

# SHADOWCLAD® SPECIFICATION & INSTALLATION GUIDE

**FOR MIXED CLADDING SYSTEMS  
ON CAVITY CONSTRUCTION**

MAY 2018





# shadowclad®

## MIXED CLADDING SYSTEMS ON CAVITY CONSTRUCTION

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## 1.0 SHADOWCLAD® PRODUCT RANGE

Manufactured in New Zealand by Carter Holt Harvey® Woodproducts, Shadowclad® panels are suitable for use as an exterior wall cladding when using H3 treated panels or as an internal wall or ceiling lining when using untreated panels.

Shadowclad is manufactured under a third party audited quality control programme to monitor compliance with AS/NZS 2269 Plywood Structural. All Shadowclad products carry Engineered Wood Products Association of Australasia (EWPAA) Joint Accreditation System – Australia and New Zealand (EWPAA/JAS-ANZ) certification.

Shadowclad has been BRANZ appraised as a cladding material for cavity wall construction. To view the BRANZ Appraisal No. 764 (2017) visit [www.shadowclad.co.nz](http://www.shadowclad.co.nz).

Our other plywood products:

- For specific information on plywood as a rigid air barrier, and/or bracing, refer to the current Ecoply® Barrier Specification and Installation Guide.
- For information relating to Ecoply® structural plywood and applications other than exterior cladding, refer to the current Ecoply Specification and Installation Guide.

These are all available for download from [www.chhwoodproducts.co.nz](http://www.chhwoodproducts.co.nz).

The Shadowclad for cavity construction BRANZ Appraisal No. 764 (2017) does not cover:

- Shadowclad® used as an interior lining.
- Handiply® Utilityclad plywood products.
- Shadowclad in direct fix cladding applications.

Shadowclad products must be competently installed in accordance with good building practices and sound design principles to satisfy the requirements of the Building Act 2004, the New Zealand Building Code (NZBC), and applicable New Zealand Standards. This is the responsibility of building owners and the design professionals and builders that they engage. **This Shadowclad® Specification and Installation Guide for Mixed Cladding should be read in conjunction with the Shadowclad Specification and Installation Guide for Cavity Construction, which contains information, limitations, and cautions regarding the properties, handling, installation, usage, and the maintenance of Shadowclad products.** However, to the maximum extent permitted by law, CHH Woodproducts assumes no legal liability to you in relation to this information.

*The information contained in this document is current as at May 2018. It is your responsibility to ensure you have the most up to date information available.*

*The information contained in this publication relates specifically to Shadowclad® structural plywood products manufactured by Carter Holt Harvey Woodproducts and must not be used with any other plywood manufacturer's products no matter how similar they may appear.*

*Alternative plywood products can differ in a number of ways which may not be immediately obvious and substituting them for Shadowclad structural plywood products is not appropriate, and could in extreme cases lead to premature failure and/or buildings which do not meet the requirements of the NZBC.*



## 1.1 TECHNICAL INFORMATION & CAD DETAILS

This brochure should be read in conjunction with the Shadowclad® Specification and Installation for Cavity Construction. When specifying or installing any Shadowclad product visit [www.shadowclad.co.nz](http://www.shadowclad.co.nz) or call 0800 326 759 to ensure you have current specification material and any relevant technical notes.

**Having trouble installing Shadowclad®? Visit [www.shadowclad.co.nz](http://www.shadowclad.co.nz) or download the Shadowclad APP to view the installation animation of common Shadowclad junctions.**

## 1.2 FLASHING DESCRIPTIONS & RANGE FOR MIXED CLADDING SYSTEMS

### Shadowclad® Aluminium Exterior Flashing Range

Manufactured from extruded aluminium the Shadowclad® flashings range is purpose designed to complement Shadowclad panels used in exterior applications with alternate cladding systems.

Shadowclad flashings achieve 50 year durability in all NZS 3604 exposure zones including zone D (sea spray).

**Note: Stainless steel fasteners should not have contact with or pierce aluminium flashings. Where stainless steel fasteners are to pierce flashings, stainless steel flashings should be used.**

The range includes internal and external angles, horizontal and inter-storey 'Z' flashings and a cavity base closure. The Shadowclad flashings range has now been expanded to include a 'T' flashing for mixed junctions. Refer to table 1 in this guide.

Aluminium horizontally installed flashings come in 3600mm lengths and vertically installed angles are available in 3000mm and 6000mm lengths. Refer to the Shadowclad Specification and Installation Guide for other flashings.

The information, details and performance statements provided in this guide are based on Shadowclad plywood panels and Shadowclad flashings being used together as a system. CHH Woodproducts does not recommend that Shadowclad plywood panels be installed with non-CHH Woodproducts flashings. Flashings not supplied by CHH Woodproducts must, as a minimum, comply with E2/AS1 specifications and be compatible for use with H3.1 LOSP or H3.2 CCA treated plywood. It is the Designer's responsibility to ensure that any non-CHH Woodproducts flashings are fit for purpose and compatible with Shadowclad products and any other building materials or components of the exterior wall.

### Aluminium Flashing Finishes

Shadowclad aluminium flashings are available in either natural anodised finish (silver colour), powder coated (range of colours available via [www.shadowclad.co.nz](http://www.shadowclad.co.nz)) for immediate installation or in mill finish for powder coating in alternative colours.

Shadowclad vertical aluminium flashings are provided in 3.0m length for single storey application and 6.0m length for double storey application.

### Exterior Flashings & H3.2 CCA Treated Shadowclad

#### Exposure Zone B & C

H3.2 CCA treated Shadowclad in exposure zones B and C (where flashings are exposed to weather) must use mill finished flashings which must be powder coated to the desired colour or use stainless steel flashings.

H3.2 CCA treatment contains copper. As such, some form of isolation between aluminium flashings and H3.2 CCA treated panels such as powder coating of the flashings is required. Refer to Table 21 "Compatibility of Materials in Contact" in E2/AS1 for more information.

#### Exposure Zone D (Sea Spray)

In exposure zone D (sea spray) flashings exposed to weather must be stainless steel for H3.2 CCA treated Shadowclad.

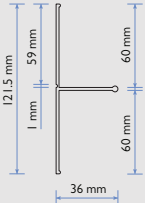
#### H3.2 CCA Treated Shadowclad

Uncoated aluminium flashings are not permitted to be in direct contact in any zone with H3.2 CCA treated Shadowclad under any circumstances.

Table 1

### Aluminium

### Shadowclad® Mixed Junction Flashings Range

Flashing	Line Drawing	Description	Finish Available	Length (mm)
'T' Flashing		'T' Flashing for mixed cladding junctions	Natural Anodised, Colour Powder Coated or Mill	3000 or 6000

For the current range of Colour Powder Coated options please visit [www.shadowclad.co.nz](http://www.shadowclad.co.nz).

## 1.3 PRESERVATIVE TREATMENT

Shadowclad® is available either H3 treated for use as an exterior cladding or untreated (Natural finish products only) for interior wall and ceiling linings. H3 treated Shadowclad is treated in accordance with AS/NZS 1604.3 with the standard treatment for Shadowclad panels being H3.1 LOSP (Azole). H3.2 CCA treatment is available for Shadowclad Ultra (pre-primed Shadowclad) if required.

**Shadowclad® is envelope preservative treated. Where sheets are cut, cuts must be coated with a brush on timber preservative in accordance with the relevant Manufacturer's instructions. Holdfast® Metalex® Concentrated Timber Preservative Clear (Holdfast® Metalex® Clear) is recommended. Failure to properly apply preservative to cut edges will negatively affect the durability of cut panels.**

### H3.1 LOSP Treatment

H3.1 LOSP treatment is the standard treatment for Shadowclad panels as it does not discolour the panel surface and does not use water in the treatment process allowing panels to remain at uniform dimensions.

When coating H3.1 LOSP treated plywood some residual solvent may be present on the sheet surface from the treatment process. Sheets feeling greasy to touch should be placed in a well ventilated area and allowed to flash off to ensure proper adhesion of paints and stains to the sheet surface.

Mechanical fasteners are required to fix H3.1 LOSP treated Shadowclad to framing. Do not glue Shadowclad to frames.

### H3.2 CCA Treatment

H3.2 CCA uses water during the treatment process and may leave panel surfaces with a slight green colour. For this reason H3.2 CCA treatment is available only in the Shadowclad Ultra finish.

**Table 2: Preservative Treatment Options**

	Untreated	H3.1 LOSP (Azole)	H3.2 CCA
<b>Preservative Carrier</b>	N/A	Light organic oil (white spirits)	Water
<b>Colour</b>	Natural	Natural	Green
<b>Fungicide</b>	Heat treated dry wood	Propiconazole and Tebuconazole	Copper
<b>Insecticide</b>	Heat treated dry wood	Permethrin	Arsenate
<b>Other Chemicals</b>	N/A	Butyl Oxitol (co-solvent to assist active stability)	Chrome (to fix preservative in water)
<b>Mouldicide</b>	N/A	IPBC	Copper (limited efficiency)
<b>Notes</b>	Plywood for dry interior use, supplied ex mill at <15% moisture content	Solvent does not affect dimensions. Solvent smell disappears when exposed to air flow	Dried after treatment to average 18% moisture content
<b>Applications (Refer NZ3602)</b>	Interior dry protected	Exterior (service performance subject to detailing & coatings used)	Exterior (service performance subject to detailing & coatings used)

## 1.4 PRODUCT IDENTIFICATION

In accordance with AS/NZS 2269, every sheet of Shadowclad plywood has the following information marked on the back:

- Brand name: e.g. SHADOWCLAD®.
- Intended application: e.g. STRUCTURAL.
- Glue bond: e.g. A BOND.
- Formaldehyde emission class: e.g. E0.
- Australasian Standard: e.g. AS/NZS 2269:2012.
- Treatment Standard (if applicable) e.g. AS/NZS 1604.3:2012.
- Date and time of manufacture: e.g. 01/12/15 12:34:56.
- The Engineered Wood Products Association of Australasia (EWPPAA) brand and mill number: e.g. 911 (Tokoroa mill).

### Treated Example:

SHADOWCLAD® STRUCTURAL A BOND  
E0 AS/NZS 2269.0:2012  
AS/NZS 1604.3:2012 400 64 H3 E LOSP  
RETREAT CUTS PAT 01/12/15 12:23:45



### Untreated Example:

SHADOWCLAD STRUCTURAL A BOND  
E0 AS/NZS 2269.0:2012  
UNTREATED – FOR INTERNAL USE  
ONLY PAT 01/12/15 12:23:45



## 2.0 DESIGN CONSIDERATIONS

### 2.1 DESIGN RESPONSIBILITY

Design responsibility lies with the building owner and the professionals that they engage. The specifier for the project must ensure that the details in the specification for their individual projects are appropriate for the intended application. The specifier must also ensure that additional detailing is provided for specific design, alternate cladding systems, or any areas that fall outside the scope and specifications of this literature. It is the specifier's responsibility to ensure that non-CHH Woodproducts products are fit for purpose, and compatible with Shadowclad® products.

Good detailing which avoids moisture or dust accumulation on the sheet surface can help increase durability and aesthetics. Roof overhangs contribute to performance as they offer shade and will protect walls from rain and dust. Trims should be bevelled to shed moisture and flashings should be detailed with gaps that do not trap water at the panel edges.

### 2.2 LITERATURE SCOPE

Shadowclad can be used for those structures which fall within the scope of Acceptable Solution E2/AS1 - External Moisture. Shadowclad is recommended for a drained and ventilated cavity, where the cladding is fixed onto timber battens fixed over the timber frame and building underlay.

All alternate cladding systems detailed (weatherboard, solid plaster and brick) must comply with NZBC Clause E2 and be detailed and installed to E2/AS1 or the manufacturers installation details as applicable.

Shadowclad is not recommended where a risk score >20 in accordance with E2/AS1 is established.

### 2.3 CODE COMPLIANCE

Shadowclad 'T' flashings and associated details, as an Alternative Solution, have been appraised by BRANZ as meeting the performing levels of Acceptable Solution E2/AS1.

### 2.4 HEALTH & SAFETY

Shadowclad should be installed and used as per the Safety Data Sheet (SDS) which can be downloaded from [www.shadowclad.co.nz](http://www.shadowclad.co.nz).

If wood dust exposures are not controlled when machining (sawing, routing, planing, drilling etc) a class P1 or P2 replaceable filter or disposable face piece respirator should be worn.

Always wear safety glasses or non-fogging goggles when cutting Shadowclad panels and flashings.

Wear comfortable work gloves to avoid skin irritation and the risk of splinters. Wash hands with mild soap and water after handling panels.

### 2.5 STORAGE & HANDLING

#### Shadowclad® Panels:

- Keep Shadowclad® panels dry.
- Store under cover.
- Handle and stack with care to avoid damage.
- Stack flat; clear of ground, on at least three evenly spaced bearers.
- Store in well-ventilated areas away from sources of heat, flames or sparks.

#### Shadowclad Flashings:

- Keep dry. Should a shipment of Shadowclad flashings arrive in a wet condition, they should be immediately dried before storing.
- When storing flashings avoid contact with other metals which may cause scratches or marks. The use of shelving or racks faced with dry wood is recommended.
- Keep away from caustics, nitrates and acids.

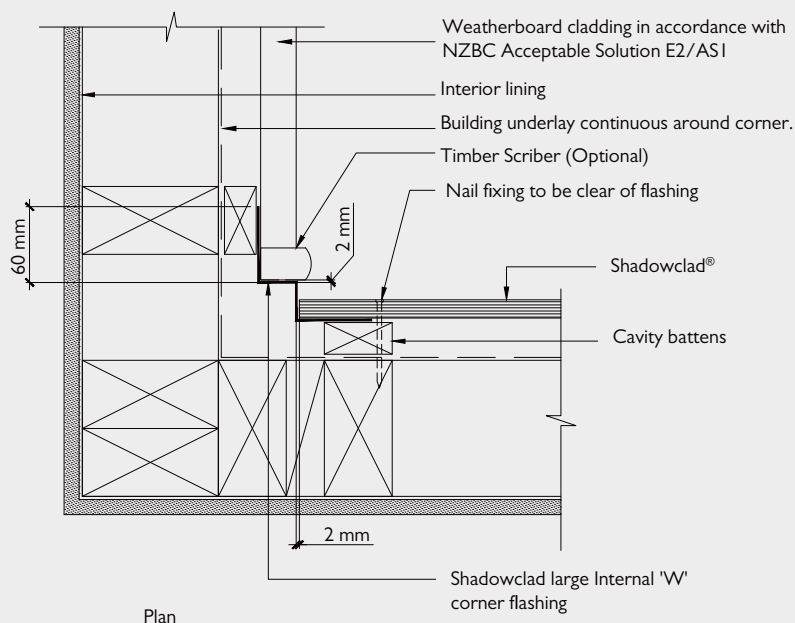
## 3.0 INSTALLATION – SHADOWCLAD® FLASHINGS INCORPORATING MIXED CLADDINGS

### 3.1 SHADOWCLAD® & WEATHERBOARD VERTICAL JUNCTIONS

Flashings should have expansion joints where necessary to provide adequate allowance for thermal expansion as set out below:

- Expansion joints to be provided for joined flashings when their combined length exceeds 8 metres.
- Even if less than 8 metres in length, where both ends of a flashing are constrained and fixed allowance should be made for expansion.

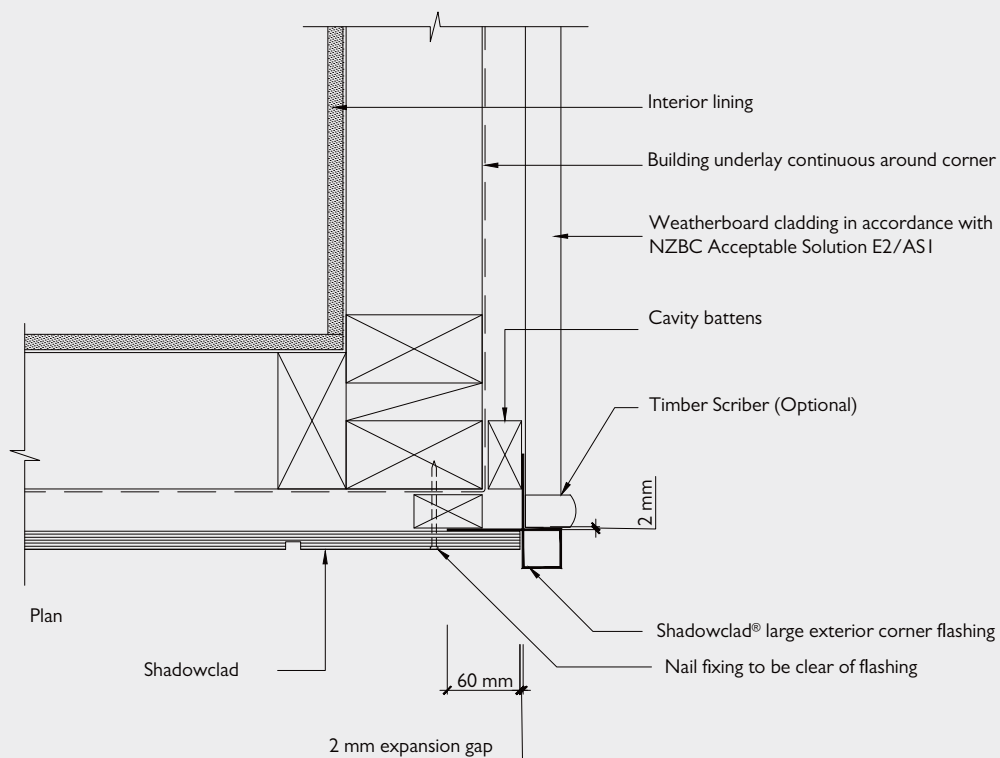
#### SC060: Shadowclad® to Weatherboard Internal Junctions



Note.

1. Allow 2 mm expansion gap between flashing and cladding
2. Treat all Shadowclad cut edges with Holdfast® Metalex® Clear

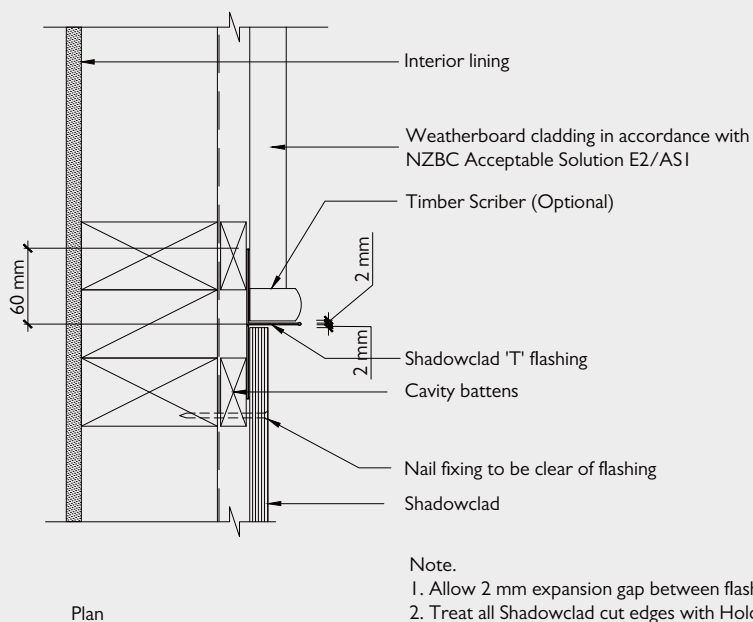
## SC061: Shadowclad® to Weatherboard External Junctions



Note.

1. Allow 2 mm expansion gap between flashing and cladding
2. Treat all Shadowclad cut edges with Holdfast® Metalex® Clear

## SC062: Shadowclad to Weatherboard Vertical Junction



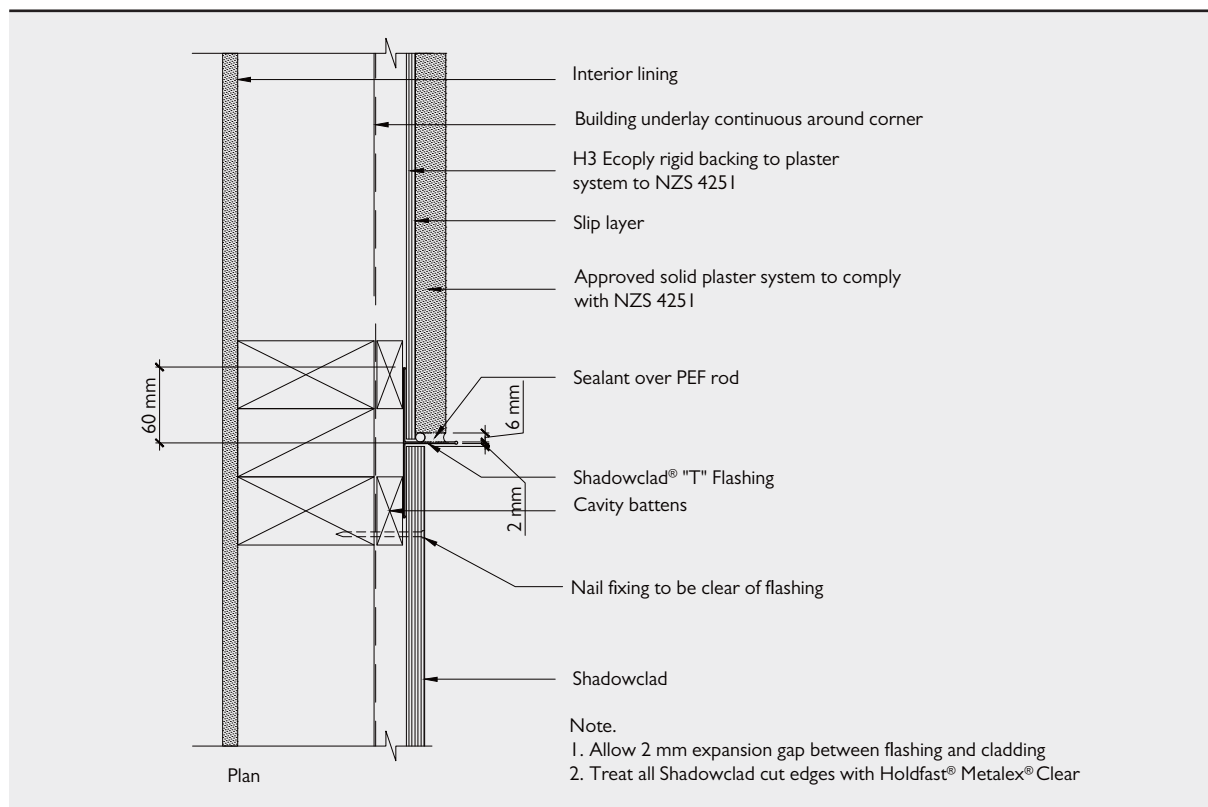
Note.

1. Allow 2 mm expansion gap between flashing and cladding
2. Treat all Shadowclad cut edges with Holdfast® Metalex® Clear

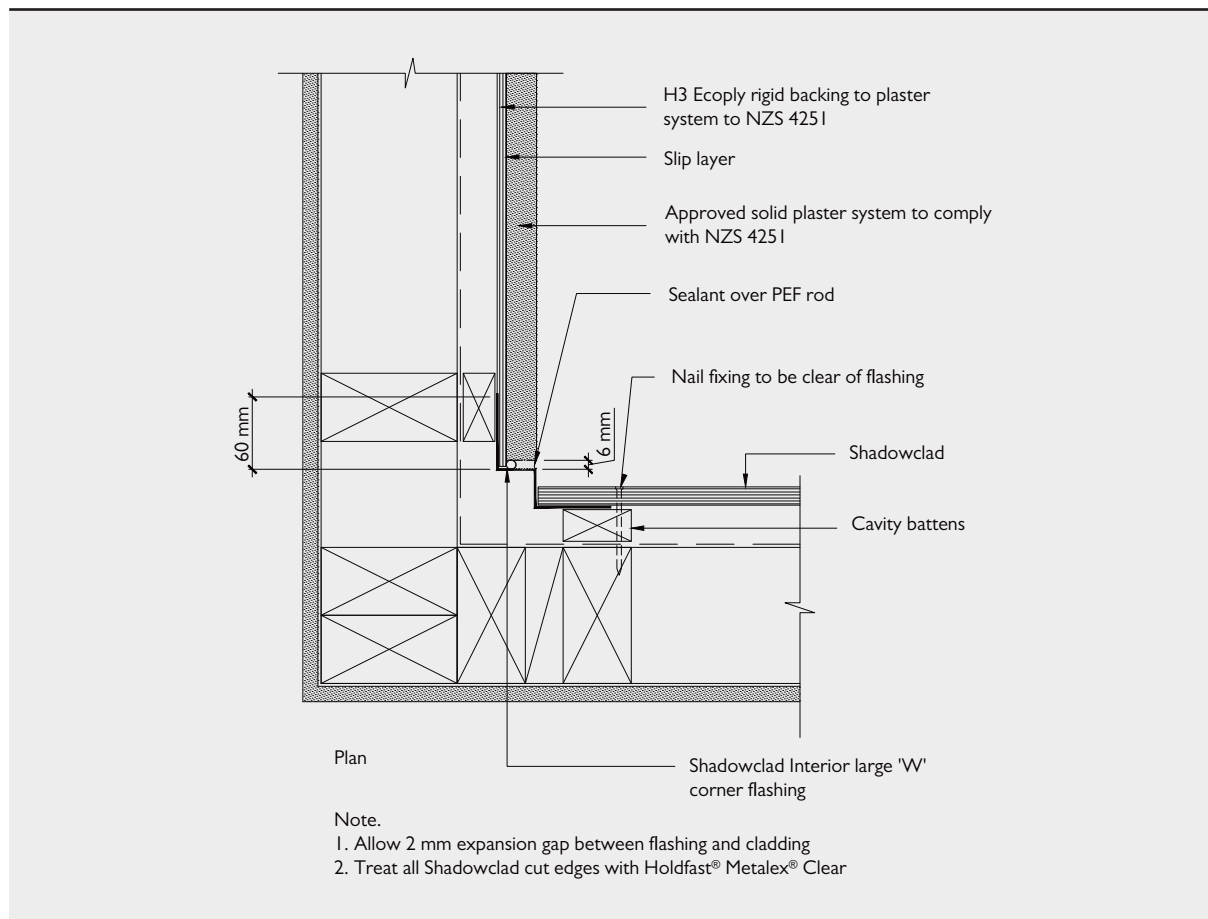


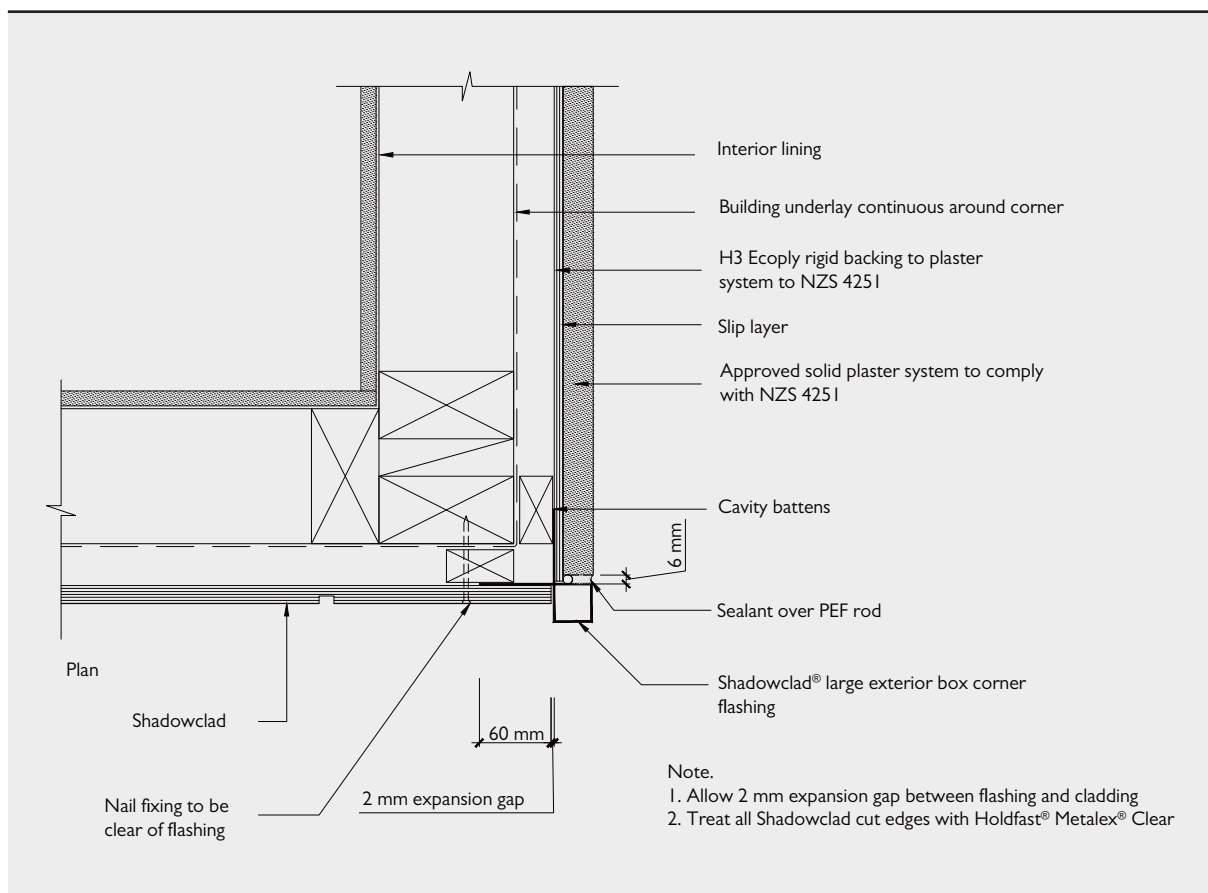
### 3.2 SHADOWCLAD® & SOLID PLASTER VERTICAL JUNCTIONS

#### SC063: Shadowclad® to Solid Plaster Vertical Junctions

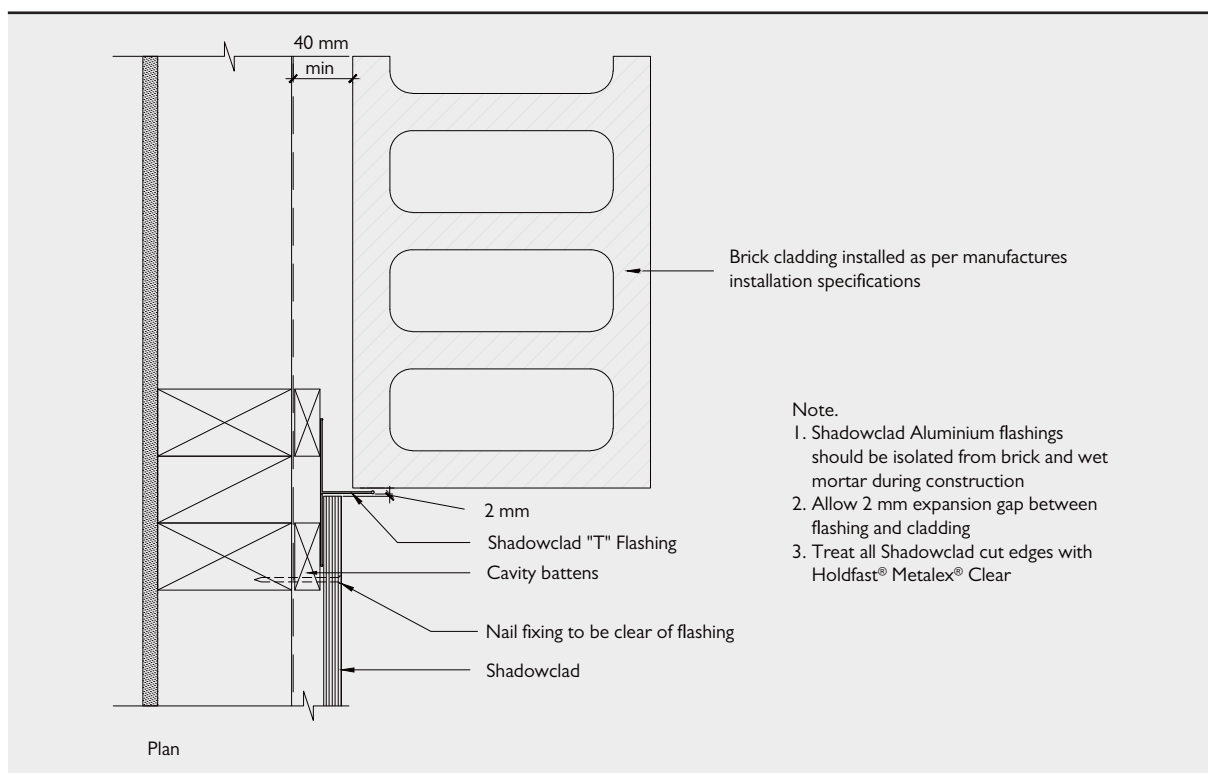


#### SC064: Shadowclad to Solid Plaster Internal Junctions

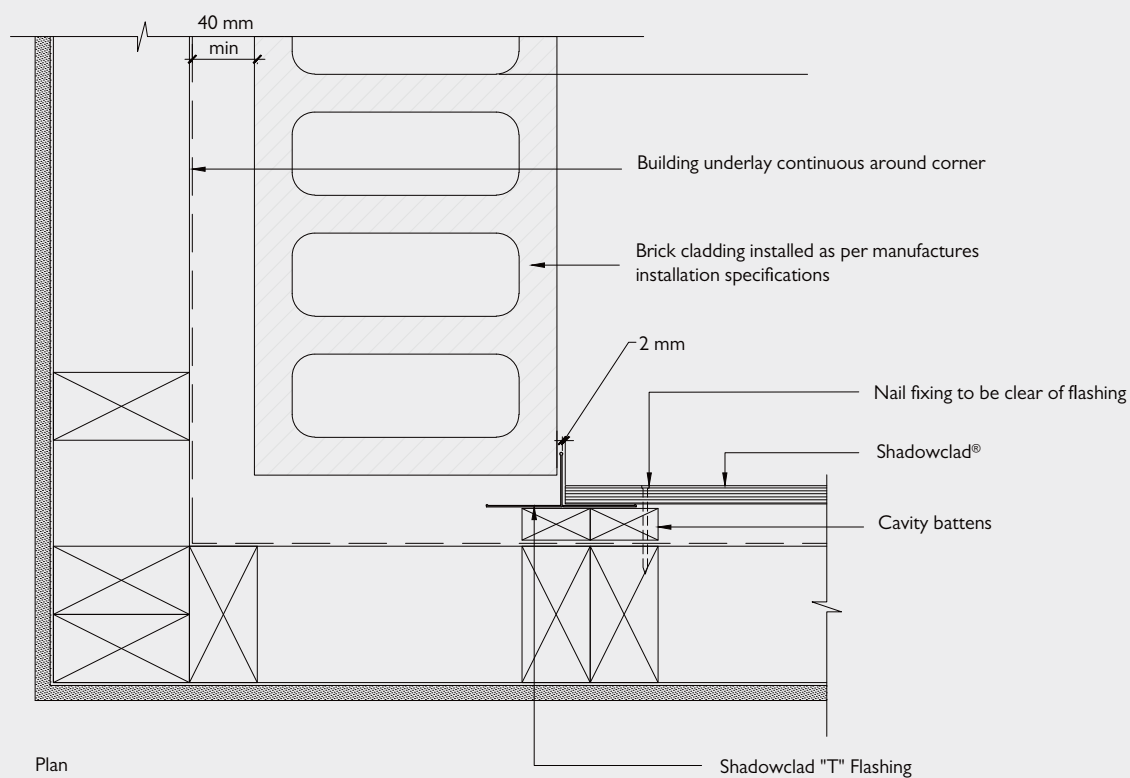


**SC065: Shadowclad® to Solid Plaster External Junctions****3.3 SHADOWCLAD® & BRICK VERTICAL JUNCTIONS**

Shadowclad® Aluminium flashings should be isolated from brick and wet mortar during construction.

**SC066: Shadowclad to Brick Vertical Junctions**

## SC067: Shadowclad® to Brick Internal Junctions

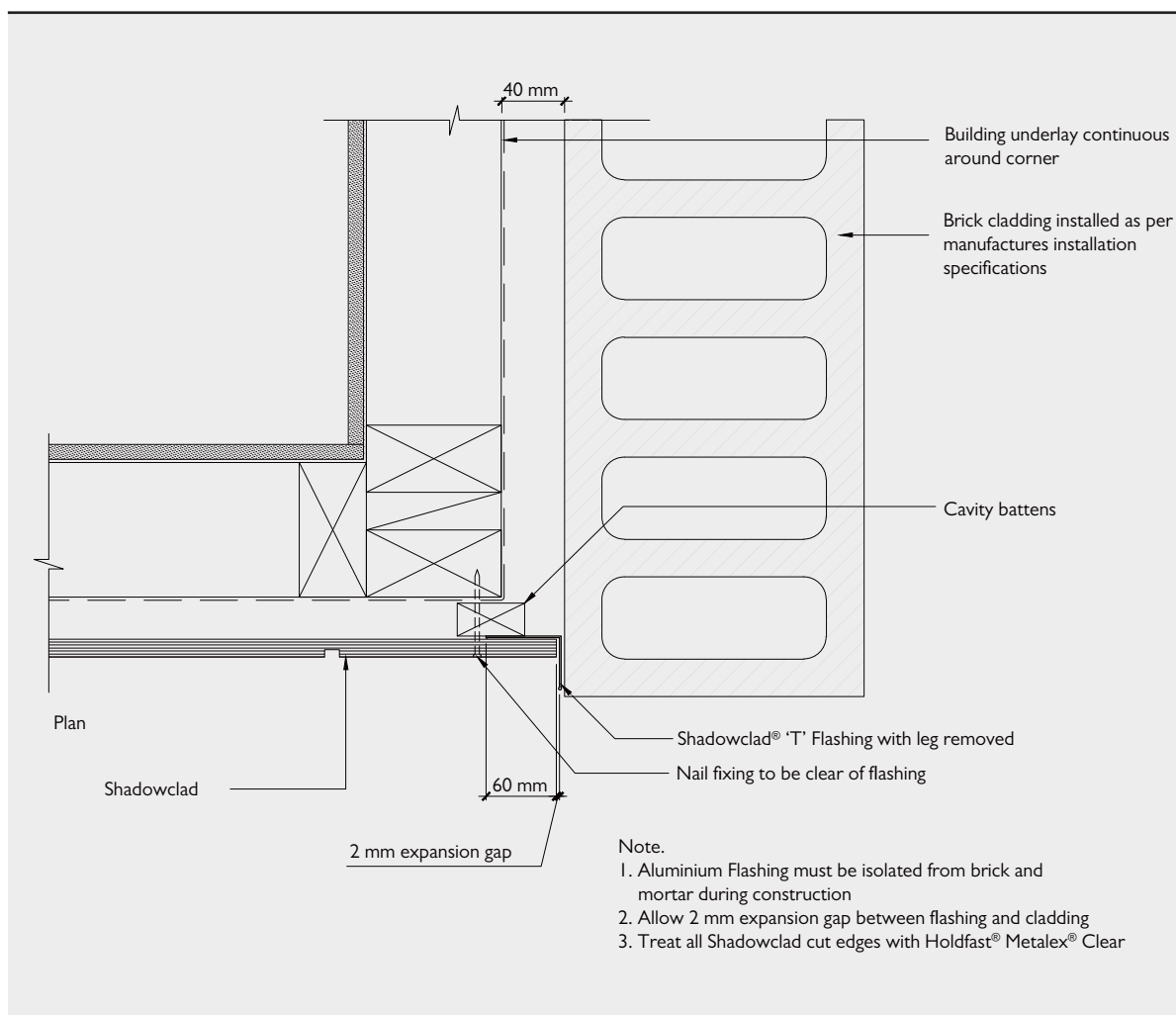


## Note.

1. Aluminium Flashing must be isolated from brick and mortar during construction
2. Allow 2 mm expansion gap between flashing and cladding
3. Treat all Shadowclad cut edges with Holdfast® Metalex® Clear



## SC068: Shadowclad® to Brick External Junctions



## 4.0 REFERENCES & SOURCES OF INFORMATION

- New Zealand Building Code (NZBC).
- AS/NZS 2269:2012 "Plywood Structural".
- AS/NZS 1604.3:2010 "Specification for Preservative Treatment, Part 3: Plywood".
- NZS 3602:2003 "Timber and Wood-Based Products for use in Buildings".
- NZS 3603:1993 "Timber Structures Standard".
- NZS 3604:2011 "Timber Framed Buildings".
- AS 3715:2002 "Metal Finishing – Thermoset powder coating for architectural application of aluminium and aluminium alloys".
- NZBC Clause E1 Surface Water.
- NZBC Acceptable Solution, E1/AS1 .
- NZBC Clause E2 External Moisture.
- NZBC Acceptable Solution, E2/AS1 .
- NZBC Clause E3 Internal Moisture.
- NZBC Acceptable Solution, E3/AS1 .
- NZBC Clause B2 Durability.
- NZBC Acceptable Solution, B2/AS1 .
- Product Technical Statement.
  - Shadowclad® for Cavity Construction.
- Ecoply® Specification and Installation Guide.
- Ecoply Barrier Specification and Installation Guide.
- CHH Woodproducts technical notes – downloadable from [www.chhwoodproducts.co.nz/document-library](http://www.chhwoodproducts.co.nz/document-library).
- Safety Data Sheets.
  - SDS Shadowclad Azole Treated Plywood.
  - SDS Shadowclad CCA Treated Plywood.
  - SDS Stainless Steel flashings.
  - SDS Aluminium flashings.
  - SDS Shadowclad Ultra CCA Pre-primed Treated Plywood.
  - SDS Shadowclad Ultra LOSP Pre-primed Treated Plywood.
- Producer Statement – Compliance for Surface Treated Aluminium Products.
- Window Association of New Zealand ([www.wanz.org.nz](http://www.wanz.org.nz)).
- APA ([www.buildabetterhome.org](http://www.buildabetterhome.org)).
- EWPAA ([www.ewp.asn.au](http://www.ewp.asn.au)).
- BRANZ Appraised 764 – Shadowclad Cavity Fixed Cladding System.
- BRANZ Recommendations for Building Maintenance.

Standards can be purchased online at [www.standards.co.nz](http://www.standards.co.nz).

Building Code Compliance Documents can be downloaded free of charge at [www.building.govt.nz/building-code-compliance/](http://www.building.govt.nz/building-code-compliance/).

Line drawings within this literature can be downloaded from [www.shadowclad.co.nz](http://www.shadowclad.co.nz).

## 5.0 GLOSSARY

**Sealant:** A flexible neutral cure sealant for filling of spaces/gaps and weatherproofing that complies with NZBC Acceptable Solution E2/AS1, or sealant covered by a valid BRANZ Appraisal for use as a weather sealing sealant for exterior use. It is the designers' and builders' responsibility to ensure that sealants are fit for purpose and compatible with Shadowclad products and any other building materials or components used within the Shadowclad installation.

**PEF Rod:** A foam formed polyethylene "noodle" that is designed to be inserted between two surfaces. Should have a 25-33% larger diameter than the gap/space you are inserting it into.

**Holdfast® Metalex® Clear:** A supplementary preservation treatment that preserves the treatment envelope of timbers with a Class H3.1 and above.

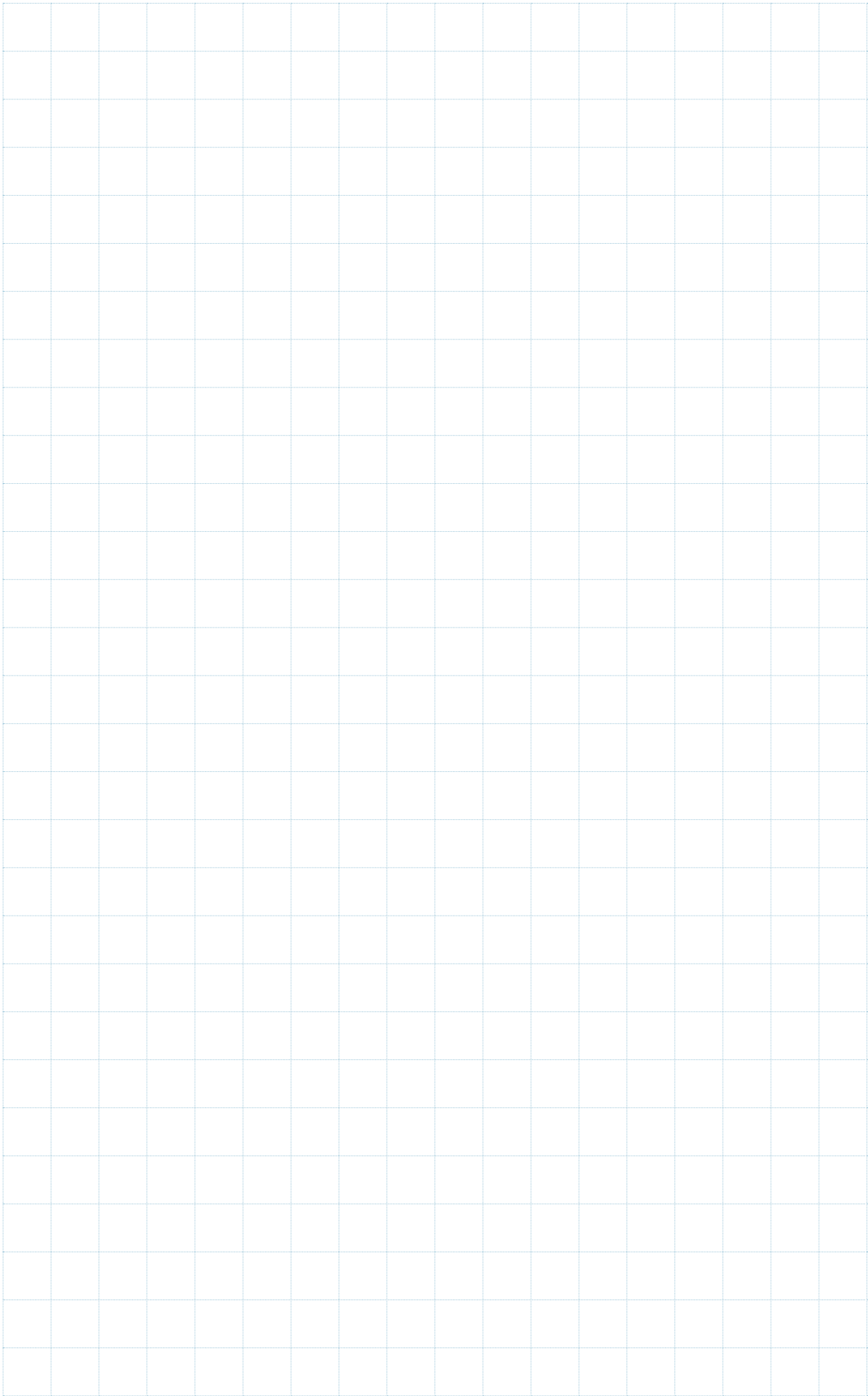
## 6.0 LIMITATIONS

The information contained in this document is current as at May 2018 and is based on data available to CHH Woodproducts at the time of going to print.

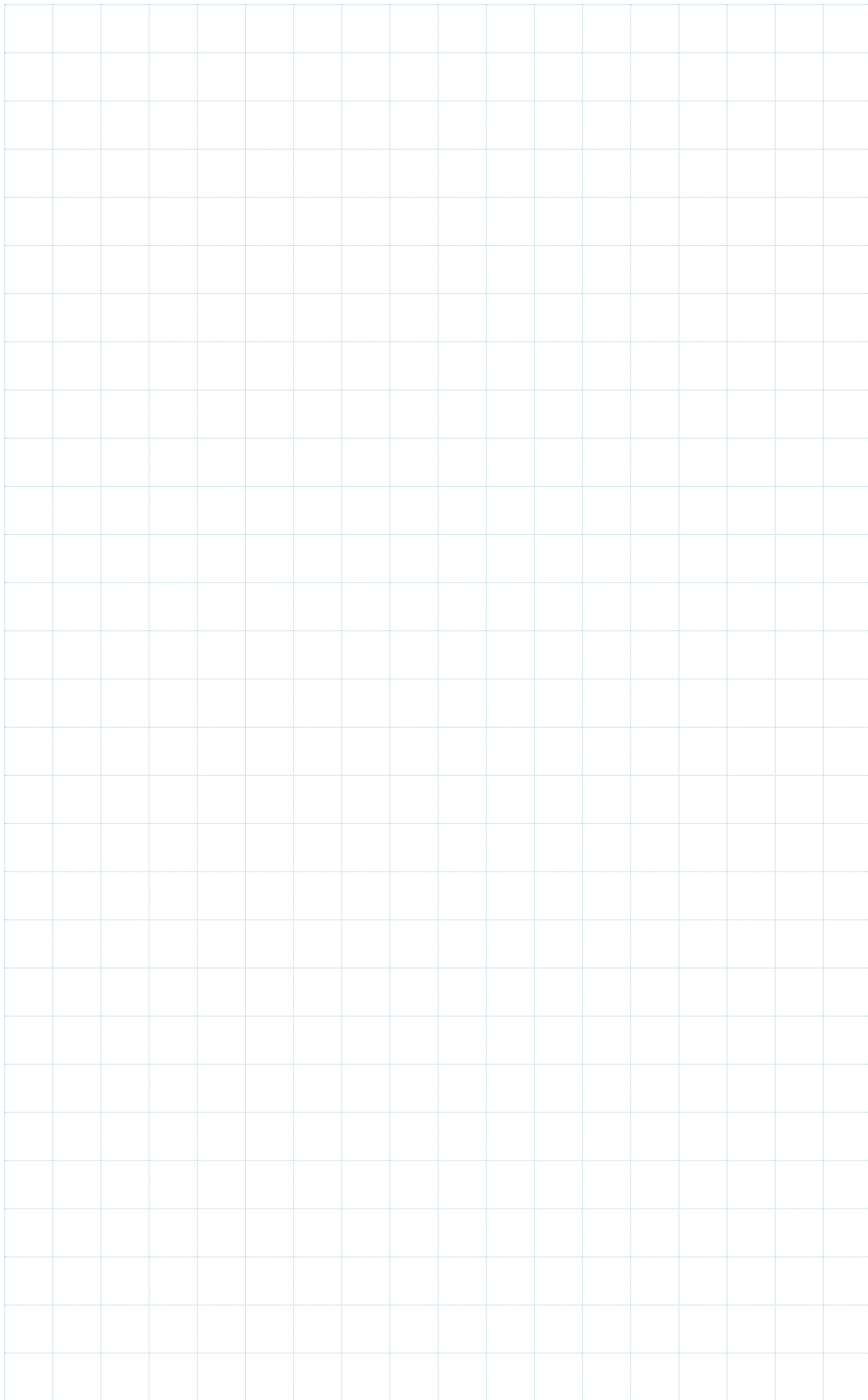
All photographic images are intended to provide a general impression only and should not be relied upon as an accurate example of Shadowclad products installed in accordance with this document or the NZBC compliance documents.

This publication replaces all previous CHH Woodproducts design information and literature relating to Shadowclad structural plywood products and flashings for mixed cladding systems on cavity construction. CHH Woodproducts reserves the right to change the information contained in this document without prior notice. It is your responsibility to ensure that you have the most up to date information available, including at the time of applying for a building consent. You can call toll free on 0800 326 759 or visit [www.chhwoodproducts.co.nz](http://www.chhwoodproducts.co.nz) to obtain current information.

**CHH Woodproducts has used all reasonable endeavours to ensure the accuracy and reliability of the information contained in this document. However, to the maximum extent permitted by law, CHH Woodproducts assumes no responsibility or liability for any inaccuracies, omissions or errors in this information nor for any actions taken in reliance on this information.**







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May 2018

