

# Generation 2

## NZ Timber Cladding Systems



VERSION V4 30/09/2020

**NATURAL. DURABLE. CLASSIC.**

PROUDLY MADE IN NZ BY



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## DISCLAIMER

The recommendations contained in this document are based on good building practice, but are not an exhaustive statement of all relevant information. The successful performance of the system relies on many factors outside the control of KLC Limited, such as the quality of workmanship and design. KLC Limited will not be responsible for the installation of the products outside of the control of KLC Limited. It is the responsibility of the building designer of the intended project to ensure that the details and recommendations provided are suitable and that the design is executed appropriately.

# 1 General Information

## 1.1 Scope and General Information

The KLC Generation 2 H3.2 range of Rusticated weatherboards, fascia, cavity battens, scribe and finishing boards (D4S) have been designed as a complete system.

Generation 2 H3.2 Rusticated weatherboards can be used for buildings that fall within the scope of NZS 3604 Timber Framed Buildings and Acceptable Solutions E2/AS1. Although timber weatherboards can be used on buildings that have a Weathertightness Risk Matrix exceeding 12, you will need to use Acceptable Solutions E2/AS1 Table 3.0 to ascertain which is the correct product and application for your project.

The information contained within this guide are based on good building practice and are not a complete statement of all relevant building practices.

Including:

- NZS 3617: Profiles of Weatherboards, Fascia Boards and Flooring
- NZS 3602:2003 Timber Wood Based Products
- AS/5068 Finger Joints in Structural Products
- AS/5069 Finger Joints in Non-Structural Products
- NZS 1328.1:1998 Glued Laminated Structural Timber

Meets and Exceeds:

- NZS 3640:2003 Preservation of timber and wood based products

## 1.2 Product Information

KLC Generation 2 H3.2 products are manufactured from short lengths of clear high grade radiata pine that are finger-jointed together using a structural glue to produce an untreated length of 6.3metres (substrate).

The substrate is then treated to H3.2, using the revolutionary wood treatment technology called MicroPro® (MCA). MicroPro® (MCA) Micronized Copper Azole (MCA) preservative system protects wood products from insects, termites and fungal decay and is manufactured by Koppers Performance Chemicals. The preservative contains a mixture of micronised copper carbonate (copper) and tebuconazole (azole). The MicroPro® treatment system is a water-borne, copper-based biocide preservative system with four Environmental Certifications.



These environmental certifications have been awarded to Kopper MicroPro® Wood Treatment Technology

## Scientific Certification Systems



MicroPro® (MCA) is the first treated wood process to be EPP (Environmentally Preferable Product) certified by Scientific Certification Systems based on a life cycle assessment. As the leader in green building product certification since 1990, SCS was the first company to offer manufacturers a program for verifying the accuracy of environmental claims on products.

# 1 General Information



## Greenguard® Environmental Institute

MicroPro® (MCA) is environmentally sustainable, this is demonstrated in low leaching of treatment preservatives from the timber, low volatile organic compound (VOCs) emissions and the award of the GREENGUARD Children and Schools' Certification from the Greenguard® Environmental Institute.



## Global GreenTag International - GreenRate™

MicroPro® (MCA) Wood Treatment Technology has received a Global GreenTag GreenRate™ Level A award under Version 4.0 of the Global GreenTag International Product Certification Standard. It is the highest level achievement for a product under Global GreenTag's GreenRate™ product rating system – declared by the certification body as 'Fit-for-Purpose' and confirmed for Green Building compliance.



## Global GreenTag International - Health Declaration

The GreenTag™ Product Health Declaration proves that Koppers MicroPro® (MCA) Wood Treatment Technology is safe for human health (and ecosystems) and can be used with absolute peace of mind in workplace and residential building projects. Reducing risks for Building, Design and Procurement Professionals whilst supporting the user and occupant's health and wellbeing compared to products that don't.

The blanks are then kiln dried (KD) to a pre-determined moisture content. The KD H3.2 substrate is then profiled to various Weatherboards, Fascia, Finishing Boards (D4S), box corners and other profiles.

To complement these appearance grade products, a dual coat oil based (alkyd) priming system is applied.

Note: Pre-priming does not waterproof the product and care must be taken to ensure dryness of product before final painting.

When using pre primed weatherboards and fascia ensure top coat painting occurs soon as possible after installation. Refer 4.0 Painting page 19

KLC will not "Warranty" any Generation 2 H3.2 product that have not been stored correctly and installed by a professional Licenced Building Practitioner and as per the NZ Building Code NZS 3604 and painted in accordance with AS/NZS 2311 2017.

KLC Generation 2 exterior cladding systems have been designed for use in residential and small commercial building applications.

KLC Generation 2 H3.2 exterior cladding systems shall be either direct fixed to framing over a wall underlay or fixed to a Generation 2 H3.2 cavity batten, this method is described in the Acceptable Solution E2/AS1 paragraph 9.1.8.

Timber weatherboards are included in the Acceptable Solution E2/AS1, section 3.0.

All types of weatherboard profiles may be used in low risk buildings. Only bevel back, rusticated and vertical shiplap weatherboards should be used in high risk buildings. For information on requirements for rained ventilated cavities refer to the Acceptable Solution E2/ AS1, paragraph 9.1.8.

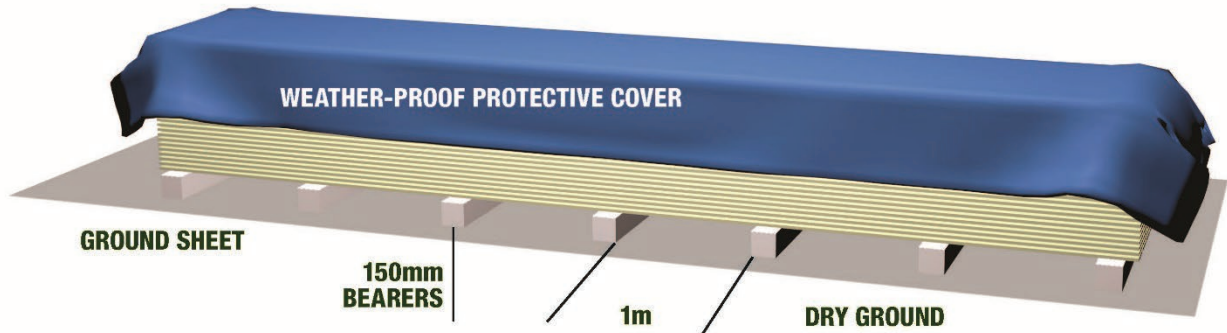
KLC Generation 2 H3.2 weatherboards are limited to use in buildings with a risk matrix score of 20 or below as outlined in E2/AS1 paragraphs 3.4.1 to 3.4.3 (Weather Tightness Matrix)

Weatherboard cladding systems are an acceptable solution under the terms of the New Zealand Building Code E2/AS1. NZBC E2/AS1 section 1.5 specifies that the design, installation and alteration of cladding is classed as restricted building work.

# 1 General Information

## 1.4 On Site Storage and Handling - Keep it dry

Correct on-site storage of Generation 2 H3.2 products prior to installation is critical.



Ensure the product is stored on site correctly. Inside, under cover or as per the diagram above if stored outside.

- MUST remain dry at all times prior to installation.
- MUST be stored indoors on a flat surface off the ground, on bearers 150mm above ground, supported every one metre.
- If stored outside, there MUST be a moisture barrier (ground sheet) under the stack and a secondary waterproof cover. Allow for a good air circulation.
- Keep out of direct sunlight and protected from both rain and ground moisture uptake.
- Ensure that the framing and cavity battens are dry prior to installation. The underside of the weatherboard is vulnerable to water ingress. The moisture content must not exceed 15% at time of installation.

Note: Generation 2 H3.2 products are made from kiln dried timber. Timber will absorb moisture in a damp environment and release it in a dry environment. If Generation 2 H3.2 products do absorb moisture prior to installation, dimensional swelling may occur, this will disappear when the timber returns to its original moisture content. If the boards have become wet, check the dimensions of the profile. If the dimensions are larger than the specification leave the boards to dry and regain correct profile specifications before installation.

### Handling

Care should be taken when unloading KLC Generation 2 product. The profiles should be unloaded by hand or with a Hiab forklift. Ensure that there is a minimum of 2 well-spaced load points to avoid excessive bending or flexing during unloading.

- Do not tip these products from a truck.
- Avoid scratching the face of the board .
- Always carry profile products on their edge to avoid excessive bending.
- and avoid leaning against any vertical surface to avoid any bending.

# 1 General Information

KLC Generation 2 weatherboards have a durability warranty based on the Treatment Manufacturer's 50-year limited guarantee.

Under the New Zealand Standards NZS 3602:2003 Timber Wood Based Products, weatherboards and cladding products must have a minimum durability of 15 years.

The life service is subject to correct installation, paint coating of the product, maintenance and care. When KLC Generation 2 weatherboards are installed according to the instructions contained in this manual and by a Licenced Building Practitioner (LBP) or suitably qualified person, the service life can be expected to be considerably longer.

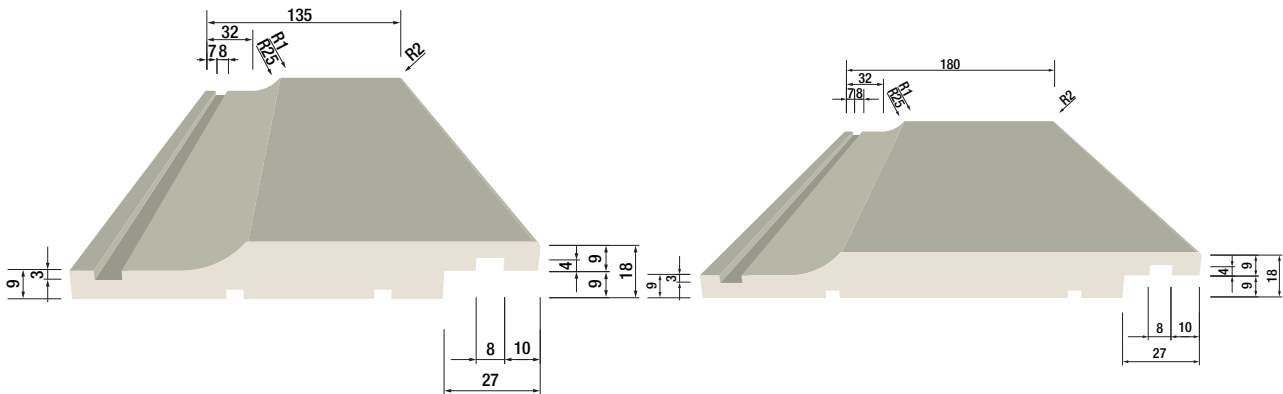
## Full details covering all the aspects

Rusticated Profile Sizes	Finish Grade	Lap	Cover	Length
135 x 18	Finger Jointed	32mm	103mm	6.3m
180 x 18	Finger Jointed	32mm	148mm	6.3m
215 x 18	Finger Jointed	32mm	183mm	6.3m
230 x 18	Finger Jointed	32mm	198mm	6.3m

The products should be installed by a competent qualified person in accordance with the provisions of the Building Code E2/AS1 (sec 9.4) and NZS 3604 (2011). For further information visit BRANZ Good Practice Guide, Timber Cladding.

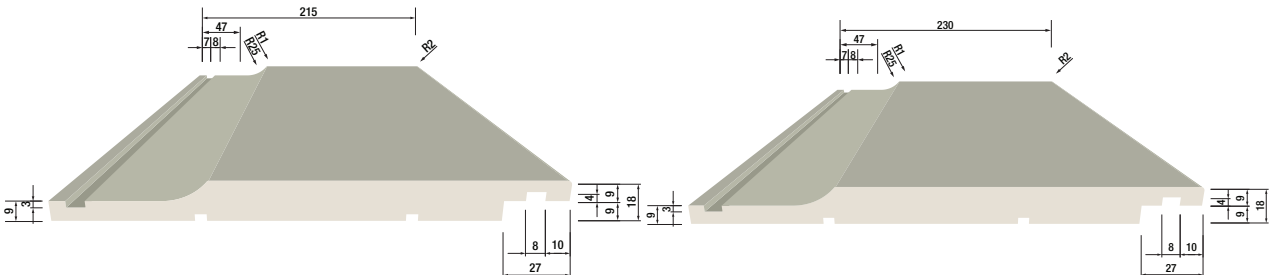
35 x 18

180 x 18



215 x 18

230 x 18



## 2 Guidelines for Installation

### 2.1 Pre-installation Checks

There are many simple checks that should be carried out prior to installation which can avoid issues during installation.

- Where any KLC Generation II profile has been exposed to moisture prior to installation, the moisture content should be checked. If the moisture content is above 15% then the product should not be installed until it returns to 15% or less.
- When excessive moisture or swelling is found the profile should be put aside and allowed to dry to its original profile dimensions. This is best done by placing the product in fillet and stored as outlined above. Filleting allows air movement through the boards for drying.
- Check for any defects or damage caused during delivery or storage.
- Remove any dirt, dust or stones which may be on the product.
- If there are any areas where a primer coat has been removed or damaged, the affected area should be sanded smooth and a primer coat applied.
- This product is primed with a factory applied alkyd architectural coating, a similar oil-based undercoat or primer must be used for touch-up work
- If building in “sea spray or geothermal zones”, it is the building designer’s responsibility to ensure all specified fastenings, fittings, and flashings comply with NZS 3604, Section 4 – Durability.

### 2.2 Framing

The timber framing must comply with NZS3604 – Timber Famed Buildings with maximum of 600mm centres.

- The moisture content of the framing must not exceed 20% at the time of fixing the weatherboard. Excessive moisture content in the timber framing may cause movement in the framing structure thus altering the weatherboard positioning.
- Additional framing may be required at soffit, corners, windows and door opening

## 2 Guidelines for Installation

### 2.3 Nail Selection

KLC Generation 2 H3.2 weatherboards are treated using the revolutionary water-based micronised copper timber treatment technology called “MicroPro”.

- In most applications both stainless steel and hot dip galvanised steel fixings and fasteners are safe to use with MicroPro® treated exterior products. Compliant to AS/NZS 4680 and to NZBC E2/AS1 Table 24.
- Note: In sea-spray and geothermal zones nails must be Stainless Steel.
- Hand nailing is recommended as the use of nail guns can cause fibre damage to the face and back of the board.

Based on MicroPro® ISANTA fastener corrosion test results, MicroPro® treatment is considered similar to CCA treatment with regard to the effects on fastener material. Therefore, in most applications both stainless steel and hot dip galvanised steel fixings and fasteners are safe to use with MicroPro® treated exterior products. Compliant to AS/NZS 4680 and to NZBC E2/AS1 Table 24.

Nail Option A	Nail Option B
One Nail to Framing (refer E2/AS1 - Table 24)	Structurally Fixed Cavity Batten (Refer BRANZ Bulletin No 582 & Test Report ST0589)
WEATHERBOARD & CAVITY BATTEN FIXING 90 x 3.55mm Jolt Head, Hot Dip Galvanised Nails OR 75 x 3.15mm CSK Annular Grooved, HD Galvanised Nail 75 x 3.15mm CSK Annular Grooved, SS Nail	BATTEN FIXING OPTION 60 x 2.8mm Jolt Head, Hot Dip Galvanised Nail 65 x 2.87mm Power Driver, Hot Dip Galvanised Nail 65 x 2.87mm Power Driver, Annular Grooved SS Nail

### Rusticated Nail Selection Table

Timber size (mm)	Generation 2 profile	Recommended minimum nail size
135 x 18, 180 x 18, 215 x 18 and 230 x 18	Rusticated direct fixed weatherboards	75 x 3.15
135 x 18, 180 x 18, 215 x 18 and 230 x 18	Rusticated cavity fixed weatherboard	75 x 3.15
85 x 18 & 100 x 18, 100 x 100 cover	External and Internal Box Corners	50 x 2.50
All sizes D4S	Finishing Boards	50 x 2.00
40 x 18	Scriber	50 x 2.00
45 x 20	Cavity Batten	60 x 2.80



## 2 Guidelines for Installation

### 2.4 Installation

- Installation must be by a Licensed Building Practitioner (LBP), or supervised by an LBP. Please refer to BRANZ Bulletin Number 468, Fixing of Timber Weatherboards or refer to detail drawings contained in this document or online.
- Using a TP (timber packer), position and fix the bottom weatherboard. Ensure there is a minimum of 50mm overlap below the bottom plate or bearer. The purpose of a TP is to provide the accurate layback angle for the bottom board.
- Use 75 x 3.15 JH hot-dipped galvanised or annular grooved stainless steel nails for fixing either directly into the framing or structural batten.
- Leave a 2mm expansion gap in the lap of rebated profiles, ie Rusticated & Bevelback to allow for expansion and contraction. Boards must be single nail fixed to allow for seasonal movement, with an overlap of 32mm.
- Single nail all weatherboard profiles, regardless of size. Nailing boards together will likely result in split boards.
- Hand nailing is recommended as nail guns can cause damage to the surface of the board. If a nail gun is used, a non-marking attachment should be used to avoid damage to the surface.
- Nails must have a minimum penetration of 35mm into the wall framing or structural batten.
- Pre-drill all boards 50mm from the end to avoid end splitting.
- Nail holes should be pre-drilled especially in areas around joins and the end of boards. This is to avoid splitting the product.
- Location of the nails is to be a maximum overall distance of 42mm from the bottom edge of the board. 32mm minimum overlap and 10mm to the nail fixing point. Aligning the weather grooves.
- Nails should be applied at an upward angle of 10degrees to avoid water entering through the fixing point. All nails should be punched to a depth of no less than 2mm.
- As soon as nails are punched below the surface of the weatherboard, they must be filled with an exterior grade filler immediately to prevent moisture uptake in the weatherboards.
- The top board may need to be cut to suit the soffit.
- Scibers must be fitted and rustic plugs used to fill the gaps or scribe a scribe to fit the scallop shape
- Important note: Timber weatherboards are designed to accommodate thermal, seismic and moisture related movement in the board laps. Each weatherboard is single nailed so that the weatherboards can expand, contract and move independently of each other. KLC does not recommend the use of any sealant/glue being used by the painters under the lap of each board, this inhibits the natural and ongoing movement of the weatherboard.

## 2 General Installation

### 2.5 Joins and Pipe Penetrations

It is an industry recommendation that all forms of timber treated products, when cut, have a cut-end treatment applied (e.g. a zinc naphthenate-based product like Reseal Clear or Protim) which restores the treated envelope. This refers to MCA, CCA and LOSP treated products.

KLC's manufacturing and tested treating process and the inclusion of the two coat oil based priming system being applied to all of the Generation 2 profiles, KLC recommends that all during the installation process, cut ends, drill holes, rebates and notches must be re- sealed/primed immediately with a suitably approved product.

KLC recommends following best building practices and industry recommendations which includes the use and application of end seal treatment product or alternatively 2 coats of an oil based primer being brush applied.

KLC recommends the use of Koppers "Protim Reseal".

End sealing can be achieved by the application of 2 coats of brush-applied, quality Alkyd (oil based) primer allowed to dry between coats.

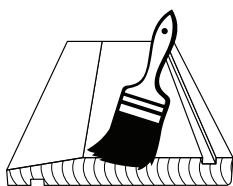
### Joining Weatherboards

Avoid joining Generation 2 H3.2 weatherboards whenever possible, but if unavoidable use a 45-degree scarf joint directly over studs or Generation 2 H3.2 FJ Cavity Batten. Care must be taken to angle mitre joints away from the prevailing weather, and or use Flat Soakers. Alternatively, a butt joint is acceptable using flat soakers.

Face the overlapping board away from the prevailing weather direction using one fixing through the overlapping board (pre-drill the hole to avoid splitting). Re-prime the cut ends.

Nails should be driven and punched below the surface to allow for filling.

Prime then fill with an exterior grade wood filler immediately after nailing.



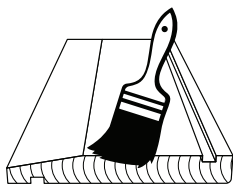
Apply Two coats of an Alkyd (oil based) primer or end sealer.

### Pipe Penetrations

Pipes to have a 5° Slope to the outside.

A flexible flashing tape with a minimum Of 10mm coverage around the outside.

Install as per the manufacturer's instructions



Apply Two Coats of an Alkyd (oil based) primer or end sealer.

### Wall Underlay and Flashing Tapes

Use only underlays that meet the requirements of E2/AS1 Table 23

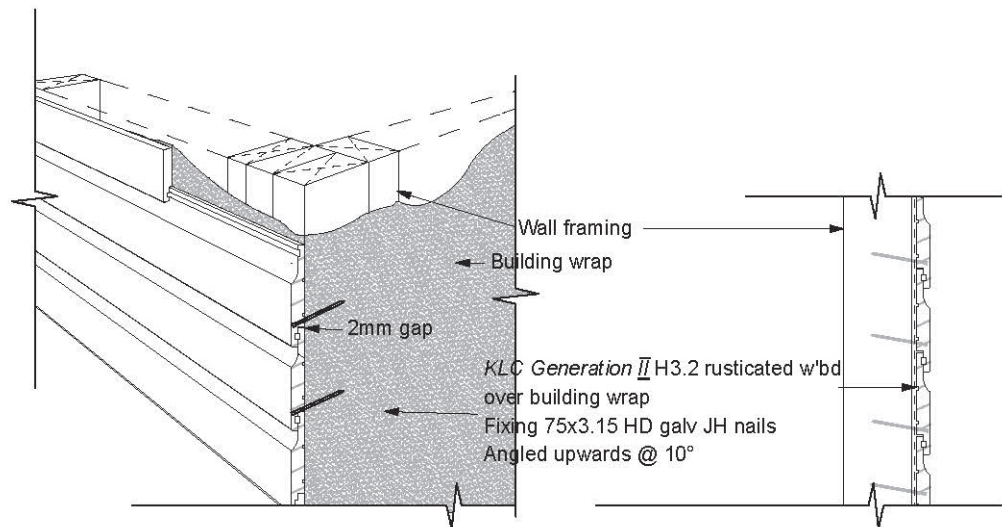
## 2 General Installation

### 2.6 Fixing Detail for Installation Weatherboards Direct Fix

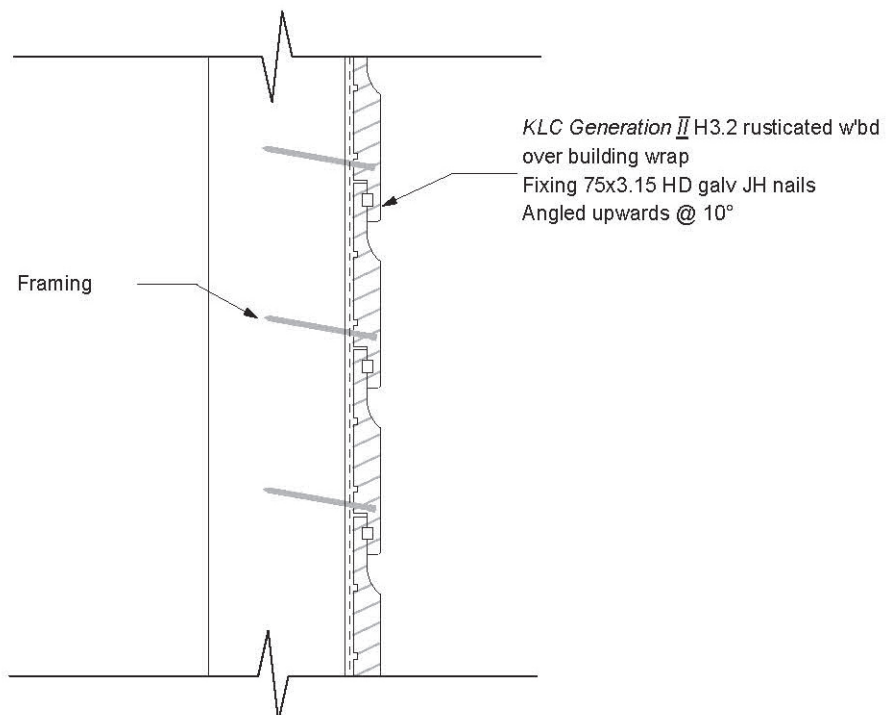
Weatherboards can be directly fixed to the framing but the use of this is limited by section 3.3 of E2/AS1. All types of weatherboards can be used where the risk score is between 0 and 6.

Where weatherboards are directly fixed to the framing a wall underlay complying with Table 23 of E2/AS1 sections 9.1.5-9.1.7 shall be installed prior to fixing.

#### D3.6 Fixing Detail

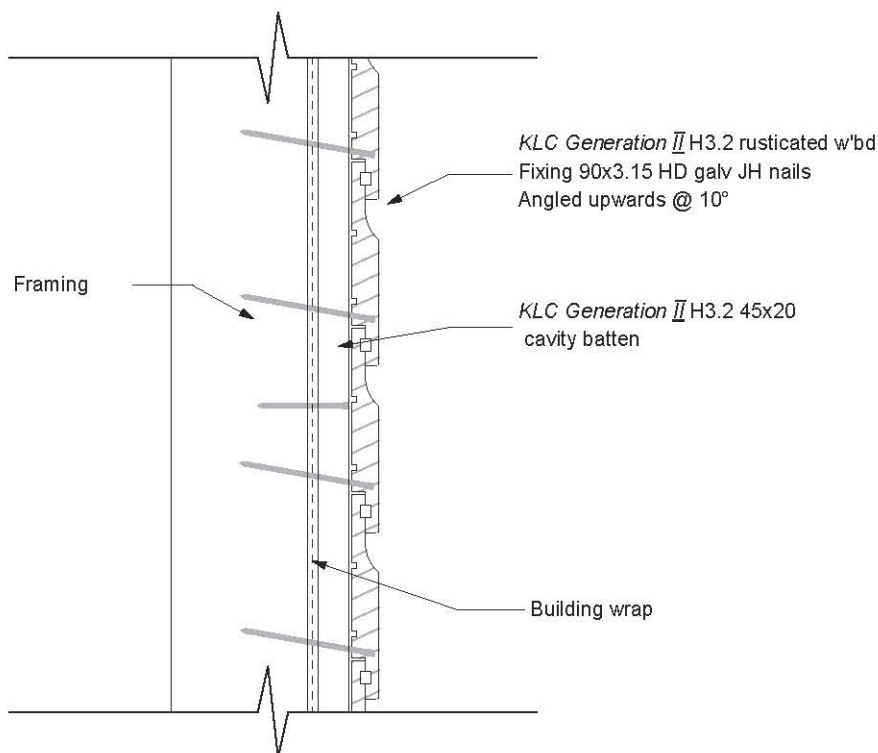


#### D3.1 Direct Fixing Details



## 2 Installation Details for Rusticated Weatherboards

### D3.2 Cavity Fixing Detail



### 2.7 Fixing Details for Installing Weatherboards using Cavity Battens

Cavities must comply with E2/AS1 sections 9.1.8 to 9.1.9.4, there are 2 different cavity fixing systems:

- Cavity battens fixed by the cladding fixings to the wall frame.
- Claddings are fixed through the cavity into the wall frame.

Timber Weatherboard cladding with a drained cavity does not require venting at the top of the wall. There must be a restriction of air movement between the cavity and:

- The floor, wall and roof framing.
- Attic roof space.
- Sub-floor space.

Cavities must be drained to the exterior of the building at the bottom of the cavities.

Where window penetrations are wider than cavity batten spaces allowance must be made for air flow between adjacent battens by leaving a minimum gap of 10mm between the bottom of the vertical batten and the flashing to the opening.

It is important to note that where a cavity batten is fixed through the cladding the nails used are required to have a minimum fixing penetration into the framing of 35mm, so a longer nail is required. The nail length shall be 35mm plus thickness of batten, plus thickness of cladding board.

When the cavity batten is fixed to the framing it is considered as part of the framing in respect to the fixing of weatherboards. Cavity battens to be nailed off at 600 mm centres, fastenings as per Detailed Drawings.

Drained cavity systems are required to be vermin-proofed. Vermin proofing is required above window and door heads and at the base of drained cavities.

## 2 Guidelines for Installation

Vermin proofing shall:

- Provide holes or slots between 3mm and 5mm.
- Provide an area of opening of 1000mm<sup>2</sup> per lineal meter of wall cladding.
- Be positioned to allow a minimum drip edge to the wall cladding of 10mm at the base of the wall and 15mm above window and door head flashings.

Vermin proofing must be kept clear and unobstructed to maintain draining and venting of the cavity.

### 2.8 Bottom of Cladding

There are differing requirements for the clearance between cladding, ground and pavers.

Wall cladding and concrete slabs:

- Ensure the bottom of the weatherboard is no closer than 150mm from a paved/concrete ground surface or 225mm from an uncovered ground surface. Ensure the end is completely sealed with a quality primer
- Overlap the concrete slab by a minimum of 50mm.
- Direct fix cladding must have a minimum horizontal off-set of 6mm to prevent moisture capillary action.
- Wall Cladding on suspended timber floors:
  - Weatherboards and cladding must overlap the floor structure by no less than 50mm.
  - With drained cavities there will be no direct connection between the sub floor spaces and the drained cavities.
  - Direct fix cladding must have a minimum horizontal offset of 6mm to prevent moisture capillary action.
  - With drained cavity systems care must be taken to ensure air from the sub-floor space cannot enter the cavity.

Refer to detail drawings

### 2.9 Wall Penetration

Prior to the installation of doors and windows the following must be completed:

- Wall underlay shall be cut and dressed on all sides.
- Flexible flashing tape shall be applied to the head and sill framing.

Windows, doors and other penetration openings shall have a flexible air seal to minimise the risk of air flow carrying moisture into the building wall.

The air seal shall:

- Be between the reveal or the frame and the wrapped opening.
- Installed over closed cell polyurethane foam, backing rod or similar product.
- Be made of:  
Self-expanding polyurethane foam

## 2 Guidelines for Installation

### 2.10 Window and Door Heads

When installed the flange forming the window, door facing must overlap the cladding material or the back flashing by a minimum of:

- 10mm on jambs
- 8mm on sills

### Direct Fix Weatherboards

When installing direct fix weatherboards, window and doors shall have a 5mm stand-off from the flange to the weatherboard to allow for air equalisation. The gap is to be sealed or trimmed down the jamb but left open along the sill.

Head flashings must have a 50mm bead of sealant installed between the weatherboard and each end of the head flashing.

### Drained Cavity Weatherboard Systems: There is no sill flashing used

Weatherboard cladding requires a 5mm stand-off to allow for the use of sealant weather seals between the facings and the cladding head flashings must:

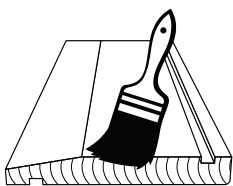
- Incorporate 10mm turn-ups to stop ends, which terminate at the inside face of the cladding.
- Permit ventilation of the drained cavity.
- In very high wind zones, they must have sealant installed between the underside of the head flashing and the top edge of the window head flange.

### 2.11 Cutting and End Sealing

All cut ends, drill holes, rebates and notches must be resealed immediately with a suitably approved product. eg an Alkyd (oil-based) Primer.

End sealing can also be achieved by the application of 2 coats of brush-applied, quality Alkyd (oil based) primer which are allowed to dry between coats.

When products are joined a scarf or splay join is to be used. These must face away from the prevailing weather. Alternatively, a corrosion-resistant soaker must be applied.



Apply two coats of an Alkyd primer (oil-based) or end sealer.

## 2 Guidelines for Installation

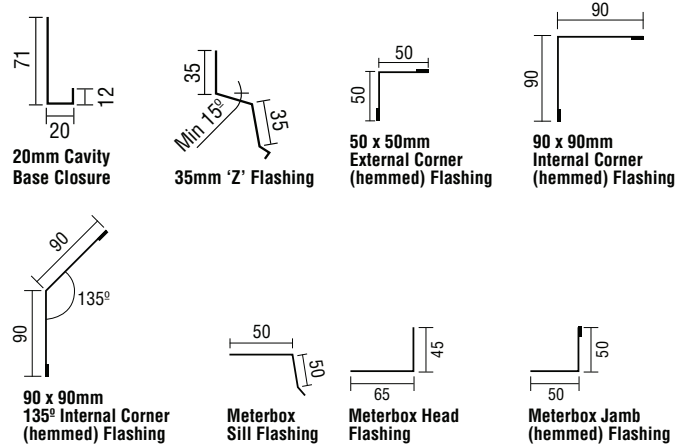
### 2.12 Soakers and Flashings

Soakers and flashings can be Galvanised Steel, Aluminium, Stainless Steel (304) or Copper. All these materials are compatible with the KLC Generation 2 H3.2 profiles. These are safe to use with MicroPro treated products.

Soakers and flashings must be fixed in accordance with the NZS3604:2011 and Acceptable Solution E2/AS1.

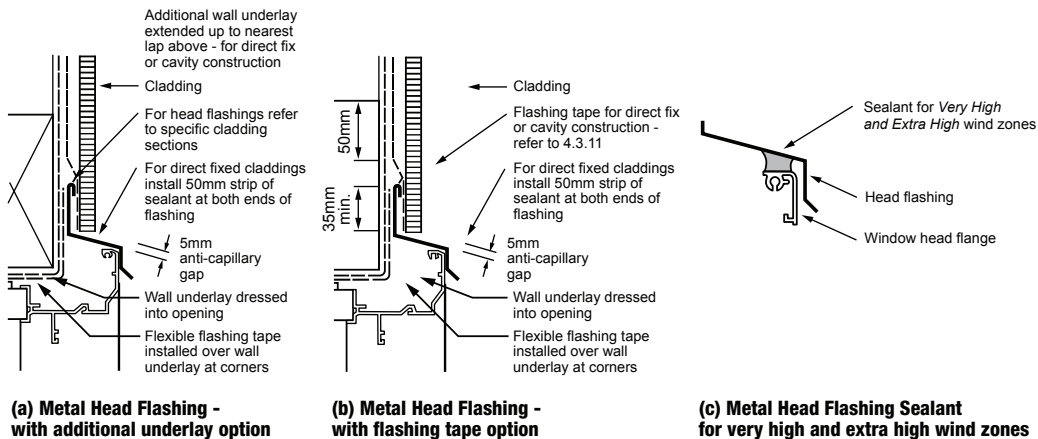
Soakers must have a minimum of 15mm overlap from the corner or join. Flat soakers to be used on all butt joins.

NZS 3604:2011 section 4 and Table 6.12 outline durability for flashings. Section 9 of E2/AS1 outlines flashing design and fabrication details.



### General Sealing of Head Flashing

Note: May also use wall underlay lapped over flashing upstand in lieu of flexible flashing tape.



## 2 Guidelines for Installation

### 2.13 Box Corners for external corners

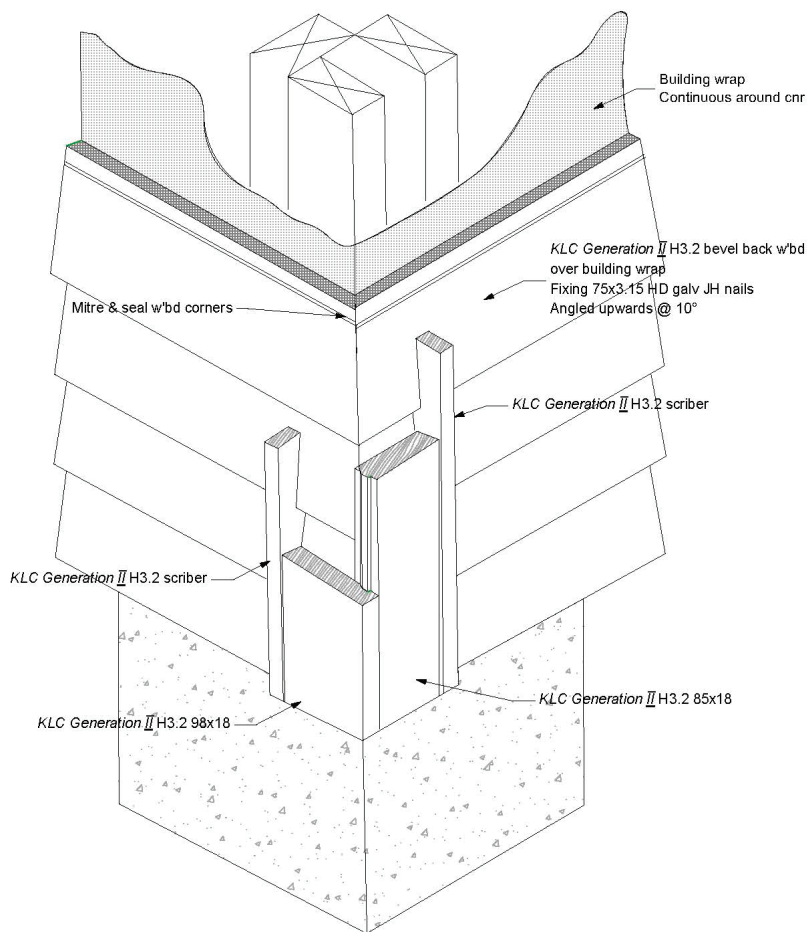
The KLC Generation 2 range includes an internal and external box corner piece 98x18 and an external and internal piece 85x18. Both being a two piece system.

The boxed corner must provide a minimum cover of 50mm from the cut end of the weatherboards. Boxed corners are made weather proof by one of the following methods:

1. For Rusticated profiles a scriber can be used.

There are boxed corner options for Rusticated weatherboards.

Refer to the detail drawings



Note: Bevelback shown, same applies for Rusticated weatherboard when fitting a box corner and scriber

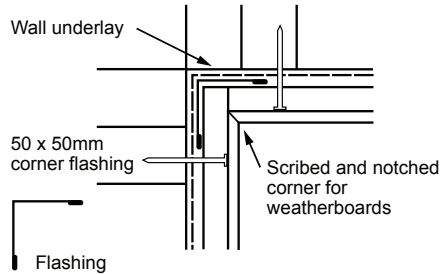


## 2 Guidelines for Installation

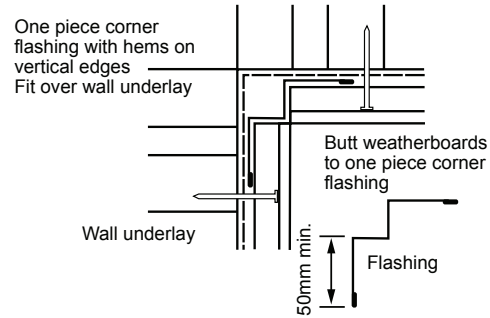
### 2.14 Internal Corners

Internal corners must be made water tight by the use of corrosion-resistant flashings which shall be fitted behind the weatherboards on all internal corners.

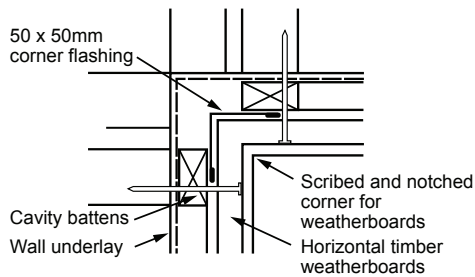
Refer to detail drawings



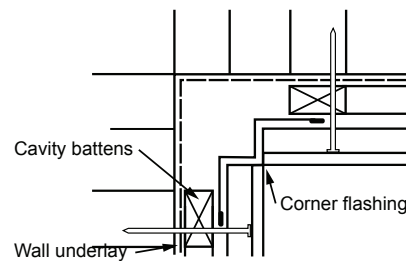
**(a) Direct Fix - Internal Butt Corner**



**(b) Direct Fix - Internal Corner Flashing**



**(c) Cavity - Internal Butt Corner**



**(d) Cavity - Internal Corner Fillet**

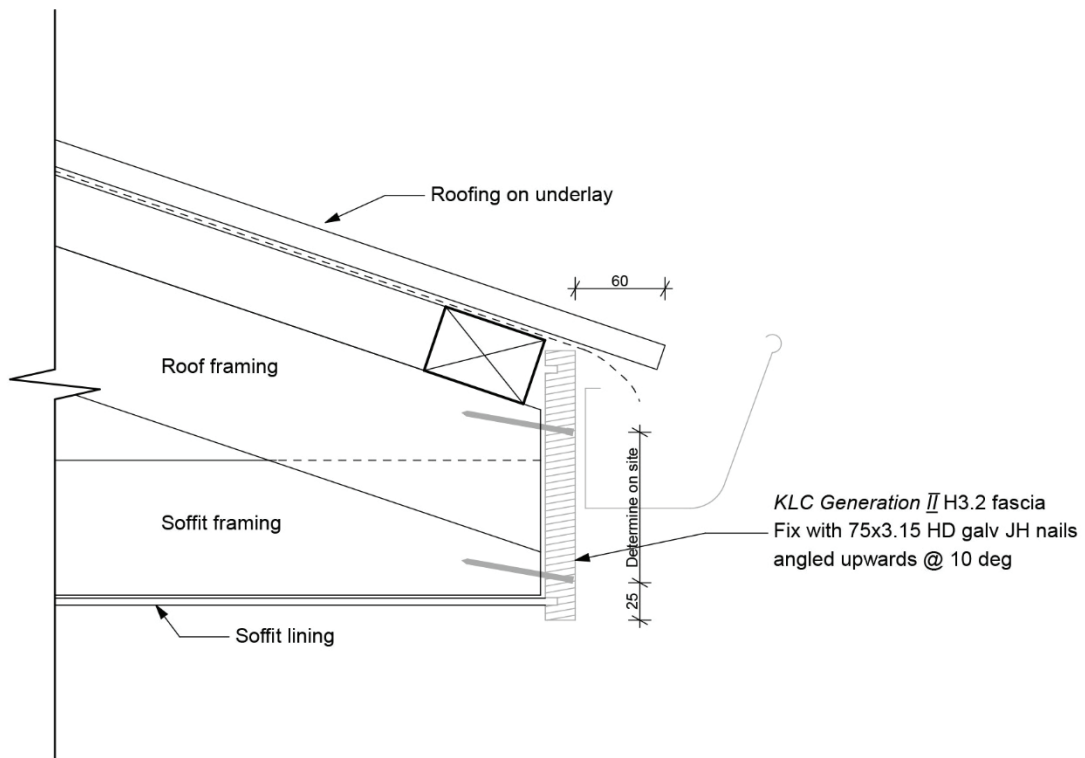
### 2.15 General Inter-storey Junctions

Inter-storey junctions in cladding over drained cavity systems shall be formed for walls over 2 storeys or 7 metres in height.

Cavity battens used can run the full height of the wall, however walls over 7 metres or 2 storeys must have an Inter-Storey Junction. This is formed to allow for the management of moisture handled by the cavity to be directed to the outside of the building.

### 3 Facsia Installation

As an alternative to nail fixing, fascia can be screwed onto rafter ends as wide as is practical with wide head (10mm) Stainless steel screws, slightly countersunk. Screws should be a min. 75mm long.



## 4 Painting

KLC Generation 2 H3.2 products have a premium factory applied alkyd primer and undercoat applied in two separate coats. All painting must be carried out in a good tradesman-like manner and in accordance with AS/NZS 2311 2017. Please also refer to “BRANZ Good Practice Guide to Exterior Coating”.

If boards have been exposed for longer than 4 weeks, some dimensional swelling or distortion of the board may have occurred during unprotected exposure to the elements. Also, some sanding and re-priming may be required.

1. The moisture content of the boards before painting. Equilibrium Moisture Content (EMC) should be at 15% or less. Use a correctly calibrated moisture meter to check.
2. Once installed, remove any dirt and surface contamination by sanding and dusting down. Spot-prime any exposed timber with two coats of oil primer. Spot-prime the filled nail holes. Any sealants used should be of a flexible exterior grade and suitable for over coating with acrylic paint
3. Once undercoated, simply apply two coats of 100% premium acrylic low gloss house paint to the manufacturer's specification, at a rate of 12-14m<sup>2</sup>/L.
4. Once applied, the two topcoats should have a combined thickness of no less than 50 microns. The Painter must adhere to the topcoat paint manufacturer's spread rate.
5. The onus is on the painter to ensure that the primed surface remains well adhered to the timber substrate and is a suitable base for the subsequent topcoats. This is particularly important where the boards have been exposed for longer than 4 weeks before top coating. Painters should refer to the AS/NZ 2311:2017 guide to painting buildings. NOTE: The KLC warranty will be void if dark colours with a Light Reflectance Value (LRV) less than 45 are used.
6. Darker colours will absorb heat from the sun and may cause excessive movement, distortion, splitting and possible resin bleed. Light colours reflect the sun's heat. Therefore, only light colours with a light reflective value (LRV) of greater than or equal to 45% may be used. Refer paint colour charts for details.

### Top Coat Light Reflectance Values as recommended by KLC



The significance of Light Reflectance Values is now being recognized by the building industry. When paint is exposed to sunlight it absorbs and reflects radiant heat (as well as UV light).

- Sunlight energy is made up of 44% visible light, 5% ultraviolet light, 51% Infra-red light.
- It's not only radiant heat warming up the paint film that is the problem. Damage is caused by temperature changes (i.e. from hot sun, cold to cloudy sky) causing the paint film to go through a process of heating up then cooling down again resulting in changes in dimensional stability of the timber substrate.
- Increases in the core temperature of the timber substrate can also cause resins to mobilise and leach through the paint film. This is known as resin bleed.

Light paint colours with a high light reflectance (and therefore a high LRV over 45) allow less free radicals to be released, which means the paint film and substrate will last longer. Correspondingly dark colours with a lower light reflectance allow more heat to be absorbed, therefore causing more damage to the surface and resulting in reduced life for the paint film.

## 4 Painting

### Resene Cool Colour Technology

Resene Cool Colour technology reduces the amount of Infra-red heat absorption only into the substrate (it does not have an effect on visible light nor Ultra Violet which equates to 49% of Sunlight energy).

- Resene Cool Colour Technology works best for darker colours where Black tinter is used in the colour.
- When using Resene Cool Colour the surface will still remain warm/hot to touch however less heat is being absorbed thru into substrate.
- LRV's are only a measure of visible colour, not heat absorption which is better measured by TSR (Total Solar Reflectance) therefore LRV's are not altered when using Resene Cool Colours as the colour is the same (albeit that a Resene Cool Colour will perform like a colour with a higher LRV).
- Resene advise customers that the use of Resene Cool Colour Technology does not alter the LRV of the colour therefore suppliers/manufacturers of substrates own guidelines on colour choice should always be followed unless that supplier/manufacturer advises otherwise.

## 5 Maintenance

It is the responsibility of the home owner to ensure that annual maintenance is carried out. Maintenance should be carried out every 12 months. In some cases this may be required more regularly eg. sea spray.

### Maintenance Checklist

1. Wash all exterior surfaces using a low pressure wash system to remove dust, dirt and other contaminants.
  - Do not use a high pressure washing system eg water blaster
  - If the washing does not remove stubborn areas of mold or dirt use a soft brush or broom and an appropriate cleaning agent to remove these deposits. Check with the paint manufacturer and read the directions on the product to apply the cleaning agent.
2. Once the building is clean and the surfaces have been inspected for damage, wear and tear and paint coating degrade then repairs and must be undertaken immediately.
  - If the paint surface has been damaged, then:
    - Remove all damaged paint, sand back if required.
    - Apply a quality primer on any bare timber.
    - Once the primer has dried apply a base coat and 2 top coats of a quality top coat paint.
3. It is a general rule that timber weatherboard homes should be repainted every 10 years if the initial coating product used was of good quality, delivering a good quality coating finish. In some cases repainting may be required earlier depending on condition and exposure to harsher elements.

## 6 Health & Safety

Health and safety precautions should be adhered to when working with all wood products.

Machine tools should be fitted with dust extractors and work areas should be kept clean.

If dust levels exceed Work Safe New Zealand Standards, the wearing of a dust mask (AS/NZS 1715 & AS/NZS 1716) and protective eyewear (AS/NZS1336 & AS/NZS 1337) is recommended.

Storage and work areas should be adequately ventilated.

# 12 Detailed Drawings

## DRAWINGS DIRECTORY

### Direct Fix

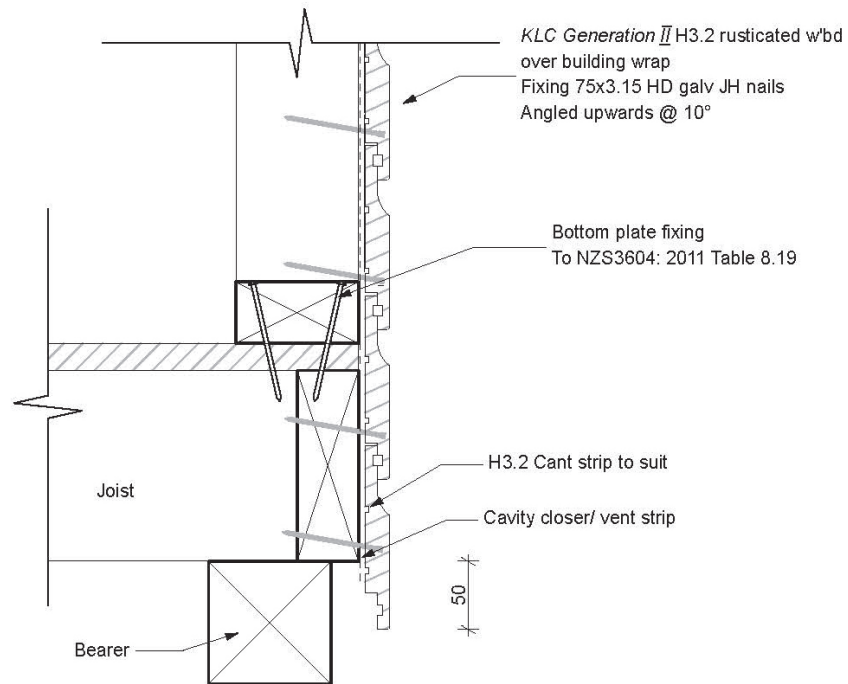
D1.1	Foundation, Timber Floor	24
D1.2	Foundation, Concrete Floor	24
D1.3	Door Sill, Timber Floor	25
D1.4	Door Sill, Concrete Floor	25
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### Cavity Fix

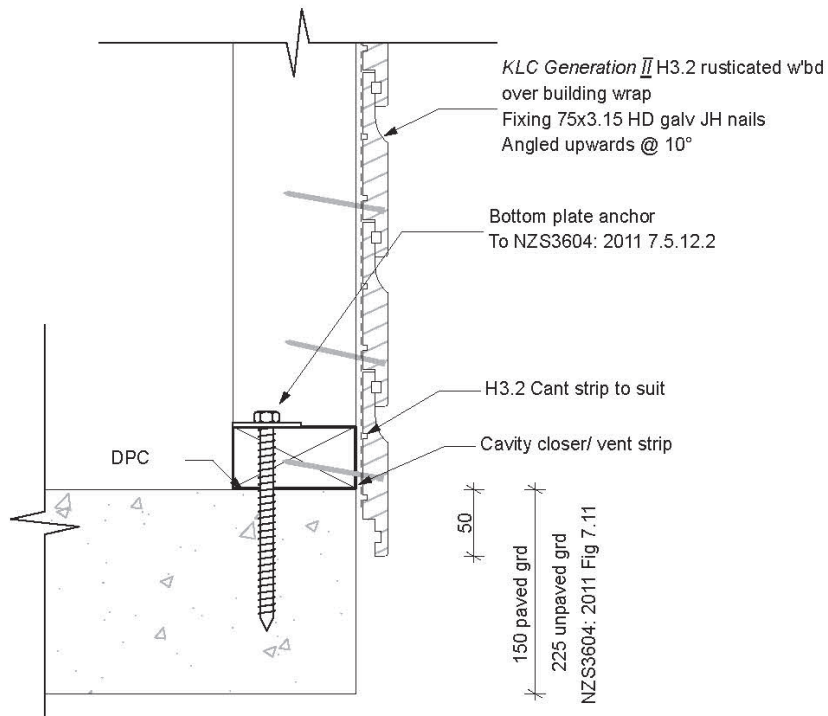
D2.1	Foundation, Timber Floor	33
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# 11 Detailed Drawings

## D1.1 Direct Fix, Foundation, Timber Floor



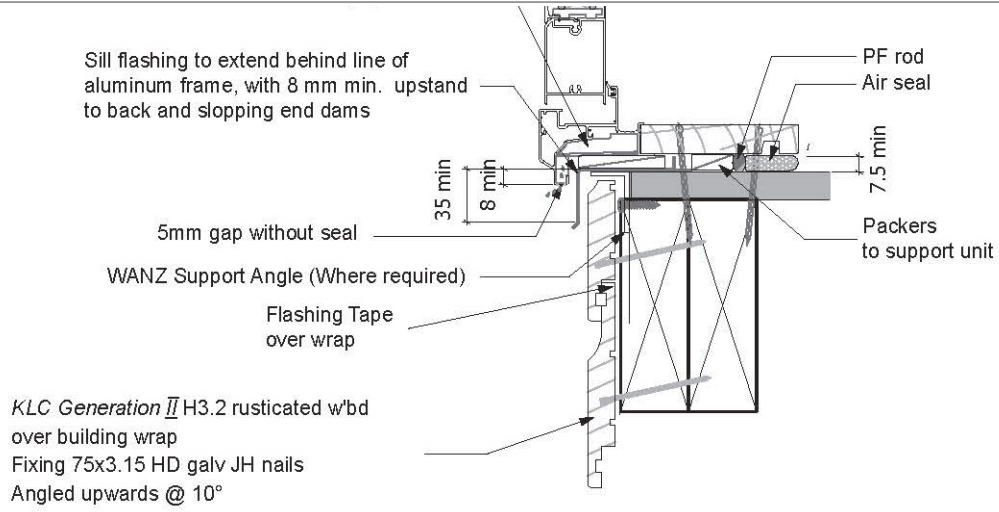
## D1.2 Direct Fix, Foundation, Concrete Floor



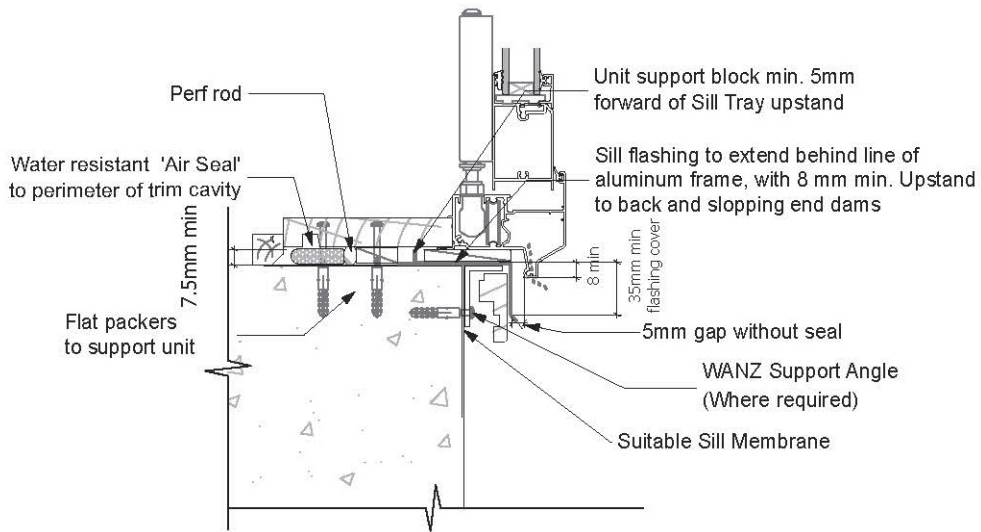


# 11 Detailed Drawings

## D1.3 Direct Fix, Sill, Timber Floor

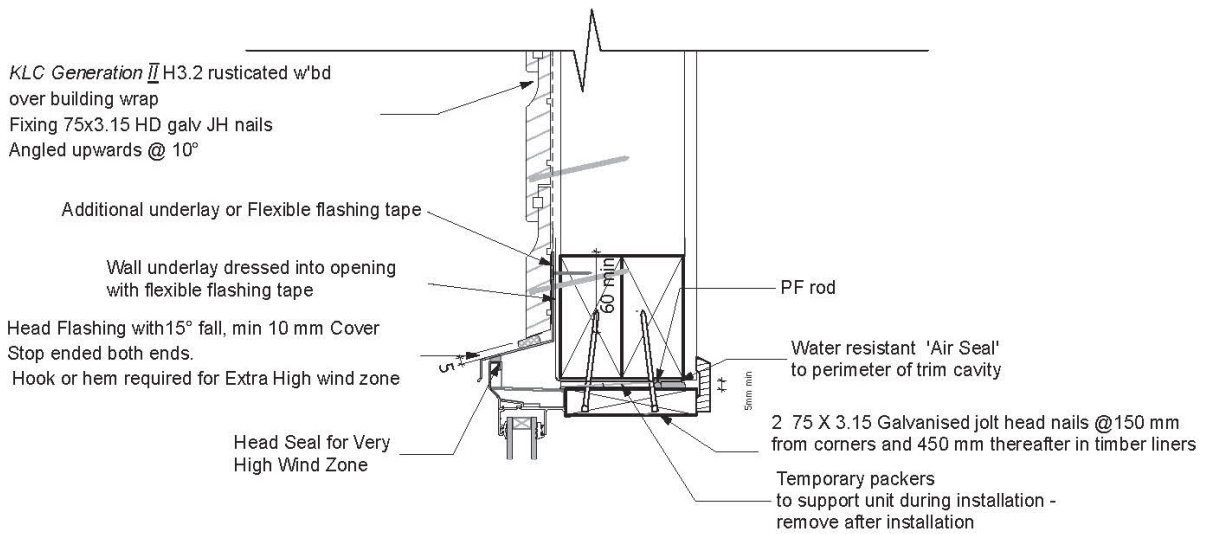


## D1.4 Direct Fix, Sill, Concrete Floor

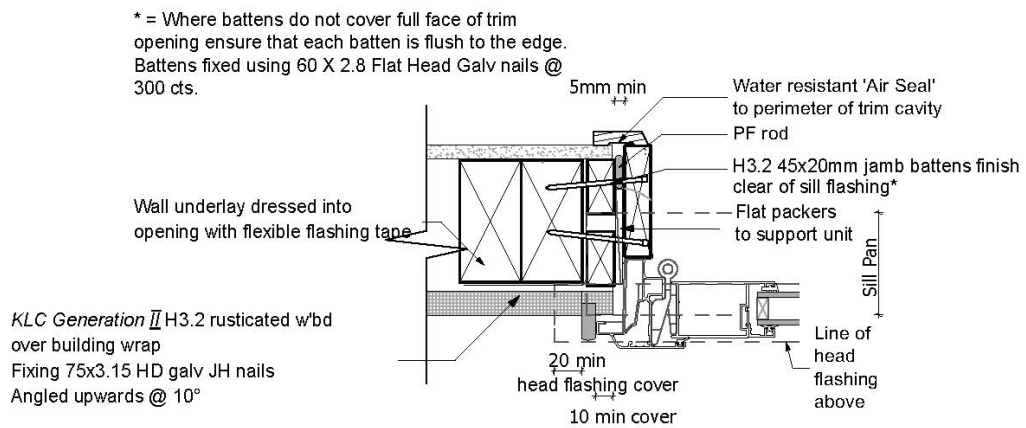


# 11 Detailed Drawings

## D1.5 Direct Fix, Door Jamb

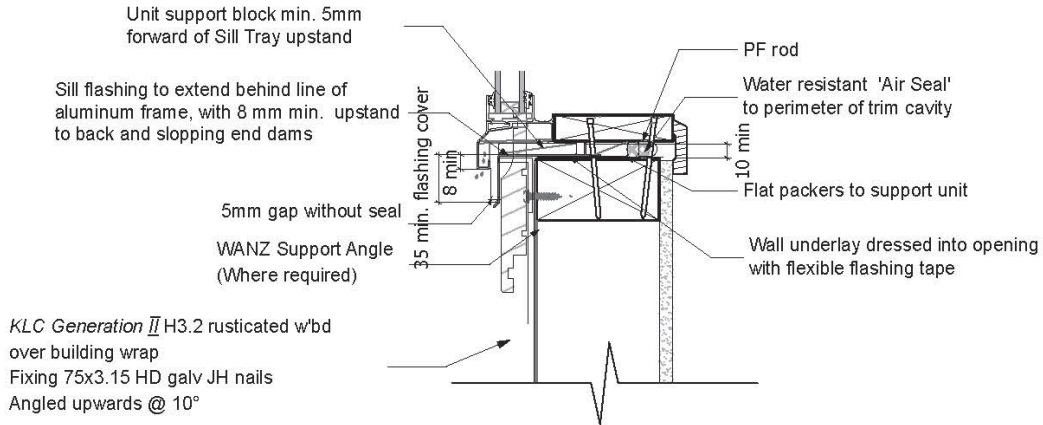


## D1.6 Direct Fix, Door Jamb

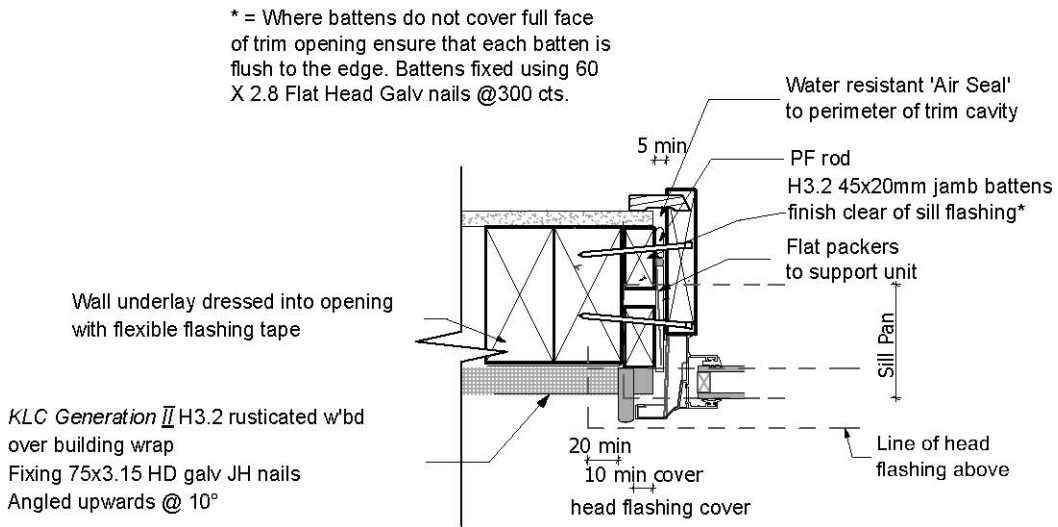


# 11 Detailed Drawings

## D1.7 Direct Fix, Window Sill

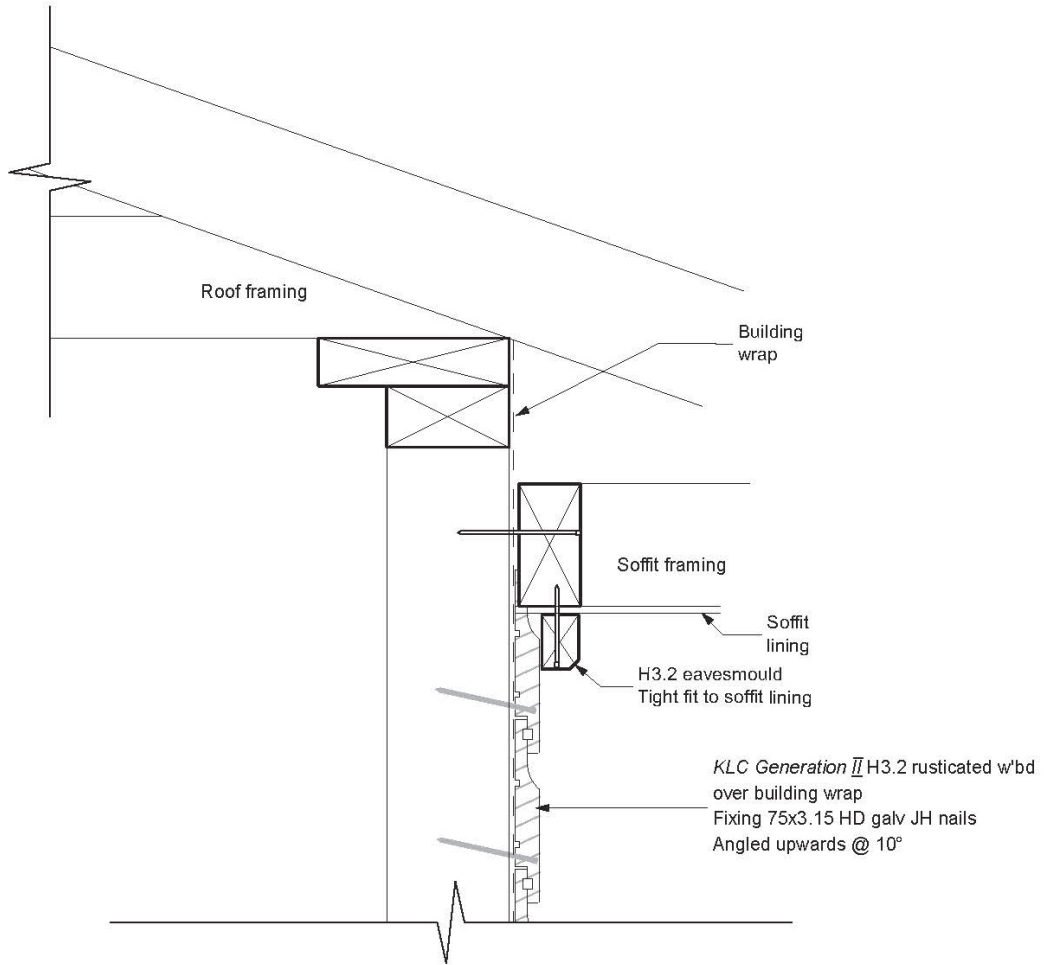


## D1.8 Direct Fix, Window Jamb

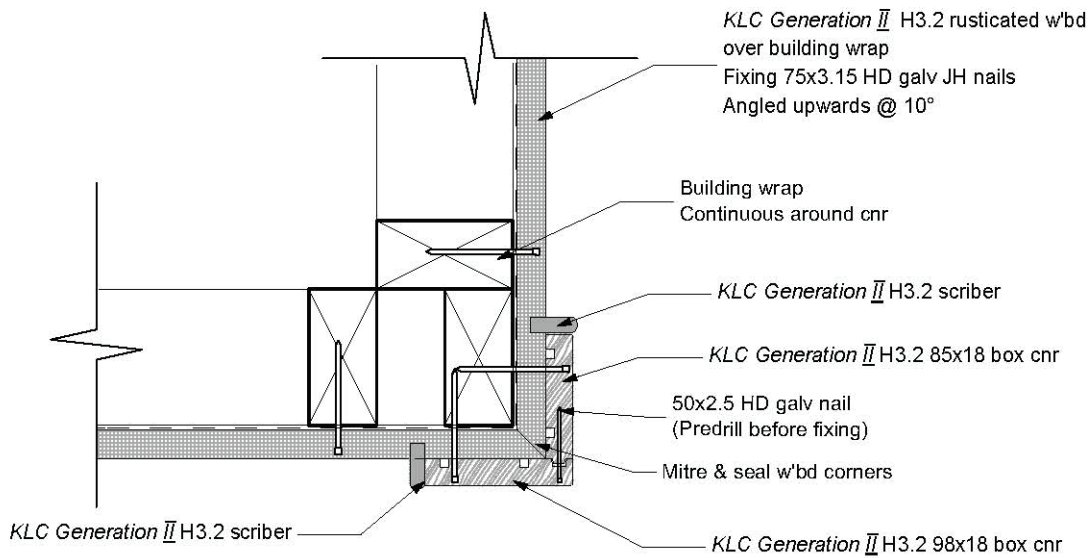


# 11 Detailed Drawings

## D1.9 Direct Fix, Soffit Junction

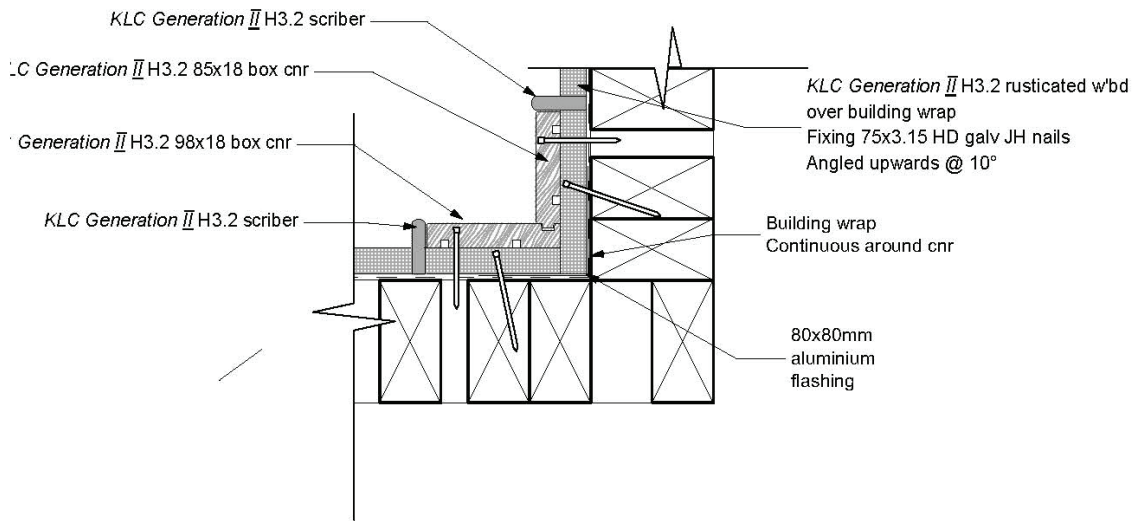


## D1.10 Direct Fix, External Box Corner

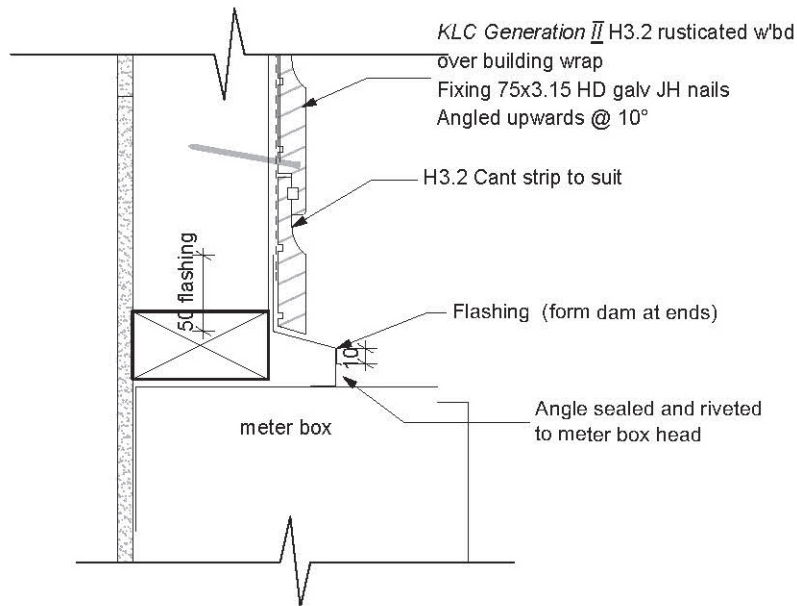


# 11 Detailed Drawings

## D1.11 Direct Fix, Internal Box Corner

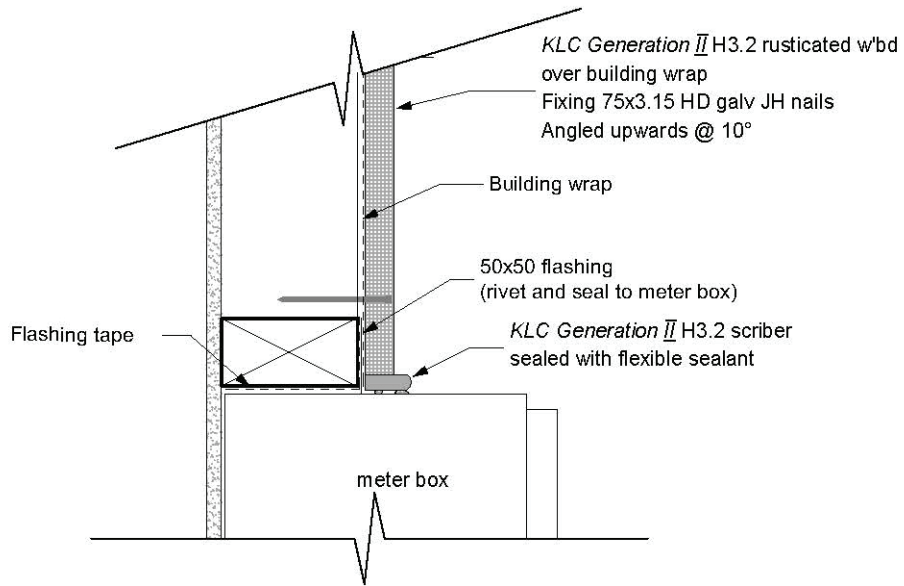


## D1.13 Direct Fix, Meter Box Head

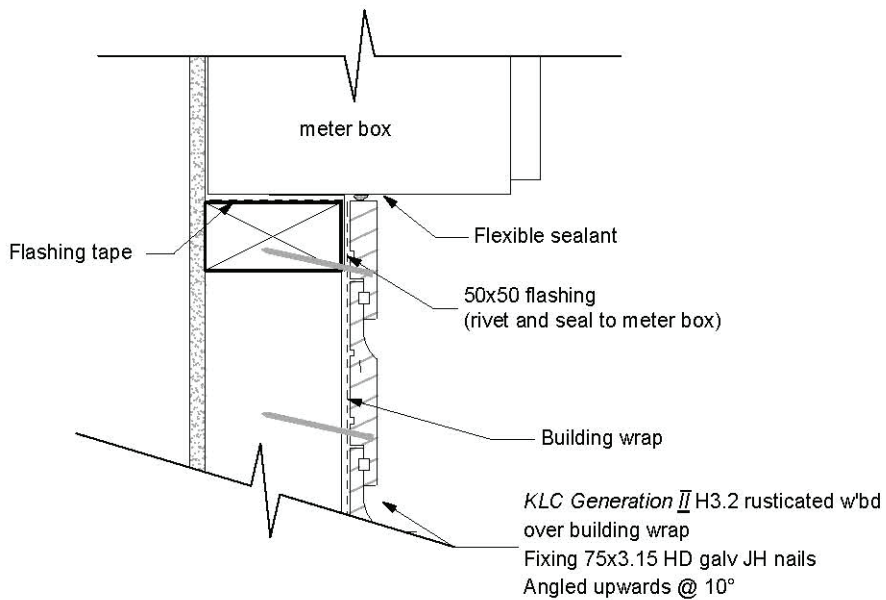


# 11 Detailed Drawings

## D1.14 Direct Fix, Meter Box Jamb

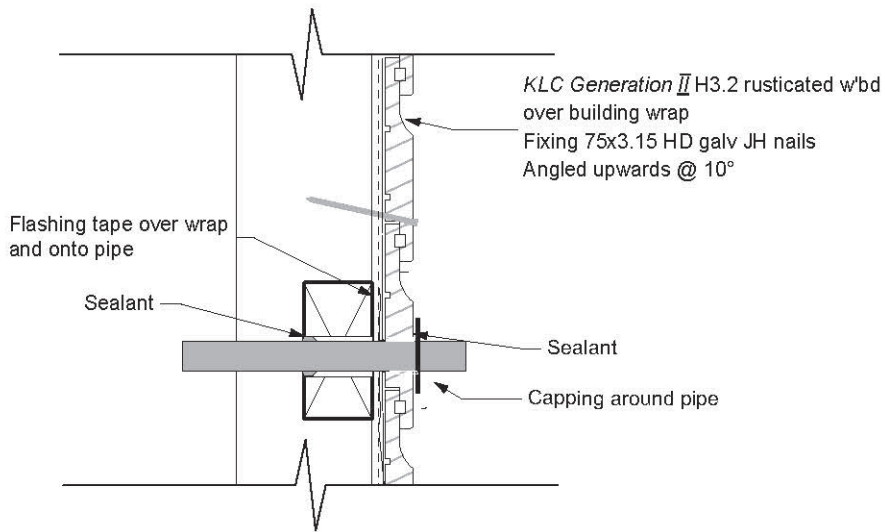


## D1.15 Direct Fix, Meter Sill

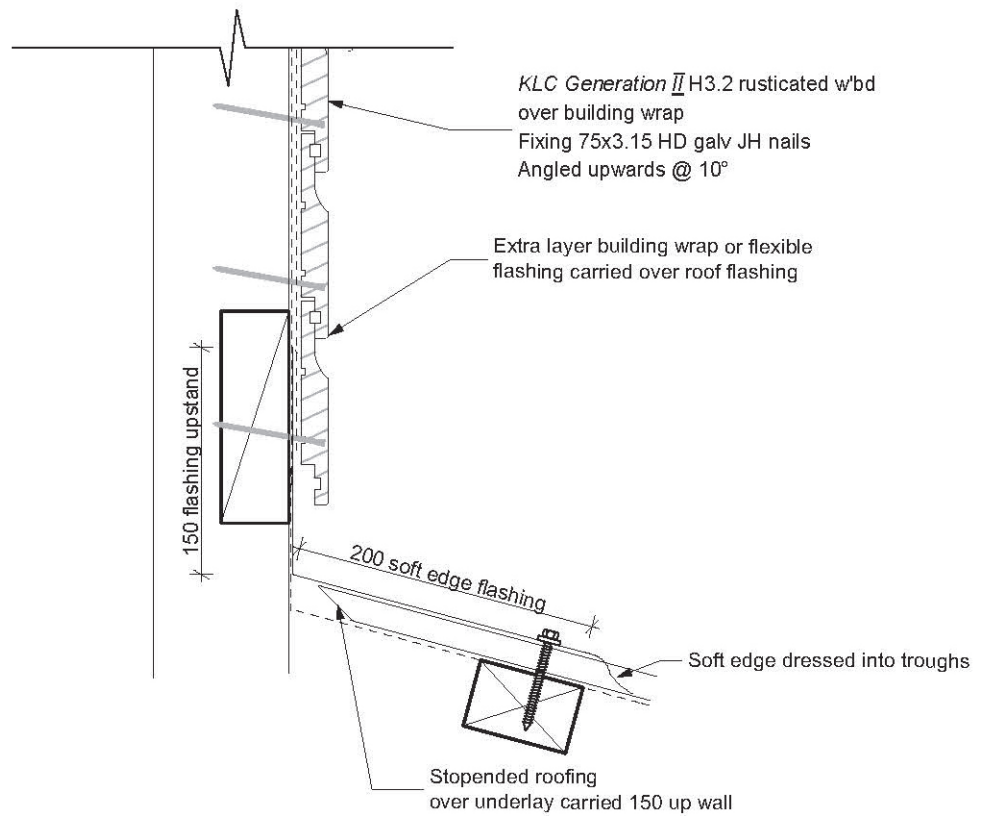


# 11 Detailed Drawings

## D1.16 Direct Fix, Pipe Penetration

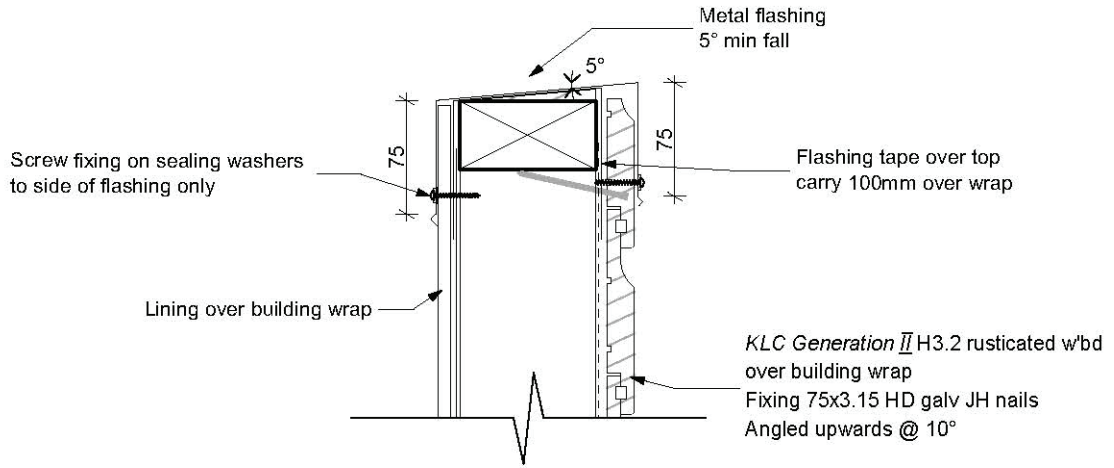


## D1.17 Direct Fix, Apron

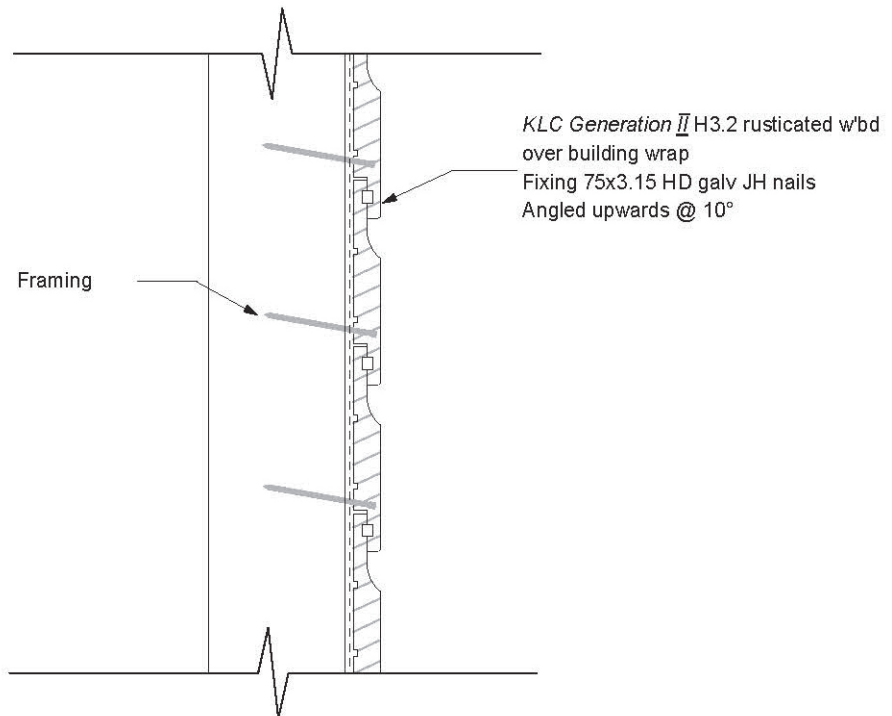


# 11 Detailed Drawings

## D1.18 Direct Fix, Fixing Detail, Parapet



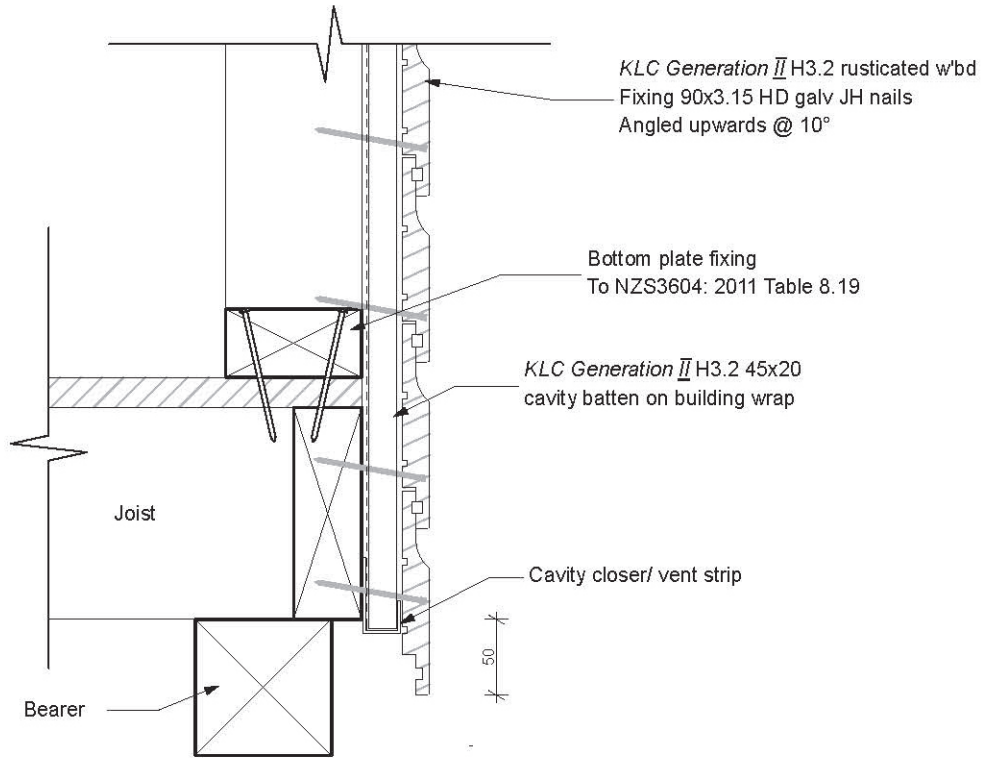
## D3.1 Direct Fix, Fixing Detail



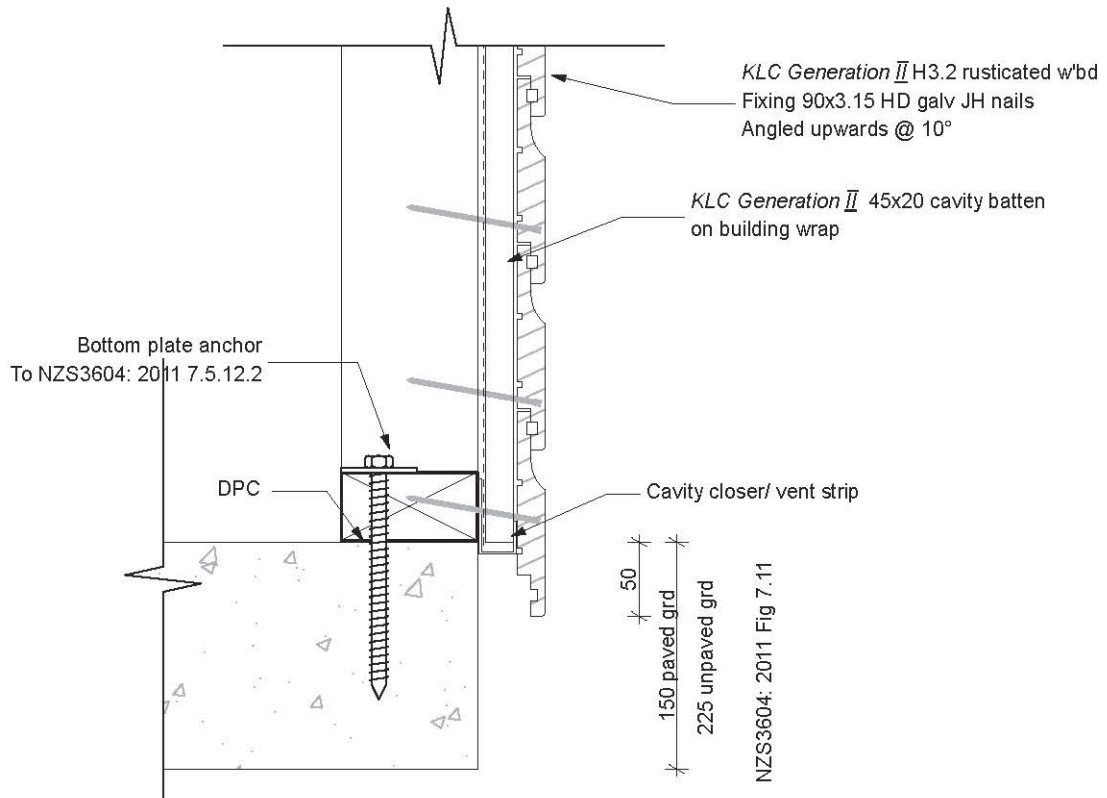


# 11 Detailed Drawings

## D2.1 Cavity Fix, Foundation, Timber Floor

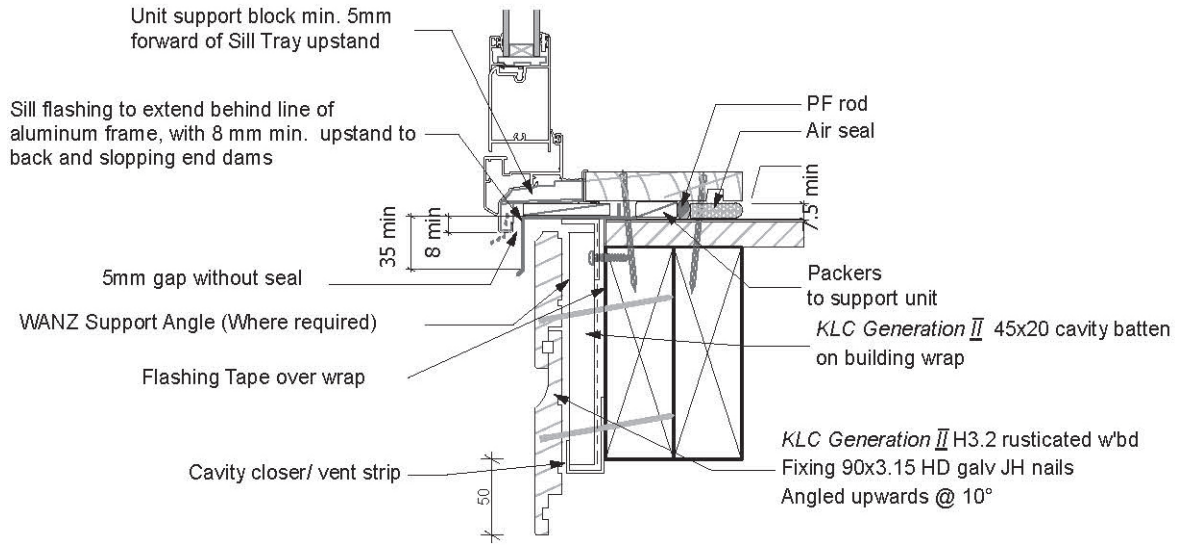


## D2.2 Cavity Fix, Foundation Concrete Floor

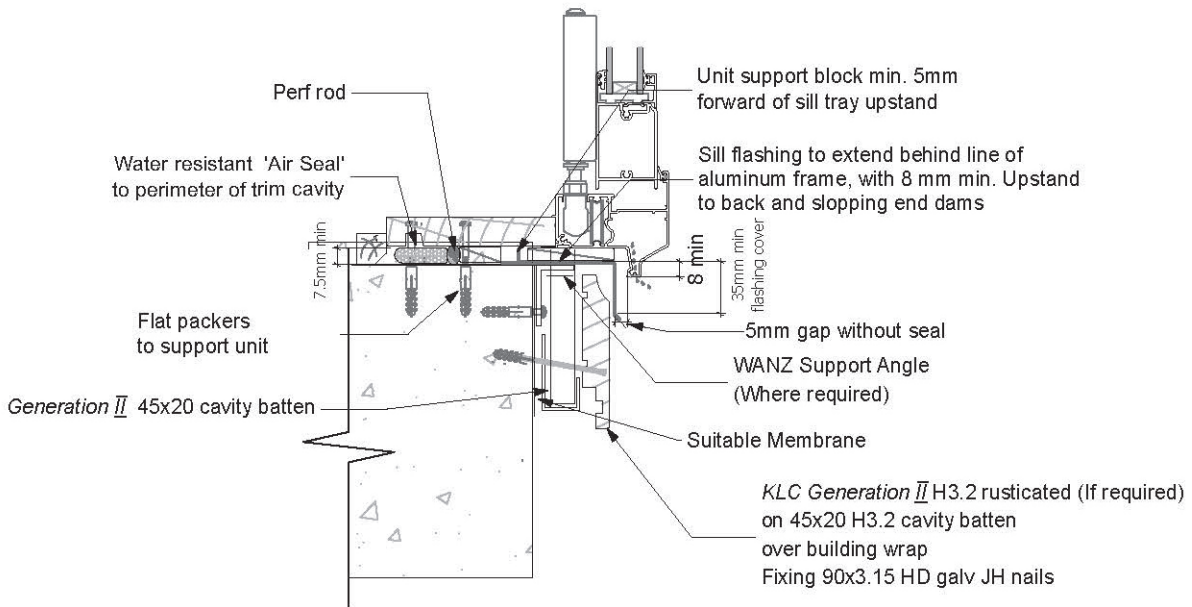


# 11 Detailed Drawings

## D2.3 Cavity Fix, Door Sill, Timber Floor



## D2.4 Cavity Fix, Door Sill, Concrete Floor



# 11 Detailed Drawings

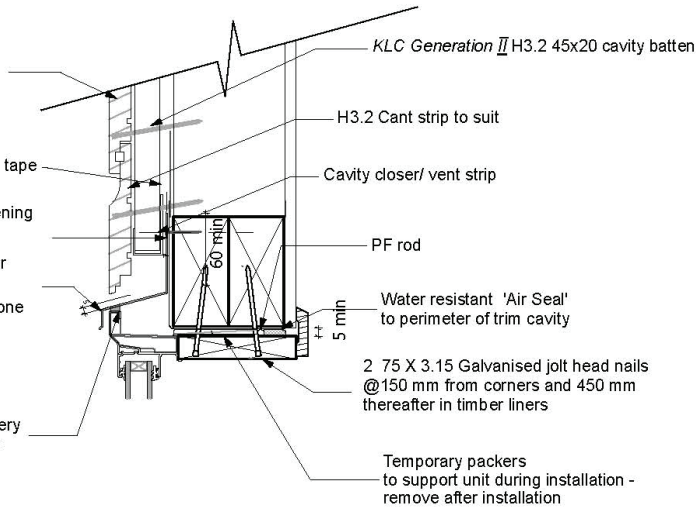
## D2.5 Cavity Fix, Window Head

KLC Generation II H3.2 rusticated w/bd  
on cavity batten  
over building wrap  
Fixing 90x3.15 HD galv JH nails  
Angled upwards @ 10°

Additional underlay or Flexible flashing tape  
Wall underlay dressed into opening  
with flexible flashing tape

Head Flashing with 15° fall, min 10 mm Cover  
Stop ended both ends  
Hook or hem required for Extra High wind zone

Head Seal for Very  
High Wind Zone

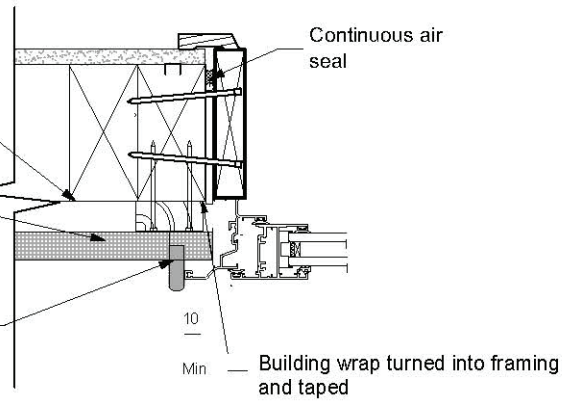


## D2.6 Cavity Fix, Window Jamb

KLC Generation II H3.2 45x20  
cavity batten on building wrap

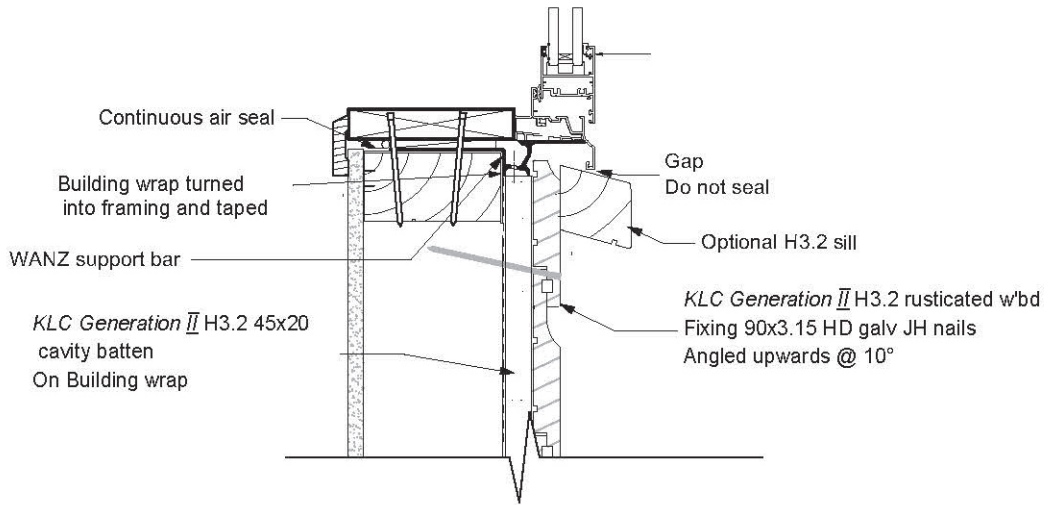
KLC Generation II H3.2 rusticated w/bd  
Fixing 90x3.15 HD galv JH nails  
Angled upwards @ 10°

KLC Generation II H3.2 scribe

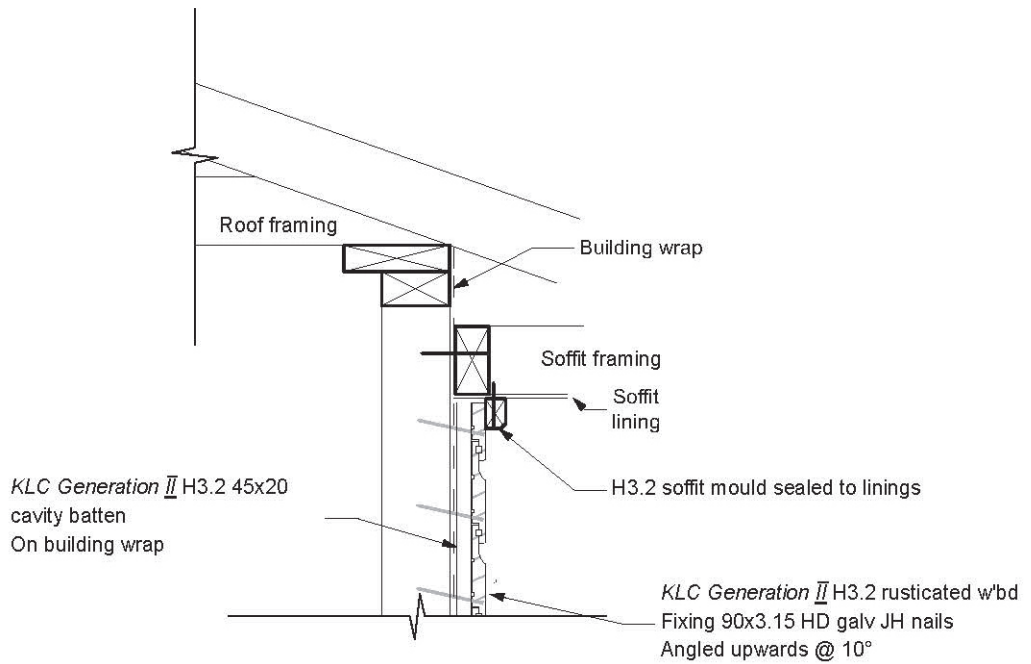


# 11 Detailed Drawings

## D2.7 Cavity Fix, Window Sill

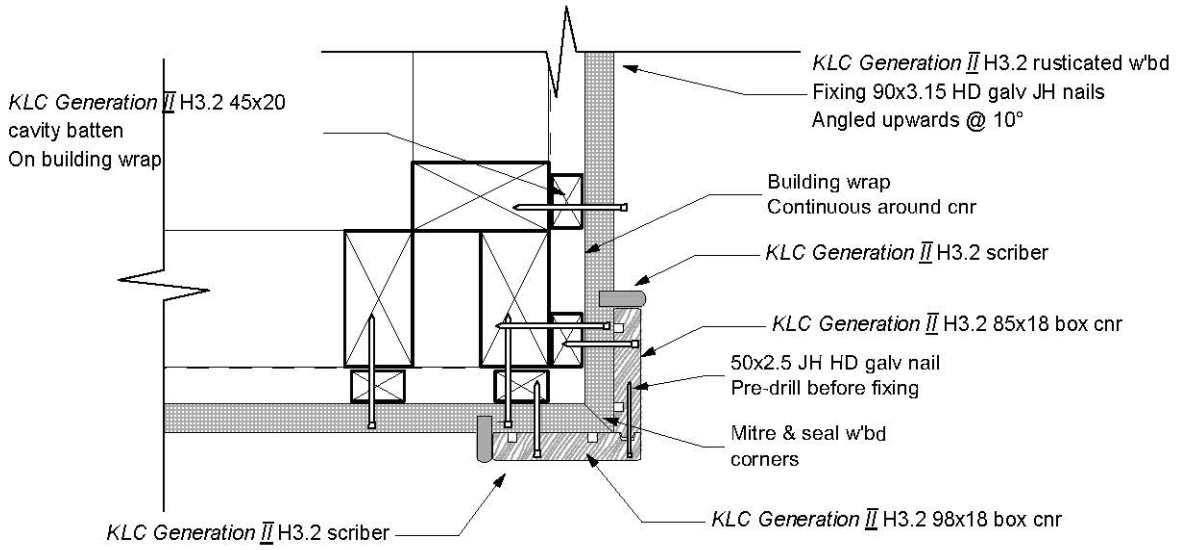


## D2.8 Cavity Fix, Soffit Junction

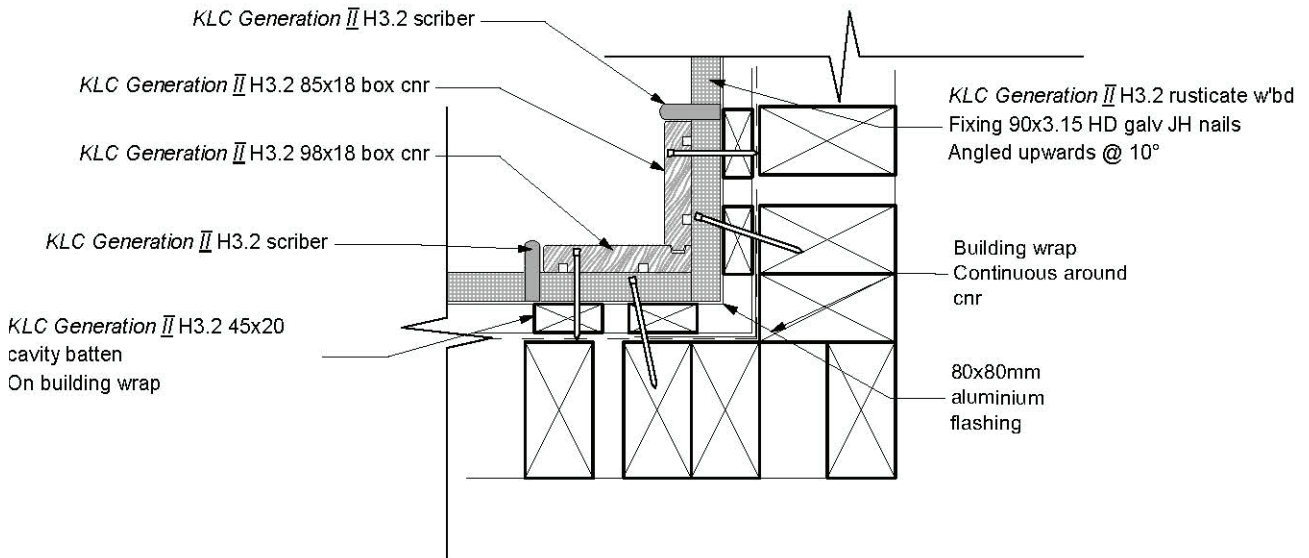


# 11 Detailed Drawings

## D2.9 Cavity Fix, External Box Corner

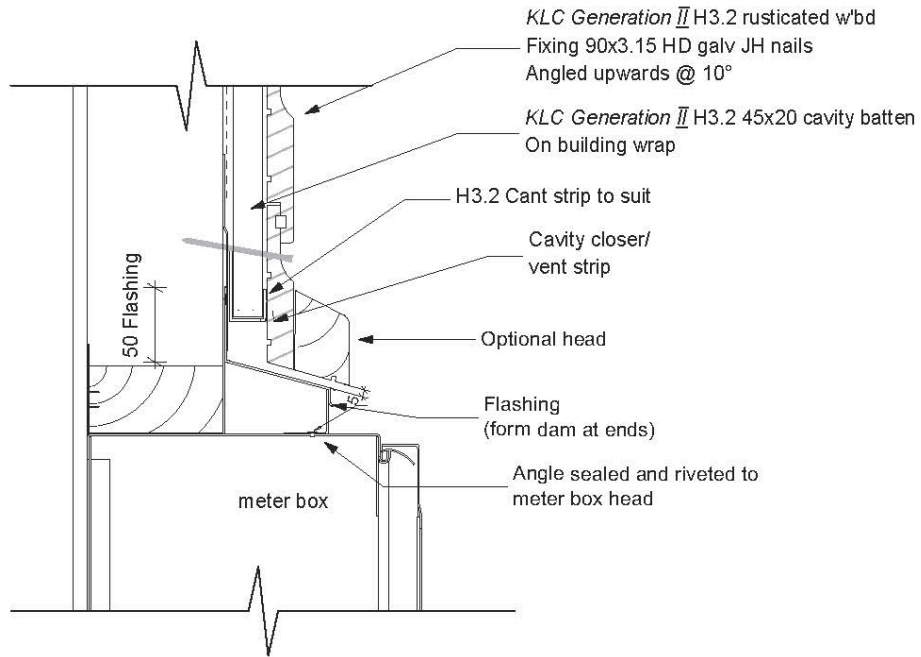


## 2.10 Cavity Fix, Internal Box Corner

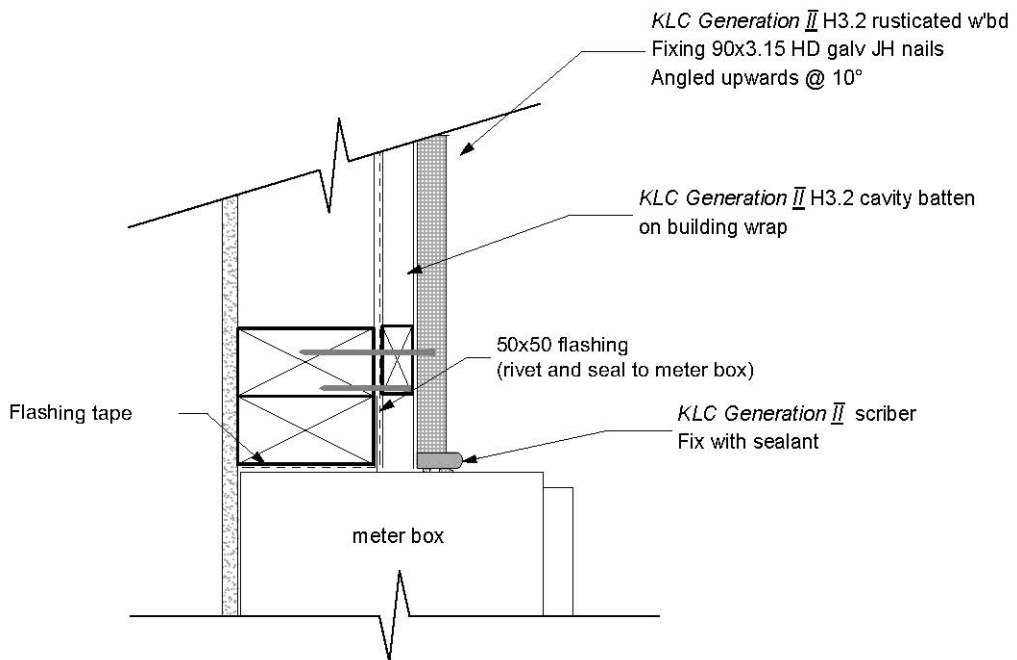


# 11 Detailed Drawings

## 2.11 Cavity Fix, Meter Box Head

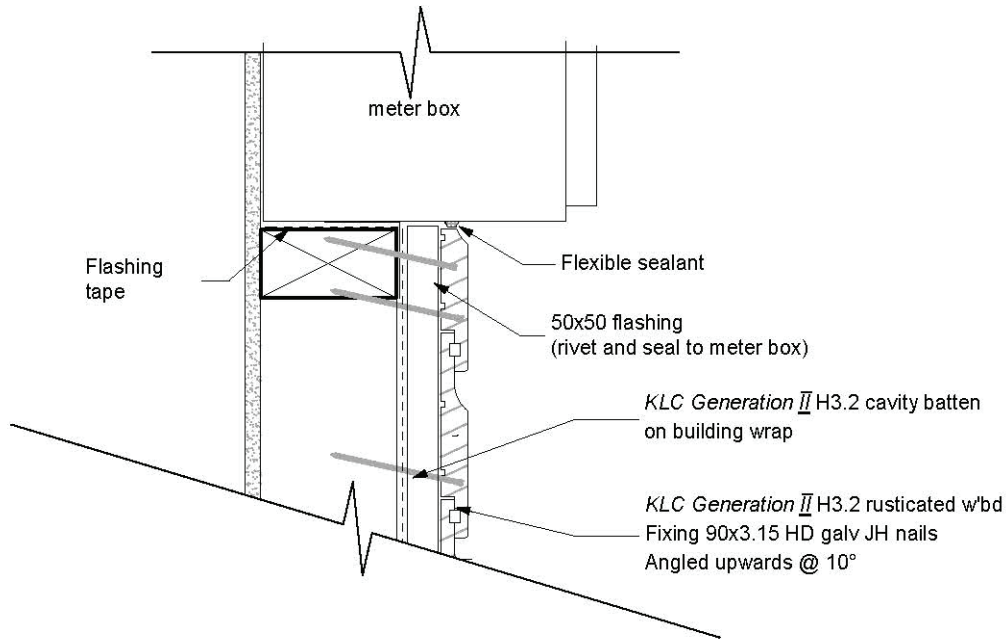


## D2.12 Cavity Fix, Meter Box Jamb

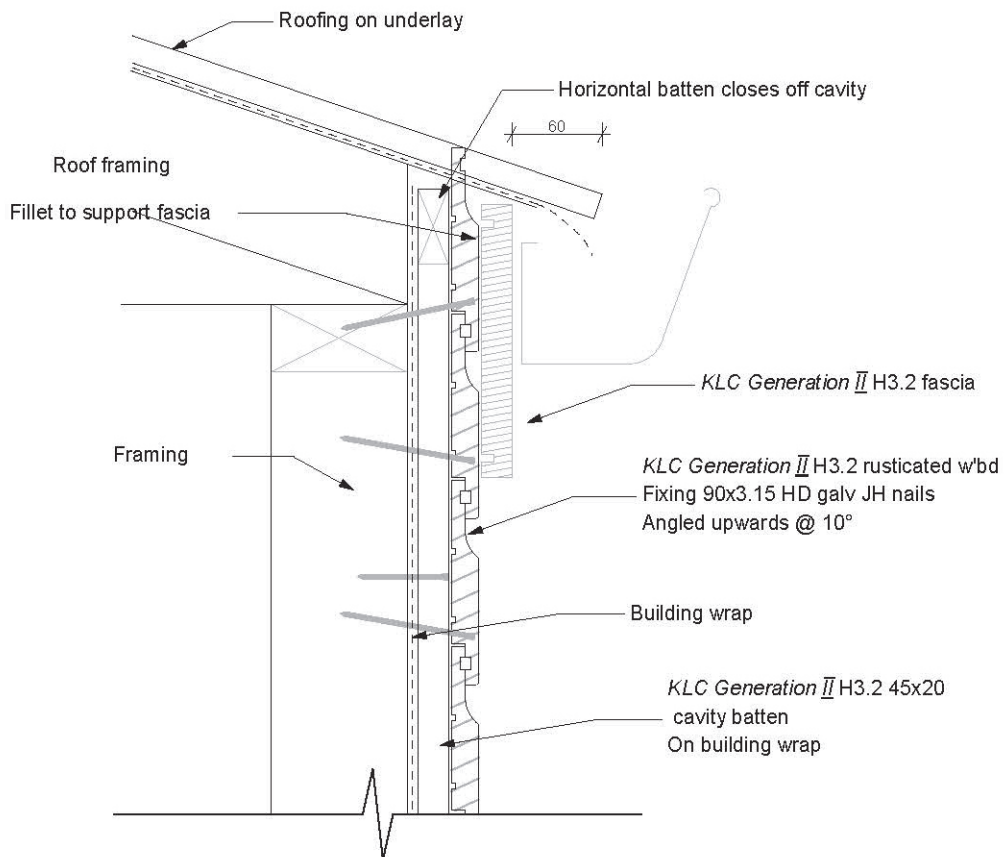


# 11 Detailed Drawings

## D2.13 Cavity Fix, Meter Box Sill

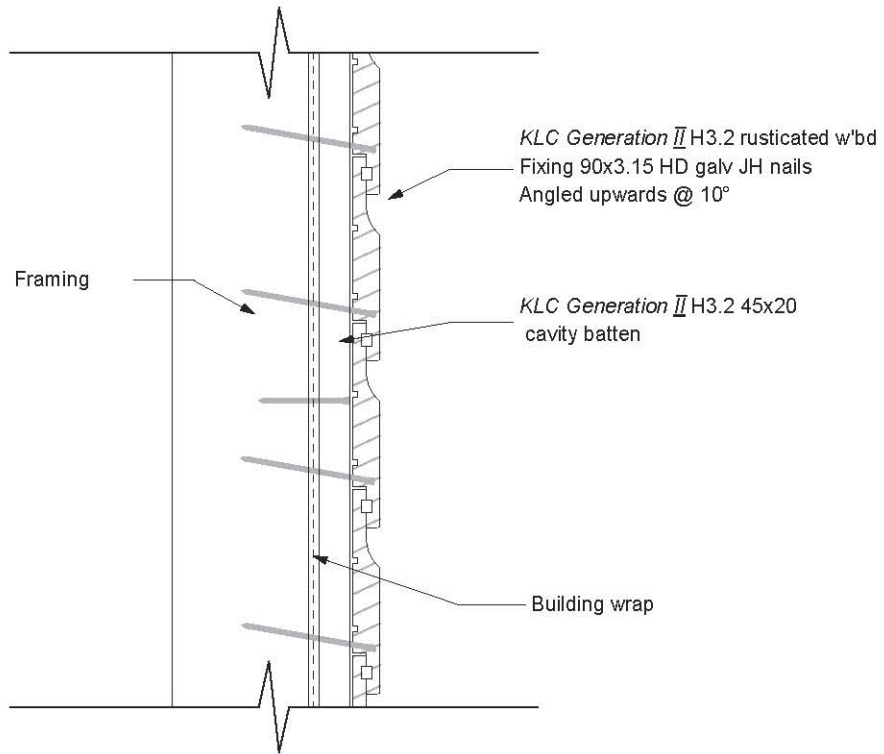


## D2.14 Cavity Fix, Nil Soffit



# 11 Detailed Drawings

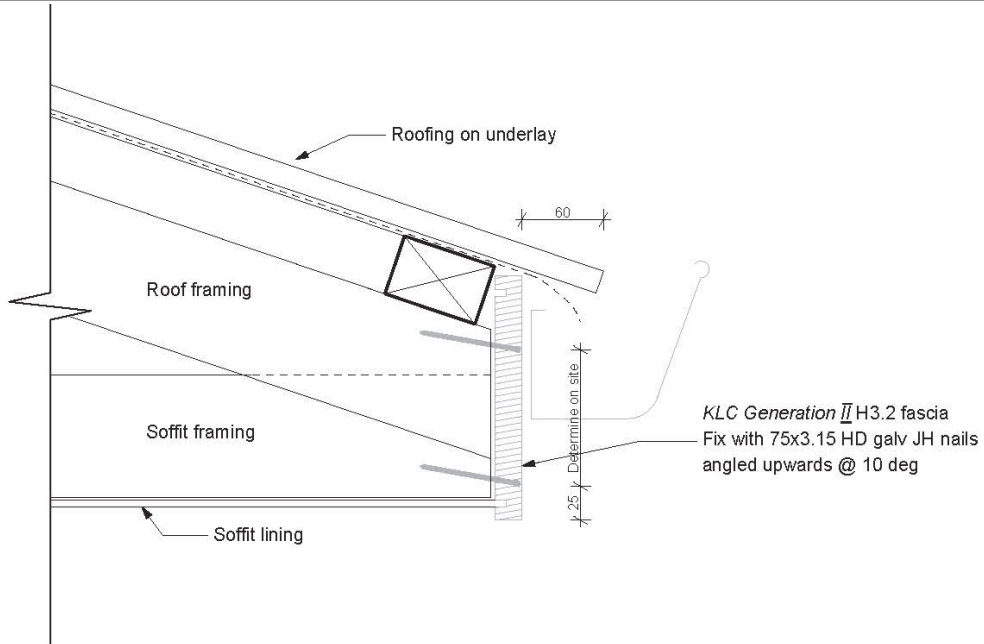
## D3.2 Cavity Fix, Fixing Detail





# 11 Detailed Drawings

## D3.5 Fascia Installation



## D3.6 Fixing Detail

