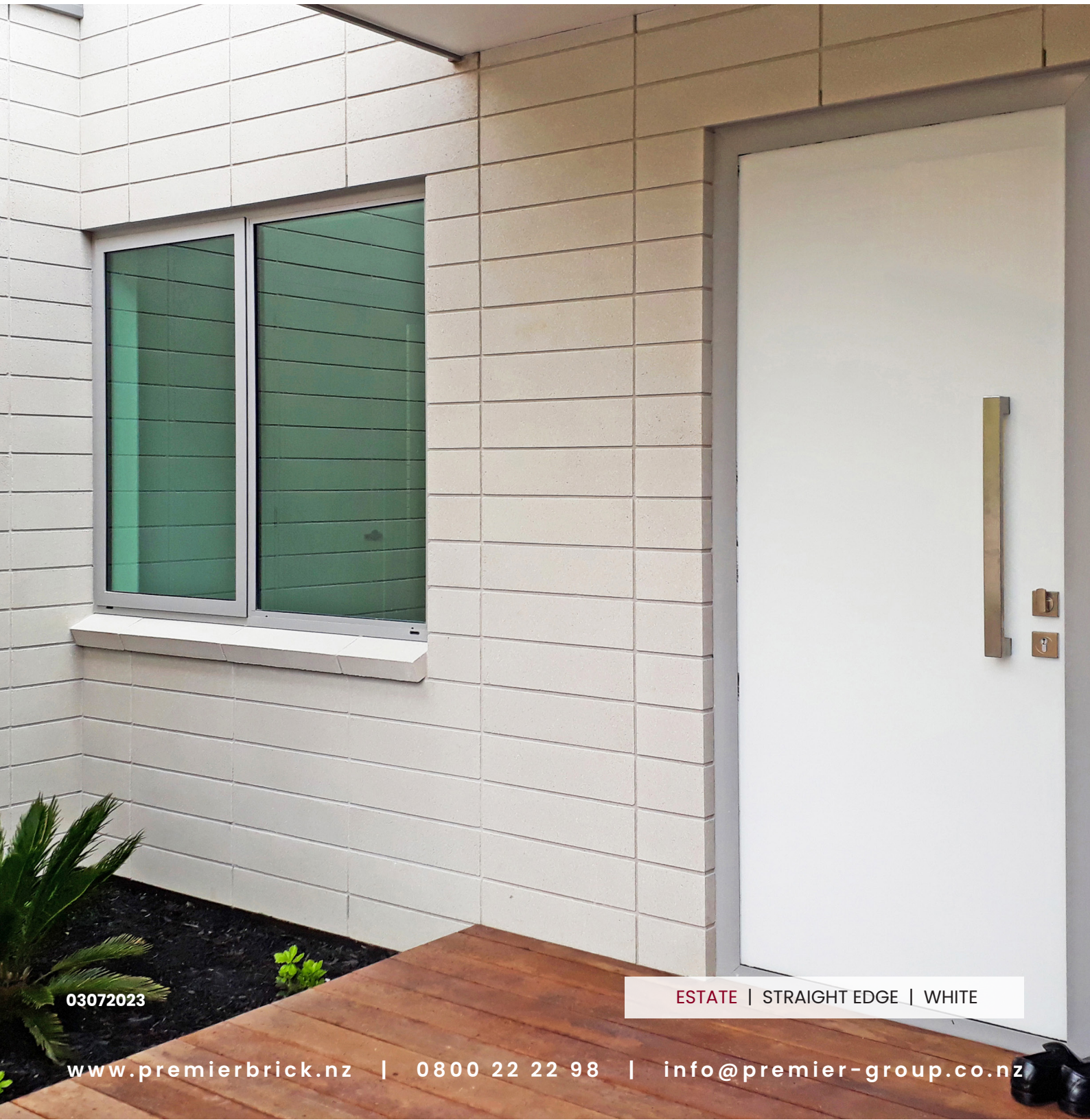


**PREMIER
BRICK**

*Architectural
Stone Cladding*

PREMIER BRICK

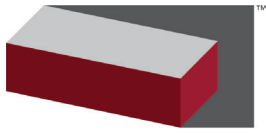
TECHNICAL MANUAL



03072023

ESTATE | STRAIGHT EDGE | WHITE

www.premierbrick.nz | 0800 22 22 98 | info@premier-group.co.nz



**PREMIER
BRICK**

*Architectural
Stone Cladding*

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IMPORTANT PRODUCT INFORMATION

| BRICK COLOUR | MAY REQUIRE SEALING | MUST BE MORTAR MATCHED! |
|--------------|---------------------|-------------------------|
| CHARCOAL | ✓ | ✓ |
| SEPIA | ✓ | ✓ |
| WALNUT | ✓ | ✓ |
| IRON STONE | | ✓ |
| GOLD COAST | | ✓ |
| STRAW | | ✓ |

SPECIAL TERMS AND CONDITIONS FOR CHARCOAL BRICKS:

1. Lay very carefully and sponge off thoroughly with clean water during laying to prevent scratching and staining.
2. Oxide **MUST** be used in the mortar. **NO** natural or white mortar to be used!! This helps to prevent a patchy appearance on the finished veneer.
3. It is important to dry-cut Charcoal bricks to prevent 'wet slurry' staining the surface of the bricks.
4. Bricklayer **MUST** be given explicit instructions on how to lay charcoal colour and **MUST** read and sign this manual as understood **BEFORE** laying.
5. Acid wash only if required. **DO NOT** acid wash without explicit instructions and training from Premier Group.
6. If you choose to seal your bricks, please watch our video regarding this and talk to us first. **DO NOT** seal without explicit instructions & training from Premier Group.
7. **ALL** customers for all Premier brick colours must sign and return the terms and conditions form **BEFORE** delivery - See Page 60 & 61.

PLEASE READ ADDITIONAL INFORMATION REGARDING THESE COLOURS ON THE FOLLOWING PAGE.

IMPORTANT PRODUCT INFORMATION

Premier Brick colours are unique, the most consistent and offer the stunning, timeless beauty you have been looking for to build a beautiful home.

Please read the notes below regarding the darker colours in the range:

1. Do not lay product that has obvious surface defects.
2. The darker colours will show some fading over time.
3. If the brick is rumbled, the darker colours will show surface scratches that occur due to the rumbling process, more than lighter colours. We do not recommend rumbling the Charcoal, Sepia or Walnut colours.
4. They will show efflorescence more than lighter colours. Efflorescence is a white powder that can appear randomly on the surface of cement based products.
5. They can be 'acid washed' with Premier Acid Wash. Do not attempt this without adequate training from Premier Group. An acid wash will remove efflorescence & superficial scratches.
6. If you wish to seal your brick to reduce efflorescence, use Premier Gloss Sealer. (See previous page)
7. Only seal in the summer months when the bricks are dry. Do not seal if it has rained 7 days prior or is forecasted to rain 7 days after. We also strongly recommend leaving your bricks to cure & weather for 6 to 12 months before sealing.
8. You must mortar match darker colour bricks to stop obvious mortar smudging.
9. The bricklayer must be trained how to handle and sponge the bricks before laying.
10. At all times during the bricklaying process, ensure quality is up to the desired standard of the builder and homeowner.
11. A product laid is a product accepted.

If the above isn't adhered to, Premier Group will not be held liable for any product issues, and the warranty will be void.

The above has been read and understood by:

NAME: _____

SIGNATURE: _____

HOMEOWNER

BUILDER

BRICKLAYER

NAME: _____

SIGNATURE: _____

HOMEOWNER

BUILDER

BRICKLAYER

NAME: _____

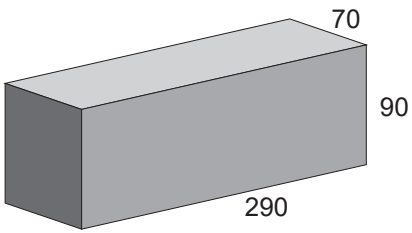
SIGNATURE: _____

HOMEOWNER

BUILDER

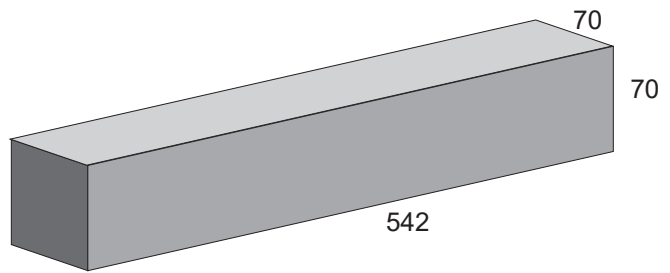
BRICKLAYER

PREMIER BRICK PRODUCT RANGE



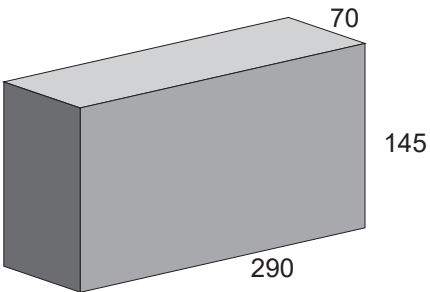
MODENA BRICK

290x90x70mm
33 units per m²
Straight Edge / Rumbled Edge



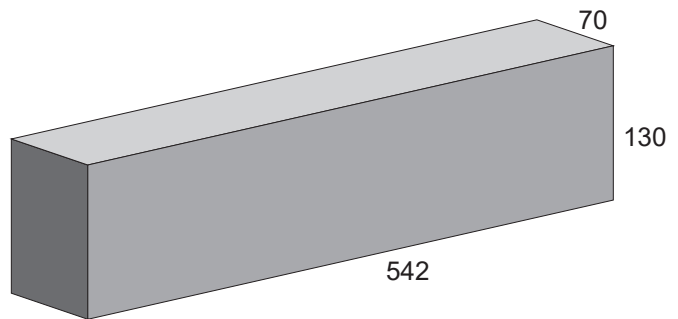
CHATEAU BRICK

542x70x70mm
23 units per m²
Straight Edge



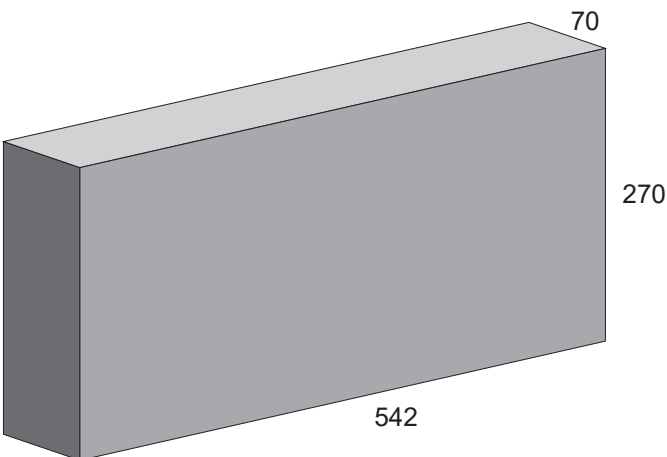
COUNTRY BRICK

290x145x70mm
22 units per m²
Straight Edge / Rumbled Edge



ESTATE BRICK

542x130x70mm
13 units per m²
Straight Edge



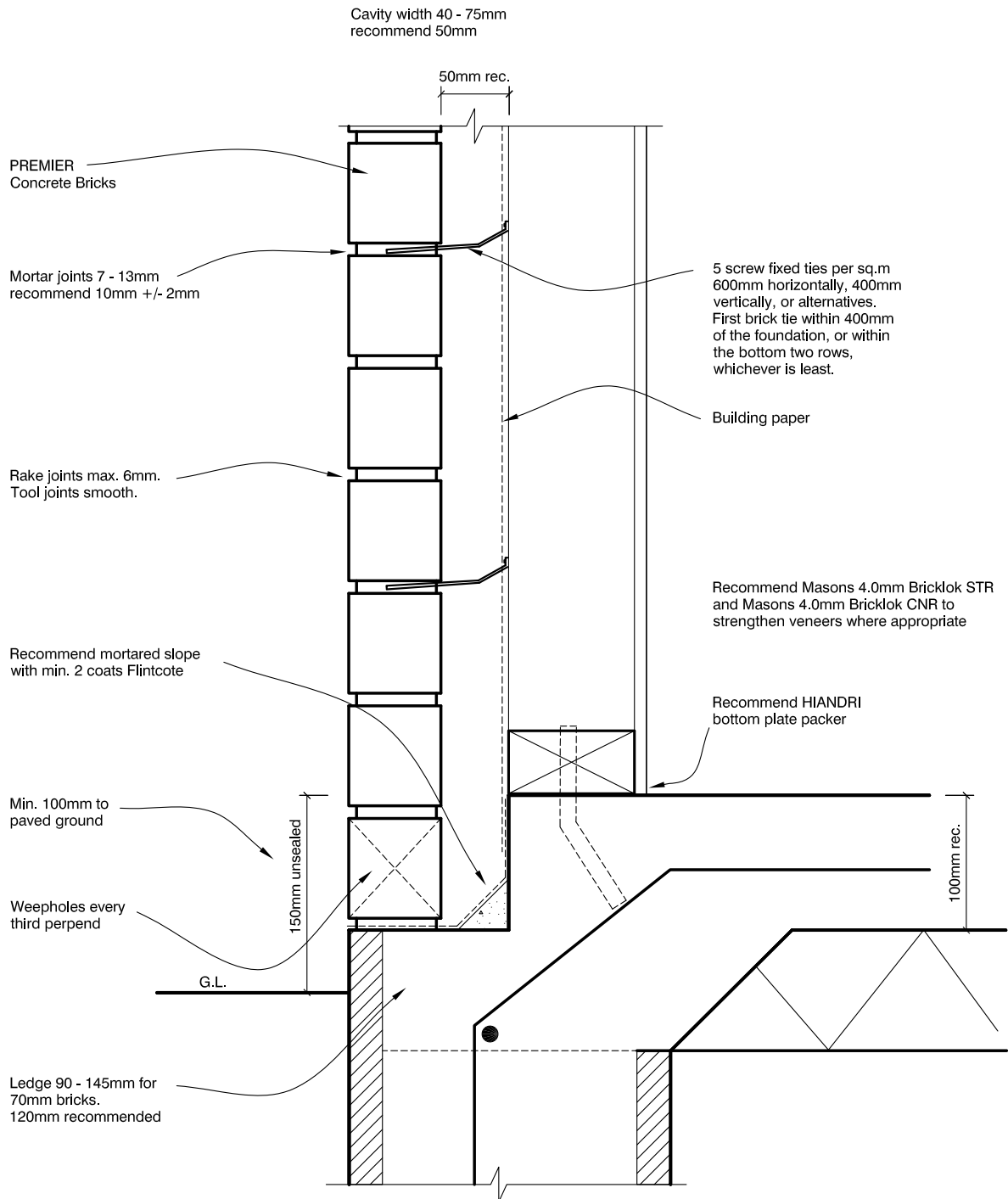
MANSION BRICK

542x270x70mm
7 units per m²
Straight Edge

SEE ALL THE COLOUR
OPTIONS ON OUR WEBSITE
WWW.PREMIERBRICK.NZ

PREMIER BRICK CONSTRUCTION

FIG. 1 STANDARD BRICK VENEER



PLEASE NOTE: - Brick ties to be installed as per Table 2, PG-B1
- See page 31 for more detailed drawings

AS = Alternative Solution
SD = Specific Design
Also visit WWW.PREMIERBRICK.NZ

PREMIER BRICK CONTROL JOINT INFORMATION

PREMIER BRICK SPECIFICATIONS:

CONTROL JOINTS: If control joints are not installed, Premier Group will not be held liable for any random cracking in either brick or mortar, that may result from ground settlement or shrinkage.

KEEP BRICKS DRY before and during laying. Wet bricks will increase the risk of efflorescence in the mortar and shrinkage.

BLENDING the bricks from 3 or more pallets as you lay is recommended to ensure an even overall appearance.

QUALITY: If for some reason, you are not completely satisfied with the quality of the bricks please contact Premier Group immediately. We will not accept any claims for labour costs to remove or re lay bricks that have already been laid. Our warranty is limited to free replacement of product, deemed to be unsatisfactory by Premier Group before laying takes place. Terms and conditions apply.

COLOUR: Premier Bricks are manufactured from natural materials for natural results. Colour variation is normal and is part of the natural beauty of the product.

EFFLORESCENCE: Premier Bricks can display “whitening” (efflorescence). This occasional and naturally occurring phenomenon is characteristic of many natural products and will gradually diminish in time. You can use a Premier Sealer after laying to reduce efflorescence.

SEALING: When dry, you can choose to seal your bricks with a Premier Sealer. This will help retain colour, reduce maintenance and reduce efflorescence. If you choose to seal, please follow instructions very carefully.

All concrete masonry products shrink or contract due to drying, causing hairline cracking. To help avoid this, it is important to adhere to the following guidelines.

1. Control joints should be spaced at 5-6 meters apart. Consult NZS 4210.
2. In long walls (unbroken by windows) joints should be spaced to produce panels having length $1\frac{1}{2}$ to 2 times their height.
3. Windows and door openings up to 1.8m width require a “Zig Zag” control joint in line with only 1 jamb. (FIGURE 1)
4. Openings wider than 1.8m should have control joints in line with both jambs. (FIGURE 2)
5. If there are no openings within 6m of a corner then install a control joint within 3m of the corner.

“ZIG ZAG” CONTROL JOINTS

1. Scrape out all mortar prior to initial set along the “Zig Zag” line where control joints are needed.
2. Install a 12 or 15mm diameter P.E.F (Polyethylene Foam) rod continuously into the joint 30mm back from face of brick to form a backing strip (FIGURE 3). Alternatively, you may use D.P.C as a bond breaker instead of P.E.F
3. Leave the joint without mortar as long as possible to allow any shrinkage to occur.
4. Install 20mm of matching mortar to complete the control joint.
5. If you install the appropriate number of control joints, any

hairline cracking will occur at the control joint will be minimal. Once the veneer has shrunk, it should not happen a second time.

6. If cracks are unacceptable, they can be raked out to a depth of 20mm and repointed.

PLEASE NOTE: Consult NZS4210 for more information if required.

VERY IMPORTANT NOTICE:

- Please keep bricks covered and dry before and during laying or serious variation in mortar colour could occur! (Use pallet shrouds Provided)

- When handling straight edge bricks, please take care not to scratch the face of the brick.

- Ensure that you lay all bricks “face out”.

- During winter months, we advise that you cease laying at 3pm and that you carry out cuts and set out for the following day. This will minimize any risk of moisture bleeding from the bricks and affecting the mortar colour.

- We strongly recommend drycutting only for darker colours to avoid wetcut slurry stains on face of brick.

- To achieve consistent colour in the mortar joints, ensure they are all tooled smooth when the mortar can hold a clear thumb print.

- Shrinkage cracking in any veneer will not affect the weather tightness or the structural integrity of the cladding.

FIGURE 1

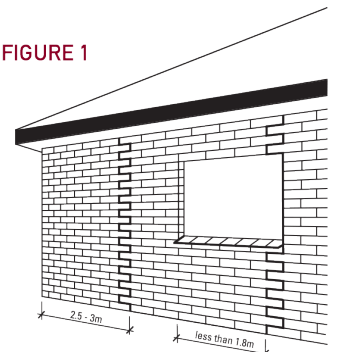


FIGURE 2

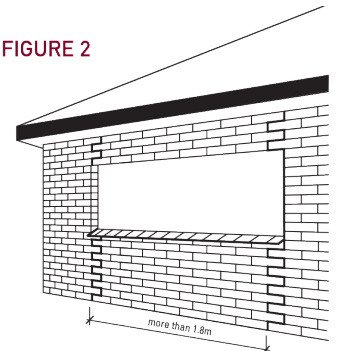
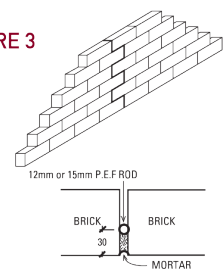


FIGURE 3



PRODUCER STATEMENT - A

Design Note PG-B1



PRODUCER STATEMENT – PS1 – DESIGN

(Guidance notes on the use of this form are printed on page 2)

Building Code Clause(s) B1/VM1

ISSUE: A

ISSUED BY: KIRK ROBERTS Consulting Engineers Ltd.
(Design Firm) **PROJECT NO:** 1721220

TO: Premier Group NZ Ltd
(Owner/Developer)

TO BE SUPPLIED TO: Relevant Building Consent Authority
(Building Consent Authority)

IN RESPECT OF: Single storey brick veneer specification as per the attached documentation
'BRICKLAYING SPECIFICATION – DESIGN NOTE PG-B1'
(Description of Building Work)

AT: Locations throughout New Zealand
(Address)

We have been engaged by the owner/developer referred to above to provide **Structural Engineering Design** services in respect of the requirements of Clause(s) **B1/VM1** of the Building Code for All or Part only (as specified in the attachment to this statement), of the proposed building work.

The design carried out by us has been prepared in accordance with:

- Compliance Documents issued by the Ministry of Business, Innovation & Employment **B1/VM1** or
(verification method / acceptable solution)
- Alternative solution as per the attached schedule.....

The proposed building work covered by this producer statement is described on the attached specification titled **"BRICKLAYING SPECIFICATION – DESIGN NOTE PG-B1"**.

On behalf of the Design Firm, and subject to:

- (i) All proprietary products meeting their performance specification requirements;
- (ii) Up to **'Extra High'** Wind Zone in accordance with NZS3604:2011
- (iii) Up to Earthquake Zone **'3'** in accordance with NZS3604:2011
- (iv) **Structural design loads are based on a 50 year design life and Importance level 2 structure (normal structures and structures not in other importance levels) as defined in AS/NZS1170.0 2004, clause 3.3.**
- (v) **Unless specifically noted, all structural elements must comply with the relevant New Zealand standard design codes such as NZS 3604, NZS 4229, NZS 2699, NZS 4210 and NZS HB 4236. These elements include, but are not limited to, brick ties, mortar strength, brick strength, and bond strength between the brick and the mortar.**
- (vi) **Premier brick products shall be manufactured to the requirements of NZS 4455.**
- (vii) **This certificate does not cover weather-tightness.**
- (viii) **This Producer Statement is valid for 1 year from the date of issue.**
- (ix) **Inspections of the building to be completed by the Local Territorial Authority.**

PRODUCER STATEMENT - A

Design Note PG-B1



I, **Craig Manssen** am: CPEng # **161576**
(Name of Design Professional)

Reg Arch #

I am a Member of : IPENZ NZIA and hold the following qualifications: **B.E.(Hons), MEngNZ, CPEng**
The Design Firm issuing this statement holds a current policy of Professional Indemnity Insurance no less than \$200,000*.
The Design Firm is a member of ACENZ:

SIGNED BY **Craig Manssen** ON BEHALF OF **Kirk Roberts Consulting Engineers Ltd.**

(Design Firm)

Date of issue: 1 August 2023 (Signature).....

Note: This statement shall only be relied upon by the Building Consent Authority named above. Liability under this statement accrues to the Design Firm only. The total maximum amount of damages payable arising from this statement and all other statements provided to the Building Consent Authority in relation to this building work, whether in contract, tort or otherwise (including negligence), is limited to the sum of \$200,000.*

This form is to accompany **Form 2 of the Building (Forms) Regulations 2004** for the application of a Building Consent.

THIS FORM AND ITS CONDITIONS ARE COPYRIGHT TO ACENZ, IPENZ AND NZIA

BRICKLAYING SPECIFICATION – DESIGN NOTE PG-B1

PREMIER MASONRY BRICKS

PRELIMINARY

This document is a generic bricklaying specification used for the construction of single storey, running-bond clay brick veneers. It is an 'Alternative Solution' to E2/AS1 applicable only when PREMIER concrete bricks, as mentioned in this document, are used in a masonry brick veneer. If any aspect of design has not been specifically addressed, then E2/AS1 Masonry and NZS 4210 will apply. This general specification also applies to Design Notes PG-B2 – Stack-bonded single storey veneer and PG-B3 – 2-Storey running bond veneer; if there is contradicting information, the specific design note will apply, PG-B2 or PG-B3.

DESIGNER

The 'Architectural Designer' is responsible for ensuring that the brick veneer, as detailed on the Building Consent Plans and Specification, complies with all aspects of this 'Specific Design'.

The designer must clearly mark on the plans submitted for Building Consent – 'PREMIER Brick Cladding System – Design Note PG-B1' – no substitution.

RELATED DOCUMENTS

All Relevant NZ Standards shall apply in their latest revisions for all items NOT covered by this 'Specific Design'. The following documents are of particular relevance:

- NZS 4210 Materials and workmanship
- NZS 4229 Masonry buildings not requiring Specific Design
- NZSHB 4236 All standards relating to masonry veneers – summary.

Conditional upon the PREMIER brick veneer being installed in accordance with this specification, the following provisions of the NZ Building Code must also be met.

- B1 Structure
- B2 Durability
- C3 Spread of Fire
- E2 External Moisture
- F2 Hazardous Building Materials

DESIGN LIMITATIONS

The PREMIER brick veneer shall be limited to the following:

- The maximum height for a single storey veneer is 4m from the foundation. At a gable wall or pier (see figure 1 below), the maximum height may extend to 5.5m.
- Single storey construction only.
- Residential or commercial buildings up to an importance level of 2 according to AS/NZS 1170.
- Concrete slab-on-grade construction to NZS 3604.
- Bricks must be laid to a running-bond pattern. Small areas of Soldier Courses and Stack-Bonding are permitted, but should not exceed 5% of the total surface of the veneer.
- The supporting structure may be timber framing to NZS 3604 or concrete block/precast in accordance with NZS 4229.
- Unless otherwise stated, all aspects regarding the installation of the brick veneer will conform to the requirements of NZS 3604, NZS 4229 and NZS 4210.
- A veneer thickness of 70mm with an addition of up to a 10mm thick plaster coating if specified.
- A maximum veneer weight (including plaster if specified) of up to 180kg/m².
- Maximum size of brick unit height to length ratio of 0.7.
- Situated in NZS 3604 wind zones up to and including 'Extra High'.
- Dwelling to be situated within earthquake zones 1-3 in accordance with NZS 3604.
- Residential buildings to comply with NZS 3604. Commercial buildings must be assessed to have a period of

not more than 1.5s in accordance to NZS 1170.

- The fundamentals outlined in PG-B1 may be adopted when building using steel studs and framing, however, 'Specific Engineering Design' of the supporting structure would be required from a suitably qualified engineer knowledgeable with this form of construction.
- Should the design of the building fall outside the scope and requirements of Design Note PG-B1, then additional 'Specific Engineering Design' would be required.

Bricks

This specification is only applicable to the following brick types manufactured by PREMIER GROUP:

Table 1 – Premier Group – Bricks applicable to this specification

| Bricks applicable to this specification | | | | |
|---|---------------|-------------------|---------|-----------------------|
| PRODUCT | SIZE | NO/m ² | WEIGHT | WEIGHT/m ² |
| Modena Brick | 290x90x70 mm | 33 | 4.03kgs | 133kgs |
| Country Brick | 290x145x70 mm | 22 | 6.16kgs | 133kgs |
| Estate Brick | 542x130x70 mm | 13 | 12.5kgs | 163kgs |
| Mansion Brick | 542x270x70 mm | 7 | 25kgs | 175kgs |
| Chateau Brick | 542x70x70 mm | 23 | 4.5kgs | 103.5kgs |

BRICK VENEER CONSTRUCTION

It is very important to ensure the quality of bricklaying is of the highest standards. The most critical element within the construction of a veneer is the mortar, which ties the wall together. Particular care should be taken to ensure the mortar is of the highest quality and consistent throughout the build. Please see the mortar section of this document for more information. All materials are to meet the requirements of the applicable NZ Standards.

Maximum Veneer Heights

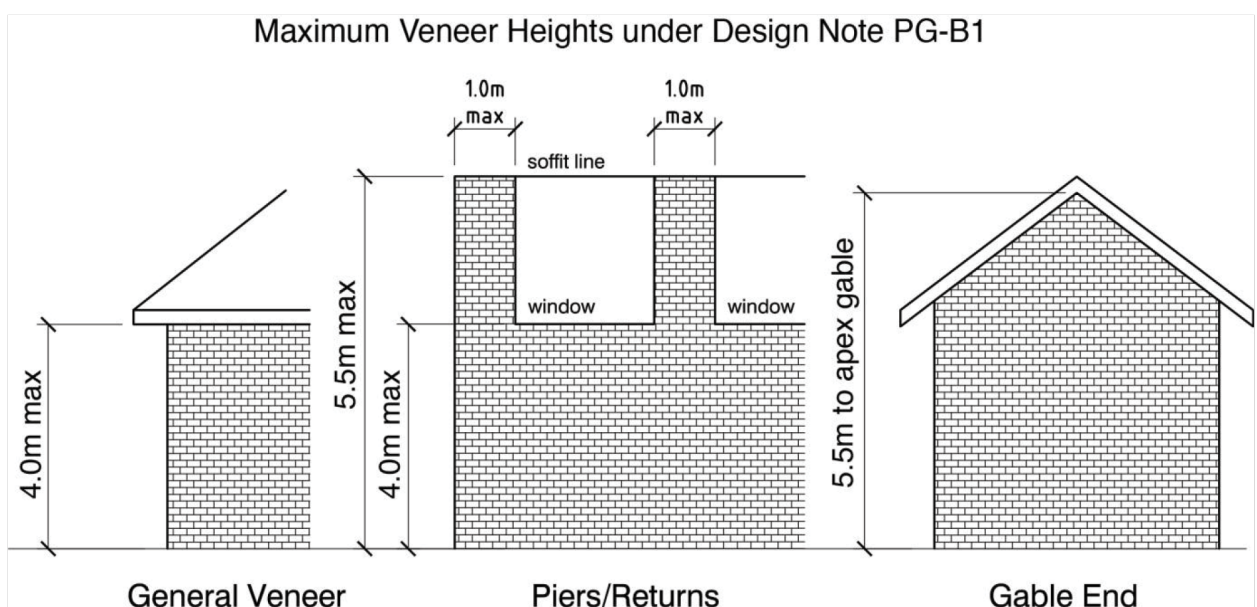


Figure 1 – Maximum veneer heights for single storey, half-bonded construction

Panels

The bricks may be laid in one panel to a maximum height of 4.0m. No slip joints or shelf angles are necessary.

Gable Ends and Piers

The brick veneer can be laid to a maximum height of 5.5m with a gable end.

A pier is defined as a brick panel not exceeding 1.0m in width and not supporting a brick steel lintel in any way.

A pier must not exceed 5.5m in height.

Supporting Structure

Timber Framing

If the brick veneer is supported by timber framing, the framing must be constructed in accordance with NZS 3604 to a maximum stud spacing of 600mm crs.

Concrete/Pre-cast Panels

If the brick veneer is supported by concrete or pre-cast panels, these must be constructed in accordance with NZS 4229.

Rigid Air Barrier (RAB)

A rigid air barrier may be placed either inside or outside of the timber framing. If the RAB is placed on the outside of the framing, then the brick tie screw length must increase to a minimum of 50mm, screw must penetrate into timber framing no less than 35mm. A 40mm minimum cavity must be maintained.

NZBC - H1 Insulation

Please be advised that the changes to H1 (July 2022) in regard to "GIB Weatherline" and PREMIER Brick Veneers. The normal joint taping is still applicable, and you do NOT have to specify and install a WRB tape (Water Resistant Barrier).

Bracing

Bracing requirements of walls may be calculated using the prescribed tables in NZS 3604.

Brick Cavity

The brick cavity must be between 40 and 75mm with 50mm recommended. The cavity must be kept free of mortar droppings. Washouts to be installed every 10th brick and one on each corner.

Weep and Vent Holes

Weep, or vent holes, are to be formed by removing mortar from the perpend joint. They are to be installed every 800mm to achieve a minimum of 1000mm² of weep/vent hole per lineal metre at the base of the veneer and on a shelf angle. Install vent holes to match in the second row of bricks from the top of the veneer panel, or leave a 5mm gap at the top of the veneer for ventilation.

Mortar

The mortar used for construction must be either manufactured and bagged, or alternatively site mixed to a ratio of 4 sand to 1 cement (3 sand to 1 cement required for sea spray zones and NZS 3604 corrosion zones 1 and 4), and adhere to the requirements of NZS 4210. The same mortar must be used throughout the entire build. The mortar mix should be as wet as practically possible to achieve good bond strength. It is highly recommended, especially when 'Stack-bonding' (PG-B2), that a multi-bond agent to the manufacturers' specifications be added to the mortar mix. If a coloured mortar has been specified, PREMIER oxides are recommended.

Mortar Joints

Mortar joints shall be as close to 10mm as possible with a minimum permitted joint thickness of 7mm, and a maximum permitted joint thickness of 16mm. All mortar joints shall be within ± 2 mm of the specified mortar joint thickness. Unless otherwise specified, all mortar joints are to be raked to a depth of 4mm, tooling smooth is optional. The maximum permitted raked depth is 6mm.

All bed and perpend joints are to contain a full spread of mortar; any holes in the finished veneer are to be minimal and filled on completion.

Control Joints

Control joints are required in concrete masonry veneers to manage shrinkage cracking. If control joints are not installed in the PREMIER concrete masonry veneers, any issues to do with the veneer, in particular cracking, becomes the owner's responsibility and the veneer becomes non-compliant with this specification.

There are three options available for installing 'Control Joints'

Note: A Control Joint is simply a controlled crack; the 10mm gap is only required to match the mortar joint.

- A vertical saw cut to a depth of 30mm.
- A vertical or zig-zag 10mm gap with a foam backing rod and flexible sealant.
- A vertical or zig-zag 10mm gap with a foam backing rod and 20mm of mortar

Location of Control Joints:

Control Joints are to be installed in the following locations of the veneer:

- Window openings less than 1.8m wide – Control Joint one side
- Window openings greater than 1.8m wide – Control Joint both sides
- Where no openings are present, no greater than 6.0m spacing
- Where corners are bonded, no greater than 3.0m from the corner

Control joint locations shall be specified by the architect/client adhering to the above requirements.

Brick Ties

All brick ties must comply with the requirements of AS/NZS 2699.1. The following requirements apply to all brick ties on PREMIER brick veneers:

- Check the 'durability' requirements for the locations. If it is within 500m of the high water mark (Corrosion zone D), stainless steel brick ties and screws are to be used.
- A minimum of 12g, type 17x35mm long screws must be used with the brick ties. If the ties are being fixed through a RAB, increase the screw length to 40mm min.
- Ensure the brick ties are long enough to have a minimum seating length of 50% of the brick width.
- Brick ties must slope 5 degrees down from the stud.
- Dry-bedding is permitted.
- EH Masons or MSL Ultimate brick ties are to be used.
- If masonry block or pre-cast panels are being used to support the brick veneer, the tie fixings must be ICCONS Strike Mushroom Head 5mmx38mm stainless steel (STMH05038G). Alternatively, 'Specifically Designed' by a suitably qualified engineer.

Brick tie spacing

Brick ties must be fixed to the studs horizontally at a maximum spacing of 600mm, and vertically as per the following table:

Table 2 – Brick tie vertical spacing

| Placement of Brick ties in Mortar Courses | | | |
|---|--------------|------------------------------|------------------------------|
| Product | Brick Height | Studs at 600 mm crs. | Studs at 400 mm crs. |
| Modena Brick | 90mm | Every 4 th Course | Every 5 th Course |
| Estate Brick | 130mm | Every 2 nd Course | Every 3 rd Course |
| Country Brick | 145mm | Every 2 nd Course | Every 3 rd Course |
| Mansion Brick | 270mm | Every Course | Every Course |
| Chateau Brick | 70mm | Every 4 th Brick | Every 5 th Brick |

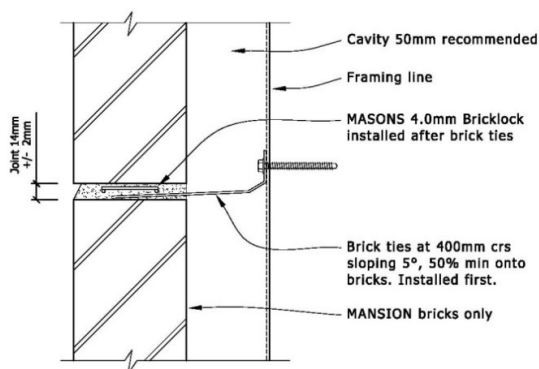
Joint Reinforcement

It is recommended that a minimum of 2 mortar courses, spaced between 500-1000mm apart, contain MASONS 4.0mm Bricklock STR and CNR galvanised or stainless steel joint reinforcement. Joint reinforcement is to be placed in mortar joints that do not contain brick ties. Note: See exclusion for MANSION brick.

Due to the wide variety of designs, location of windows, panel widths, roof configurations etc, it is not practical to be more specific where consideration should be given to installing joint reinforcement, the designer/architect needs to make that decision. Where large areas of brick adjoin small areas, this is a logical place to install joint reinforcement.

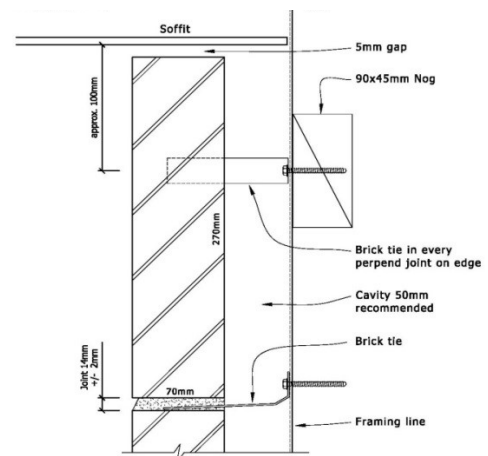
MANSION BRICK – Special requirements.

If a dwelling is being clad using the MANSION brick, then the brick ties will clash with the joint reinforcement. In this case, it is acceptable to install the bricklock and brick ties in the same course provided the above recommendations, and figures 2 and 3 below are adhered to. Please note that a larger mortar joint thickness of 14mm +/- 2mm is recommended when using Mansion brick.



PREMIER 'MANSION' BRICK - JOINT REINFORCEMENT

Figure 2 -



PREMIER 'MANSION' BRICK - SOFFIT / TOP BRICK DETAIL

Figure 3 -

When using the MANSION brick, an additional row of brick ties are required in the top perpend joint, approximately 100mm from the top of the wall. An additional row of 90x45mm nogging within the wall framing is required to accommodate the additional row of ties.

Window and Door sills

All window sills are to be consistent throughout the veneer. There is no set requirement on the slope or amount of overhang. However, it is recommended that unless detailed on the plans otherwise; the slope of the sill bricks should be 15 degrees +/- 2 degree. It is recommended that bricks overhang the sills by 35mm with a +/- 5mm maximum tolerance. All bricks are to be of a similar width, as are mortar joints.

Steel Lintels

Durability

Metal shelf angles are to be hot-dip galvanised to meet the requirements of NZS 3604, Section 4. Where holes are cut after the angle has been galvanised, these areas are to be sprayed using 'cold galvanising' spray. Where the structure is situated within the 'sea spray' zone (within 500m of the high water mark of the sea), the lintel must be either stainless steel, or hot-dip galvanised with an epoxy powder coating to NZS 3604.

Lintels are used to span the brick veneer over an opening. Lintels may be installed by one of the two methods as described below:

Traditional method

The traditional method of installing lintels uses a steel angle, supported by the veneer on either side to span over an opening. The lintel must be seated at least 100mm onto the veneer at each end for spans up to 2m,

and 200mm at each end for spans >2m. The lintel must be kept 20mm behind the brick face. The following lintels may be used with this method:

Table 3 – Steel lintel sizes for the traditional method

| Lintel sizes – traditional method (Galvanized) | |
|---|--|
| Maximum Span | Size of Angle (V x H x t), Min Grade 250MPa |
| 3.0 m | 80x80x6 mm |
| 3.5 m | 100x100x6 mm or 125x75x6 mm |
| 4.5 m | 125x75x8 mm |
| 4.8 m | 125x75x10 mm |

NB: Equivalent or greater sizes in stainless steel may be used where required.

Fixed to framing

The other method for spanning a brick veneer over an opening is to fix a shelf angle directly to a structural lintel (beam that supports the structure above the opening) within the framing line. For this method, the following shall be adhered to.

For 70mm bricks on cavities up to 60mm, a 120mm x 100mm x 6mm galvanised steel angle may be secured to the timber lintel using 75 x 10mm coach-screws or bolts at 450mm crs. This applies for spans up to 3.6m, for spans over 3.6m S.E.D is required.

- The steel is kept completely free of the brick at each end (Total length of the shelf angle is 10mm less than the width of the opening).
- The timber/steel lintel that the shelf angle is being fixed to has been designed in accordance with NZS 3604 requirements for a heavy clad structure or specifically designed for the additional load of the brick veneer by a suitably qualified engineer.
- The steel lintel angle fixed to the timber lintel must adhere to the requirements in the following section 'Shelf Angles.'

Shelf angles

Shelf angles are NOT lintels and must not be relied on to span over any opening. They simply transfer the weight of the brick back to the structure. Where a shelf angle is installed, it must be direct-fixed to the framing or a timber/steel lintel which transfers the weight back to the foundations. The maximum height of veneer above a shelf angle is 4m. Vertical spacing between shelf angles shall not exceed 4m.

Shelf angles shall be installed horizontally or at up to a maximum slope of 60 degrees. The angle must be fixed at a maximum horizontal spacing of 400mm crs using M10 x 75mm coach screws or similar, at 25mm from the top of the vertical leg. The following table shall be used for the size of shelf angle:

Table 4 – Shelf angle sizing:

| Shelf angle sizes (Galvanized) | |
|---------------------------------------|--|
| Cavity Width (mm): | Size of Angle (V x H x t), Min Grade 250MPa |
| 40-55mm | 75x100x6mm |
| 60-75mm | 75x125x6mm |

NB: Equivalent or greater sizes in stainless steel may be used where required.

Where shelf angles are installed above a deck area, make sure there is a 40mm clearance under the angle (E2 specifies 35mm).

Ensure when installing shelf angles, to check they are square. Where possible, have the holes factory punched to facilitate fixing on site; the holes should be positioned 25mm down from the top of the vertical leg. Use a cold galvanise spray to treat any cut steel, or where holes have been drilled.

Durability – In a 'sea spray' zone, where the top surface and vertical leg of a shelf angle is protected by a membrane flashing, a galvanised angle may be used. Alternatively, an epoxy coating can be applied to the angle or stainless steel used.

The bricks can be laid directly onto the angle, or on a 10mm mortar bed, which is recommended if the bricks have been cut as in the case with a sloping angle.

Flashings

Flashings around all openings are to be designed and installed as per the following:

Head Flashing

- Metal flashing secured to the timber lintel, sloping a maximum of 5 degrees across the cavity, then turned down 15mm, 6mm in front of the joinery. The ends of the flashing are to be turned up to help prevent water entering the cavity. Allow a gap of 2-5mm between the top side of the flashing and the underside of the steel lintel (See figure A Head Flashing for details).
- 200mm wide Supercourse 500 polyethylene plastic, nailed to the studs and over-flashed, taken across the cavity and tucked into the back of the vertical leg of the steel lintel (normally applies only to the traditional lintel). The flashing is to be extended 200mm each side of the opening. Sealant is to be applied between the underside of the steel lintel and the top of the joinery extrusion (See figure B Head Flashing for details).

Jamb flashings

Use 200mm wide Supercourse 500 polyethylene plastic, tucked into the joinery and the other side held off the building wrap using either a 20mm timber packer or 40mm galvanised clouts left 20mm proud of the frame. The flashing is to extend 200mm above and below the opening (See figure C Jamb Flashing for details).

Sill Flashings:

For window openings use 200mm wide Supercourse 500 polyethylene plastic, tucked into the joinery and the other side left hanging in the cavity and held off the building wrap using either a 20mm timber packer or 40mm galvanised clouts left 20mm proud of the frame. The flashing is to extend 200mm each side of the opening (See figure D Sill Flashing for details).

For door sills use a metal tray flashing as shown in E2/AS1 Masonry.

It is important that advice be obtained, and adopted, from companies and individuals, who have specialist knowledge on flashings, the material and its correct application when designing and installing brick veneers. There is a wide range of flashing products available including, Supercourse 500 Polyethylene, 3M All Weather Tapes, Nuraply 3P etc. Flashings must comply with section 4.3 E2/AS1 list of approved flashing materials or this specification.

BRICKLAYING REQUIREMENTS:

Bricklaying – Workmanship

The veneer is to be installed by a 'qualified' tradesman with LBP (Licensed Building Practitioner) or supervised by a LBP. The LBP will be responsible for the brick veneer, and for certifying that the veneer meets all the requirements of this document and/or E2/AS1 and NZS 4210.

Brick Delivery

The bricklayer is responsible for checking that the correct bricks and quantity have been delivered to site, and that the quality is acceptable on all pallets. Ensure that one batch number has been supplied. Any issues regarding brick quality is to be raised immediately with the contracts manager and is to be taken up with the supplier prior to laying any bricks.

A brick laid by the bricklayer, is a brick accepted. Any bricks laid that have unacceptable surface defects, chips, or cracks, as determined by the contracts manager, are to be removed and replaced at the bricklayer's expense.

Protection of Bricks

All exposed bricks are to be protected during rain and overnight. Care should be taken around the site so as to not damage the veneer or any bricks. Any damaged veneer or bricks will be replaced at the bricklayer's expense.

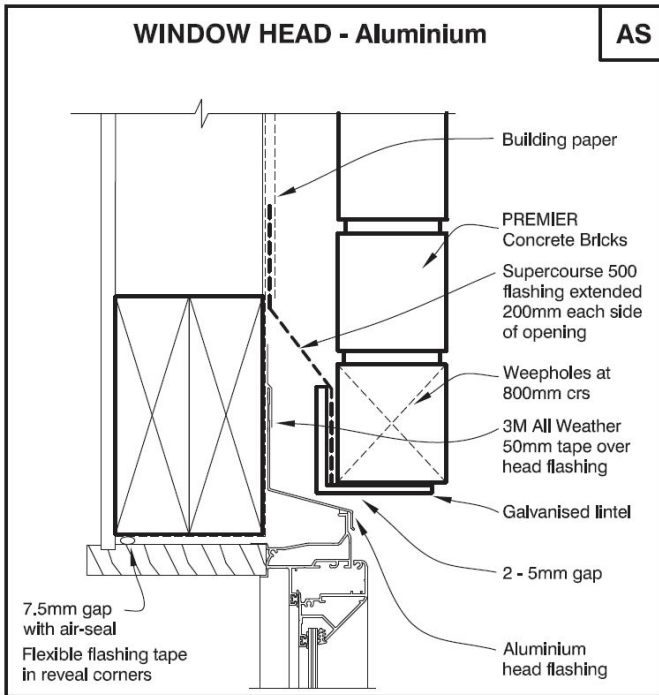


Figure. A Head Flashing

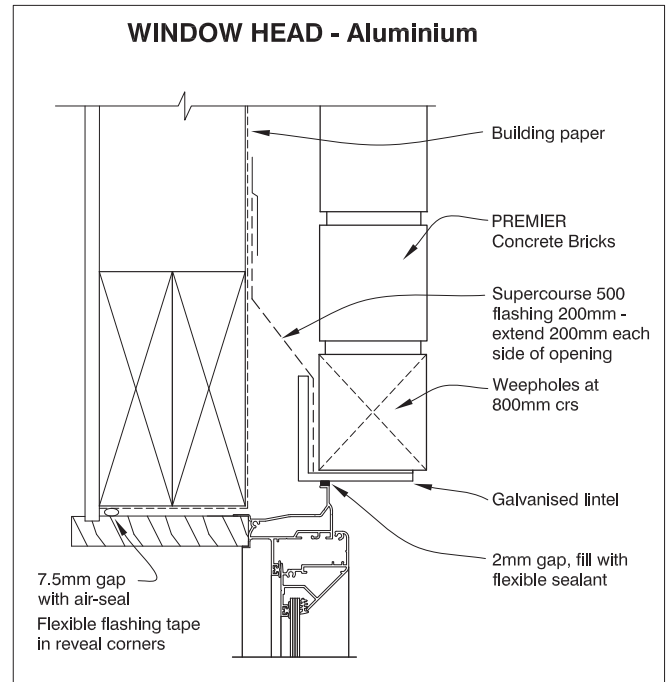


Figure. B Head Flashing

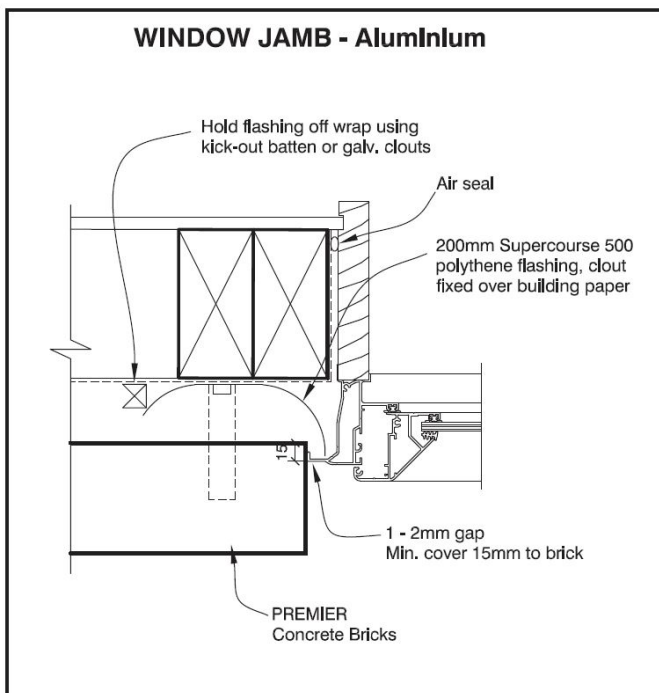


Figure. C Jamb Flashing

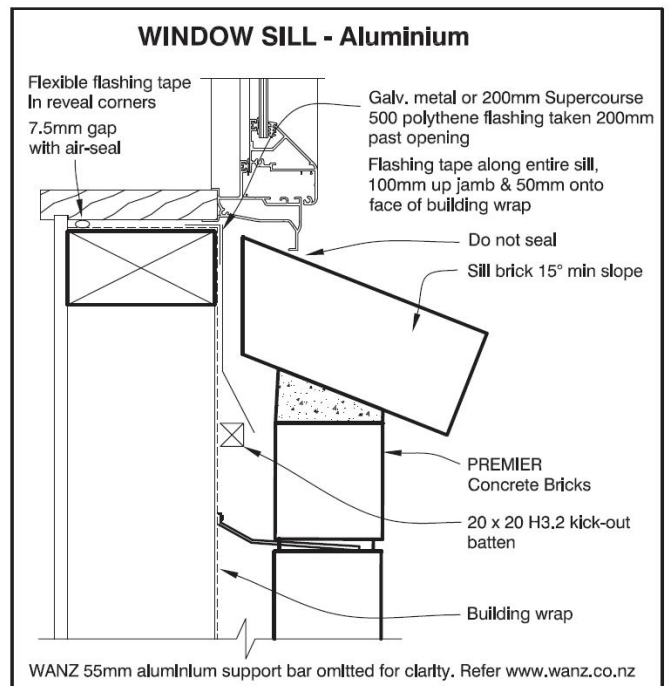


Figure. D Sill Flashing

Hot Weather – Drying winds

During the bricklaying process, when the air temperature is above 25 degrees Celsius and/or hot drying winds are present, the newly laid brick veneer must be properly cured for the first 24 hours by adding moisture to the veneer and protecting it from direct sunlight and drying winds. It is critical that proper 'hydration' takes place and the mortar sets firmly. In the event that 'hydration' has not occurred, and the mortar is powdery, the veneer is to be removed and re-laid at the bricklayer's expense.

Tolerances

All bricks are to be laid plumb and level, and within the tolerances given in table 5 below (Table 2.2 of NZS 4210).

Table 5 – Acceptable maximum tolerances for the brick veneer

Table 2.2 – Maximum tolerances

| Item | Tolerances |
|--|-------------------------------|
| Deviation from the position shown on plan for a building more than one storey in height | 15 mm |
| Deviation from vertical within a storey | 10 mm per 3 m of height |
| Deviation from vertical in total height of building | 20 mm |
| Relative vertical displacement between masonry courses (a) Nominated fair face (one side only) (b) Structural face | 3 mm 5 mm |
| Relative displacement between loadbearing walls in adjacent storeys intended to be in vertical alignment | 5 mm |
| Deviation from line in plan (a) In any length up to 10 m (b) In any length over 10 m | 5 mm 10 mm total |
| Deviation of bed joint from horizontal (a) In any length up to 10 m (b) In any length over 10 m | 5 mm 10 mm total |
| Average thickness of bed joint, cross joint, or perpend | ± 3 mm on thickness specified |

NOTE – Tolerances shall not breach minimum cavity widths.

Bonding of bricks

The bricks, unless otherwise specified, are to be laid half-bonded. It is important that all perpend joints throughout the height of the veneer are in vertical alignment (+/- 10mm). Any 'Stack-bonding' requires 'Specific Design' as specified in Design Note PG-B2.

Blending of bricks

The final appearance of the brickwork on any project is of the utmost importance to both the company and the client. Bricks are to be thoroughly blended, selecting and laying from a minimum of 3 pallets, to ensure an even spread of colour throughout the veneer.

If it appears there will be a shortage of bricks on the job, STOP laying immediately until more are delivered in order that new ones, which may be from a different batch, can be blended in properly.

Cleaning

The brick veneer is to be cleaned thoroughly using clean water, as the job progresses. Any staining on the brickwork is to be removed by the bricklayer in conjunction with the brick supplier if necessary.

Efflorescence (Salting)

The term 'efflorescence' refers to the deposits of white calcium salts on the surface of the bricks. This can come from the mortar as well as from the bricks. Keeping the bricks and brick veneer dry during the construction process is essential in helping prevent the occurrence of salts on the surface.

Sealing the Veneer

It is recommended that once the veneer is completely dry, it is sealed using PREMIER Sealer. This will help reduce the risk of efflorescence (salting) and will help retain the colour. Adhering to the application instructions

is important. Premier Gloss Sealer will darken the brick colour (wet look), whereas Premier Stone & Concrete Sealer will retain the dry look.

Inspections and Completion:

It is the bricklayer's responsibility to ensure that all flashings have been installed correctly, and inspected, prior to being covered by the brickwork. A half-height inspection is to be called for at appropriate times as the job progresses along with a final inspection upon completion. The veneer is to be 'Certified' in the Record of Works held by council as compliant with Design Note – PG-B1 (Specific Design), upon completion by a Licenced Building Practitioner for Bricklaying.

Plastering PREMIER veneers

The PREMIER Brick Veneer System can be plastered if specified. It is important to leave the brick veneer for as long as possible prior to applying a plaster coating, certainly a minimum of 7 days, but preferably longer. This allows the mortar time to cure and strengthen, plus time for the veneer to contract if that should happen.

Only thin modern plaster coatings, 5mm – 10mm thick, should be used and need to incorporate a reinforcing mesh layer within the plaster. Important: Consult the installer regarding the need for control joints in both the veneer and the plaster coating.

When painting the plaster coating, if it is not part of the application, consult paint specialists to ensure a top-quality paint system compatible with the brick veneer and plaster coating if specified.

It is also important to state that the quality of the bricklaying needs to be to face grade standard. A quality sound veneer, lays the foundation for the system. Make sure the top row of bricks is well tied and secured to the frame. The use of MASONS 4.0mm Bricklock within the veneer is highly recommended.

BRICKLAYING IN GENERAL

The finished appearance of all brick veneers is dependent on the skill, attitude and commitment of the bricklayer, to do a good job. Accurate half-bonding, mortar joints that are of a consistent size and appearance, a veneer left in a clean state, and adherence to the PREMIER Bricklaying Specification is all important. Select the bricklayer carefully and check out their previous work; the quality of the brick veneer cladding on any new dwelling, will be reflected not only in its final appearance but in its value.

TECHNICAL SUPPORT

Should you require any technical support on the PREMIER 2 Storey Brick Veneer System, please contact PREMIER on:

P: 0800 22 22 98 E: info@premier-group.co.nz W: www.premierbrick.nz

PRODUCER STATEMENT - B

Design Note PG-B2



PRODUCER STATEMENT – PS1 – DESIGN

(Guidance notes on the use of this form are printed on page 2)

Building Code Clause(s) B1/VM1

ISSUE: A

ISSUED BY: KIRK ROBERTS Consulting Engineers Ltd.
(Design Firm) **PROJECT NO:** 1721220

TO: Premier Group NZ Ltd
(Owner/Developer)

TO BE SUPPLIED TO: Relevant Building Consent Authority
(Building Consent Authority)

IN RESPECT OF: Stack bonding specification as per the attached documentation
'SPECIFICATION FOR STACK-BONDING – DESIGN NOTE PG-B2'
(Description of Building Work)

AT: Locations throughout New Zealand
(Address)

We have been engaged by the owner/developer referred to above to provide **Structural Engineering Design** services in respect of the requirements of Clause(s) **B1/VM1** of the Building Code for All or Part only (as specified in the attachment to this statement), of the proposed building work.

The design carried out by us has been prepared in accordance with:

- Compliance Documents issued by the Ministry of Business, Innovation & Employment **B1/VM1** or
(verification method / acceptable solution)
- Alternative solution as per the attached schedule.....

The proposed building work covered by this producer statement is described on the attached specification titled "**SPECIFICATION FOR STACK-BONDING – DESIGN NOTE PG-B2**".

On behalf of the Design Firm, and subject to:

- (i) All proprietary products meeting their performance specification requirements;
- (ii) Up to '**Extra High**' Wind Zone in accordance with NZS3604:2011
- (iii) Up to Earthquake Zone '**3**' in accordance with NZS3604:2011
- (iv) **Structural design loads are based on a 50 year design life and importance level 2 structure (normal structures and structures not in other importance levels) as defined in AS/NZS1170.0 2004, clause 3.3.**
- (v) **Unless specifically noted, all structural elements must comply with the relevant New Zealand standard design codes such as NZS 3604, NZS 4229, NZS 2699, NZS 4210 and NZS HB 4236. These elements include, but are not limited to, brick ties, mortar strength, brick strength, and bond strength between the brick and the mortar.**
- (vi) **Premier brick products shall be manufactured to the requirements of NZS 4455.**
- (vii) **This certificate does not cover weather-tightness.**
- (viii) **This Producer Statement is valid for 1 year from the date of issue.**
- (ix) **Inspections of the building to be completed by the Local Territorial Authority.**

PRODUCER STATEMENT - B

Design Note PG-B2



I, **Craig Manssen** am: CPEng # **161576**
(Name of Design Professional)

Reg Arch #

I am a Member of: IPENZ NZIA and hold the following qualifications: **B.E.(Hons), MEngNZ, CPEng**
The Design Firm issuing this statement holds a current policy of Professional Indemnity Insurance no less than \$200,000*.
The Design Firm is a member of ACENZ:

SIGNED BY **Craig Manssen** ON BEHALF OF **Kirk Roberts Consulting Engineers Ltd.**

(Design Firm)

Date of issue: 1 August 2023 (Signature).....

Note: This statement shall only be relied upon by the Building Consent Authority named above. Liability under this statement accrues to the Design Firm only. The total maximum amount of damages payable arising from this statement and all other statements provided to the Building Consent Authority in relation to this building work, whether in contract, tort or otherwise (including negligence), is limited to the sum of \$200,000.*

This form is to accompany **Form 2 of the Building (Forms) Regulations 2004** for the application of a Building Consent.

THIS FORM AND ITS CONDITIONS ARE COPYRIGHT TO ACENZ, IPENZ AND NZIA

SPECIFICATION FOR STACK-BONDING – DESIGN NOTE PG-B2

PREMIER MASONRY BRICKS

PRELIMINARY

It is essential that all aspects of this 'Specific Design' specification for the stack-bonding of PREMIER masonry brick units is adhered to. Items not covered in this specification must comply with the general bricklaying specification for PREMIER concrete bricks, Design Note PG-B1.

This document is a bricklaying specification used for the construction of single storey, stack-bonded concrete brick veneers. It is an 'Alternative Solution' to E2/AS1 applicable only when PREMIER concrete bricks, as mentioned in this document, are used in a masonry brick veneer. If any aspect of design has not been specifically addressed, then the general bricklaying specification - Design Note PG-B1, E2/AS1 Masonry and NZS 4210 will apply.

DESIGNER

The 'Architectural Designer' is responsible for ensuring that the brick veneer, as detailed on the Building Consent Plans and Specification, complies with all aspects of this 'Specific Design'.

It is essential that the builder, bricklayer and designer are familiar with all the requirements of the system as detailed in this document and the pre-requisite document – Premier Brick Design Note PG-B1. Where conflicting information arises, Design Note PG-B2 shall apply.

The designer must clearly mark on the plans submitted for Building Consent – 'PREMIER Stack-Bonding Brick Cladding System – Design Note PG-B2' – no substitution.

DESIGN LIMITATIONS

The PREMIER Stack-bonded brick veneer shall be limited to the following:

- The supporting structure may be timber framing to NZS3604 with a maximum stud spacing of 400mm, or concrete block or concrete precast in accordance with NZS4229.
- Maximum veneer height of 4m for straight vertical panels and 5.5m to the apex of a gable or a pier as defined in this document (Refer to figure 1 in PG-B1).
- The fundamentals outlined in PG-B2, may be adopted when building using steel studs and framing, however, 'Specific Engineering Design' would be required from a suitably qualified engineer knowledgeable with this form of construction.
- Gable end trusses are not to be used with this system. Full framing required.
- Should the design of the building fall outside the scope and requirements of Design Note PG-B2, then additional 'Specific Engineering Design' would be required.
- For further design limitations, see design note PG-B1, Refer to figure 1 in PG-B1

Bricks

This specification is only applicable to the following brick types manufactured by PREMIER GROUP:

Table 1 – Premier Group – Bricks applicable to this specification

| Bricks applicable to this specification | | | | |
|---|---------------|-------------------|---------|-----------------------|
| PRODUCT | SIZE | NO/m ² | WEIGHT | WEIGHT/m ² |
| Modena Brick | 290x90x70 mm | 33 | 4.03kgs | 133kgs |
| Country Brick | 290x145x70 mm | 22 | 6.16kgs | 133kgs |
| Estate Brick | 542x130x70 mm | 13 | 12.5kgs | 163kgs |
| Mansion Brick | 542x270x70 mm | 7 | 25kgs | 175kgs |
| Chateau Brick | 542x70x70 mm | 23 | 4.5kgs | 103.5kgs |

BRICK VENEER CONSTRUCTION

The quality of the bricklaying with stack-bonding brick veneer is very important to ensure the security of this heavy weight cladding to the supporting structural frame during a seismic event.

The PREMIER bricklaying specification PG-B1 is to be read and followed when installing a stack-bonded PREMIER brick veneer. Should a requirement in this document conflict with PG-B1, this specification, Design Note PG – B2 is to apply.

Maximum Veneer Heights

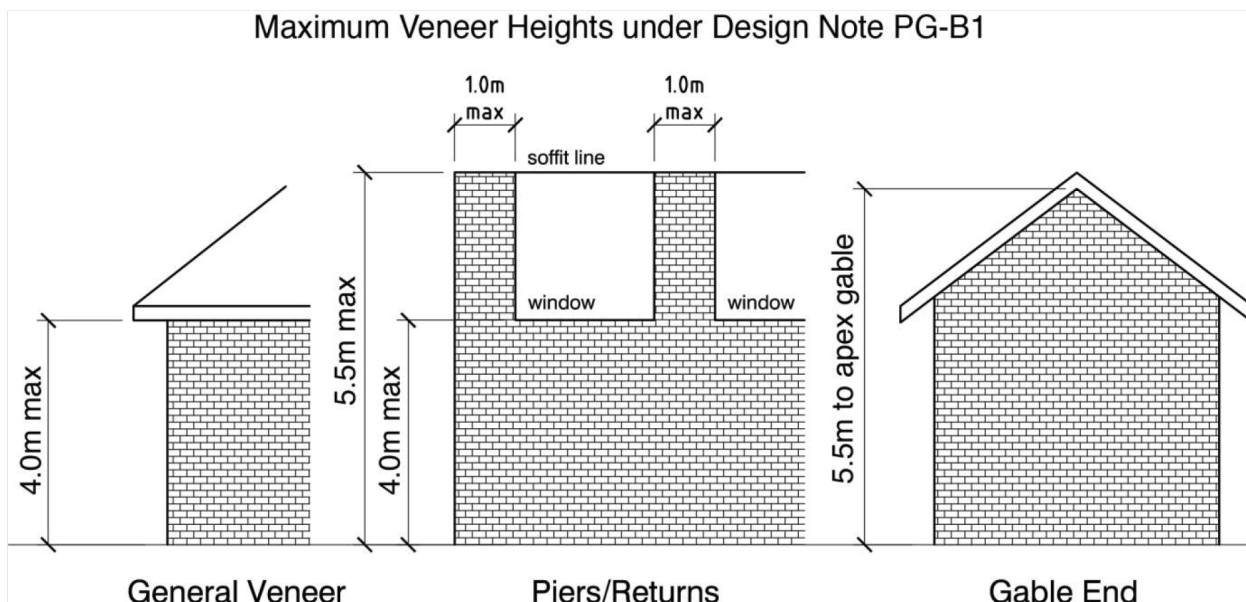


Figure 1 – Maximum veneer heights for single storey, stack-bonded construction

Panels

The bricks may be laid in one panel to a maximum height of 4.0m. No slip joints or shelf angles are necessary.

Gable Ends and Piers

The brick veneer can be laid to a maximum height of 5.5m with a gable end.

A pier is defined as a brick panel not exceeding 1.0m in width and not supporting a brick steel lintel in any way. A pier must not exceed 5.5m in height.

Supporting Structure

Timber Framing

If the brick veneer is supported by timber framing, the framing must be constructed in accordance with NZS 3604 to a maximum stud spacing of 400mm crs.

Concrete/Pre-cast Panels

If the brick veneer is supported by concrete or pre-cast panels, these must be constructed in accordance with NZS 4229.

Bracing

Bracing requirements of walls may be calculated using the prescribed tables in NZS 3604.

Brick Cavity

The brick cavity must be between 40mm and 60mm, with 50mm recommended. The cavity must be kept free of mortar droppings.

Brick Ties

Please see Design Note PG-B1 for general brick tie requirements.

Brick tie spacing

Brick ties are to be fixed horizontally to studs at a maximum spacing of 400mm, and vertically depending on the height of the brick as per table below.

Where bricks are laid on a shelf angle, ensure the first row of ties is within 300mm of the shelf angle.

Table 2 – Brick ties spacing

| Placement of Brick ties in Mortar Courses | | |
|---|--------------|------------------------------|
| Product | Brick Height | Studs at 400 mm crs. |
| Modena Brick | 90mm | Every 5 th Course |
| Estate Brick | 130mm | Every 3 rd Course |
| Country Brick | 145mm | Every 3 rd Course |
| Mansion Brick | 270mm | Every Course |
| Chateau Brick | 70mm | Every 5 th Brick |

Joint Reinforcement

It is essential that mortar joints spaced at 800mm crs \pm 100mm over the height of the veneer, contain MASONS 4.0mm Bricklock STR and CNR galvanised or stainless steel joint reinforcement. Joint reinforcement is to be placed in mortar joints that do not contain brick ties. Note: See exclusion for MANSION brick.

Due to the wide variety of designs, location of windows, panel widths, roof configurations etc, it is not practical to be more specific where consideration should be given to installing joint reinforcement, the designer/architect needs to make that decision. Where large areas of brick adjoin small areas, this is a logical place to install joint reinforcement.

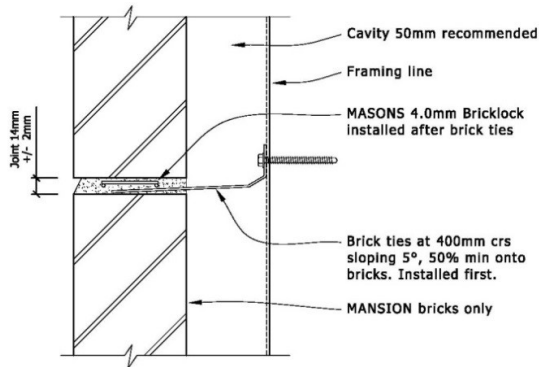


Figure 2 - PREMIER 'MANSION' BRICK - JOINT REINFORCEMENT

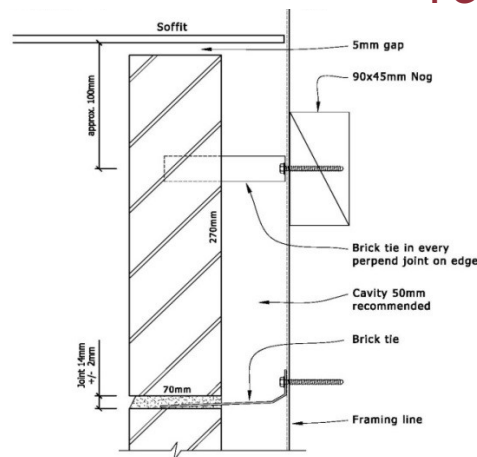


Figure 3 - PREMIER 'MANSION' BRICK - SOFFIT / TOP BRICK DETAIL

MANSION BRICK – Special requirements.

If a dwelling is being clad using the MANSION brick, then the brick ties will clash with the joint reinforcement. In this case, it is acceptable to install the bricklock and brick ties in the same course provided the above recommendations, and figures 2 and 3 below are adhered to. Please note that a larger mortar joint thickness of 14mm +/- 2mm is recommended when using Mansion brick.

When using the MANSION brick, an additional row of brick ties are required in the top perpend joint, approximately 100mm from the top of the wall. An additional row of 90x45mm nogging within the wall framing is required to accommodate the additional row of ties.

Shelf Angles

Shelf angles are NOT lintels and must not be relied on to span over any opening. They simply transfer the weight of the brick back to the structure. Where a shelf angle is installed, it must be direct-fixed to the framing or a timber/steel lintel which transfers the weight back to the foundations. The maximum height of veneer above a shelf angle is 4m. Vertical spacing between shelf angles shall not exceed 4m.

Shelf angles shall be installed horizontally or at up to a maximum slope of 60 degrees. The angle must be fixed at a maximum spacing of 400mm crs using M10 x 75mm coach screws or similar, at 25mm from the top of the vertical leg. The following table shall be used for the size of shelf angle:

Table 3 – Shelf angle sizing: Note: For stack bonding & 2 storey only.

| Shelf angle sizes (Stainless or Galvanized) | |
|---|---|
| Cavity Width (mm): | Size of Angle (V x H x t), Min Grade 250MPa |
| 40-55mm | 75x100x6mm |
| 60mm | 75x125x6mm |

For more information on shelf angles, see Design Note – PG-B1.

TECHNICAL SUPPORT

Should you require any technical support on the PREMIER 2 Storey Brick Veneer System, please contact PREMIER on:

P: 0800 22 22 98 E: info@premier-group.co.nz W: www.premierbrick.nz

PRODUCER STATEMENT - C

Design Note PG-B3



PRODUCER STATEMENT – PS1 – DESIGN

(Guidance notes on the use of this form are printed on page 2)

Building Code Clause(s) B1/VM1

ISSUE: A

ISSUED BY: KIRK ROBERTS Consulting Engineers Ltd.
(Design Firm) **PROJECT NO:** 1721220

TO: Premier Group NZ Ltd
(Owner/Developer)

TO BE SUPPLIED TO: Relevant Building Consent Authority
(Building Consent Authority)

IN RESPECT OF: 2 storey brick veneer specification as per the attached documentation
'SPECIFICATION FOR 2-STOREY BRICK VENEERS – DESIGN NOTE PG-B3'
(Description of Building Work)

AT: Locations throughout New Zealand
(Address)

We have been engaged by the owner/developer referred to above to provide **Structural Engineering Design** services in respect of the requirements of Clause(s) **B1/VM1** of the Building Code for All or Part only (as specified in the attachment to this statement), of the proposed building work.

The design carried out by us has been prepared in accordance with:

- Compliance Documents issued by the Ministry of Business, Innovation & Employment **B1/VM1** or
(verification method / acceptable solution)
- Alternative solution as per the attached schedule.....

The proposed building work covered by this producer statement is described on the attached specification titled "**SPECIFICATION FOR 2-STOREY BRICK VENEERS – DESIGN NOTE PG-B3**".

On behalf of the Design Firm, and subject to:

- (i) All proprietary products meeting their performance specification requirements;
- (ii) Up to '**Extra High**' Wind Zone in accordance with NZS3604:2011
- (iii) Up to Earthquake Zone '**3**' in accordance with NZS3604:2011
- (iv) **Structural design loads are based on a 50 year design life and Importance level 2 structure (normal structures and structures not in other importance levels) as defined in AS/NZS1170.0 2004, clause 3.3.**
- (v) **Unless specifically noted, all structural elements must comply with the relevant New Zealand standard design codes such as NZS 3604, NZS 4229, NZS 2699, NZS 4210 and NZS HB 4236. These elements include, but are not limited to, brick ties, mortar strength, brick strength, and bond strength between the brick and the mortar.**
- (vi) **Premier brick products shall be manufactured to the requirements of NZS 4455.**
- (vii) **This certificate does not cover weather-tightness.**
- (viii) **This Producer Statement is valid for 1 year from the date of issue.**
- (ix) **Inspections of the building to be completed by the Local Territorial Authority.**

PRODUCER STATEMENT - C

Design Note PG-B3



I, **Craig Manssen** am: CPEng # **161576**
(Name of Design Professional)

Reg Arch #

I am a Member of : IPENZ NZIA and hold the following qualifications: **B.E.(Hons), MEngNZ, CPEng**
The Design Firm issuing this statement holds a current policy of Professional Indemnity Insurance no less than \$200,000*.
The Design Firm is a member of ACENZ:

SIGNED BY **Craig Manssen** ON BEHALF OF **Kirk Roberts Consulting Engineers Ltd.** (Design Firm)

Date of issue: 1 August 2023 (Signature).....
Note: This statement shall only be relied upon by the Building Consent Authority named above. Liability under this statement accrues to the Design Firm only. The total maximum amount of damages payable arising from this statement and all other statements provided to the Building Consent Authority in relation to this building work, whether in contract, tort or otherwise (including negligence), is limited to the sum of \$200,000.*

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SPECIFICATION FOR 2-STOREY BRICK VENEERS – DESIGN NOTE PG-B3

PREMIER MASONRY BRICKS

PRELIMINARY

It was not until 1995, that 2 storey timber framed dwellings in New Zealand, could be simply clad using brick veneer cladding systems. Since then, these systems have been significantly improved and simplified.

The PREMIER 2 Storey concrete brick system is designed and founded on 20 years of practical history of building 2 storey brick veneers in New Zealand, and conditional upon the specification outlined in this document being adhered to, designers, builders and homeowners can have complete confidence in the system performing to expectations.

The following information and attached engineering design producer statement – PS1, will allow Designers/ Owners to apply for a building consent without the need to consult a structural engineer for a specific design for veneer support above 4.0m.

This document is a bricklaying specification used for the construction of 2-storey, running-bond concrete brick veneers. It is an 'Alternative Solution' to E2/AS1 applicable only when PREMIER concrete bricks, as mentioned in this document, are used in a masonry brick veneer. If any aspect of design has not been specifically addressed, then the general bricklaying specification - Design Note PG-B1, E2/AS1 Masonry and NZS 4210 will apply.

DESIGNER

The 'Architectural Designer' is responsible for ensuring that the brick veneer, as detailed on the Building Consent Plans and Specification, complies with all aspects of this 'Specific Design'.

It is essential that the builder, bricklayer and designer are familiar with all the requirements of the system as detailed in this document and the pre-requisite document – Premier Brick Design Note PG-B1. Where conflicting information arises, Design Note PG-B3 shall apply.

The designer must clearly mark on the plans submitted for Building Consent – 'PREMIER 2-Storey Brick Cladding System – Design Note PG-B3' – no substitution.

DESIGN LIMITATIONS

The PREMIER 2 storey brick veneer shall be limited to the following:

- Up to a 3kPa floor loading.
- Bricks must be laid to a running-bond pattern. Small areas of soldier courses and stack-bonding are permitted, but should not exceed 5% of the total surface area of the veneer.
- A maximum of two storey construction.
- The scope limitations of NZBC Acceptable solution E2/AS1 Paragraph 1.1 in terms of floor area.
- A risk score of 0 – 20, calculated in accordance with NZBC Acceptable Solution E2/AS1 Table 2.
- The supporting structure may be timber framing to NZS3604 with a maximum stud spacing of 400mm, or concrete block or concrete precast in accordance with NZS4229.
- Maximum veneer height of 7.0m for straight vertical panels and 9.0m to the apex of a gable or a pier as defined in this document.
- The fundamentals outlined in PG-B3, may be adopted when building using steel studs and framing, however, 'Specific Engineering Design' would be required from a suitably qualified engineer knowledgeable with this form of construction.
- Dwelling to be situated within earthquake zones 1-3 in accordance with NZS 3604.
- Gable end trusses are not to be used with this system. Full timber framing.
- Should the design of the building fall outside the scope and requirements of Design Note PG-B3, then additional 'Specific Engineering Design' would be required.
- For further design limitations, see design note PG-B1

Bricks

This specification is only applicable to the following brick types manufactured by PREMIER GROUP:

Table 1 – Premier Group – Bricks applicable to this specification

| Bricks applicable to this specification | | | | |
|---|---------------|-------------------|---------|-----------------------|
| PRODUCT | SIZE | NO/m ² | WEIGHT | WEIGHT/m ² |
| Modena Brick | 290x90x70 mm | 33 | 4.03kgs | 133kgs |
| Country Brick | 290x145x70 mm | 22 | 6.16kgs | 133kgs |
| Estate Brick | 542x130x70 mm | 13 | 12.5kgs | 163kgs |
| Mansion Brick | 542x270x70 mm | 7 | 25kgs | 175kgs |
| Chateau Brick | 542x70x70 mm | 23 | 4.5kgs | 103.5kgs |

BRICK VENEER CONSTRUCTION

The quality of the bricklaying on a two-storey brick veneer is very important to ensure the security of this heavy weight cladding to the supporting structural frame during a seismic event.

The PREMIER bricklaying specification PG-B1, is to be read and followed when installing a 2 storey PREMIER brick veneer. Should a requirement in this document conflict with PG B1, this specification Design Note PG – B3 is to apply.

Maximum Veneer Heights

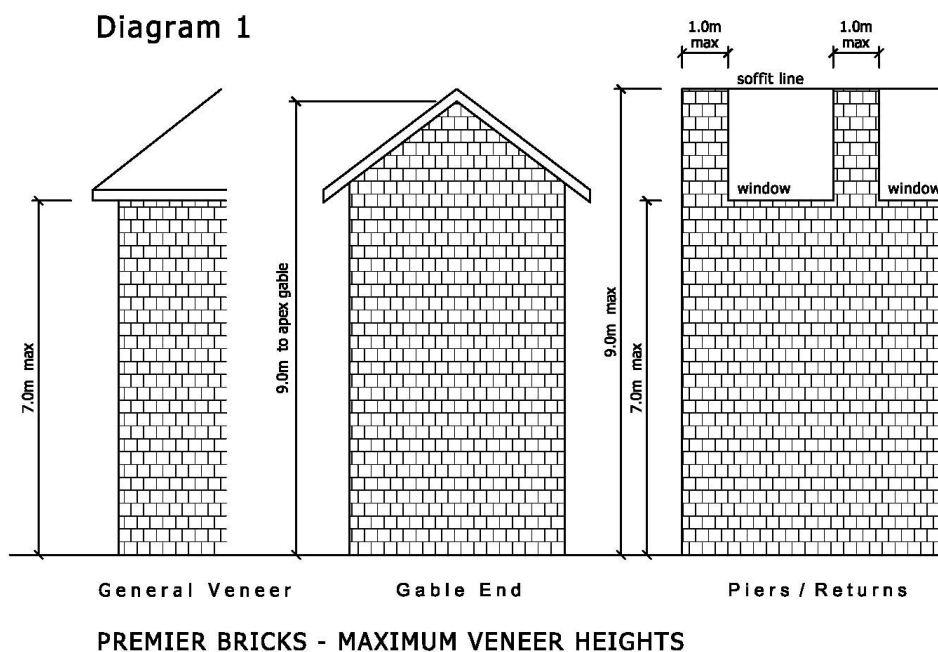


FIGURE 1 – Maximum Veneer Heights for 2-storey running bond construction

Panels

The bricks may be laid in one panel to a maximum height of 7.0m. No slip joints or shelf angles are necessary.

Gable Ends and Piers

The brick veneer can be laid to a maximum height of 9.0m with a gable end.

A pier is defined as a brick panel not exceeding 1.0m in width and not supporting a brick steel lintel in any way.

A pier must not exceed 9m in height.

Supporting structure

Timber Framing

If the brick veneer is supported by timber framing, the framing must be constructed in accordance with NZS 3604 to a maximum stud spacing of 400mm crs.

Concrete/Pre-cast Panels

If the brick veneer is supported by concrete or pre-cast panels, these must be constructed in accordance with NZS 4229.

Bracing

Bracing requirements of walls may be calculated using the prescribed tables in NZS 3604.

Brick Cavity

The brick cavity must be between 40mm and 60mm, with 50mm recommended. The cavity must be kept free of mortar droppings.

Mid-floor

Steel should be specified for mid-floor beams where practical, as steel will have less overall creep, thus reducing the differential movement within the structure. This will in turn lower the chance for damage to the veneer.

Brick Ties

Please see Design Note PG-B1 for brick tie requirements.

Brick tie spacing

Brick ties are to be fixed horizontally to studs at a maximum spacing of 400mm, and vertically depending on the height of the brick as per table below.

Where bricks are laid on a shelf angle, ensure the first row of ties is within 300mm of the shelf angle.

Table 1.0 – Brick ties spacing

| Placement of Brick ties in Mortar Courses | | |
|---|--------------|------------------------------|
| Product | Brick Height | Studs at 400 mm crs. |
| Modena Brick | 90mm | Every 5 th Course |
| Estate Brick | 130mm | Every 3 rd Course |
| Country Brick | 145mm | Every 3 rd Course |
| Mansion Brick | 270mm | Every Course |
| Chateau Brick | 70mm | Every 5 th Course |

Shelf Angles

Shelf angles are NOT lintels and must not be relied on to span over any opening. They simply transfer the weight of the brick back to the structure. Where a shelf angle is installed, it must be direct-fixed to the framing or a lintel which transfers the weight back to the foundations. The maximum height of veneer above a shelf angle is 4m. Vertical spacing between shelf angles shall not exceed 4m.

Shelf angles shall be installed horizontally or at up to a maximum slope of 60 degrees. The angle must be fixed at a maximum horizontal spacing of 400mm crs using M10 x 75mm coach screws or similar, at 25mm from the top of the vertical leg. The following table shall be used for the size of shelf angle:

Table 2 – Shelf angle sizing:

| Shelf angle sizes (Stainless or Galvanized) | |
|---|---|
| Cavity Width (mm): | Size of Angle (V x H x t), Min Grade 250MPa |
| 40-55mm | 75x100x6mm |
| 60-75mm | 75x125x6mm |

If a shelf angle is to be positioned above a skirt roof on an upper level, ensure window sills are at least 240mm above the junction between the rafter and the wall, to allow room for sills and flashings to be installed.

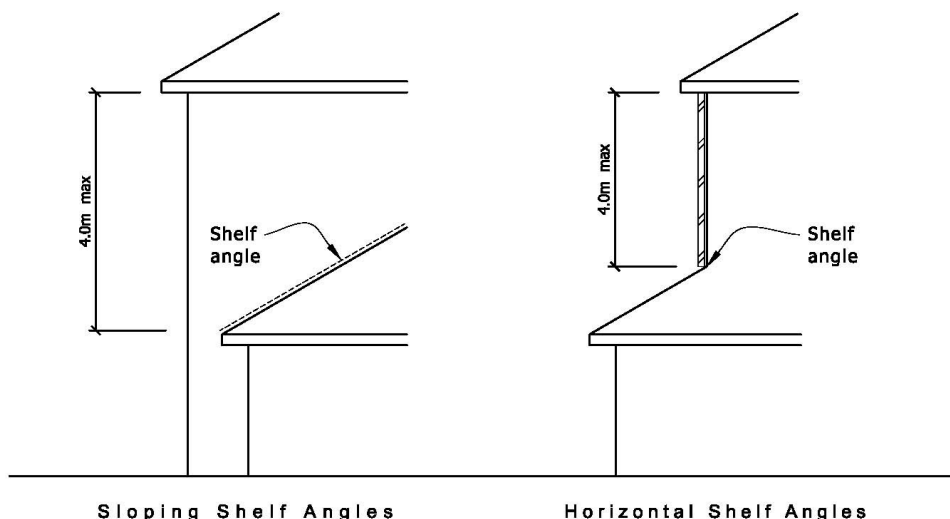


Figure 2 – Shelf Angles

For more information on shelf angles, see Design Note PG-B1

Joint Reinforcement

Install a minimum of 2 rows of MASONS 4mm bricklock joint reinforcement within the top 3.0m of the veneer spaced 800mm ± 100mm apart. For more information on joint reinforcement, see Design Note PG-B1.

TECHNICAL SUPPORT

Should you require any technical support on the PREMIER 2 Storey Brick Veneer System, please contact PREMIER on:

P: 0800 22 22 98 E: info@premier-group.co.nz W: www.premierbrick.nz

FIG. 2 STANDARD INTERNAL CORNER

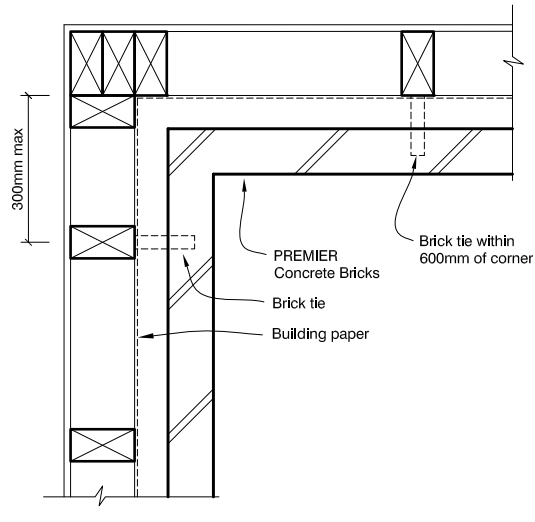


FIG. 3 STANDARD EXTERNAL CORNER

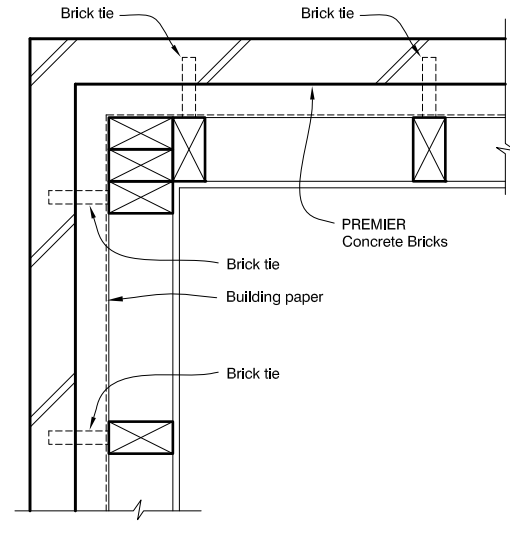


FIG. 4 FLAT SOFFIT

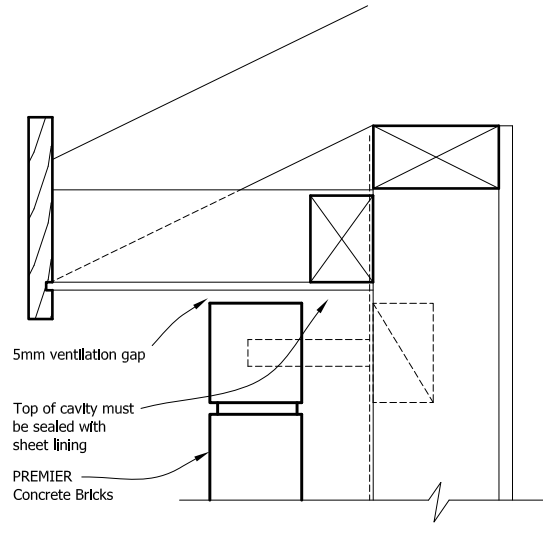


FIG. 5 FLAT SOFFIT WITH BRICK MOLD

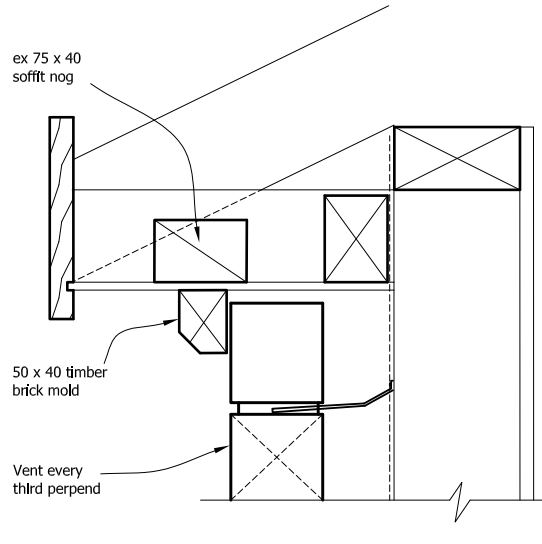


FIG. 6 CONCRETE SLAB & FOUNDATION
Option 1: Min. Required for 1 & 2 Storey

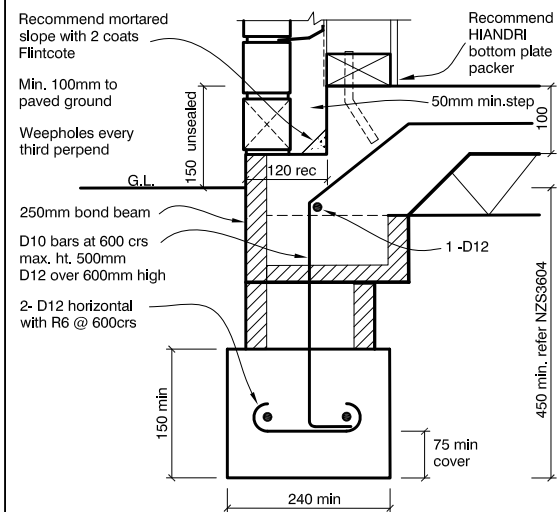


FIG. 7 CONCRETE SLAB & FOUNDATION
Option 1: Standard Detail

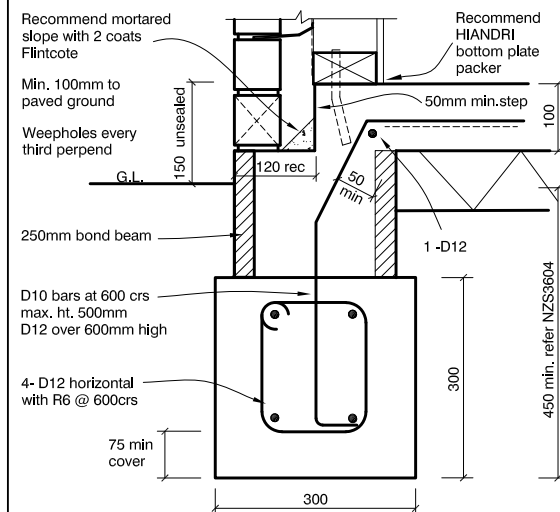


FIG. 8 OVERHANGING BRICK VENEER

PREMIER Concrete Bricks

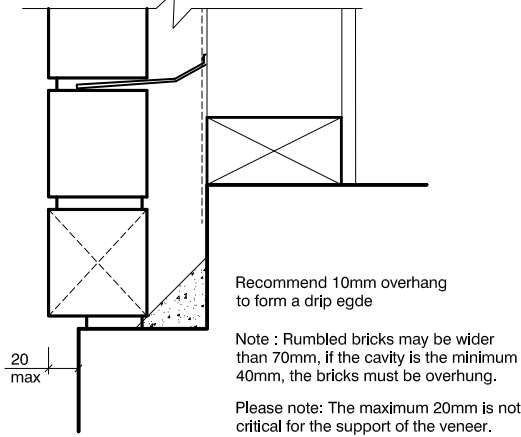


FIG. 9 PLASTERING OF CONCRETE BASE

AS

PREMIER Concrete Bricks

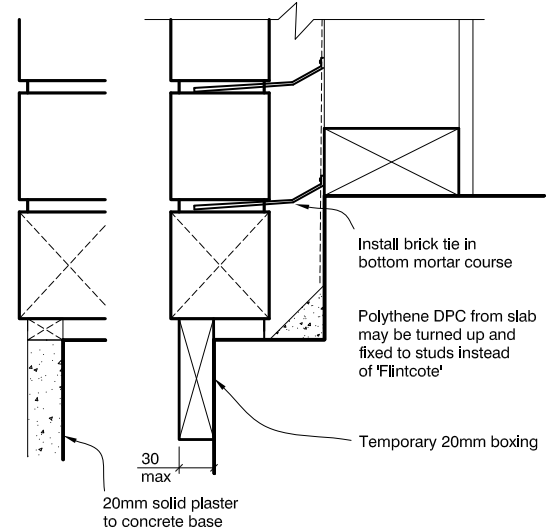


FIG. 10 BRICK VENEER BELOW GROUND

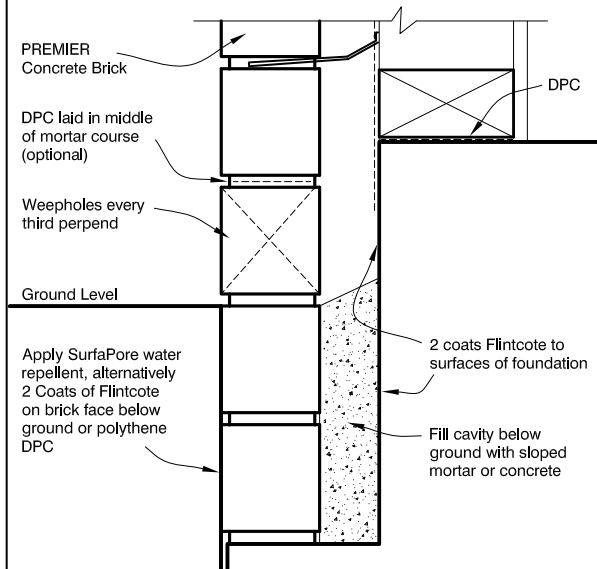


FIG. 11 PLINTH BASE

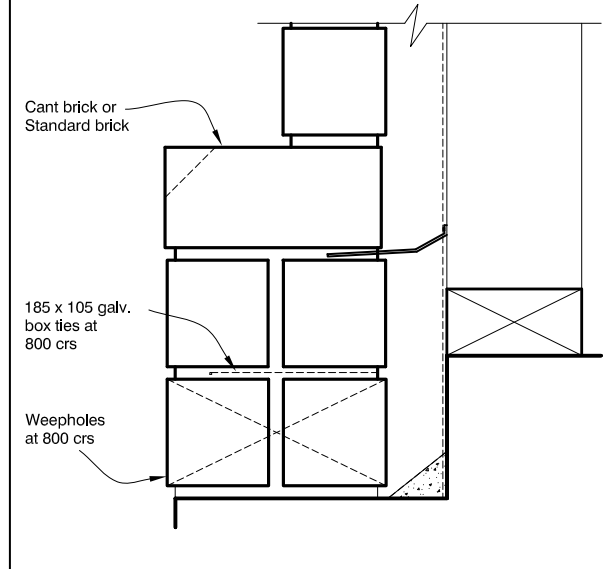


FIG. 12 TYPICAL WALL SECTION

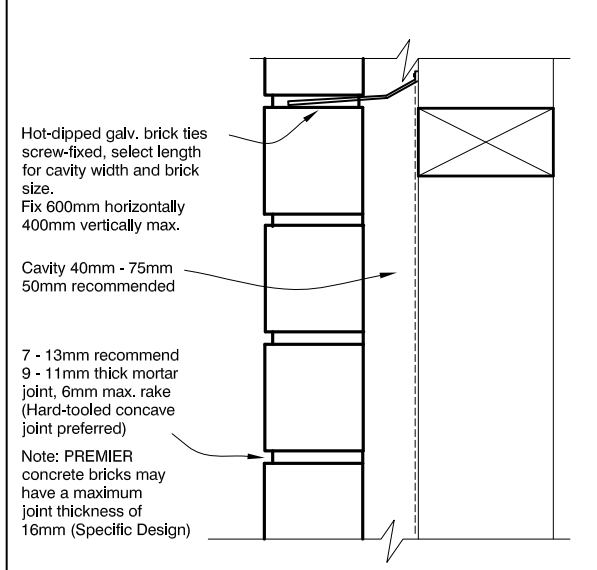
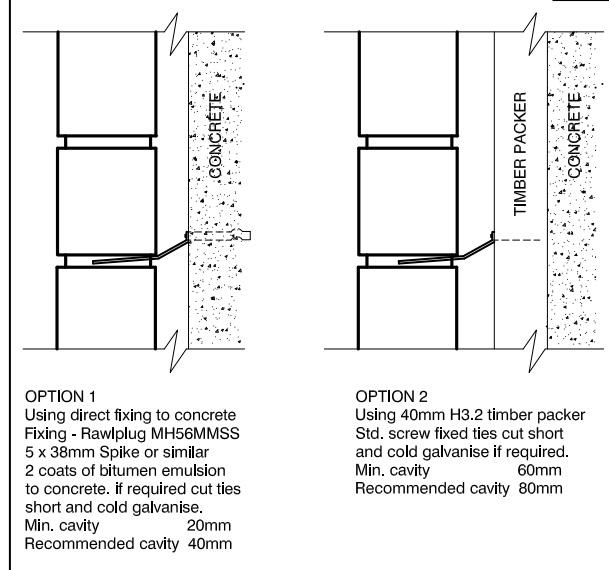
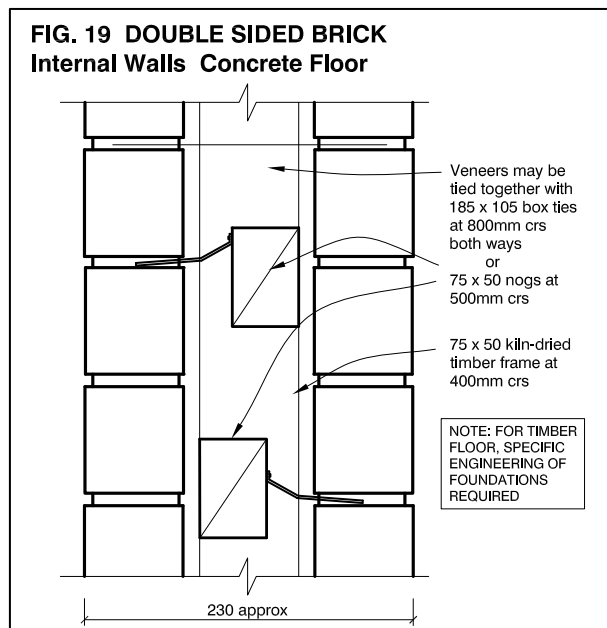
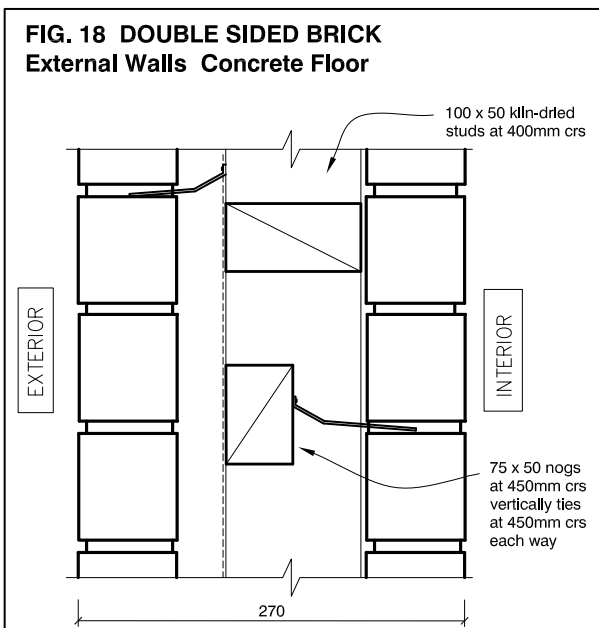
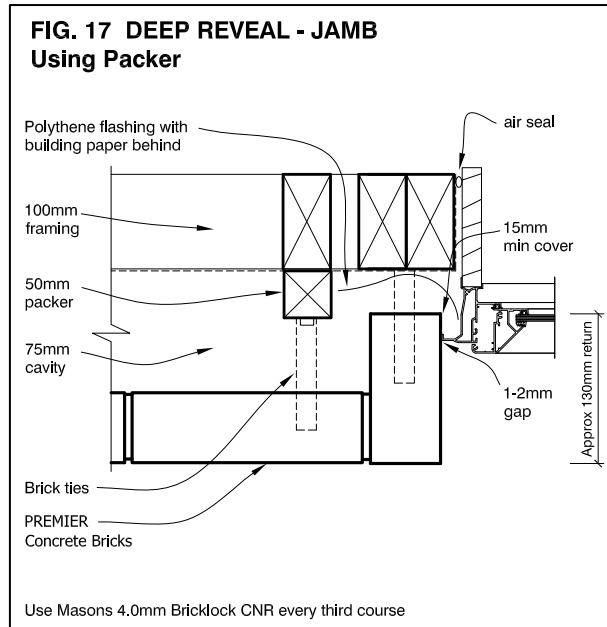
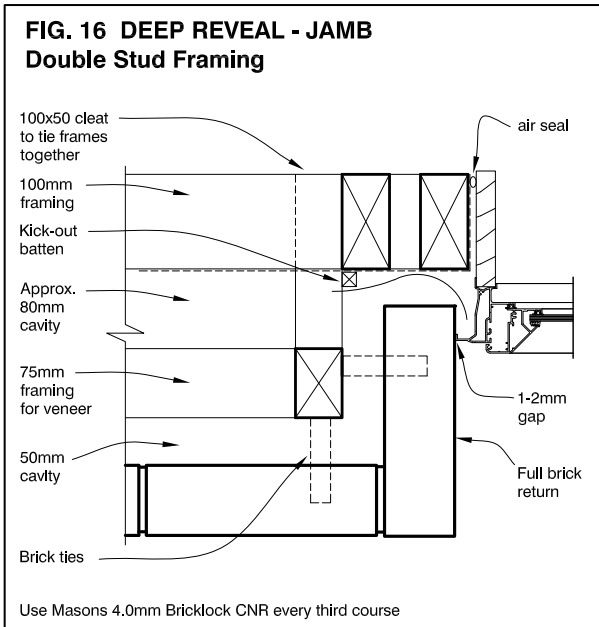
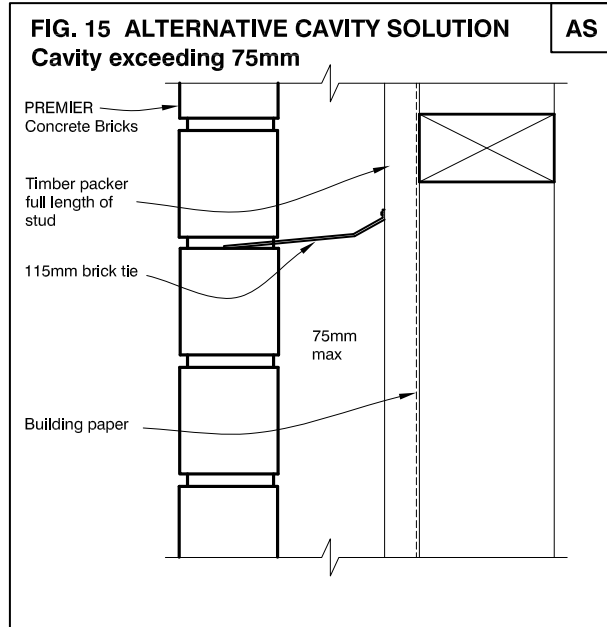
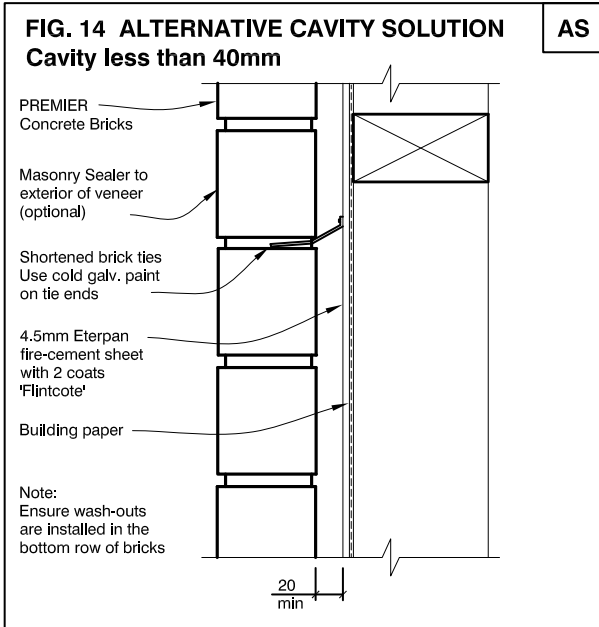


FIG. 13 BRICK VENEER ON CONCRETE

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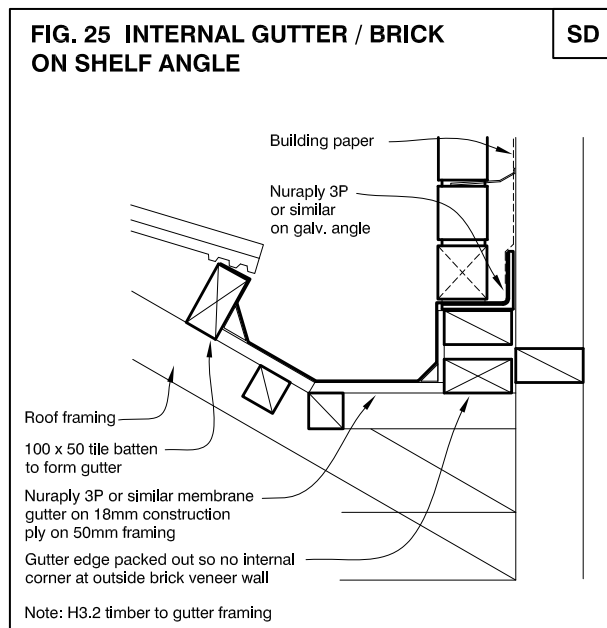
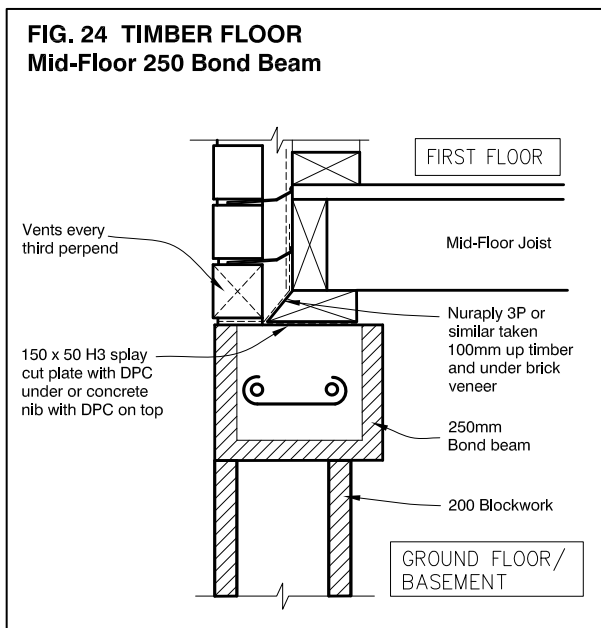
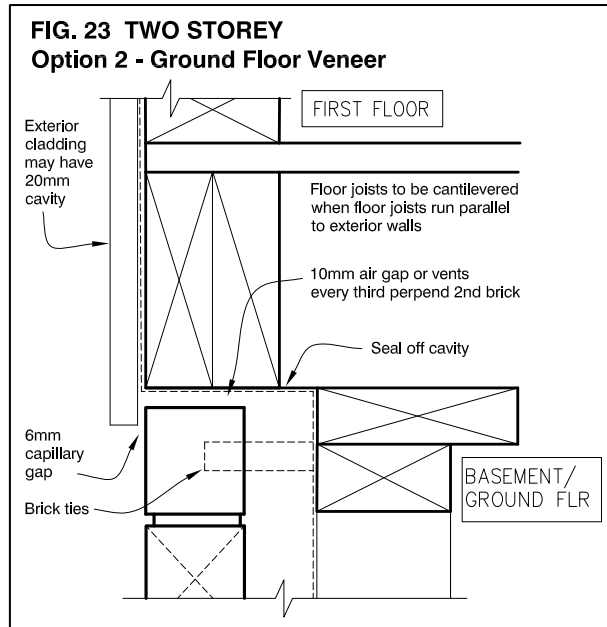
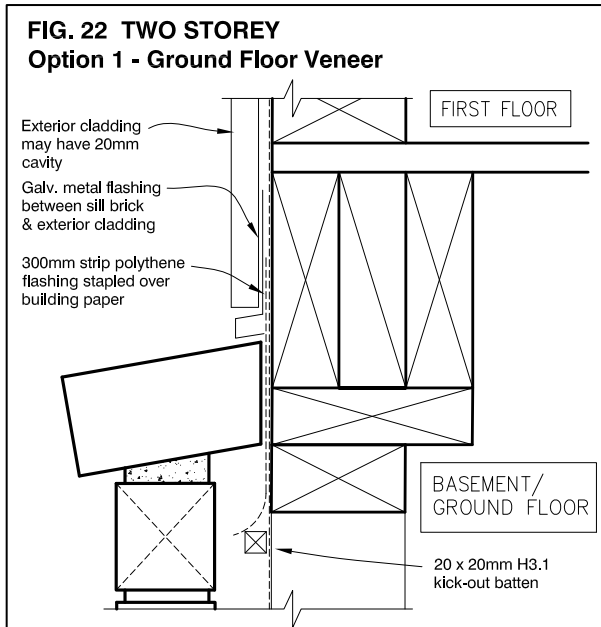
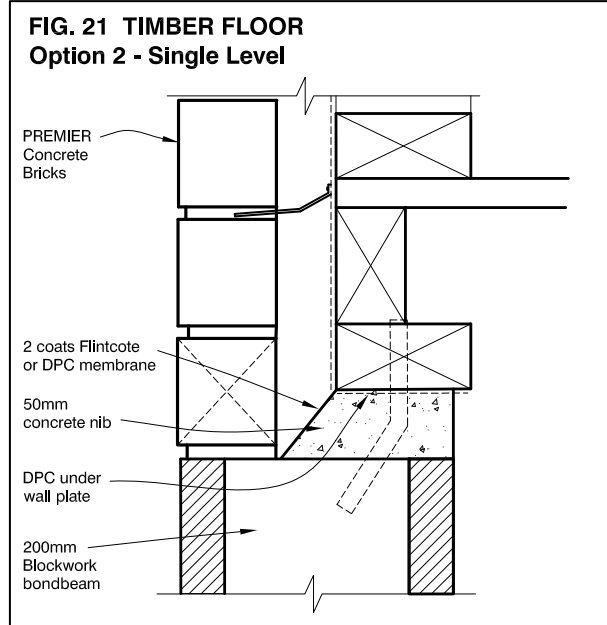
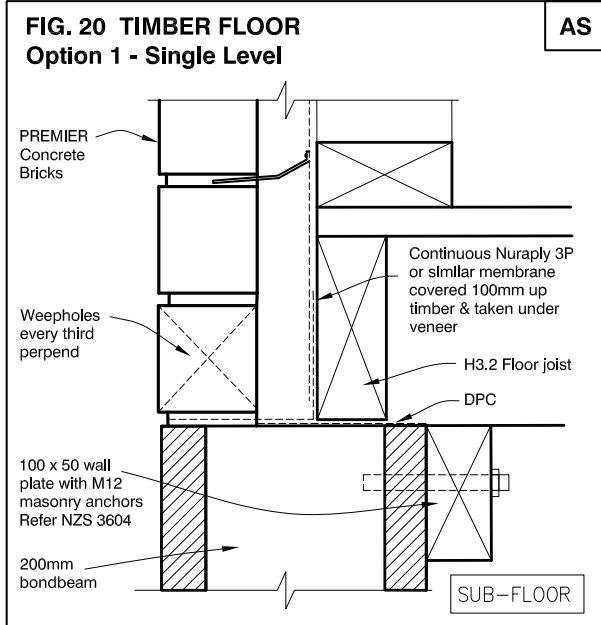


FIG. 26 WINDOW HEAD - Aluminium

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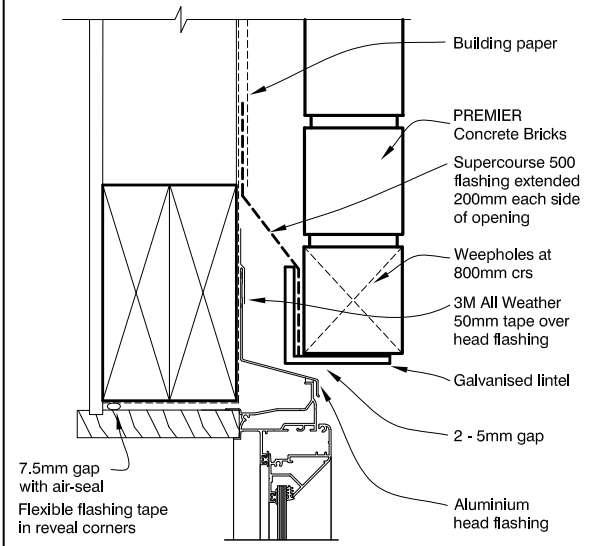
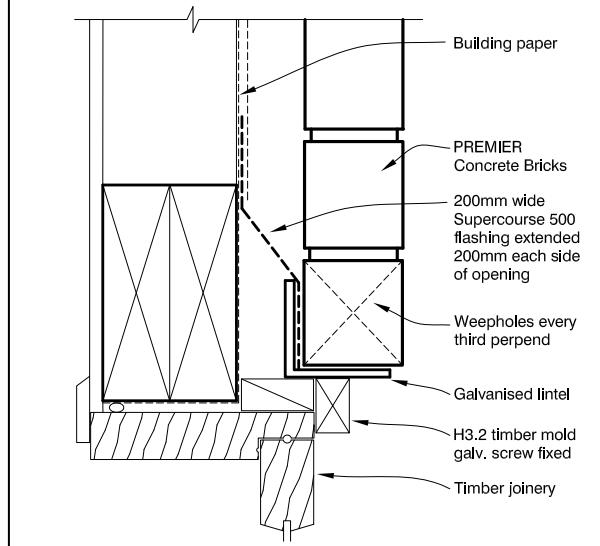
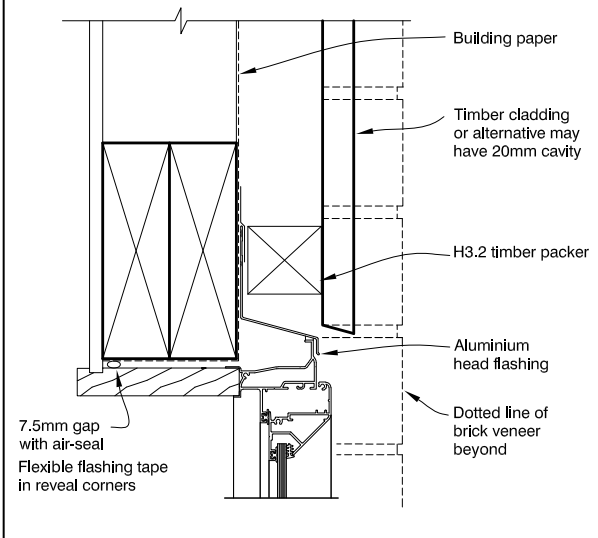


FIG. 27 WINDOW HEAD - Timber



**FIG. 28 WINDOW HEAD - ALUMINIUM
Alternative cladding above**



**FIG. 29 WINDOW HEAD
Concrete/Stone Lintel**

SD

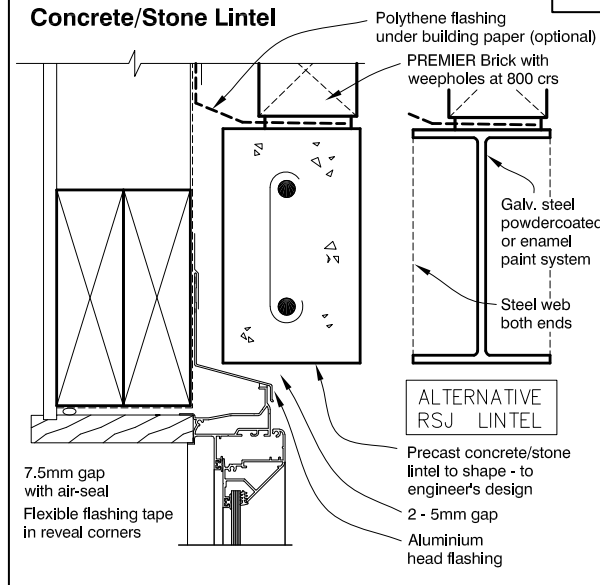


FIG. 30 BAY WINDOW HEAD

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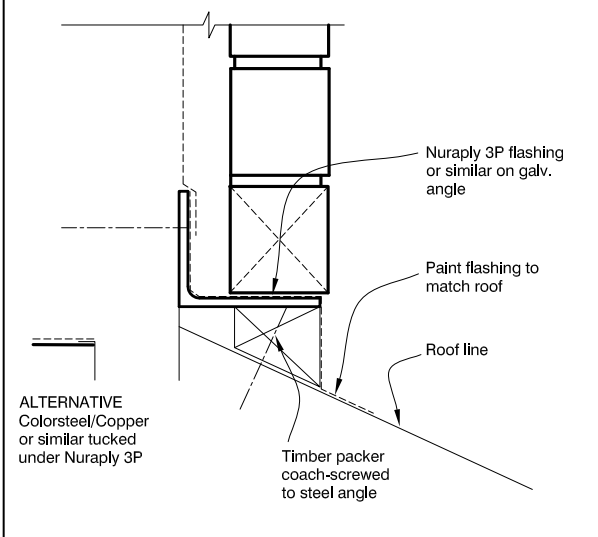
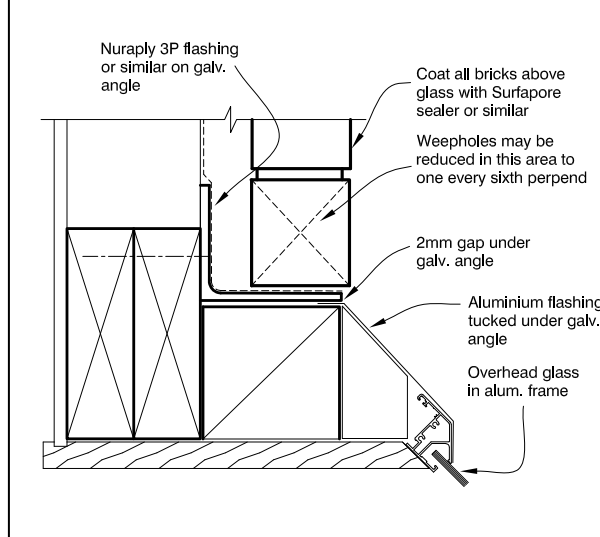


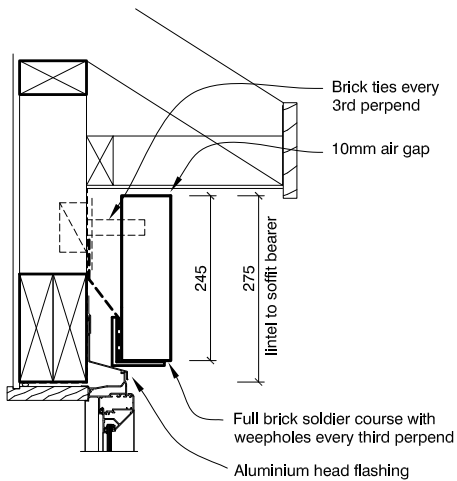
FIG. 31 GREENHOUSE WINDOW

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**FIG. 32 WINDOW HEAD
Full Soldier Course**

AS



**FIG. 33 REPLACING 90mm VENEER
WITH 70mm**

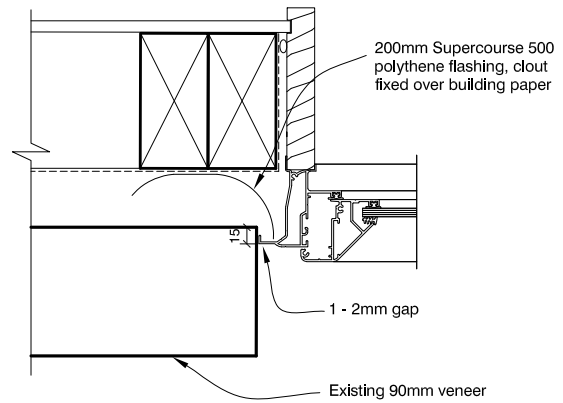
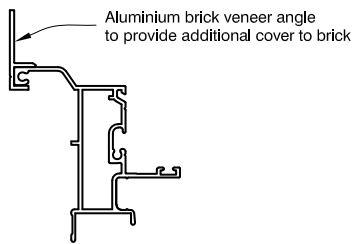
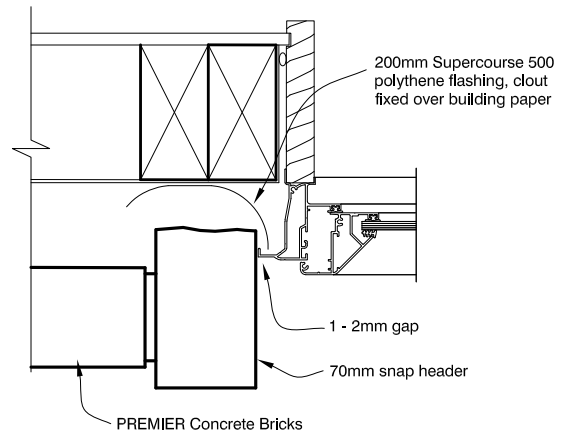


FIG. 34 COVER JAMB FLASHING



'Altherm' Aluminium Awning window frame and brick veneer angle No. 0328



Note: It may be necessary to install 20mm vertical battens for brick ties

FIG. 35 WINDOW JAMB - Aluminium

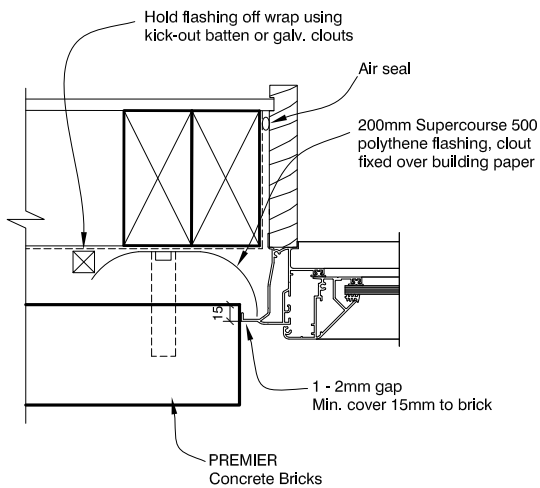


FIG. 36 WINDOW JAMB - Timber

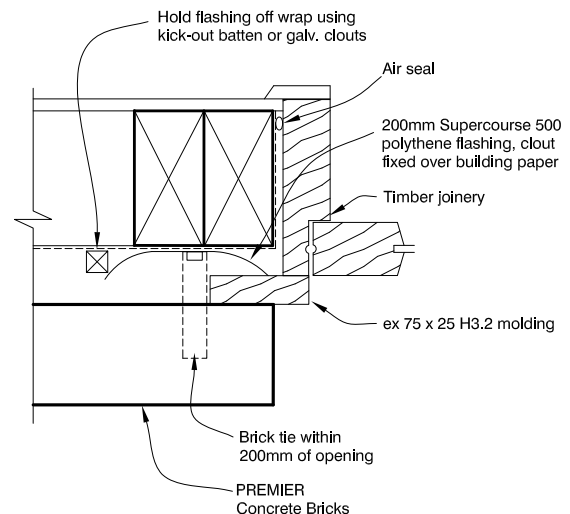
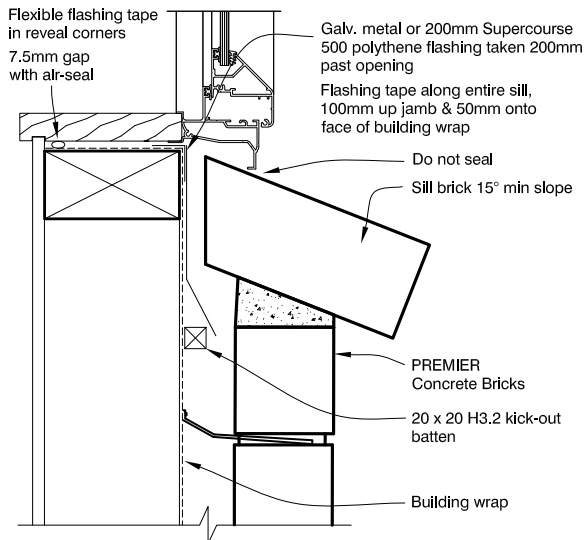


FIG. 37 WINDOW SILL - Aluminium



WANZ 55mm aluminium support bar omitted for clarity. Refer www.wanz.co.nz

FIG. 38 WINDOW SILL - Timber

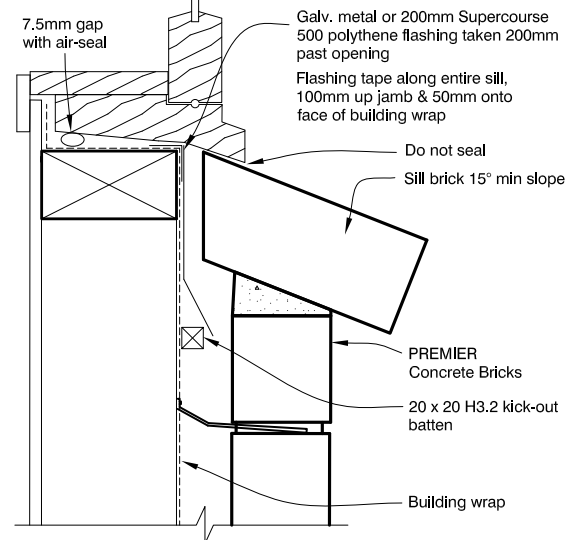


FIG. 39 DOOR JAMB - Aluminium

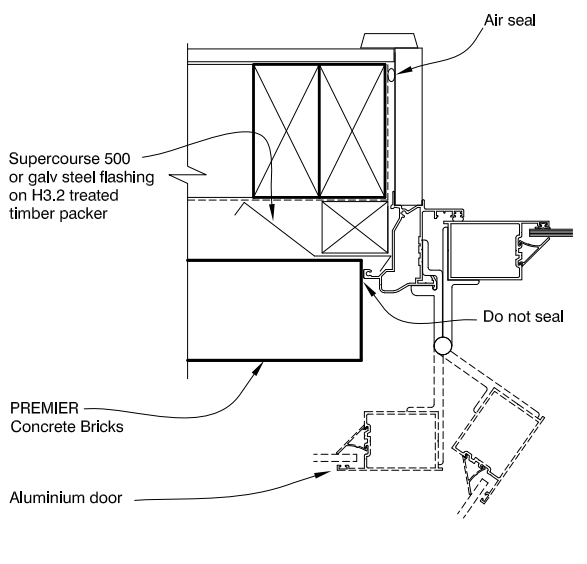
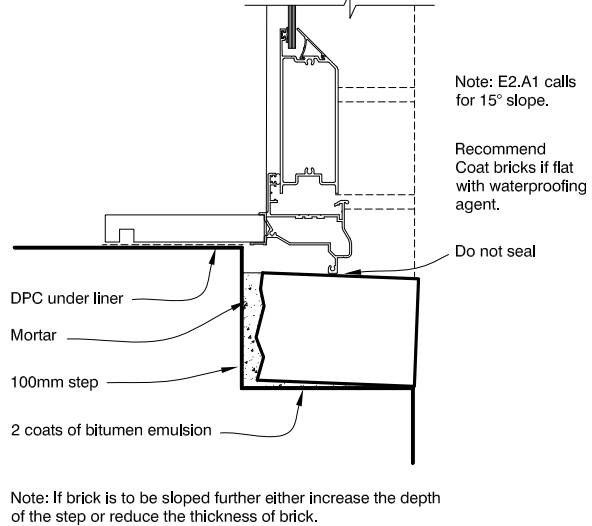


FIG. 40 BRICK DOOR SILL

AS



Note: If brick is to be sloped further either increase the depth of the step or reduce the thickness of brick.

WANZ 55mm aluminium support bar omitted for clarity. Refer www.wanz.co.nz

FIG. 41 NEGATIVE SOFFIT

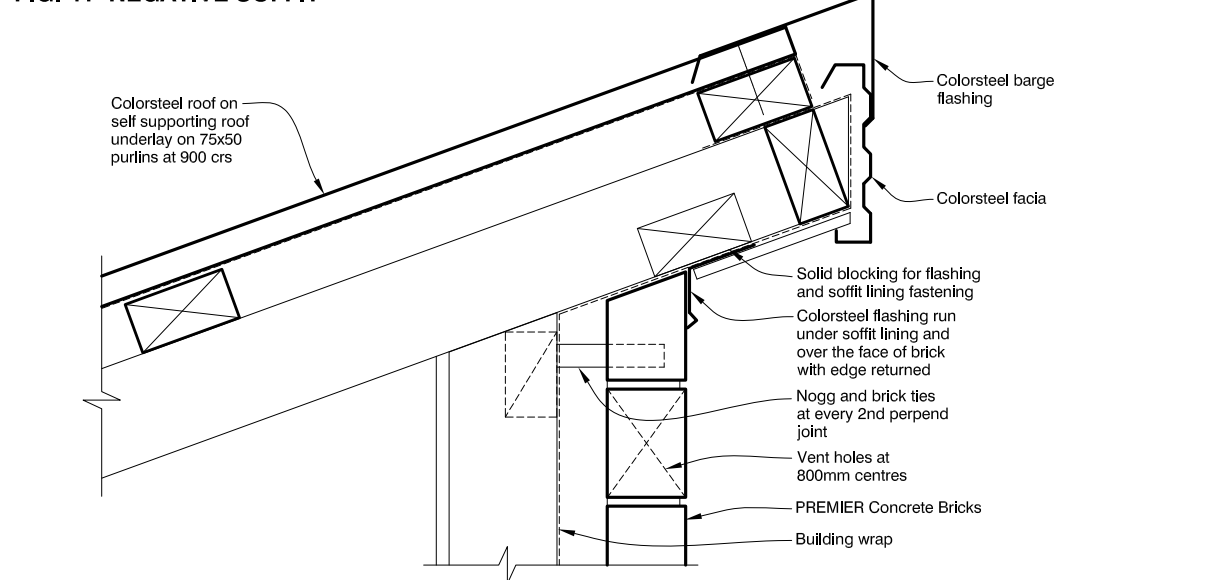


FIG. 42 WEATHERBOARD TO BRICK - 90° INTERNAL CORNER

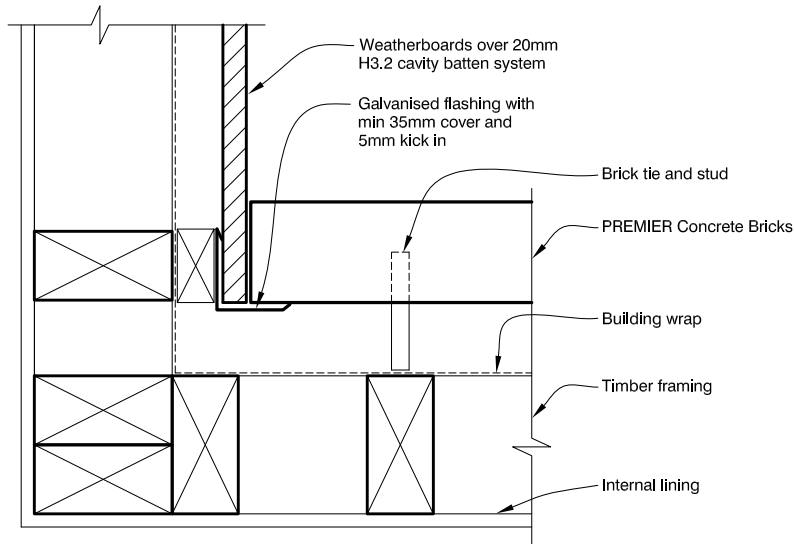


FIG. 43 WEATHERBOARD TO BRICK - PARALLEL JUNCTION

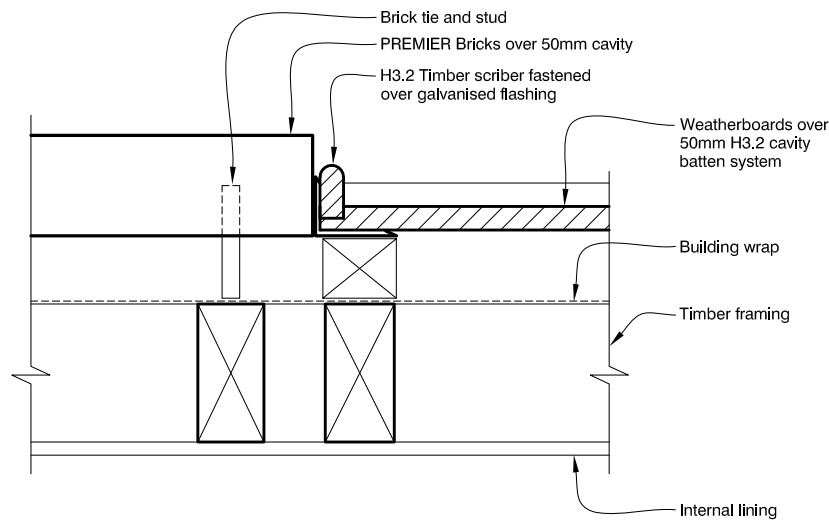


FIG. 44 SLOPING PARAPET

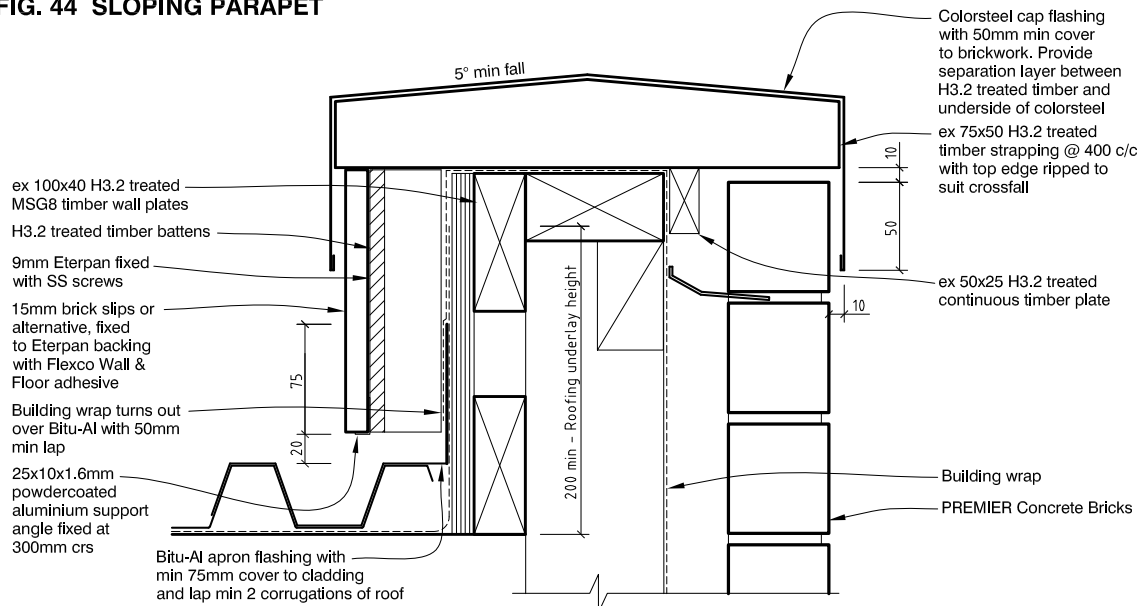


FIG. 45 SLOPING MEMBRANE ROOF

SD

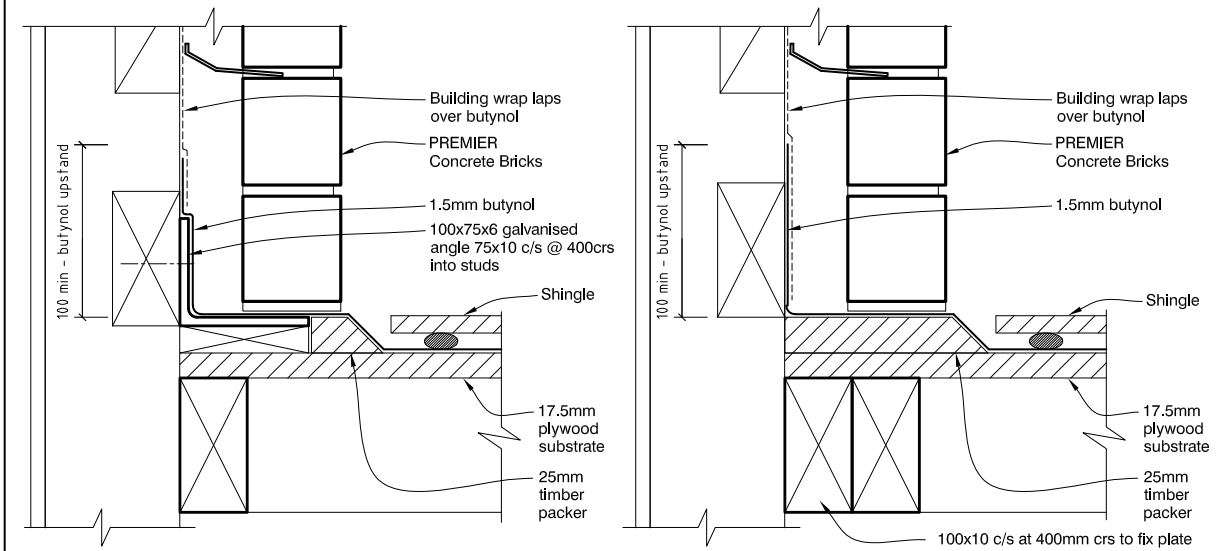


FIG. 46 PERGOLA FIXING

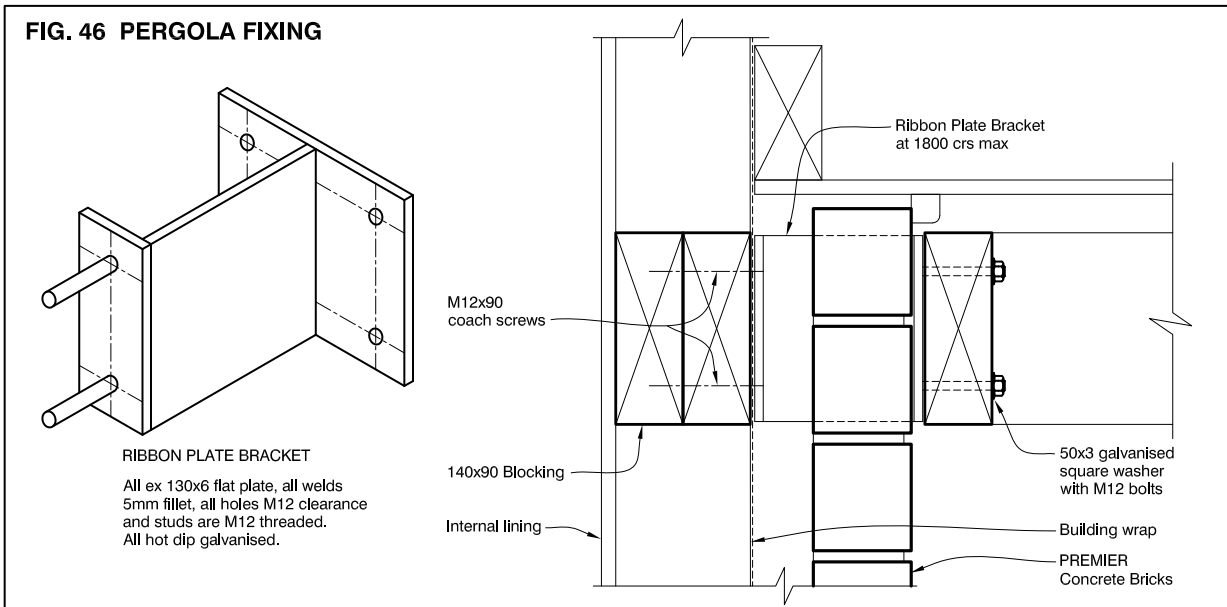


FIG. 47 BRICK COLUMNS BETWEEN JOINERY - Internal/External Feature

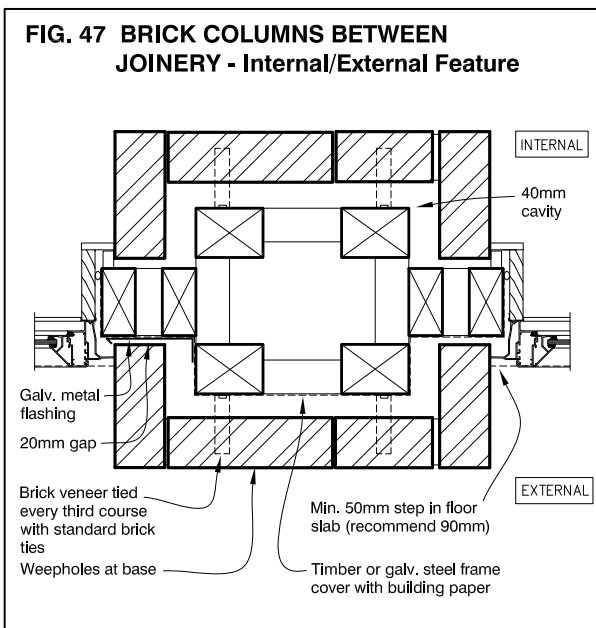
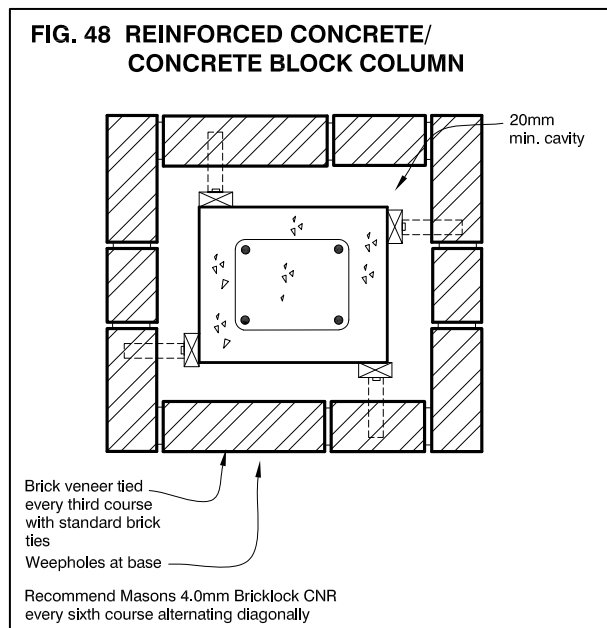
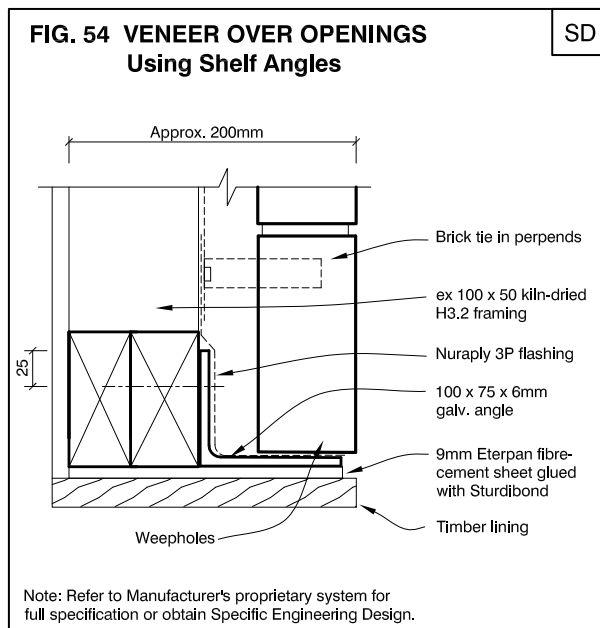
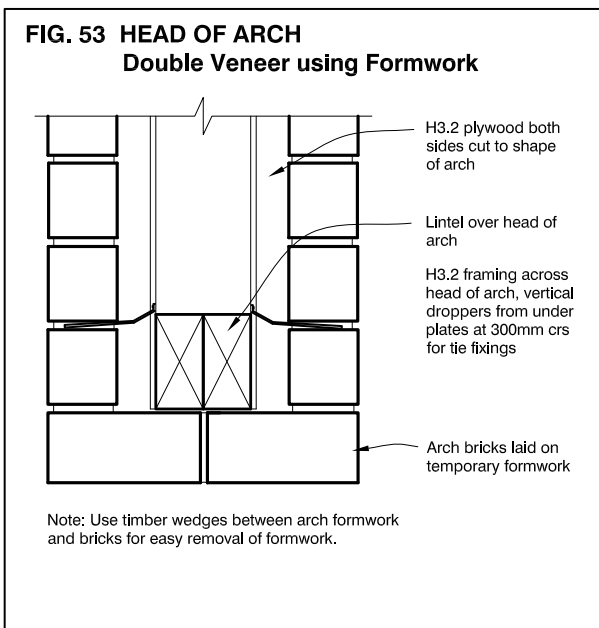
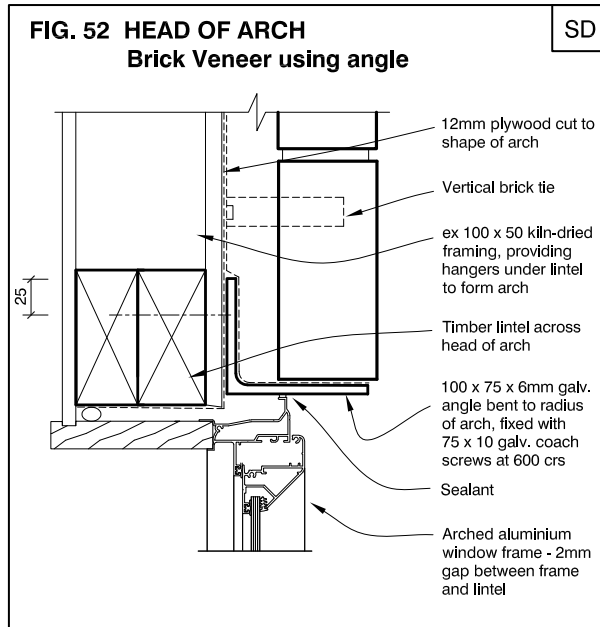
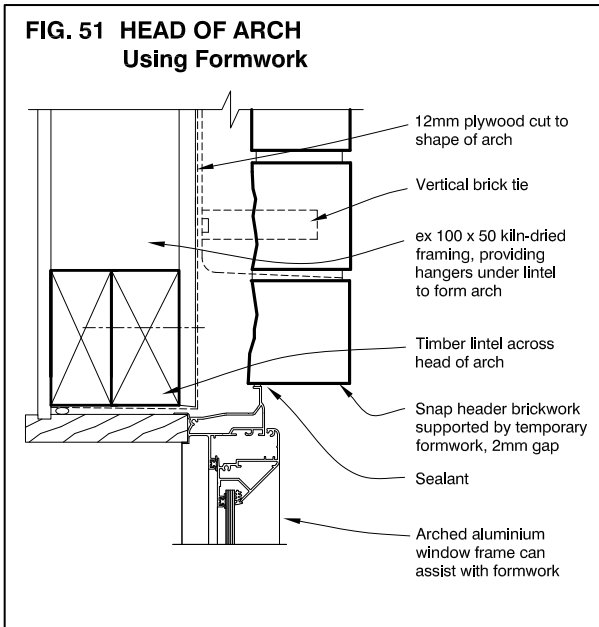
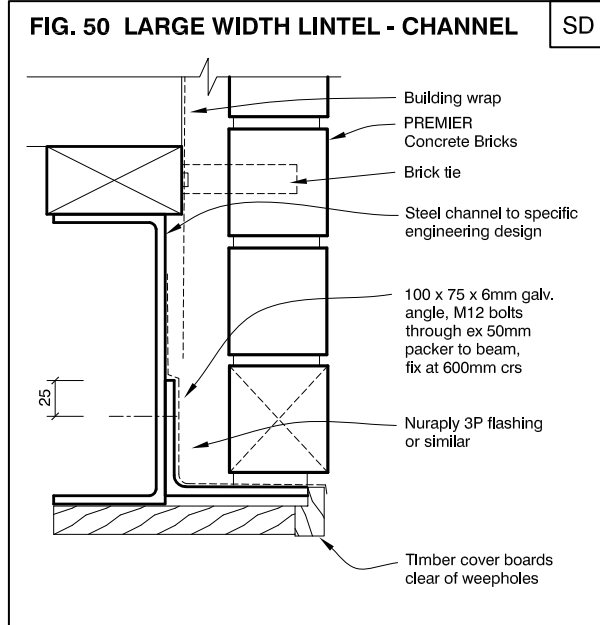
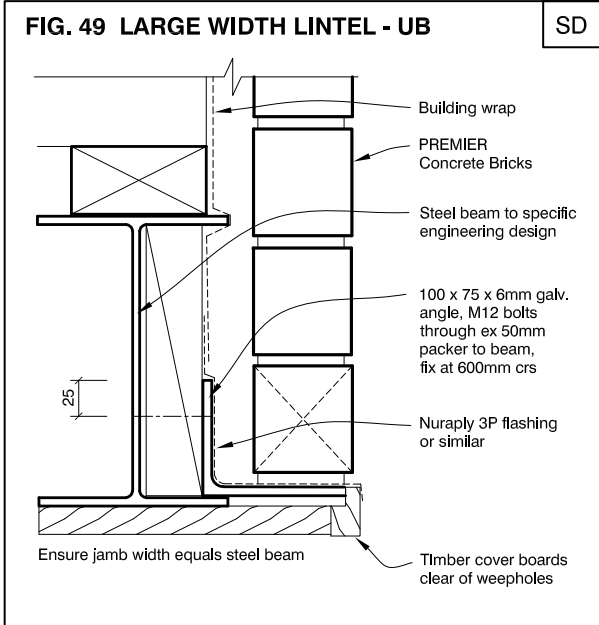
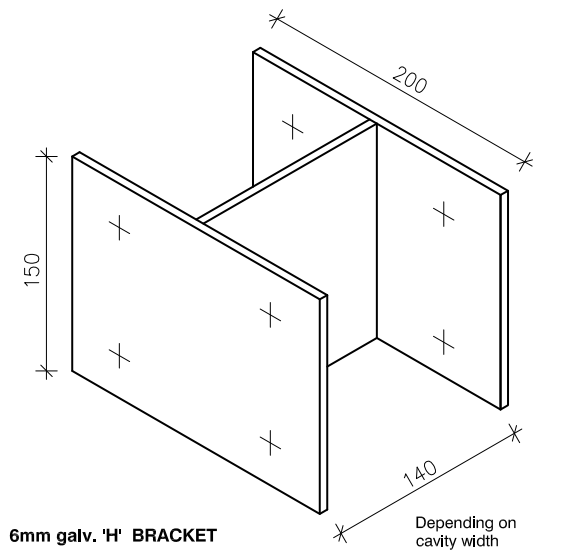
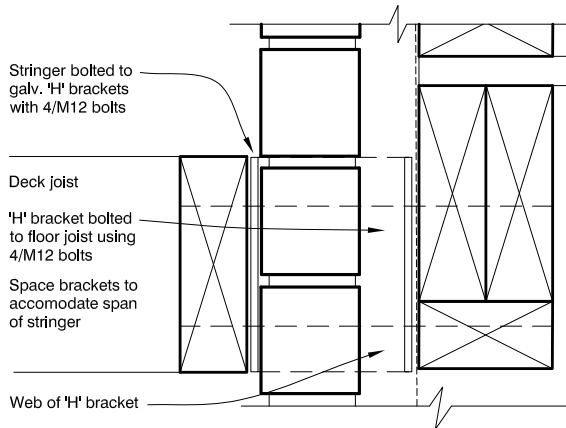


FIG. 48 REINFORCED CONCRETE/ CONCRETE BLOCK COLUMN



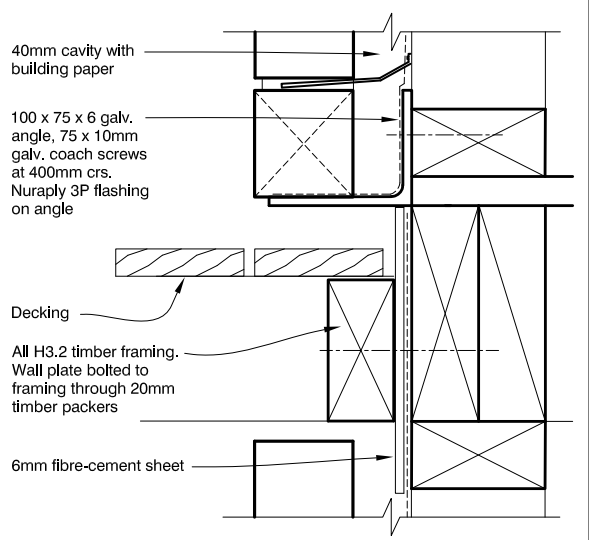


**FIG. 55 DECK CONNECTION
Option 1 : Using 'H' bracket**



Alter dimensions to suit.
Note: A 'T' shaped bracket can be used and bolted to the side of floor joists. May require specific design.

**FIG. 56 DECK CONNECTION
Option 2 : Shelf Angle**



**FIG. 57 DECK CONNECTION
Option 3 : Using Plates & Bolts**

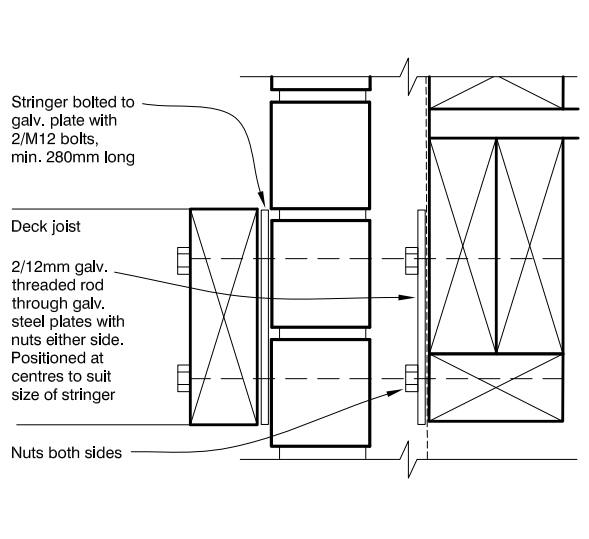
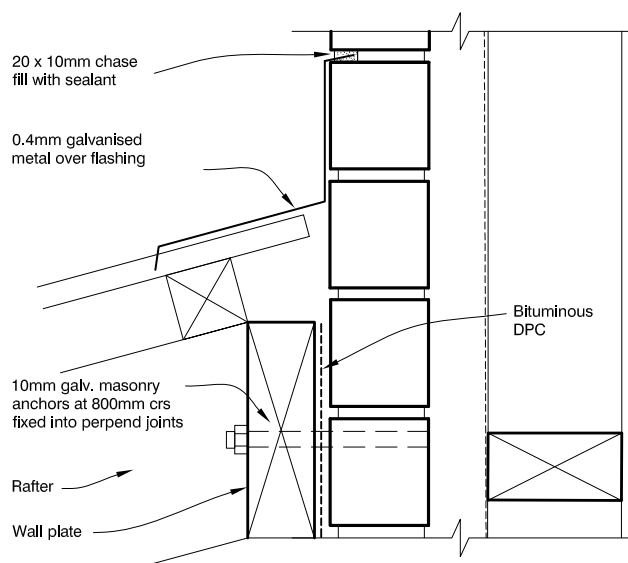


FIG. 58 ATTACHING LIGHTWEIGHT STRUCTURES TO VENEER

SD

1. This detail is limited to 20 square metre of roof area. Any greater area requires specific design.
2. This detail is designed for attaching lightweight structures to veneers, such as single carports, shelters over doorways, pergolas, etc.
3. This detail has been checked by BRANZ's structural engineer.
4. Some territorial Authorities may require a producer statement.
5. Ensure space under roof is not enclosed.

PLEASE NOTE: Never attach a clothes line directly to brick veneer as it is dangerous.



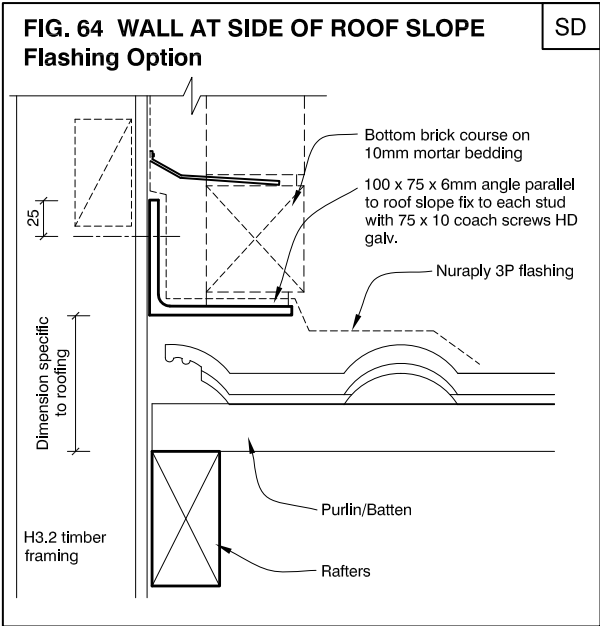
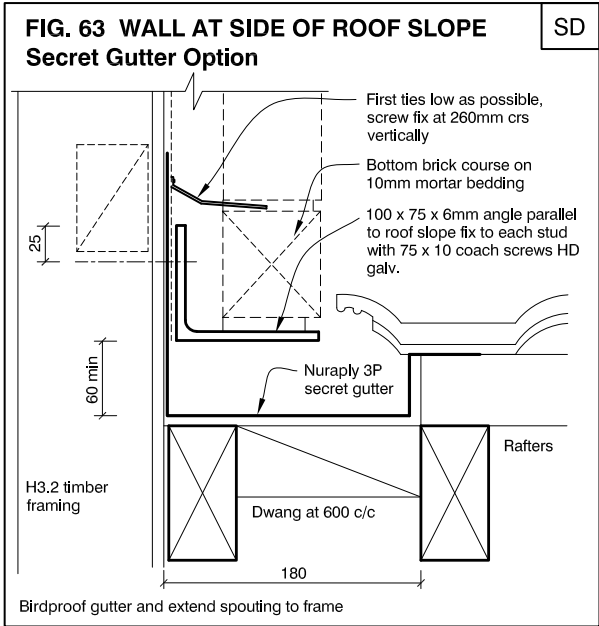
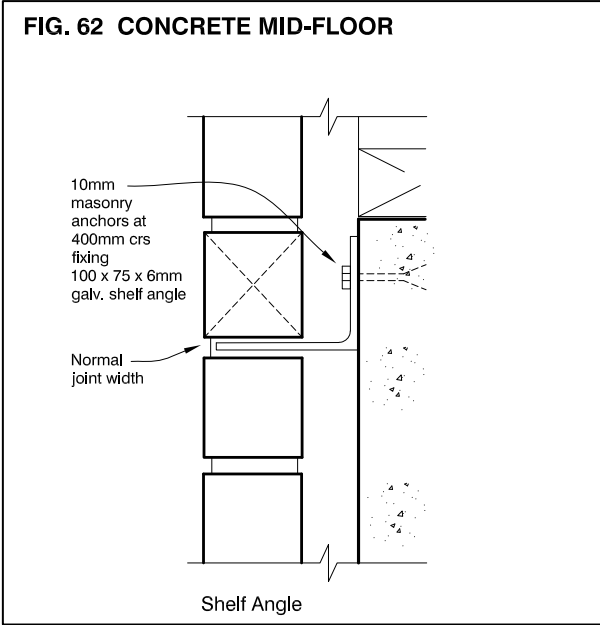
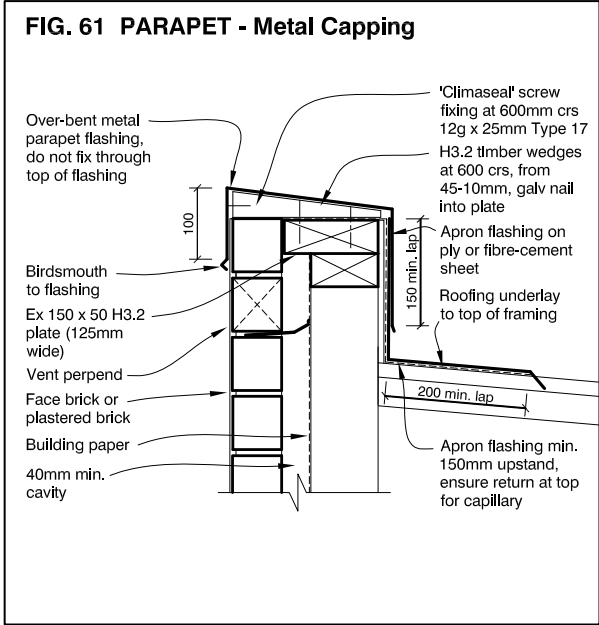
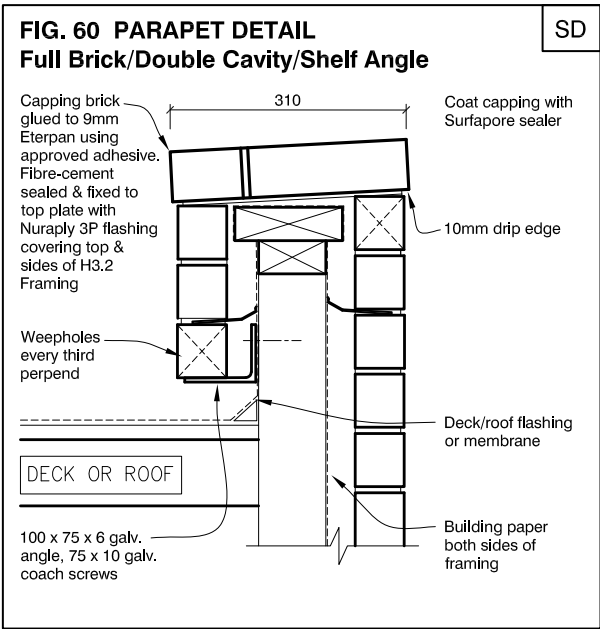
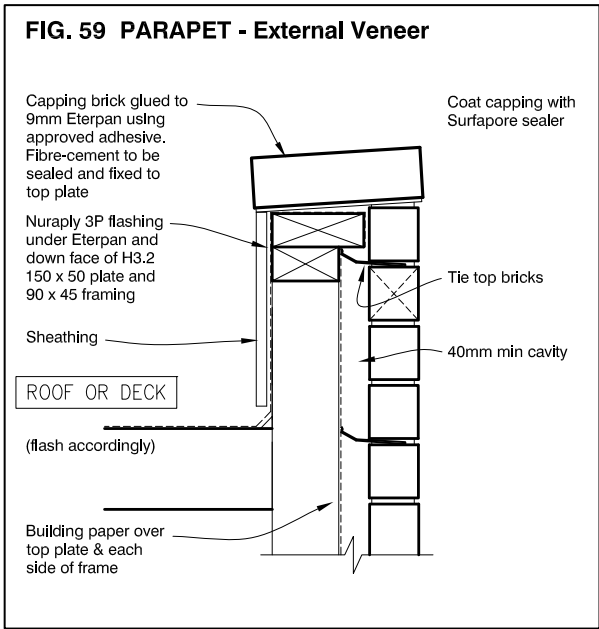


FIG. 65 METER BOX HEAD

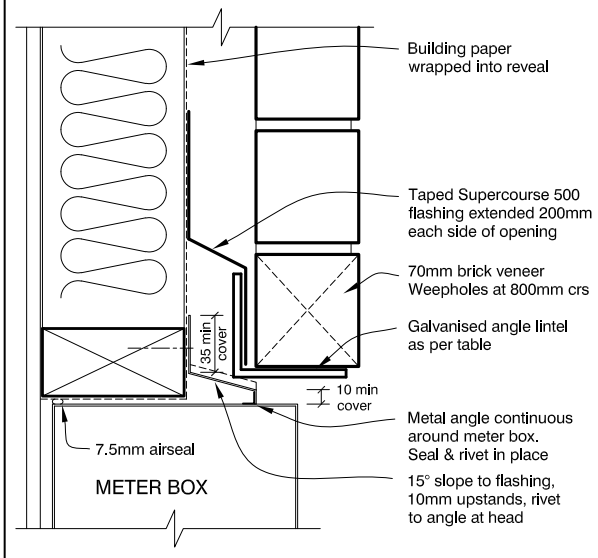


FIG. 66 METER BOX SILL

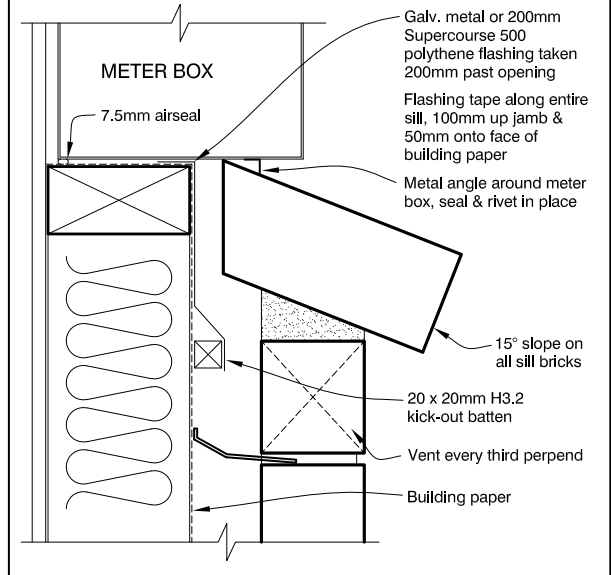


FIG. 67 TYPICAL PIPE PENETRATION

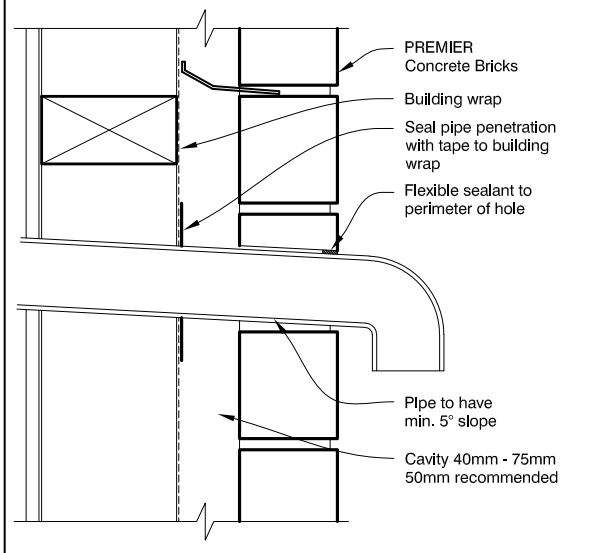


FIG. 68 SHELF ANGLE UNDER WINDOW (Concrete Tile only)

SD

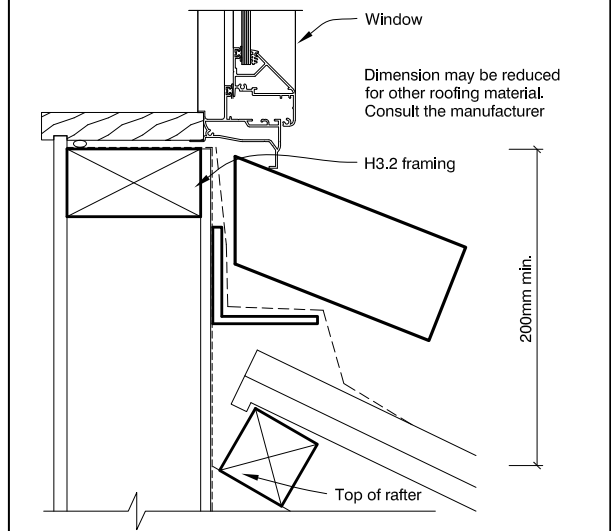


FIG. 69 TOP OF ROOF SLOPE

SD

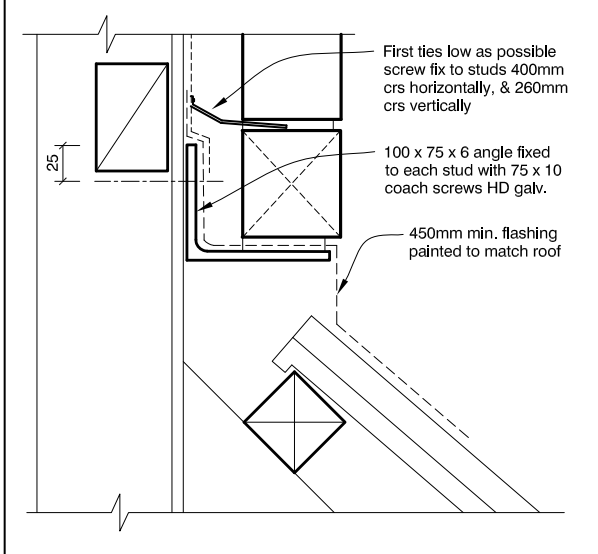


FIG. 70 TOP OF ROOF SLOPE Option: Timber Support

SD

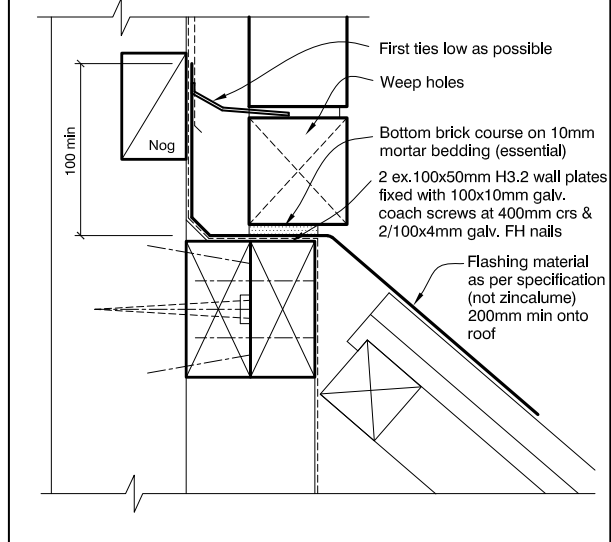


FIG. 71 WALL AT SIDE OF ROOF SLOPE

SD

Option: Secret Gutter - Timber Support

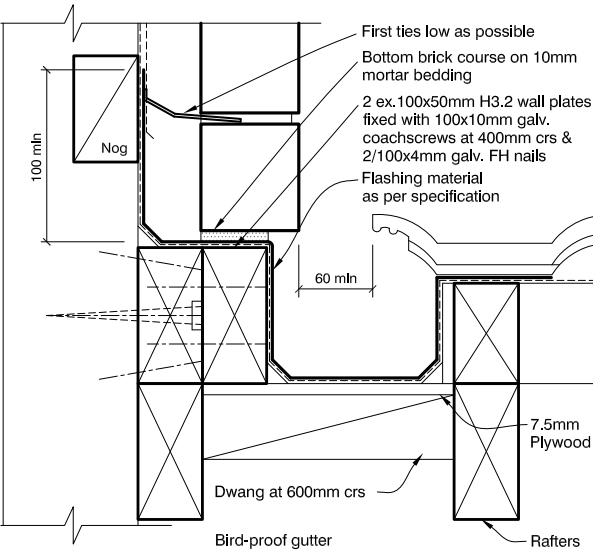
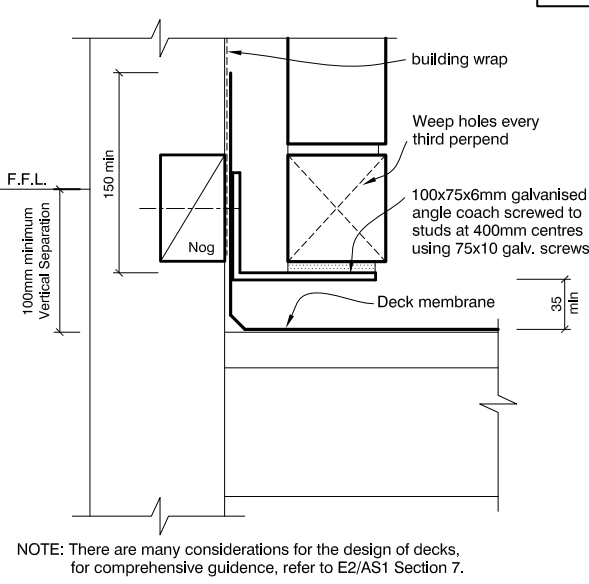


FIG. 72 ENCLOSED DECK

SD



NOTE: There are many considerations for the design of decks, for comprehensive guidance, refer to E2/AS1 Section 7.

FIG. 73 BASE OF SLOPING SHELF ANGLE - Plan View
Small Stop End (eg Ardex BT700 Kickout Flashing)

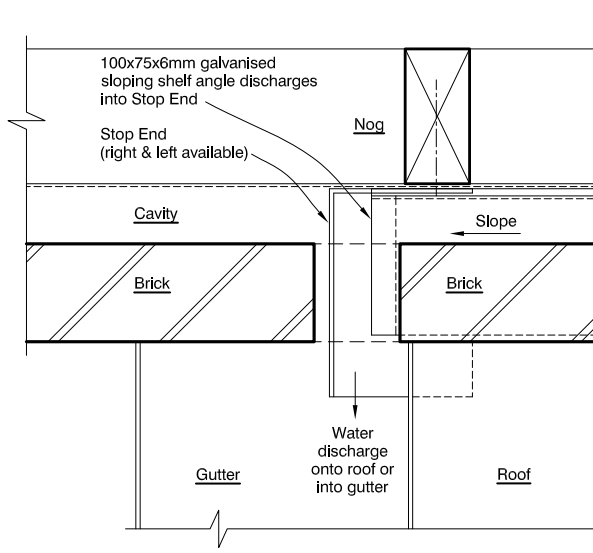


FIG. 74 FLAT SOFFIT & 150mm FRIEZE BOARD

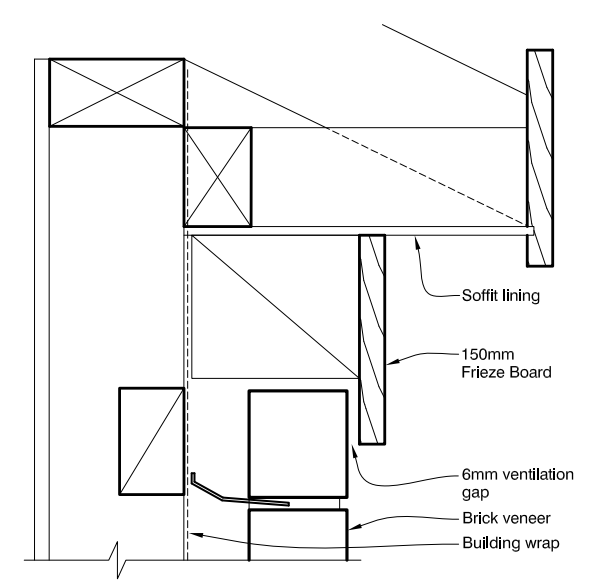


FIG. 75 CAVITY WALL

Maximum Recommended Height 1600mm

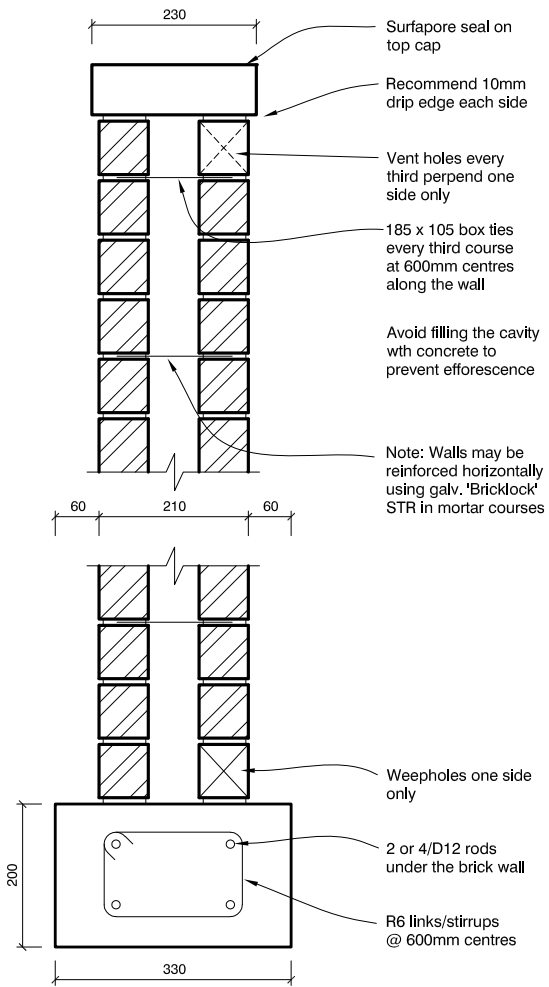


FIG. 76 CAVITY WALL - High Wind Area

Recommended for walls over 1600mm and High Wind Area

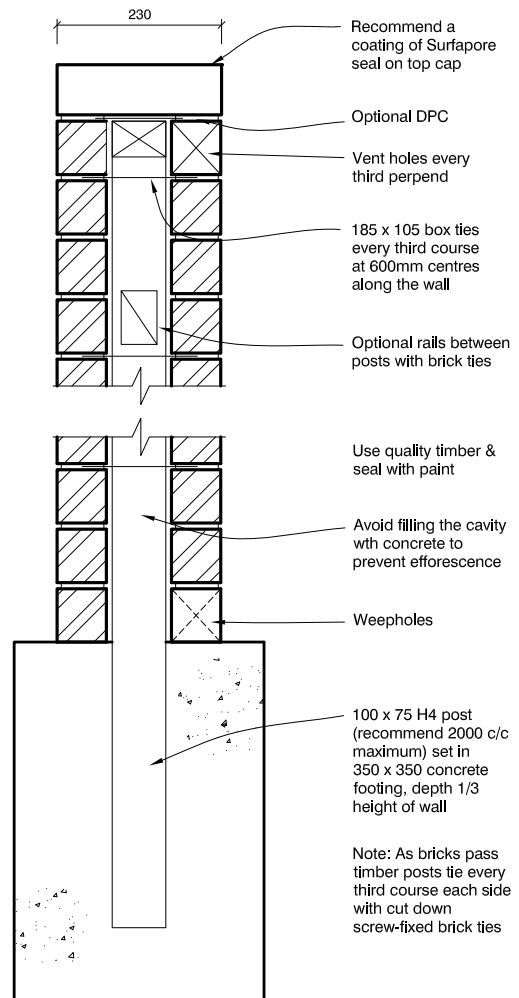


FIG. 77 SINGLE WALL FOUNDATION

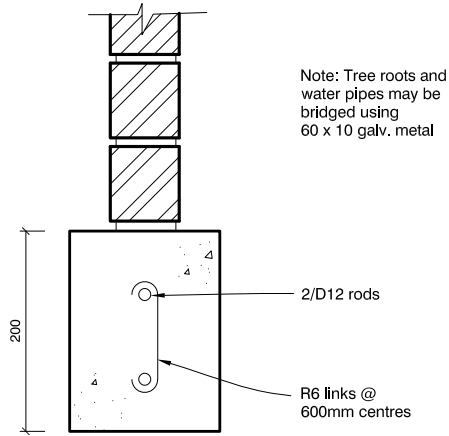
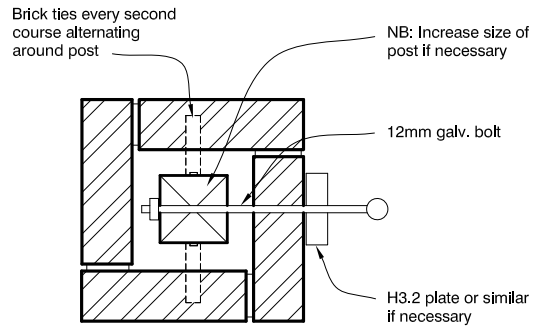


FIG. 78 TYPICAL GATE POST

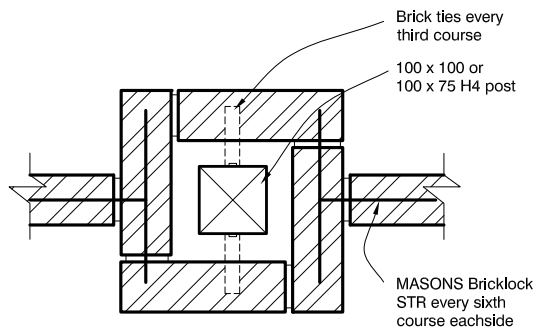


Use MASONS Bricklock CNR every sixth course

Use quality timber & seal with paint

For heavy gates use a galvanised steel post

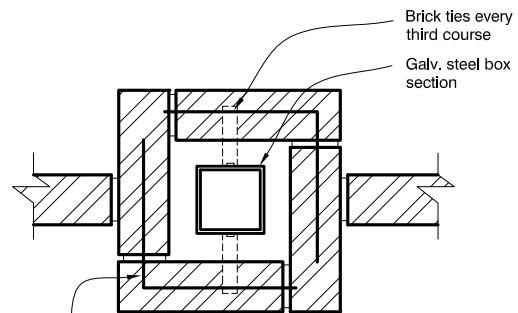
FIG. 79 BRICK COLUMN - Timber Post



Use MASONS Bricklock CNR every sixth course

Use quality timber & seal with paint

FIG. 80 BRICK COLUMN - Steel Post



MASONS Bricklock CNR every sixth course each side, alternate the MASONS Bricklock CNR over the height of the post

Note: Metal post can be strapped with H3.2 timber for brick ties

FIG. 81 BRICK COLUMN - Concrete Block Column

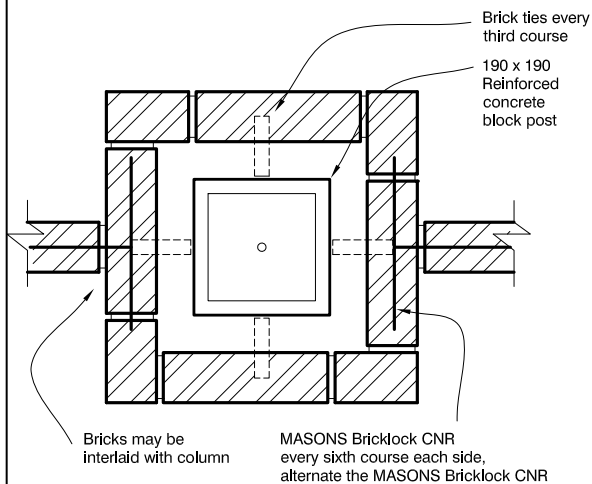


FIG. 82 BRICK COLUMN - Timber Pile

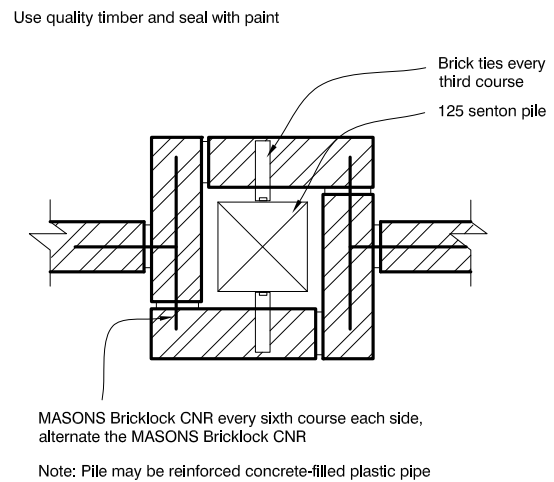


FIG. 83 SINGLE WALL - Capping Options

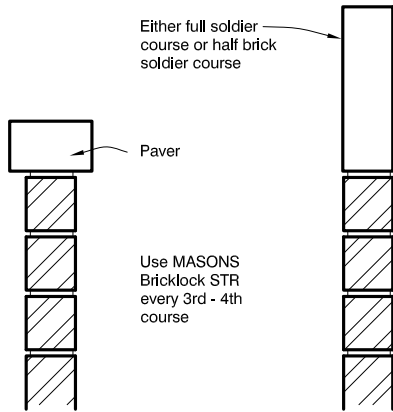


FIG. 84 CAVITY WALL - Capping Options

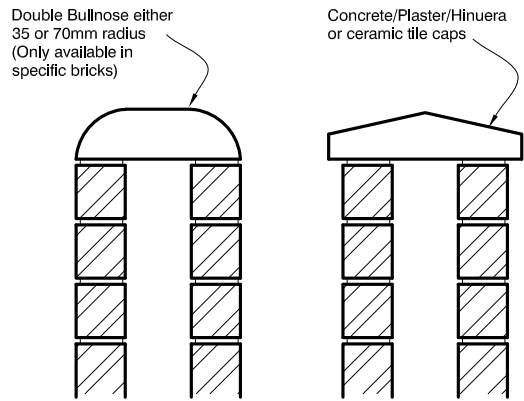


FIG. 85 SUGGESTED WALL PLAN LAYOUTS

Recommend the use of MASONS Bricklock STR and CNR to strengthen walls

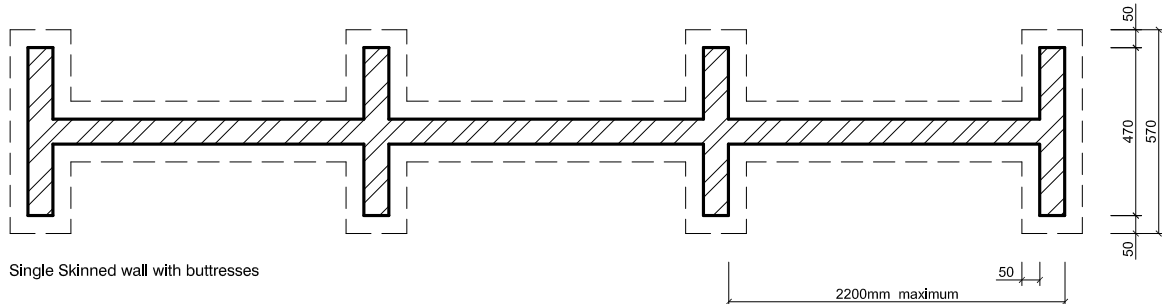
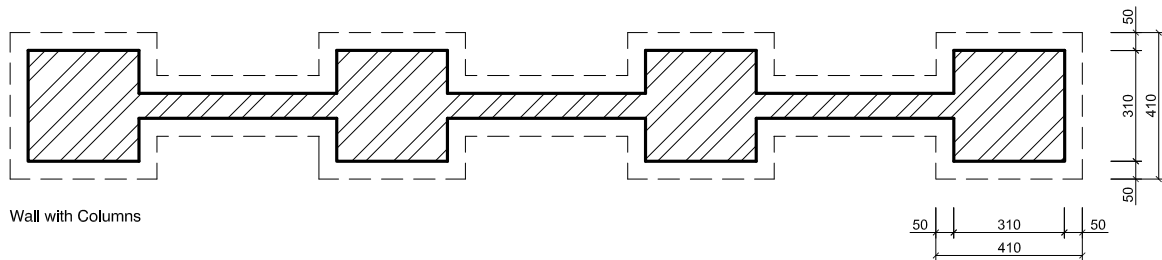
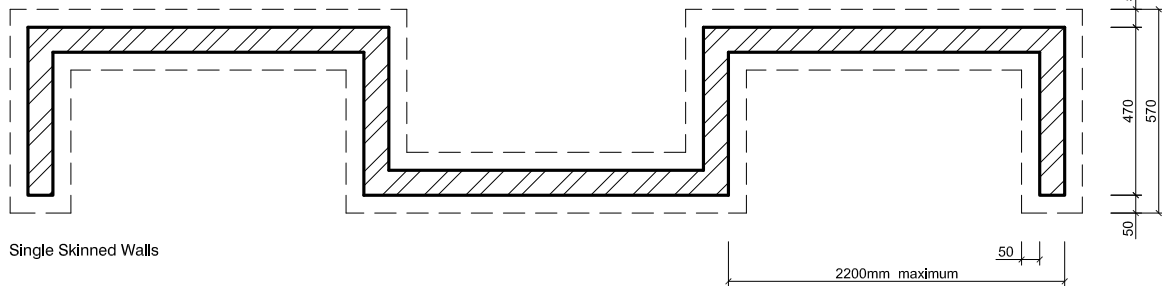
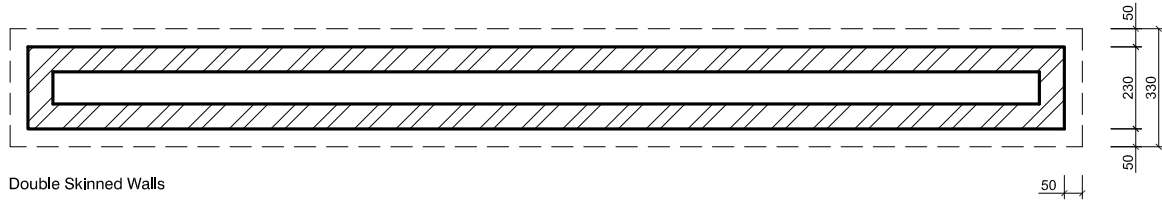
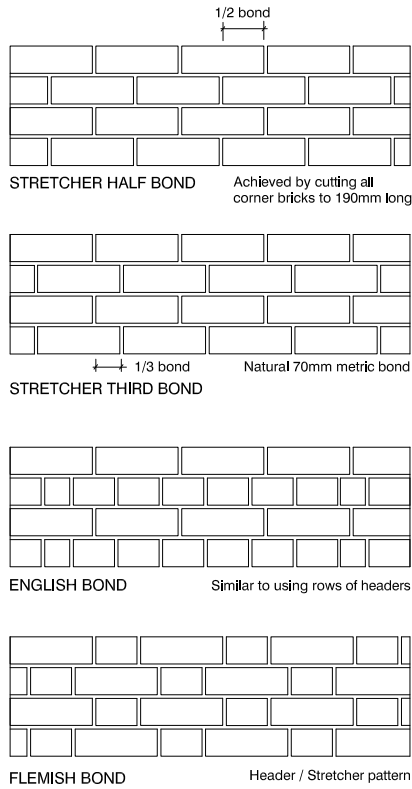


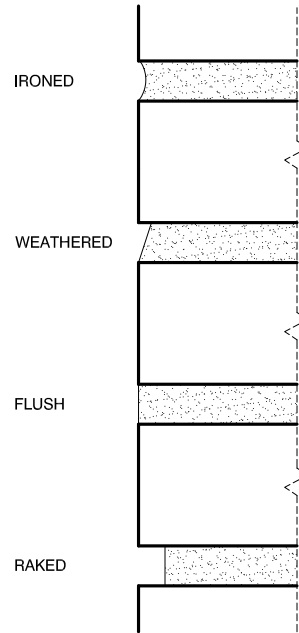
FIG. 86 BONDING PATTERNS



NOTES:

- Bonding patterns for bricks have been determined over the years by the brick size (half width to length) and by double skinned walls that require binding together. This is not the case with 70mm bricks, but these patterns are still used for visual effect.
- The pattern can have significant effect on the appearance of the wall. Specific walls may be selected for feature bonding. Contrasting bricks can be incorporated into the pattern.

FIG. 87 MORTAR JOINTS



NOTES:

- Mortar joints make up approximately 17% of the surface area of the wall and mortar colour plays an important part of the overall appearance.
- All joints should be tooled smooth to seal the joint and extend its durability.
- Mix mortars by volume to ensure consistency of colour.
- Prior to commencing the job make up sample panels, wait 24 hours to dry, before making a final decision.

FIG. 88 MINIMUM CIRCLE

with 10mm Mortar Joints

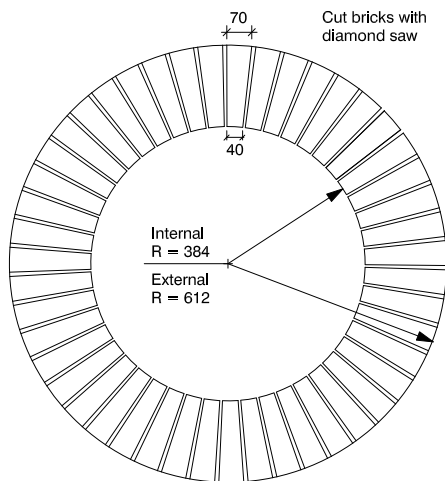


FIG. 89 FLAT SEGMENTAL CIRCLE

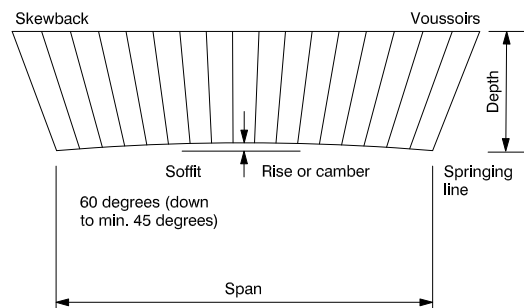
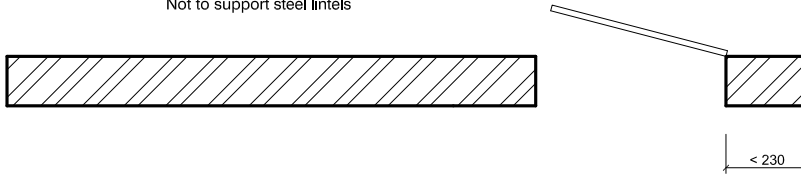


FIG. 90 PIERS & RETURNS - Brick Veneer Openings & Arches

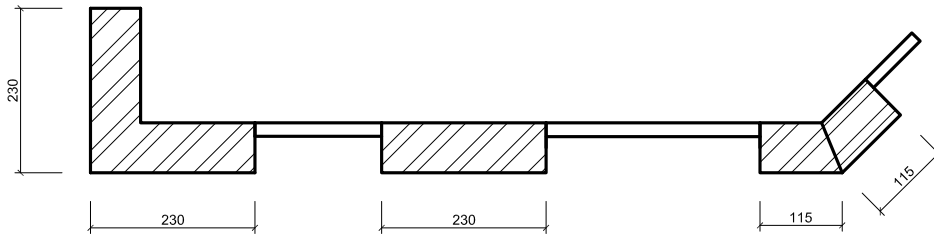
AS

PLAN VIEW A) Alternative solution for BCA's when piers are less than 230mm wide

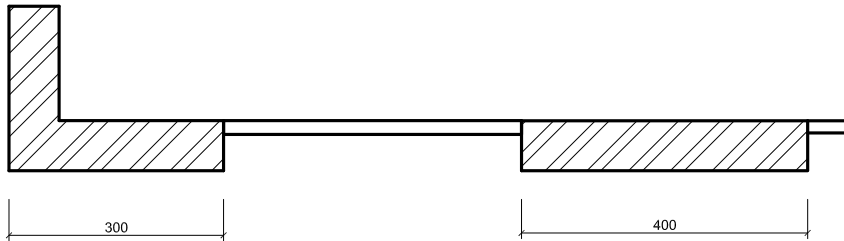
LIMITATIONS Tie every second brick
Single storey or top floor
Not to support steel lintels



B) Bricks to be tied every second course
230mm piers are too small to support lintels which require 200mm of landing each side. Ignore pier and treat as one large opening.



C) Galvanised steel lintels may be supported on 300mm returns and 400mm piers.

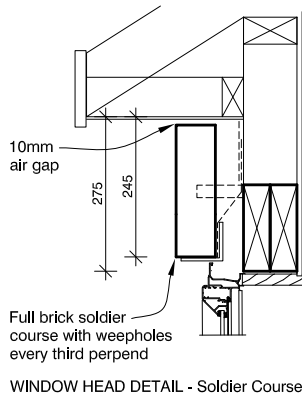


NOTE: In most cases where brick veneer is tied to a timber or steel frame, it is in a non-structural situation and the width of the pier is not critical unless it is carrying a lintel load. Where the dimension of the end support is in question, the load may be transferred to the structural frame using Shelf Angles provided the specification is followed. Alternatively, consult a structural engineer for specific design.

General Comment on Concrete Reinforced Arches

Avoid placing reinforced concrete (unless in concrete block form) between two skins of brick veneer to form arches. This may result in long term salt problems on the surface of the bricks due to the salts in the concrete. Consult a structural engineer as specific design is required.

FIG. 91 SOLDIER COURSES



A true soldier brick is 248mm long which is the same dimension as three rows of bricks. They are rarely used and are very expensive to manufacture as hand setting is required.

Any brick laid vertically is called a soldier and in most cases being 230mm long does not present a problem. In some circumstances the length will need to be reduced.

Where to use Soldier Courses:

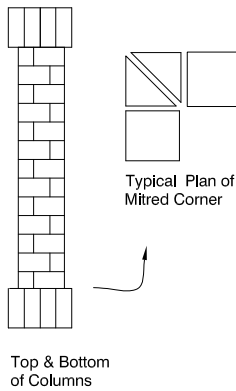
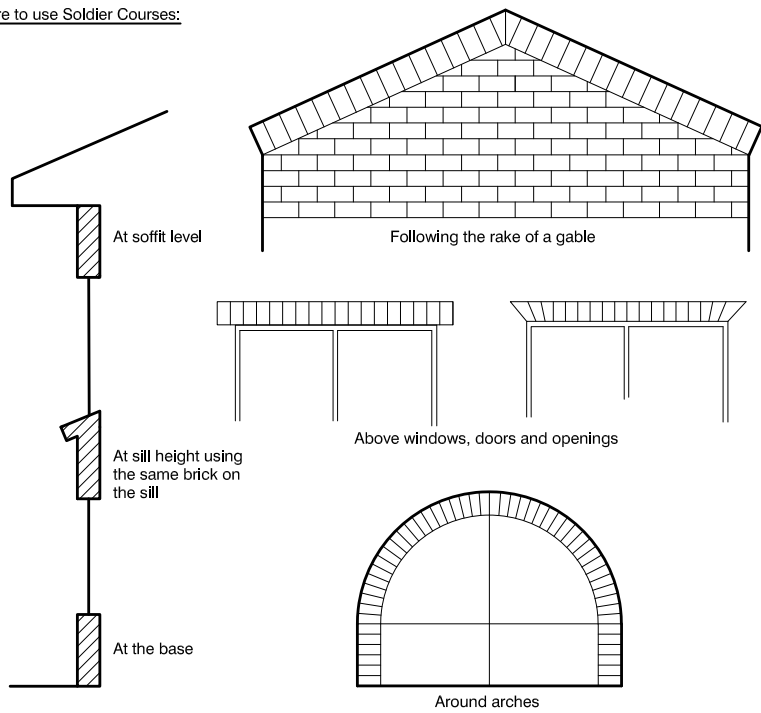
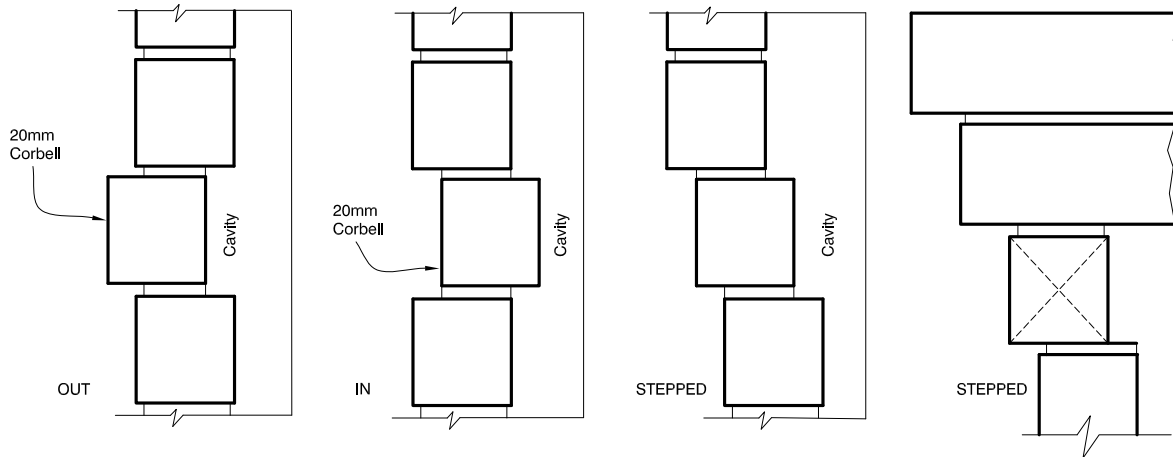


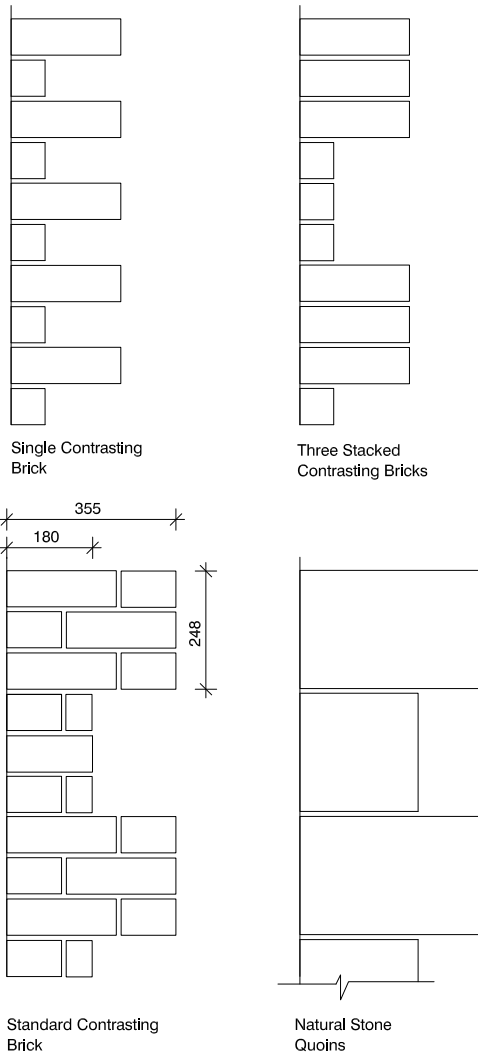
FIG. 92 CORBELLING



NOTES:

1. Bricks laid in the normal manner can be corbelled up to 20mm.
2. A combination of 70mm & 90mm bricks can be used for corbelling.
3. Bricks laid on their side may be corbelled more than 20mm as they are seated on a full mortar bed. They may even infringe the cavity space provided the frame is adequately protected with an impervious membrane.

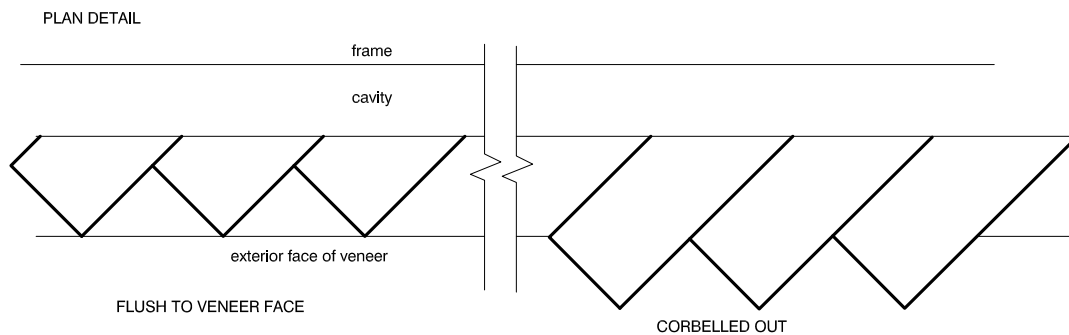
FIG. 93 QUOINING (CORNER DETAILING)



NOTES:

1. Quoining may be achieved using various different set outs, a selection of which are shown.
2. Several different methods can be used including contrasting bricks, either colour or texture, natural stone such as Hinuera, Granite, Basalt, Oamaru or a Concrete/Plaster finish.
3. Quoins can be flush with the veneer on the wall or corbelled out 20mm. A 90mm brick can be used. Natural stone can be cut to 90mm, although it is possible to glue on 20-30mm thick quoins as slips.
4. The 40mm cavity may be infringed provided the supporting framing is completely protected from moisture using a polythene membrane or sheet material.
5. Quoining may be corbelled in to provide a negative detail.
6. If large quoining is planned ensure the home commands this size of detailing.

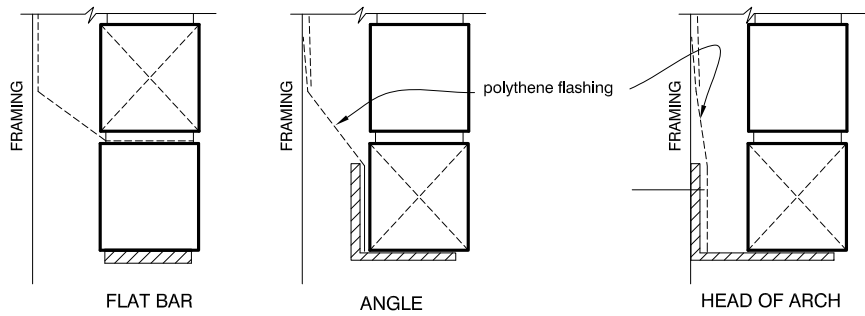
FIG. 94 DOG TOOTHING



NOTES:

1. Provides an interesting single line detail sandwiched between normal stretcher courses, under windows, up the rake of a gable, along brick fences. The changing light creates good shadow effects.
2. Dog tothing can be flush to the face or corbelled out as illustrated. Consider how holes will be finished if visible.
3. The bricks are normally laid at 45 degrees to the face, but this is not critical, and could be laid at any angle

FIG. 95 GALVANISED STEEL LINTELS



100 x 75 x 6 angle may be bent to a radius of 500mm using a Comac Section Bending machine.
 Fix angle using 75 x 10mm galv. coach screws at 450mm crs.
 Stop steel at edge of opening.

1. For durability requirements refer to NZS3604 and NZBC, for lintel protection in seaspray, geothermal, and hot spot locations.
2. For openings greater than 2.0m provide a landing of 200mm each side of opening.
3. For openings less than 2.0m allow 100mm. Prop flat bars until bricks have set.
4. Provide brick ties within the bottom two courses.
5. Install polythene flashings and weepholes

LINTEL SPAN TABLE (Engineered by BRANZ)

| Max. Span (mm) | 70 SERIES Height of veneer above lintel | | | 90 SERIES Height of veneer above lintel | | |
|----------------|--|--------------------|---------------------|--|---------------|---------------|
| | 350 (4 courses) | 700 (8 courses) | 2000 (unlimited) | 350 high | 700 high | 2000 |
| 1500 | 60 x 10 | 60 x 10 | 60 x 10 | 80 x 10 | 80 x 10 | 80 x 10 |
| 2000 | 80 x 80 x 6 | 80 x 80 x 6 | 80 x 80 x 6 | 80 x 80 x 6 | 80 x 80 x 6 | 80 x 80 x 6 |
| 2500 | 80 x 80 x 6 | 80 x 80 x 6 | 80 x 80 x 6 | 80 x 80 x 6 | 80 x 80 x 6 | 80 x 80 x 8 |
| 3000 | 80x 80 x 6 | 80 x 80 x 6 | 125 x 75 x 6 | 80 x 80 x 6 | 80 x 80 x 8 | 90 x 90x 10 |
| 3500 | 80 x 80 x 6 | 80 x 80 x 6 | 125 x 75 x 6 | 80 x 80 x 8 | 90 x 90 x 10 | 125 x 75 x 10 |
| 4000 | 80 x 80 x 8 | 125 x 75 x 6 | 125 x 75 x 10 | 80 x 80 x 10 | 125 x 75 x 6 | 150 x 90 x 10 |
| 4500 | 125 x 75 x 6 | 125 x 75 x 6 | 125 x 75 x 10 | 125 x 75 x 6 | 125 x 75 x 10 | 150 x 90 x 12 |
| 4800 | 125 x 75 x 6 | 125 x 75 x 10 | 125 x 75 x 10 | 125 x 75 x 6 | 150 x 90 x 10 | 150 x 90 x 12 |

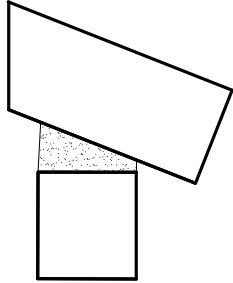
STEEL WEIGHT

| | | | |
|--------------|------------|---------------|-------------|
| 60 X 10 | - 4.8 kg/m | 125 x 75 x 6 | - 9.16 kg/m |
| 80 x 80 x 6 | - 7.5 kg/m | 125 x 75 x 10 | - 14.2 kg/m |
| 100 x 75 x 6 | - 8.0 kg/m | 150 x 90 x 10 | - 17.3 kg/m |

FIG. 96 WINDOW SILL OPTIONS

NOTE: 1. Sill bricks and joints should be uniformly set out along the sill
 2. Natural stone may be cut to provide a continuous sill unit

Sill unit dimensions
(Length x Width)

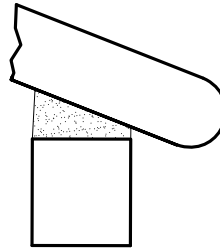


STANDARD 70mm BRICK

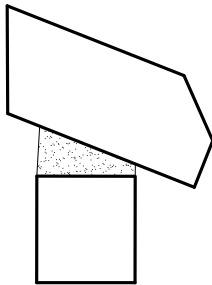
Sills to be a consistent slope and overhang

Finish to end:

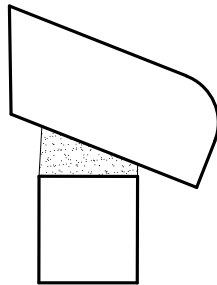
- 1) Fill holes with mortar colour to match
- 2) Smooth plaster end
- 3) Glue 15mm slip to end
- 4) Complete sill may be plastered



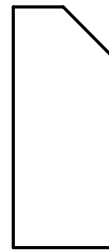
50mm CLAY BULLNOSE PAVERS (230mm x 114mm)



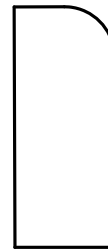
70 or 90mm CANT HORIZONTAL



70 or 90mm BULLNOSE HORIZONTAL

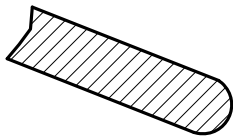


70 or 90mm CANT VERTICAL

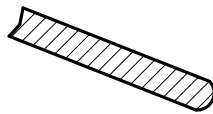


70 or 90mm BULLNOSE VERTICAL

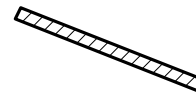
Note: Check availability of special shaped bricks prior to designing



40mm TERRACOTTA SILL TILE (200 x 205mm)



22mm TERRACOTTA SILL TILE (230 X 150mm)



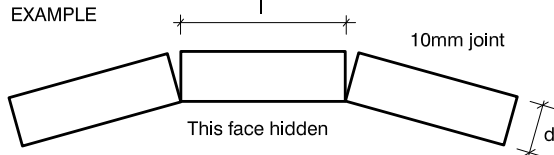
CERAMIC TILE

FIG. 97 CURVE FORMULA

To obtain the shortest radius and maintain a 10mm mortar joint the following formula should be applied

$$r = \frac{d \times (l/2 + 5)}{5}$$

Where
 r = radius to external edge of brick
 d = depth of brick
 l = length of brick along circumference



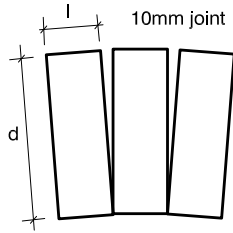
EXAMPLE
 l = 230
 d = 70
 r = ?

$$r = \frac{70 \times (230/2 + 5)}{5}$$

$$= 1680$$

COMMON SIZES

| l | d | r |
|-----|-----|------|
| 230 | 70 | 1680 |
| 76 | 230 | 1978 |
| 230 | 90 | 2160 |
| 70 | 76 | 608 |
| 230 | 76 | 1824 |
| 110 | 76 | 912 |



EXAMPLE
 l = 76
 d = 230
 r = ?

$$r = \frac{230 \times (76/2 + 5)}{5}$$

$$= 1978$$

FIG. 98 ARCH FORMULA

To obtain a 10mm joint on the inside edge of an arch without cutting the bricks, determine number of bricks

$$X = \frac{3.14 \times r}{d + 10}$$

r = radius in mm
 d = width of brick at circumference
 X = number of bricks

EXAMPLE

How many bricks required on a 1400mm wide arch when 'd' is 76mm

$$X = \frac{3.14 \times 700\text{mm}}{76 + 10}$$

$$= 25.55$$

Alternatively the required radius for a given number of bricks is given by the formula;

$$r = \frac{76X + 10 \times (X - 1)}{3.14}$$

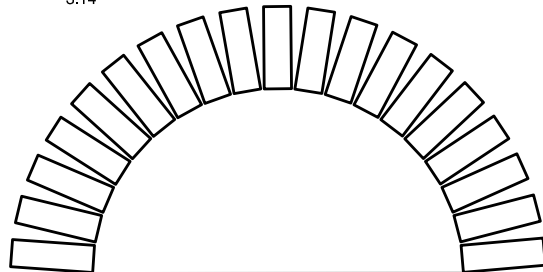
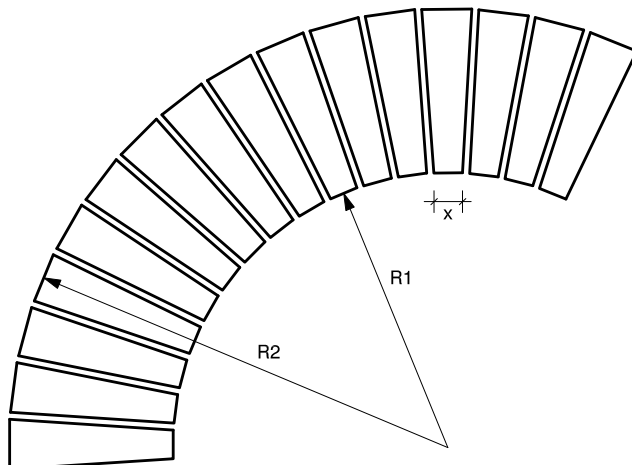


FIG. 99 ARCH FORMULA - Tapered Bricks



NOTES:

1. When designing brick arches, calculate the taper on the bricks in order to provide an even joint through the length of the brick.
2. Provide a template on the plan to ensure the bricklayer constructs the arch correctly.

| No. of bricks per full circle | X | R1 | R2 |
|-------------------------------|----|------|------|
| 48 | 40 | 384 | 614 |
| 58 | 45 | 507 | 737 |
| 72 | 50 | 690 | 920 |
| 96 | 55 | 997 | 1227 |
| 144 | 60 | 1610 | 1840 |

FIG. 100 BLOCK RETAINING WALL

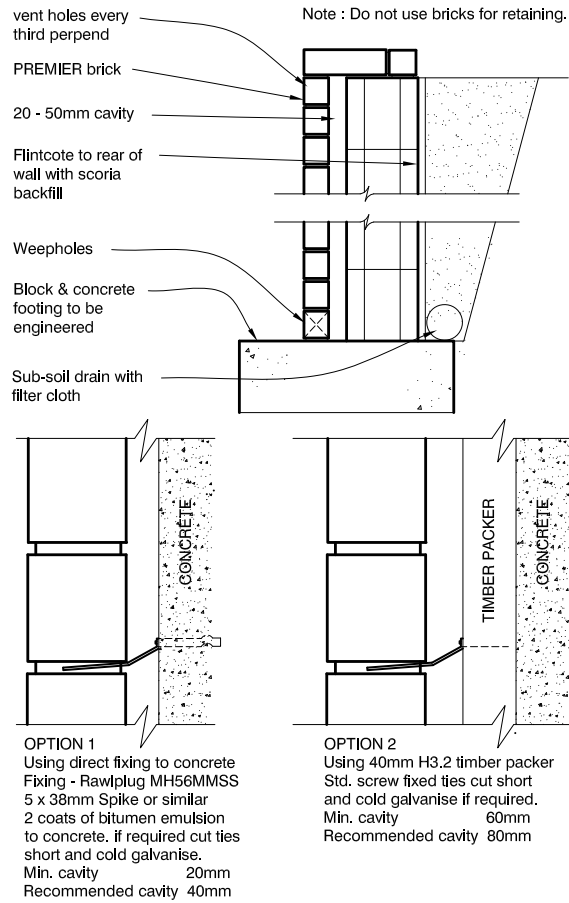


FIG. 101 TIMBER RETAINING WALL

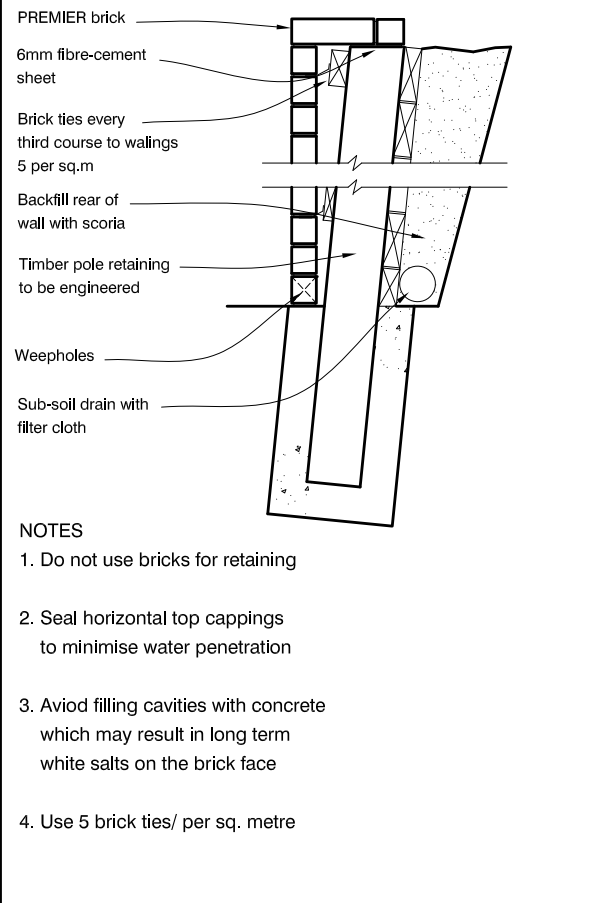


FIG. 102 PLANTER BOX

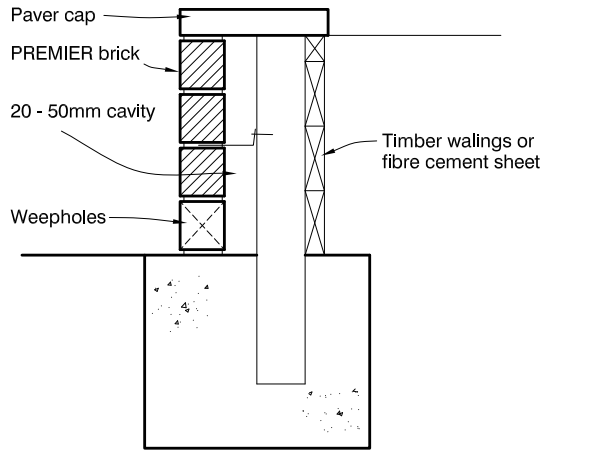
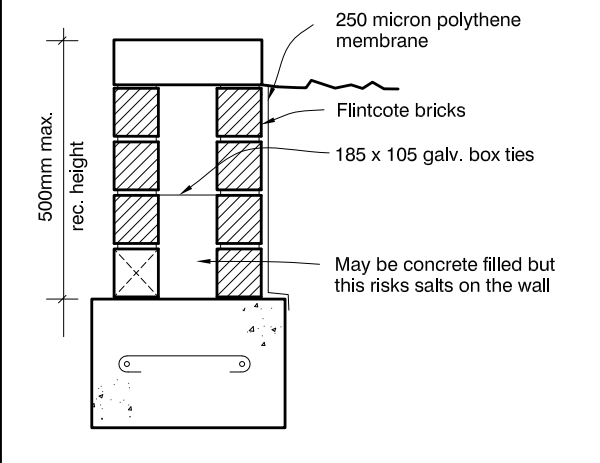


FIG. 103 BRICK EDGING



PREMIER BRICK LIGHT REFLECTANCE VALUES (LRV)

Premier Brick Light Reflectance Values (LRV)

Version 2.1

Test Date: 14th August 2017

Testing Location: Internally (80 Sunshine Ave, Te Rapa, Hamilton)

Results:

| Brick Colour | LRV (+/-) |
|----------------|-----------|
| White | 49.5 |
| Soapstone | 49.3 |
| Straw | 47.7 |
| Ash | 32.9 |
| Lichen | 29.2 |
| Champagne | 25.4 |
| Charcoal Blend | 24.1 |
| Walnut | 24.1 |
| Ironstone | 18.8 |
| Tuscany | 18.0 |
| Sepia | 15.4 |
| Charcoal | 10.4 |

LRV Tests have been completed by Premier Group internally and have not been tested by a third party. Premier Group holds no liability to changes in LRV over time due to weathering and/or curing. Premier Bricks are manufactured from natural resources/aggregates which can vary in colour and contribute a large part to the final colour of the Premier Bricks. Premier Group has little control over the raw materials and therefore the LRVs can vary from batch to batch. Premier Group continuously improves the mix designs and raw materials for the Premier Bricks.

PREMIER ACID WASHING AND SEALING

TO REMOVE MORTAR STAINS, EFFLORESCENCE OR TO PREPARE FOR SEALER

Do not attempt this process without training from Premier Group!

1. Bricks must be as dry as possible. Do NOT wet bricks before applying acid.
2. Fill 10 litre knapsack sprayer with 12 parts water to 1 part Premier Acid Wash.
3. Start spraying from bottom of wall and work up to top of wall slowly and evenly so that 100% of face fizzes as you work up.
4. The fizzing will only occur for a few seconds as you work up the wall.
5. Do NOT start at top of wall and work down or serious run marks will occur.
6. Follow this method for all walls. Do not wash down with water until all walls are sprayed.
7. Now wash down walls from top to bottom with a hose and broom.
8. Scrub the walls as you go to remove the residue created by the acid wash.
9. Allow walls to dry completely before applying Premier Stone & Concrete Sealer if required.



- Video on Acid Wash

SEALING PROCESS AND RECOMMENDATIONS

Do not attempt this process without training from Premier Group!

1. Ensure concrete has been etched and cleaned thoroughly. Then leave to dry. (around 3 days if possible)
2. Apply 2 coats with brush or roller. (long pile roller recommended)
3. Once first coat is touch dry, apply second coat.
4. Use in well ventilated areas.
5. Do not apply in wet, frosty conditions or temperatures above 25°C.



- Video on Sealing

PREMIER BRICK MAINTENANCE INFORMATION

MAINTENANCE SCHEDULE

Brick veneer is a cladding, correctly installed brick veneer cladding requires little in the way of maintenance over a long period of time. However, if one follows the simple procedures, the performance of the veneer as a cladding and its appearance will ensure it meets all requirements.

CLEANING

The exterior of the brick veneer must be washed down at least once a year using a soapy water and soft scrubbing brush. It may be given a light water-blast to remove stubborn dirt particles.

Spray for spiders if necessary, check for and remove all spider webs at least twice a year.

WEEP HOLES

Check all weep and vent holes around the top and bottom of the veneer annually to ensure they are not blocked up with dirt, grass, insects and other debris – clean where required.

MORTAR JOINTS

Check mortar joints annually for erosion and deterioration, if there is some obvious deterioration or loose mortar, consult a bricklayer and have the mortar joints in question repointed.

BLACK ALGAE

Check for black algae annually especially on the south or damp sides of the house. If you notice any build up, simply spray on [Moss-kill](#) or similar at a ratio of 1:4 through a sprayer and leave. Results may take a few days but will continue to work with the elements. No scrubbing required. Be sure to follow label instructions. If you want immediate results, spray on [White Angel](#) at a ratio of 1:5 or any other household bleach through a sprayer and leave but keep in mind this product contains Sodium Hypochlorite so care needs to be taken around clothes, concrete paths, plants and pets.

All individuals involved in the design, building and laying of PREMIER concrete masonry brick veneers need to read this document prior to commencing a project and take ownership of their involvement. Should a situation develop that contravenes Design Note PG-B1 or PG-B2, stop and resolve the issue prior to proceeding.

Signed as read: _____

Date: _____

Print name: _____

This document has been written and prepared, in conjunction with Premier Group,
by John Oliver, Building Consultant, Brick Consulting; specialist in
brick veneer construction and author of
John Oliver's BRICK BOOK

www.brickconsultant.co.nz
John Oliver
Specialist in Veneer Construction
9 September 2017

SALES TERMS

IMPORTANT NOTICE

PLEASE READ AND SIGN AS YOUR
ACCEPTANCE AND UNDERSTANDING OF
THE EXPECTATIONS OF PREMIER BRICKS

A PRODUCT LAID IS A PRODUCT ACCEPTED !

THANK YOU FOR CHOOSING PREMIER BRICK

It is important to understand that Premier Bricks are created from natural materials to achieve a natural look. This means that every Premier Brick captures nature's variety and beauty and any variations you see will not affect the performance of the product but rather will enhance a natural, weathered stone appearance.

Natural variations as explained in the order confirmation and our brochures include: colour variations, chipping, texture variations, hairline fissures, and other variations typical of stone based materials. Any variations from the samples you have seen ensure your brick project is unique and special to your home.

Mortar Joints

Mortar joints represents close to 20% of the surface area of any finished brick veneer, and therefore its appearance and colour can have a significant effect on the overall appearance of the finished wall. If using a coloured mortar that is not pre-bagged, it is essential to mix by accurate volumes of all elements, especially the oxide. In most cases, a raked joint is preferable, then brushed.

IMPORTANT: Ensure all joints are brushed when a firm thumb print can be made on the mortar to avoid variations in the final mortar joint colour.

Chipping, Defects and Variations

It is the character of brick that appeals to people; no two bricks or mortar joints are the same. It is often the minor imperfections such as edge chips, minor fissures, colour variation and so on, that contribute to what I call, 'designed imperfection'. You judge brick veneer from 4.0m away. If you examine every brick, and every mortar joint you are sure to find something that may not appeal; that is not what brick veneer is all about; it is about the character, durability, weathertightness, security and added value that brick offers.

Hairline Cracks

Conditional upon the correct the bricks being installed in a tradesman like manner, namely, good quality mortar, correct number of brick ties, a hairline crack in a control joint mortar does not present an issue that threatens the structural integrity or weathertightness of the veneer. They are cosmetic and can be repointed if you so desire.

PLEASE REFER TO OUR WEBSITE IF YOU REQUIRE FURTHER DETAILS.

THANK YOU.

NAME: _____

SIGNED: _____

SITE ADDRESS: _____

DATE: _____

PREMIER BRICK TERMS & CONDITIONS

The Premier Bricks are manufactured from natural aggregates and materials. All bricks are susceptible to fading and efflorescence. The darker colour bricks* are a lot more prone to these conditions. If these natural phenomenon occur, they do weather out over a few months producing a beautiful finished result.

The Bricks may need acid washing and, depending on the situation, sealing may be required. Acid washing and sealing is not at the expense of Premier Group.

Due to the nature of the Premier Brick range, we would like to inform you of and recommend to you the following:

1. They will show some fading over time, particularly the darker colours*.
2. They will potentially show efflorescence, more so darker colours* than lighter colours.
3. If they are "Rumbled" there will be some surface scratching, particularly on the darker colours*. This is to be expected and will weather out over time.
4. They can be 'acid washed' with Premier Acid Wash. Do not attempt this without training from Premier Group.
5. If you wish to seal your brick to reduce efflorescence, use Premier Stone & Concrete Sealer.
6. Only seal in the summer months when the bricks are dry. Do not seal if it has rained 3 days prior or is forecasted to rain 3 days after.
7. You must mortar match darker colour bricks* to stop obvious mortar smudging.
8. At all times during the bricklaying process, ensure quality is to the desired standard of the builder and the homeowner. It is recommended the bricklayer lays up a sample panel that all agree on prior to commencing laying.
9. A product laid is a product accepted.

*The colours that Premier Group consider dark are Charcoal, Sepia and Walnut.

If the above isn't adhered to, Premier Group will not be held liable for any product issues, and the warranty will be void.

I have read and understood these terms and conditions and understand that if acid washing and sealing is required at a later date, it is at my expense.

Name: _____

Date: _____

Signature: _____

Builder: _____

Name: _____

Date: _____

Signature: _____

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WE ALSO HAVE THESE BEAUTIFUL PRODUCTS...



House Bricks



Italia Range



Lifestyle Range



Retainers



Schist Stone



Truestone Collection

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email us at info@premier-group.co.nz

PREMIER GROUP NEW ZEALAND

Head Office Te Rapa, Hamilton, New Zealand

Postal Address PO Box 12172, Hamilton 3248, New Zealand

Important note: Please visit our website for the very latest / up to date information.



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