Installation Procedure for EcoSmart Stone and TechStone for Timber or Metal Framed Structures

Smartstone® systems

Installation Procedure for EcoSmart Stone and TechStone Products

for Timber or Metal Framed Structures

1. Getting started

There are few decisions that should be made before ordering your EcoSmart Stone or TechStone products. Such as the type of stone, and the style of stone e.g. 300 Series or Ashlar Series. You should also decide on corner treatments, whether they are a different stone or texture to complement the body stone. Maybe 300 Series corners with Ashlar body stone to pick out the corners.

Fast Facts

1. 300 Series stone are all 298mm > 299mm in height (300mm centres with the Smart*Clips* thickness) They are usually used in a mixed size range of 400mm, 500mm and 600mm lengths placed randomly to suit style and fit.
2. 300 Series corners are 400mm x 200mm and these can be used also in conjunction with the Ashlar Series panels to highlight the corners.
3. Ashlar Series is 1200mm in length and the same height as the 300 Series (298mm > 299mm) These are supplied with spare stone to place in the interlocking section of the panel. These are simply glued into place once all the panels are installed.
4. At the planning stage you should consider the window treatments required/preferred, as the size of the window frames will dictate what can be done, or not. These decisions should be made early for your window supplier to accommodate your preferences. The least expensive style (least work) is to have the window frames made and finished to extend externally at least 80mm from the wall studs. This allows the wall stone to be butted and sealed to the frames without the need for stone with side returns for doors and windows. Sills if required can still be used with this installation if desired. Many standard window frames only protrude 20mm > 30mm from the studs thus will require reveal stone or blocks with setbacks on the sides. The result is the window frame will sit back around 40mm from the front face of the stone cladding.
5. Reveal stone is not available with the Ashlar Series so the options are as first in above paragraph, where bigger window frames are used and the stone butted into them. The second option with standard window frames is to use Window/Door returns #2 and the Sills #2 styles in our catalogue.
6. 300 Series may be purchased with clean cut edges for a pencil joint finish, or with bevelled edges which allows flexible grout to be applied after the installation completion.
7. TechStone is available in the same sizes/format as the 300 Series and will soon be available in a 600 Series. (1200 mmx 600mm)
8. Our staff are available and ready to assist you with any areas where further clarity is required relevant to your personal project. If specific size requirements need fulfilled we can assist subject to quantity.

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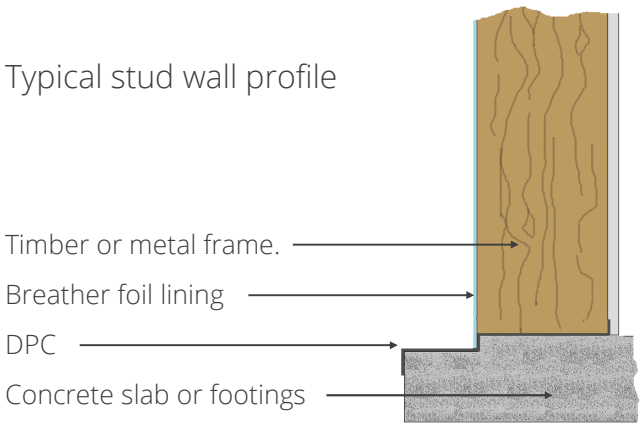
2. You will need

1. 300 Series or Ashlar stone, corners and sills, starter rails, alignment joiners and Smart*Clips* .
2. 10G x35/40mm length hex head galvanized screws, 30mm self drilling if for metal frame.
3. Credible brand Silicone or Polyurethane adhesive and applicator.
4. Battery or electric screw driver with hex driver bit.
5. Dumpy level, digital level, spirit level or a water level.
6. 300m capable mitre saw, or table saw, or 125mm angle grinder with diamond turbo blade.
7. Tape measure, a set square and a 20mm wide snap-off blade knife.
8. 18-19mm x 40mm treated primed timber battens for soffit and window finishing's where required.
9. Small movable worktable to work on for cutting and trimming tasks.
10. 75mm x 50mm x 1.5mm > 2mm 'L' section folded gal metal or aluminium for lintels where required.

Cutting EcoSmart Stone or TechStone is quite simple and quick due to the thin stone laminate. They can be cut with wet or dry turbo/diamond blades. If using dry cutting machinery and blades ensure an adequate breathing filter apparatus is worn along with earplugs for safety. Portable circular saws are not advisable as they cut blade up at front which can cause chipping to the face of the stone surface. All cutting should be performed with the blade running downwards at the front of the cuts.

Ensure the structure has DPC where required at base plate of studs and all walls are lined with appropriate standards approved breather foil to manufacturers instructions prior to the application of any SmartStone products. The bottom starter rails are supplied with pre-punched weep holes.

Typical stud wall profile



Thermal insulation

SmartStone products system thermal value is R-3.0 and exceeds most compliance requirements and does not generally require any other between stud insulation. Check with local requirements in your area before commencing installation works.

3. General

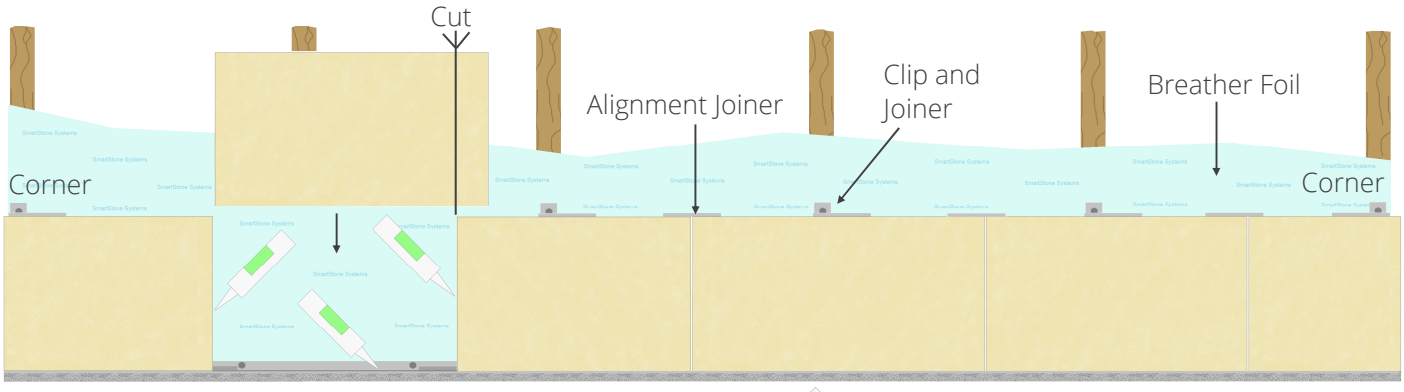
All SmartStone products have an overall thickness of between 55mm and a 60mm maximum depending on the stone type and finish chosen. With the Smart*Clip* installation the cavity is 18mm/19mm resulting in the finish being > 80mm from the stud wall.

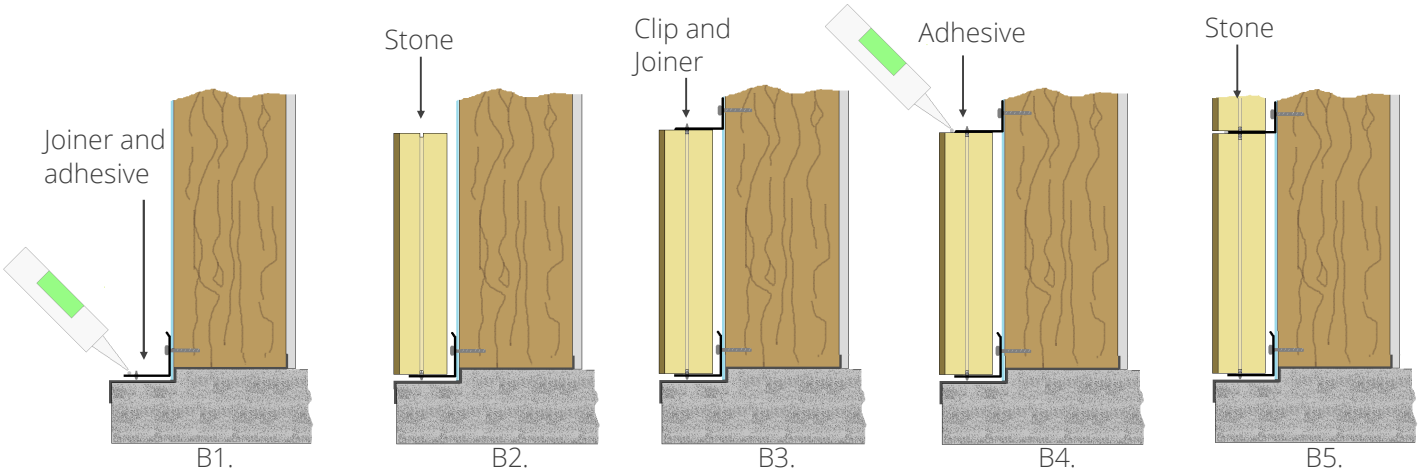
Start the installation by fixing the starter rail with fixing screws no more than 600mm centres. Ensure this rail is perfectly plumb and level as this dictates the accuracy of the whole product installation. SmartStone Systems product is calibrated to plus/minus 0.5mm tolerances on all stone height measurements. With this easy and slight adjustments can be made as installation progresses with no visual impairments to line and level.

Fixing the stone cladding should begin firstly with the corners being positioned in place with at least 4 alignment joiners per corner. Place these in the starter rail ensuring overlapping allowance to the next block being fitted. The Smart*Clip* fitting alignment joiners should be placed across each horizontal join abutment to every block, with one joiner in each vertical abutment.

Waterproofing is achieved by placing a 5mm bead of adhesive sealant in an unbroken line 10mm in front of fitting groove on all horizontal and vertical joints/abutments. Due to varying viscosity of materials application of too much may result in adhesive 'ooze' to the face of the stone. Reduce as required if this occurs. (Not at the expense of too little and the waterproofing integrity) If 'ooze' does occur through the front joint to the face of the stone it is BEST to simply leave to cure. and cut out later. Attempts to clean wet adhesive can result in smears on the stone which can be very difficult to remove without marring its beauty.

Working from one corner to the other choose the size stone to best suit the opening. When meeting the other corner it is best to check opening left at about 1800mm, (6ft) and see which size combination suits the balance of the opening to be filled, and make the smallest final cut to suit. This can be cut with the turbo diamond blade affixed to your cutting tool of choice. Check for fit before applying glue, adjust if required, apply glue and fit into place. (These are best fitted BEFORE the vertical joiners are placed in the grooves) Once in place and aligned then slide joiners down the grooves each side from the top.



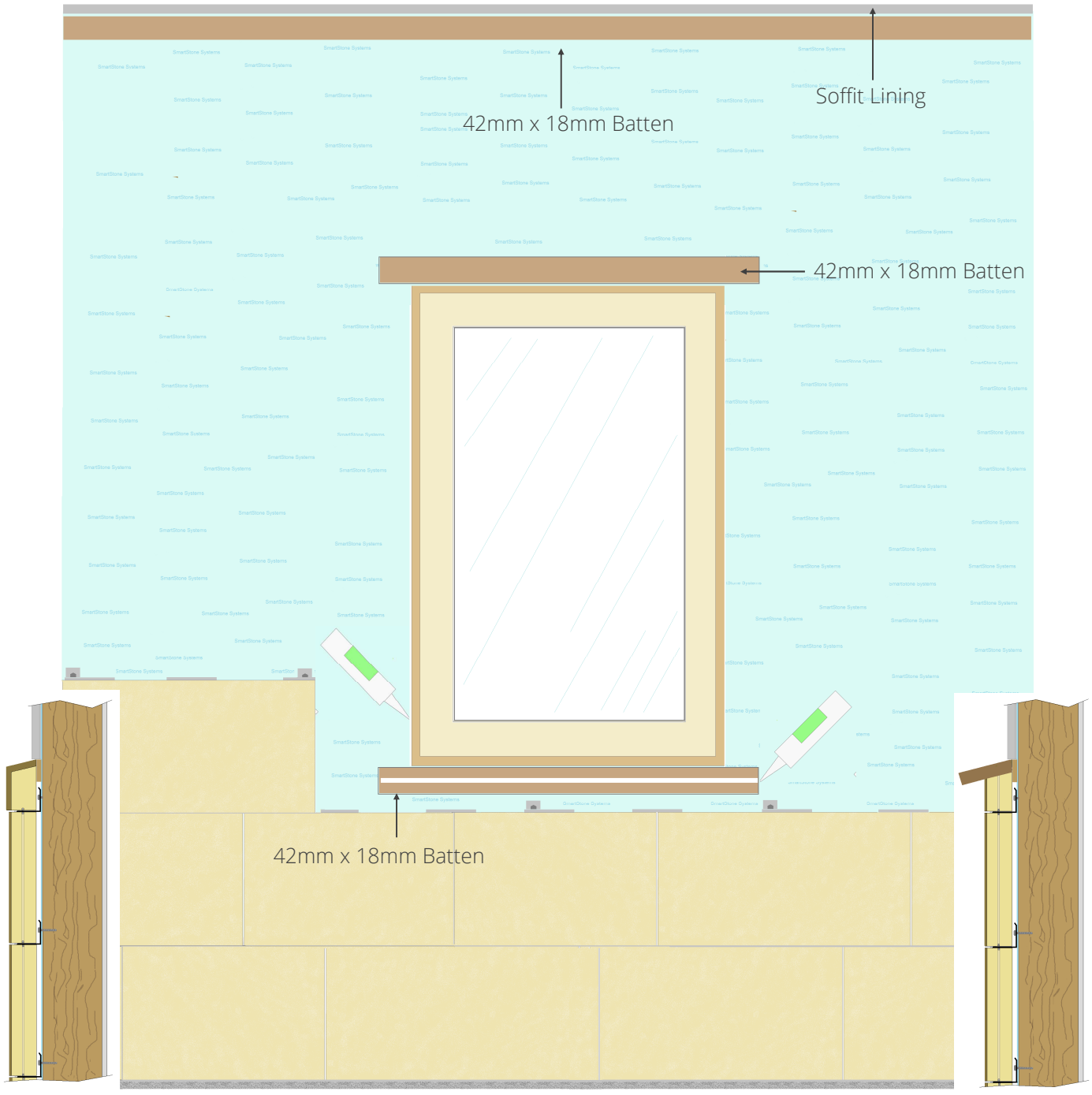


4. Window Sills

Where window sills are to be used then 42mm x 18mm treated/primed battens should placed below each window frame and fixed with 40mm screws. These battens should also be placed directly underneath soffits and top/bottom of any sloping gable areas.

Body stone is likely to require trimming to allow for sill placements. These can simply be re-grooved to allow for clip installation after trimming.

Adhesive should be applied to the bottom body stone and along the batten prior to fitting the sills. Note that all openings should also be sealed completely around all frames on completion to ensure there is a totally waterproof finished substrate. Illustration shows a #2 sill option using 100mm x 30mm solid stone.



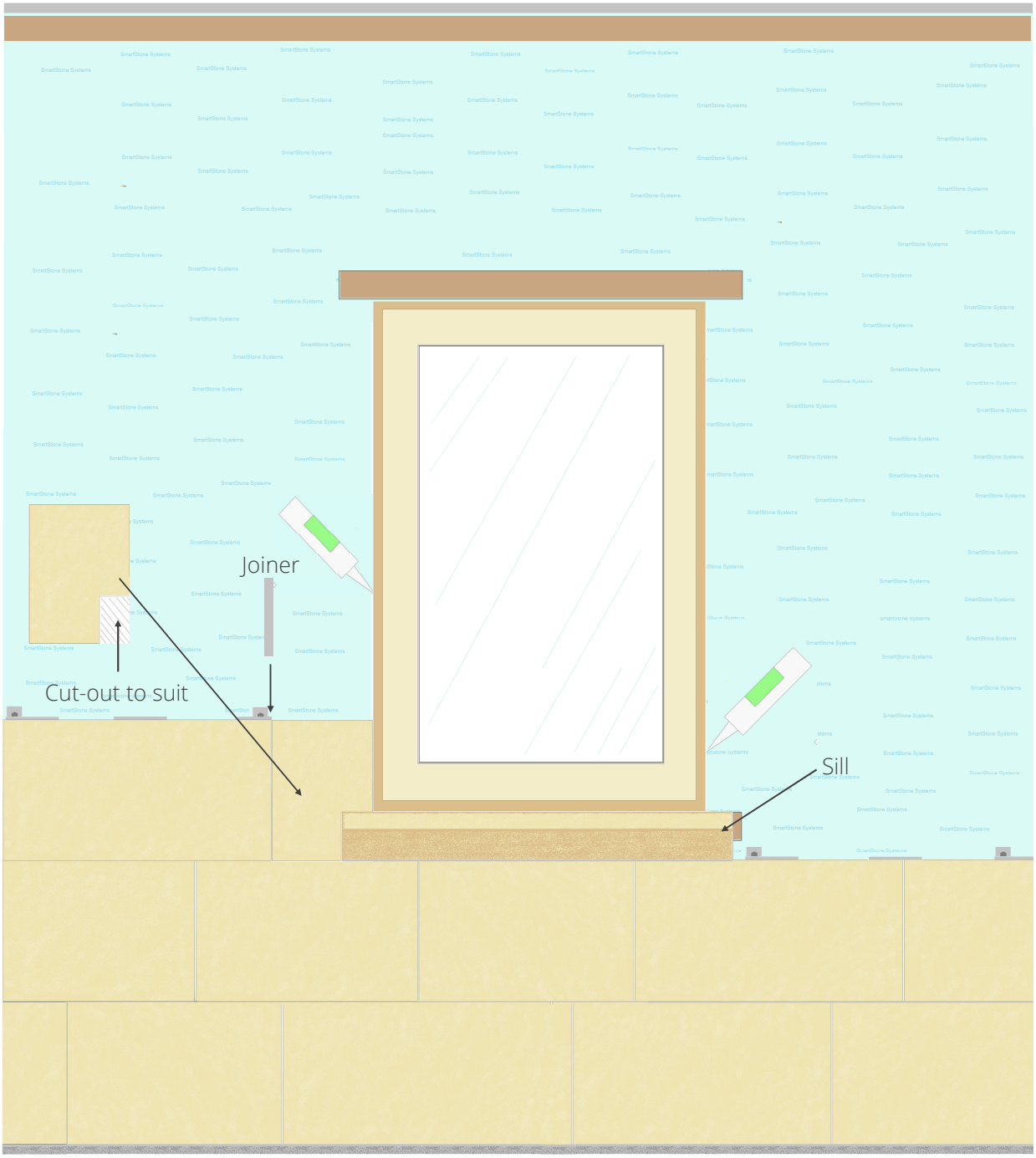
#1 Sill Option

#2 Sill Option

5. Window and Door Surrounds

If using larger window frames and the butt method simply trim the body stone to suit the opening and install as before ensuring adhesive is applied to adequately seal the joints between the frame and stone. If standard window frames are used and setback is required then you should have ordered reveal stone for this application. Select the best size (these are usually supplied in mixed shorts (250mm) and longer (500mm) to fit the opening size required. For large areas you can start at the window frame and then work towards the corners which will save cutting once above the sill area.

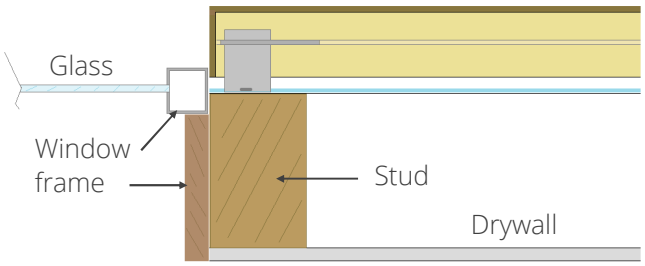
NOTE when placing final blocks into the last opening of each course put the alignment joiners vertically into the groove from the top of the stone, after the stone has been positioned.



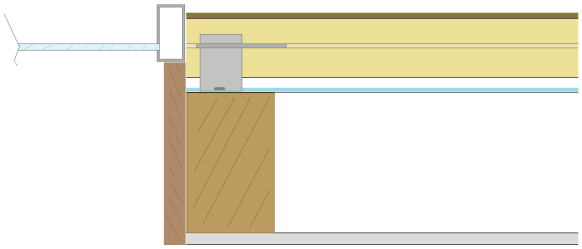
6. Window and Door Surrounds

The following examples are illustrations of the three window/door opening options. #2 reveals are 80mm x 20mm x 600mm stone set around the perimeter of each frame against the body wall stone. Remember #3 should be considered before ordering window and doors from suppliers to accommodate this option. It may cost a little more but it does save money/time on installation labour and the extra cost of reveal stone, either #1 or #2. Option #3 also allows for installation without sills being required if desired.

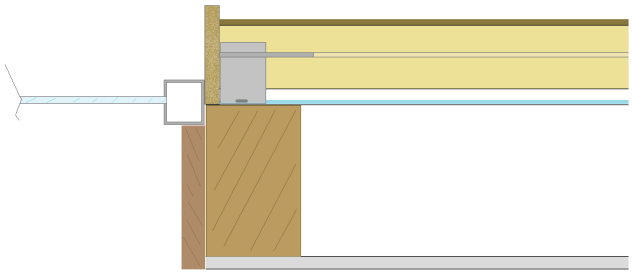
Reveal #1 Return

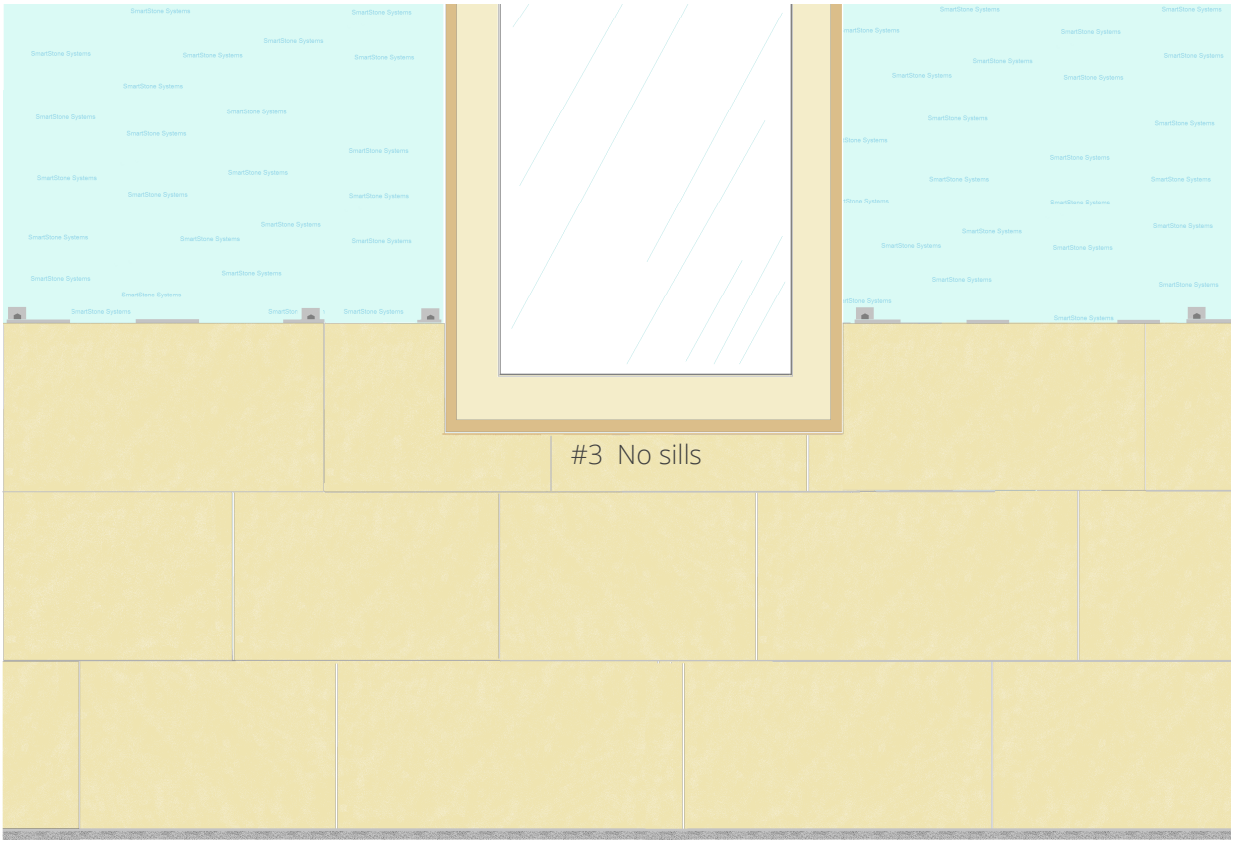


#3 Flush fit body stone to frame



Reveal #2 Return



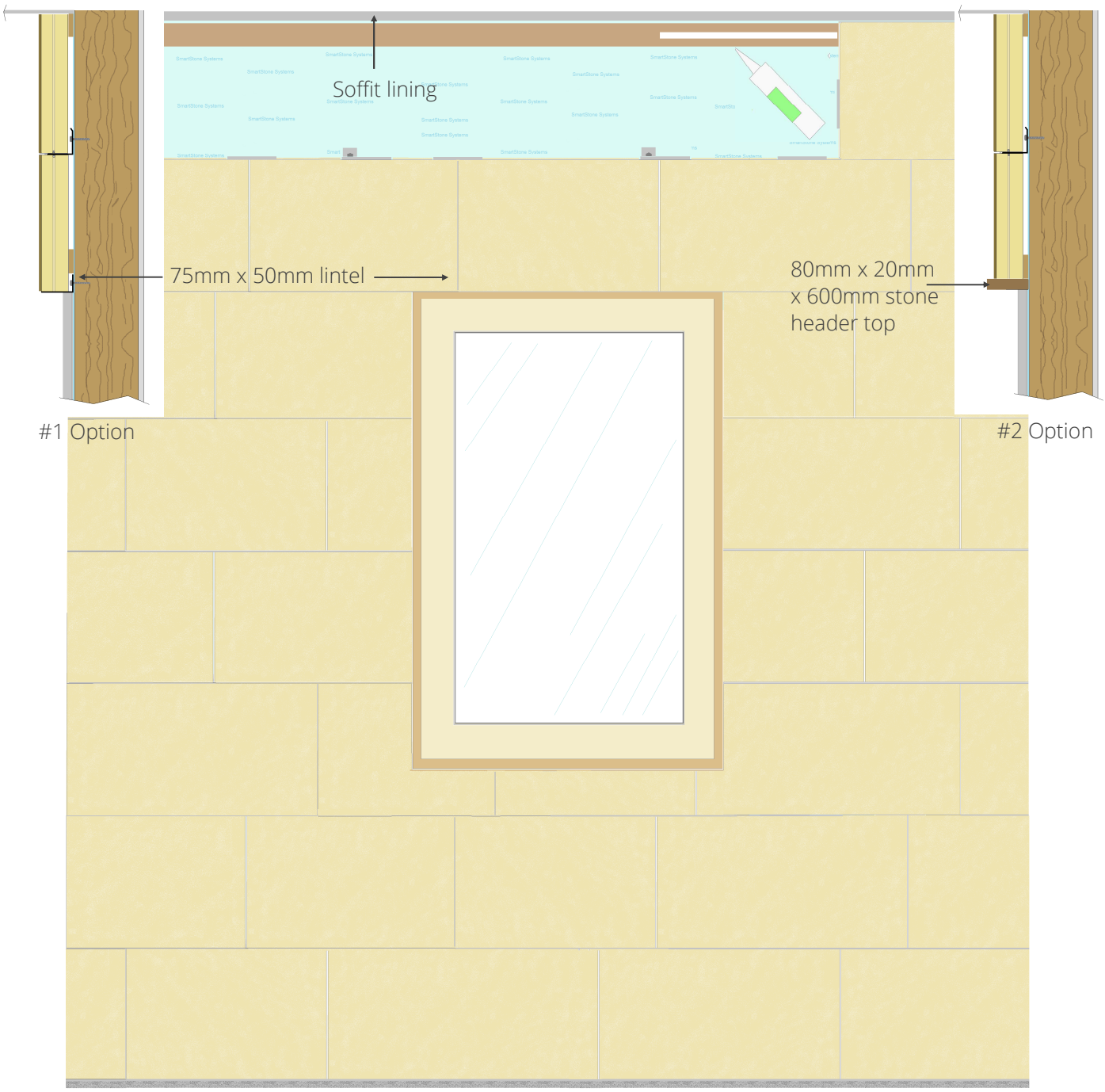


7. Window, Door Headers and Soffit

The illustrations below show window and door header options. #1 utilizing the metal or aluminium 'L' shape section lintel. The cladding should be trimmed to sit level with the top of the adjacent course. Then glued flush to the batten and to the lintel at bottom. Slide joiners vertically in from top as outlined previously.

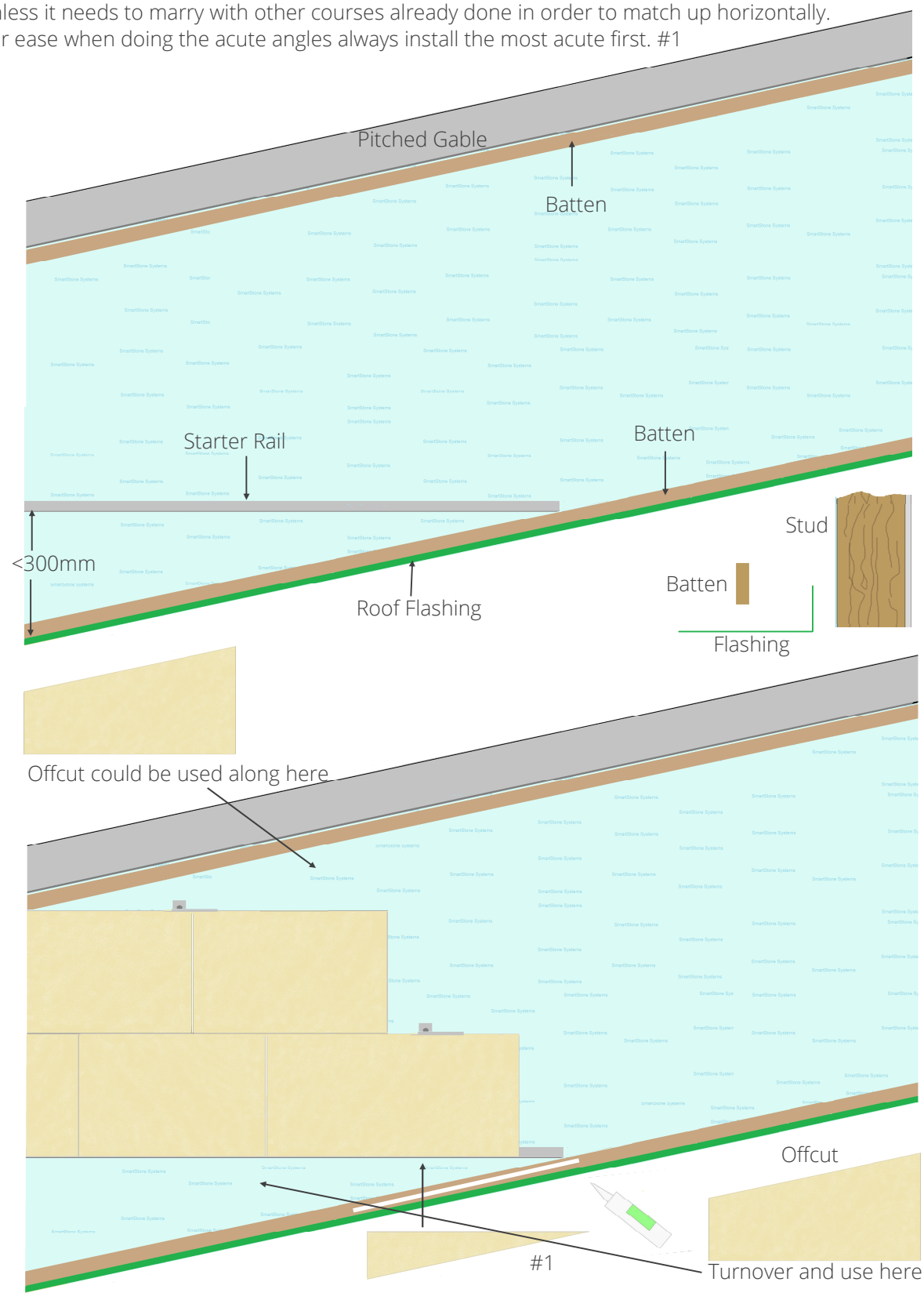
#2 option utilizes the solid 80mm x 20mm stone. This is cut to suit and wedged firmly with the batten being fitted bottom edge glued after to ensure it is held level in position until the body stone is fitted and glued above. (This may require propping from underneath until adhesive is cured).

The top course is trimmed to suit the opening , then swung into place bottom first into joiners and pressed firmly onto the adhesive coated batten at the top.



8. Roof Pitches, Gables or Sloping Ground,

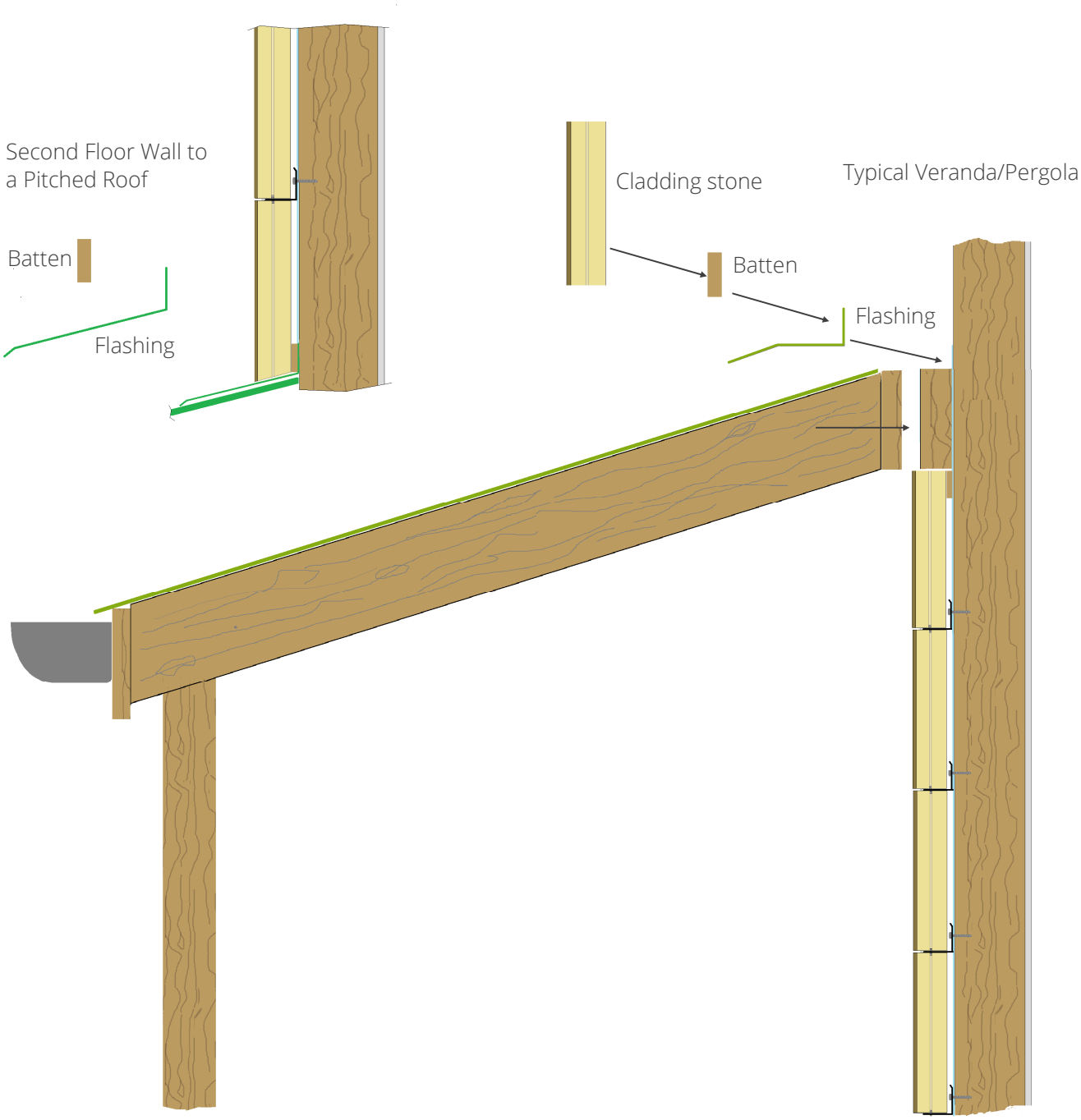
Illustrations below demonstrate the best procedure for upper walls to pitched roof and gables. Generally the angle is similar so most leftover stone scribed to suit pitch can be turned around and used in other areas top or bottom. Starter rail should be placed at longest point from bottom at 300mm or just less, unless it needs to marry with other courses already done in order to match up horizontally.
For ease when doing the acute angles always install the most acute first. #1



9. Weight Bearing Attached Structures

Heavy structures should not affixed through the stone cladding. A back plate should be attached to the studs matching the end plate of the (in the illustration below) roof rafters on a pergola/veranda. This provides the structural strength required. It also makes the stone installation simpler, neater and faster as no cutting around the rafters is required. Once the structure is fixed to the studs any roofing and flashing can fixed as per drawing. Then the upper stone cladding can be fixed. With some roofing such as corrugated iron the flashing and cladding could be done before the roofing iron is installed. (In this situation sufficient space should be allowed for the corrugated iron to be snuggly slid underneath later.

Flashings from second floor walls to gable roofs can be treated with similar flashing detail. Tile roofs can be accommodated in advance with use of flexible flashing or lead to enable raising for placement of tiles later. Co-ordinate with your roofing professional for the best wall/roof flashing advice relative to your project.



10. Retrofit and Direct Fixing to Masonry and Fibre Reinforced Sheet

Retrofit over weather boards and existing fibro sheeting can be performed using the Smart*Clips* with longer thread ends to ensure at least 30mm penetration into the stud wall framing. Studs should be found and marked prior to installation. Minor undulations can be countered by adding packers behind the clips or rail. It is not advisable to direct adhesive fix to weatherboards or older fibro cement sheeting unless they are in sound condition and existing fixings are sufficient to carry the extra load added with the cladding material.

Concrete block, brick and masonry walls can be clad using direct fix with good quality brand Silicone or Polyurethane adhesive using 20 cent blob method with at least 9 blobs evenly spaced on each tile backing. When applied they should be pressed and wriggled to ensure a good bond grip. With direct fix it is still recommended to use the alignment joiners (vertical and horizontal) as they maintain a level front face regardless of the existing building face. Where excessive undulations occur it may require shaving some off the back of the stone cladding tile, which is quite simple.

Retrofit is a great way to gain a beautiful totally new façade, and enjoy the comfort of an insulated building, without removal (most cases) of existing internal or external material in order to install insulation between the studs. This results in great savings, not to mention the savings if existing cladding is asbestos based which has a high cost for safe removal if sought.

Note : SmartStone Systems standard range of insulated backing are a B1 fire rated material They will not sustain or support flame or fire when without source fire. They are however not designed for use in fire places where direct flame is exposed or very high heat is expected to be present.

Where a total non combustible A1 rated material is specified please consult us about our FirePlus insulated A-1 fire rated stone cladding.

Wishing you a happy new build with SmartStone Systems or a stunning retrofit revival of your old.

We do our best to have as much informative information as possible for consumers, and to try and keep it simple to understand. If there is anything that is found ambiguous or confusing we appreciate your feed-back so that we can make adequate changes for others in the future. Thanks to those that do assist here. Perfection is very hard to attain, if at all, however we would like to at least aim for excellence in what we do.

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