SUMNER
PROFESSIONAL CLADDING SYSTEMS

SUMNER Adhered Masonry Veneer (SAMV) Cladding System

Technical and Installation Manual

VERSION: Appraisal v5 (5th March 2023)

Original Stone Co Ltd
177 Marua Rd
Ellerslie
Auckland

1 GENERAL INFORMATION

1.1 Introduction

SUMNER Adhered Masonry Veneer (SAMV) uses the fibre-cement board as the cladding substrate, which is adhered to thin masonry veneer to provide a durable, weatherproof, attractive finish.

SAMV is a stand-alone system designed to provide a seamless specification and provisioning of:

- Weathertight substrate.
- Replicable adhesion (methods and products).
- Quality stone veneer finish.

1.2 Scope

SUMNER is an approved external wall cladding for buildings within the following scope:

a) Up to 3 storeys, or 10m to the top of the chimney, and
b) With floor plan area limited only by seismic and structural control joints, and
c) External walls that are vertical and,
d) Buildings that require specific design input must have framing stiffness equal to the framing provisions of NZS3604, and

- Timber frame constructions complying with the NZBC NZS3604:2011, and
- Steel frame constructions must be to a specific design meeting the requirements of NAS3405:2006, and
- Masonry constructions complying with NZS3604:2011, and
- Suitable for residential and commercial applications in locations where the maximum wind zone is determined to be less than or equal to *extra high* (60m/s).

Detailed drawings of standard construction methods using the SAMV system have been included in this Manual and should be read in conjunction with the text. You can download these and other standard drawings from www.sumnerschist.co.nz

All drawings are now available in CAD and PDF formats.

Note 1. Always refer to the latest version of the Technical and Installation Manual at www.sumnerschist.co.nz

Note 2. No changes are permitted in design or construction from the information outlined in this document.

1.3 NZ Building Code Performances

When installed following this Technical & Installation Manual, the SAMV System will meet the following clauses of the New Zealand Building Code:

B1 Structure

Performance B1.3.1, B1.3.2 and B1.3.3. The SAMV System meets the requirements for loads arising from self-weight, earthquake, wind and impact [i.e. B1.3.3 (a), (f), (h), (j)]. See appendix paragraphs 11.1 - 11.3

B2 Durability

Performance B2.3.1 (a) Frame Protection System, battens & fixings, (b) FC sheet, adhesive & L-Fixings and 15 years, B2.3.1, (c) Stone 5 years, and B2.3.2. The SUMNER System meets this requirement. See appendix paragraphs 11.4 & 11.5

E2 External Moisture

Performance E2.3.2 & E2.3.3. The SUMNER System meets this requirement. See appendix paragraphs 11.6 - 11.11

F2 Hazardous Building Materials

Performance F2.3.1. The SUMNER System meets this requirement and will not present a health hazard to people.

Conformance with the above requirements is described in SAMV Product Technical Statement. For a copy of the latest version, refer to www.sumnerschist.co.nz

1.4 Health and Safety

• Please refer to the following Material Safety Data Sheets (MSDS) to identify hazards associated with our products. These are obtainable from www.sumnerschist.co.nz/documents

10.0.0 SUMNER Grip MSDS

10.1.0 SUMNER Board MSDS

10.2.0 SUMNER Primer MSDS

10.3.0 SUMNER Batten MSDS

• Always check with the contractor/builder for potential health and safety hazards on site.

• Ensure scaffolding is soundly erected. Do not commence work until scaffolding and other site health and safety requirements meet the accepted standards.

2 LIST OF COMPONENTS

2.1 Introduction

SAMV system uses its own proprietary fibre-cement board as the cladding substrate, which is installed stone veneer to provide a durable, weatherproof and attractive finish.

The SUMNER (fibre-cement) Board is denser than most fibre-cement boards with a density of ~1420kg/m3, making it ideal for use as a substrate for adhering masonry veneer with weights ranging typically from 50kg/m^2 to 100kg/m^2.

SUMNER Board is fixed to timber or steel framing by way of 10g x 40mm stainless steel screws at 220mm centres applied around the perimeter and centre of the board. To ensure the board meets the durability requirements, the board is primed on the face. To prevent moisture ingress at vertical junctions, a specialised board tape is used, and for inter-storey junctions, the tape is used in place of z flashings.

To assist the stone adhesion, SAMV uses bottom-mounted stainless steel L-Fixings. These are attached to the SUMNER Board at 600mm vertical and horizontal centres.

2.2 SUMNER VERMINI Cavity Battens

2.2.1 Batten sizes and information

SUMNER VERMINI battens are the highest performing polypropylene fluted batten in New Zealand with average compressive strength of 2.2mpa (BEAL Test TR170616-1).

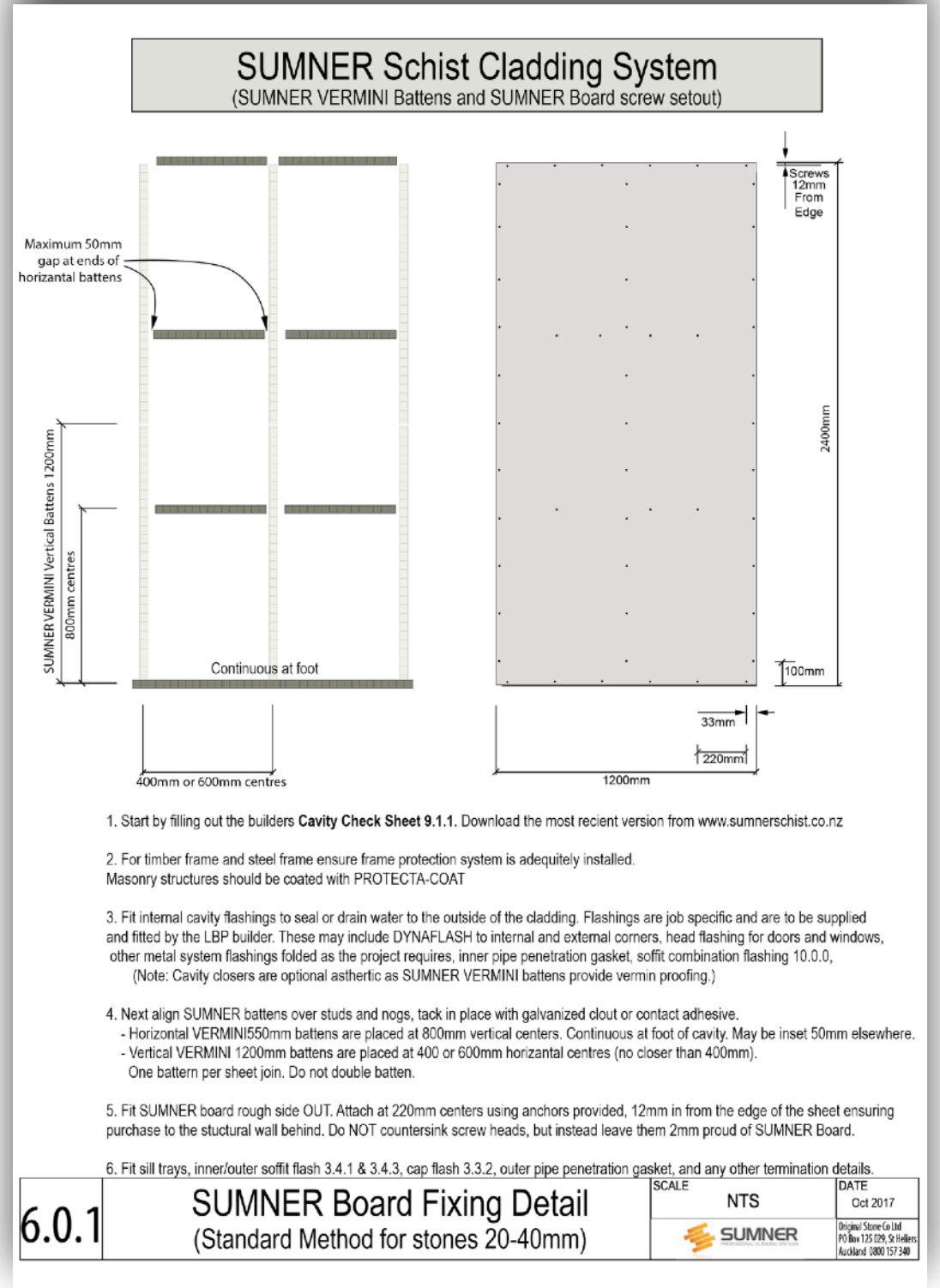
SUMNER VERMINI Battens are designed to prevent vermin ingress at the foot and throughout the cavity. SUMNER VERMINI Battens eliminating the requirement for vermin strips. Cavity closers may be used for visible termination details but remain optional.

- Vertical (VERMINI1200 - supplied in lengths of 1200mm x 45mm, 18mm thick).
- Horizontal (VERMINI550 - Supplied in lengths of 550mm x 45mm, 18mm thick).
- SUMNER Cavity Battens must be protected from physical damage and stored flat.

2.2.2 Temporary batten fixing before SUMNER Board

Battens are temporarily attached before board fitment, at which stage the board anchors are mounted through the battens to provide permanent hold. The substrate determines the temporary attachment technique:

- Timber Frame - Tack nail in place of FPS with galvanised clout.
- Light Weight Steel Frame - Use contact adhesive over FPS.
- Masonry - Use contact adhesive over a sealed PROTECTA-COAT surface.



2.3 SUMNER Board

A **High-Density** Cementacous Cellulose Sheeting designed explicitly for heavyweight cladding. Sheets weigh 40kg each and are manufactured to meet and exceed the:

- AS/NZS 2908.2:2000
- NZBC clause B1

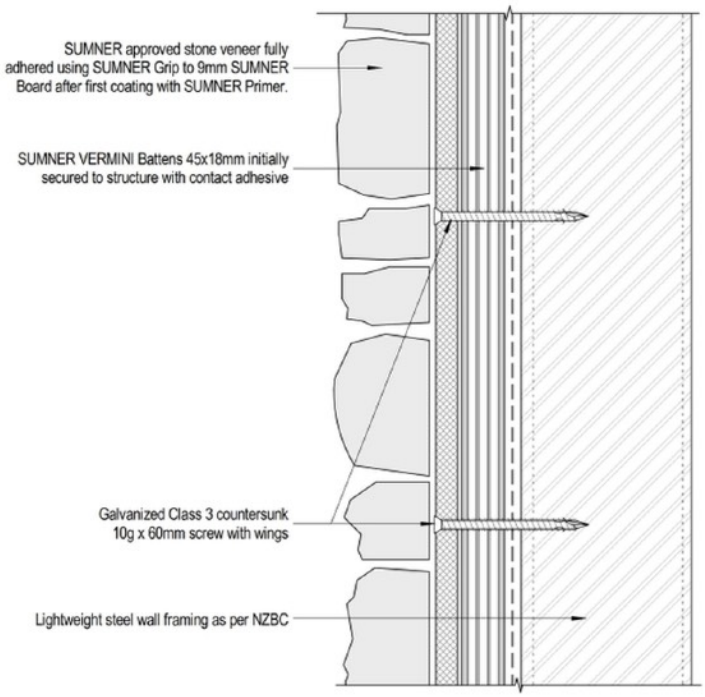
The sheet size is 2400x1200x9mm, to be installed with a maximum spacing of 10mm.

2.3.1 SUMNER Board Anchors

1. For timber frame construction SUMNER Board is to be fixed at 220mm centres using 10g x 63mm Stainless 316 CSK square drive screws.

2. For light gauge steel frame construction SUMNER Board is to be fixed over SUMNER battens with Galvanised Class 3 countersunk 10g x 60mm with wings.

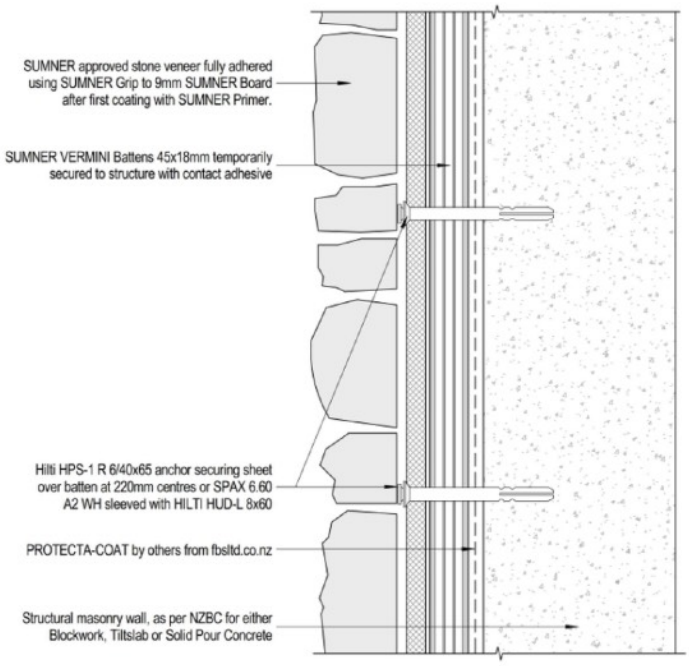
    - Note: From 2017, Class 4 replaces Class 3 in New Zealand.



3. For masonry buildings of brick, block, tilt-slab or solid pour construction SUMNER Board is to be fixed with either:

    - Hilti HPS-1 R 6/40x65 anchors as per illustration (right), or
    - SPAX 6x60 A2 WH sleeved with HILTI HUD-L 8x60 (pre-drill 65mmx8mm at 300mm centres)

        - Note: These are also approved to anchor to SIP and AAC.



2.3.2 Fastening Centres

SUMNER Board to be fastened at 220mm centres with screw heads left 2mm proud of the surface.

2.4 SUMNER Prime

- Used for the on-site preparation of substrates, roll to all surfaces that receive SUMNER Grip adhesive (excluding Tilt Slab, which needs cleaning down with water only).

2.5 SUMNER Grip Plus Adhesive (Part A & B)

- Designed explicitly for SUMNER Adhered Masonry Veneer.
- Strength – Satisfactory performance in terms of the basic requirements of the relevant standard AS 4992.1. Testing by BEAL revealed that failure of adhesive exceeds 2 mpa. “The adhesive strength of all the test samples exceeded the capacity of the test machine.” This is as set out in BEAL document TR160811-1.
- Must combine in correct proportions of Parts A and B, and use the proper mixing method to be suitable. Refer to mixing instructions in this manual or on the product packaging.

2.6 SUMNER STONE

- SUMNER Ledge Series Schist Panels, 610x152x30mm (75 kg/m2)
- SUMNER Traditional Series Schist Panels, 565x200x30mm (75kg/m2)
- Bluestone Series & Loose stones, 30mm thickness. (91.9kg/m2)
- Brick Slip, up to 25mm thick (50kg/m2)
- Tiles with stone, porcelain, or ceramic (10 - 50kg/m2)

NB: SUMNER Board for the Bluestone series must be screwed off at 180mm centres, not 220mm. This is documented on the SUMNER Board Fixing Detail and can be downloaded from www.sumnerschist.co.nz.

Note: The system includes architectural stone details such as:

- ‘L’ Angle Trims
- Sills and Capstones
- Formed ‘L’ Shaped corners

2.7 Accessories

- Stainless steel ‘L angles’ for window and door terminations or butt-to details are to be provided and installed by the main contractor.
- DYNAFLASH or other metal system flashings folded as projects require must be provided and installed by the main contractor.
- SUMNER Tape (for board joins, omega detail, corners, control joints, and forming pipe gaskets).
- Hat flashings and similar details are to be provided and installed by the main contractor and are to specific design.
- The main contractor will provide and install the window and door flashing system.
- MS Exterior Grade Sealant compliant with NZBC by others.

3 LIMITATIONS & CONSIDERATIONS

3.1 SAMV has been appraised for use as an external wall cladding system for buildings within the following scope:

- Scope limitations of NZBC Acceptable Solution E2/AS1, Paragraph 1.1; and,
- Constructed with timber framing complying with the NZBC; and,
- Constructed with steel framing complying with the NZBC; and,
- With a risk score of 0-20, calculated by NZBC Acceptable Solution E2/AS1, Table 2; and,
- Can be situated in up to and including 'Extra High' wind zones as described in NZS 3604 Building Wind Zones.

3.2 Ultimate Limit State (ULS)

SAMV has also been appraised for weather tightness and structural wind loading when used for timber or steel framed buildings subject to specific design up to a design differential ultimate limit state (ULS) wind pressure of 2500Pa.

3.3 Only for vertical surfaces

SAMV must only be installed on vertical surfaces per the Technical Literature.

3.4 Use with aluminium window and door joinery

The system is appraised for use with aluminium window and door joinery installed with vertical jambs and horizontal heads and sills. (The Appraisal of the SAMV relies on joinery meeting the requirements of NZS 4211 for the relevant building wind zone or being specifically designed for use in specifically designed buildings).

3.5 Approved Installers only

Installation of components and accessories supplied by SAMV must be carried out only by personnel approved by Original Stone Ltd.

4 SUMNER BATTENING

4.1 Preparation

Before installing SUMNER VERMINI Battens, the LBP must start filling out the **9.1.1 SUMNER Builder's Cavity Checklist**. Download the most recent .pdf from:

www.sumnerschist.co.nz

All components must be installed correctly and marked off on the checklist, then handed to the SUMNER installer. He will inspect and discuss any remedial work required with the LBP and send a letter of non-compliance to LBP or owner for any remedial work.

For framing applications, see that provision has been made to secure the SUMNER Board where required (e.g. at soffits and internal corners).

Timber framing must have a maximum moisture content of 16% at the time of cladding application. *(Problems could arise later due to timber shrinkage if over 16%).* The SUMNER System installer is responsible for verifying this with their moisture meter and recording it on the 9.2.1 Stonework Checklist.

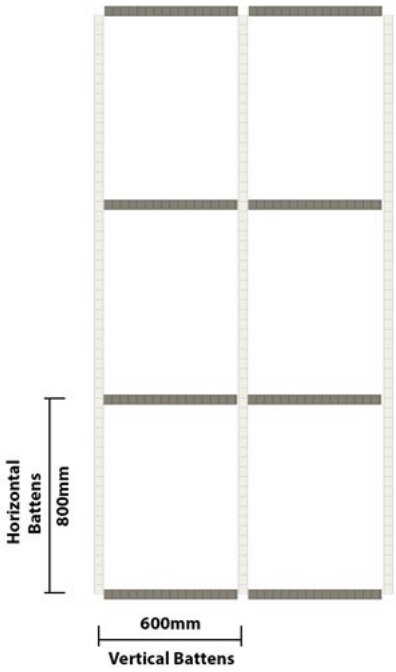
Moisture Meter: ProMeter Mini

The LBP is responsible for installing the appropriate industry-appraised wall wrap and inspecting that it has been appropriately installed and folded around the inside of the framing at openings. Have the LBP repair any damage to the wall wrap before battening.

4.2 General Process

The LBP will fit the Frame Protection System as per E2/AS1 and then install flashings. SUMNER VERMINI Battens are vermin-proof; however, a uPVC cavity closer may be fitted to the bottom of the cavity for aesthetic reasons. Other flashings may include DYNAFLASH fitted over the battens for internal or external corners, other metal system flashings folded as the project requires, and window sill trays (refer to drawings in this manual).

When battening over timber framework, the LBP should tack SUMNER VERMINI Battens in place with galvanised flat head 75mm x 3.15 or 3.75mm nails. Avoid "double battening" and the overconsumption of battens and anchors. Where projects have 300mm stud centres, the battens should still be attached at the standard 600mm centres.



Masonry, SIP, and AAC structures follow a similar process.

SUMNER VERMINI1200 Vertical Battens are a white colour and 1200mm long. These will be installed vertically over studs or a Maximum of 600mm and minimum of 400mm horizontal centres.

SUMNER VERMINI550 Horizontal Battens are grey and 550mm long. These are installed continuously across the top and bottom plates at 800mm vertical centres.

SUMNER Board is then fitted per architectural details, using system anchors specific to the construction at the right centres. After fitment, the board is coated with SUMNER Primer, and the

joints are taped to create a continuous rain screen. The door and windows abutting the cavity are sealed with first and secondary air seals as they are fitted.

Masonry veneer installation then commences as outlined in the following sections in this manual.

5 WEATHER TIGHTNESS

Many steps throughout the cladding process must be undertaken to ensure weather tightness as per NZBC clause E2.3.2. The best way is to use our warranted system, which a professional can only implement.

- Under the Building Act 2004, this is classified as Restricted Building Work (RBW) and can only be carried out by a Licensed Building Practitioner (LBP). An unlicensed tradesperson can be liable for a court fine between $5,000 and $20,000.
- Wall wraps must be returned around the jamb, sill and window head framing and flashing tapes must be installed at all openings, with low expanding foam behind windows.
- Hat flash/metal capping offers a practical solution to the waterproof perimeter, sills, and chimneys.
- When detailing parapets, ensure that any internal gutters have an adequate fall and that any overflow units are positioned so that the overflows will operate correctly if there is a block in the guttering.

6 CONSTRUCTION DETAILS

Our standard details are shown below. Please download the most up-to-date drawings from our website, www.sumnerschist.co.nz. These are available in the following formats:

- Revit (.rvt),
- CAD Files (.dwg).
    - Native to AutoCAD
    - Suitable for import into ArchiCAD,
- Portable Document Files (.pdf)

7 INSTALLATION OF SUMNER BOARD

7.1 Ground Clearances

SUMNER Board is to start a minimum of 100mm up from exterior paving at all times. Please see our website's SUMNER Vertical Cross Section detail for more .pdf details.

http://sumnerschist.co.nz/documents/documents.html

7.2 Internal / External Corners

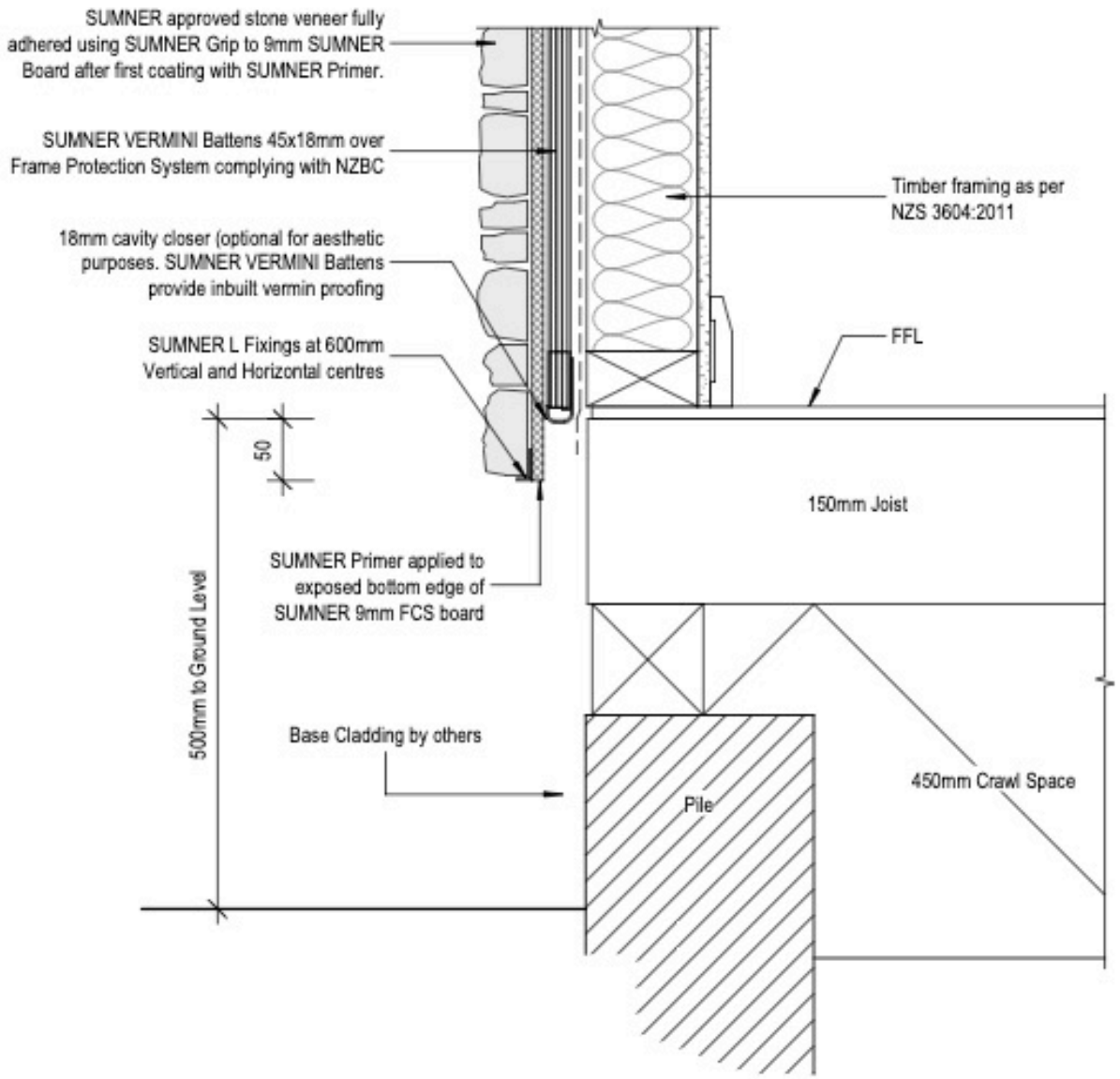
For all corners, ensure that the edges are clean and dust-free, and coat the board with SUMNER Primer before applying SUMNER Tape to the face of the board, centred over the corner.

7.3 Flashings Behind SUMNER system (Aluminium or uPVC)

Ensure flashings have been installed correctly. The LBP is responsible for fixing all flashings in place. **Flashings are not part of the SUMNER system and are not the responsibility of the SUMNER installer.**

7.4 Board Joints / Control Joints

- Fit SUMNER Board with maximum sheet joins of 10mm.
- Ensure sheet joins are clean and dust free before applying SUMNER Tape centred over the joint.
- For horizontal control joints between floor levels, the tape needs to be folded down in between the sheets to allow for expansion.
- Ensure a 5mm tolerance for expansion is allowed at the sheet perimeter (i.e. installations hemmed in by wing walls).
- Walls need expansion joints every 5 vertical and 8 horizontal metres.
- Install vertical or horizontal control joints where two different substrates meet (i.e. concrete block and timber frame).
- Inter-story drained joints must be provided for walls over two storeys in height by the requirements of NZBC. Refer to Inter Story Control Joint Detail 3.5.7



SUMNER PROFESSIONAL CLADDING SYSTEMS

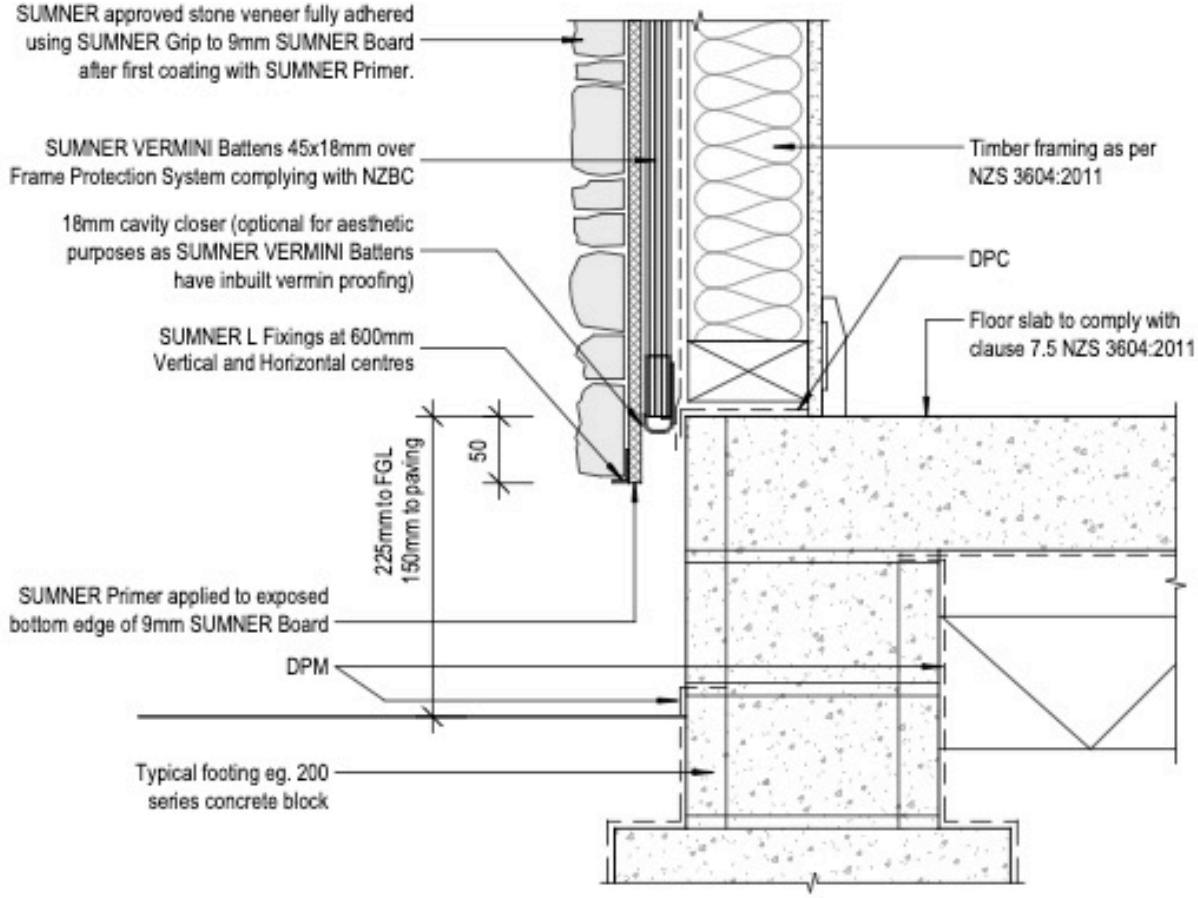
www.sumnerschist.co.nz/

Approved Stone Veneer on SUMNER Tile System

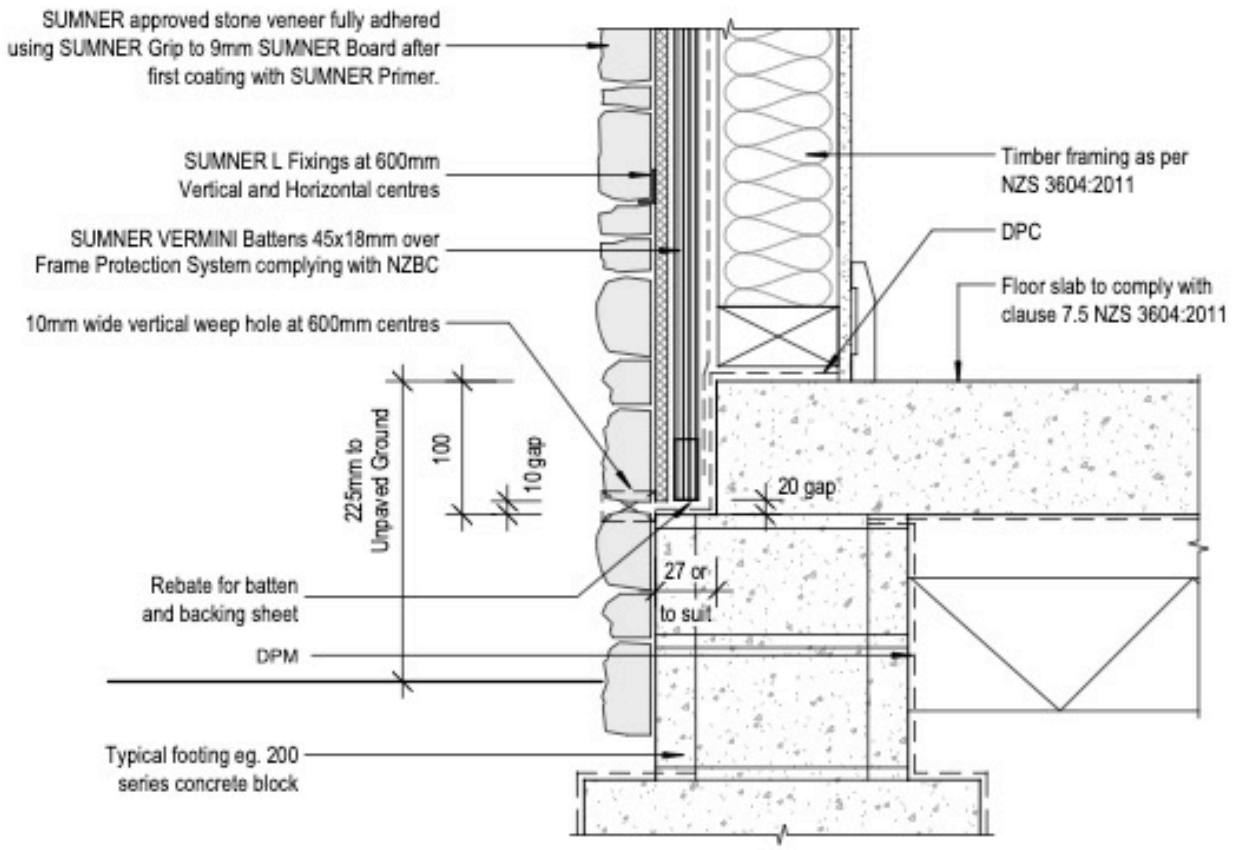
Vertical Section - Timber Frame

Date	April 2019	2.1.0
Drawn by	SUMNER	
Checked by	DS	Scale 1 : 5

29/03/2021 2:33:33 PM

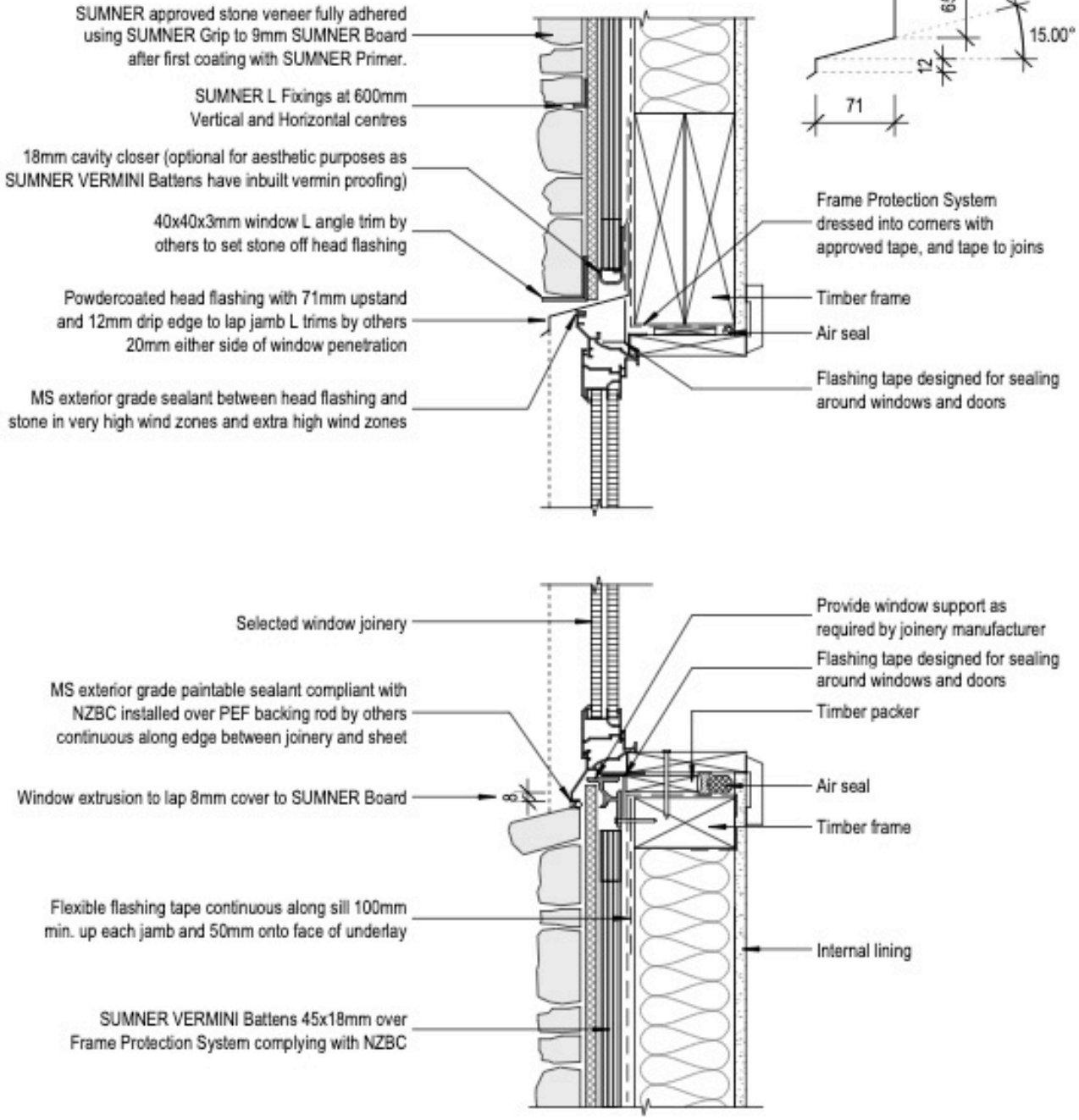


SUMNER PROFESSIONAL CLADDING SYSTEMS	Approved Stone Veneer on SUMNER Tile System	Standard Slab Edge - Timber Frame	
		Date: April 2019	3.0.0
www.sumnerschist.co.nz/		Drawn by: SUMNER	
		Checked by: DS	Scale: 1 : 5



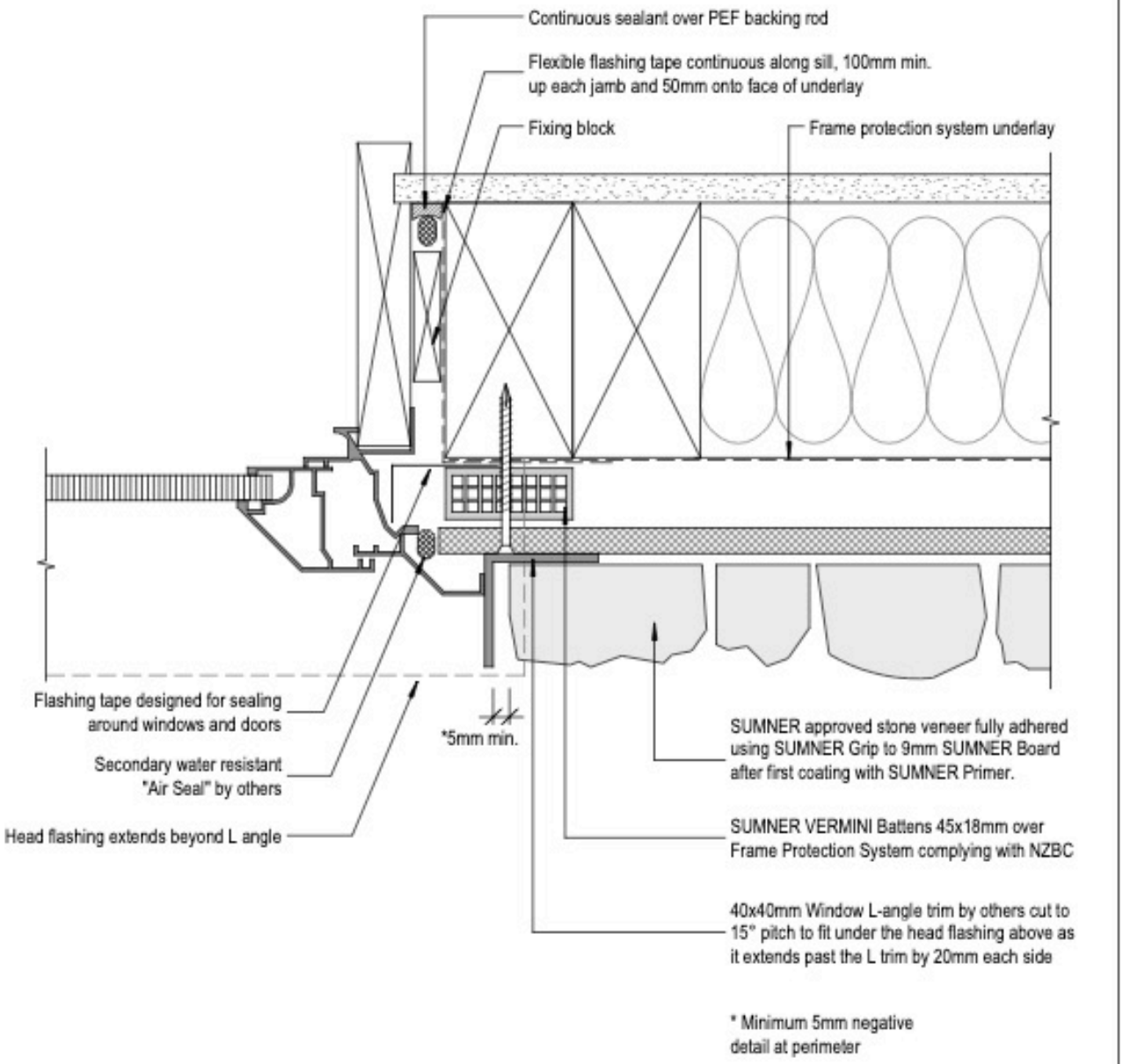
SUMNER PROFESSIONAL CLADDING SYSTEMS www.sumnerschist.co.nz/	Approved Stone Veneer on SUMNER Tile System	Rebated Slab Edge - Timber Frame
		Date: April 2019
		Drawn by: SUMNER
		Checked by: DS
		3.0.1
		Scale: 1 : 5

HEAD FLASHING DETAIL



SUMNER PROFESSIONAL CLADDING SYSTEMS www.sumnerschist.co.nz/	Approved Stone Veneer on SUMNER Tile System	Window Detail-Abutting Stone-Timber Frame Date April 2019 · Drawn by SUMNER · Checked by DS · Scale 1 : 5 3.1.0

29/03/2021 2:33:36 PM



SUMNER PROFESSIONAL CLADDING SYSTEMS

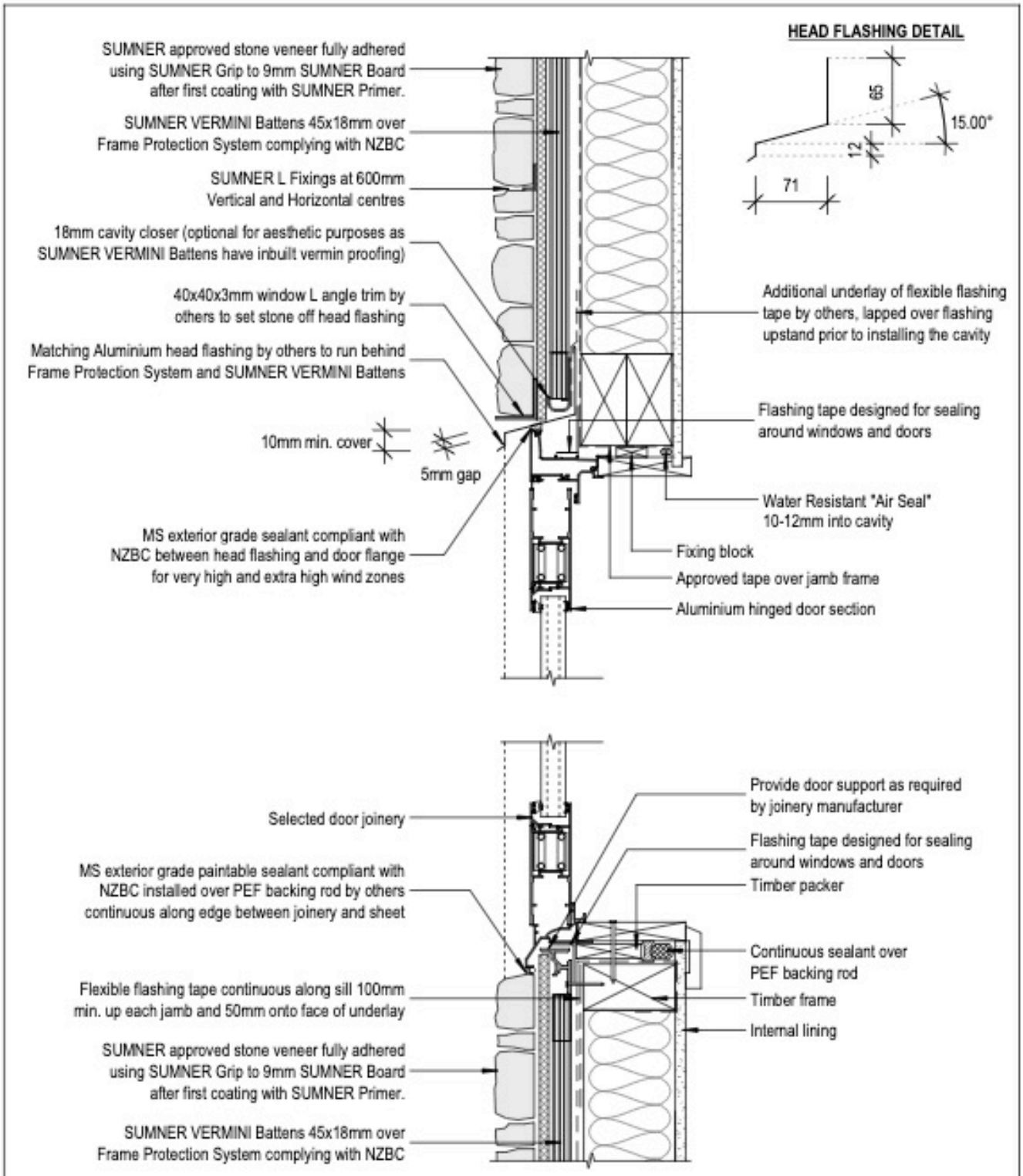
www.sumnerschist.co.nz/

Approved Stone Veneer on SUMNER Tile System

Window Detail-Jamb-Abutting Stone-Timber Frame

Date	April 2019	3.1.1
Drawn by	SUMNER	
Checked by	DS	Scale 1 : 2

29/03/2021 2:33:37 PM



SUMNER PROFESSIONAL CLADDING SYSTEMS

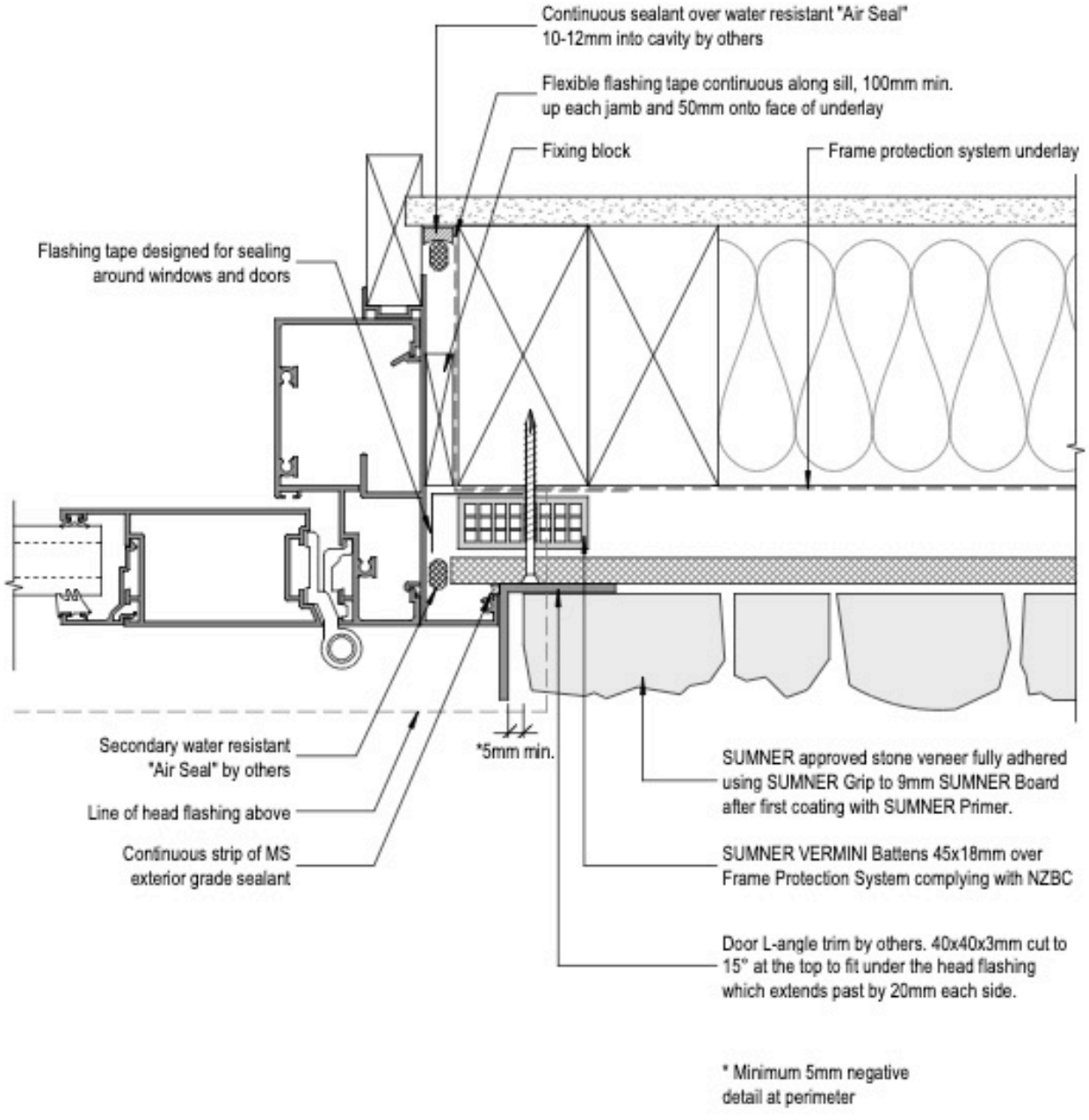
www.sumnerschist.co.nz/

Approved Stone Veneer on SUMNER Tile System

Door Detail-Head/Sill

Date	April 2019	3.2.0
Drawn by	SUMNER	
Checked by	DS	Scale 1 : 5

29/03/2021 2:33:40 PM



SUMNER
PROFESSIONAL CLADDING SYSTEMS

www.sumnerschist.co.nz/

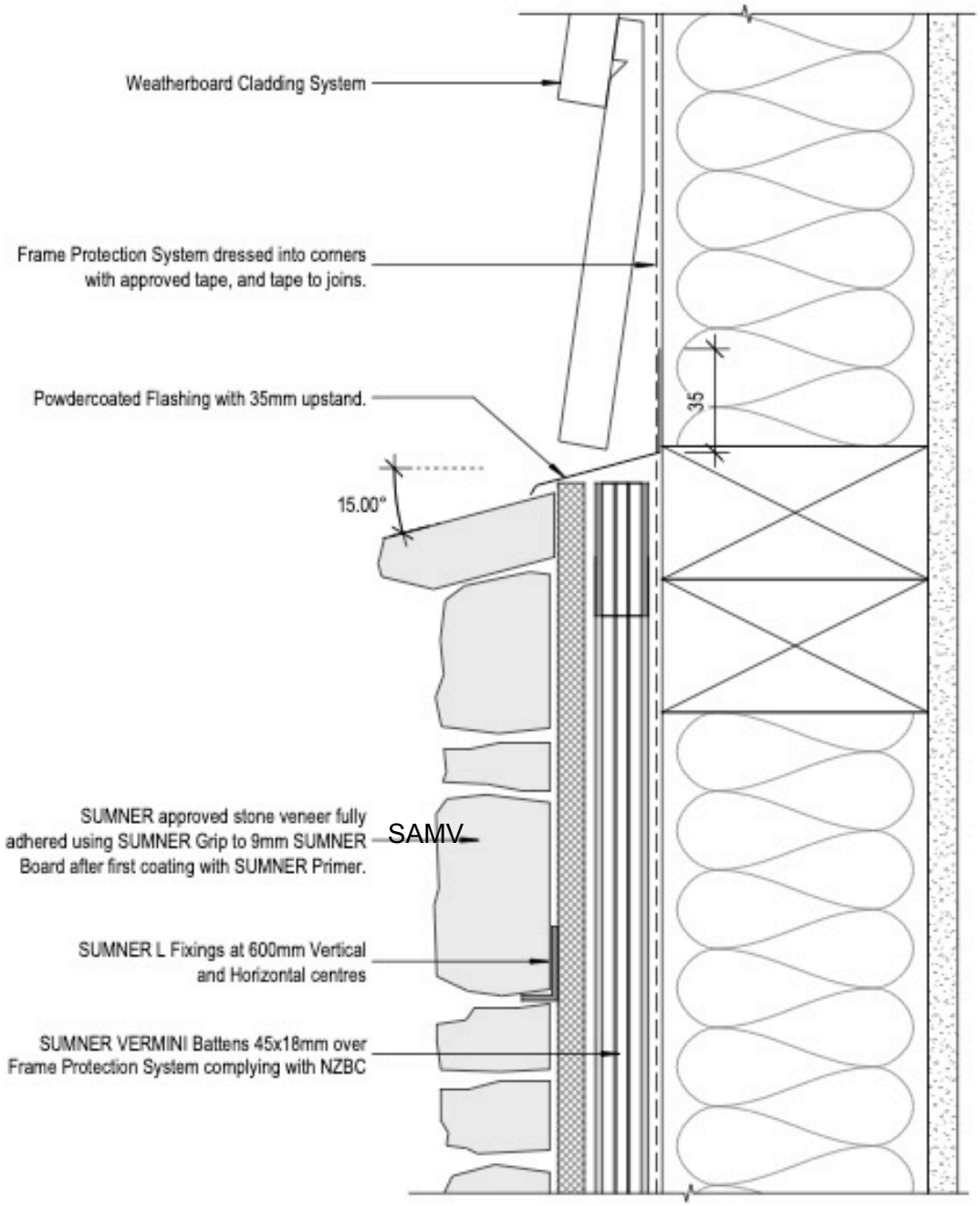
Approved Stone Veneer on SUMNER Tile System

Door Detail-Jamb

Date	April 2019
Drawn by	SUMNER
Checked by	DS
Scale	1 : 2

3.2.1

29/03/2021 2:33:40 PM



SUMNER PROFESSIONAL CLADDING SYSTEMS

www.sumnerschist.co.nz/

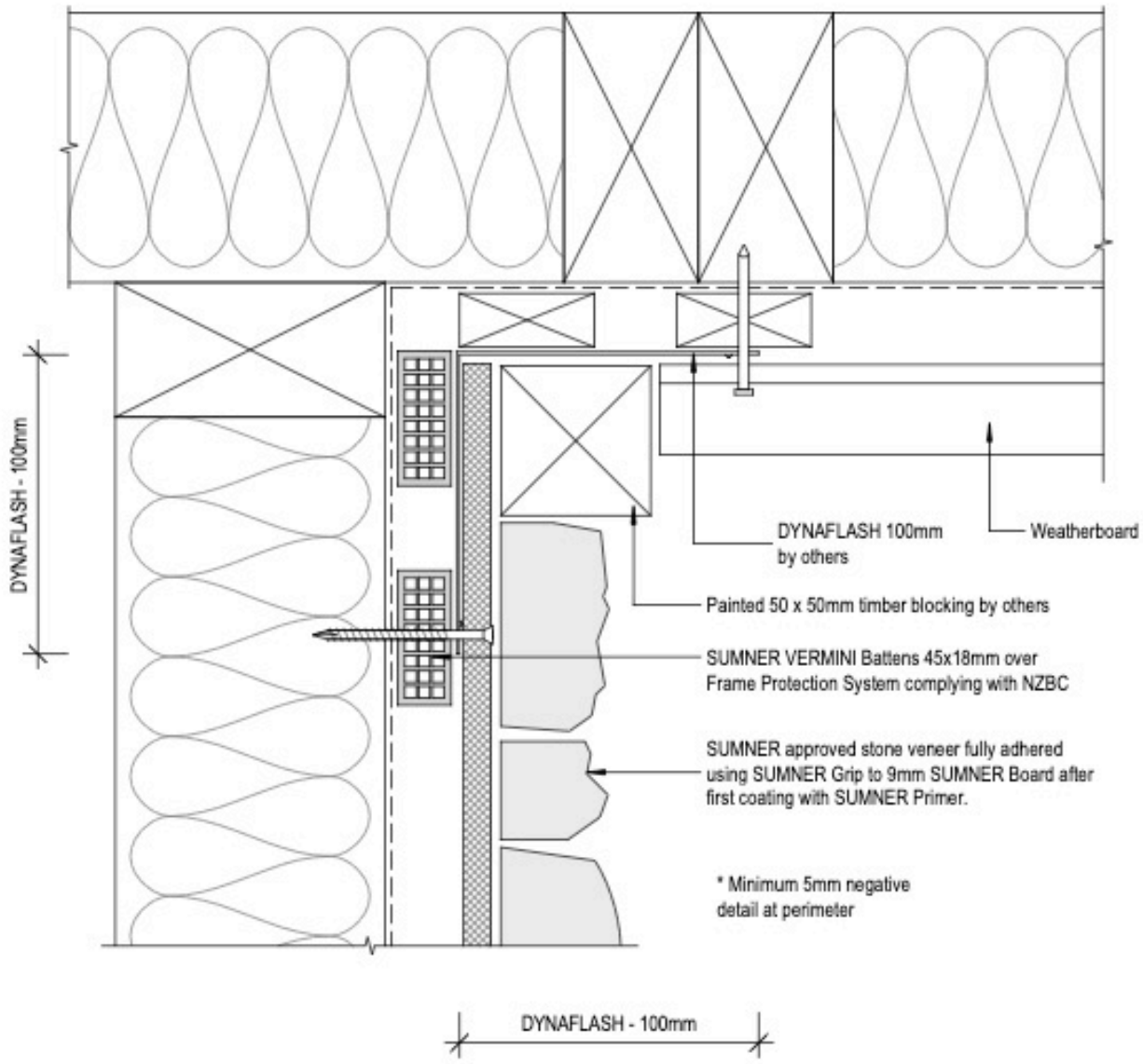
Approved Stone Veneer on SUMNER Tile System

Horizontal Abutment - Weatherboard

Date	April 2019
Drawn by	SUMNER
Checked by	DS
Scale	1 : 2

3.3.2

29/03/2021 2:33:41 PM



SUMNER
PROFESSIONAL CLADDING SYSTEMS

www.sumnerschist.co.nz/

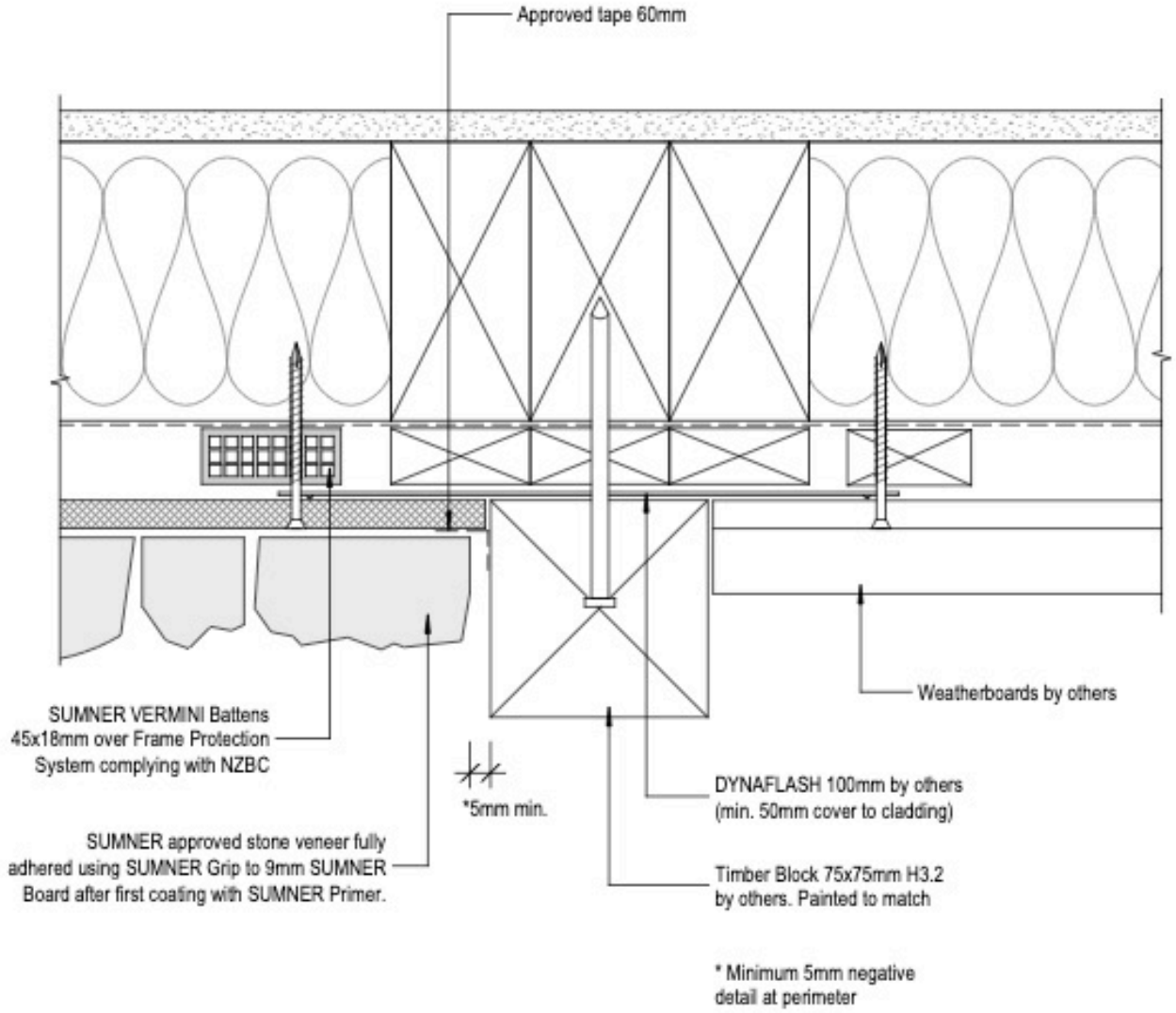
Approved Stone Veneer on SUMNER Tile System

Internal Corner Abutment-Negative Detail (Weatherboard)

Date	April 2019
Drawn by	SUMNER
Checked by	DS
Scale	1 : 2

3.3.3

29/03/2021 2:33:42 PM



SUMNER
PROFESSIONAL CLADDING SYSTEMS

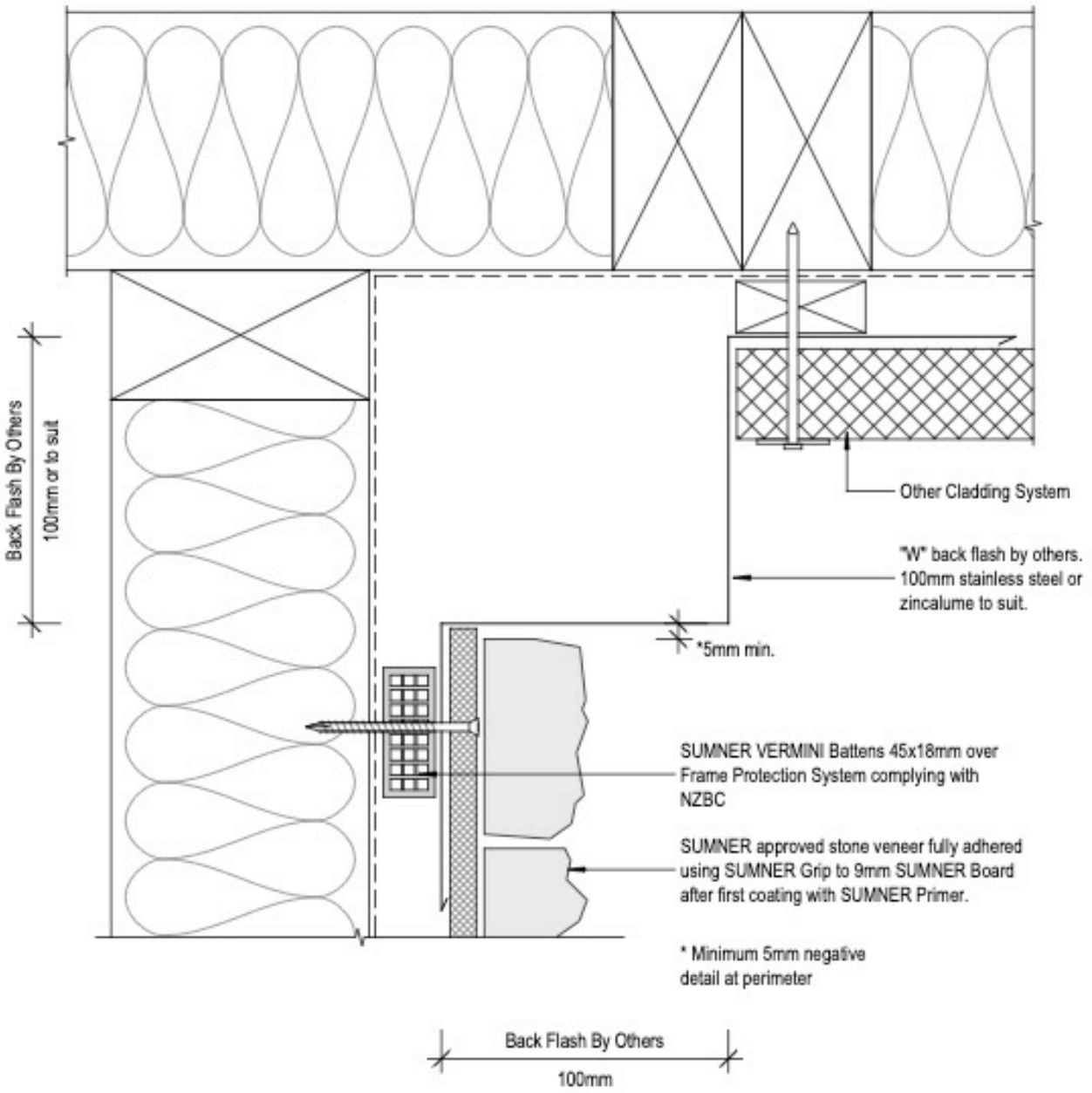
www.sumnerschist.co.nz/

Approved Stone Veneer on SUMNER Tile System

Vertical Junction Abutment

Date	April 2019	3.3.4
Drawn by	SUMNER	
Checked by	DS	Scale 1 : 2

29/03/2021 2:33:42 PM



SUMNER
PROFESSIONAL CLADDING SYSTEMS

www.sumnerschist.co.nz/

Approved Stone Veneer on SUMNER Tile System

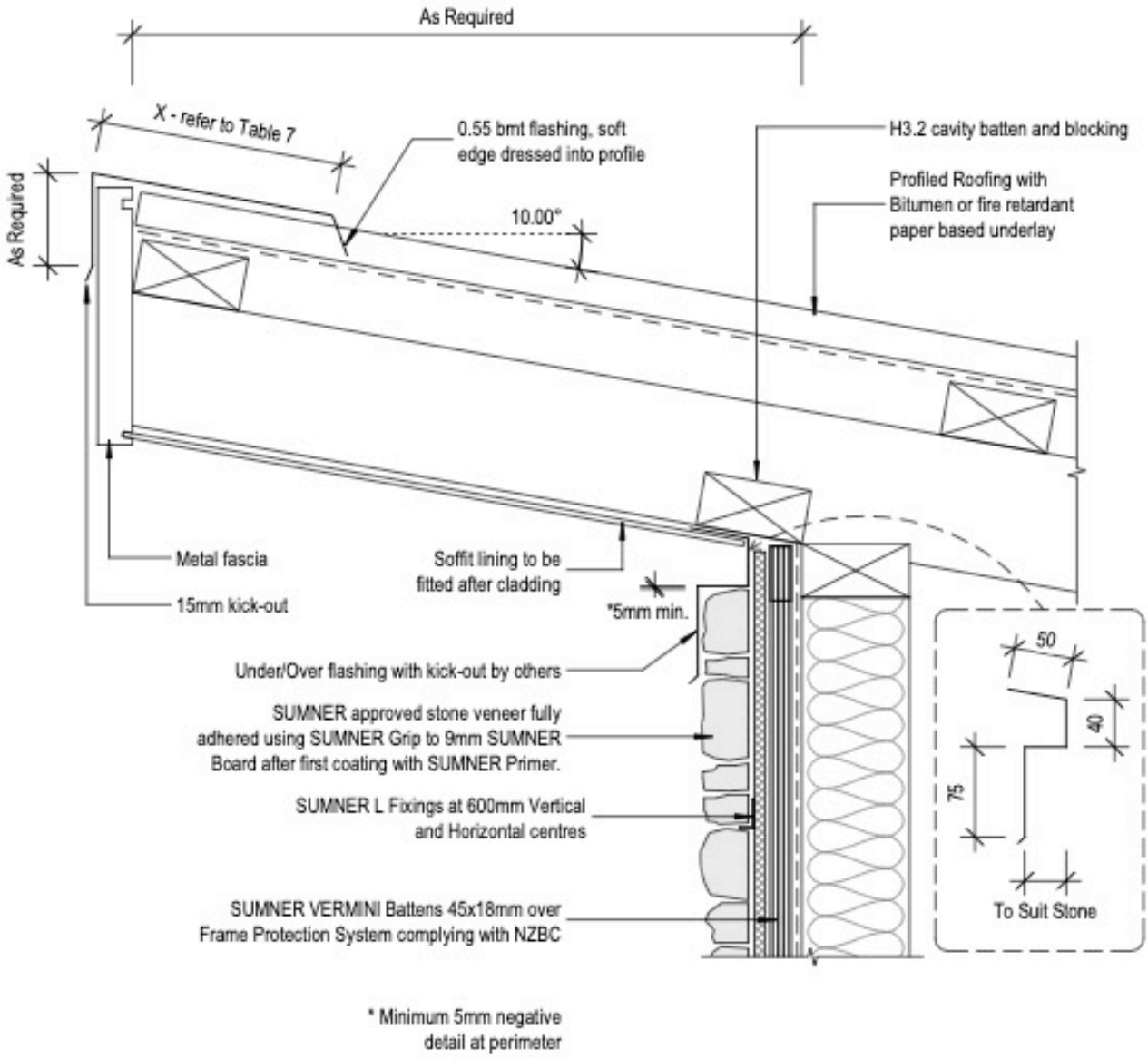
Internal Corner Abutment - Butt To Cladding (Except Weatherboard)

Date	April 2019
Drawn by	SUMNER
Checked by	DS

3.3.5

Scale 1 : 2

29/03/2021 2:33:43 PM



SUMNER PROFESSIONAL CLADDING SYSTEMS

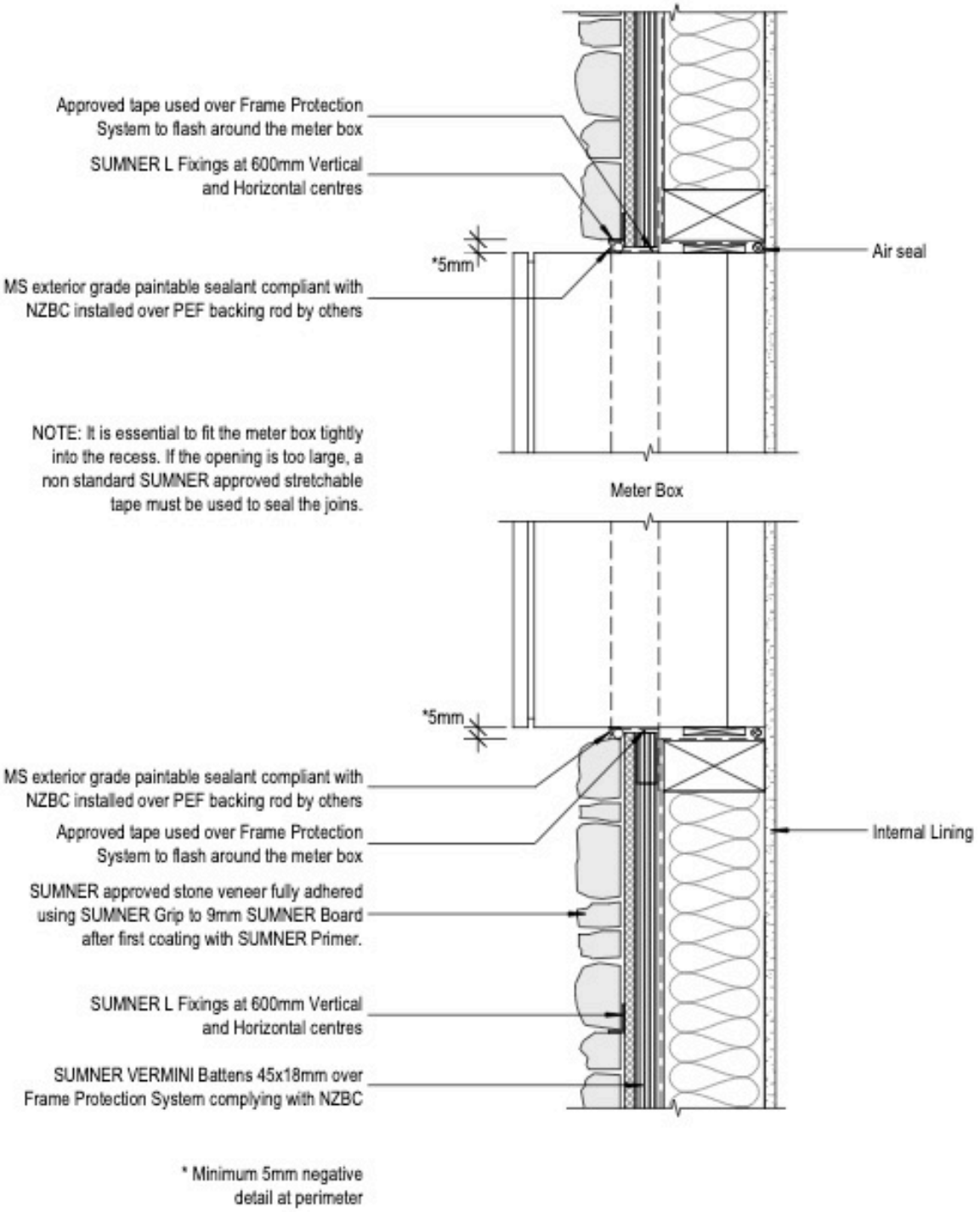
www.sumnerschist.co.nz/

Approved Stone Veneer on SUMNER Tile System

Roof Detail - Back Sloping Barge

Date	April 2019	3.4.1	
Drawn by	SUMNER		
Checked by	DS	Scale	1 : 5

29/03/2021 2:33:44 PM



SUMNER PROFESSIONAL CLADDING SYSTEMS

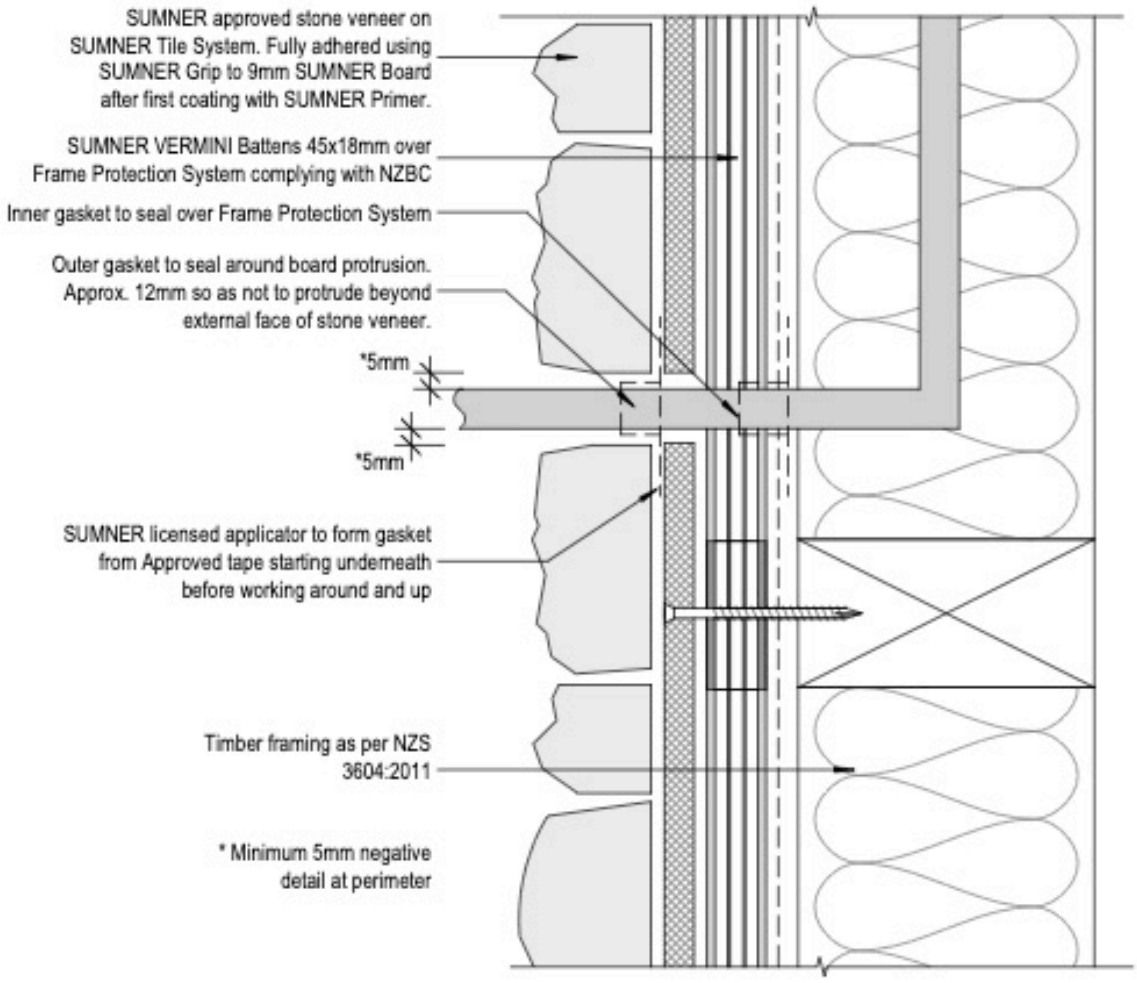
www.sumnerschist.co.nz/

Approved Stone Veneer on SUMNER Tile System

Meter Box Detail

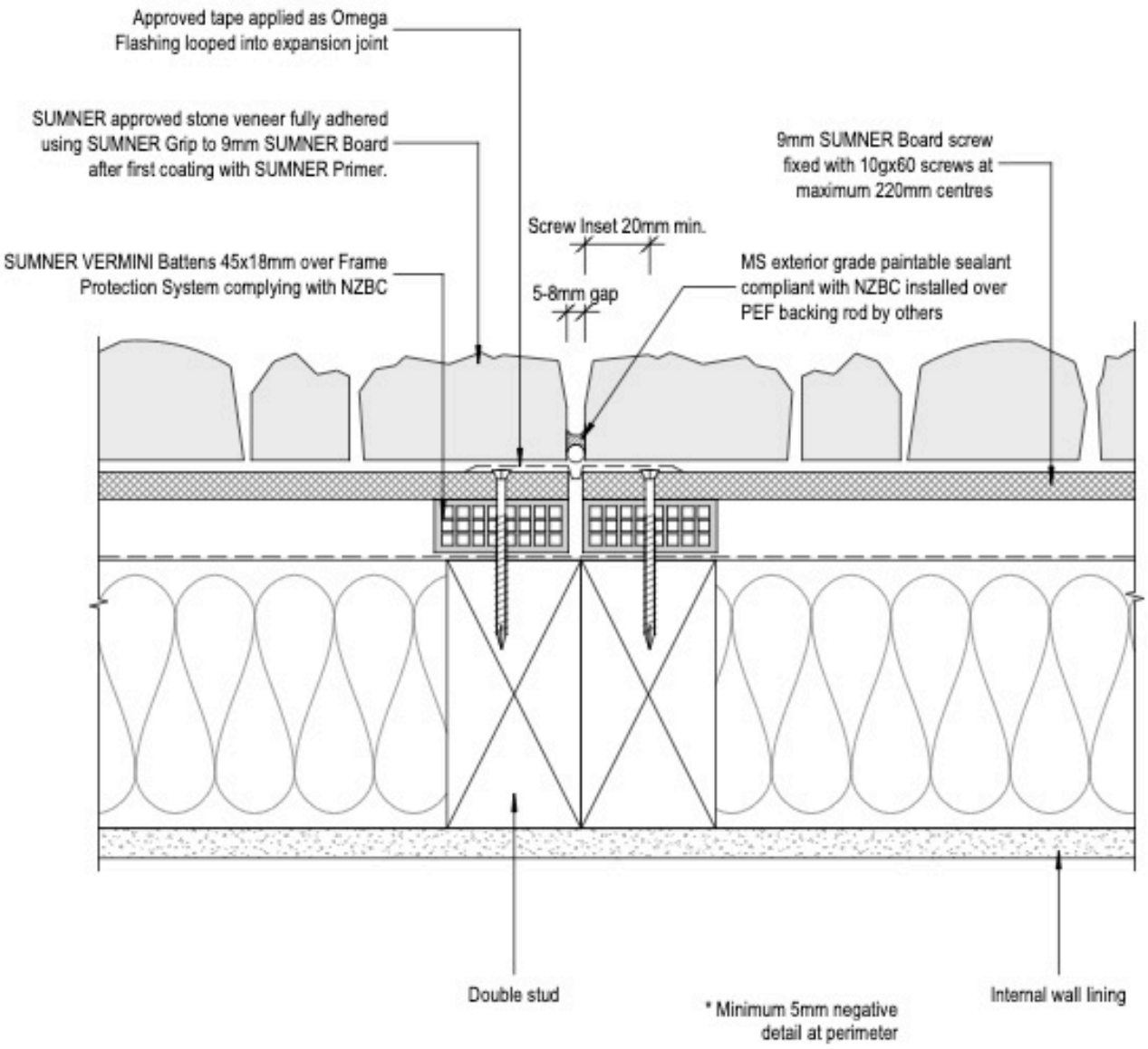
Date	April 2019	3.5.3
Drawn by	SUMNER	
Checked by	DS	Scale 1 : 5

29/03/2021 2:33:46 PM



SUMNER PROFESSIONAL CLADDING SYSTEMS www.sumnerschist.co.nz/	Approved Stone Veneer on SUMNER Tile System	Pipe Penetration Date April 2019 Drawn by SUMNER Checked by DS 3.5.5 Scale 1 : 2

29/03/2021 2:33:46 PM



SUMNER PROFESSIONAL CLADDING SYSTEMS

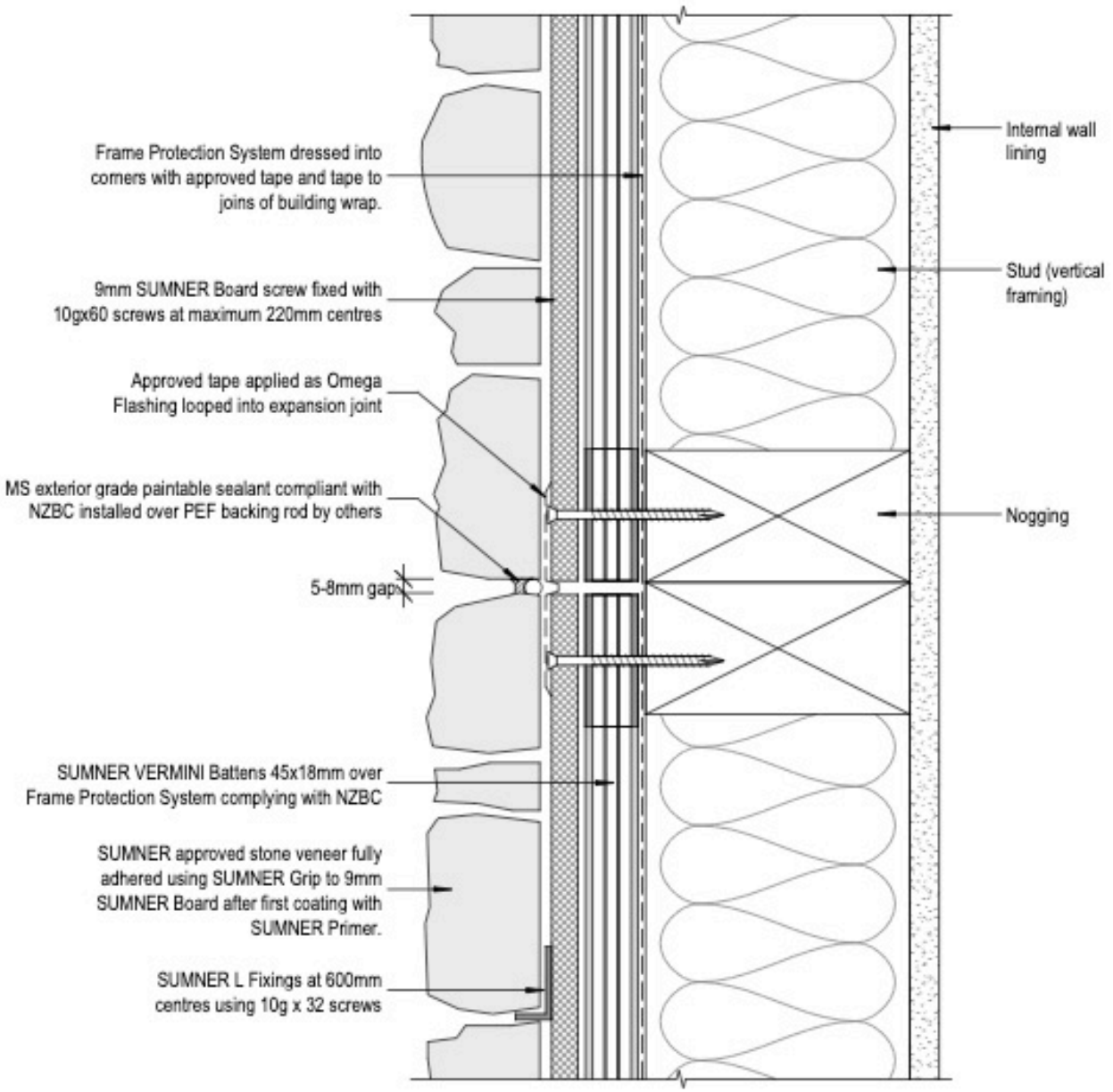
www.sumnerschist.co.nz/

Approved Stone Veneer on SUMNER Tile System

Vertical Movement Control Joint

Date	April 2019	3.5.6
Drawn by	SUMNER	
Checked by	DS	Scale 1 : 2

29/03/2021 2:33:47 PM



SUMNER PROFESSIONAL CLADDING SYSTEMS

www.sumnerschist.co.nz/

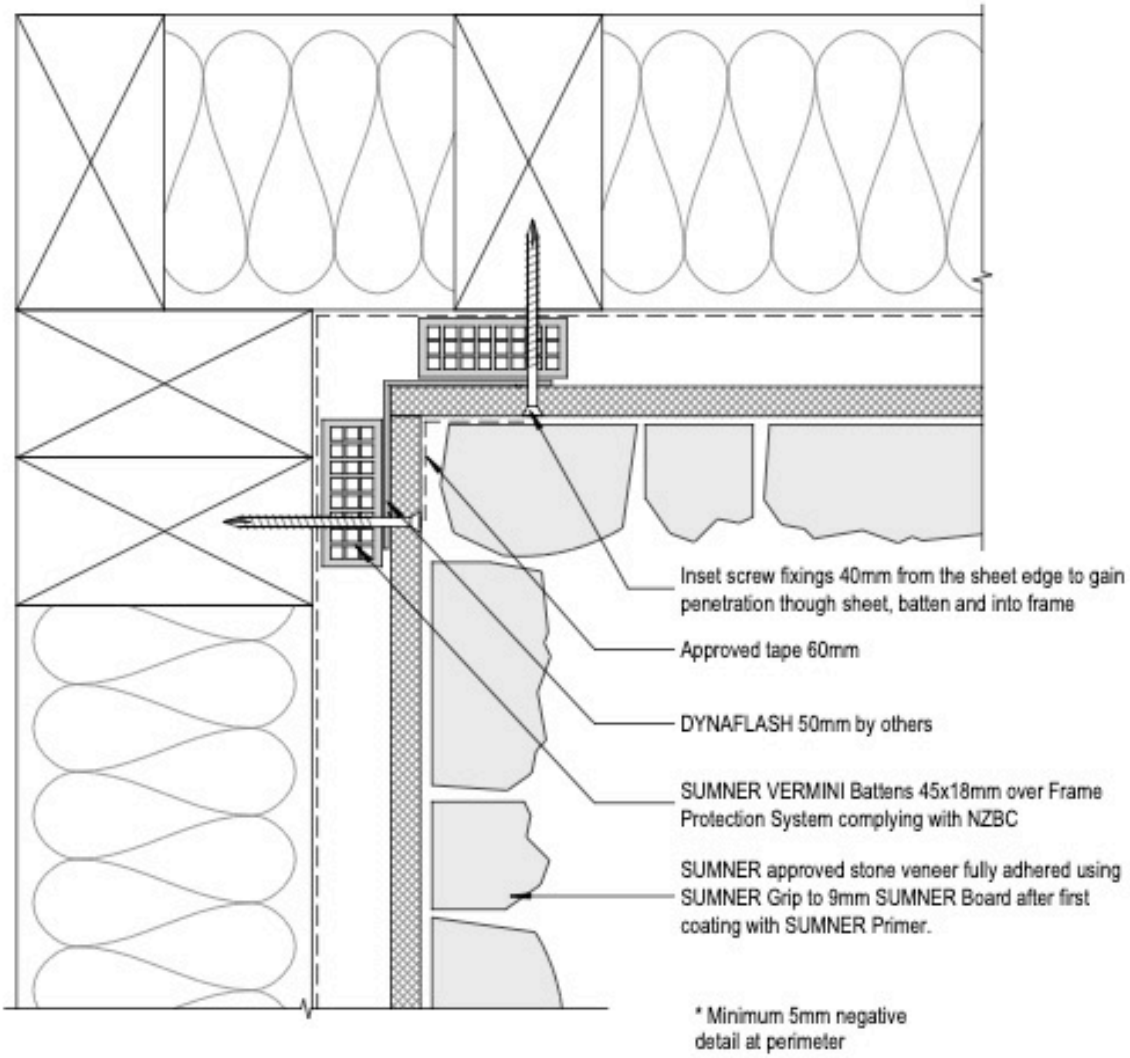
Approved Stone Veneer on SUMNER Tile System

Horizontal Inter-Story Control Joint

Date	April 2019
Drawn by	SUMNER
Checked by	DS
Scale	1 : 2

3.5.7

29/03/2021 2:33:48 PM



SUMNER PROFESSIONAL CLADDING SYSTEMS

www.sumnerschist.co.nz/

Approved Stone Veneer on SUMNER Tile System

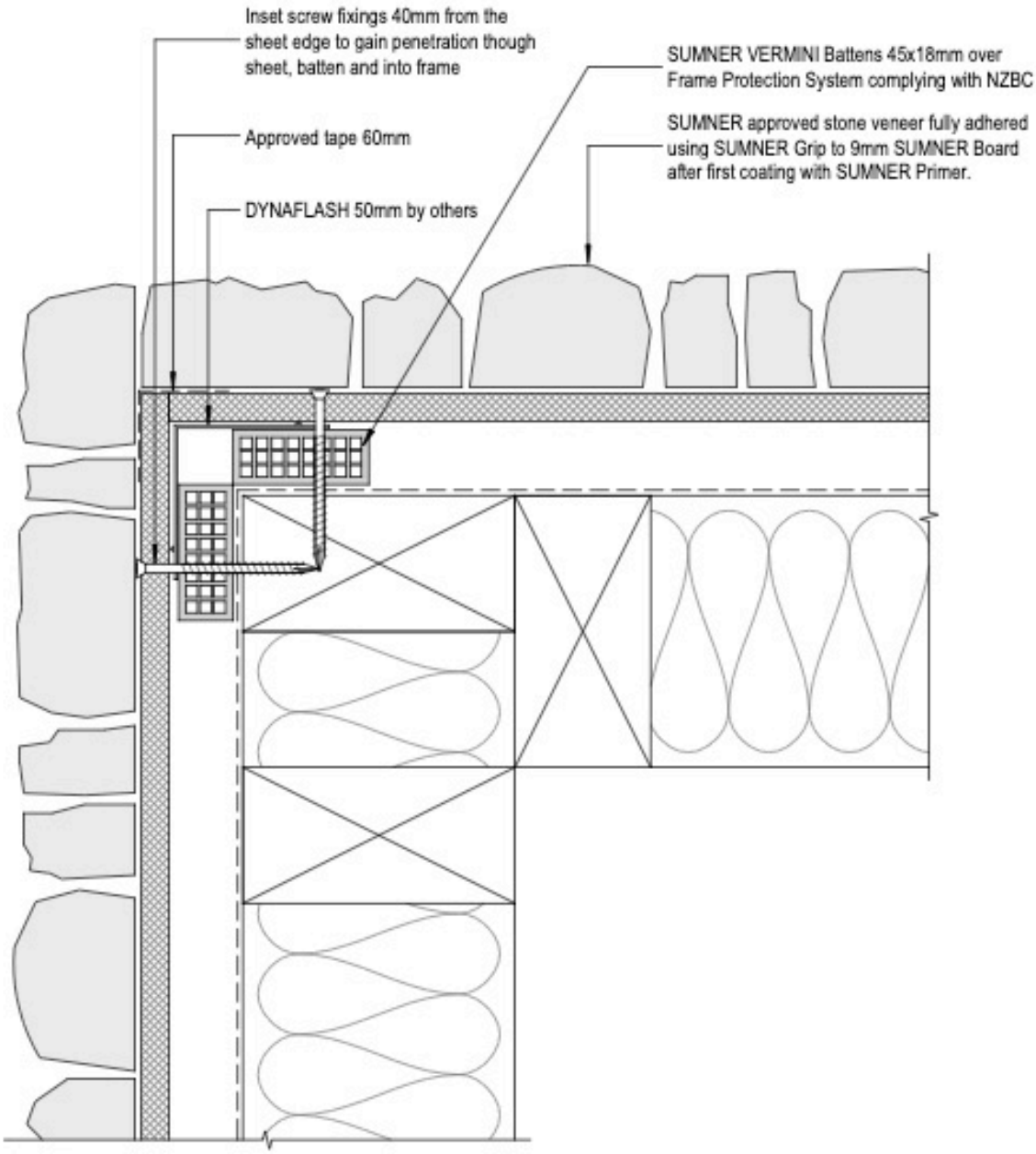
Internal Corner

Date	April 2019
Drawn by	SUMNER
Checked by	DS

4.0.0

Scale 1 : 2

29/03/2021 2:33:49 PM



SUMNER
PROFESSIONAL CLADDING SYSTEMS

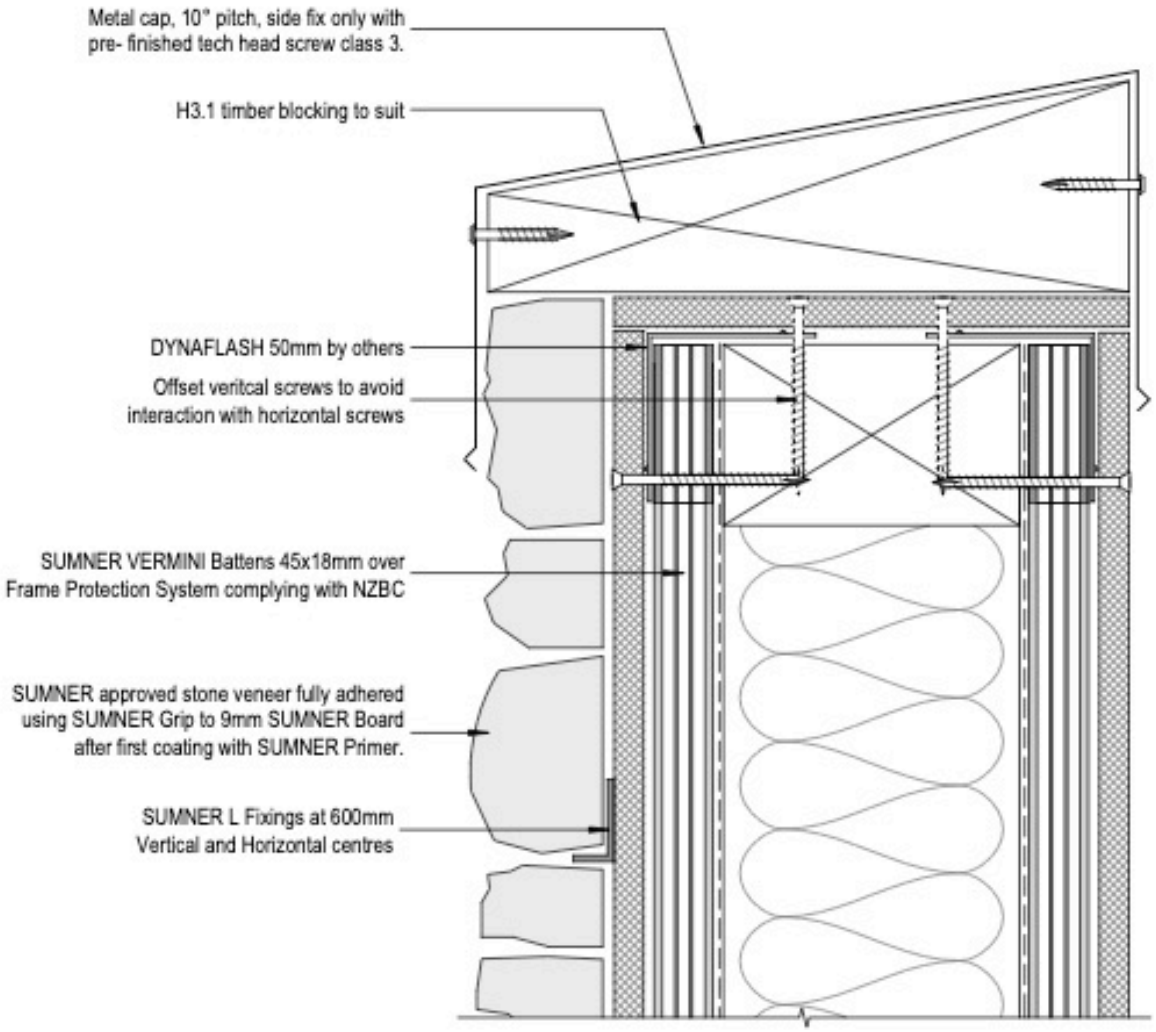
www.sumnerschist.co.nz/

Approved Stone Veneer on SUMNER Tile System

External Corner

Date	April 2019	4.0.1	
Drawn by	SUMNER		
Checked by	DS	Scale	1 : 2

29/03/2021 2:33:49 PM



SUMNER PROFESSIONAL CLADDING SYSTEMS www.sumnerschist.co.nz/	Approved Stone Veneer on SUMNER Tile System	Parapet	
		Date: April 2019 Drawn by: SUMNER Checked by: DS	9.0.0 Scale: 1 : 2

29/03/2021 2:33:52 PM

8 APPLICATION OF THE SUMNER STONE VENEER SYSTEM

8.1 TOOLS REQUIRED

				
9” or 14” Wet saw with a stone cutting blade	Large mixing drill, with appropriate mixing paddle.	4” angle grinder with a stone cutting blade	Power impact drill with square drive and SPAX T20 Drivers	10mm notched trowel
				
15cm broad knife	Hammer	Rubber mallet	Spirit level	Chalk Line
				
Tape measure	Pencil	Tajima knife (or similar knife)	Paint roller tray, roller, and sleeve	Paintbrush

				
Masking tapes and plastic film drop sheets	Cloth Drop Sheet	Car sponge	Clean 20 litre pails	Clean rags
				
First Aid Kit				

STORAGE

All adhesives and stone must be stored out of the elements and elevated off concrete floors.

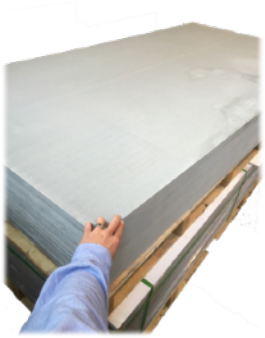
8.3 Preparation

1. Erect the SUMNER site sign at the front of the premises.
2. Collect the signed **Substrate Sign off Sheet** from the LBP and staple it behind the **Installer Checklist.**
3. Walk around the job with the check sheets and ensure everything is ticked off and completed satisfactorily before commencing installation. Ensure surfaces are plumb, clean and dust free before SUMNER tile installation begins. Ensure flashing of penetrations and projections (e.g. pipes, taps).
4. Installed tiles must be protected from heavy rain for at least 48 hours. If rain is likely, either delay installation or use waterproof tarpaulins to keep completed stonework dry.
5. Sort some tiles
    a. Ensure that colour variation is evenly distributed.
    b. Any undesirable masonry may be deselected if it leaves sufficient to complete the installation.

6. Be familiar with the SUMNER system application relevant to the structure. See Table below.

SUMMARY OF SYSTEM APPLICATIONS FOR DIFFERENT STRUCTURES								
	TIMBER & STEEL FRAME		**BLOCKWORK**		**SOLID POUR**		**TILT SLAB**	
	Inside	**Outside**	**Inside**	**Outside**	**Inside**	**Outside**	**Inside**	**Outside**
CAVITY								
SUMNER Board	✓	✓		✓		✓		✓
VERMINI Battens vertical and horizontal		✓		✓ Except landscape structures		✓ Except landscape structures		✓ Except landscape structures
PREPARATION								
SUMNER Primer	✓	✓	✓	✓	✓	✓		Cavity Installations
Prime With Water							✓	Direct Fix
SHEET JOINTS								
SUMNER Tape		✓		If cavity		If cavity		If cavity
ADHESIVE								
SUMNER Grip Plus	✓	✓	✓	✓	✓	✓	✓	✓

8.2 MATERIALS REQUIRED

				
Building Wrap (by others) or Appraised RAB Board 5mm (Heavy Wind Zones)	SUMNER Tape	SUMNER VERMINI cavity battens	SUMNER Board 10g 63mm 316 CSK Screws	SUMNER Board
			 	
SUMNER Stone	SUMNER Primer	SUMNER Grip Plus (Part A & B)	SUMNER L-Fixings and 32mm screws	

8.4 Masking and Drop Sheets

- SUMNER Grip can be complicated to remove. It would be best if you avoid contact with all other components. Therefore, before commencing installation, place drop cloths to cover other finished surfaces like weatherboard or driveways. Mask against any susceptible areas as required. Note: Protecting all openings, such as windows, doors and any finished materials or products, is highly recommended. **Prevention is better than cure.**

8.5 Surface Preparation

- Ensure the surface to be covered is solid, flat, and free from dust. SUMNER Primer must be applied to SUMNER Board. Allow SUMNER Primer to cure before commencing installation.

8.6 Applying Adhesive

SET YOUR LEVELS

7. Fix the timber to the concrete foundation using 100x50mm framing timber and 100mm concrete nails, forming a temporary footing on which the first course can start.

8. It is essential that this footing is level.

Note: Do not remove the temporary footing until the adhesive has fully cured (approximately 24 hours).

MIXING THE ADHESIVE

CAUTION: Care must be taken not to knock the bucket over with electric tools nearby.

9. QUANTITY - Mix only enough adhesive to be used in 30 minutes (plus or minus 10 minutes in hot or cold weather, respectively).

10. MIXING

- Add 1/4 PART B (liquid) to a clean bucket. We recommend using the size of a bucket appropriate for 30 minutes. Usually, a 10L bucket or half of a 20L bucket.
- Add 3/4 PART A (powder).
- Mix on low speed for a minimum of 3 minutes. Under-mixing may adversely affect the adhesive.

11. SLACK-TIME - The consistency MUST be correct before resting the adhesive for 2 minutes. DO NOT add any other liquid or powder after resting.

12. RE-MIX – after the 2-minute slack time, remix for 1 minute.

13. Use within 30 minutes.

Notes:

I. Clean the paddle with potable water between batches to avoid adhesive sticking to the tool.

II. The adhesive will dry very quickly on hot or windy days. Avoid applying to walls that have heated up to 30ºC.

III. SUMNER adhesive mix must not be applied when the outside air temperature is below 4ºC or over 30ºC.

IV. If 48-hour weather forecast implies temperature conditions may be below 4ºC or over 30ºC, the application must be postponed to avoid impaired curing.

8.7 Applying the Masonry Veneer

LAYING THE 1st COURSE

14. Applying the adhesive to the wall, starting from an external corner, one course high with a 10mm notched trowel.

15. Butter a thin coat of adhesive to the backside of **Natural End. Formed Corner** installation is not discussed here as the structure of these is straightforward.

16. Press the panel into the adhesive on the wall, leaving the natural end panel overhanging the corner by the thickness of the stone.

17. Continue this process along the wall.

18. For the return wall, butt masonry veneer into the back of the overhanging natural end.

19. It is important to note that the corner should alternate on every course to avoid seeming.

Notes:

I. Take care not to disturb panels already laid. If the panels become disturbed whilst the adhesive is still 'green,' they will not re-adhere.

II. 600mm is the maximum height of stone to be fixed and fully cured before commencing a new course.

LAYING THE 2nd COURSE

20. Using screws and SUMNER FIXINGS, fix the bracket to sit hard on top of the 1st course.

SUMNER FIXINGS must be located in every 600 vertical and 600 horizontal centres.

Horizontal: Locate one fixing in front of every stud, using a 40mm screw or appropriate anchor at 600mm centres for masonry installations.

Vertical: Ping a chalk line at 600mm vertical centres to remind yourself.

21. On the bottom edge of the panels (to be laid), where the fixing will be located, use the angle grinder to check out a seat to accommodate the SUMNER FIXING. This ensures the panels can butt with the 1st course and stay level.

22. Continue laying the courses, staggering the joints from the previous course.

INTERNAL CORNERS

23. Cut a 45° mitre to stone to sit into the internal corner so that the return (also mitred) will form a clean joint.

EXTERNAL CORNERS

24. Use formed Solid-L Corners or overhang stone with a natural end and return perpendicular with a matching stone butted in behind.

WINDOWS and DOORS

Abutting Joinery

SAMV System is primarily designed to terminate against the side of the windows and door jambs. For the majority of timber frame houses, this detail is appropriate. Thin masonry should be cut and fitted around window frames, filling 5mm at the perimeter with MS exterior grade paintable sealant compliant with NZBC.

Deep Reveal Doors and Windows

Commercial buildings of masonry construction have thicker walls, and their window and door joinery is in reveal of the cladding. SUMNER deep reveal window details 3.1.2 and 3.1.3 are designed for these applications with folded sills and L-angle trims to the jamb and head. The stone should be cut and fitted precisely over the SUMNER Board.

8.8 Health and Safety

1. A current Site Safe passport is compulsory.
2. All tradespeople must have an approved First Aid Kit on-site at all times.
3. Large format stones may require two men to lift safely.
4. Before commencing any work, all hazards must be identified, eliminated or minimised.
5. Always use all power tools cautiously, as a lapse of concentration can result in serious injury.
6. Always use any protective guards supplied with any machinery.
7. Never work alone if using machinery or undertaking work with the risk involved.
8. Always use safety-approved transformers and safety-approved extension cords when using any electrical appliances.
9. Always wear protective eyewear and ear muffs when cutting tiles.
10. Always keep an accident log book for your security.

Note: Make sure you have your own Health and Safety policy, as this has become compulsory in all aspects of the construction industry as per the Health and Safety at Work Act 2015.

9 CLEAN-UP AND MAINTENANCE

9.1 General

1. SUMNER Grip Plus has exceptionally high adhesive strength and cannot be cleaned off many substrates. It is vitally important to leave the job clean and tidy.

2. CAREFULLY remove all masking tape from the joinery and remove the temporary timber footing from the foundation.

3. Place all rubbish in the skip or on an allocated rubbish pile. If no waste provisions have been made, remove all debris from the site and dispose of it appropriately.

Note: This step can determine return business.

9.2 Maintenance

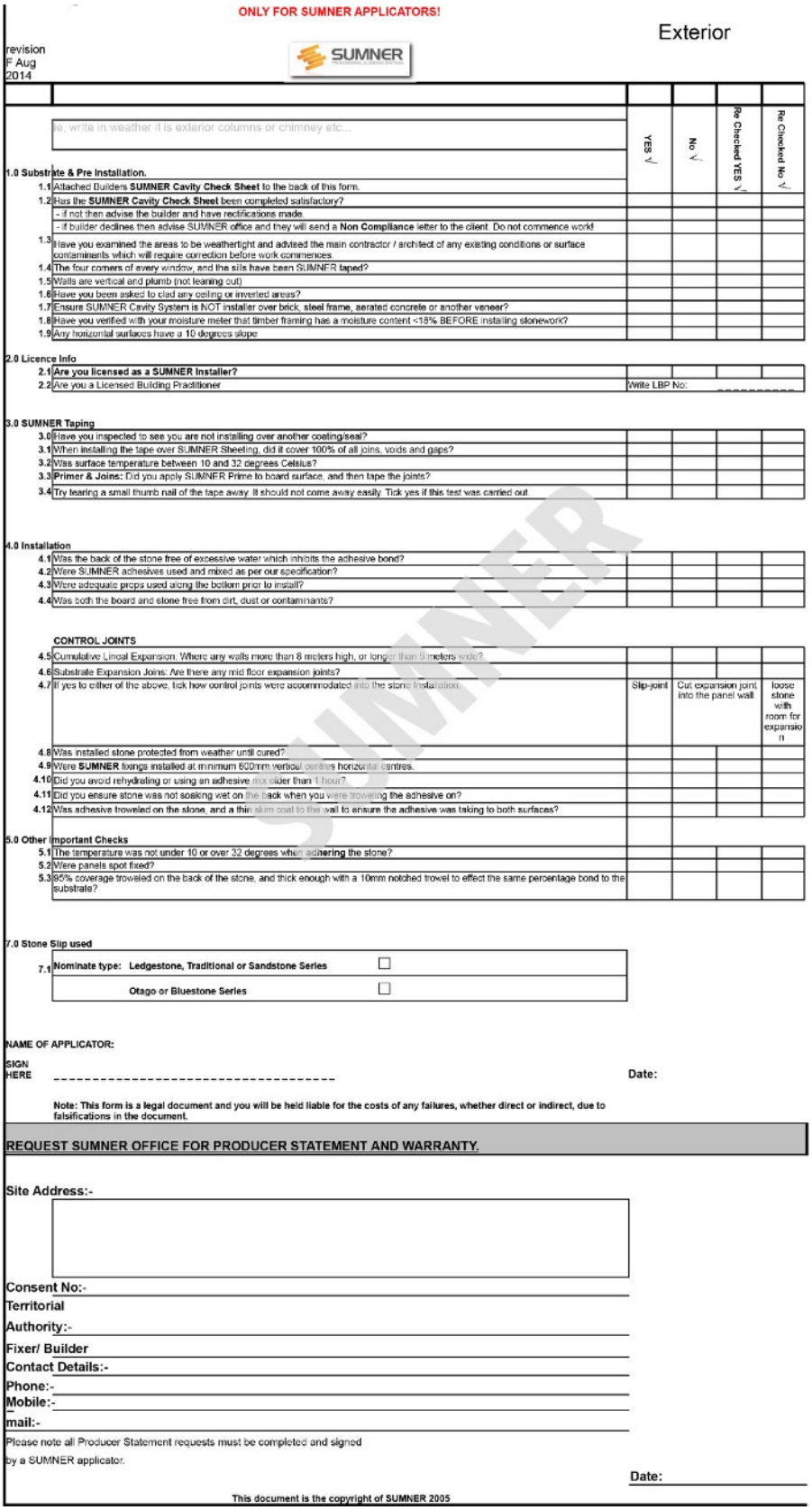
- Never use a water blaster to clean cladding under any circumstance (this could compromise your window seals).
- Gentle house wash is recommended to be carried out once a year.
- Avoid the use of aggressive chemical cleaning agents.

9.3 Warranty

Any trade-qualified installer can apply SAMV System. The SUMV warranty provides for products being fit for purpose.

10.0 CHECKLISTS

For Warranty purposes, we must receive the following completed SUMNER CAVITY CHECKLIST and SUMNER INSTALLATION CHECKLIST. Please ensure you have the latest version by visiting our website, www.sumnerschist.co.nz.



ONLY FOR SUMNER APPLICATORS!

Exterior

revision F Aug 2014

		YES √	No √	Re Checked YES √	Re Checked No √
	ie, write in weather it is exterior columns or chimney etc...				
1.0 Substrate & Pre Installation.					
1.1	Attached Builders **SUMNER Cavity Check Sheet** to the back of this form.				
1.2	Has the **SUMNER Cavity Check Sheet** been completed satisfactory?				
	- if not then advise the builder and have rectifications made.				
	- if builder declines then advise SUMNER office and they will send a **Non Compliance** letter to the client. Do not commence work!				
1.3	Have you examined the areas to be weathertight and advised the main contractor / architect of any existing conditions or surface contaminants which will require correction before work commences.				
1.4	The four corners of every window, and the sills have been SUMNER taped?				
1.5	Walls are vertical and plumb (not leaning out)				
1.6	Have you been asked to clad any ceiling or inverted areas?				
1.7	Ensure SUMNER Cavity System is NOT installed over brick, steel frame, aerated concrete or another veneer?				
1.8	Have you verified with your moisture meter that timber framing has a moisture content <18% BEFORE installing stonework?				
1.9	Any horizontal surfaces have a 10 degrees slope				
2.0 Licence Info					
2.1	**Are you licensed as a SUMNER Installer?**				
2.2	Are you a Licensed Building Practitioner	Write LBP No:			
3.0 SUMNER Taping					
3.0	Have you inspected to see you are not installing over another coating/seal?				
3.1	When installing the tape over SUMNER Sheeting, did it cover 100% of all joins, voids and gaps?				
3.2	Was surface temperature between 10 and 32 degrees Celsius?				
3.3	**Primer & Joins:** Did you apply SUMNER Prime to board surface, and then tape the joints?				
3.4	Try tearing a small thumb nail of the tape away. It should not come away easily. Tick yes if this test was carried out				
4.0 Installation					
4.1	Was the back of the stone free of excessive water which inhibits the adhesive bond?				
4.2	Were SUMNER adhesives used and mixed as per our specification?				
4.3	Were adequate props used along the bottom prior to install?				
4.4	Was both the board and stone free from dirt, dust or contaminants?				
	CONTROL JOINTS				
4.5	Cumulative Lineal Expansion: Where any walls more than 8 meters high, or longer than 5 meters wide?				
4.6	Substrate Expansion Joins: Are there any mid floor expansion joints?				
4.7	If yes to either of the above, tick how control joints were accommodated into the stone installation	Slip-joint	Cut expansion joint into the panel wall		loose stone with room for expansio n
4.8	Was installed stone protected from weather until cured?				
4.9	Were **SUMNER** fixings installed at minimum 600mm vertical centres horizontal centres.				
4.10	Did you avoid rehydrating or using an adhesive mix older than 1 hour?				
4.11	Did you ensure stone was not soaking wet on the back when you were trowelling the adhesive on?				
4.12	Was adhesive troweled on the stone, and a thin skim coat to the wall to ensure the adhesive was taking to both surfaces?				
5.0 Other Important Checks					
5.1	The temperature was not under 10 or over 32 degrees when adhering the stone?				
5.2	Were panels spot fixed?				
5.3	95% coverage troweled on the back of the stone, and thick enough with a 10mm notched trowel to effect the same percentage bond to the substrate?				

7.0 Stone Slip used

7.1	**Nominate type: Ledgestone, Traditional or Sandstone Series**	☐
	Otago or Bluestone Series	☐

NAME OF APPLICATOR:

SIGN HERE _____ **Date:**

Note: This form is a legal document and you will be held liable for the costs of any failures, whether direct or indirect, due to falsifications in the document.

REQUEST SUMNER OFFICE FOR PRODUCER STATEMENT AND WARRANTY.

Site Address:-

Consent No:-

Territorial Authority:-

Fixer/ Builder Contact Details:-

Phone:-

Mobile:-

mail:-

Please note all Producer Statement requests must be completed and signed by a SUMNER applicator.

Date:

9.1.1 SUMNER Cavity Checksheet - Timber Frame Exterior

Project:		O.K √	Req'd √	Re Check	O.K √	Re Check	Date of O.K
Operation: Full System for Timber frame Exterior							
Revision: F (Manual 2014/08)							
Work Sequence	Level/Zone						
Considerations	Keep timber framing dry. Framing can have a maximum moisture content of no more than 18% to apply the stonework. As such we recommend using Kiln dried timber (14%-16% moisture) and wrapping the building asap. SUMNER Board acts as a rain shield so this should also be put in place asap.						
SUMNER CAVITY							
1.0 Framing Checks							
1.1	Check for double stud at window/door openings & internal corners						
1.2	Check alignment of framing i.e. Studs & nogs straight and true						
1.3	Upper framing aligning with lower framing						
1.4	Intermediate studs at centre < 600mm						
2.0 Air Seal							
2.1	**Identify air seal**						
2.1.1	Low wind loading < 1550 kpa, can be building wrap						
2.1.2	High wind loading > 1550 kpa, must be SUMNER Board						
2.1.3	Fire rated to -/30/30 & < 1550kpa, can be building wrap						
2.2	**Roof Flashing**						
2.2.1	Fit lower roof flashings intersecting with upper framing with upstand behind building wrap & stop ended where necessary						
2.3	**Building wrap**						
2.3.1	Fixed with staples. Fix blue band (Polyprop Tape) vertically between studs> 300 cts or horizontally between nogs						
2.3.2	Repair all cuts & tears with duct tape						
2.3.3	Fold in around windows (4 sides)						
2.3.4	Tape the 4 corners and sill of each opening with SUMNER tape.						
2.4	**Rigid backer**						
2.4.1	Fix with 40mm clouts at 300 centres to all nogs & studs						
2.4.2	Edge distances; min 15.0mm Corner distances; min 100 & 50						
2.4.3	Perimeter seal with SUMNER Tape						
2.4.4	Tape the 4 corners and sill of each opening with SUMNER tape.						
3.0 Batten & Flashing							
3.1	**Fixings** - Tack in place with 40 mm fixings						
3.2	**Set out horizontal battens**						
3.2.1	Top (set 10.0mm below horizontal protrusion)						
3.2.2	Bottom (set flush with bottom plate)						
3.2.3	Fit horizontal batten to bottom of full Ht. windows/doors with top of batten flush with top of floor or retro fit aluminium angle						
3.3	**Fitting flashings**						
3.3.1	Vermin flashing to bottom batten						
3.3.2	Fit head and sill tray flashing over windows (extend past by 50mm) including assembling Stop Ends						
3.3.3	Building wrap sits into head flashing						
3.4	**Fit off remainder of batten**						
3.4.1	Horizontal above window						
3.4.2	Horizontal below window						
3.4.3	Vertical at window is set back 10mm						
3.4.4	Verticals at all sheet joins						
3.4.5	Verticals at all intermediate studs (max 600 cts)						
3.4.6	Horizontals at all horizontal joints & nogs						
3.4.7	Horizontals at inter-storey refer to specific detail						
3.5	**Penetrations**						
3.5.1	Fit meter box using SUMNER tape flash to all 4 sides of penetration						
3.5.2	Install all pipe & duct penetrations and seal as with site folded SUMNER tape gasket						
SUMNER BOARD							
4.1	**Fixing Board**						
4.1.1	Sheets to over-sail bottom plate by 50.0mm						
4.1.2	Maintain ground clearances. Bottom of sheets to finish 35.0 mm clear of finished deck surface or 100.0 mm clear of paved surfaces or 175.0 mm clear of unpaved surfaces						
4.1.3	9.0mm fix with 60mm stainless steel screws						
4.1.4	Normal weight system, centres max 220mm to perimeter, centre stud and nogs						
4.1.4	Heavy Weight System centres max 180mm to perimeter, centre stud and nogs (SUMNER Otago and Bluestone Series only)						
4.1.5	Heads NOT flush with face of sheet - ie leave 2mm proud						
4.1.6	Window flashings stop ended (Sealant if PVC)						
4.1.7	Install Air Seal to window trim gap prior to fixing interior lining						
CONTROL JOINTS	4.1.8 Provide for vertical control joints @ 5m centers max, and horizontal control joints at max 8 m centers						
	Nominate type: SUMNER Ledgestone Series ☐						
	SUMNER Otago Series ☐						
	SUMNER Traditional Series ☐						
	SUMNER Bluestone Series ☐						
	SUMNER Sandstone Series ☐						

NAME OF BUILDER: _____

BUILDERS LBP Number: _____

PLEASE SIGN HERE _____ **Date:**

Note: This form is a legal document and you will be held liable for the costs of any failures, whether direct or indirect, due to falsifications in the document.

11. APPENDIX

Structure - Clause B1

11.1 Mass

The approximate mass of the SAMV System is 45 to 92kg/m2, considered a heavy wall cladding in terms of NZS 3604.

11.2 Impact Resistance

The system has adequate resistance to impact loads that the cladding system will likely be subjected to when used in a residential situation. When used in commercial situations, the likelihood of impact damage to the system should be considered, and consideration should be given to the design to provide appropriate protection, such as bollards or barriers where necessary.

11.3 Wind Zone

The SAMV System is suitable for use in all building wind zones as per NZS 3604, up to and including ‘Very High’ where buildings are designed to meet the performance requirements of NZBC Acceptable Solution E2/AS1, or up to the ultimate limit state (ULS) wind pressure of 2500Pa when the building is subject to specific design.

Durability - Clause B2

11.4 The SAMV System, when used following the appraisal and subjected to normal conditions of environment and use, will meet the performance requirements of NZBC B2.3.1 (b), 15 years for the cladding system.

11.5 Maintenance

Regular maintenance is essential to ensure the performance requirements of the NZBC are met and to ensure the maximum serviceability of the SAMV System.

Periodic cleaning of the System wall is required to remove grime, dirt and organic growth per the Technical Literature to maximise the life and appearance of the stones and adhesive.

Any cracks, damaged areas, or areas showing signs of deterioration that could allow water ingress must be repaired immediately. The SAMV System must be maintained and fixed per SUMNER's instructions.

Minimum ground clearance, as set out in this Technical Literature, must be maintained at all times during the system's life to keep the system's durability and weather tightness.

External Moisture - Clause E2

11.6 When installed following this Technical Literature, the SAMV system will prevent the penetration of water that could cause undue dampness and damage to building elements and will therefore comply with clause E2.3.2.

11.7 The cavity must be sealed off from the roof and subfloor space to meet the performance requirement of E2.3.5.

11.8 The SAMV system allows excess moisture present after construction to be dissipated without causing permanent damage to the building elements to meet the performance requirement of Clause E2.3.6.

11.9 The details provided within the Technical Literature for weather resistance are based on the design principle of employing a 1st and 2nd line of defence against moisture entry for joints, penetrations and junctions. Detailing any joinery or wall junctions, as shown in this SAMV technical manual, must prevent moisture ingress. Any weather tightness details developed by a designer are outside the scope of this manual and are the designer's responsibility.

11.10 The presence of a drained cavity does not reduce the requirement to ensure the cladding wall and all the relevant junctions, penetrations, etc., remain weather resistant to comply with Clause E2.3.6.

11.11 Water Vapour

The SAMV system is not a barrier to the passage of water vapour. When correctly installed per Technical Literature will not create or increase the risk of moisture damage from condensation.

When the SAMV system is installed over a steel frame, 10mm (V.H) expanded polystyrene thermal break sheeting with an R-value of at least 0.3 must be installed over the steel frame (stud, nog, top and bottom plate) to provide a thermal break per the requirements of NZBC Acceptable Solution E3/AS1, Paragraph 1.1.4(d). Building wrap is then dressed over the top of the sheeting, followed by the installation of the SAMV cavity battens.

Published by Original Stone Company Limited.
PO Box 125 029, St Heliers, Auckland 1740.
Tel: (09) 579 3326, Fax: (09) 579 7308
Website: www.sumnerschist.co.nz