PRIMA™
FIBRE CEMENT BUILDING SOLUTIONS

Technical Manual

PRIMA *liner*™

SAINT-GOBAIN

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PRIMA liner™

Internal Lining Board

Immune to permanent moisture damage.

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1 Product Information

1.1 General

PRIMA*liner*™ is a fibre cement lining board, composed of Portland cement, cellulose fibre, specially ground sand and water. It is manufactured to the highest level of quality, under the international accreditation of ISO 9002, exclusively by Saint-Gobain Prima Sdn Bhd a member of the worldwide leader in creating sustainable habitats, Saint-Gobain group.
PRIMA*liner*™ is manufactured with rebated edges for flush jointing to allow a smooth joint free finished surface.

1.2 Durability and Strength

- Immune to permanent water damage
- Will not rot or bum
- Dimensionally stable
- Unaffected by steam, sunlight or termites
- High impact strength
- Hard wearing surface
- Minimal maintenance
- Exceptional durability

These advantages place PRIMA*liner* as a premium board compared to gypsum or timber and ideal for buildings demanding high performance sheeting.

1.3 Climatic and Environment Responsive

PRIMA*liner* is ideal for humid climates, where paperfaced boards are very prone to deterioration. PRIMA*liner*'s ability to resist short and long term exposure to moisture degradation makes it the choice substrate for ceramic or marble tiles in wet areas.

1.4 Versatility

PRIMA*liner*'s range of applications, throughout a building's interior, as a high quality wall lining can only be limited by one's imagination. Various dry wall systems can be easily installed and are excellent value for money.

A premium quality fibre cement board with square rebated edges for flush jointed internal walls.

The continuous quest for better value for money and improvement are very common objectives. Now you have the comfort of knowing that the PRIMA*liner* you have chosen will provide the on-going high performance and durability requirements.

Home's PRIMA*liner* is a high quality, high impact, fire resistant, fibre cement lining board ideal for walls in both domestic and commercial construction. Its versatility also enables it to be specified in any of the following applications:

Key Application Areas of PRIMA*liner*

Application	System	Vital Performance Criteria
Internal Drywall	• Wet Area System	• Long term resistance to moisture and steam • Good substrate for tiles
	• Sound Rated Systems • Fire-rated System	• Moisture resistance • Impact resistance • Seamless joint • Fire-rating • Sound rating • Durability

2 Specifications

2.1 Product Description

PRIMA*liner* is an autoclaved cellulose fibre cement sheet, with a special formulation for the needs of internal dry and wet area applications.

PRIMA*liner* has a smooth, sealed surface and is suitable for tiling.

PRIMA*liner* has square rebated edges on both sides of its length and arrised edges at the ends, for a neat flush joint.

PRIMA*liner* is manufactured from top grade cellulose fibre, finely ground sand, cement and water.

2.2 Fire Resistance

PRIMA*liner* is classified as a Class '0' building material under the Malaysian Uniform Building By-law 1984.

PRIMA*liner* has been tested in accordance with BS 476; Fire tests on building material and structure. The test results are as follows:-

Ignitability - Designated 'P'
(BS 476: Part 5) (No flaming occured)
0 Fire Propagation - Index of Performance, I=O
(BS 476: Part 6)

2.3 Physical Properties

Physical Properties

Properties	Typical Values
Density at EMC	1390kg/m^3
Moisture Content at EMC	Approximately 7%
Moisture Movement from EMC to saturation	0.04%
Thermal Conductivity, *k* Value	0.3W/mK
Thermal Insulation, R Value	6.0mm - 0.020m^2 K/W 9.0mm - 0.033m^2 K/W
Flexural Strength at EMC	Parallel - 10.5 MPa Transverse - 15.5MPa Average - 13.0MPa

Note:
Where values are stated at EMC, the Ambient Temperature is 27˚C± 2˚C and Relative Humidity is between 65% - 95%

2.4 Fastener

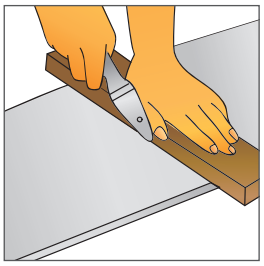
Fastener	
Galvanized Fibre Cement Wire Nail (for fixing to softwood and hardwood.) 	Prima fastener Wing Tek self-embedding head Self-drilling and reamer point screw (for fixing to light gauge steel frame) 
2.0mm Ø x 30mm for softwood	8 gauge - 18 x 25mm long to fix 6mm board.
2.0mm Ø x 25mm for hardwood	8 gauge - 18 x 30mm long to fix 9mm board.

1. All nails shall comply with '***AS 2334: 1980*** -STEEL NAIl..S- METRIC SERIES' or equivalent standard.
2 All screws shall comply with '***AS 3566: 1988***; SCREWS - SELF DRILLING - FOR THE BUILDING AND CONSTRUCTION INDUSTRIES or equivalent standard.

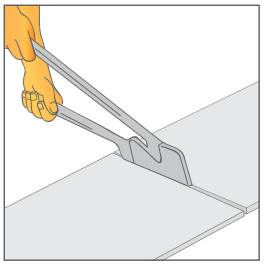
3 Working Instructions

3.1 Cutting

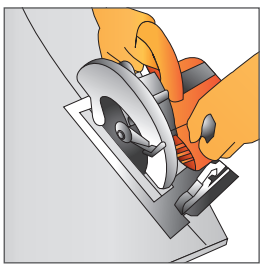
PRIMA*liner* sheet may be cut using power cutting tools. This operation should be carried out strictly in accordance to local regulatory requirements. Information on any known health risk associated with our product and how to handle them safely can be obtained from our head office.



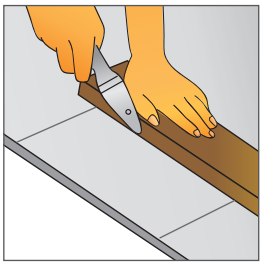
Score 'N' Snap Method
- Ensure that the sheet face is upward.
- Score against the straight edge and repeat the action until a cut depth of approximately 1/3 of sheet thickness is achieved.
- Snap sheet upward to achieve break.
- Clean and trim the cut edges if necessary.



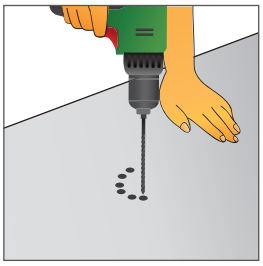
Hand Guillotine
Use a hand guillotine to achieve neat cut edges.



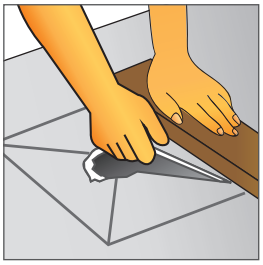
Hand Sawing
Tungsten carbide tipped hand saw is suitable for general cutting work, such as notching and small cuts.



Notching
Use hand saw to cut the sides of the notch. Score along the back of the notch with a score-and snap knife and snap upward.



Forming Round Hole
A round hole can be obtained by drilling a series of small holes at the perimeter of the hole, and tapping out the waste using a hammer. Ensure that the back face of the sheet around the hole is properly supported.



Forming Rectangular Hole
A large rectangular hole or opening may be made using the method outlined as follows:

- Score around the perimeter of the rectangular hole using a score-and-snap knife.
- Drill a large circular hole at the centre of the rectangular opening.
- Saw-cut from the centre of the opening to each corner of the rectangular opening.
- Snap the waste piece upward.

4 Wall Installation

4.1 Framing

PRIMA*liner* sheet is suitable for fixing to timber or light gauge steel framing members. Construction of framing shall be in accordance with local building practice.

- Stud spacing - ***610mm*** maximum
- Nogging spacing - ***1220mm*** maximum

Stud and nogging face width:-

- Timber - ***42mm*** minimum
- Steel - ***35mm*** minimum

Framing timber should be throughly dry and selected to minimize shrinkage when sheets are installed.
Steel frame thickness should be ***0.55mm*** BMT to ***1.5mm*** BMT.

4.2 Sheet Fixing

PRIMA*liner* sheet may be fixed horizontally or vertically. For residential construction, horizontal fixing is more convenient. Refer **Figure 1**.

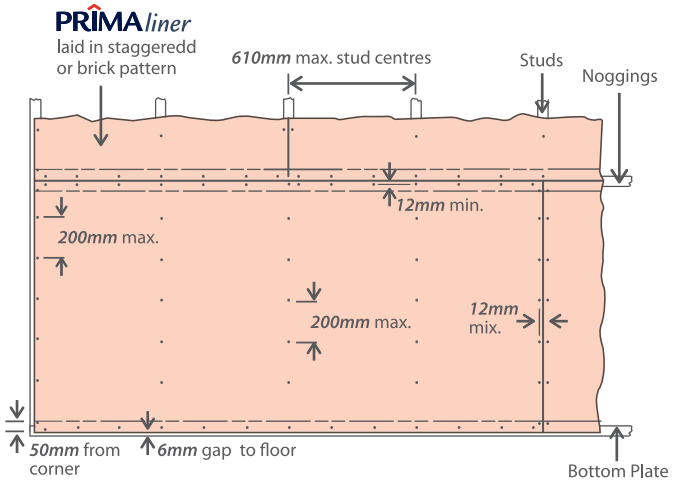


Figure 1: Horizontal Sheet Fixing

4.3 Fastener Fixing Distance

Fix fastener at a minimum of ***12mm*** from the board edge and ***50mm*** from the board corner.

Fastener should be spaced at ***200mm*** centres along the board perimeter and the intermediate framework.

All fastener points should be filled with joint compound and sanded using ***100 grit*** sand paper.

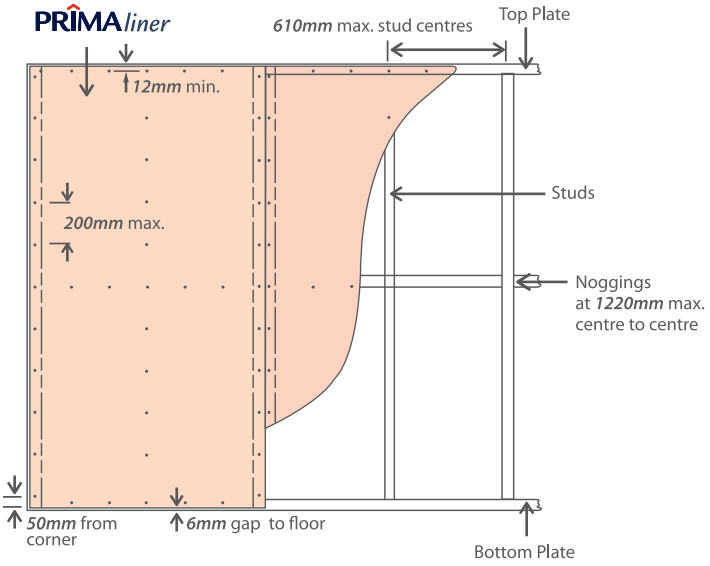


Figure 2: Vertical Sheet Fixing

Fasterner Spacing & Edge Distances
200mm c/c to perimeter of sheet
200mm c/c to centre of sheet
50mm c/c corner distance
12mm c/c edge distance

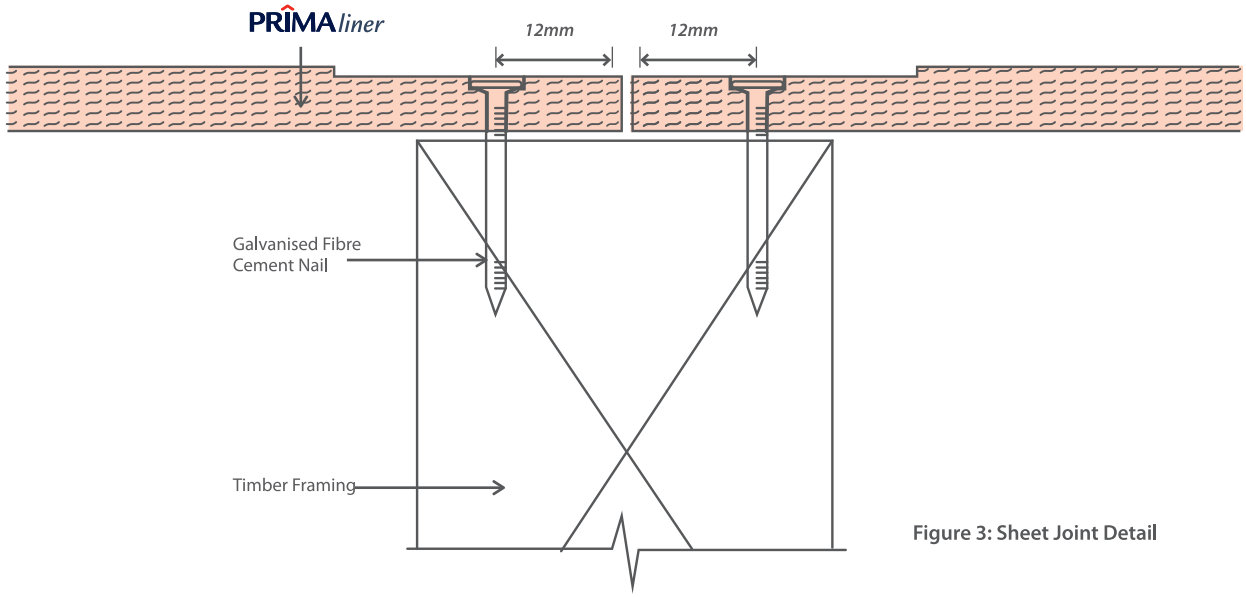


Figure 3: Sheet Joint Detail

4.4 Flush Jointing Method

PRIMA*liner* sheets may be loosely butt jointed but the gap between the sheets should not exceed ***3mm***.

PRIMA*liner* joints may be flush jointed using Joint Compound. The jointing method is as follow:

1. Ensure that the sheet joint is free from dust, grease and/or contaminant.
2. Prepare the Joint Compound as per manufacturer's recommendation.
3. Apply the first layer of Joint Compound onto the sheet join to cover the joint recess and embed the Perforated Paper Jointing Tape onto Bedding Coat. Cover the tape with a thin layer of the Joint Compound and allow to dry.
4. Apply the second coat of Joint Compound, spreading to approximately ***200mm*** wide. Allow the Joint Compound to dry.
5. Apply the third coat of Joint Compound, feathering out to approximately ***270mm*** wide. (Not required for tiles wall).
6. Upon drying of the third coat of Jointing Compound, sand off all joints or corners with ***100grit*** paper in a Flat Sanding Tool prior to applying finishes.

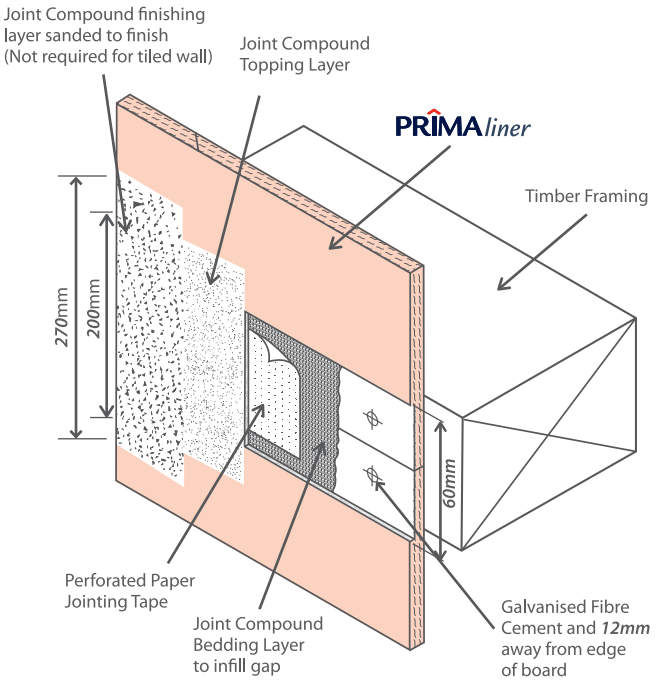


Figure 4: Flush Joint Detail

4.5 Internal Corner

Apply bedding compound to both faces of internal corners to a width of approximately ***60mm*** from the corner. Fold the perforated paper tape to form a 90 degree angle, embed the tape into the compound and cover the tape with a thin layer of compound. Allow the compound to dry thoroughly. Apply a second coat of bedding compound and allow to dry thoroughly. Apply a coat of topping compound feathering out approximatedly ***200mm*** from the internal corner. Allow to dry thoroughly and sand with ***100 grit*** sandpaper. Refer **Figure 5**.

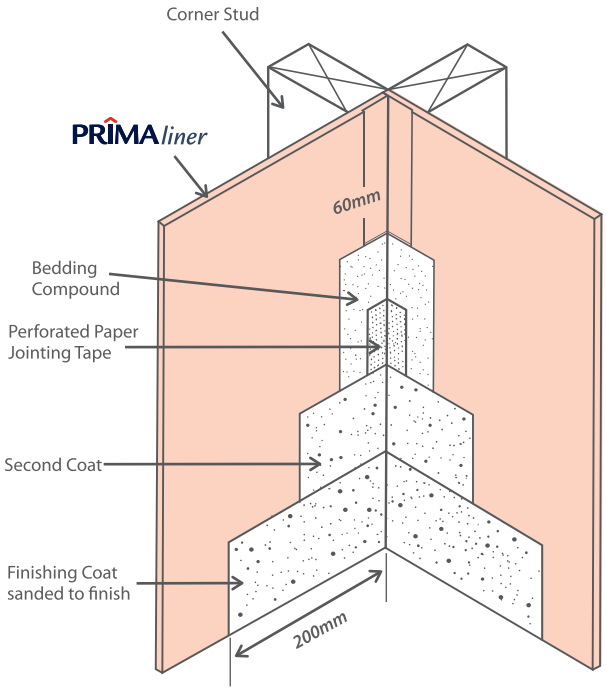


Figure 5: Internal Corner Detail

4.6 External Corner

PRIMA*liner* external corner may be finished with proprietary external corner beads. Trowel a layer of joint compound onto the external corner beads to a width of ***150mm*** and allow it to dry. Spread the second coat to ***250mm*** from the corner. Upon drying of the second coat, spread the final coat of the joint compound to approximately 300mm from the edge.

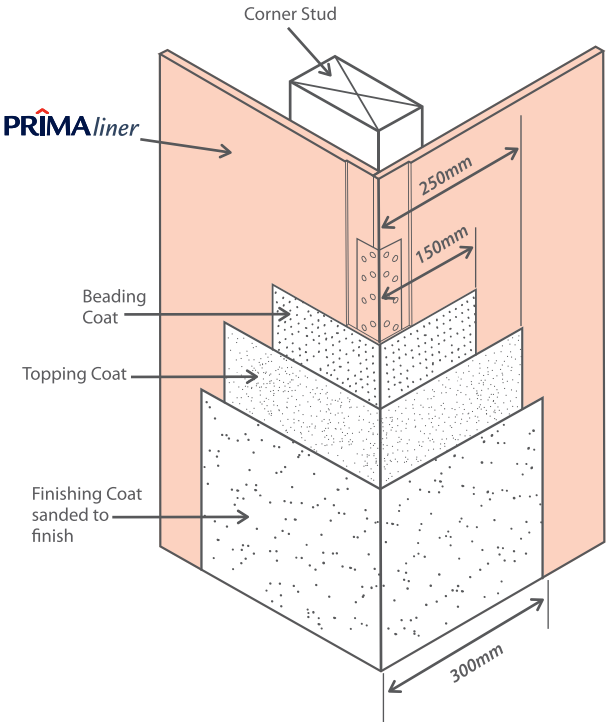


Figure 6: External Corner Detail

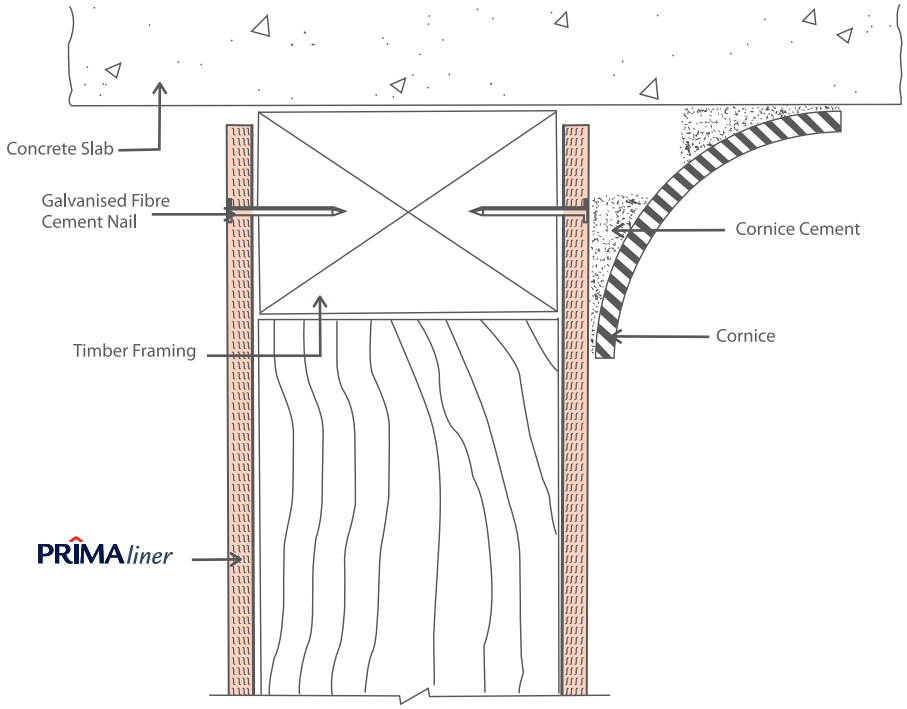


Figure 7: Typical Section at Wall to Ceiling

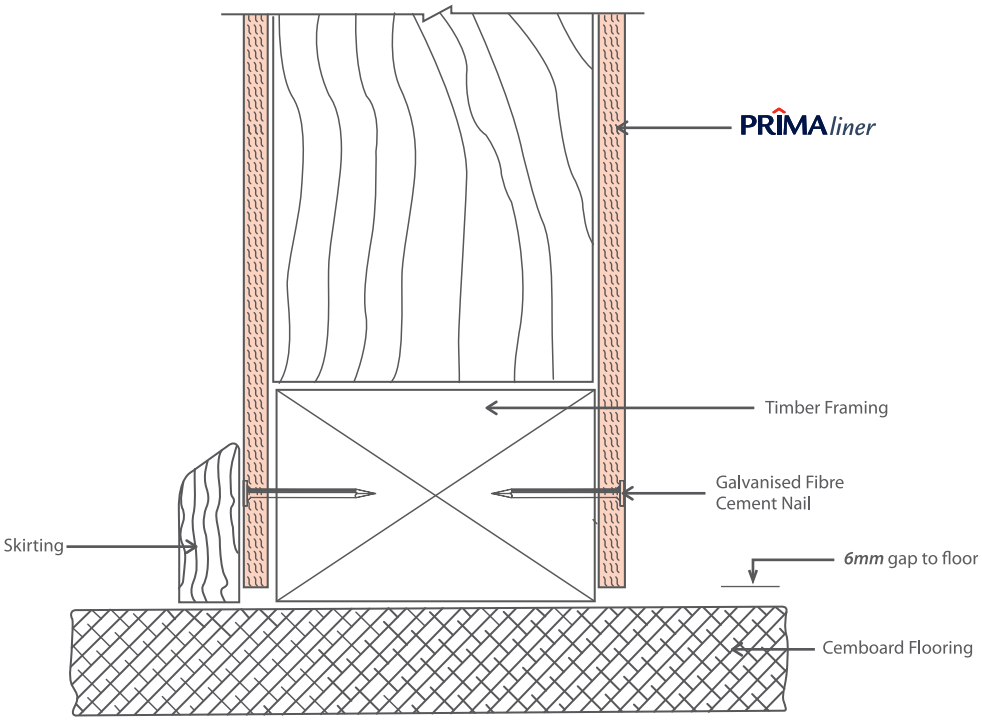


Figure 8: Typical Section at Wall to Floor

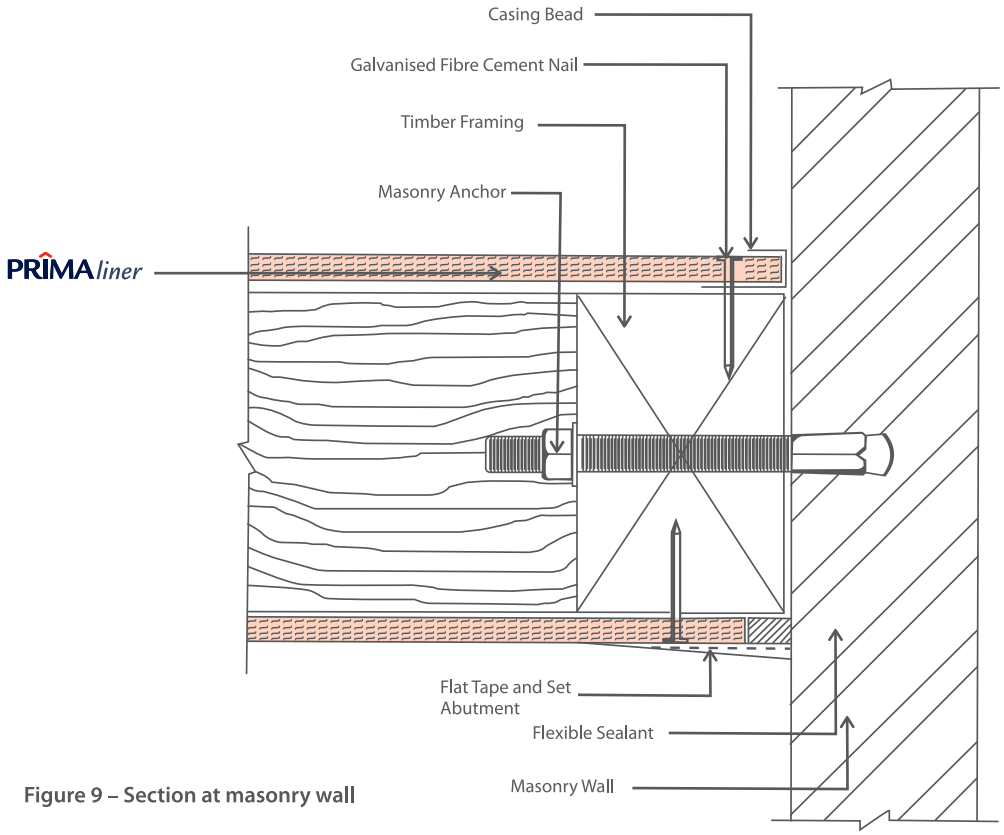


Figure 9 – Section at masonry wall

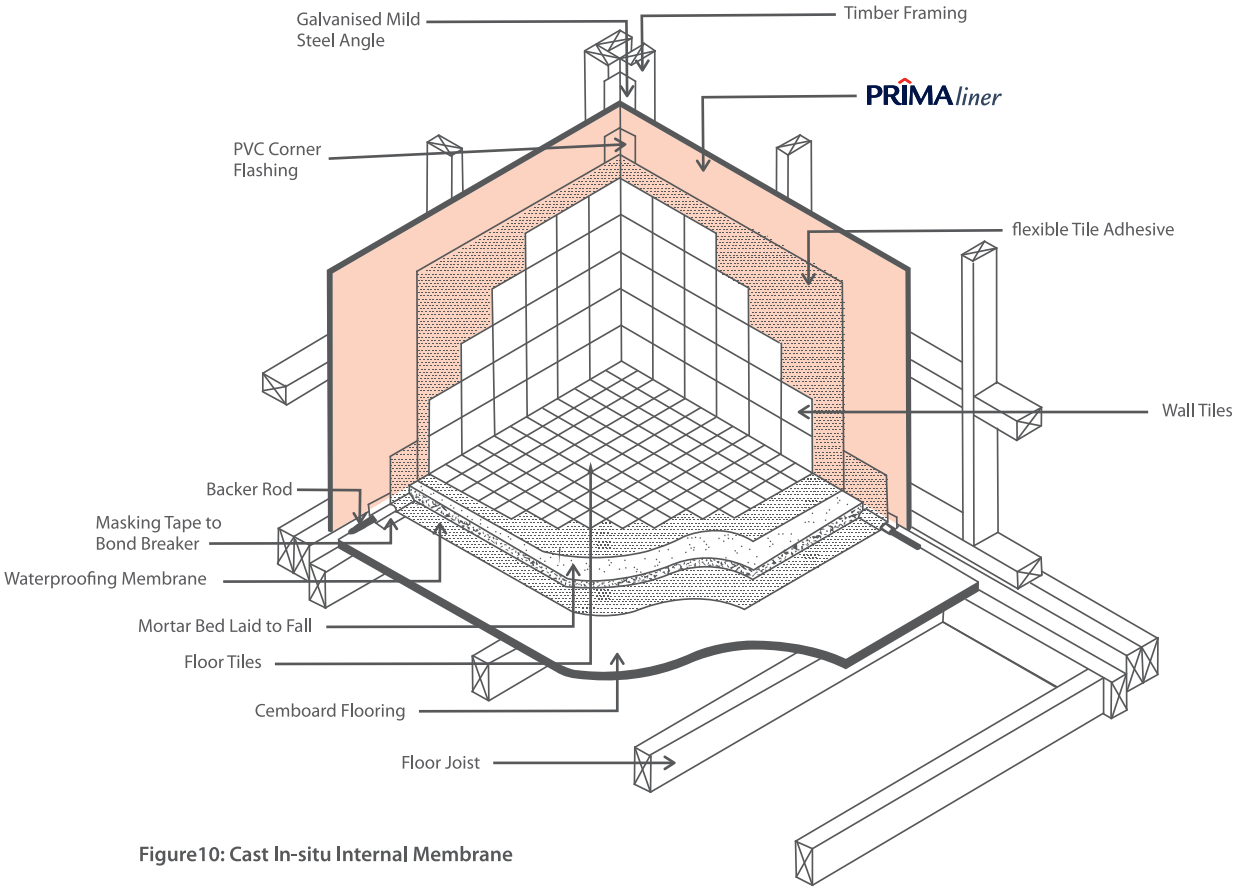


Figure10: Cast In-situ Internal Membrane

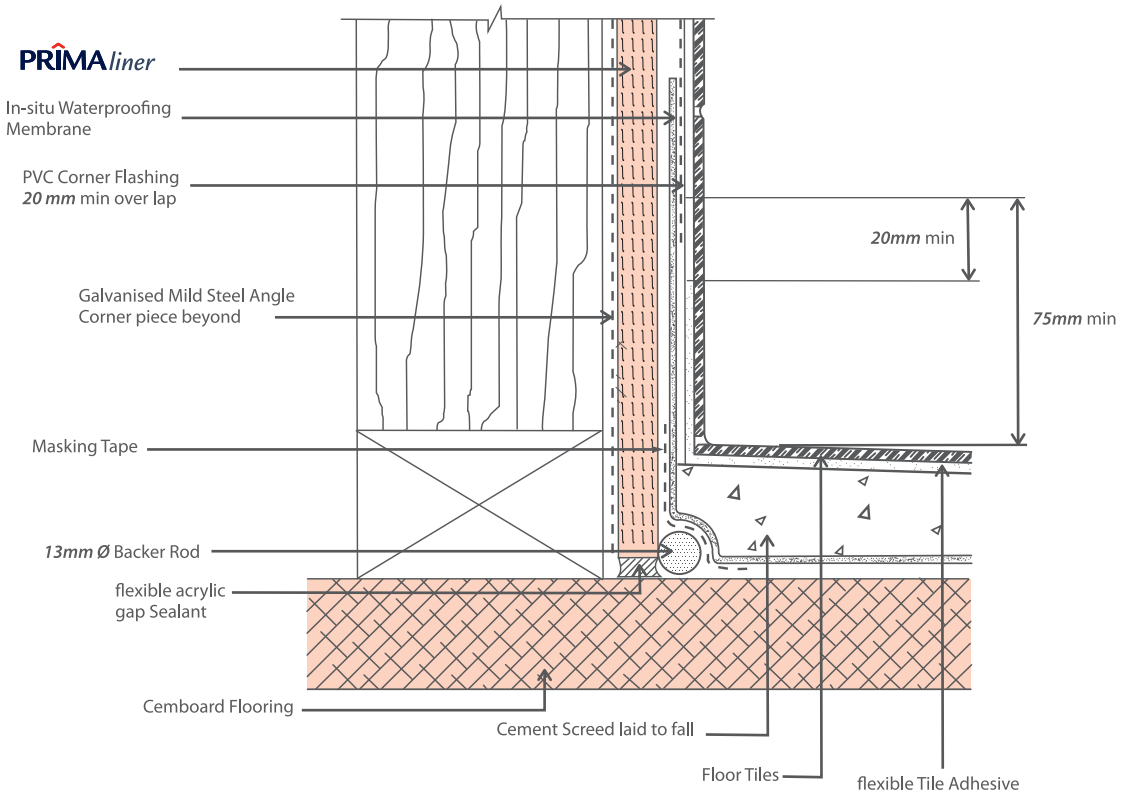


Figure11: Typical Floor/wall Cross-section for Cast In-situ Internal Membrane

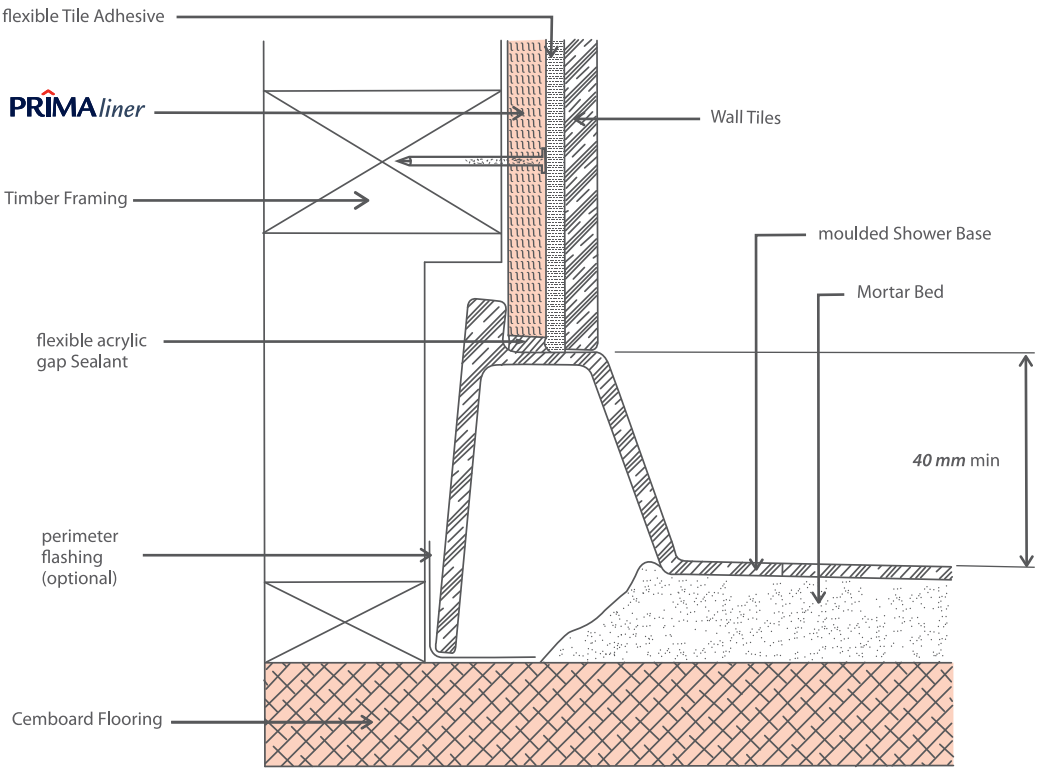


Figure12: Typical Detail at Shower Recess

5 Finishes

5.1 Painting

PRIMA*liner* smooth surface is ideal for water based acrylic or PVA paint. Generally, a minimum of 2 coats is required. Other types of coatings such as Polyurethane or epoxy paints are also suitable. In all cases, coating manufacturer's recommendations should be adhered to.

5.2 Tiling Work

PRIMA*liner* provides a suitable smooth surface for tiling work. The flexible tile adhesive shall comply to ***AS 2358-1990***; Adhesive for Ceramic Wall Tiles & Mosaics.

Tiling Procedure onto PRIMA*liner* :

1. Ensure that the board is free from dust or grease. Wipe board surface with damp cloth if necessary.
2. Mark the height of the tiled wall.
3. Estimate the number of tile courses required.
4. Indicate the bottom edge of the first course of full sized tiles.
5. Apply flexible Tile Adhesive to the board surface with a notch trowel. Spread the adhesive not more than ***1m²*** at a time. Refer to tile adhesive manufacturers' recommendations.
6. Fix tile to PRIMA*liner* with an allowance of approximately ***2mm*** gap between each tile.
7. Apply adequate pressure to the tile to ensure that the back face of the tile is covered with the Tile Adhesive.
8. The bottom course is normally fixed last.
9. Grouting may be done after the Tile Adhesive is fully cured. Use flexible Grout to fill up the ***2mm*** gap between the tiles.
10. Vertical corner Tile Joint and wall-to-floor Tile Joint should be sealed with water resistant flexible acrylic gap Sealant.

Note:

1. The choice of the Tile Adhesive varies, depending on the substrate and the type of tiles used. Refer to Tile Adhesive manufacturer for recommendation.
2. Flush Joints to be tiled should NOT be finished with a finishing coat of Joint Compound. Refer **Figure 13**.
3. Expansion Joint should be provided as follow:-
   - ***4.8m*** centres for tiled walls.
   - ***7.2m*** centres for untiled walls.
4. Do NOT tile over the Expansion Joint. Refer **Figure 14**.
5. Expansion Joint should be sealed with flexible water resistant acrylic gap Sealant. Refer **Figure 14**.

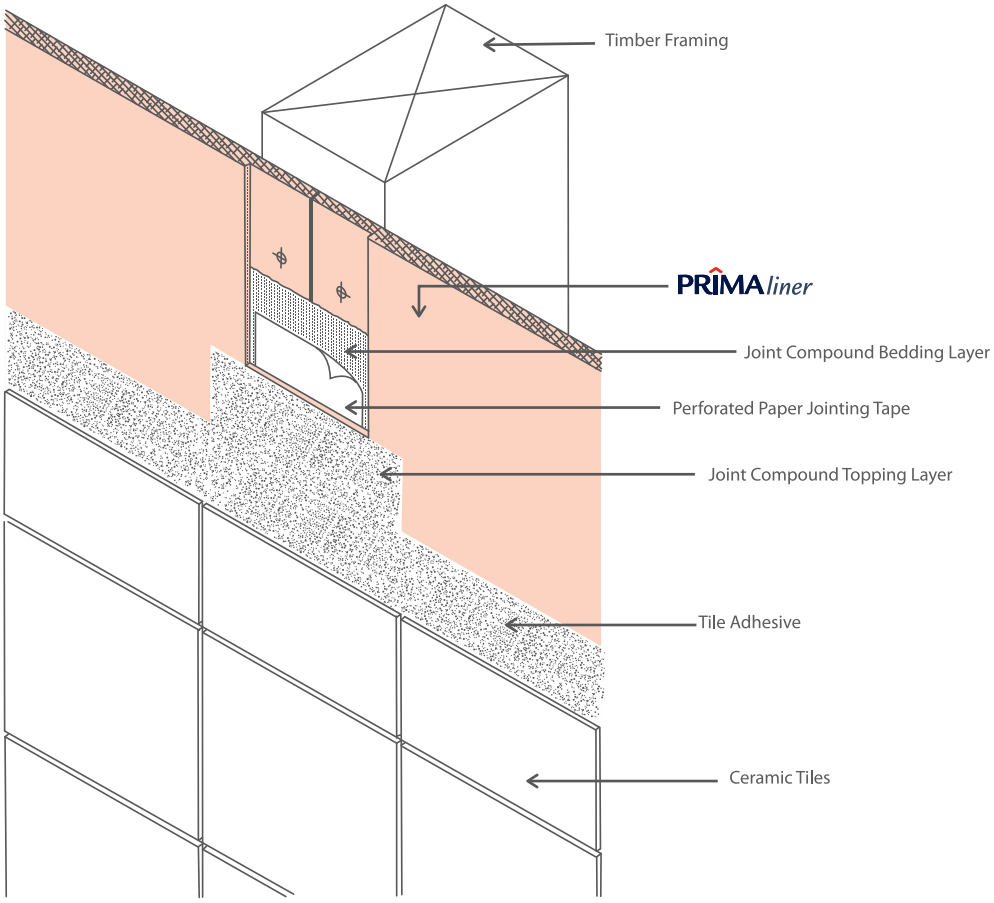


Figure13: Detail at Tiled Flush Joint

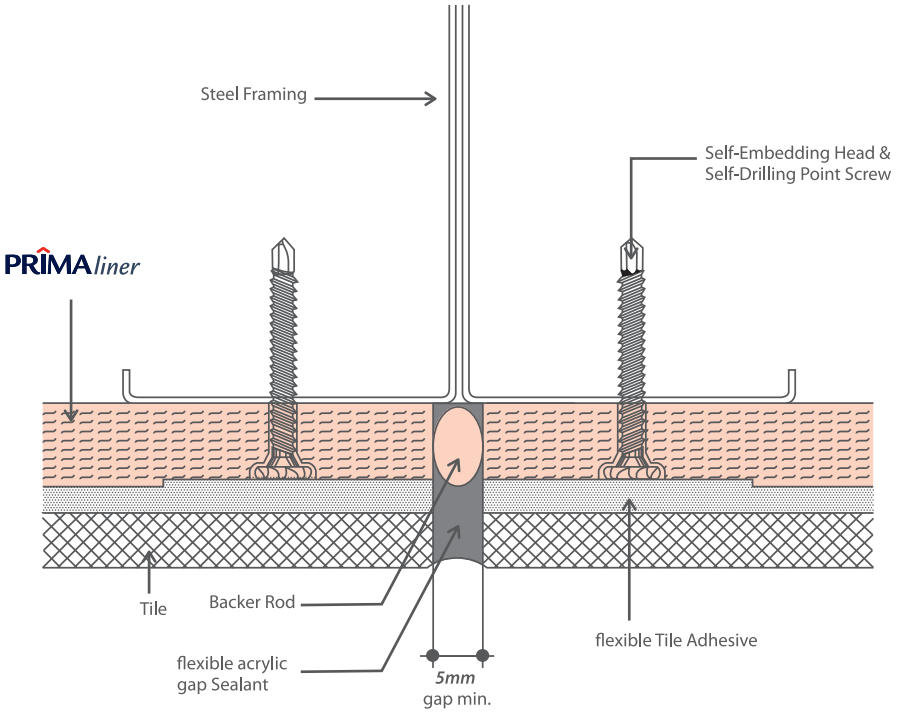


Figure14: Detail at Tiled Expansion Joint

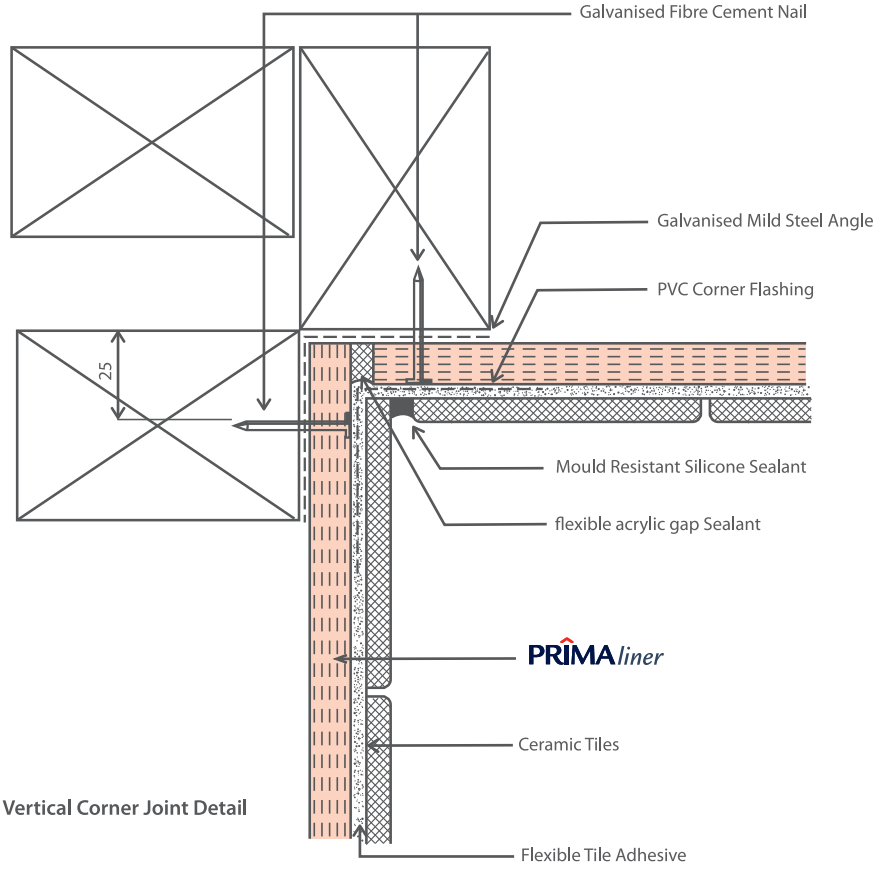


Figure15: Vertical Corner Joint Detail

For more information, please contact us at:

SAINT-GOBAIN

SAINT-GOBAIN PRIMA SDN BHD (579898-W)
Level 19, Tower 5, Avenue 7 The Horizon,
Bangsar South City, No. 8, Jalan Kerinchi,
59200 Kuala Lumpur, Malaysia

General Line 1: +603 7781 1977 | General Line 2: +6012 781 1797

www.primafibrecement.com | www.saint-gobain.my

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