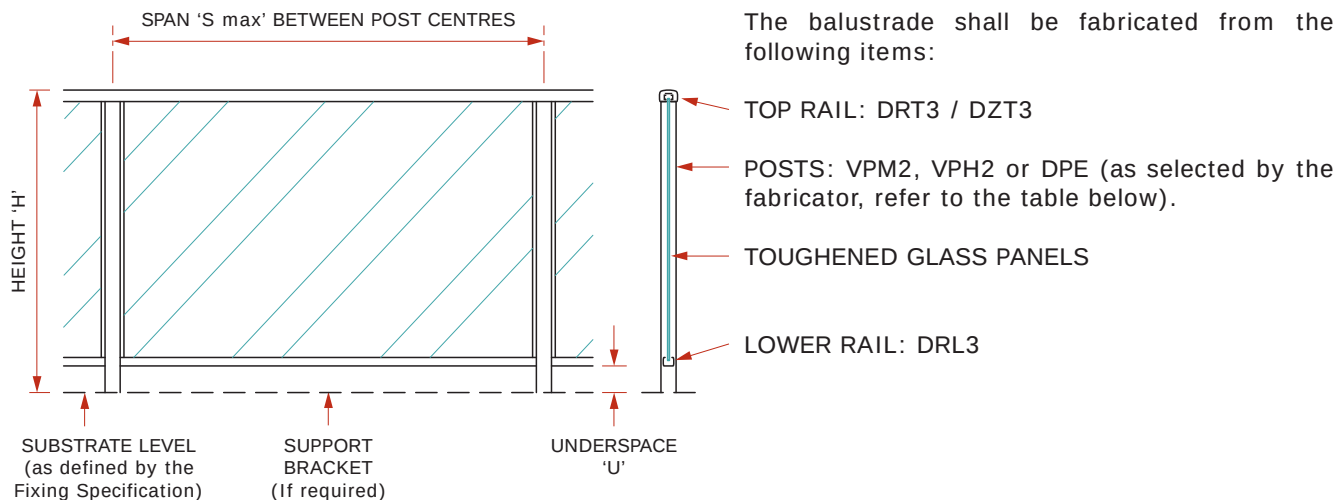
42 Bryant Road, Te Rapa, HAMILTON 3200
PO Box 92, HAMILTON 3240
Telephone: 07 850 9464

Note: This Producer Statement must be accompanied by the relevant Style Specification, Fixing Specification and Assembly Specification pages when submitted for Building Consent purposes.

'DECOR GLAZED' - STYLE SPECIFICATION 3.21.1

This specification details the members to be used for this style and the maximum spacing of the posts. A separate specification must be referred to for fixing to the substrate (refer to Chapter 4). Post spacing must not exceed the lesser of the spacing from both Chapter 3 and Chapter 4.

1. Fabrication and Installation are to be in accordance with ASSEMBLY SPECIFICATION 5.21.1 and all relevant portions of this MANUAL.
2. Glass to be TOUGHENED GRADE A SAFETY GLASS with concealed edges finished Rough Arris and with exposed edges Flat Polished (unless otherwise specified) Support and glaze in accordance with the recommendations in this Manual and with NZS 4223. For glass thickness requirements, refer to Page 3.9.1.





MAXIMUM POST CENTRES 'S max' (metres)

ALWAYS TAKE THE LESSER OF THE VALUE BELOW AND THE VALUE FROM THE FIXING SPECIFICATION

Height (Note 2)	Post Type (Note 4)	#DKZ3 Support Bracket (Note 5)	Line No.	LOADING CLASS (Note 1)																		
				A1									A2	No Fall								
				Design Wind Speed (Note 3)										Design Wind Speed (Note 3)								
				VH	50	52	54	56	58	60	62	64		M	H	VH	50	52	54	56		
1.0	VPM2	None	1	1.10	1.10	1.10	1.10	1.02	0.96	0.89	0.84	2.11	1.94	1.90	1.84	1.78	1.63	1.50	1.38	1.27	1.18	1.10
	VPH2	None	2	1.38	1.38	1.38	1.37	1.28	1.20	1.12	1.05	2.11	1.94	1.90	1.84	1.80	1.76	1.71	1.67	1.59	1.48	1.37
	DPE2	None	3	1.67	1.63	1.60	1.56	1.53	1.50	1.47	1.42	2.11	1.94	1.90	1.84	1.80	1.76	1.71	1.67	1.63	1.60	1.56
	Rails Only	None	4	1.67	1.63	1.60	1.56	1.53	1.50	1.47	1.44	2.11	1.94	1.90	1.84	1.80	1.76	1.71	1.67	1.63	1.60	1.56
		1 x Central	5	1.75	1.75	1.75	1.75	1.75	1.75	1.74	1.70	2.25	2.25	2.25	2.25	2.18	2.12	2.06	2.00	1.95	1.90	1.86
1.1	VPM2	None	6	1.00	1.00	0.98	0.91	0.84	0.79	0.74	0.69	2.06	1.90	1.78	1.62	1.47	1.35	1.24	1.14	1.05	0.98	0.91
	VPH2	None	7	1.25	1.25	1.22	1.13	1.06	0.99	0.92	0.87	2.06	1.90	1.84	1.80	1.76	1.68	1.55	1.42	1.32	1.22	1.13
	DPE2	None	8	1.63	1.59	1.55	1.52	1.43	1.33	1.25	1.17	2.06	1.90	1.84	1.80	1.76	1.71	1.66	1.63	1.59	1.55	1.52
	Rails Only	None	9	1.63	1.59	1.55	1.52	1.49	1.45	1.43	1.40	2.06	1.90	1.84	1.80	1.76	1.71	1.66	1.63	1.59	1.55	1.52
		1 x Central	10	1.75	1.75	1.75	1.75	1.75	1.72	1.68	1.65	2.25	2.25	2.25	2.18	2.11	2.05	2.00	1.94	1.89	1.84	1.80
1.2	VPM2	None	11	0.92	0.88	0.82	0.76	0.71	0.66	0.62	0.58	1.97	1.66	1.50	1.36	1.24	1.13	1.04	0.96	0.88	0.82	0.76
	VPH2	None	12	1.15	1.11	1.02	0.95	0.89	0.83	0.78	0.73	2.02	1.85	1.80	1.70	1.55	1.41	1.30	1.20	1.11	1.02	0.95
	DPE2	None	13	1.55	1.49	1.38	1.29	1.20	1.12	1.05	0.98	2.02	1.85	1.80	1.76	1.71	1.66	1.62	1.58	1.49	1.38	1.29
	Rails Only	None	14	1.58	1.55	1.51	1.48	1.44	1.41	1.39	1.36	2.02	1.85	1.80	1.76	1.71	1.66	1.62	1.58	1.55	1.51	1.48
		1 x Central	15	1.75	1.75	1.75	1.75	1.71	1.67	1.63	1.60	2.25	2.25	2.19	2.12	2.06	2.00	1.94	1.89	1.84	1.80	1.75

(1) LOADING CLASS: Refer to Page 2.9.3 of this MANUAL for the scope of the Loading Class designations.

(2) HEIGHT 'H': is the overall height of the balustrade above the substrate level shown. Interpolate for Heights between those shown.

(3) DESIGN WIND SPEED: in m/s, Refer to Page 3.8.1 to 3.8.5 for details of applicable wind codes and the methods for determining the Design Wind Speed for any particular site.

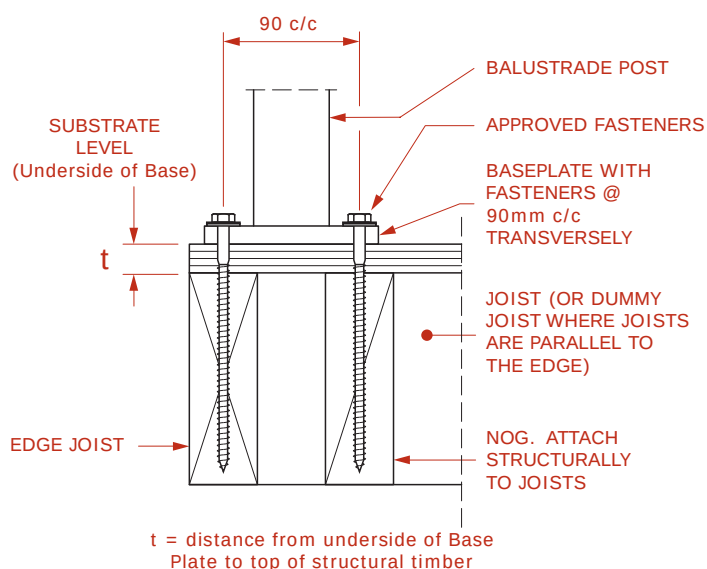
(4) POST TYPES: Refer to Chapter 1 for details. "RAILS ONLY" gives the maximum span of the rails when fixed in single panels between walls or columns designed to provide adequate support to the rails.

(5) SUPPORT BRACKETS: Type DKZ3 SUPPORT BRACKETS must be used where specified in the Table.

DRY TIMBER, TOP FIXING, 90mm CRS - SPECIFICATION 4.11.1

Refer to all notes on Pages 4.10.1 and 4.10.2 which shall apply to this specification and the relevant pages in Chapter 9 Installation Guides. Refer also to Chapter 3 for the Style Specification.

- For details of approved fasteners refer to General Notes on Page 4.10.1 note 3.
- Washers to be fitted under screw and bolt heads shall be as follows
 - For 6mm fasteners - washer supplied with fasteners.
 - For FC8-165 fasteners - washer supplied with fasteners.
 - For 8mm bolts - 22mm O.D. S/S washer (Part No. FW8-22) with a polymer washer (Part No. FWP8-22G) between the S/S and the aluminium.
 - For Washers bearing against timber use 50 x 50 x 3mm stainless steel washers Part No FW10-50SQ.
- Substrate design including waterproofing and the structural design of the timber substrate and its connections are not included in this specification and must be carried out by others.



MAXIMUM POST CENTRES 'S max' (metres)

ALWAYS TAKE THE LESSER OF THE VALUE BELOW AND THE VALUE FROM THE STYLE SPECIFICATION

Height (Note 3)	Baseplate Size D x W	Fasteners - Qty and Type (Note 2)	t' (See dia- gram)	Line No.	LOADING CLASS (Note 1)																		
					A1								A2	No Fall									
					Design Wind Speed (Note 4)									Design Wind Speed (Note 4)									
					VH 50	52	54	56	58	60	62	64	N/A	M 38	40	42	H 44	46	48	VH 50	52	54	56
1.0	115 x 105	4 x FC8-165	19	1	1.87	1.87	1.87	1.86	1.74	1.62	1.52	1.43	4.01	3.51	3.51	3.31	3.02	2.76	2.54	2.34	2.16	2.00	1.86
	115 x 105	4 x FC8-165	25	2	1.79	1.79	1.79	1.79	1.66	1.56	1.46	1.37	3.84	3.36	3.36	3.17	2.89	2.65	2.43	2.24	2.07	1.92	1.79
	115 x 105	4 x FC8-165	32	3	1.70	1.70	1.70	1.69	1.58	1.48	1.38	1.30	3.64	3.19	3.19	3.01	2.74	2.51	2.31	2.13	1.97	1.82	1.69
	115 x 105	4 x M8 Bolts	N/A	4	2.15	2.15	2.15	2.15	2.00	1.87	1.75	1.64	4.62	4.04	4.04	3.82	3.48	3.18	2.92	2.69	2.49	2.31	2.15
1.1	115 x 105	4 x FC8-165	19	5	1.70	1.70	1.66	1.54	1.44	1.34	1.26	1.18	3.64	2.90	2.90	2.74	2.49	2.28	2.10	1.93	1.79	1.66	1.54
	115 x 105	4 x FC8-165	25	6	1.63	1.63	1.59	1.48	1.38	1.29	1.20	1.13	3.49	2.78	2.78	2.62	2.39	2.19	2.01	1.85	1.71	1.59	1.48
	115 x 105	4 x FC8-165	32	7	1.55	1.55	1.51	1.40	1.31	1.22	1.14	1.07	3.31	2.63	2.63	2.49	2.27	2.08	1.91	1.76	1.62	1.51	1.40
	115 x 105	4 x M8 Bolts	N/A	8	1.96	1.96	1.91	1.77	1.65	1.55	1.45	1.36	4.20	3.34	3.34	3.15	2.87	2.63	2.42	2.23	2.06	1.91	1.77
1.2	115 x 105	4 x FC8-165	19	9	1.56	1.50	1.39	1.29	1.21	1.13	1.06	0.99	3.34	2.44	2.44	2.30	2.10	1.92	1.76	1.62	1.50	1.39	1.29
	115 x 105	4 x FC8-165	25	10	1.49	1.44	1.33	1.24	1.16	1.08	1.01	0.95	3.20	2.33	2.33	2.20	2.01	1.84	1.69	1.56	1.44	1.33	1.24
	115 x 105	4 x FC8-165	32	11	1.42	1.36	1.27	1.18	1.10	1.03	0.96	0.90	3.04	2.21	2.21	2.09	1.91	1.74	1.60	1.48	1.36	1.27	1.18
	115 x 105	4 x M8 Bolts	N/A	12	1.80	1.73	1.60	1.49	1.39	1.30	1.22	1.14	3.85	2.81	2.81	2.65	2.42	2.21	2.03	1.87	1.73	1.60	1.49

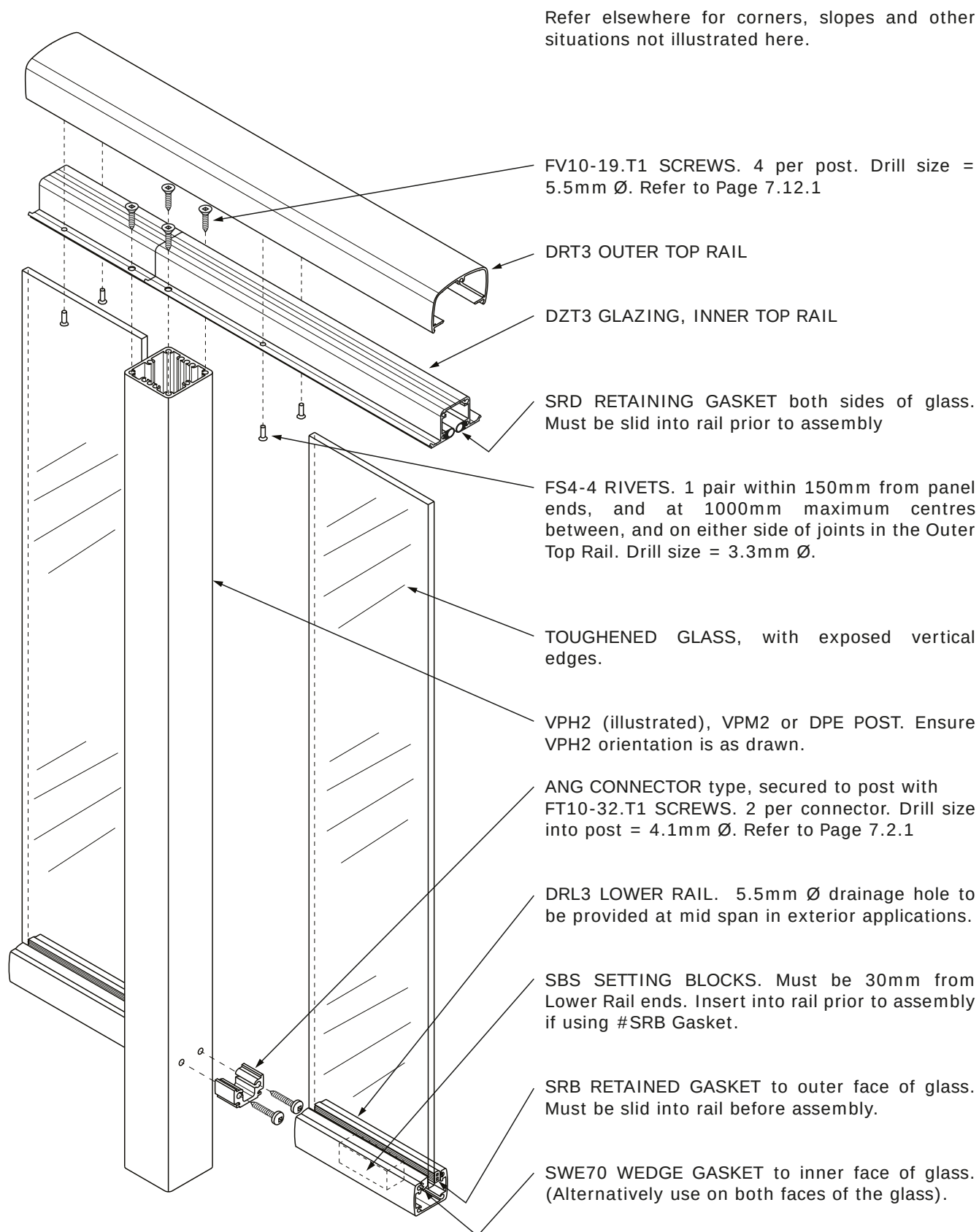
(1) LOADING CLASS: Refer to Page 2.9.3 of this MANUAL for the scope of the Loading Class designations.

(2) FASTENER DESIGNATIONS: beginning with 'F' are part numbers for fasteners supplied by UNEX eg. FC8-165: FC = Coach Screw Stainless Steel. 8 = 8mm diameter, 165 = length in mm; Substitution with other fasteners is not permitted.

(3) HEIGHT 'H': is the overall height of the balustrade above the substrate level shown. Interpolate for Heights between those shown.

(4) DESIGN WIND SPEED: in m/s, Refer to Pages 3.8.1 to 3.8.5 for details of applicable wind codes and the methods for determining the Design Wind Speed.

'DECOR-GLAZED' - ASSEMBLY SPECIFICATION



NZ BUILDING CODE COMPLIANCE (CONTINUED)

CLAUSE B1, STRUCTURES CONTINUED

Human Impact Loads Continued

APPLICABLE LOADING STANDARD	LOADING CLASS	SPECIFIC USES	OCCUPANCY FOR PART OF BUILDING
AS/NZS 1170:2002	A1	All areas except those included under A2	Domestic and Residential
		Areas not susceptible to overcrowding in office and institutional buildings, also industrial and storage buildings.	Offices, storage and work areas not included elsewhere (see note 1)
		Stairs, landings, external balconies, edges of roofs etc.	Areas where people may congregate that are without obstacles for moving people and not susceptible to overcrowding.
	A2	All areas within or serving exclusively one dwelling including stairs, landings etc. but excluding external balconies and edges of roofs.	Domestic and Residential
		Fixed platforms, walkways and stairways for access only (see note 2)	Offices, storage and work areas not included elsewhere (see note 1)
NZS 4203:1992	R (see note 3)	Excludes Public areas of Residential	Residential buildings

Note 1: Areas "included elsewhere" include; areas where people may congregate with fixed tables or fixed seating or susceptible to overcrowding, retail areas, cinemas, grandstands, bars, discotheques, auditoria, shopping malls, assembly areas, studios etc. Specifications for these areas are not included in this manual.

Note 2: For access to/and safe working areas at places normally used by operating, inspection, maintenance and servicing personnel.

Note 3: Loading Class R may be used for buildings as stated where the building consent application is lodged on or before the 30th November 2008 (unless Territorial Authorities advise otherwise). For consent applications subsequent to the 30th November 2008 Classes A1 and A2 will apply.

(continued on following Page)



Unex Systems balustrade products are distributed throughout New Zealand via a network of companies that specialize in the fabrication and installation of these products.

The role of the fabricator is to quote, site measure, fabricate and install the product.

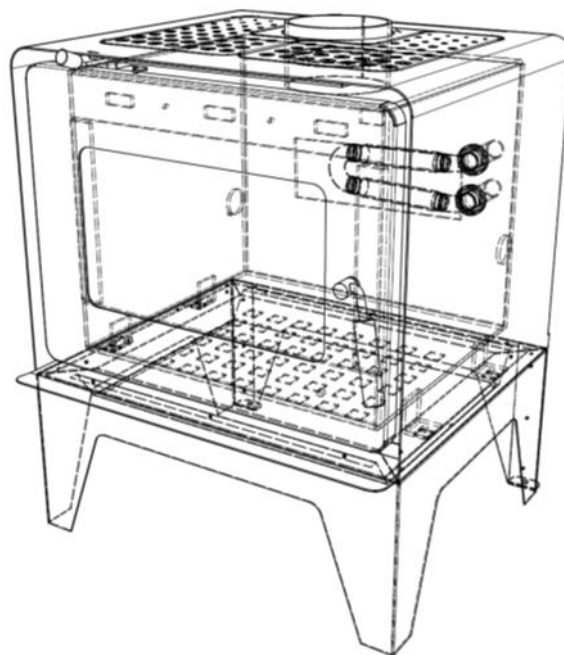
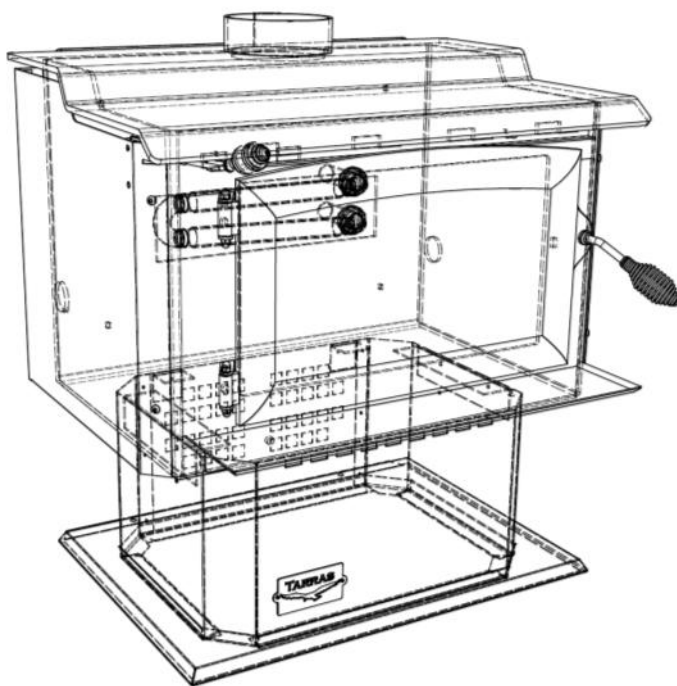
Contact Unex Systems on **0800 333 777** or email **info@unex.co.nz** for the contact details of a fabricator in the region of this project.



WOODSMAN

Warming kiwi homes since 1887.

Specifications and Installation Instructions for Woodsman Solid Fuel Burners



The installation of any Woodsman solid fuel burner requires a Building Consent prior to installation commencing. We recommend the installation of a Woodsman solid fuel burner or flue system be undertaken by the holder of a current SFAIT (Solid Fuel Appliance Installation Technician) qualification issued by the NZHHA (NZ Home Heating Association Inc.).

www.nzhha.co.nz

Proudly Manufactured By:



Harris Home Fires
41 Braddon St
Addington
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Email sales@hhf.co.nz

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Christchurch 8140
New Zealand

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Contents

	PAGE
Testing and Certification	3
Clearances	4 & 5
Flue Shields	6
Ceiling Heights	6
Flue Shield Deflector	6
Floor Protector/Hearth Graph (Graph 1)	7
Rear Deflector	7
Dimensions	8
Reducing Clearances	9
Installation Instructions	10
Floor Protector Materials	10
Minimum Flue Height	11
Flue Installation Details	11
Sealing Flue Joints	12
Fitting The Wetback To The Firebox	13

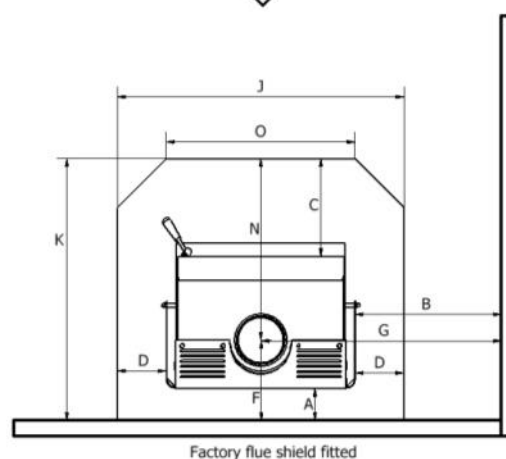
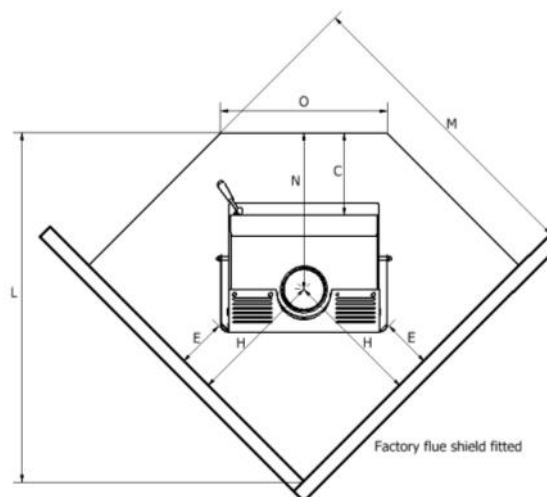
Testing and Certification

MODEL	AS/NZS 2918:2001, APP B	AS/NZ 2918:2001, APP E	AS/NZS 4012:1999	AS/NZS 4013:1999	ECan Cert Number
ECR NoVo	Complies	N/A	67%	0.9g/kg	153733
ECR NoVo Wet	Complies	N/A	65%	0.9g/kg	155148
Totara	Complies	Complies	67%	0.9g/kg	110220
Matai ECR MkIII	Complies	N/A	71%	0.7g/kg	102148
Matai ECR MkV	Complies	N/A	65%	0.7g/kg	102454
IMF	Complies	Complies	N/A	3.9g/kg	N/A
Flare - Wood	Complies	N/A	68%	0.97g/kg	134775
Flare - Wood WB	Complies	N/A	65%	0.89g/kg	135021
Flare - Multi	Complies	N/A	N/A	N/A	N/A
RMF	Complies	N/A	83%	3.9g/kg	N/A
Strongman	Complies	N/A	N/A	N/A	N/A
Aspen	Complies	N/A	71%	0.5g/kg	111306
Aspen WB	Complies	N/A	65%	0.5g/kg	111307
Brunner MKII	Complies	N/A	71%	0.5g/kg	142896
Brunner MKII WB	Complies	N/A	65%	0.5g/kg	142897
Tasman MKII	Complies	N/A	71%	0.5g/kg	142898
Tasman MKII WB	Complies	N/A	65%	0.5g/kg	142899
Tarras MKIII	Complies	N/A	69%	0.37g/kg	143492
Tarras MKIII WB	Complies	N/A	65%	0.5g/kg	143494

Minimum Safe Installation Clearances to COMBUSTIBLE Materials

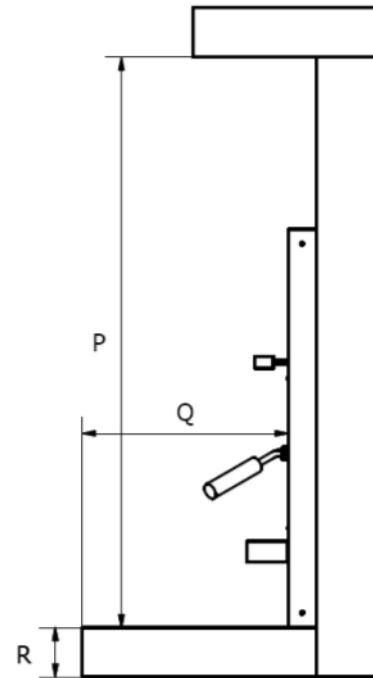
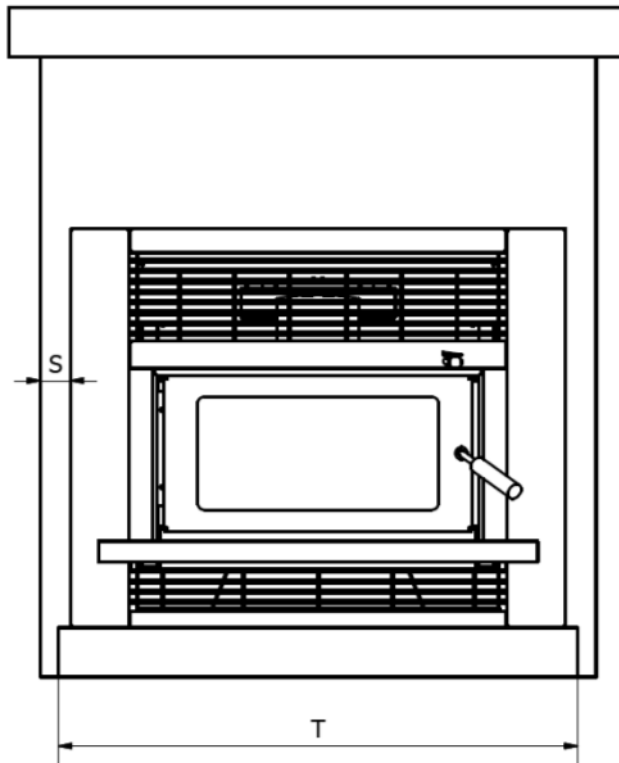
	BRUNNER MKII & TASMAN MKII	BRUNNER MKII & TASMAN MKII With Rear Deflector Fitted (see Page 7)	FLARE-WOOD	FLARE-MULTI	TARRAS MKIII	TARRAS MKIII With Rear Deflector Fitted (see Page 7)
A	200	120	100	100	230	160
B	450	450	320	350	480	460
C	300	300	300	300	300	300
D	118	118	110	110	67	67
E	230	240	120	150	250	220
F	345	265	281	281	372	302
G	758	758	635	665	863	843
H	535	545	449	479	611	581
J	850	850	850	850	898	898
K	1025	945	933	933	1052	982
L	1437	1451	1287	1329	1544	1500
M	1220	1230	1122	1152	1304	1274
N	680	680	652	652	680	680
O	615	615	600	600	600	600
Flue Shield Requirements (See Page 6)	1200 With flue shield deflector fitted	1200 With flue shield deflector fitted	1200 With flue shield deflector fitted	1200 With flue shield deflector fitted	1200 With flue shield deflector fitted	1200 With flue shield deflector fitted

	ECR MkIII, MkIV, MkV	ECR NoVo With Rear Deflector Fitted (see Page 7)	ASPEN	RMF	STRONGMAN
A	100	110	255	125	300
B	400	490	435	500	875*
C	300	300	300	300	GRAPH 1
D	150	115	118	150	150
E	200	200	230	180	380
F	251	265	404	276	441
G	690	800	743	790	1233**
H	512	517	521	492	711
J	880	850	850	880	1015
K	807	792	1084	832	1364
L	1280	1259	1417	1252	1928
M	1110	1049	1219	1060	1616
N	556	527	680	556	923
O	580	450	615	580	715
Flue Shield Requirements (See Page 6)	900	1200	1200	900	1200



Dimensions **A**, **B** & **E** are taken from the combustible wall to the closest point of the appliance including panels
 Dimension **C** is measured from the edge of the hearth to the closest point of the firebox door frame as in AS/NZS 2918:2001 3.3.2

Minimum Safe Installation Clearances to COMBUSTIBLE Materials



	IMF	Totara
P	980	1060*
Q	Graph 1	Graph 1
R	Graph 1	Graph 1
S	50	50
T	840	840

* Dimension P can be 920mm with a factory supplied heat deflector fitted

Ceiling Heights

All Woodsmen free standing fires have been tested and approved to AS/NZ 2918:2001 App B with a ceiling height of 2.4m and with the factory flue shield fitted in the below configurations. In some cases, the top of the flue shield terminates within 600mm of the ceiling height (refer to AS/NZ 2918:2001 **4.5.2**) but all ceiling temperatures did not exceed the allowable limit in these cases and are therefore able to be installed. Reports are available on request for Councils.

If the ceiling height is less than 2.4m, then heat shielding is required as per AS/NZ 2918:2001 Table 3.2

Factory Flue Shields

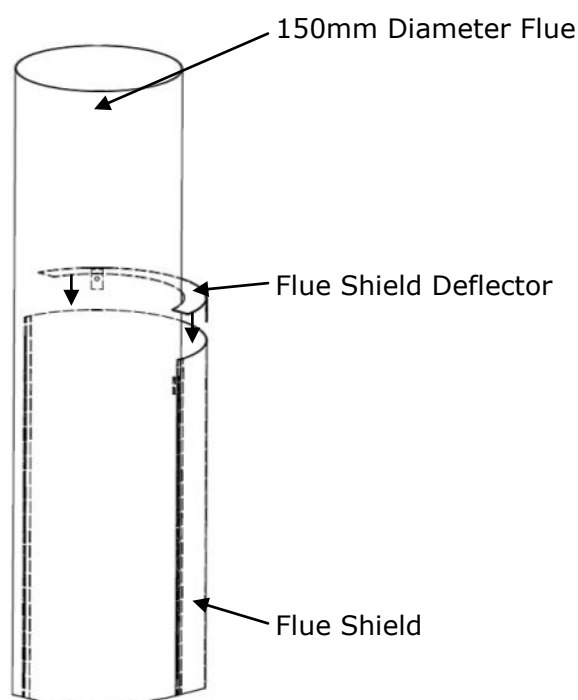
Standard 900mm high flue shield:
ECR MKIII & RMF

Standard 1200mm high flue shield:
Brunner, Tasman, Aspen, ECR NoVo & Strongman

1200mm high flue shield with flue shield deflector (REQUIRED)
Tarras MKII, Tarras MKIII, Brunner/Tasman MKII & Flare (All Variants) - See Below

IMPORTANT - Flue shields should be no further than 10mm off the top of the fire box

Fitting the Flue Shield Deflector for Tarras MKII, Tarras MKIII, Brunner/Tasman MKII and Flare (All Variants)



To fit the heat shield deflector:

- Place the deflector on top of the heat shield and ensure no large gaps
- Fix in place by securing the tabs with rivets to the heat shield

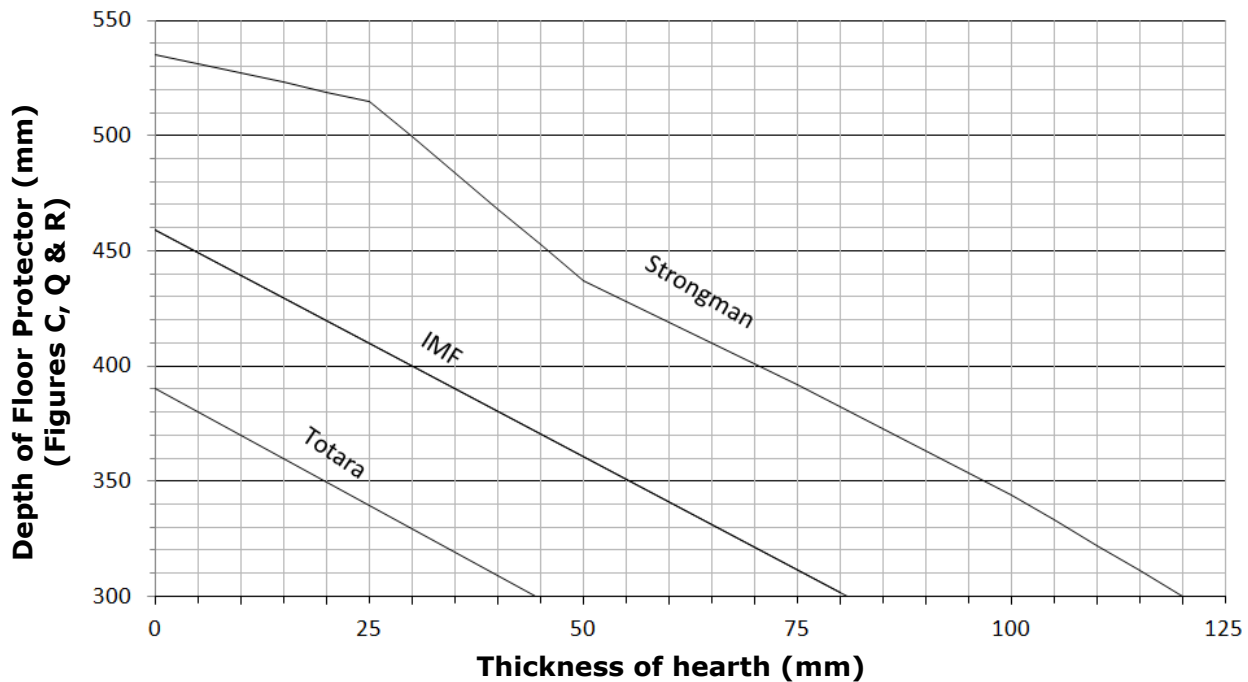
WARNING

This part is required to be installed on the listed models with ALL types of flue kits. Failure to do so, may cause the ceiling to over heat. The part is located in the fire itself and not the flue kit packaging.

Floor Protector Graph

Graph 1

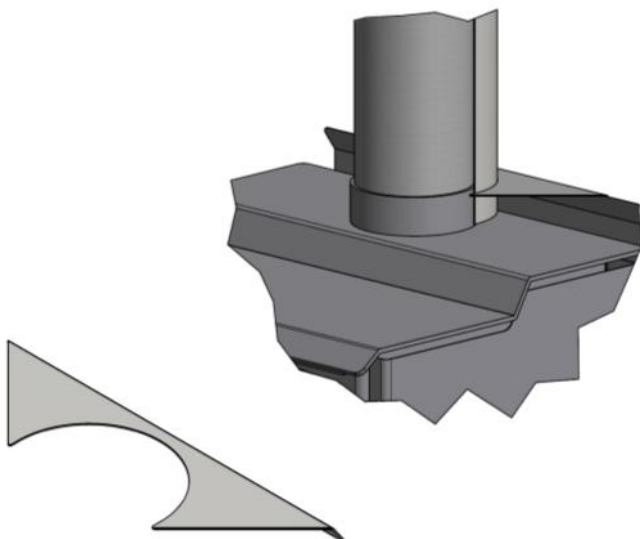
Floor Protector Sizes



This graph refers to Page 4 dimension C and Page 5 dimension Q & R.

The floor protector distance out in front of the fire (taken from the door), is dependent on the thickness of the floor protector. The thicker the floor protector is above the surrounding combustible floor, the less this distance is out in front of the fire.

Rear Deflector



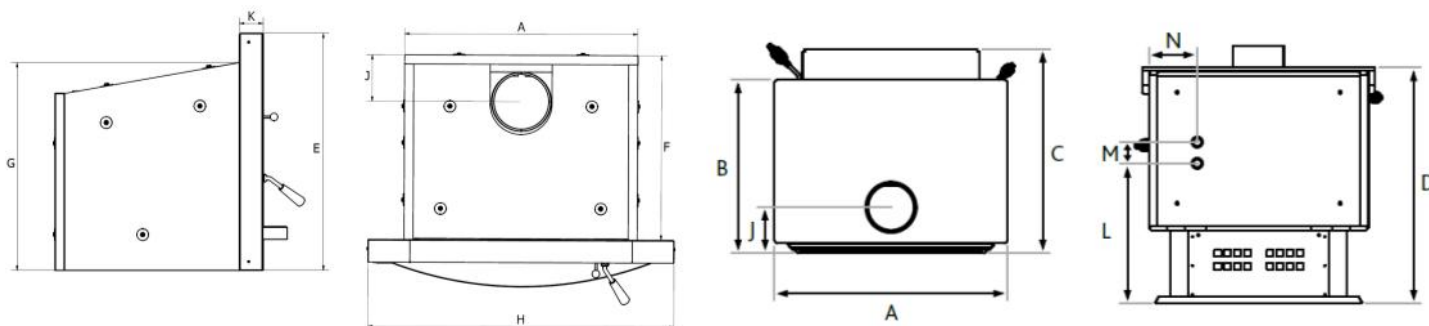
The rear deflector is used for reducing rear clearances for applicable fires (see page 4 for details). It is located loose in the firebox.

To fit the rear deflector, simply attach it to the rear shield of the fire using 2 rivets in the predrilled holes.

The rear deflector should be positioned tight up against the flue shield as shown.

Available for:
Brunner MKII, Tasman MKII, ECR NoVo
& Tarras MKIII

Dimensions



		TOTARA	ECR MKIII, V	ECR NoVo	BRUNNER MKII & TASMAN MKII	TARRAS MKIII	FLARE WOOD	FLARE MULTI	RMF	STRONG- MAN	IMF Deluxe
A	Overall Stove Width	642	580	620	615	765	630	630	580	715	590
B	Stove Depth Door Frame to Rear		390	382	525	522	540	540	390	521	
C	Overall Stove Depth Ledge to rear		450	466	630	640	602	602	450	590	
D	Overall Stove Height		620	705	757	772	764	764	620	695	
E	Insert Fascia Height	650									740
F	Insert Depth	506									480
G	Insert Maximum Height	570									590
H	Insert Fascia Width	840									850
J	Flue Centre to Back of Unit	136	150	155	145	142	181	181	150	141	115
K	Insert Fascia Depth	62									120/6 5
L	Wetback Height		283	414	478	479	502	502			
M	Wetback Centres		130	65	65	65	65	65			
N	Wetback Position		290	108	107	180	133	133			

Disclaimer;

While every attempt is made to ensure this information is as accurate as possible, a tolerance of +/- 5mm should be allowed for in these dimensions

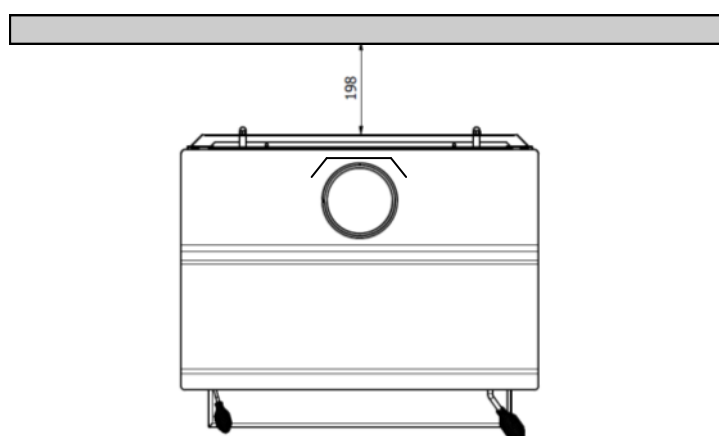
Reducing Clearances

The clearances that are provided on page 4 are to combustible materials. You can safely reduce those clearances by following the instructions located in AS/NZS 2918:2001 table 3.1 and 3.2

You can reduce the clearances by placing a non-combustible heat shield, with an air gap behind it and vented top and bottom, between the fire and the combustible wall. Masonry may be used as a heat shield material. The heat shield must extend a minimum of **450mm** beyond the top of the appliance and must be of appropriate width to ensure that the unshielded rear clearance is adhered to beyond the sides of the heat shield. See example below.

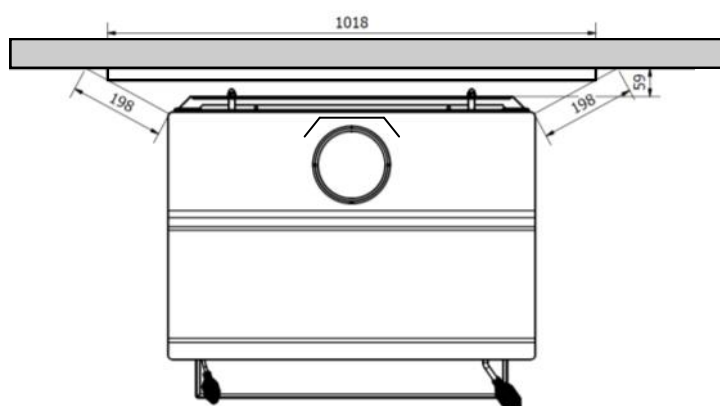
Clearance factors for heat shields which are within 45 degrees of the vertical

Heat Shield Construction	Minimum Air Gap Dimension	Clearance Factor
Single layer of continuous material	12mm	0.4
Single layer of continuous material	25mm	0.3
Two spaced layers of continuous material	12mm + 12mm	0.2



Unshielded Dimension for
Woodsman Tarras MKII

Rear Clearance - 198mm (combustible to stove)



Heat shield with 25mm air gap with
Woodsman Tarras MKII

Heat Shield - Single layer of continuous material with 25mm air gap.
Size 1018mm wide x 1222mm high

Reduced Rear Clearance - 59mm
(combustible to stove)

Calculation: **198mm x 0.3 = 59mm**

WARNING - This is only an example, you must refer to the full AS/NZS 2918:2001 document for more details and consult your local building inspector. Where heat shields are used to reduce appliance dimensions, additional flue shielding may be required (refer 4.5.2).

Installation Instructions

This appliance should only be installed by a trained and NZHHA qualified installer.

Warning: the appliance and flue system shall be installed in accordance with AS/NZS 2918 and the appropriate requirements of relevant building code/codes.

Warning: appliances installed in accordance with this standard shall comply with the requirements of AS/NZS 4013 where required by the regulatory authority, i.e. the appliance shall be identifiable by a compliance plate with the marking "Tested to AS/NZS 4013".

Any modification of the appliance that has not been approved in writing by the testing authority is considered to be in breach of the approval granted for compliance with AS/NZS 4013.

Caution: mixing of appliance or flue system components from different sources or modifying the dimensional specification of components may result in hazardous conditions. Where such action is considered, the manufacturer should be consulted in the first instance.

Caution: cracked and broken components e.g. glass panels or ceramic tiles, may render the installation unsafe.

- Maintain a clearance of at least 1 metre between front of the appliance and building structure or any other substantial immovable object.
- If the appliance is installed on a heat sensitive floor, the floor should be protected with an insulation floor protector, which shall extend entirely beneath the heater. For the correct floor protector extension, refer to dimension C in FIG 1 & 2.
- Your appliance shall be seismically restrained, including the floor protector using the provided holes or brackets. The restraints should be sufficient enough to resist a seismic loading equal to 0.4 times the mass of the appliance. We recommend a minimum of 8mm dynabolts on concrete floors and 8mm coach screws for wooden floors of appropriate length.

Minimum Material Specifications For Floor Protectors on a Floor of Combustible Material

MODEL	SPECIFICATION
ASPEN	9mm Eterpan LD + 8mm ceramic tiles (or equivalent)
FLARE (All Variants) ECR (MkIII, IV, V) RMF TOTARA*	8mm ceramic tiles only (or equivalent)
STRONGMAN	24mm Eterpan LD (or equivalent)
BRUNNER MKII TASMAN MKII TARRAS MKIII ECR NoVo	Ash Floor Protector. Any non-combustible material of any thickness

*The Totara is also approved with 1mm sheet steel with a 10mm spacing above combustible material. For use when extending hearths.

Minimum Flue Height

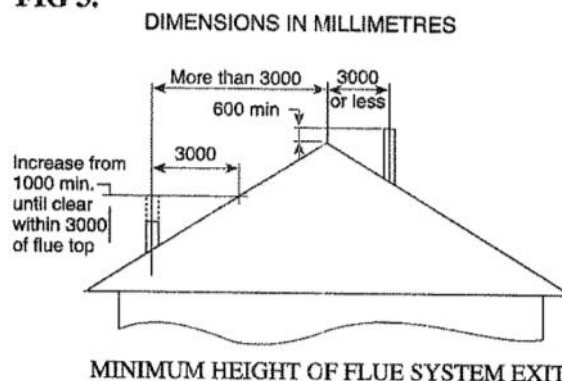
The top of the flue system should be at least 600mm above the highest point of the roof ridgeline, if the point of intersection of the flue system and the roofline is less than 3 metres from the ridgeline horizontally.

If the point of intersection of the flue system and the roofline is greater than 3 metres horizontally, the top of the flue system shall be at least 1 metre above the point of intersection with the roofline. (refer FIG 3)

The total flue height should be no less than 4.6m from the level of the hearth.

These are considered to be **minimum dimensions**, and depending on local conditions, **taller flue system heights may be required for satisfactory performance.**

FIG 3.



Flue Installation Detail

Your Woodsman appliance should be installed with a HeatSaver Flue System.

A HeatSaver Flue System is available from all authorised Woodsman dealers throughout New Zealand.

The HeatSaver Flue System contains a complete installation drawing and correct clearances from the ceiling level up. Minimum clearances from the appliance to nearby combustible surfaces are given in FIGS 1 & 2.

Use of a flue system other than a genuine HeatSaver Flue System may affect the safety of the installation, and may affect your Woodsman warranty.

Insist on a genuine HeatSaver Flue System.

Installation requirements for Woodsman fireplace inserts and flue system where timber framing is less than 50mm from the chimney structure.

Installation should be carried out by a qualified installer who will ensure:

- That the minimum clearances determined by tests in accordance with AS/NZS 2918:2001 are complied with to prevent overheating of nearby combustibles.
- That the minimum opening size of **600mm wide x 600mm high x 500mm deep** is available when firebricks are removed, and that extra provision also be made for plumbing where a hot water booster is fitted (where permitted).
- That any flue requirements specific to the model being installed are met in full - refer HeatSaver Flue System Instructions.
- Where the fireplace opening is in a heat sensitive wall, a non-metallic heat resistant material shall extend not less than 50mm beyond each side of the appliance and 150mm beyond the top of the appliance.
- Clearance of at least 1 metre between the front of the appliance and building structure, or any other substantial material object.
- That the insulating floor protector of non-combustible material is provided, extending not less than the dimensions shown in the chart. (Refer Table 2)
- A fireplace appliance shall not be connected to a flue common with an open fireplace.

Sealing Flue Joints

IMPORTANT

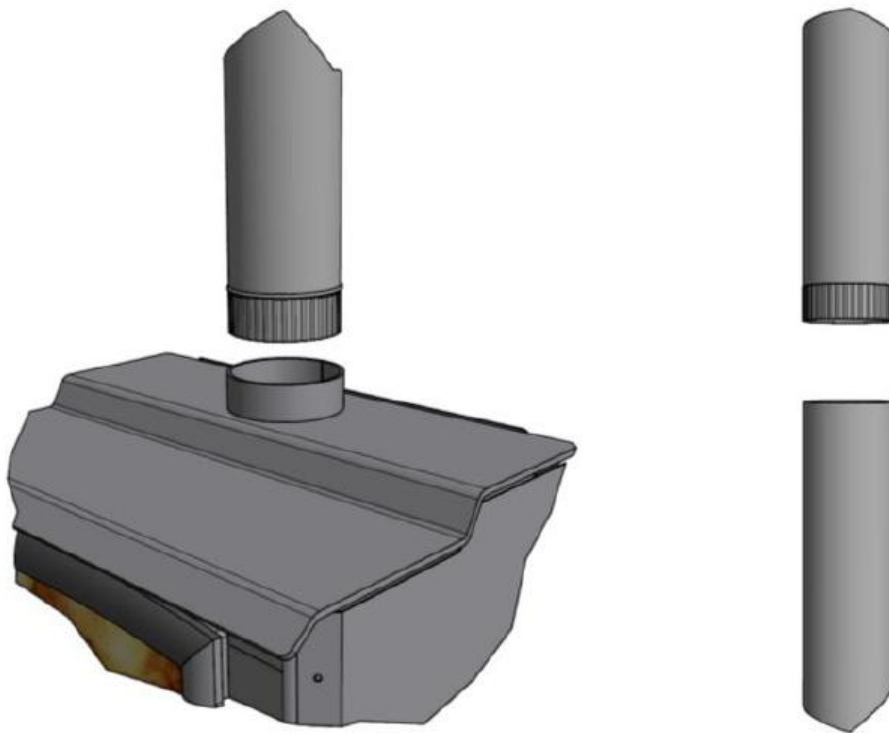
All Flue Joints Are Required To Be Sealed Using Flue Cement

It is extremely important that ALL flue joints are sealed at the time of installation using flue cement or a suitable exhaust cement.

If flue joints are not sealed properly, it can lead to performance issues with the fire such as;

- Lower heat output of the fire, due to decreased performance
- Blocked flue
- Smoke coming out the door when open, due to decreased suction
- Hard to light

The formation of soot and creosote will not seal the flues, especially on the lower lengths, as the high temperatures inhibit its formation.



Any issues that arise as a result of the flues not being sealed, are not covered by the warranty and are not the responsibility of the manufacturer.

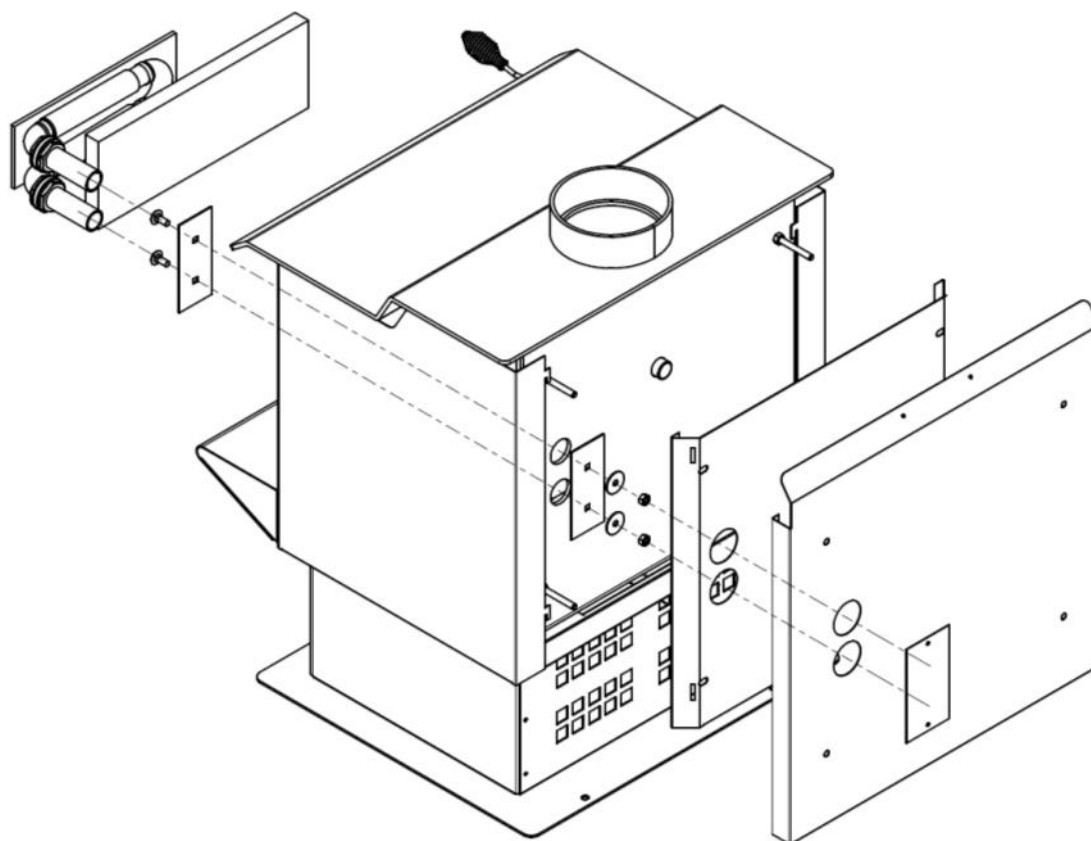
It is the installers responsibility to ensure that this is done at the time of installation.

Fitting the Wetback To The Firebox

Instructions for fitting a loose wetback to the firebox where the fire has been pre-punched with wetback holes.

- Remove knock-outs and cover plates in the rear panels
- Remove top rear firebrick
- Undo coach bolts on firebox plug to expose wetback holes
- Cut rear firebrick with a saw only enough to expose the wetback holes on the inside and to allow for the placement of the wetback in front of the brick
- Remove 1 nut off each wetback tube
- Place wetback into fire with firebrick behind it
- Replace nuts onto the rear of the wetback. Ensure the wetback is level before tightening using a 40mm tube socket

This task should be completed before the fire is positioned in place.

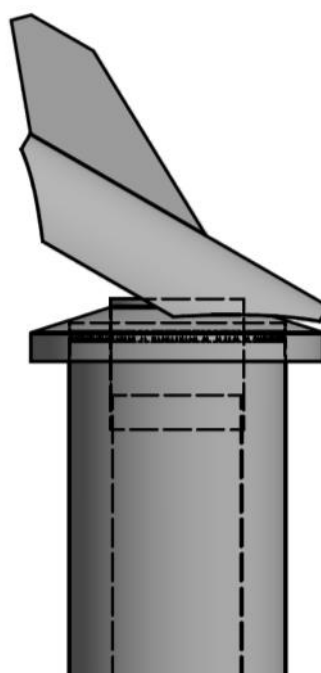
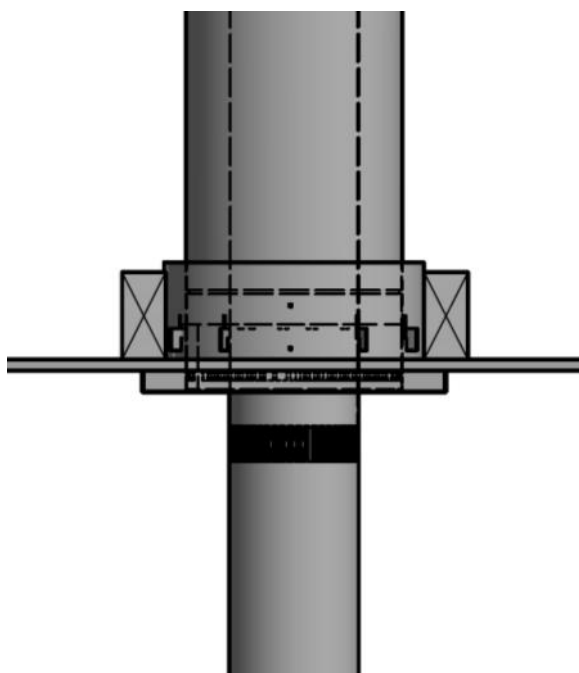


Note: Rear panels do not need to be removed if a tube socket is used for tightening

WETBACK WARNINGS:

- Do not connect to an unvented hot water system.
- **NEVER** burn the appliance without the wetback connected to the water system. This will immediately damage the wetback and void the warranty.
- AS/NZS 2918:2001 states; "all water connections to an appliance shall be in accordance with the appropriate requirements of AS 3500.4.1 or NZS 4603 and the regulatory authority, as appropriate".

HeatSaver Flue Kit Installation Instructions For Solid Fuel Appliances



KEEP THESE INSTRUCTIONS FOR FUTURE REFERENCE

Proudly Manufactured By:

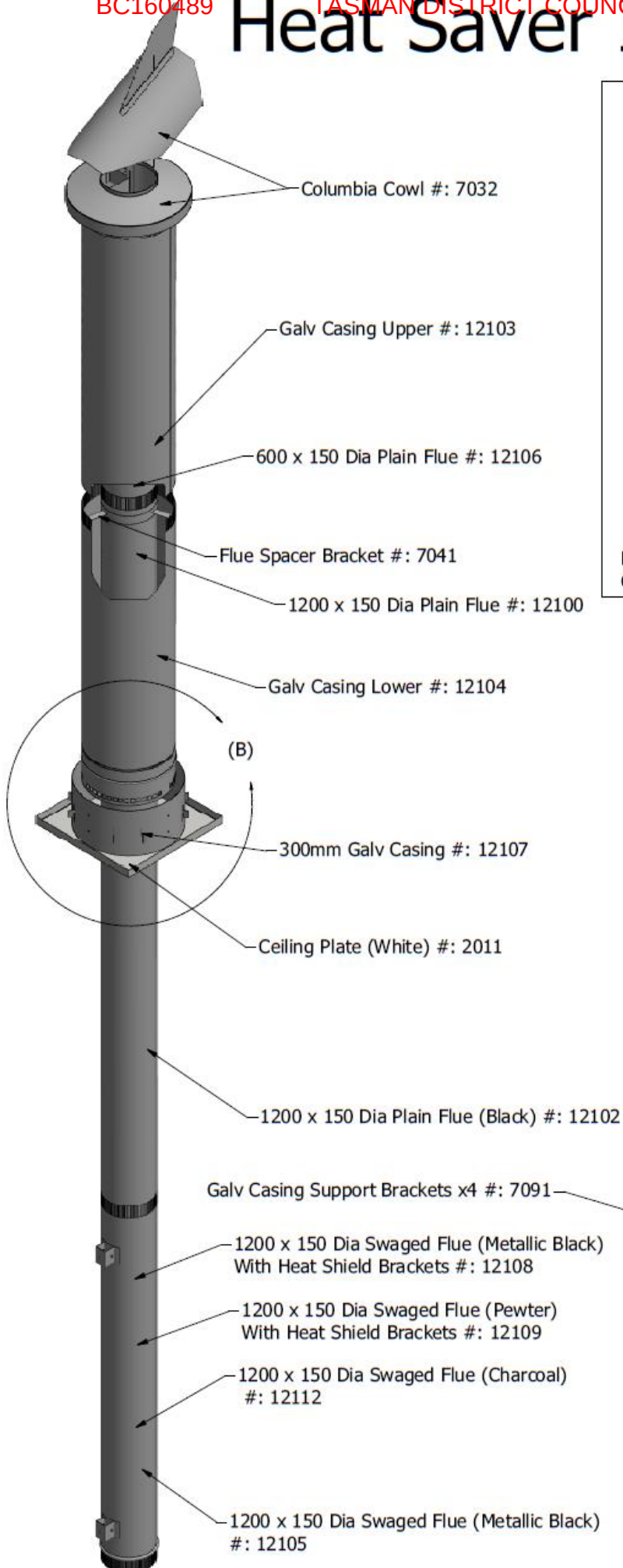


Harris Home Fires
41 Braddon St
Addington
Christchurch 8024
New Zealand
Email sales@hhf.co.nz

P O Box 4043
Christchurch 8140
New Zealand

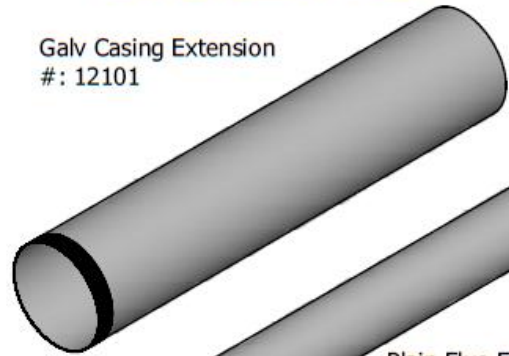
Phone 03 366 1796
Freephone 0800 3661796
Fax 03 366 1795

Heat Saver II Flue Kit



Extension Set

Galv Casing Extension
#: 12101



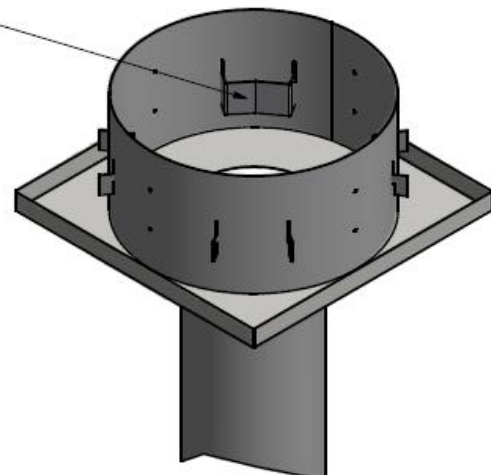
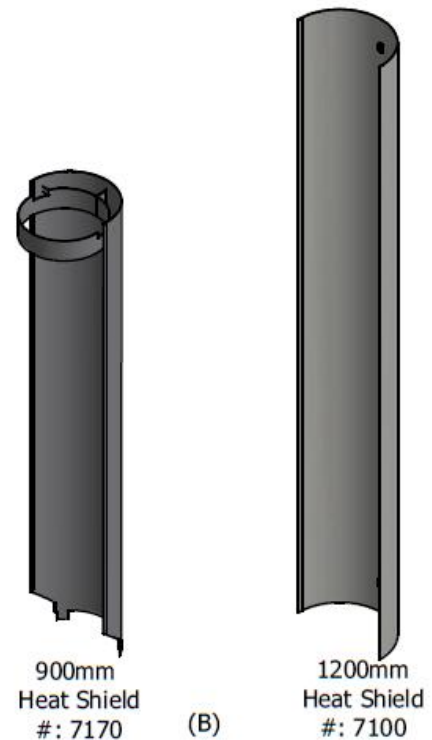
Plain Flue Extension
#: 12100

Internal Extensions

Metallic Black 1200 #: 12102

Charcoal 1200 #: 12111

Pewter 1200 #: 12110



INSTALLATION INSTRUCTIONS

- This HeatSaver flue system is tested and certified to AS/NZS 2918:2001 Appendix F, which means it is approved for use on all solid fuel appliances with a flue diameter of 150mm.
- A copy of the Laboratory Test Certificate for this HeatSaver Flue System is included as part of these Installation Instructions, (refer to paperwork with flue kit).
- Installation of any solid fuel appliance should only be carried out by suitably trained and qualified personnel.
- Position the stove to the desired position, always ensuring that the manufacturer's minimum clearances to combustibles are complied with.
- Check that there are no roofline ridges or valleys in the way, or if they cannot be avoided, that the installer knows how to weatherproof the penetration and reinstate the full strength of the structure.
- At the ceiling level, construct a square frame of 300mm x 300mm internal dimensions and cut away the ceiling materials from the inside of this frame.
- Lower the 300mm flue pipe casing into this frame and nail in place when the bottom edge is 25mm below the ceiling level and the 8 nail holes provided are touching the timber frame.
- Check all 4 locating brackets are securely in place and drop 250mm diameter lower casing in place. This will naturally settle so it protrudes 25mm below the ceiling.
- Make roof penetration, assemble and fit required flue length and install with upper casing. Secure all joins with at least 3 stainless steel rivets or self tapping screws.
- Frame and brace upper installation as required and flash the roof to shield penetration.
- Fit ceiling plate to ceiling.
- When trimming the stainless steel flue length, remember to allow for expansion when flue is hot.
- Fix HeatSaver Columbia Cowl in place.
- Secure the flue to the fire, drill through flue neck on fire and secure with 2 to 3 s/s screws or rivets.
- **All flue joints should be sealed using a flue cement. (see page 4)**

IMPORTANT

All Flue Joints Are Required To Be Sealed Using Flue Cement

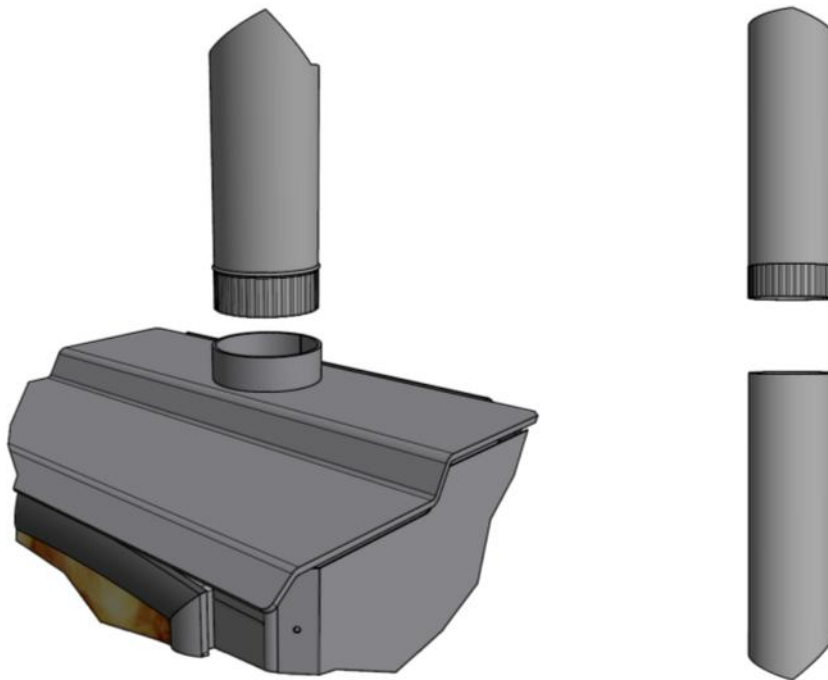
It is extremely important that ALL flue joints are sealed at the time of installation using flue cement or a suitable exhaust cement.

Woodsman fires are designed and tested with all flue joints sealed.

If flue joints are not sealed properly, it can lead to performance issues with the fire such as;

- Lower heat output of the fire, due to decreased performance
- Blocked flue
- Smoke coming out the door when open, due to decreased suction
- Hard to light

The formation of soot and creosote will not seal the flues, especially on the lower lengths, as the high temperatures inhibit its formation.



Any issues that arise as a result of the flues not being sealed, are not covered by the warranty and are not the responsibility of the manufacturer.

It is the installer's responsibility to ensure that this is done at the time of installation.

Fitting Factory Flue Shields

Your HeatSaver Flue System comes standard with a factory flue shield of one of 2 types;

- **900mm high**, contains 1 x painted metal strap. This is used for the Woodsman ECR, Blaze, Boston, Manhattan, RMF and Milford.
- **1200mm high**, This is suitable for the Woodsman Brunner, Tasman, Aspen, Tar-ras, Strongman and other branded fires which can use 1200mm high single heat shields.

Fitting the 900mm High Flue Shield

1. The heat shield has 2 'tabs' at the bottom which corresponds to 2 slots on the fire behind the flue neck. Insert the tabs.
2. Take the metal strap and fold the two ends around the flue until the meet at the back of the flue at about the height of the top of the heat shield.
3. Hold both ends together and push the tabs through the single slot at the back of the heat shield and fold out tabs to secure in place.

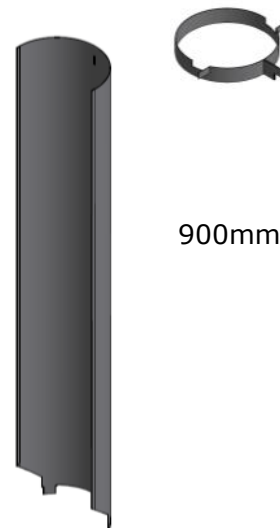
Fitting the 1200mm high heat shield

Your lower length of painted flue already has 2 location brackets attached.

1. Ensure these brackets are facing towards the back wall and centralised.
2. Secure the flue shield in place with screws

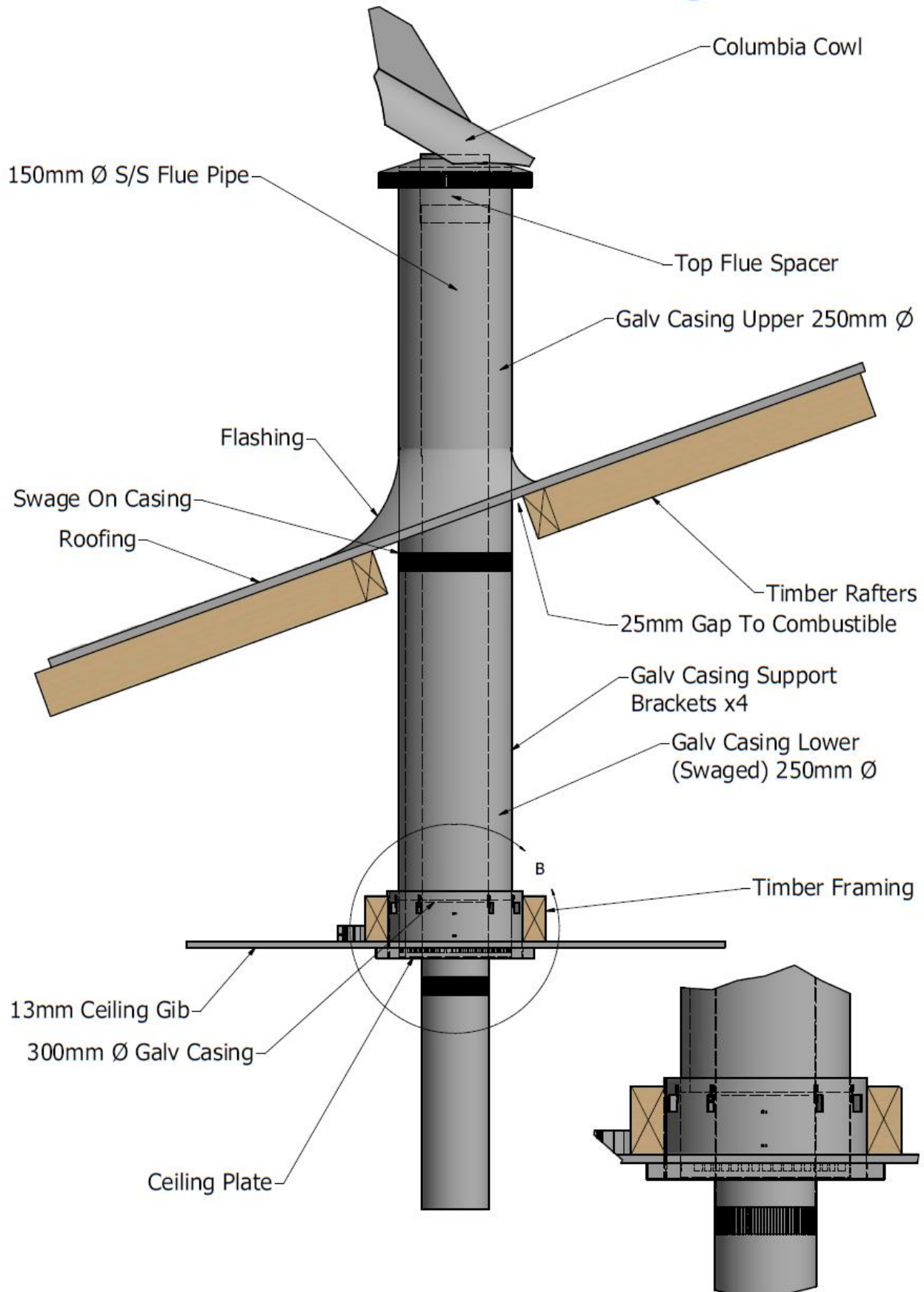


1200mm Flue Shield

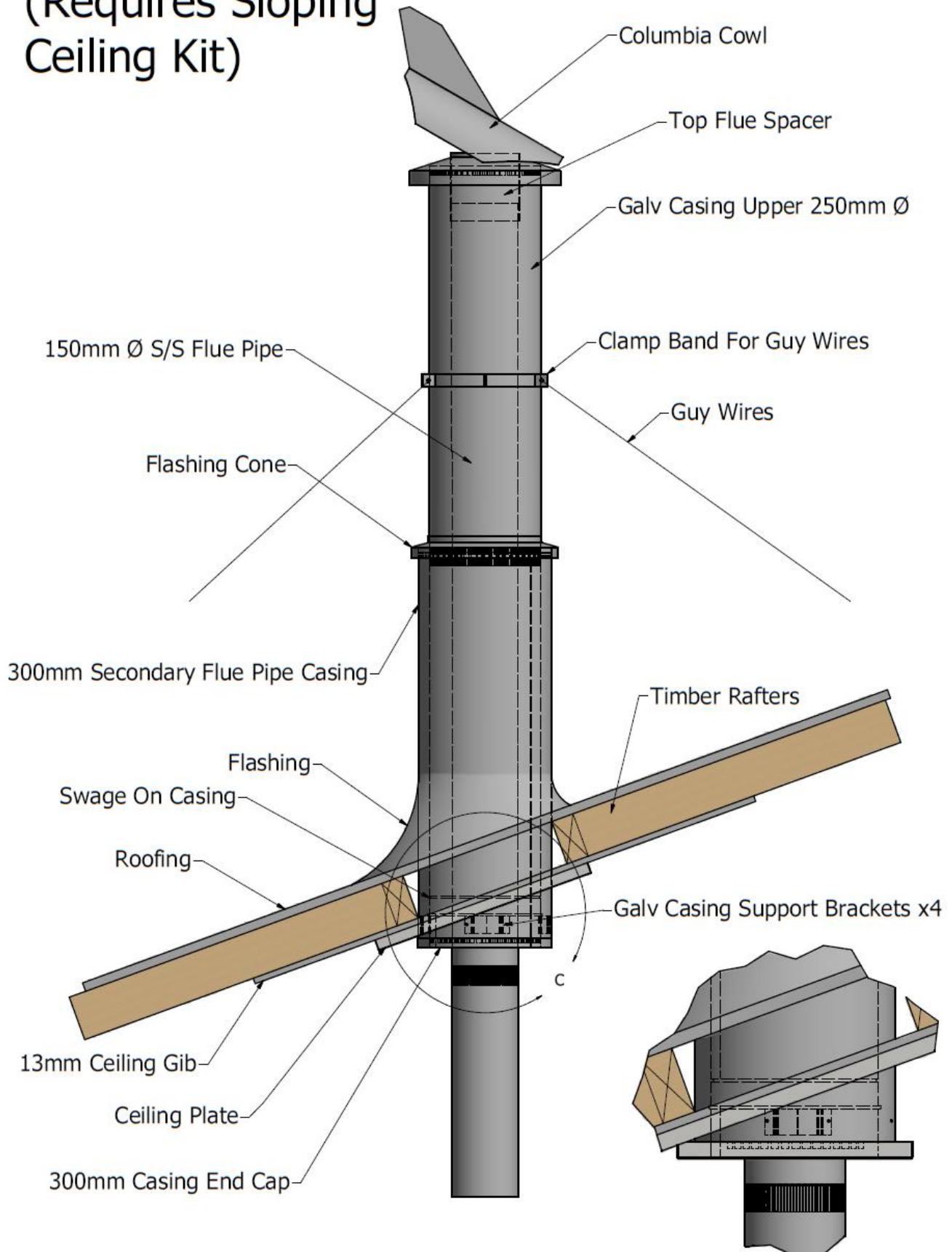


900mm Flue Shield

Standard Ceiling



No Cavity (Requires Sloping Ceiling Kit)



The perfect flashing for all tray roofs

- ✓ The large base of the Dektite Soaker dramatically reduces rainwater back up on very low or very high roof pitches and deep ribbed roofing profiles.
- ✓ Dektite Soakers are ready to use straight from the box.
- ✓ Engineered to eliminate daming.
- ✓ Faster to flash than old fashioned methods.
- ✓ The unique corrosion resistant aluminium flange is ideal for low pitch and deep profile roofs, providing a positive leak-proof seal.
- ✓ EPDM withstands temperatures from -50°C to 115°C and up to 150°C intermittently.

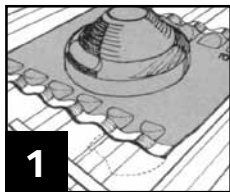
IMPORTANT:

For any pitch above 40° do not cut below the first three sizing ribs on the 603, 605 and 606

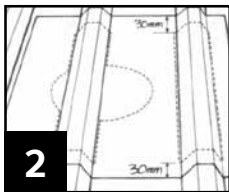


Code	Base (mm)	Pipe (mm)	Pitch	Pipe (mm)	Pitch
DF 602	410 x 360	75-160	0-60°		
DF 603	485 x 460	114-165	0-60°	114-255	0-40°
DF 605	708 x 635	250-358	0-60°	250-410	0-40°
DF 606	1006 x 905	380-470	0-60°	380-610	0-40°

Installation Instructions:



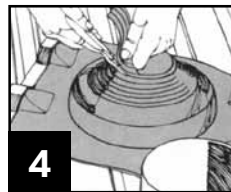
Mark position of pipe on roofing sheet, centre Dektite Soaker over mark ensuring word "top" is towards highest part of roof, and form Dektite Soaker flanges to roof profile.



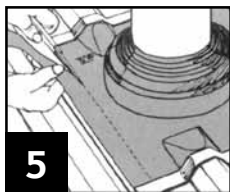
Mark ribs or corrugations to be removed to allow adequate drainage around cone. Allow at least 30mm all round to fasten Dektite Soaker's aluminium strips to roofing sheet.



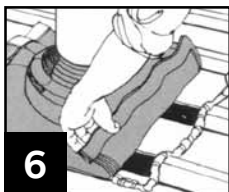
Cut out marked portions of roof, filing away sharp edges and install pipe securely in place. Where required, support cut sections of sheet with additional framing to support base.



Trim Dektite Soaker cone to suit pipe size with sharp tin snips and slide down pipe using water as lubricant.

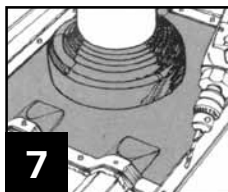


Form Dektite Soaker base into contours of roofing sheet, positioning loose strips on either side of cone in best position to ensure drainage of pan or tray. Trim excess EPDM from outside of loose strips. Trimming should be considered prior to cutting of the roof sheet.



Apply a generous bead of neutral-cure silicone sealant to underside of Dektite Soaker base along entire perimeter. The following silicones have been trialled:

- OCI Roof & Gutter N-192
- Selley's roff & Gutter
- Bostik Findley Roof & Gutter
- Dow Corning 791
- Sikasil AP Multi Purpose



Fasten flashing to roof using washered self-drilling screws or sealed rivets, ensuring Dektite Soaker forms flat trough for water run-off. Fix integral aluminium strips from centre outwards before attaching loose strips provided.





P.O. BOX 687, NELSON,
NEW ZEALAND

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EMAIL: info@appliedresearch.co.nz
WEB: www.appliedresearch.co.nz

Report 09/1943

January 27th, 2009

Page 1/1

Customer: W.H. Harris Ltd.
41 Braddon St.
P.O. Box 4043
CHRISTCHURCH

P701/1

COPY

Accreditation

Laboratory Registration Number 395

This laboratory is accredited by International Accreditation New Zealand (IANZ). The tests reported herein have been performed in accordance with the terms of our accreditation. This accreditation does not extend to any opinions or any interpretations of test results contained in this report.



IANZ has a Mutual Recognition Arrangement (MRA) with the National Association of Testing Authorities (NATA), Australia, such that both organizations recognize accreditations by IANZ and NATA as being equivalent. Users of test reports are recommended to accept test reports in the name of either accrediting body.

Compliance Certificate

Appliance: HeatSaver 150 mm Diameter Flue Kit

Test Standard: AS/NZS2918:2001 Appendix F

Full Report: 02/749R

(The full report contains the information on the test methods, details of the appliance tested and the results of the test)

This report:

Prepared by: W. S. Webley

Approved by: W. S. Webley

Release Date:

W S Webley
W S Webley
2/3/09

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WOODSMAN

**ONE OF THE THINGS
WE LOVE MOST
ABOUT WINTER.**





WOODSMAN HAVE BEEN LOVING WINTER FOR 126 YEARS.

W H Harris Limited has a proud history spanning over 126 years. We embrace our history and heritage while looking confidently forward to the future.



WHY CHOOSE WOODSMAN?

A Woodsman fire does more than simply heat the entire home. It can also heat water which saves considerably on power bills. Importantly as well, it can provide a level of comfort and security against the possibility of electricity restrictions or outages. In such emergencies a Woodsman stove model will not only provide welcome heat and light, it will also become a very effective cooktop.

- Woodsman has a model for every situation
- Woodsman offers the *HeatSaver* flue system which draws its cooling air from outside, thereby retaining precious warmth and minimising draughts.
- Woodsman flues match perfectly the colour of your Woodsman fire.
- Every Woodsman woodfire is ECan and NES clean air approved.
- Woodsman has the benefit of over 126 years experience in the industry.
- Woodsman fires are designed for New Zealand conditions and manufactured by a New Zealand owned and operated company.

Left inset image : W H Harris.

Right inset image: First partnership premises at 173 Lichfield Street, Christchurch, 1887.

OUR MISSION

Our mission is to be New Zealand's leading designer and manufacturer of solid fuel fires. We will be innovative and creative in the pursuit of our goal of producing the best performing and most reliable fires.

OUR PROMISE

To be environmentally responsible with both products and business practice. To seek out and embrace creative and innovative new ideas and designs. To look to always improve our products and service. To continue to source materials from local NZ suppliers wherever possible. To support our products 100% with industry leading warranties. To foster long term partnerships with our network of retailers. To meet or exceed our customers' expectations every time.

WARRANTY

We are supremely confident that our Woodsman fireboxes are of the highest quality and workmanship. This is why we confidently provide 15 year firebox warranties on all our woodfires and 10 year firebox warranties on our multi-fuel fires. Why should you settle for anything less? See the warranty document for details.



QUALITY ASSURANCE

W H Harris Limited was the first fireplace manufacturer from New Zealand to achieve the prestigious ISO 9001:2008 Quality Assurance certification. You can rest assured that our quality, design and workmanship is at the very highest international standard.



i love those
frosty mornings



ECR NoVo - pewter



ECR NoVo - red



ECR NoVo - brown

ECR NoVo

15
YEARS
FIREBOX
WARRANTY

Free Standing Woodstove

- 15.6 kW lab tested output
- 32L firebox capacity
- Clean air approved (except in 0.7 zones)
- Optional clean air approved water booster (ECR NoVo WB)
- Cook top
- Optional colour side panels
- Ultra durable 6mm steel firebox
- 15 year firebox warranty



And the shades of dark moody skies.

Tasman MkII



Free Standing Woodstove

- 19.6 kW lab tested output
- 56L firebox capacity
- Clean air approved for ALL zones
- Optional clean air approved wetback
- Cook top
- Ultra durable 6mm steel firebox
- Sturdy cast iron door
- 15 year firebox warranty



Tarras MkIII



Free Standing Woodstove

- Powerful 23.4 kW lab tested output
- 76L firebox capacity
- Clean air approved for ALL zones
- Optional clean air approved wetback (Tarras MkIII WB)
- Cook top
- Overnight burn*
 - up to 9 hours burn time on a single load
- Generous firebox
 - accommodates logs up to 600mm long
- Sturdy cast iron door fitted to a 6mm and 8mm steel firebox
- 15 year firebox warranty

* Subject to environment, fuel load, volume and type.
Refer to Woodsman care guide for more details.

*Wrapping up in
overcoats, scarves
and gloves.*



Flare ped - charcoal



Flare box - red



Flare legs - brown

Flare



Free Standing Woodstove

- 17.1 kW lab tested output
- 56L firebox capacity
- Clean air approved (except in 0.7 zones)
- Optional clean air approved wetback
- Cook top
- Ultra durable 6mm steel firebox
- 15 year firebox warranty
- Available in 3 colour options:
Charcoal/pewter, red/pewter & brown/pewter
- Available in 3 base options:
Pedestal, legs & box



I love
jumping in
puddles.



Totara

15
YEARS
FIREBOX
WARRANTY

Woodfire Insert

- 13.7 kW lab tested output
- 33L firebox capacity
- Clean air approved (except for 0.7 zones)
- Ultra durable 6mm steel firebox
- Zero clearance box available (for timber framing)
- 15 year firebox warranty



Aspen

15
YEARS
FIREBOX
WARRANTY

Free Standing Woodstove

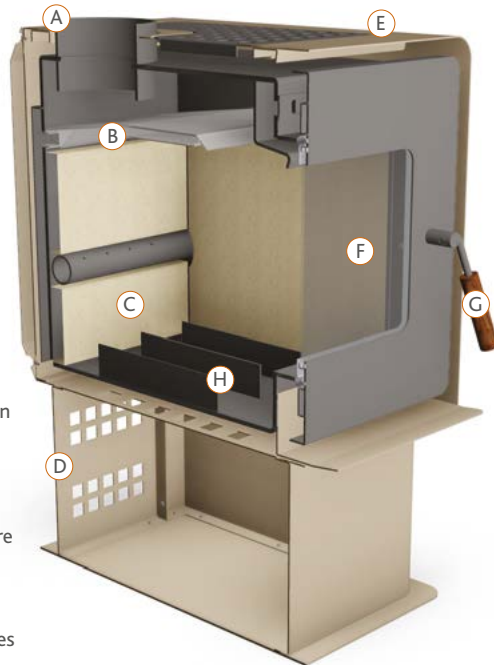
- 19.6 kW lab tested output
- 56L firebox capacity
- Clean air approved for ALL zones
- Optional clean air approved wetback
- Cook top
- Ultra durable 6mm steel firebox
- Sturdy cast iron door
- 15 year firebox warranty





DESIGNED FOR HIGH PERFORMANCE AND BUILT TO LAST.

- (A) WELDING - hand welded by our qualified welders, to ensure the highest quality
- (B) BAFFLES - made from high quality T304 grade stainless steel for unmatched longevity
- (C) BRICKS - made from compressed vermiculite board, sourced from Denmark, proven to outlast clay bricks and fibre cement board
- (D) HIGH TEMP PAINT - exclusively sourced from Belgium, painted finishes can be touched up in minutes to look brand new after years of service
- (E) AIR CONTROL - easy to use in an accessible location
- (F) GLASS - super tough 5mm Robax glass sourced from Germany
- (G) DOOR CATCH - easy to use and adjustable to ensure a proper fit without air leaks
- (H) STEEL - only the best 6mm and 8mm carbon steel plate is used for construction of Woodsman fireboxes



HEATSAVER FLUE SYSTEM.

Energy conscious homeowners are demanding greater efficiencies in home heating. As a result of this, Harris Home Fires have refined their existing design and produced the new HeatSaver flue system.

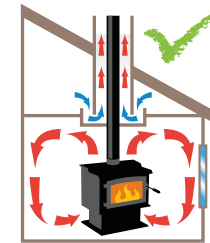
The HeatSaver flue system allows you to heat your home more efficiently by retaining the heat inside your home. Unlike conventional flue systems that draw warm air from within the room to cool itself, the HeatSaver draws its cooling air from either the ceiling cavity or outside the home if no ceiling cavity exists, thereby retaining precious warmth.

Insist on a HeatSaver flue system with your new solid fuel fire and enjoy increased warmth through greater efficiency.

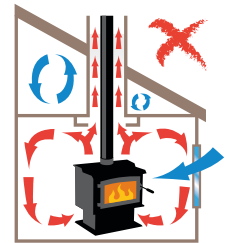
INSTALLATION WITH A HEATSAVER FLUE SYSTEM

The above diagram illustrates a HeatSaver flue system drawing its cooling air from the ceiling cavity, not from the room the fire is heating.

This flue system allows you to retain the heat inside your home.



“HeatSaver”



“HeatWaster”

INSTALLATION WITH A CONVENTIONAL FLUE SYSTEM

The diagram shows a conventional flue system drawing its cooling air from within the room, and replacing it with cold air drawn from outside the home.

With this flue system, the warmest air produced by your fire is wasted outside.

Dimensions (mm)



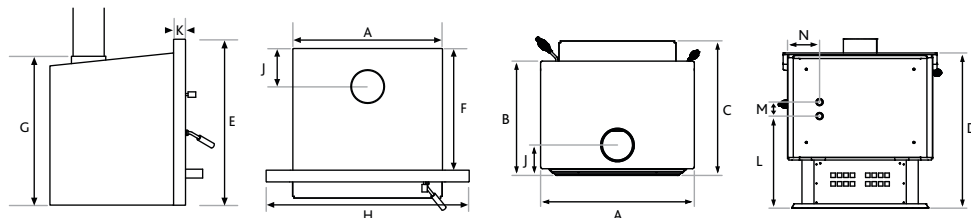
	TARRAS MkIII	ECR NOVO	FLARE	TASMAN MkII	ASPEN	TOTARA
A Overall Stove Width	765	620	630	615	615	640
B Stove Depth ¹	522	382	550	525	520	-
C Overall Stove Depth ²	640	466	602	630	633	-
D Overall Stove Height	772	705	764	757	730	-
E Insert Fascia Height	-	-	-	-	-	650
F Insert Depth	-	-	-	-	-	506
G Insert Maximum Height	-	-	-	-	-	570
H Insert Fascia Width	-	-	-	-	-	840
J Flue Centre to Back of Unit	142	155	181	145	149	137
K Insert Fascia Depth	-	-	-	-	-	62
L Wetback Height	479	415	502	478	450	-
M Wetback Centres	65	65	65	65	65	-
N Wetback Position	180	110	133	107	106	-

¹Door to Rear ²Ledge to Rear

Minimum material specifications for floor protectors on a floor of combustible material

8mm Ceramic tiles			✓			✓
9mm Eterpan LD + 8mm Ceramic tiles					✓	
Ash Floor Protector ³	✓	✓		✓		

³Any non-combustible material of any thickness



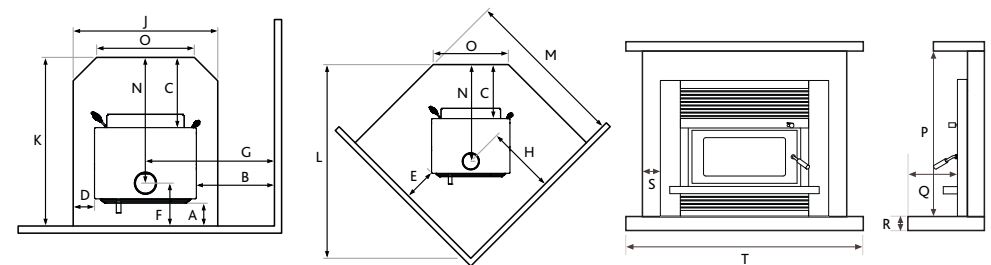
NOTE: All Specifications are subject to change without notification.
Please refer to the installation instructions when installing your Woodsman fire.

Clearances to combustibles (mm) with factory flue shield fitted



	TARRAS MkIII	ECR NOVO	FLARE	TASMAN MkII	ASPEN	TOTARA
A Rear Panel to Wall	160	110	100	120	255	-
B Side to Wall	460	490	320	450	435	-
C Firebox Opening to Front of Hearth	300	300	300	300	300	-
D Side to Hearth	67	115	110	138	118	-
E Corner to Wall	220	200	120	240	230	-
F Flue Centre to Rear Wall	302	265	281	265	404	-
G Flue Centre to Side Wall	843	800	635	758	743	-
H Flue Centre to Wall	581	517	449	545	521	-
J Hearth Width	898	850	850	850	850	-
K Hearth Length	982	792	933	945	1084	-
L Hearth Depth	1500	1259	1287	1451	1417	-
M Hearth Width	1274	1049	1122	1230	1219	-
N Flue Centre to Front of Hearth	680	527	652	680	680	-
O Hearth Front Width	600	450	600	615	615	-
P Mantel Height	-	-	-	-	-	1060
Q Firebox Opening to Front of Hearth	-	-	-	-	-	390*
R Hearth Thickness	-	-	-	-	-	0
S Side of Fascia to Combustible	-	-	-	-	-	50
T Hearth Width	-	-	-	-	-	840

*Refer to graph in installation instructions to reduce this figure





WOODSMAN

**ONE OF THE THINGS
WE LOVE MOST
ABOUT WINTER.**

New Zealand's finest range of solid fuel
burning fires produced by New Zealand's most
experienced manufacturer with a background
of over 126 years in the industry.



New Zealand's leading supplier
of advice and fires.

W H Harris Ltd.
41 Braddon St, Addington
Christchurch, 8024
New Zealand

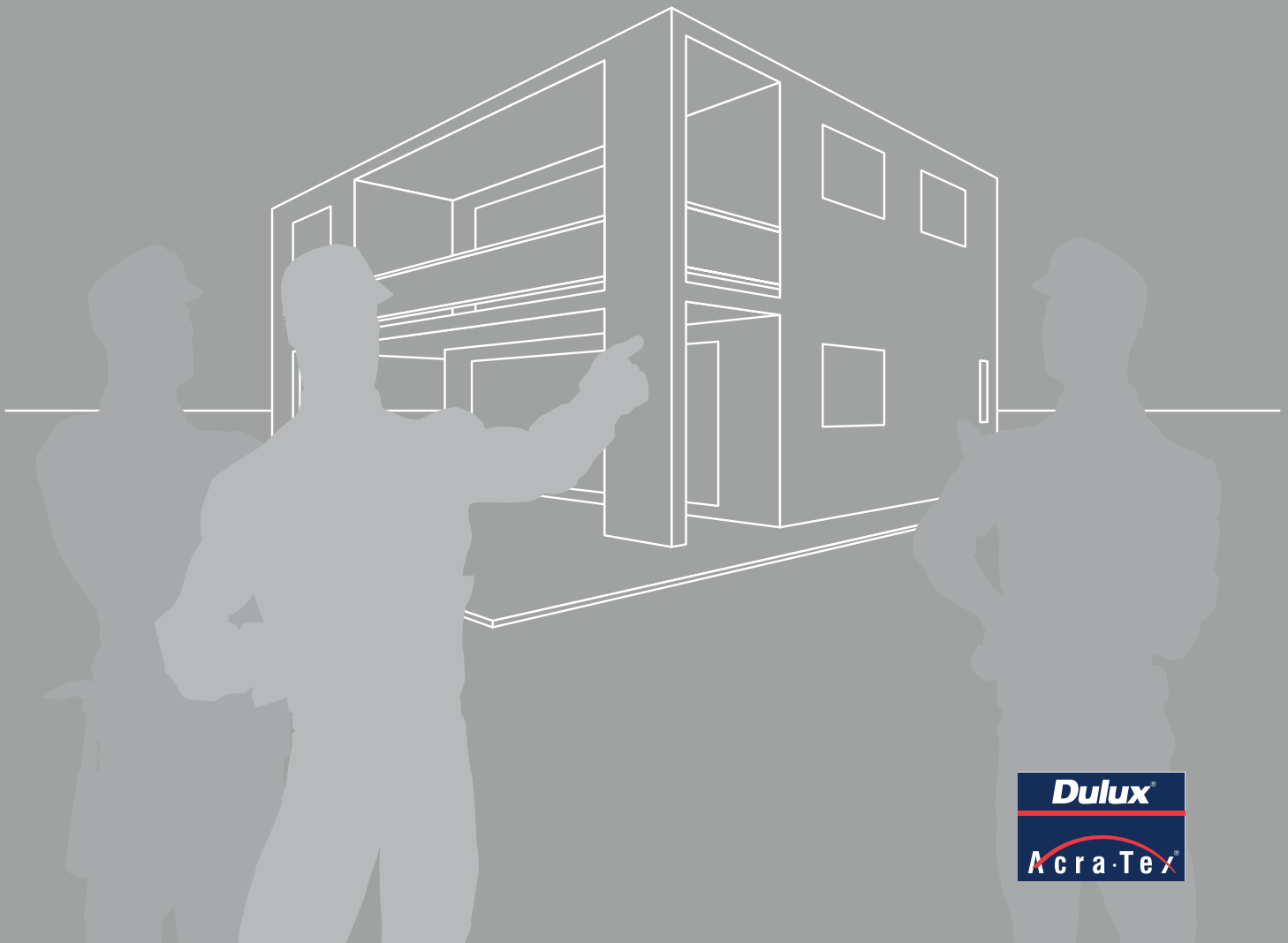
Phone + 64 3 366 1796
Freephone 0800 366 1796
Fax + 64 3 366 1795
sales@hhf.co.nz
www.woodsman.co.nz



EXSULITE[®]

INSTALLATION MANUAL AND CONSTRUCTION DRAWINGS

NEW ZEALAND



EXSULITE[®] INSTALLATION MANUAL AND CONSTRUCTION DRAWINGS

THE SOLUTION TO
LIGHTWEIGHT WALL
CLADDING SYSTEMS.

About Dulux [®] AcraTex [®] <i>AcraTex Exsulite[®]</i> CodeMark [™] Certified	1
Introduction	2
Installation General Building Regulations Materials	3
Cavity Battens Fixings <i>Dulux AcraTex Applied Products</i> Paint Coatings	4
uPVC Flashings Reinforcing Mesh Installation and Application	5
Handling and Storage Construction Information Building Underlay	6
Electrical Cables Pipes / Outlets / Fixing Blocks	7
C1 Outbreak of Fire C3 Spread of Flame E2 External Moisture	8
Construction / Control Joints Cladding System Maintenance Health and Safety	9
Drawings	10

This manual is provided as a source of information and is only intended for guidance. It cannot fulfill the functions of a professional, engineering or design consultancy. Professional advice should be sought to determine the suitability of this product for the intended end use. The use of sound building practices should always be applied and this manual may not contain all the necessary relevant information. Please seek professional advice on all aspects of design, engineering and installation.

1 About *Dulux AcraTex*

Dulux New Zealand produces and supplies an extensive range of products. *Dulux AcraTex* (originally standing for Acrylic Texture) has been part of the *Dulux* Premium Trade offer since 1987 and supplies High Build Performance Coatings for the protection of masonry. The dynamic requirements of cementitious substrates and the changing face of the building industry with emerging new substrate technologies is why *AcraTex* exists within the *Dulux* world – serving to provide a focus on differentiated products and systems for the building industry.

2 *Dulux AcraTex Exsulite* EIFS Cladding System

Introducing a system with the quality and performance that you would expect from *Dulux*. A system that includes wrap, thermal cladding, acrylic texture coating and coloured topcoat.

The *Dulux AcraTex Exsulite* External Insulating and Finishing System (EIFS) Cladding System integrates four key components:

- Continuous weatherproof air barrier & moisture management system
- Efficient high 'R' rated insulation value
- A weatherproof building envelope
- Latest fashionable colours & finishes providing a sustainable walling system unlike any other

The *Dulux AcraTex Exsulite* EIFS Cladding System is a "cavity" system for new residential and light commercial construction. It can also be used as a facade remedial system for rectification and rejuvenation projects when used as a direct fix system.

3 CodeMarkTM Certified

Exsulite is CodeMark certified as a fully integrated Building System in compliance with the Building Code of New Zealand. *Exsulite* CodeMark certification provides building certifier's confidence in total design and componentry and together with an *Exsulite* Certificate of Installation from industry qualified contractors confirms "as built" insets design.



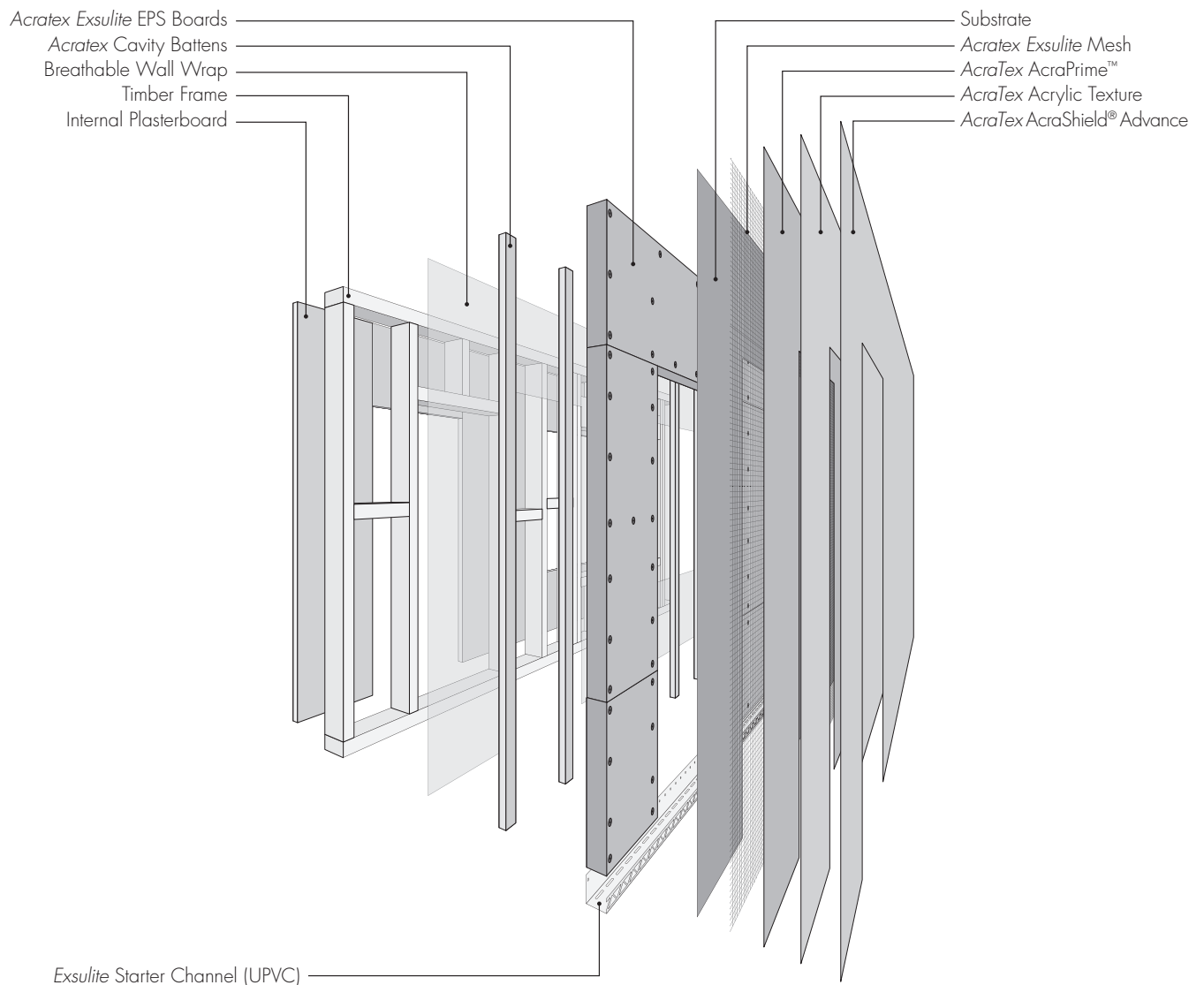
4 Introduction

These details represent typical *Dulux AcraTex Exsulite* EIFS Cladding System construction techniques and are designed to assist specifiers. These details are not a complete and comprehensive range, but do describe the most commonly used details, installation and application of this EIFS system.

All of the construction details on the following pages have been designed by *Dulux New Zealand* to ensure the *Dulux AcraTex Exsulite* EIFS Cladding System meets all the relevant provisions of the New Zealand Building Code. *Dulux New Zealand* reserves the right to revise and change its construction details without notice.

This specification is for the installation of the *Dulux AcraTex Exsulite* EIFS Cladding System. The *Dulux AcraTex Exsulite* EIFS exterior cladding system provides a fully insulated, drained and weatherproof barrier for residential and commercial construction.

The *Dulux AcraTex Exsulite* EIFS Cladding System comprises of a 50mm EPS board, bag mix render, alkali resistant fibreglass mesh, finishing render and a *Dulux* paint coating system to produce a lightweight durable, impact resistant cladding system.



5 Installation

The *Dulux AcraTex Exsulite* EIFS Cladding System must only be installed by *Dulux* New Zealand Approved Contractors who are Proprietary Plaster Cladding Systems (PPCS) qualified, have a good working knowledge of the *Dulux AcraTex Exsulite* EIFS Cladding System and its products and are up-to-date with current proprietary application instructions.

Due to the nature of the system all the plaster and render products, fibreglass mesh, flashing components and EPS sheets that make up the *Dulux AcraTex Exsulite* EIFS Cladding System must be supplied directly to the installing contractor by *Dulux* New Zealand or one of its approved agents.

6 General

Dulux New Zealand is an ISO 9001 registered company and, subject to the terms of the relevant warranty, guarantees that all products and components of the system are manufactured to specification in accordance with independently audited quality controlled systems. *Dulux* New Zealand shall not be liable for any defective workmanship, installation or application of its products by any contractor approved or otherwise or any other person. Please see the terms and conditions of the relevant warranty for further information.

The long term durability of the *Dulux AcraTex Exsulite* EIFS Cladding System is dependent upon the correct preparation, installation and application of all its products and components in strict accordance with all the relevant written instructions and detail sheets. On-site application and installation is beyond the control of *Dulux* New Zealand and *Dulux* New Zealand cannot guarantee workmanship or the correct preparation, application and installation of its products or the EIFS system. The approved *Dulux AcraTex Exsulite* EIFS Cladding System contractor shall take overall responsibility for all on-site supervision, staff training, installation and quality control of the *Dulux AcraTex Exsulite* EIFS Cladding System.

7 Building Regulations

The *Dulux AcraTex Exsulite* EIFS Cladding System when installed, applied and maintained in accordance with the written instructions, recommended installation details and maintenance instructions from *Dulux AcraTex* will meet or contribute to meeting the relevant provisions of the New Zealand Building Code:

- Structure, B1.3.1, B1.3.2 and B1.3.4.
- Durability, B2.3.1 (b).
- Protection from Fire, C3.4 (a) Walls, C3.5 Spread of Fire, C3.6 (buildings within one meter of a shared boundary).
- External Moisture, E2.3.2, E2.3.3, E2.3.5, (as applicable to concrete wall systems).
- Hazardous Building Materials, F2.3.1.

8 Materials

- 1) *Dulux AcraTex* Cavity Battens.
- 2) *Dulux AcraTex* 50mm *Exsulite* EPS board.
- 3) *Dulux AcraTex* 50mm uPVC window and door sill, jamb, base and head cavity closer.
- 4) *Dulux AcraTex Exsulite* Mesh
- 5) *Dulux AcraTex* bagged renders.
- 6) *Dulux AcraTex* paint coating system.

9 AcraTex Cavity Battens

All exterior framed surfaces shall be fully battened using *Dulux AcraTex* supplied EPS cavity battens. The cavity battens are to be placed on all studs at full length and where required for horizontal fixings installed with a minimum 5° slope. Additional battens are required on internal and external corners and around all openings as per standard cavity batten details.

10 Fixings

50mm system on timber frame – 100mm x 3.6mm hot-dipped galvanised flat head nails used in conjunction with a 42mm diameter plastic washer.

50mm system on steel frame – 10 gauge x 100mm stainless steel screws used in conjunction with a 42mm diameter plastic washer.

Applied to masonry and concrete

A bonding compound made up from a 20kg bag of *AcraTex* render adhesive in conjunction with polypropylene construction fasteners (dutch darts) driven into pre drilled holes at 600 centres in the concrete substrate.

PVC Adhesive – should be an approved construction adhesive.

MS Sealant – should be an approved Building Research Authority New Zealand (BRANZ) appraised paintable modified silicone sealant.

11 Dulux AcraTex Applied Products

Dulux AcraTex Detailing render to be used for the application and installation of soft alkali resistant mesh to sill and jamb uPVC window door flashings details.

Dulux AcraTex Renderwall P400 to be used for the application and installation of alkali resistant hard mesh to the broad wall areas.

Finishing coats can be either *Dulux AcraTex* Acrylic texture coats or *Dulux AcraTex* Float bagged render applied as per the *Dulux* specification.

12 Paint Coatings

1) If *Dulux AcraTex* acrylic finishing texture has been specified and applied a minimum of one top coat of *AcraShield* Advance must be applied as per the *Dulux* specification or other *Dulux* top coats as specified.

2) If *Dulux AcraTex* Float bagged render has been specified and applied a minimum of *Dulux* HAR primer 501/8 must be used in conjunction with the specified top coats as per the *Dulux* specification.

All paint coating systems must be supplied by *Dulux* New Zealand and applied as per the *Dulux* New Zealand specification and in conjunction with AS/NZS 2311:2009 as specified at the time of application. The paint system should comply with any part of 7, 8, 9 or 10 of AS/NZS 3730 and must meet the performance requirements of NZBC B2.3.1 (c) 5 years and **all paint colours must have a light reflective value (LRV) of no less than 40% irrespective of gloss level.**

13 uPVC Flashings

All sill, jamb, head and base and pre-meshed corner flashings must be made from a rigid uPVC suitable for exterior applications and must be supplied by *Dulux* New Zealand or one of its approved agents.

Aluminium head flashings must be installed by others over all window heads and door openings.

The jamb flashings on recessed aluminium joinery must be flashed with *Dulux AcraTex* uPVC jamb flashings and sealed with an approved BRANZ appraised sealant. uPVC sill flashings on recessed aluminium joinery are flashed with *Dulux AcraTex* uPVC sill flashings in conjunction with a *Dulux AcraTex* corner soaker to form a continuous joint between sill and jamb flashings.

Where a *Dulux AcraTex* uPVC sill flashing cannot be used because a recessed curved or irregular shaped joinery detail has been specified or used e.g. circular window joinery, then the sill must be formed, flashed and sealed using an alternative means and approved by the specifier and local territorial authority.

All base flashings used as cavity closers are punched to achieve a minimum ventilation openings of 1000mm² per lineal metre.

All detail drawings are the sole responsibility of the specified designer.

14 Reinforcing Mesh

The alkali-resistant woven fibreglass reinforcing mesh used in the *Dulux AcraTex Exsulite* EIFS Cladding System can be specified in two grades to provide adequate resistance against impact loading likely to occur in normal residential and commercial buildings. Where the likelihood of impact damage may occur in commercial situations then this should be considered at the design stage and appropriate protection should be specified such as bollards or barriers should be provided for in vulnerable areas.

Mesh specification for Residential and light commercial – alkali-resistant hard mesh with a nominal 4 x 4mm aperture weighing no less than 152g/m².

Mesh specification for commercial and high impact areas – alkali-resistant hard mesh with a nominal 4 x 4mm aperture weighing no less than 360g/m².

15 Installation and Application

All specified installation and application of the works must be carried out by a PPCS qualified contractor approved by *Dulux* New Zealand.

All specified installation and applications of the works must be signed off by a Department of Building & Housing (DBH) certified Licensed Building Practitioner contractor approved by the local TA.

16 Handling and Storage

All handling and storage of materials during delivery and or on site is the responsibility of the approved contractor. Dry storage must be provided on site for all the materials and components of the *Dulux AcraTex Exsulite* EIFS Cladding System. All the *Dulux AcraTex Exsulite* EIFS Cladding System composite boards and uPVC flashings must be protected from direct sunlight and damage. It is recommended that all the composite boards are stored flat, dry and protected from damage.

17 Construction Information

The *Dulux AcraTex Exsulite* EIFS Cladding System is an insulating external wall cladding system for use with new or existing timber framed structures, steel framed structures and masonry or concrete structures. The structure supporting the cladding system must be designed and constructed to comply with all the relevant performance requirements of the NZBC. All wall studs must not exceed 600mm centres and dwangs or noggs must be installed at maximum 800mm centres.

The *Dulux AcraTex Exsulite* EIFS Cladding System must not be used in situations where water may pond. A minimum slope of 15° is required on all uPVC sills and metal cap flashings. The system must not be used as a roof cladding. Particular attention to detail and workmanship must be given to the weatherproofing details contained in the technical literature relating to the flashing and sealing of building penetrations or junctions with other building materials and buildings.

The minimum heights of finished floor levels above adjoining ground levels, and minimum horizontal clearances from adjoining ground, shall comply with the requirements of NZS 3604:2011 and NZBC E2/AS1.

It is the Building owners responsibility to maintain these NZBC requirements during the life time of the building.

It is the designer's responsibility to ensure that the choice and position of the joinery will minimize the stress upon the uPVC jamb and sill details by minimizing the expansion and contraction of the window and door joinery. Depth of joinery colour can be a contributing factor.

18 Building Underlay

A building wall underlays must be used against the framing underneath the cavity battens in all circumstances. Wall underlays include flexible membranes such as kraft based papers and synthetic underlays as well as rigid sheathings including plywood and fibre cements sheets. All wall underlay's shall comply with the requirements of NZBC Acceptable Solutions E2/AS1 table 23.

Flexible wall underlays are suitable for use in NZS 3604 Wind Zones up to and including Very High. Rigid wall underlays are required in the Extra High Wind Zones and specific design wind pressures within scope of the BRANZ Appraisal.

Unlined gables and walls must incorporate a rigid sheathing or an air barrier which meets the requirements of NZBC Acceptable Solutions E2/AS1 Table 28.

Flexible building underlay's must be installed horizontally and be continuous around corners. Wall underlays must be lapped 75mm minimum at horizontal joints and 150mm minimum over studs at vertical joints.

Generic rigid sheathing materials must be installed in accordance with NZBC Acceptable Solutions E2/AS1 and be overlaid with a flexible wall underlay. Proprietary systems shall be installed in accordance with the manufacturer's instructions and the NZBC.

19 Electrical Cables

PVC sheathed electrical cables must be prevented from being in direct contact with the EPS composite board. Where electrical cables must penetrate the EPS composite board for exterior connections the electrical cables must be supported by passing through an electrical conduit.

20 Pipes / Outlets / Fixing Blocks

Before any rendering begins all the plumbing the will penetrate the cladding system must be in place. If the plumbing work cannot be finished prior to the rendering, short sections of pipe must be installed through the wall so that they can be sealed in place before rendering commences. This also applies to metre boxes, outside taps and light fittings, etc.

Treated timber backing blocks for items such as downpipe brackets, outside taps and light fittings must be fixed to the framing at the appropriate locations. The PPCS approved contractor will cut the cladding board around these timber blocks after applying a layer of proprietary EIFS membrane waterproofing tape before rendering over these locations.

Design Criteria Building Wind Zones

The *Dulux AcraTex Exsulite* EIFS Cladding System is suitable for use in all wind zones up to and including very high, as defined in NZS 3604:2011, when fixed as per table 1 below.

Table 1: EPS Sheet Fixing Centres for Edge and Intermediate Studs.

NZS 3604:2011 Wind Zones with studs at maximum 600mm centres	Maximum fixings centres (mm) Beyond 1.5m from an external corner	Maximum fixings centres (mm) Within 1.5m of an external corner
Low	300	300
Medium	300	200
High	300	150
Very High	300	150

Note: One fixing is also required into each dwang at mid-dwang length.

Note: 42 mm PVC fixing washers must be used.

The *Dulux AcraTex Exsulite* EIFS Cladding System is also suitable for use in the Extra High Wind Zones of NZS 3604:2011 and in specific design wind pressures up to and including differential 2.5 kPa ULS when fixed as per table 2 below.

Table 2: EPS Sheet Fixing Centres for Edge and Intermediate Studs.

NZS 3604:2011 Extra High Wind Zone and specifically designed buildings up to 2.5kPa design differential ULS wind pressure with studs at maximum 400mm centres.		
Maximum vertical fixing centres (mm) along studs	Maximum horizontal fixing centres (mm) along top and bottom plates	Maximum horizontal fixing centres (mm) along dwangs or noggs
150	200	150

Note: 42mm PVC fixing washers must be used at all times.

21 C1 Outbreak of Fire

The *Dulux AcraTex Exsulite* EIFS Cladding System must be separated from heating appliances, fire places, chimneys and flues in accordance with the requirements of Acceptable Solutions C/AS1 Part 7 for the protection of combustible materials.

22 C3 Spread of Flame

Internal: The *Dulux AcraTex Exsulite* EIFS Cladding System contains foamed plastic (i.e EPS) and must comply with the requirements of NZBC C/AS1. Joints in flame barriers and openings for penetrations must be designed to prevent flame contact with EPS.

The EPS used with *Dulux AcraTex Exsulite* EIFS Cladding System meets the flame propagation criteria in of AS/NZS 1366. Interior surface finishes must comply with the appropriate requirements of C/AS1 for fire in terms of spread of flame and smoke development indices.

External: *Dulux AcraTex Exsulite* EIFS Cladding System meets the performance provisions of NZBC C/AS1 for use as an external wall cladding system on buildings in all purpose groups at any distance to the boundary.

Where buildings are of three or more floors and the *Dulux AcraTex Exsulite* EIFS Cladding System extends to cover the walls of three or more floors, the requirements for barrier to vertical fire spread in the EPS as set out in NZBC Acceptable Solutions C/AS1 table 5.1 must be met. Design of the barrier joint must be specifically detailed by the designer to meet the NZBC, including blocking of the cladding cavity and wall framing cavity, and installing of flashing and sealing systems to collect and direct any moisture to the outside of the cladding system at this point.

23 E2 External Moisture

Alternative weather sealing details to those specified by *Dulux* New Zealand, which are detailed by the designer or are used by the builder, are not covered by this specification.

24 Construction / Control Joints

Construction/control joints are required in external walls longer than 20 metres in length or 7 meters in height including gables. Inter-storey drainage joints must be provided for in walls over 2 stories in height in accordance with the requirements of NZBC E2/AS1, paragraph 9.1.9.4(b).

25 Cladding System Maintenance

The *Dulux AcraTex Exsulite* EIFS Cladding System must be regularly cleaned, at least annually by washing with clean water to remove dirt and to maintain the paint finish. Grime may be removed with warm water and detergent.

It is recommended that the *Dulux* paint system is recoated at least once every 10 years dependant on colour and the environment that it is located in, for example coastal environments tend to be harsh and recoating is required more often than sheltered locations.

Regular checks, at least annually must be made of the entire system to ensure that the coating and sealants remain weather tight and to ensure that the flashings and other joints continue to perform their function so that weather driven water will not penetrate the system.

26 Health and Safety

All OSH safety requirements must be adhered to and full personal safety equipment worn at all times when working on the building site and installing the system.

These include hard hat, high visibility clothing and safety shoes.

When cutting equipment is being used wear safety glasses, noise protection (if required) and gloves.

Make sure electrical equipment is isolated when in use.

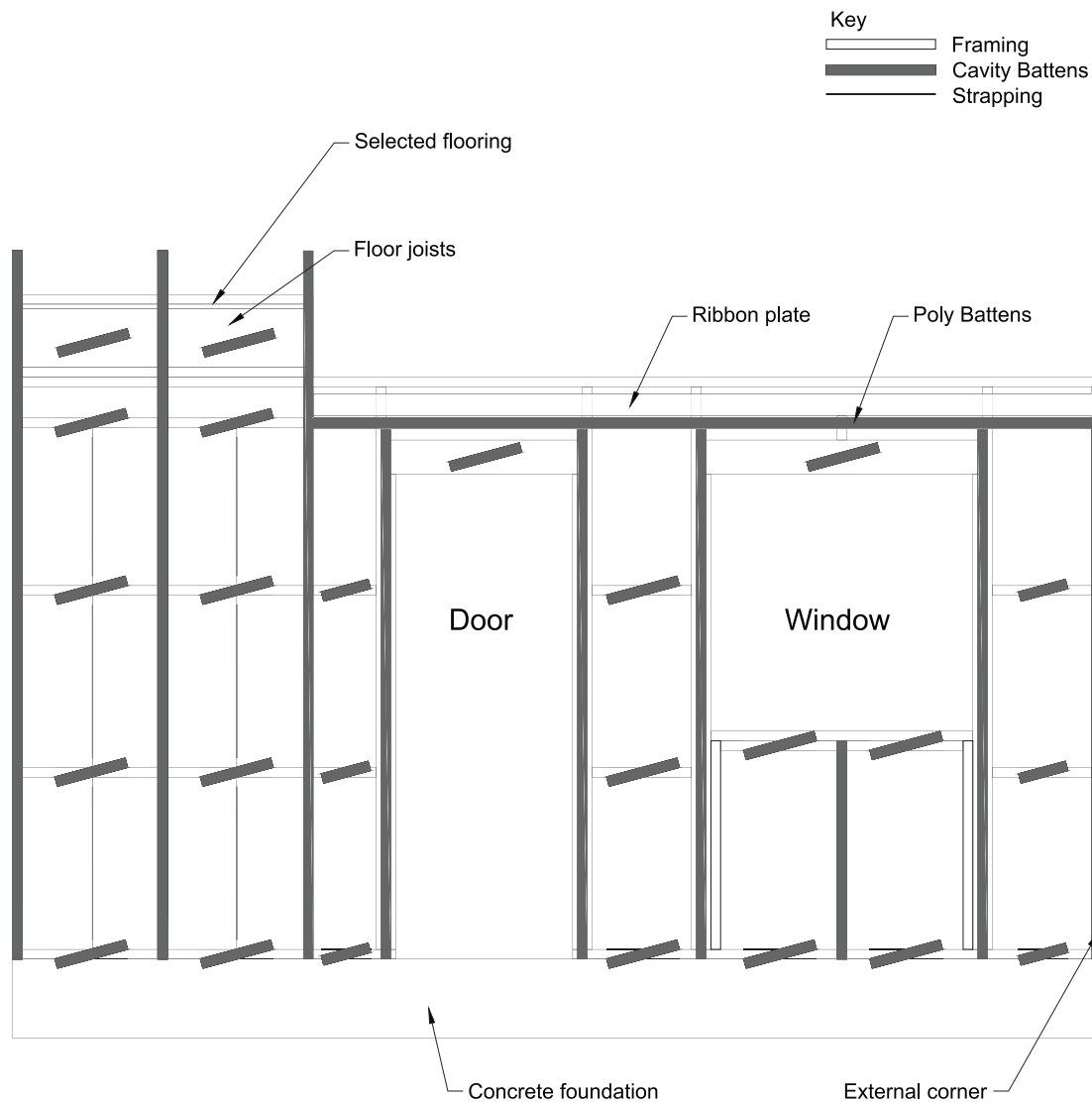
That ladders and scaffolding are secure, installed and used correctly.

Ensure that your First aid training and equipment are up to date.

Always wear gloves, safety glasses and a dust mask when mixing renders.

Always consider your other work mates on site.

This drawing is to be read in conjunction with Dulux® Acratex® technical literature.

**Notes:**

- All horizontal packers should be placed at approximately 15° slope (although must be a minimum of 5°).
- It is permissible to place more than one packer between vertical battens provided all other rules are met.
- There must be a 50mm or more gap between horizontal packers and any other packer or battens.
- Studs wider than 450mm must have vertical polystyrene straps or battens.

Detail: 01

e110 eifs_batten layout.dwg

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BATTEN LAYOUT

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