Viblock

Pressed Stone Specification

viblock.co.nz

PRESSED STONE

70mm with 13 unique widths
equating to roughly 46 bricks per m^2.

The result of an extensive R&D process working alongside USA-based Coloumbia Machines, our Pressed Stone system is concrete as you've never seen it before.

With 13 unique moulds designed to emulate the natural variance of stone, the system creates a striking aesthetic while saving time, money and carbon.

Product Advantages

Design: A standard 70 series brick means no engineering or waterproofing, resulting in simple detailing.

Customisation: A range of colours, finishes, and lay styles provide infinite design possibility

Build: Simple installation means faster builds with less waste, smaller building foundations and no waterproofing

Sustainability: Significantly less embodied carbon over traditional stone products that require intensive mining proceses.

Affordability: Approximately 65% more affordable than traditional stone alternatives

Colour

Staying true the natural origins of the concept, Pressed Stone is available in the following colours that are derived directly from the aggregate source. This creates subtle hues and tones that cannot be achieved using the oxides that a prevalent in traditional coloured concrete:

- PS White Quartz sourced from Southland white sand
- PS Cream Quartz sourced from Hyde cream sand
- PS Crawford Schist sourced from Crawford Hills (Alexandra) aggregate
- PS Black Basalt sourced from Blackhead Beach in Dunedin that creates a natural black espically when wet
- PS Grey sourced from the by-product of Central Otago gold tailings

White Quartz

Cream Quartz

Crawford Schist

Black Basalt

Grey

Price

Viblock is offering special introductory pricing of $150m^2, with additional discounts on offer for projects that are installed on prominent sections/locations.

Install

We have a specification document that covers up to three-story installations. We recommend these are sealed, wet look sealed for Black.

Install Bond - Random or semi-repeating

Ties/Studs

Stories	Max height	Gable max	Mortar	Vent/weep holes	Control joints	Horizontal	Vertical	Min per m^2
Single	4	5.5	10 -35mm	800mm	< 8.5m (saw tooth)	600	492	4
	4	5.5	11 -35mm	800mm	< 8.5m (saw tooth)	400	825	4
Two	7.5	10	10 -35mm	800mm	< 8.5m (saw tooth)	400	495	6
Three	10	12	10 -35mm	800mm	< 8.5m (saw tooth)	400	495	6

VIBLOCK CLADDING SYSTEM – PRESSED STONE WALL

SPECIFIC DESIGN SPECIFICATION - PSW

GENERAL

The following is a specification used for the construction of the ViBlock cladding system – Pressed Stone Wall. Within this document the Pressed Stone Wall shall be referred to as "Brick".

B1 Structure

- This specification provides compliance with NZBC Clause B1 Structure. The Viblock Pressed Stone Wall system, when installed in accordance with this document, is supported on suitably designed structural elements (timber, steel, or concrete) capable of resisting all dead, live, wind, and seismic loads in accordance with NZS 3604, NZS 4229, NZS 1170, and relevant NASH Standards. Specific engineering design shall be applied where the building exceeds the limitations outlined in this specification, ensuring structural performance and stability for the life of the building.

B2 Durability

- This specification provides compliance with NZBC Clause B2 Durability. All components of the Viblock Pressed Stone Wall system, including bricks, mortar, brick ties, lintels, shelf angles, and fixings, are specified to meet the durability requirements of B2/AS1 for their intended life. Selection of materials is to be appropriate to the exposure zone (including sea spray and geothermal environments), ensuring a minimum durability of 15, 50, or 100 years as required by NZBC B2.

E2 External Moisture

- This specification provides an Alternative Solution to NZBC Clause E2 External Moisture. Compliance is achieved through the provision of a drained and ventilated cavity system, brick tie spacing and embedment requirements, mortar durability, control joint provisions, flashing details, and shelf angle design as detailed in this document. When installed in accordance with this specification, the Viblock Pressed Stone Wall system satisfies the performance requirements of Clause E2.

RELEVANT DOCUMENTS

Relevant NZ Standards shall apply for all items NOT covered by this 'Specific Design' including the following:

- NZS 3604 Timber-framed buildings
- NZS 4210 Materials and workmanship
- NZS 4229 Masonry buildings not requiring Specific Design
- SNZ HB 4236 All standards relating to masonry veneers – summary
- NASH Standard Part 1 and Part 2

Note that current revisions of reference documents at the time of design, consent and construction are applicable and relevant.

In addition to the Pressed Stone Wall being installed in accordance with this specific design 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

LIMITATIONS

The designer shall ensure that Viblock veneer detailing, as presented within the Building Consent Plans and Specifications, complies with all aspects of this 'Specific Design Specification - PSW'. Plans submitted for Building Consent must be clearly marked and identify the use of Viblock Pressed Stone Wallas follows;

"Viblock Cladding System – Pressed Stone Wall Specific Design Specification - PSW – no substitution"

The Viblock ***Pressed Stone Wall*** shall be subject to the following limitations:

- Bricks, as identified in Table 1 shall be laid in a semi- semi-random pattern.
- Buildings of either residential or commercial use designed in accordance with AS/NZS1170 for up to an importance level of 2.
- The building shall have a concrete slab-on-ground construction, either specifically designed by an Engineer or in compliance with NZS 3604 minimum requirements.
- The supporting structure shall be timber framed construction in accordance with NZS 3604, concrete block/precast in accordance with NZS 4229 or light structural framing in accordance with NASH Standards part 1 and 2. Alternatively, a specific engineering designed supporting structure may be adopted as designed and detailed by a suitably qualified engineer.
- All aspects regarding the installation of the veneer shall conform to the requirements of NZS 3604, NZS 4229 and NZS 4210 unless specifically mentioned within this specification.
- Veneer brick selection, size, thickness and weight shall not exceed that provided within Table 1 below.
- Buildings may be situated in all wind zones up to and including 'Extra High' wind zone in accordance with NZS 3604.
- Residential buildings are to be situated within earthquake zones 1-3 in accordance with NZS 3604, commercial buildings shall have an assessed period of not more than 1.5s in accordance with NZS 1170.

Single Storey:

- The maximum height for a single storey veneer is limited to 4m from the foundation. At a gable wall or pier, the maximum height may extend to 5.5m, refer to Figure 1 a).
- Brick wall panels may be laid to a maximum height of 4.0m without the addition of shelf angles or slip joints.
- Where studs are used as the support structure, a stud spacing of 600mm or 400mm shall apply.

Two Storey:

- A maximum of two-storey construction.
- Limited to a maximum calculated risk score of 20 in accordance with NZ BUILDING CODE Acceptable Solution E2/AS1 Table 2.
- The maximum height for a two storey veneer is limited to 7.5m for straight vertical panels and extended to 10.0m at the apex of a gable end or a pier of no more than 1.0m width, refer to Figure 1 b).
- Brick wall panels may be laid to a maximum height of 7.5m without the addition of shelf angles or slip joints.
- Where studs are used as the support structure, a maximum stud spacing of 400mm shall apply.

Three Storey:

- A maximum of three-storey construction.
- Limited to a maximum calculated risk score of 20 in accordance with NZ BUILDING CODE Acceptable Solution E2/AS1 Table 2.
- Where studs are used as the support structure, a maximum stud spacing of 400mm shall apply. Specific design of supporting structure for the upper level, beyond the limitations of NZS 3604 shall apply.
- Maximum veneer height above adjacent finished ground level of 10.0m for straight vertical panels and extended to 12.0m at the apex of a gable end or a pier of no more than 1.0m width, in accordance with Figure 1 c).
- Installation of a mid-wall shelf angle at 6.0m, or at the structural floor level of the third storey floor (whichever is smaller), in accordance with Figure 2.
- The bed joint under the shelf angle is to be filled with a suitable flexible sealant, NOT mortar.

Bricks

Brick types for which this specification is applicable are as follows:

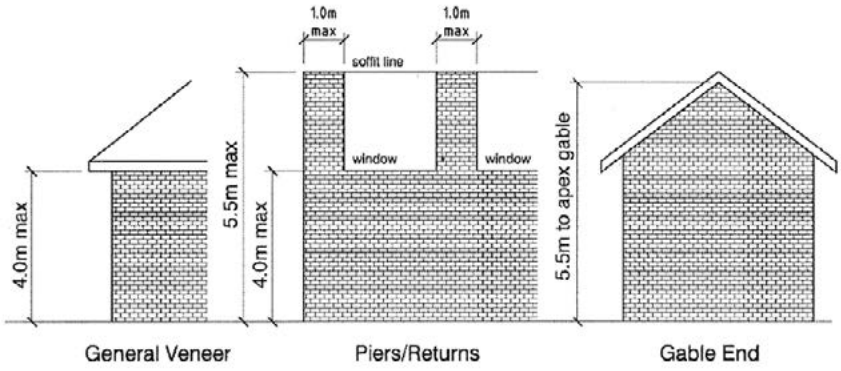
Table 1 – Bricks applicable to this specification

Bricks applicable to this specification		
Brick Product	**Size (LxHxW)**	**Weight (kg) Per brick**
D01	100 x 55 x 70mm	1.1
D02	140 x 120 x 70mm	3.0
D03	170 x 50 x 70mm	1.7
D04	195 x 120 x 70mm	4.1
D05	205 x 50 x 70mm	2.0
D06	220 x 120 x70mm	4.6
D07	230 x 140 x 70mm	5.5
D08	300 x 65 x 70mm	3.6
D09	300 x 80 x 70mm	4.3
D10	300 x 80 x 70mm	4.3
D11	310 x 50 x 70mm	3.0
D12	390 x 65 x 70mm	4.7
D13	120 x 80 x 70mm	1.8

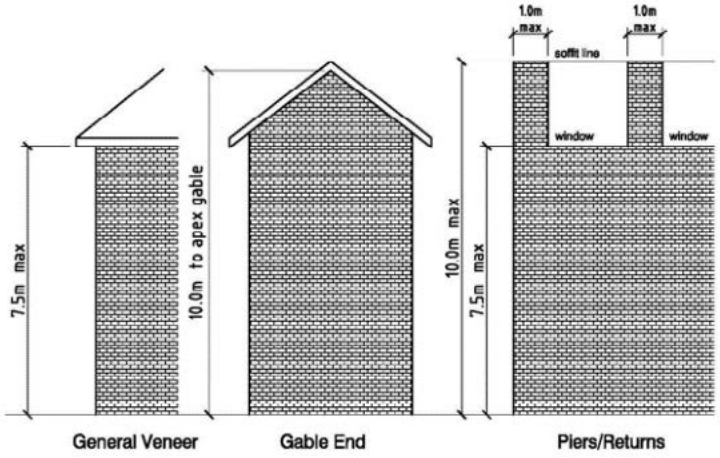
Note: Table 1 manufactured stone bricks for use in the Pressed Stone Wall.

BRICK VENEER CONSTRUCTION

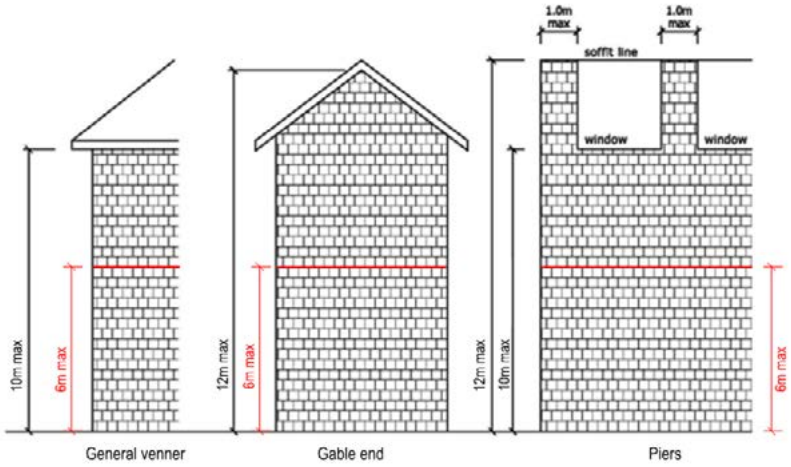
Maximum Veneer Heights



a) Single storey



b) Two storey



c) Three storey

Figure 1 – Maximum veneer heights for: a) single storey, b) two and c) three storey construction – diagrams sourced from Clay Brick & Paver Manufacturers association

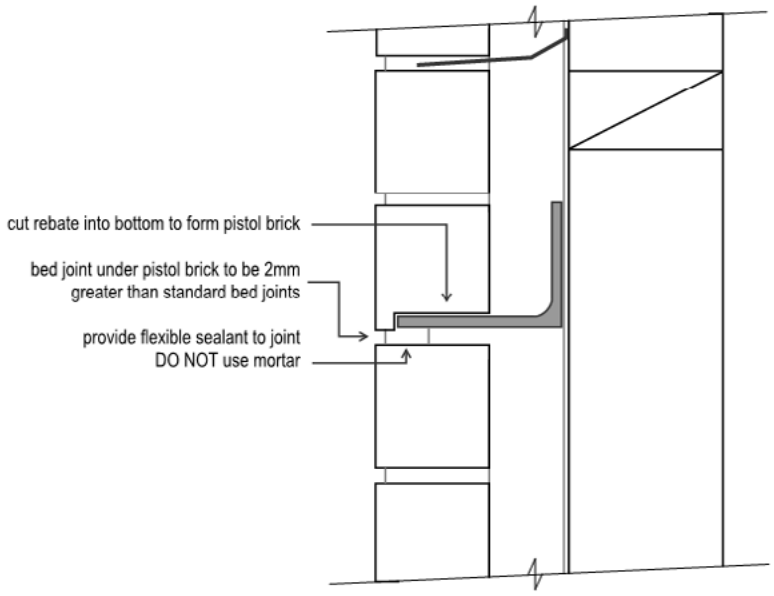


Figure 2 – Recommended hidden shelf angle detail

Rigid Air Barrier (RAB)

- Rigid air barriers may be placed either inside or outside of the framing in accordance with the manufacturer's installation recommendations.
- Where the RAB is placed on the outside of the supporting framing, the brick tie screw length shall increase to a minimum length of 40mm.

Bracing

- Bracing requirements may be determined by using the prescribed tables in NZS 3604, NASH Standards or where the building falls outside the limitations of these codes specifically calculated by a suitably qualified engineer.

Cavities

- The cavity between the masonry veneer and the exterior face of the supporting framing and/or rigid air barrier shall not be less than 40mm or more than 75mm wide, clear, continuous, and unobstructed.
- The cavity must be kept free of mortar droppings and any other obstruction.
- Washouts are to be installed every fifth perpend and one on each corner.
- The cavity shall be ventilated to the outside by the provision of weep, or vent holes, at the base of the wall formed by removing mortar from the perpend joint at centres not exceeding 800mm to achieve a minimum of 1000mm^2 of weep/vent hole per linear metre.
- Horizontal weep holes vents to be used or perpend joints to be no bigger than 10mm. (Viblock supplied weep hole vents.)

- Install similar vent holes at the top of the wall, in the *second row of bricks* from the top, to match the bottom of the veneer panel, or leave a 10mm gap at the top of the veneer and the soffit board for ventilation.
- Pipes and services shall not be placed in the cavity other than those passing directly through the cavity to the exterior.

Mortar

The mortar used conform with the following

- A sand/cement ratio of 4:1 except for sea spray zones and NZS 3604 corrosion zone D, M4 very high durability mortar mix with sand/cement ratio of 3:1. Adoption of a lightweight superplasticiser or shrinkage-reducing admixture, to lower water demand and reduce drying shrinkage risk is recommended.
- All other requirements as set out in NZS 4210.
- Manufactured and bagged, or site mixed mortar meeting the minimum specifications in accordance with NZS 4210 and M4 durability requirements are acceptable.
- The same mortar must be used throughout the entire veneer.
- The minimum 28-day compressive strength of mortars used for veneer construction shall not be less than 12.5MPa.

Mortar Joints

- Mortar joints vary but must not be less than 10mm nor more than 35mm with an acceptable tolerance of +/- 3mm.
- Maximum permitted joint thickness of 35mm may also be accepted for the bottom mortar course to take up the permitted tolerances of the supporting concrete.
- The maximum permitted raked depth is 6mm.
- All bed and perpend joints are to contain a full spread of mortar, any holes are to be remediated by filling with mortar.

Vertical Joints

There are two options available for installing ‘Joints’

- A vertical saw cut to a depth of 30mm, and filled with flexible sealant – control joint.
- A vertical or zig-zag 10mm gap with a foam backing rod and flexible sealant – movement joint.

Location of Control or Movement Joints:

SNZ HB 4236, in accordance with NZS 4229, recommends control joints are installed at no greater than 6m centres. Where the veneer will not be subject to repeated cyclic wetting and drying or large changes in ambient temperature, it is possible to construct longer panels (typically up to 8.5m) using Viblock products. Refer to Viblock for further advice.

It is recommended that, where control or movement joints are deemed necessary, these are installed in the following locations of the veneer:

- At T joints, within 600mm of the joint on the intersecting wall
- Within 600mm of one side of L shaped corners. Alternatively, the spacing of joints on both sides of the corner may be restricted to 3.2m maximum
- At changes in wall height exceeding 600mm
- Window openings less than 2.0m wide –Joint one side (may be omitted where the above maximum joint spacing conditions are met).
- Window openings greater than 2.0m wide –Joint both sides (one side only where the above maximum control joint spacing conditions are met and provided a control joint is provided with 3.0m maximum of the opposite side of the opening).
- Where no openings are present, no greater than 6.0m spacing, or 8.5m where the conditions outlined above are satisfied.
- Joints are needed at all corners where storey drift of H/600 at SLS is not achieved and when the construction is outside of NZS3604 joint type and location are to be as designed and detailed by a suitably qualified engineer.

Joint type and locations shall be specified by the architect/client/engineer adhering to the above requirements. Where joints are not installed in accordance with this specification it will cause the veneer installation to become non-compliant. *Viblock will not be responsible for any issues/failures (for example, cracking) which may arise because of failure to install control joints.*

Brick Tie Installation

All proprietary brick ties used in conjunction with Viblock brick veneers must comply with the requirements of AS/NZS 2699.1. The following requirements apply to all brick ties on Viblock brick veneers:

- Galvanised steel brick ties and screws in accordance with AS/NZS 2699.1 shall be used unless the building is within 500m of the high-water mark of the sea (corrosion zone D), in which case stainless steel grade 316 or 316L products shall be adopted.
- Screws, as specified by the proprietary tie supplier, with a minimum length of 35mm shall be used. If fixing through rigid air barrier the screw length shall be increased to 40mm min. Proprietary specified screws are typically 12g type 17.
- Brick ties are to have a minimum embedment length (to the bed joint) of at least half the width of the veneer.
- Brick ties shall be placed with a slope of 5^{o} degrees down from the framing towards the masonry.
- IBP, EH Masons, MSL Ultimate brick ties or equivalent are to be used, all heavy-duty seismic capacity.
- 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 (STMH05038SS) or equivalent. Alternative fixings may be designed by a suitably qualified engineer.
- Where bricks are laid on a shelf angle, ensure the first row of ties is not more than 300mm or 2 courses, whichever is smaller, from the shelf angle.

- At all sides of openings, or at unsupported edges, including under an opening sill or at the top edge of a panel, the first row of ties shall be located no more than 300mm from the unsupported edge or opening.

Tie spacing requirements

Fixings to supporting structure; ties shall be fixed at the maximum spacings as per the following table:

Table 2 – Tie spacing

Placement of Brick ties in Mortar Courses			
Building type	**Horizontal fixings**	**Maximum vertical tie spacing.**	**Minimum number of ties/m²**
Single level	600mm	495mm	6
	400mm	825mm	6
Two level	400mm	495mm	6
Three level	400mm	495mm	6

NOTE: Where ties are fixed to a precast concrete or masonry wall, horizontal spacings of 400mm shall be used in accordance with Table 2, when fixed to timber or steel framed substructure stud spacings will be 400mm or 600mm as stated to achieve the horizontal spacing requirements.

Masonry brick In-Joint reinforcement

Bed joint reinforcement to be BrickTor Galvanised woven mesh or 316 stainless-steel joint reinforcement equivalent, as appropriate for the site exposure zone (refer NZS 3604).

Single Storey:

- In-joint reinforcement where required by specific engineering design shall be fully embedded within the mortar joint with a minimum side cover of 15mm.

Two Storey:

- Install one row of bed joint reinforcement at 4m ± 100mm above the bottom course.
- Install further rows of bed joint reinforcement, spaced 800mm ± 100mm apart, above this level.
- Bed joint reinforcement is to be placed in mortar joints that do not contain brick ties.
- Where a gable exists on top of the veneer panel, install a further two rows of bed joint reinforcement, at the same spacing, into the gable.
- Bed joint reinforcement is not required within piers above the veneer panel.

Three Storey:

- Bed joint reinforcement below the mid wall shelf angle is to comply with the requirements set out in specification above for two storey buildings.
- Above the mid-wall shelf angle, install one row of bed joint reinforcement, in the first bed joint of the panel.
- Install further rows of bed joint reinforcement, spaced 800mm ± 100mm apart above this level, including into gables where required.
- Bed joint reinforcement is not required within piers above the veneer panel.
- Install a final row of bed joint reinforcement in the second bed joint from the top of, except where a gable extends above, the panel.

Openings

Window and Door sills

- It is *recommended* (unless detailed on the project plans otherwise) that the slope of sill bricks should be 15 degrees achieved with mortar packing as per SNZ HB 4236.
- It is *recommended* that bricks overhang the sills by 30-50mm with a +/- 5mm maximum tolerance.
- All window sills are to be consistent throughout the project.
- Provide flashing across the tops of all openings, installation as per the requirements of SNZ HB 4236.

Lintels

Openings with brick veneer above shall be spanned by mild steel angle lintels, protected against corrosion in accordance with SNZ HB 4236;

- For durability requirements 600g/m^2 (85μm average thickness) galvanised coating or 304 stainless steel can generally be adopted. For sea spray zones 316 or 316L stainless steel is to be adopted. An alternative of using hot-dip galvanized with an epoxy powder coating to NZS 3604 may also be considered within a sea spray zone. Specific protection is required for geothermal hot spots.
- Where holes are cut after steel has been galvanised, these are to be sprayed using 'cold galvanising' spray for protection.

Lintels may be installed by the methods as described below:

Seated lintels

- Lintels shall have at least 100mm of seating onto the veneer at each end of an opening for spans up to 2m, and 200mm at each end for spans greater than 2m.
- Steel lintels must be kept 20mm behind the front face of the brick veneer.

The following lintels may be used with this method:

Table 3 – Steel lintel sizes for the traditional method

Maximum lintel span (mm)	Thickness of veneer (mm)					
	70			90		
	Maximum height of veneer supported (mm)					
	350	700	2000	350	700	2000
800	60x60x6L	60x60x6L	60x60x6L	60x80x6L	60x80x6L	80x80x6L
2000	60x60x6L	60x60x6L	60x60x6L	60x80x6L	60x80x6L	80x80x6L
2500	60x60x6L	80x80x6L	80x80x6L	80x80x6L	80x80x6L	80x80x6L
3000	80x80x6L	80x80x6L	125x75x6L	80x80x6L	80x80x8L	90x90x10L
3500	80x80x6L	80x80x6L	125x75x6L	80x80x8L	90x90x10L	125x75x10L
4000	80x80x8L	125x75x6L	125x75x10L	80x80x10L	125x75x6L	150x90x10L

4500	125x75x6L	125x75x10L	-	125x75x6L	125x75x10L	-
4800	125x75x6L	125x75x10L	-	125x75x6L	125x75x10L	-

Note: Size of angle, minimum steel grade 250MPa, equivalent or greater sizes in stainless steel may be used where required. Table extracted from NZ BUILDING CODE E2.

For alternative materials or spans outside those permitted, specific engineering design shall be required. Lintels shall be kept completely free of the support structure.

Shelf angles

Shelf angles are **NOT** lintels and shall not be relied on to span over any opening.

- Shelf angles shall be fixed to NZS 3604-compliant substructure capable of supporting the veneer load, or to a timber/steel lintel designed by a suitably qualified Engineer. Shelf angles and their associated fixings, including the supporting structure, are to be assessed by a suitably qualified engineer.
- The maximum height of veneer above a shelf angle shall be limited to 4.0m, refer to Figure 3 below.
- Shelf angles are typically installed horizontally however they may be installed at up to a maximum slope of 60 degrees to the horizontal.

Shelf angles may be a mild steel angle grade 250MPa or an alternative material or system as per the requirements of the engineer and should be selected to suit the site-specific durability requirements as for lintels, refer above. Table 4 below may be used for the size of typical shelf angles:

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

Note: Equivalent or greater sizes in stainless steel may be used where required. The above angles are orientated with the 75mm leg vertically against the substructure with M10 fixings at no greater than 400mm centres. M10 coach bolts or M10x75mm coach screws shall be adopted to suit the substructure - fixing sizes and centres may be provided by a suitably qualified engineer, provided the maximum 400mm crs is adhered to.

- Where shelf angles are installed above a deck area, ensure there is a 35mm clearance under the angle.
- Bricks may be laid directly onto the angle. Where bricks have been cut (as in the case with a sloping angle), a 10mm mortar bed is recommended.

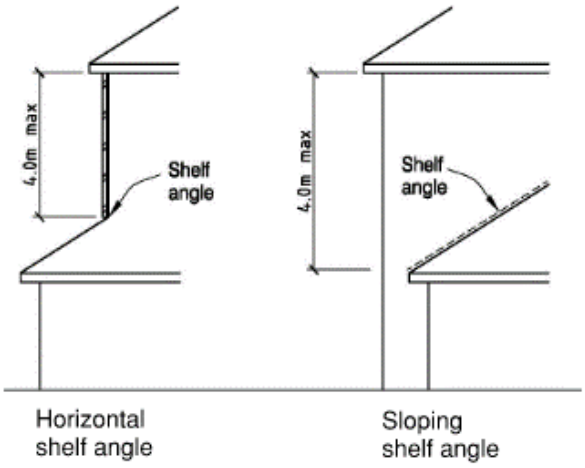


Figure 3 – Shelf Angles– diagram sourced from Clay Brick & Paver Manufacturers association

Flashings

Head, jamb, and sill flashings around all openings are to be installed as acceptable solution E2/AS1, paragraphs 9.24 and figure 73C (shown below).

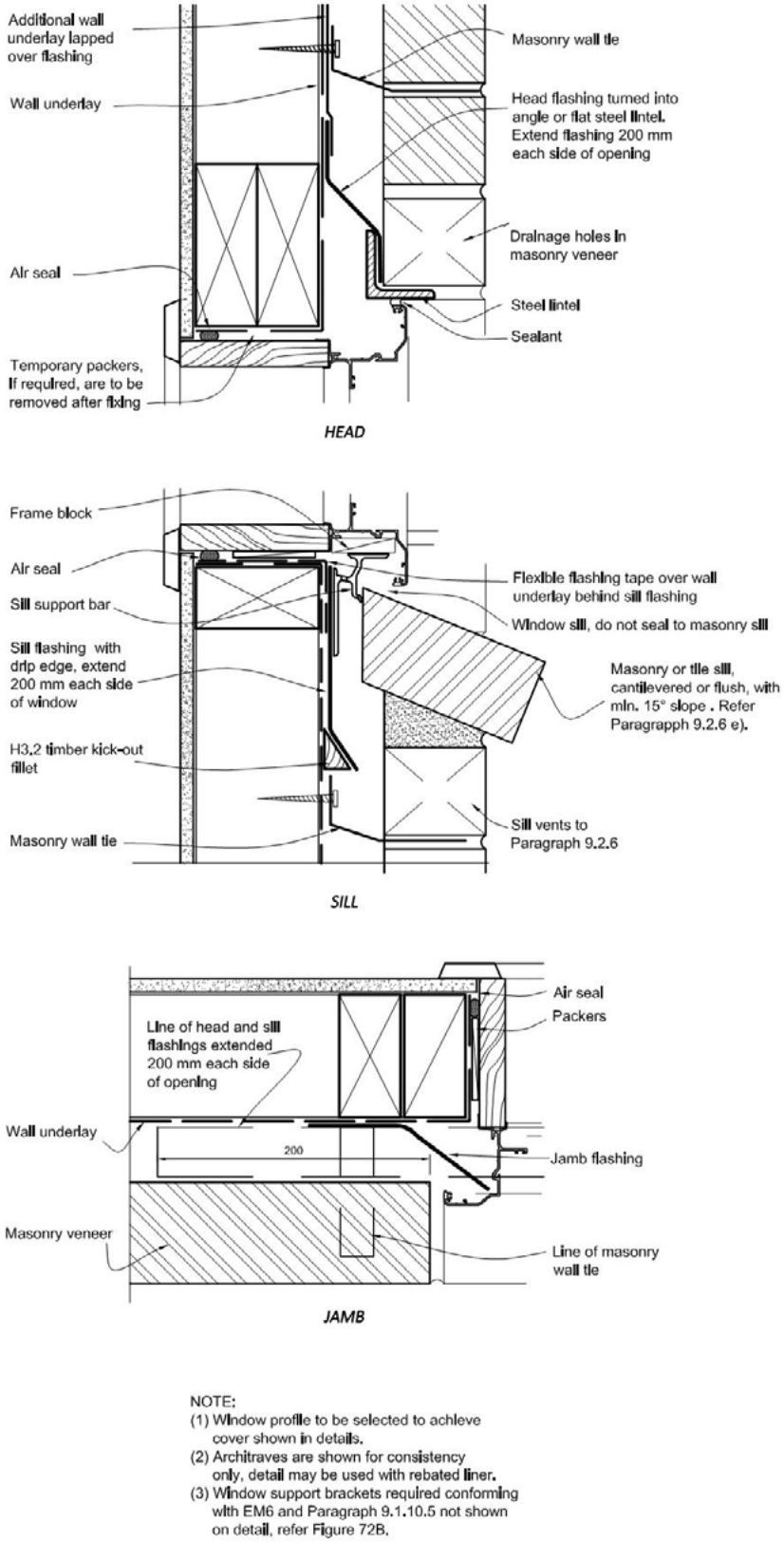


Figure 4 – Figure 73C of acceptable solution E2/AS1; recommended head, sill, and jamb flashing detail.

BRICKLAYING REQUIREMENTS:

Brick Delivery and protection

The 'bricklayer' is responsible for checking that the correct bricks and quantity have been delivered to site, that the quality of product delivered is acceptable and to ensure that all product is derived from a single batch number. Identification of potential issues, or quality of product regarding bricks supplied shall be raised immediately with the project manager and is to be taken up with the supplier prior to laying any bricks. Viblock does not accept responsibility for quality of brick once they have been laid.

All bricks supplied to site are to be suitably protected from adverse elements such as rain, dust and shall be protected from other damage, such as impact such as not to damage the veneer or any bricks. Any damaged veneer or bricks are to be replaced at the bricklayer's expense.

Workmanship

All bricklaying is to be undertaken by a licensed trade professional with appropriate LBP (Licensed Building Practitioner) or supervised by an 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. Bricklaying shall be in accordance with the design bond pattern.

Inclement weather

Laying of bricks shall not be undertaken in inclement weather conditions, this shall include, but not be limited to adverse rain events, high winds and or when the air temperature exceeds 25 degrees Celsius and/or hot drying winds are present. Newly laid brick veneer mortar must be properly cured for a minimum of the first seven days duration, this is of particular importance for the 35mm mortar thickness. Curing shall be by adding moisture to the veneer in addition to protecting it from direct sunlight and drying winds.

Tolerances

For masonry veneer construction all bricks are to be laid within the tolerances given in Table 2.2 of NZS 4210 (refer Table 5 below).

Table 5 – Table 2.2 of NZS 4210; 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 in a semi-random pattern with ¾ bonds as much as possible per the specific requirements for the Pressed Stone Wall system unless otherwise specified.

Blending of bricks

- As is well known by Architects and Builders alike, the artistic, and aesthetic qualities of brick wall panels are best achieved and enhanced by paying attention to blending of bricks. This may be achieved by selecting bricks into a wheelbarrow at random along a heap of bricks, thus “mixing” the bricks. To achieve maximum blending effect in your wall panels, you should work with 5 or 6 pallets packs at the same time, taking from each pack in turn.

- Laying of bricks is to stop immediately if it becomes apparent that these will run out before completion. This will allow new bricks, which may be from a different batch, to be blended in properly.

Post construction maintenance

- Viblock recommends the bricks are cleaned annually or as required depending on conditions. It is important to **not use high pressure (water blasters)** as they can mark the bricks. A low-pressure water wash with a natural detergent and soft brush is recommended.

Efflorescence (Salting)

The term efflorescence is used to describe white deposits which sometimes form on the surface of cementitious products, concrete or masonry walls.

- Efflorescence is a naturally occurring phenomena associated with all concrete products.
- To reduce the chance of efflorescence occurring Viblock recommend the following steps are taken:
    - Products must be stored correctly before laying.
    - Laying of bricks should be completed by a licensed trade professional.
    - Sealing should also be carried out by a trade professional.
- If efflorescence is found on the bricks the salts can be removed by dry brushing, if still present a light acidic wash in accordance with the cleaning recommendation above will remove the affected area. Refer to suppliers for application details.

Sealing the Veneer

- Viblock recommends all products exposed to weather are sealed to ensure a long-lasting, high durability finish. Refer to sealer suppliers for application details.

Inspections and Completion:

- 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.
- A half-height inspection is to be called for at the appropriate times as the job progresses.
- Inspection to ensure that all flashings have been installed correctly, and inspected, prior to being covered by the brickwork.
- Inspection upon completion of works.
- Upon acceptable completion the veneer is to be ‘Certified’ in the Record of Works, held by the appropriate building authority, as compliant with this Specification: PSW, upon completion by a Licenced Building Practitioner for Bricklaying.

Plastering Viblock veneers

- If this product is to have a plaster surface applied, use a professional who has experience plastering concrete surfaces, 10mm maximum plaster thickness.

TECHNICAL SUPPORT

Should you require any technical support on the Viblock Pressed Stone Wall System, please contact Viblock on:

T: **(03) 343 0394**

Email: **sales@viblock.co.nz**

Website: **https://www.viblock.co.nz/contact-us/**

Building Code Clause(s) B1

PRODUCER STATEMENT – PS1 – DESIGN

ISSUE: 01

(Guidance on use of Producer Statements is available at www.engineeringnz.org)

ISSUED BY: KIRK ROBERTS Consulting Ltd. (Design Firm) PROJECT NO: 2020853

TO: Viblock (Owner/Developer)

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

IN RESPECT OF: VIBLOCK CLADDING SYSTEM – "Pressed Stone Wall Specific Design Specification – PSW" (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: **E2/AS1 Masonry**

The proposed building work covered by this producer statement is described on the attached specification titled **'VIBLOCK CLADDING SYSTEM – Pressed Stone Wall Specific Design Specification – PSW – Rev B** and dated **26th September 2025**

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) Maximum site hazard factor **Z = 0.4** in accordance with NZS1170.5: 2004.
(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/NZS 1170.0 2004 clause 3.3.
(v) Unless specifically noted, all structural elements must comply with the relevant New Zealand design code 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 between the brick and mortar.**
(vi) Viblock brick products shall be manufactured to the requirements of **NZS 4455.**
(vii) **This certificate does not cover weather-tightness, nor the stability, suitability or potential liquefaction of the site.**
(viii) **This Producer Statement is valid for a building consent issued within 1 year from the date of issue.**
(ix) **Inspections of the building are to be undertaken by the Building Consent Authority (council).**

I **believe on reasonable grounds** that a) the building, if constructed in accordance with the drawings, specifications, and other documents provided or listed in the attached schedule, will comply with the relevant provisions of the Building Code and that b), the persons who have undertaken the design have the necessary competency to do so. I also recommend the following level of construction monitoring/observation: (Refer note above)

☐CM1 ☐CM2 ☒CM3 ☐CM4 ☐CM5 (Engineering Categories) or ☐ as per agreement with owner/developer (Architectural)

I, **Craig Allan Manssen** am: ☒CPEng **161576 #**
(Name of Design Professional)
☐Reg Arch ..... .#

I am a Member of: ☒ Engineering New Zealand ☐NZIA and hold the following qualifications: **B.E.(Hons), CMEngNZ, 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 Allan Manssen** ON BEHALF OF **Kirk Roberts Consulting Engineers Ltd.**

(Design Firm)

Date: **26 September 2025** (signature)..... Digitally signed by C A Manssen DN: C=NZ, E=craigm@kirkroberts.co.nz, O=Kirk Roberts, OU=Kirk Roberts, CN=C A Manssen Location: New Zealand Reason: I am approving this document Contact Info: 0220993864 Date: 2025.09.26 14:12:01 +12'00' .....

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.