



PRIMA *flex*TM
TECHNICAL MANUAL

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PRIMAflex™

Multi Functions Board

Eco-friendly fibre cement flat sheets for ceiling, eaves & soffit lining, wall cladding, flooring, partition, roof sarking, water tank support and permanent formwork.

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1 Introduction

1.1 General

1.1.1 Composition

PRIMAflex™ is a lightweight, autoclaved cellulose fibre cement sheet manufactured in accordance with the:-

- MS 1296 – Fibre-cement flat sheets – Product specification and test methods (First revision)

The basic composition is portland cement, cellulose fibre, ground sand and water. A variety of standard lengths and widths are made available to suit specific application. **PRIMAflex™** sheets do not contain asbestos fibre or glass fibre.

1.1.2 Applications

PRIMAflex™ board is recognised by the construction industry professionals for its quality, reliability and durability. The typical applications include ceiling lining for building's interior / exterior, eaves / soffit lining, external claddings to walls and gable ends, internal partition, flooring board, roof sarking and permanent formwork. Sheets thickness suitable for each application is listed on the **Table 1.1** below:-

Table 1.1: Applications and thickness of board

Applications	Recommended Thickness (mm)								
	3.2	4.5	6	7.5	9	12	16	18	20
Ceiling	•	•	•						
Eaves / soffit lining	•	•	•						
Cladding (Wall / Gable End)			•	•	•	•			
Internal Partition			•	•	•	•			
Roof Sarking					•	•	•		
Flooring								•	•
Permanent Formwork								•	•

1.1.3 Standard Sizes

PRIMAflex™ board standard sizes and the approximate weight per piece are shown in the **Table 1.2** below.

Table 1.2: Standard size and weight of board

Thickness (mm)	Mass per Sheet; kg		
	610 x 1220	1220 x 1220	1220 x 2440
3.2	3.18	6.35	12.70
4.5	4.66	9.33	18.65
6.0	6.25	12.50	25.01
7.5	-	-	32.30
9.0	-	-	38.90
12.0	-	-	52.20
16.0	-	-	67.00
20.0	-	-	132.00

Note:

1. Weights per sheet are shown for sizes available ex stock.
2. Other sizes are available on special order and sales may be subject to special conditions

1.2 Certifications

PRIMAflex™ fibre cement boards are Sirim certified to **MS 1296**. They are also approved by Jabatan Bomba dan Penyelamat Malaysia for building applications requiring Class 'O' building materials as stipulated in the Uniform Building By-law, Malaysia (UBBL). **PRIMAflex™** is also listed in the IKRAM's Senarai Bahan / Barangan Binaan Tempatan.

1.3 Properties

1.3.1 Physical Properties

The typical average values of **PRIMAflex™** physical properties are as follow:-

Table 1.3: Physical properties of board

Properties	Typical Values	Standards
Nominal density	1391 kg/m ³	MS 1296
Moisture Content at Equilibrium	7%	MS 1296
Thermal Conductivity, k Value	0.24W/mK	ASTM C518
Thermal Insulation, R value (Calculated based on tested k value)	3.2 mm – 0.013 m ² K/W	
	4.5 mm – 0.019 m ² K/W	
	6.0 mm – 0.025 m ² K/W	
	7.5 mm – 0.031 m ² K/W	
	9.0 mm – 0.038 m ² K/W	-
	12.0 mm – 0.050 m ² K/W	
Flexural Strength (Dry)	16.0 mm – 0.067 m ² K/W	
	20.0 mm – 0.133 m ² K/W	
	Average > 14Mpa	MS 1296
Sound Transmission Class (Estimated)	3.2 mm – 21 dB	
	4.5 mm – 23 dB	
	6.0 mm – 25 dB	
	7.5 mm – 26 dB	
	9.0 mm – 28 dB	
	12.0 mm – 30 dB	
	16.0 mm – 32 dB	
20.0 mm – 36 dB		

Note:

1. Equilibrium Moisture Content (EMC) of 7% is achieved at temperature of 27°C ± 2°C and relative humidity of 65 to 95%.
2. Some values are rounded to the nearest decimal point.
3. Other board properties are available upon request.

1.3.2 Fire Resistance

PRIMAflex™ has been tested in accordance with **BS 476**; fire tests on building material and structure. The test results are as follow:-

British Standards

- Fire Propagation (**BS 476 Part 6**)- Index of Performance, I = 0
- Sub-index, I = 0
- Surface Spread of Flame
Flame (**BS 476 Part 7**) - **Class 1**
(No ignition)

Under the UBBL Malaysia 1984, Clause 204, a material is classified as meeting the "Class 'O' – Surface of no flame spread" requirement if when tested to **BS 476 Part 6**, has an Index of Performance not exceeding **12** and a sub-index (i) not exceeding **6**. **PRIMAflex™** is deemed non-combustible in accordance with the Building Code of Australia.

1.4 Durability

1.4.1 Water Resistance

PRIMAflex™ has been subjected to rigorous tests and subsequently demonstrate high degree of resistance to prolonged moisture exposure that could lead to premature system failure. The following tests have been conducted:-

- **MS 1296**
 - Warm water (**Clause 6.1**)
- **AS/NZS 2908.2**
 - Water permeability (**Clause 8.2.2**)
 - Frost resistance (**Clause 8.2.3**)
 - Warm water (**Clause 8.2.4**)
 - Heat-rain (**Clause 6.5**)
 - Soak-dry (**Clause 8.2.5**)

2 General Requirements

2.1 Framing

PRIMAflex™ sheets are suitable for fixing to timber or light gauge galvanised steel framing members. Construction of framing shall be in accordance with local building regulations and good building practices. Framing systems must be constructed to meet the durability requirements and the life expectancy of the building, including exposure to weather / moisture, insects or termites.

At sheet joint, single support framing system as shown in **Figure 2.1** and **Figure 2.2** requires a nominal face width (or flange for steel stud):-

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

Where necessary, the face width may be increased by providing trim-packing to the side supports. Example of such scenarios is the incorporation of a wide gap at board joint for architectural purposes. Refer to **Figure 2.3**.

Use kiln-dried or seasoned timber only. Do not use unseasoned timber as it is prone to shrinkage and may result in system failure associated with frame movement which will consequently affect the system integrity.

Steel frame must be fabricated using galvanised light gauge steel section or equivalent. The base material thickness (BMT) must be between **0.55mm** to **1.15mm**. For load-bearing purpose applications such as floor systems, mild-steel hollow section (rectangular or square) can also be used. Recommended sequence of board fixing to steel frame is as shown in **Figure 2.4**.

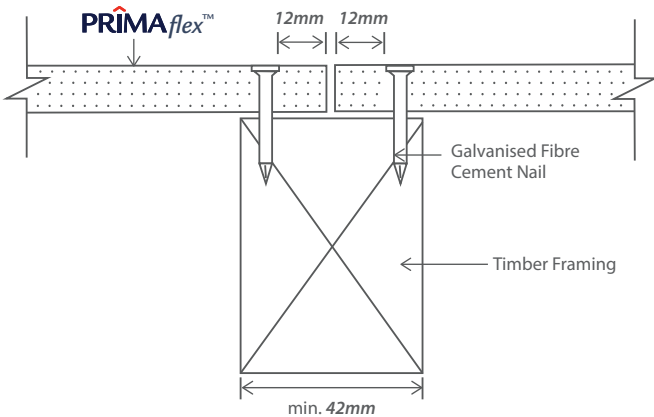


Figure 2.1: Fixing to Timber

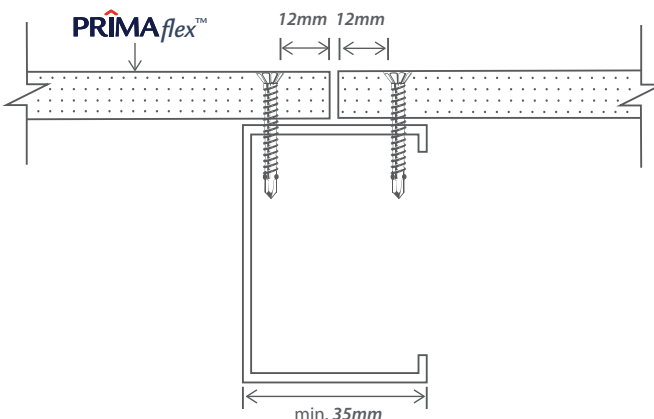


Figure 2.2: Fixing to Steel (Butt Joint)

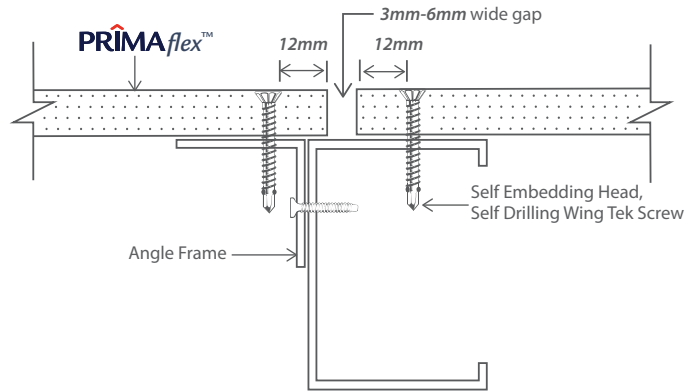


Figure 2.3: Fixing to Narrow Support

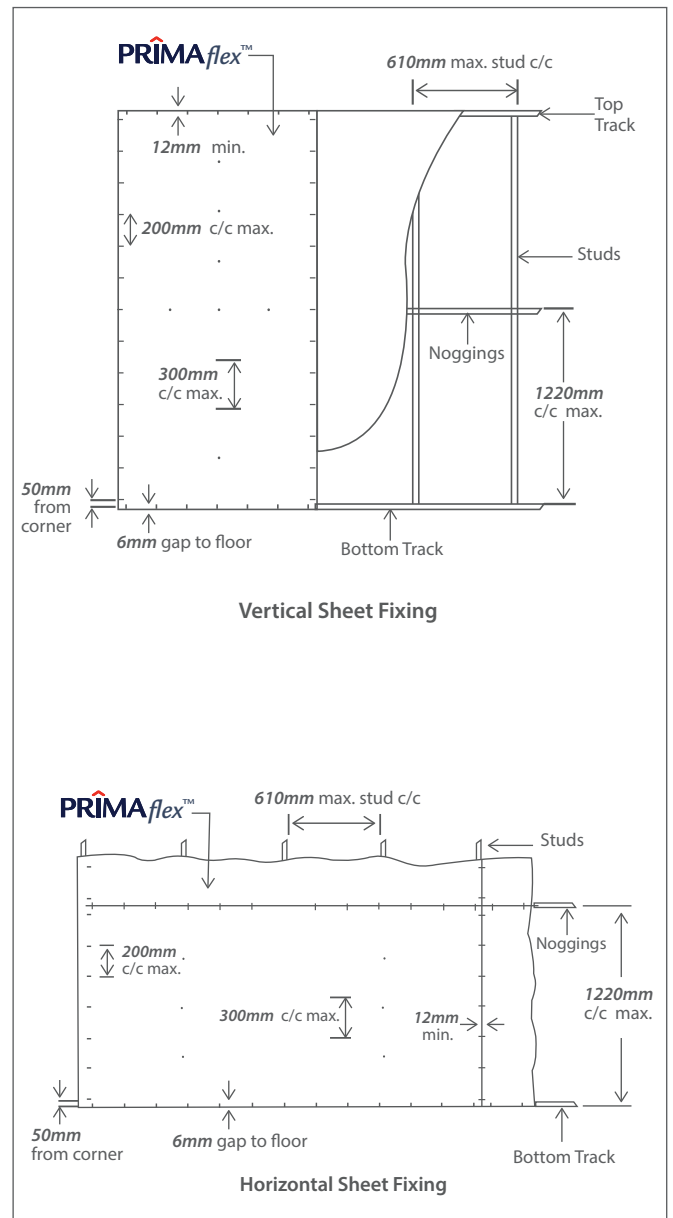


Figure 2.4: Direction of Board installation

Unless otherwise specified, frames to receive boards should be straight, true and level. The suggested maximum acceptable frame straightness tolerances are as below:-

- Maximum **3mm** over **1200mm** length or
- Maximum **4mm** over **3000mm** length, measured in any direction

2.2 Fasteners

The table below shows the type of fasteners suitable for fixing **PRIMAflex™** to timber or steel framing. Fasteners for boards fixing are not required for suspended ceiling application.

Table 2.1: Fastener fixing to timber support


Fixing to Timber Support	Board Thickness
Galvanised Fibre Cement Nail	
2.0mm Ø x 25mm	3.2mm and 4.5mm
2.0mm or 2.8mm Ø x 30mm	6mm and 7.5mm
2.0mm or 2.8mm Ø x 40mm	9mm and 12mm

Table 2.2: Fastener fixing to light gauge steel support

Fastener types for fixing to light gauge steel support



	Board thickness	Fastener specification
Internal	3.2mm - 4.5mm	PRIMAfastener - Needle point 19mm
	4.5mm - 6.0mm	PRIMAfastener - Wing Tek 22mm C1
	7.5mm - 12.0mm	PRIMAfastener - Wing Tek 22mm C1
	12.0mm - 16.0mm	PRIMAfastener - Wing Tek 22mm C1
	above 16.0mm	PRIMAfastener - Wing Tek 22mm C1
External	4.5mm - 6.0mm	PRIMAfastener - Wing Tek 22mm C3
	7.5mm - 12.0mm	PRIMAfastener - Wing Tek 22mm C3
	12.0mm - 16.0mm	PRIMAfastener - Wing Tek 22mm C3
	above 16.0mm	PRIMAfastener - Wing Tek 22mm C3

Note:

1. Flushed finished screw head must be embedded 0.5mm below sheet surface, and be patched with **PRIMA** Jointing Compound Plus.
2. Screwfixing is only suitable for boards that are 4.5mm thick and above.

Table 2.3: Fastener fixing distance

Fastener Location	Cladding, Ceiling & Eaves Linings	Flooring & Roof Sarking
From edges	12mm	12mm to 15mm
From corners	50mm	50mm
At perimeter	200mm	300mm
Elsewhere	300mm	400mm

Note:

No fasteners required for suspended ceiling and permanent formwork application.

2.4 Jointing

PRIMAflex™ board may be joined using the methods below:

1. The board edges may be joined closely to produce a neat butt joint as shown in **Figure 2.2**.
2. An expressed joint may be formed by providing **3 to 6mm** gap between **PRIMAflex™** sheets. See **Figure 2.5**.
3. Jointing system which include sealant joint with **3 to 6mm** gap between boards is illustrated in **Figure 2.6**.
4. Timber batten may be use to cover the joint as well as to serve as a feature. Refer **Figure 2.7**.
5. When **PRIMAflex™** is applied as internal wall lining, the joint may also be decorated with aluminium extruded profile as shown in **Figure 2.8**.

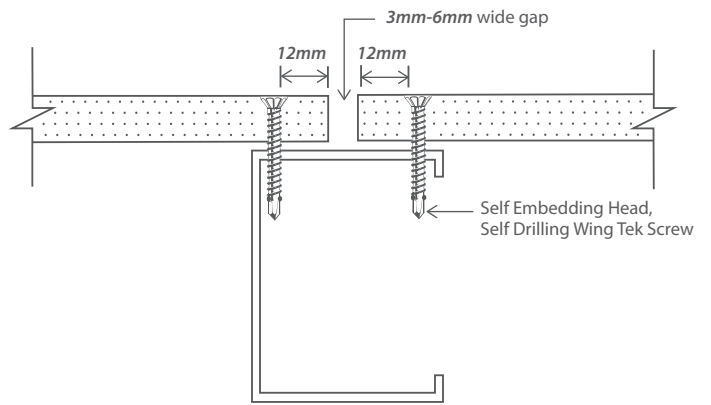


Figure 2.5: Exposed Joint

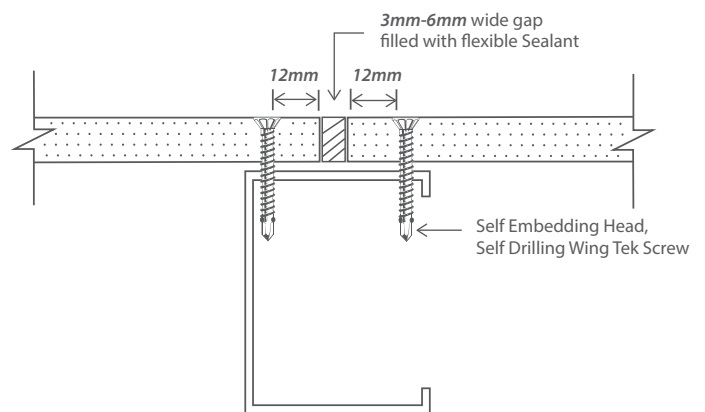


Figure 2.6: Sealant Joint

Note:

1. Sealant must be of flexible and paintable type such as exterior grade polyurethane or acrylic gap sealant.
2. For best result, cover sheet edges with masking tape prior to applying the gap sealant.

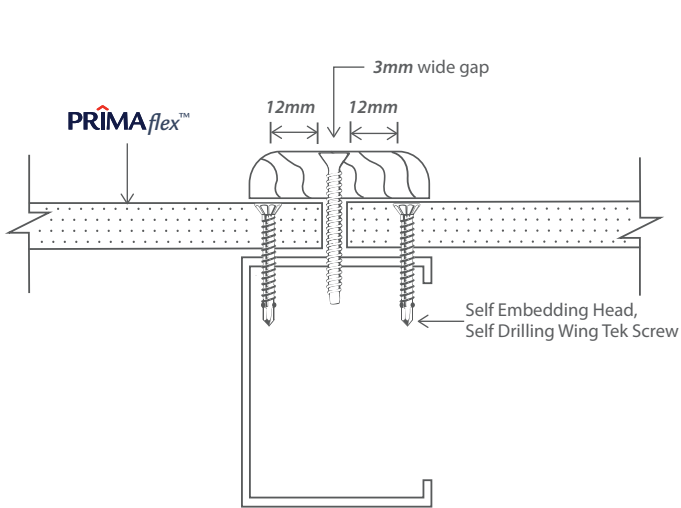


Figure 2.7: Timber Joint

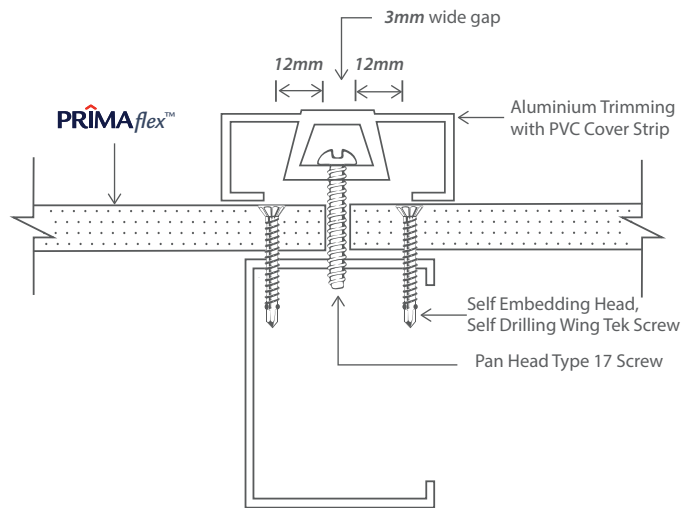


Figure 2.8: Aluminum Extrusion Joint

2.5 Finishes

2.5.1 Paint

This section is only applicable for applications requiring paint finishes or coating systems. For best result, decorate PRIMAflex™ board with a layer of suitable primer and a minimum two coats of quality water-based acrylic Paint. Coating should be of a vapour permeable type. Other types of coatings such as Polyurethane or Epoxy Paints are also suitable, but require special preparations. In all cases, coating manufacturer's recommendations should be adhered to. Upon installation, boards applied externally must be coated as soon as possible. Do not leave board surface uncoated.

Ensure PRIMAflex™ is dry and free from dust, grease or other contaminant before applying finishing coat.

2.5.2 Other Finishes

This section is only applicable for lightweight flooring application only. For dry area applications, ceramic tiles can be fixed directly onto PRIMAflex™ board. For wet area applications, apply a layer of waterproofing membrane on PRIMAflex™ before fixing the ceramic tiles. Use flexible Tile Adhesive, that usually comes in 2 parts, - ready mix cementitious cement and latex-based liquid solution. Refer to tile adhesive manufacturer for recommendation. Normal portland or composite cement / sand mortar is not recommended.

Board joints must be sanded if flexible materials such as vinyl tiles are to be applied onto PRIMAflex™ board. All gaps and fastener points must be covered with cementitious plaster-based patching compound.

For general office use, carpet is also a suitable for flooring finishing material.

2.5.3 Patching Compound

If necessary, apply Patching Compound to cover screw points. Use cementitious plaster-based Patching Compound compatible with concrete products. For external application, exterior grade Patching Compound must be used.

When it is necessary to seal gaps between board joints, use flexible/ paintable Polyurethane (PU) Sealant or Modified Silicone (MS) sealant. This Sealant should also be used to patch Screw Points when PRIMAflex™ is used as wet area flooring system. Always refer to sealant manufacturer for recommendations.

2.6 Maintenance

Periodic inspection and maintenance of the paint coating system must be performed as specified by the paint manufacturer. All joints, sealant and wall surfaces must be checked for cracks regularly to prevent the intrusion of water. Make good any defects in accordance with the systems outlined in this manual and good trade practice.

2.6.1 Precautionary Measures

PRIMAflex™ boards must always be kept dry prior to installation. When boards have been installed, ensure the construction is carried out until the installation of final roof covering material (i.e. metal roofing sheet). If roof section cannot be completed on the same day, installed boards must be protected against rain water or other source of moisture. Should incomplete roof section become wet, allow the components to dry before fixing the final roof covering material. Excessive moisture/ water trapped within the roof system will degrade its overall performance and durability.

3 Suspended Ceiling (Exposed Grid & Concealed Grid)

3.1 General

This system entails the synergy of superior quality **PRIMAflex™** ceiling board and proprietary suspended metal framing systems, typically fabricated using pre-finished aluminium or light gauge galvanised steel. Apart from its inherent superior water resistant attribute, **PRIMAflex™** board is also resistant to sagging over a long period of time. Suspended ceiling systems are normally used in commercial and office buildings.

Note: This ceiling system is not recommended for eaves area or applications subject to high wind pressure since the ceiling boards are not mechanically fixed to the framework.

3.2 Support Grid & Board Size

3.2mm, 4.5mm and 6mm thick **PRIMAflex™** boards are suitable for suspended ceiling systems. Boards are supplied pre-cut to the standard sizes below to fit the designated support grid dimension.

Table 3.1: Support grid and board size

Support Grid Size	PRIMAflex™ Board Size
600mm x 600mm	595mm x 595mm
610mm x 610mm	603mm x 603mm
600mm x 1200mm	595mm x 1195mm
610mm x 1220mm	603mm x 1213mm

3.3 Framing System

Boards are simply supported at all four edges using proprietary suspended ceiling framing system incorporating **main 'T'**, **cross 'T'** and perimeter wall angle. These framing components are suspended using hangers, and the hangers are then connected to the main structural element (beam, rafters/ truss, or reinforced concrete slab) using suitable fasteners. Refer to **Figure 3.1** and **3.2**.

Framing system must be installed as per respective manufacturer's written instructions. Generally, the framing system is designed to carry fibre cement board with thickness of up to **6mm**. Always consult relevant supplier/ manufacturer for the maximum recommended load that can be applied to the framing system. This ceiling system does not utilise any mechanical fasteners for fixing the ceiling boards.

3.4 Accessories

Any ceiling accessory such as recess boxed-lights shall be supported independently by providing additional hangers (suspension rods/wires). Consult light or accessory manufacturer for the recommended installation method.

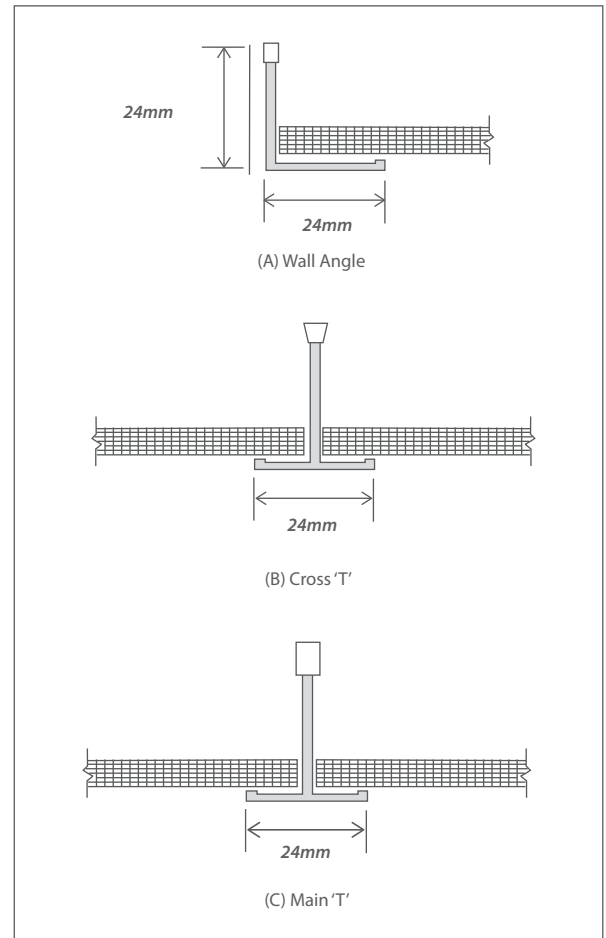


Figure 3.2 – System Overview

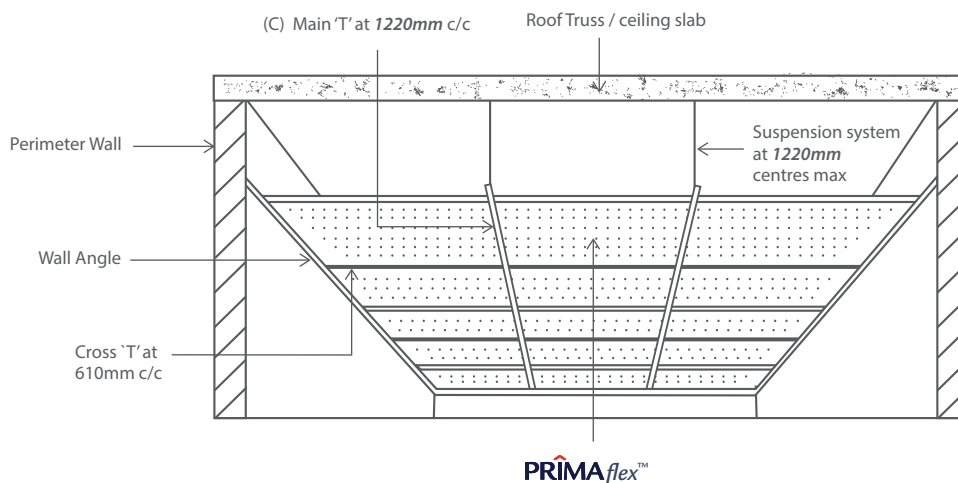
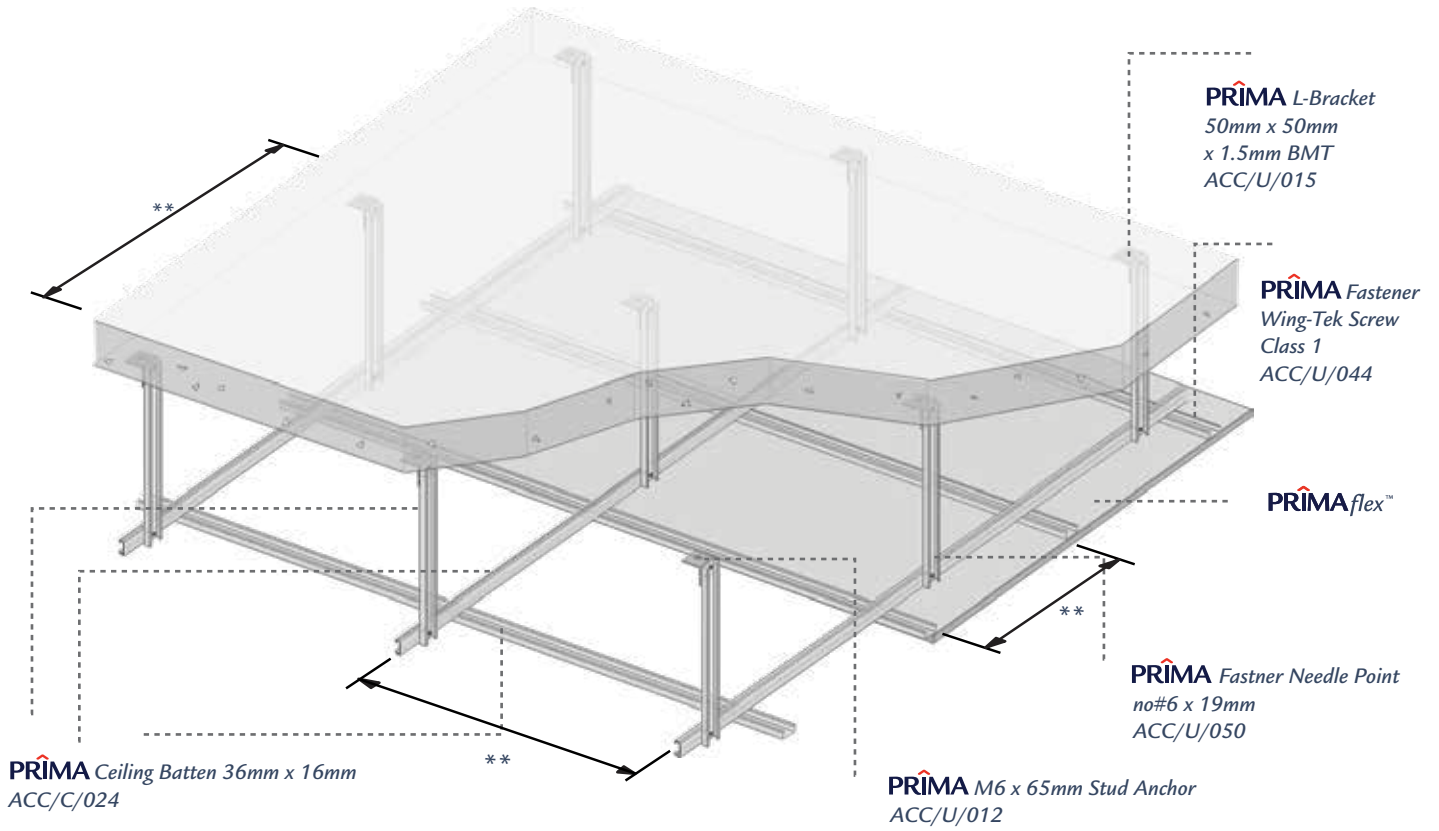


Figure 3.1 – Framing Components

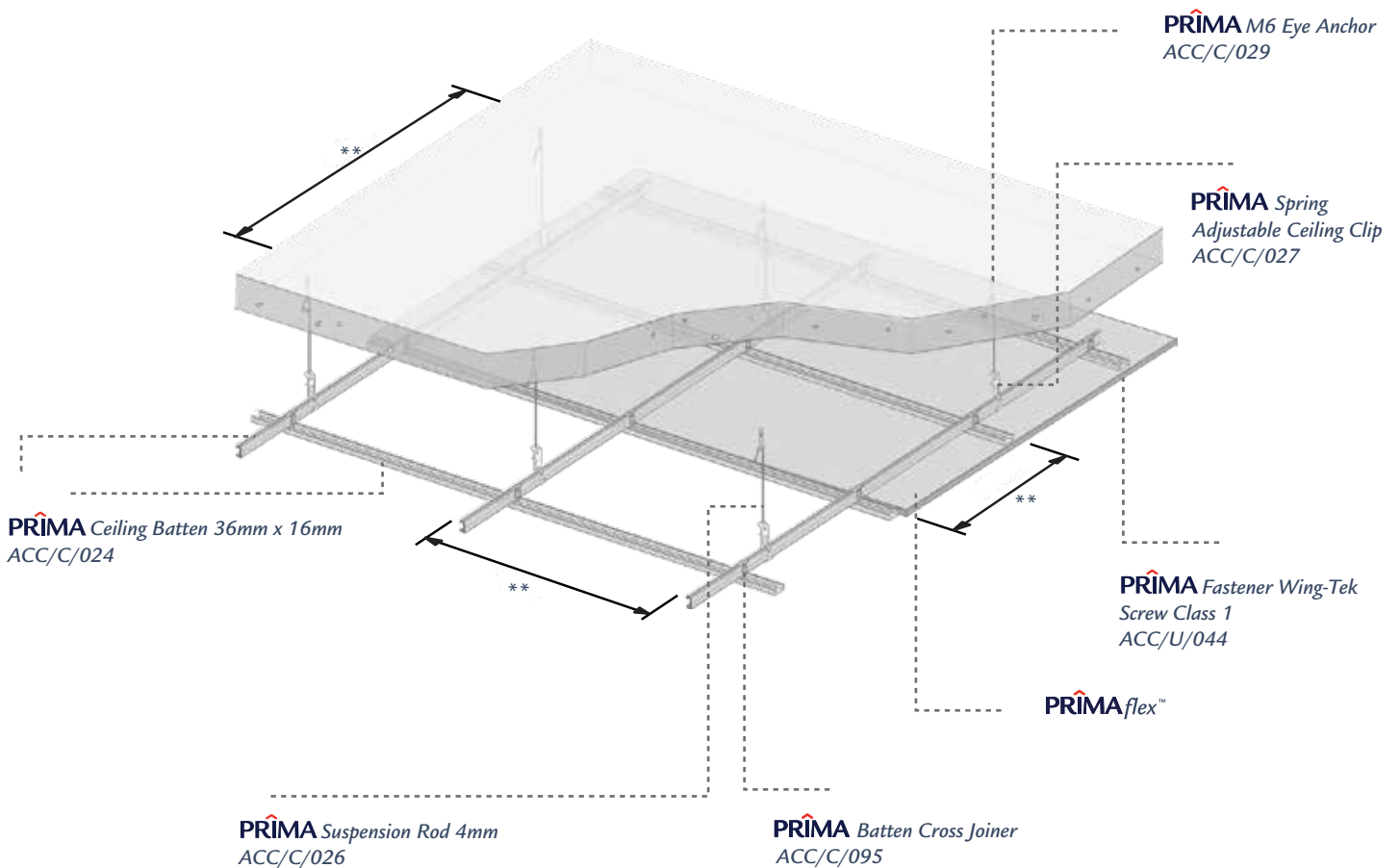
PRIMA Ceiling System - Light Duty (Concealed Grid)

*Suitable for Internal ceiling



PRIMA Ceiling System - Standard Duty (Concealed Grid)

*Suitable for Internal ceiling



4 Fixed Ceiling Eaves / Soffit Linings

4.1 General

The exceptionally flat and smooth surface, ease of handling have made **PRIMAflex™** board the ideal choice for nail-on / screw-on ceiling systems. Additionally, **PRIMAflex™** is also suitable to be applied as eaves or Soffit Lining due to its ability to withstand exterior weather conditions. Boards up to **6mm** thick are recommended for these applications. However, thicker boards may be used if other design criteria need to be satisfied. **3.2mm** and **4.5mm** thick boards are recommended for residential units up to two storey buildings. For high rise accommodation such as apartments and condominiums, **6mm** thick board should be applied.

4.2 Board Layout

For Ceiling, Eaves and Soffit Lining applications, **PRIMAflex™** ceiling board can be fixed across or parallel to the supporting frame. Board joints must coincide with centre of supporting frames. Refer **Figure 4.1**.

4.3 Installation

This installation method entails securing **PRIMAflex™** board onto a rigid steel/ timber framework by using nails or screws. Framing is normally spaced at **610mm** centers maximum but it must be adjusted to incorporate gaps at board joint if necessary. To ensure proper fastener head embedment, screw fixing is only recommended when using a minimum of 4.5mm thick board only. Screw heads will remain protruded if board thickness is less than **4.5mm**.

Table 4.1: Support framing distance for ceiling

Board Thickness	SUPPORT FRAMING CENTRE DISTANCE (mm)	
	Ceiling & Eaves/ Soffit Lining	
	Joist	Trimmer
3.2mm	610	610
4.5mm	610	610
6.0mm	610	1220

Note:

1. All board joints must be supported and secured to the framework.
2. Joists are the primary continuous support that provides structural integrity of the ceiling system.
3. Trimmers are the secondary support where board edges are secured to, and normally positioned at 90° angle with respect to the joists.

4.4 Joints & Wall Junctions

Ceiling to wall junction can be decorated with angle trim or timber mould.

4.5 Details

The following diagrams represent typical details that cover the majority situation. Contact Saint-Gobain Prima Technical Department if you require specific details that are not covered in this section.

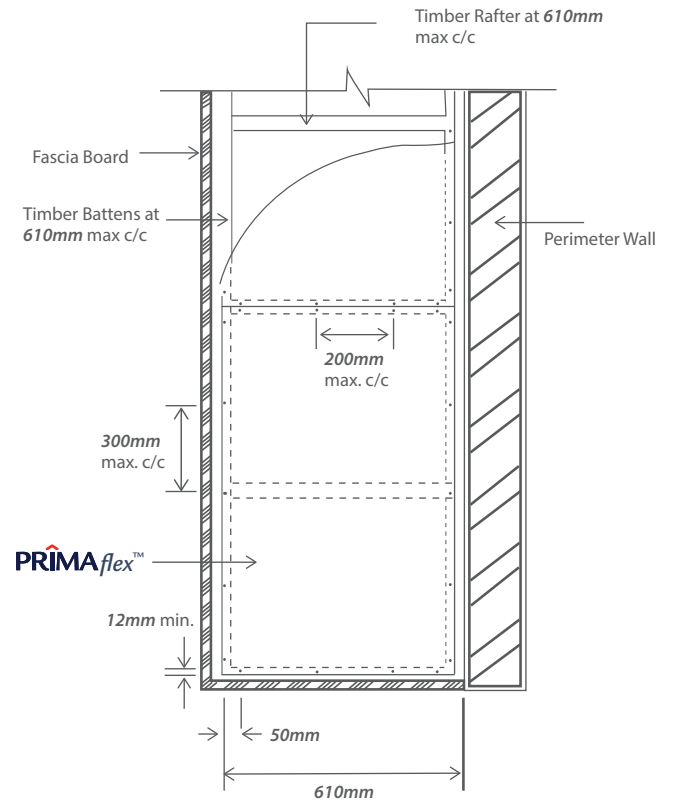


Figure 4.1 – Ceiling Board Installation

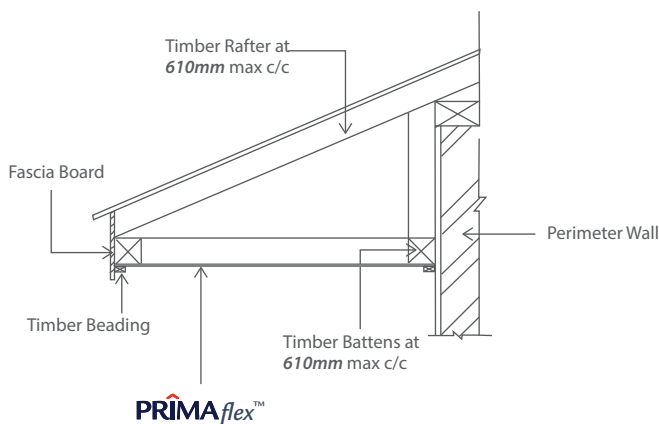
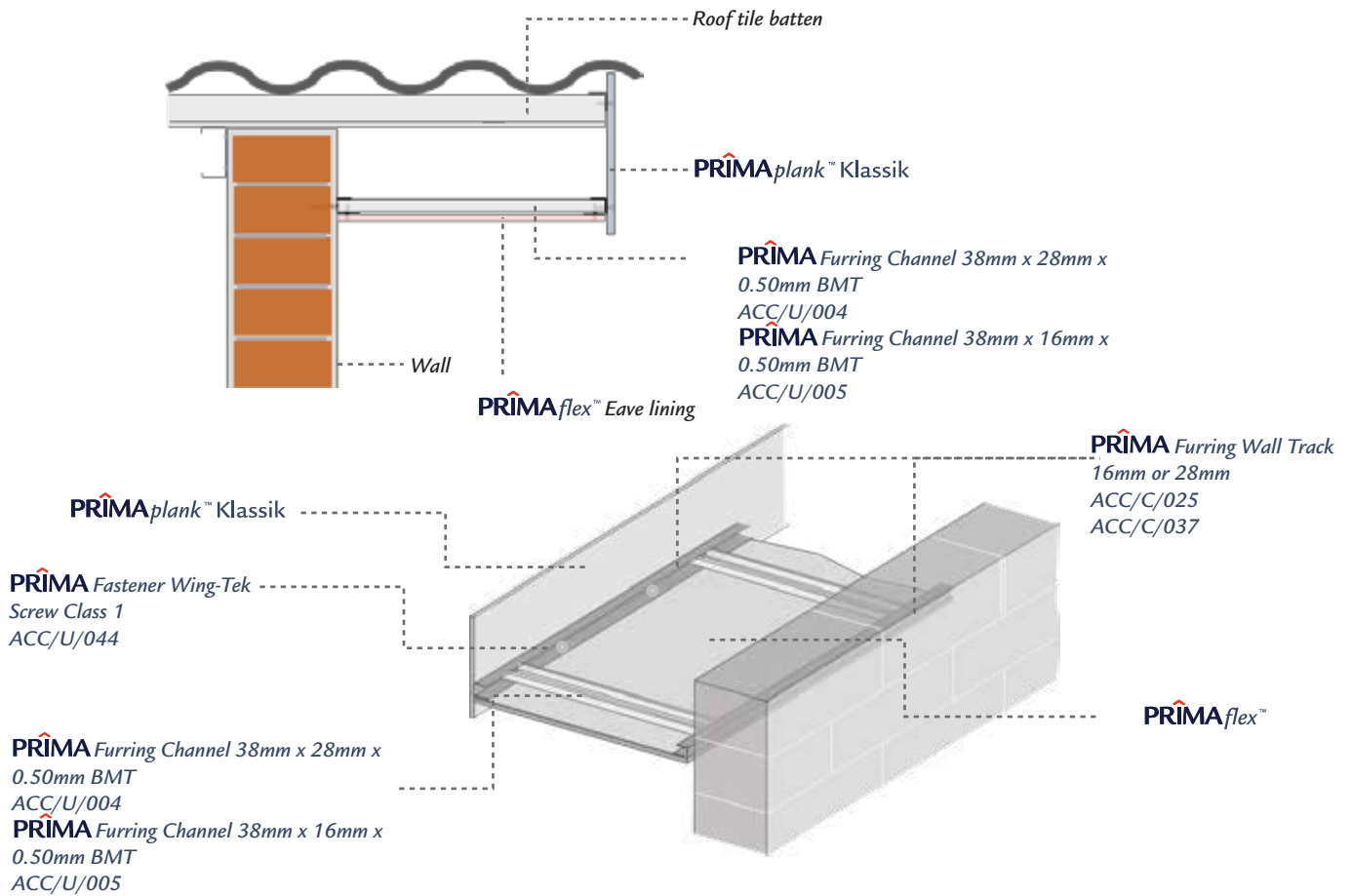


Figure 4.2 – Flat Eaves / Soffit (for timber structure)

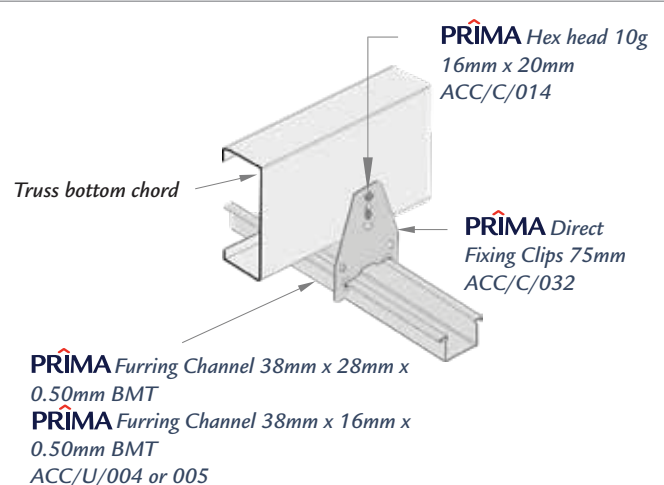
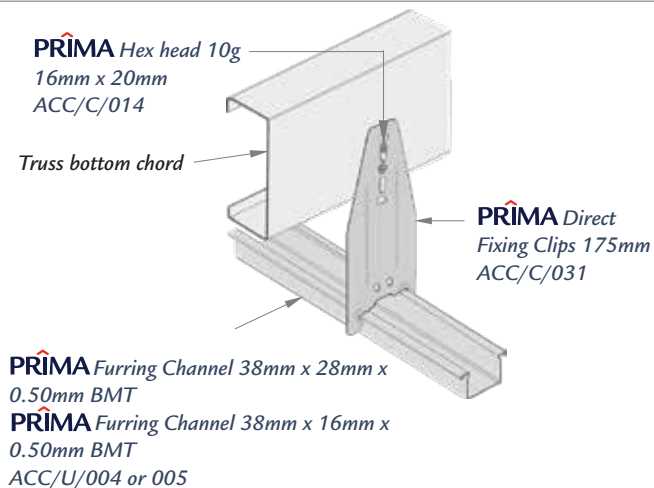
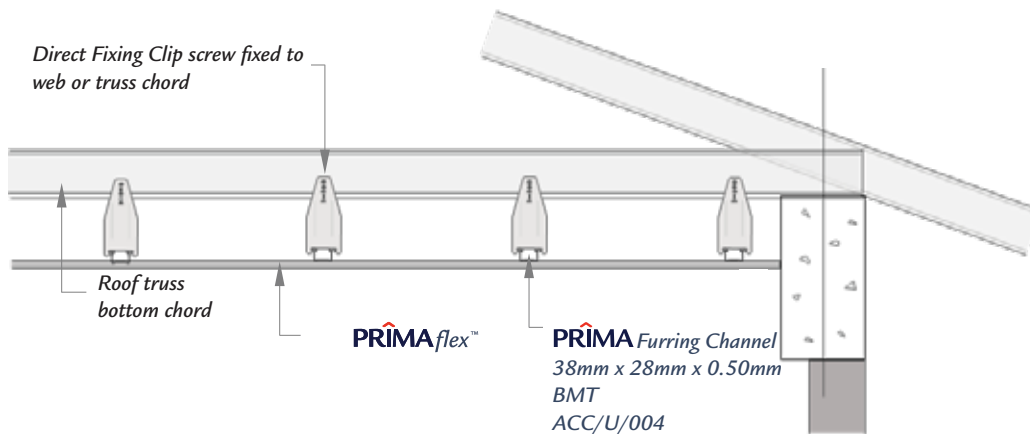


Figure 4.3 – Raked Eaves (for timber structure)

PRIMAflex™ - Eaves Ceiling (for steel structure)



PRIMA Ceiling – Direct Fixing System (for steel structure)



5 Wall & Gable End Cladding

5.1 General

PRIMAflex™ wall cladding offers the strength, durability and stability of concrete product – coupled with the versatility of a panel product. Refer to **Table 1.1** for the recommended board thickness for specific application.

PRIMAflex™ may also be used as internal wall lining (partitioning) for applications not requiring flush joint or seamless joint finishing. For flush joint finishing, refer to **PRIMAflex™** product catalogue.

5.2 Good Building Practices

5.2.1 Ground Clearance

Boards must be installed clear of the ground level by a minimum of **150mm** to provide for adequate protection against constant contact with ground water. This would prevent boards from getting saturated, which may result in coating adhesion failure. Refer to **Figure 5.1**.

5.2.2 Flashing

Provide flashing at internal & external corners, around door / window opening. On the ground floor (or in situation where slab underside is in direct contact with soil), provide a damp-proof course before laying the bottom tracks. Refer to **Figure 5.2**.

5.2.3 Sarking / Sisalation

While it is not a mandatory requirement by the Malaysia UBBL, it is a good building practice to provide a layer of vapour impermeable sarking material (building foil) to the exterior side of wall framing prior to installation of **PRIMAflex™** cladding board. Reflective sarking such as foil-backed building wrap will improve the thermal resistant of a wall system and also protect against water ingress due to pressure differential between internal and external environment. Install sarking material as per manufacturer's instruction. Sarking is highly recommended when insulation slab such as mineral wool is placed in the wall cavity. This is done to prevent accumulation of moisture within the insulation material which would affect the overall performance of the system assembly.

5.3 Installation

5.3.1 Board Layout

When applied as external wall and gable end claddings, **PRIMAflex™** may be installed vertically or horizontally, ensuring sheet joint coincides with the centre of supporting frame. Where possible, sheet should be installed as such that the horizontal joints are kept at a minimum level. Refer to **Figure 5.3**.

5.3.2 Framing

Framing timber is typically **50mm x 75mm** or **50mm x 100mm**. In the recent years, the use of light gauge metal frame system for the construction of light weight building systems is increasingly becoming more prevalent. Boards can be fixed to light-gauge C-channels or top-hat section. Refer to framing supplier for more information. Refer to **Figure 2.4** for general installation detail.

5.4 Joints & Corners

5.4.1 Horizontal Joints

Horizontal joints occur when a building height exceeds the length of a full size sheet or when a building is more than one storey high. At horizontal joints, boards must be supported and secured to framework (nogging). Provide preformed PVC or galvanised steel flashings to all **PRIMAflex™** horizontal joints. Flashings should be fixed to noggings at **200mm** centres. Refer to **Figure 5.4**. Board joint can also be covered with sealant mould or timber joint as shown on **Figure 2.6** and **2.7**.

5.4.2 Corners

Internal and external corners can be decorated with timber trim. Refer to **Figure 5.5**. Alternatively, aluminum **50mm x 50mm** corner angle can also be used. Refer **Figure 5.6**.

5.5 Details

The following diagrams represent typical details that cover the majority situations. Contact Saint-Gobain Prima Technical Department if you require specific details that are not covered in this section.

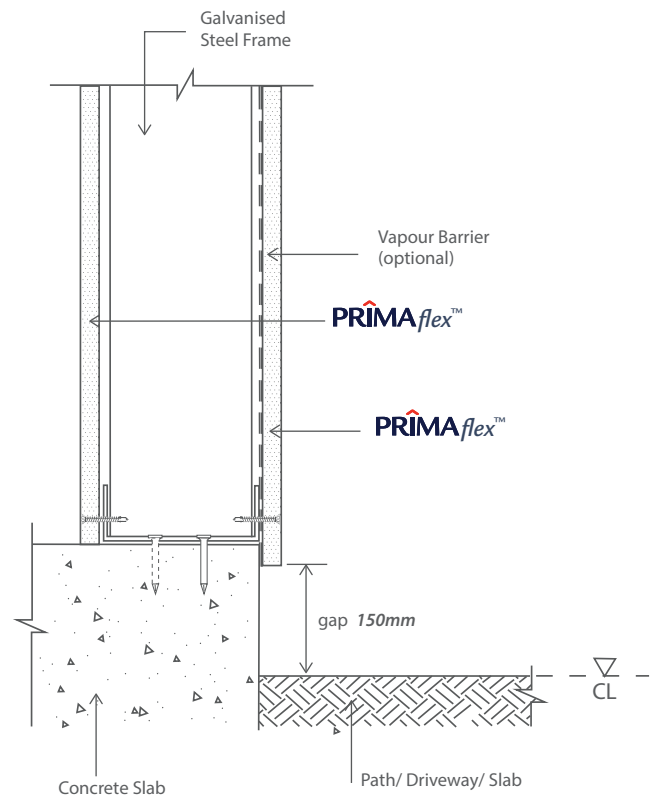


Figure 5.1 – Ground Clearance

Table 5.1: Support framing distance for cladding

Sheet Thickness	Application	Support Framing Centre Distance (mm)	
		Stud	Nogging
4.5mm	Gable Ends	407	
6.0mm & 7.5mm	Wall cladding, Gable Ends & Partition	610	1220
9mm & 12mm	Impact Resistant Wall	610	

Note:

1. For timber frame construction, noggings should be provided at mid-height (approximately 1220mm to 1500mm apart) to provide stability.
2. For steel frame construction, noggings must be provided as per manufacturer's recommendation.
3. Fastening to noggings is not necessary unless at board joints.
4. Nogging must be provided at board horizontal joints.
5. All board joints must be supported and fastened to the framework.

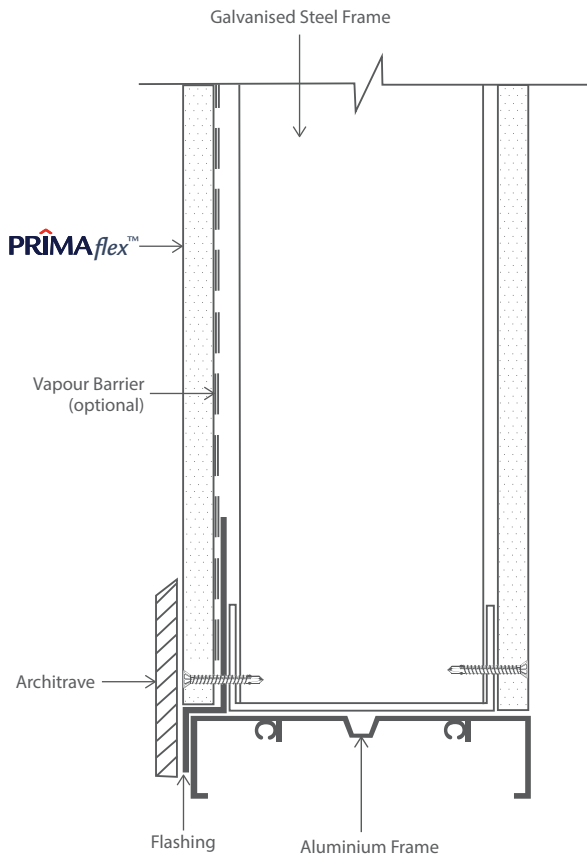


Figure 5.2 – Flashing Requirement

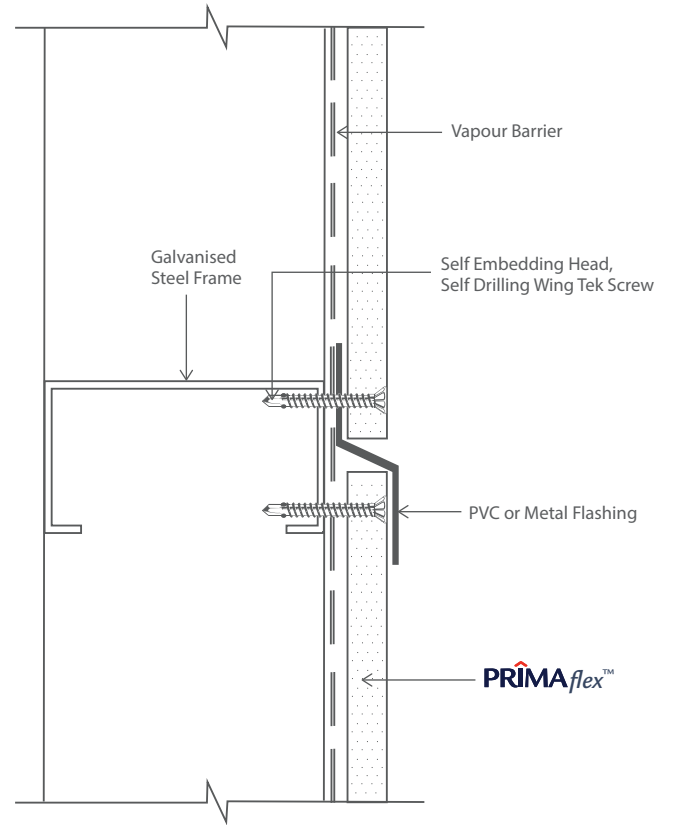


Figure 5.4 – Horizontal Joint

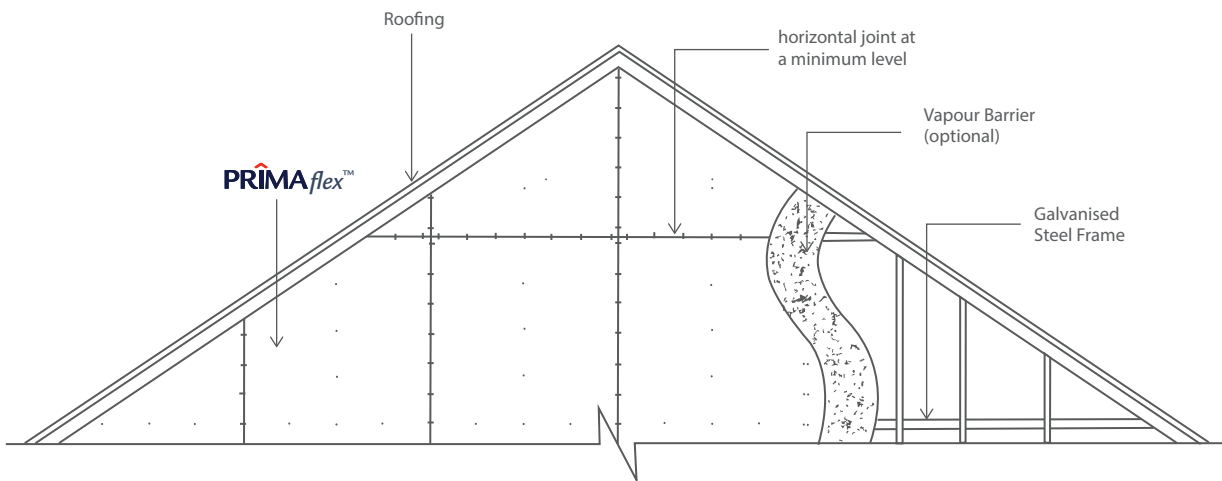


Figure 5.3 – External Wall & Gable End Cladding

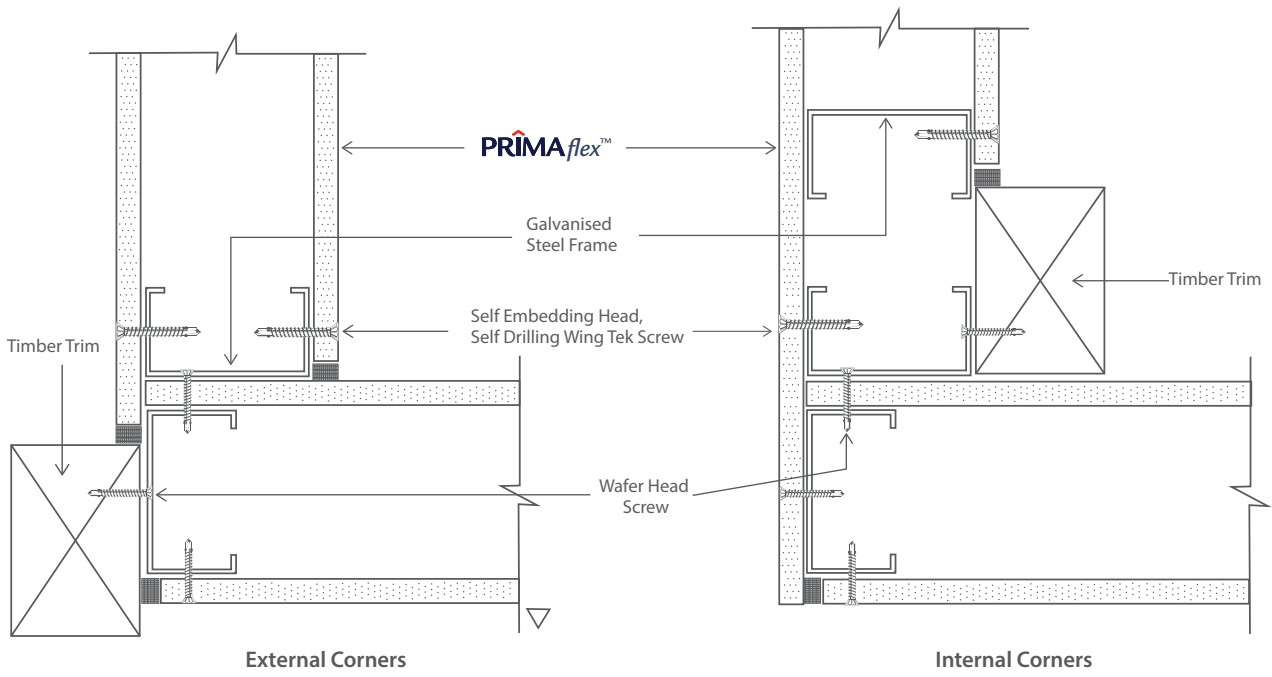


Figure 5.5 – External / Internal Corners (Timber Trim)

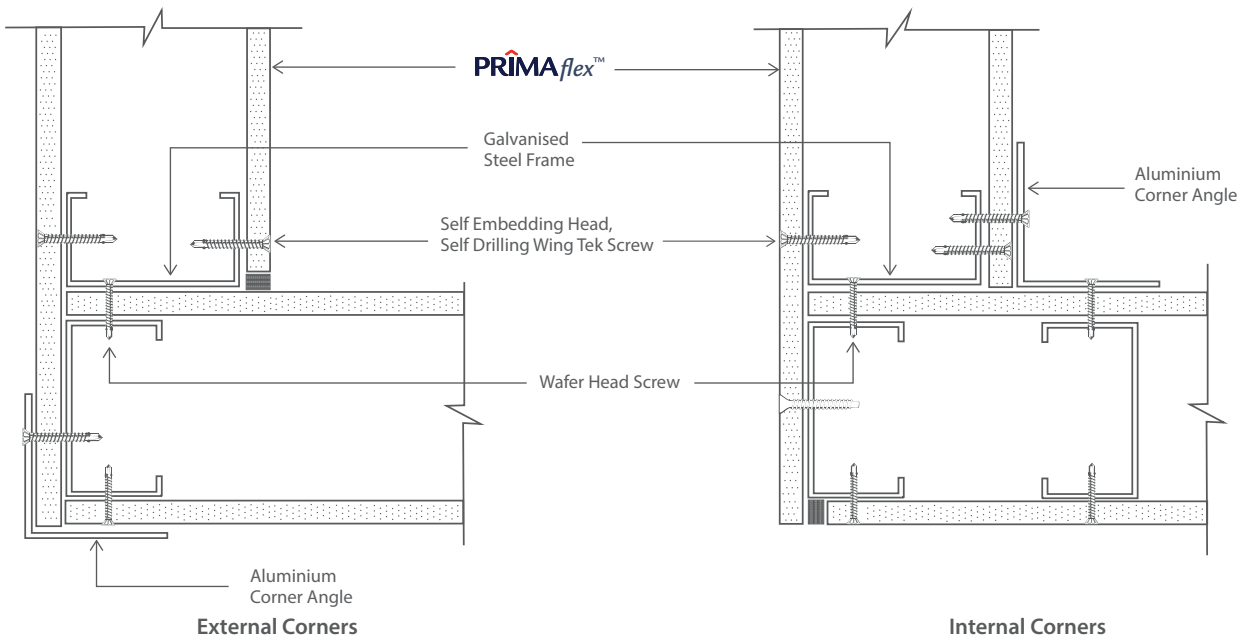


Figure 5.6 – External/Internal corners with Aluminium Trim & PU Sealant

6 Roof Sarking / Underlay

6.1 General

PRIMAflex™ roof sarking / underlay are roof systems that incorporate the installation of PRIMAflex™ board as an underlay for roofing sheets, supported by light gauge metal deck, purlins, rafters or roof trusses. The heat insulation property can further be improved by providing a layer of reflective foil. The roof sarking / underlay provide practical solution when higher acoustic and thermal insulation properties are required. The thermal and sound insulation properties of the systems can be engineered to meet specific design criteria. For more information, contact our Technical Services Department.

Its unique combination of physical, mechanical and acoustic properties makes PRIMAflex™ board an excellent choice for roof sarking applications particularly for residential, commercial and industrial buildings.

6.2 Design Consideration

6.2.1 Acoustic & Thermal Insulation

Generally, a minimum of 6mm thick PRIMAflex™ board can be used. Sound and thermal insulation values of the composite roof systems can be improved by using thicker board (*up to 16mm*), multi-layer design, incorporation of insulation slab (i.e. rockwool). The sound and thermal insulation values of the proposed systems can be estimated using standard acoustic software and standard calculation method.

6.2.2 Typical Roof Systems

Typical composite roof systems incorporating PRIMAflex™ board for residential and commercial building are shown in *Figure 6.1* and *6.2*. These systems are estimated to achieve the STC rating of *35 dB* and *45dB* respectively.

Note: The roof section details shown should be used as a guide only. The actual performance of the roof system is also highly dependent on other components, such as metal roofing, water proofing material or insulation materials. Thus, early engagement (at initial design stage) with roof system specialist and relevant consultant are highly recommended to ensure the targeted performance criteria are achievable.

6.2.3 Load Capacity

PRIMAflex™ board can be utilized as a working platform during the construction period. When designed to cater for a specific Uniformly Distributed Load (UDL) and Concentrated Load (CL), the table below may be used as a guide to select suitable PRIMAflex™ board thickness.

The load table shall not be used as sole criterion to assess the actual load carrying capacity of the roof composite system. As each roof system is unique, physical test must be performed to evaluate the actual performance of the system especially when PRIMAflex™ is applied in conjunction with other material such as high-density insulation slab and metal roofing.

6.3 Installation

6.3.1 Framing

Generally, boards are supported with light gauge steel C-channels or Z sections spaced at *610mm* centres maximum. In other systems, boards can also be applied onto corrugated metal decking. When it is inevitable to increase the support spacing to more than *610mm* centres, it is recommended that physical assessment to be conducted to evaluate the suitability of PRIMAflex™ boards applied in such manner.

6.3.2 Fixing Board

For best result, always lay PRIMAflex™ boards across the supporting structure. Fix fasteners at a minimum of *15mm* from board edge and *50mm* from board corner. Ensure that fasteners are spaced at *300mm* centres maximum at board perimeter and *400mm* centres maximum at intermediate framework. If roof system encompasses multi-layer board application, board joints between layers should be staggered. Refer to *Figure 6.3*.

6.3.3 Joint

For residential application, board should be laid with its edges in moderate contact. For large area applications such as commercial buildings, it is recommended to provide *2mm to 3mm* gap at PRIMAflex™ board joint to cater for board movement. If required, seal board joints with flexible sealant. Use only sealant that is compatible with cement based material and any other roof component. In all cases, refer to sealant manufacturer's instruction and compatibility.

6.4 Details

The following diagrams (*Figure 6.1*, *6.2* and *6.3*) show typical details where PRIMAflex™ boards are used as a component in the roof composite system. Some of the special roof components that are proprietary to Roof Specialists may not be shown in these diagrams. Contact Saint-Gobain Prima Technical Department if you require specific details that are not covered in this section.

Table 6.1 : Load capacity for roof sarking

Thickness	Joist Spacing @ 300mm / 305mm centre		Joist Spacing @ 400mm / 406mm centre		Joist Spacing @ 600mm / 610mm centre	
	UDL	CL	UDL	CL	UDL	CL
6mm	0.5kN/m ²	0.25kN	0.5kN/m ²	0.15kN	0.1kN/m ²	0.05kN
	51kg/m ²	25kg	51kg/m ²	15kg	10kg/m ²	5kg
9mm	5.0kN/m ²	1.0kN	2.0kN/m ²	0.5kN	0.5kN/m ²	0.25kN
	510kg/m ²	102kg	204kg/m ²	51kg	51kg/m ²	25kg
12mm	10.5kN/m ²	2.25kN	5.0kN/m ²	1.25kN	1.25kN/m ²	0.5kN
	1070kg/m ²	229kg	510kg/m ²	127kg	127kg/m ²	51kg
16mm	19.3kN/m ²	5.6kN	10.7kN/m ²	3.1kN	3.4kN/m ²	1.4kN
	1,967kg/m ²	571kg	1,091kg/m ²	316kg	347kg/m ²	143kg

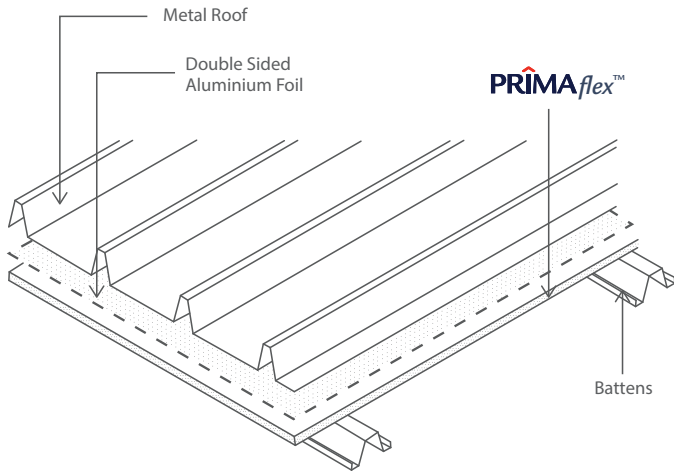


Figure 6.1 – Typical Residential Roof Section

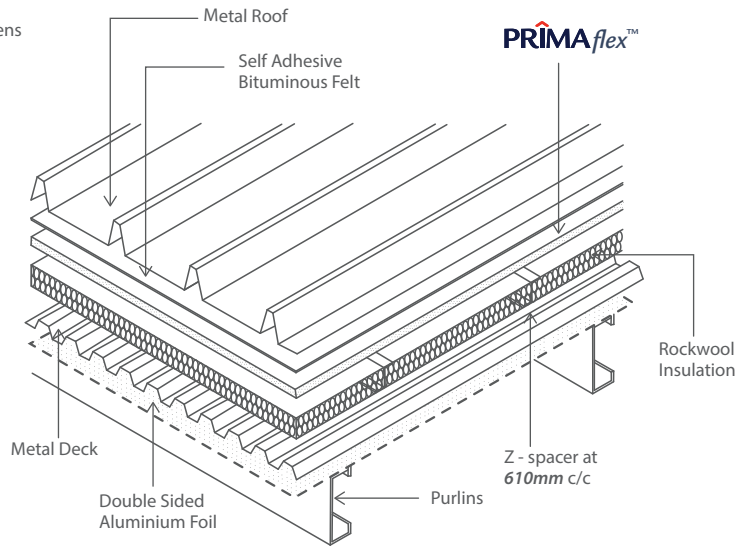


Figure 6.2 – Typical Commercial Roof Section

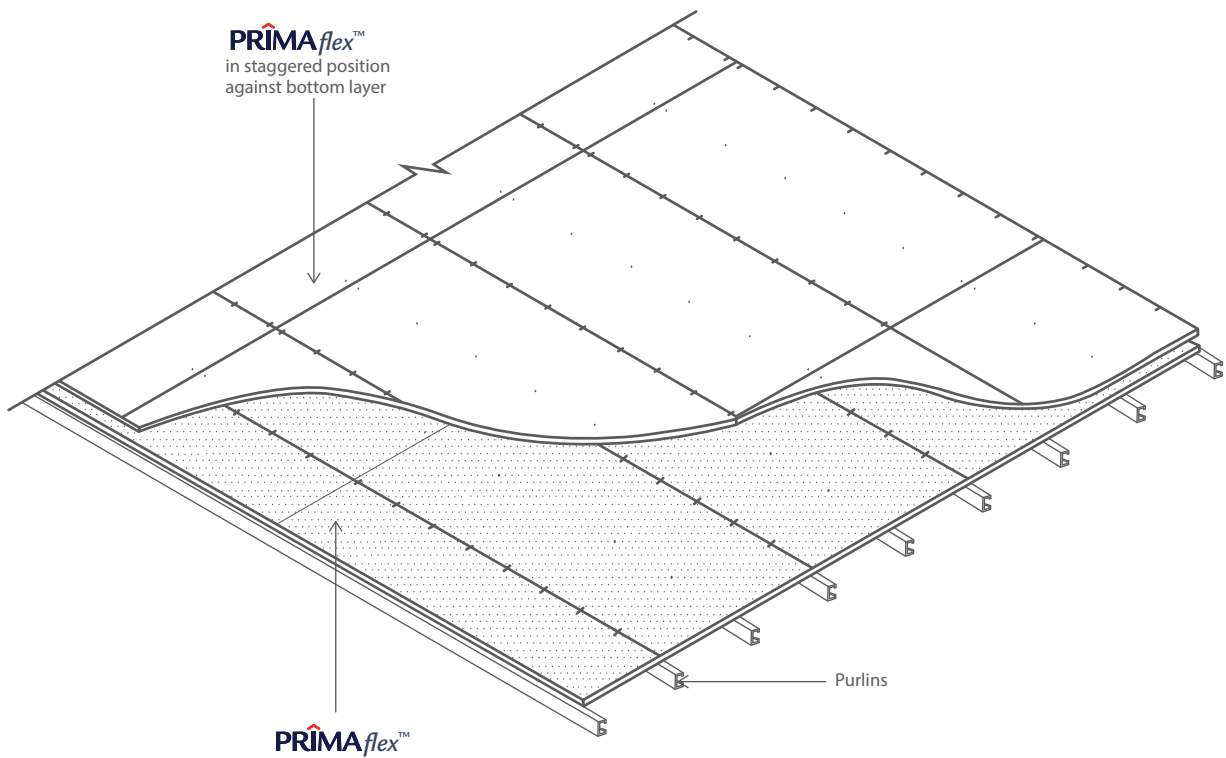


Figure 6.3 – Multi-layer Board Installation Method for Roof Sarking

7 Flooring

7.1 General

PRIMAflex™ is suitable for the construction of lightweight platform / floor system for residential, commercial as well as industrial buildings. The floor system can be designed to meet specific load requirements based on the intended use. These load requirements are generally described in the local building code such as UBBL.

The system uses **12mm, 16mm, and 20mm PRIMAflex™** fastened onto timber or steel framing system. These boards are manufactured in standard sizes of **1220mm x 2440mm**.

7.2 Design Consideration

7.2.1 Framing

Framing for flooring can be constructed either of steel or timber, or a combination of both materials. The general requirements are describes as follows:-

- Lay floor boards across the joists (primary support), preferably in a staggered configuration.
- Trimmers / runners must be installed at approximately **1220mm** centres to support the floor board edges.
- Where floor board is cut to allow for opening, provide additional support not more that **50mm** from the edges of the opening.
- Ensure all board edges are adequately fastened to the support.
- Refer to **PRIMAflex™** Load Selection **Table, 7.1** and **7.2** for recommended joist spacing.

The steel framing system is generally mild steel square / rectangular section or structural timber. Framing must have at least **45mm** width in order to provide adequate fastener's landing at floorboard joint.

It is the responsibility of the structural engineer to ensure the framing system in which **PRIMAflex™** flooring boards will be laid on will perform under the design load. Generally, framing structure is designed to cater for a maximum deflection of **L/250** of span under the service load. For floor to be finished with rigid material such as natural stone, please consult with Saint-Gobain Prima Technical Department.

7.2.2 Load Tables

The tables below serves as a guide in the selection of board thickness and joist spacing for flooring applications. The use of these tables shall be in line with good building practice. It is recommended that the entire fixing requirement stated in this manual be adhered with to ensure the workability floor system. A uniformly distributed load of **1.2kN/m²** has been factored in to cater for floor finishes.

Table 7.1 : Span vs. Load (Dry Area Applications)

Joist Spacing @ 300mm / 305mm centre Thickness	400mm / 407mm centre		600mm / 610mm centre	
	UDL	CL	UDL	CL
12mm	9.60kN/m ²	2.35kN	3.75kN/m ²	1.30kN
	979kg/m ²	240kg	382kg/m ²	133kg
16mm	18.00kN/m ²	5.50kN	9.50kN/m ²	3.00kN
	1835kg/m ²	56kg	968kg/m ²	306kg
20mm	30kN/m ²	9.0kN	15.5kN/m ²	4.1kN
	3058kg/m ²	917kg	1580kg/m ²	417.8kg

Table 7.2 : Span vs. Load (Wet Area and External Applications)

Joist Spacing @ 300mm / 305mm centre Thickness	400mm / 407mm centre		600mm / 610mm centre	
	UDL	CL	UDL	CL
12mm	5.50kN/m ²	1.25kN	1.75kN/m ²	0.80kN
	561kg/m ²	127kg	178kg/m ²	82kg
16mm	10.75kN/m ²	3.50kN	5.25kN/m ²	1.75kN
	1096kg/m ²	357kg	535kg/m ²	178kg
20mm	17.6kN/m ²	5.28kN	9kN/m ²	3.6kN
	1794kg/m ²	538kg	917kg/m ²	366kg

Note:

1. Dry and Wet Bending Strength (MOR) for **PRIMAflex™** are 16N / mm² and 10N/mm² respectively.
2. Dry and Wet Modulus of Elasticity (MOEs) **PRIMAflex™** are 8,000N / mm² and 5,000N / mm² respectively.
3. Minimum factor of safety under the bending strength of 3.0 has been factored in the recommended loads.
4. Allowable maximum deflection is limited to L / 250 of joist spacing.
5. Concentrated load is applied over an area of 300mm x 300mm square.
6. The above values are nominal joist spacing. Actual joist and trimmer spacing must incorporate the allowance for 1mm to 2mm gap at board joints and 5mm gap at expansion joint.
7. Refer to Saint-Gobain Prima should the design require other particular attention not covered in this manual.

- Step: 1 Determine the actual usage (i.e. Houses, Institutional Buildings, Offices, etc.) of the floor system.
- Step: 2 Refer to the UBBL for the minimum UDL and CL for the intended application.
- Step: 3 Determine the type of finishing material to be applied on the floor board, including other components such as adhesive, cement mortar, e.t.c. The weight of these materials must be added to the UDL value obtained in step 2. Cement mortar of 25mm thickness typically weighs **0.57kN / m²**.
- Step: 4 Select the suitable joist spacing that meets the minimum UDL (plus weight of finishing material) & CL stated in Step 3.

7.3 Installation

The following installation method serves as a guide for installer. Refer to **Figure 7.1** and **Figure 7.2** for typical floor board installation detail.

1. Ensure that the framing system is designed and constructed in accordance with applicable standards, building codes and acceptable building practices. Floor joists and trimmers must be true and level.
2. Lay **PRIMAflex™** board in a staggered configuration and laid across the floor joist.
3. A gap of about **6mm** between **PRIMAflex™** and the wall is recommended along the perimeter of the floor system. Board joint can be butt or sealant joint by referring to **Figure 2.2** or **2.6** respectively.
4. Refer to **Table 2.3** for fasteners fixing distance and detail.
5. Fill gap between sheet joint and patch all fastener points using suitable cementitious patching compound. For wet area application, use wet area sealant or polyurethane sealant.

7.4 Joint & Intersection Details

7.4.1 Expansion Joint

Provide expansion joint at **6.1m** centres maximum if any one (or more) of the following occurs:-

- a. Floor area to be tiled exceeds 6.1m in width or length
- b. Floor changes in direction
- c. **PRIMAflex™** sheet adjoins other floor systems such as concrete slab.

Provide a minimum of **6mm gap** at expansion joint. Seal gap with suitable sealant. The expansion joint gap must be carried up vertically to provide a complete break at board joint and the finishing material. Do not apply finishing material over the expansion joint. Refer to **Figure 7.3**.

7.5 Finishes

- **PRIMAflex™** floor may be finished with non-rigid finished such as carpet, vinyl tiles, linoleum and other flexible materials can be used provided that the overall floor deflection is limited to **L/250** of floor span under the service load.
- Rigid floor finishing material such as ceramic tile can also be used provided that the overall floor deflection is limited to **L/360** of floor span under the service load.
- For wet area application and exterior decking, apply waterproofing material before laying the finishing material (i.e. ceramic tiles).

7.6 Waterproofing

7.6.1 Wet Area

Prior to applying ceramic / homogeneous tiles in wet area application, gaps between sheets and screw points must be covered with suitable wet area polyurethane sealant. Apply a layer of compatible waterproofing material onto **PRIMAflex™** floor board. Lay a layer of cement / sand mortar bed to form appropriate gradient approximately **1%** to channel the water to the waste trap. Mortar bed must be nominally **30mm** minimum thick and not less than 20mm at floor waste. At floorboard joint, mortar bed must be reinforced with centrally embedded **150mm** wide (gauge **1mm** diameter) galvanised wire mesh. Then, install tiles with suitable tile adhesive. Refer to waterproofing and tile adhesive manufacturers for recommendations. In all cases, wet area waterproofing must satisfy the minimum requirements set by the local building regulations and/ or acceptable building practices. Typical sectional details of wet area application using **PRIMAflex™** sheets are shown in **Figure 7.4**.

7.7 Details

The following diagrams show typical details of **PRIMAflex™** lightweight floor system. Contact Saint-Gobain Prima Technical Department if you require specific details that are not covered in this section.

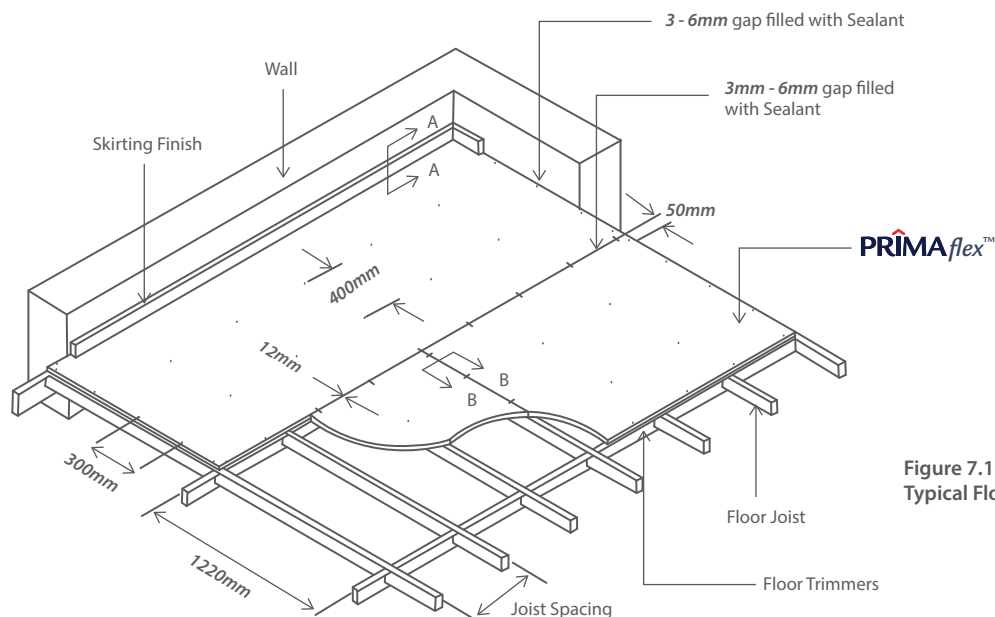


Figure 7.1 – Typical Floor Board Installation

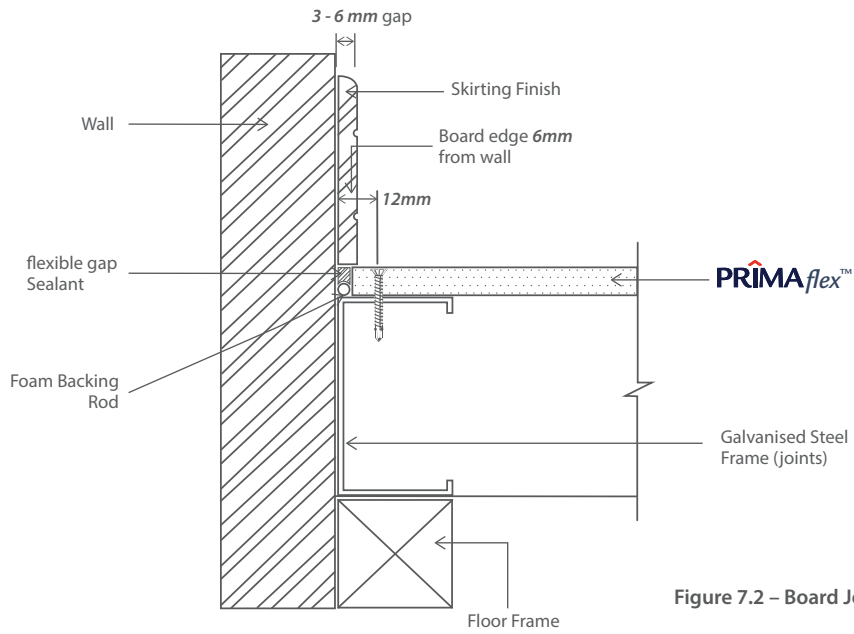


Figure 7.2 – Board Joint (Dry Area)

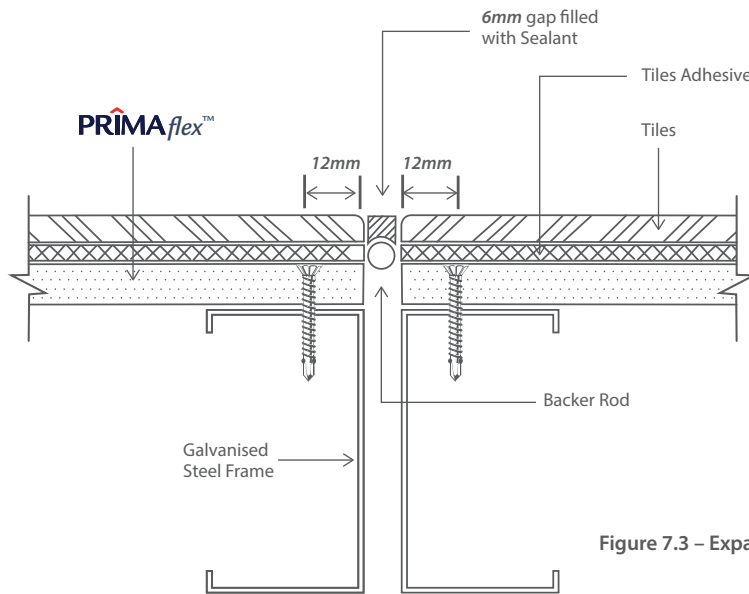


Figure 7.3 – Expansion Joint (Tiled Floor)

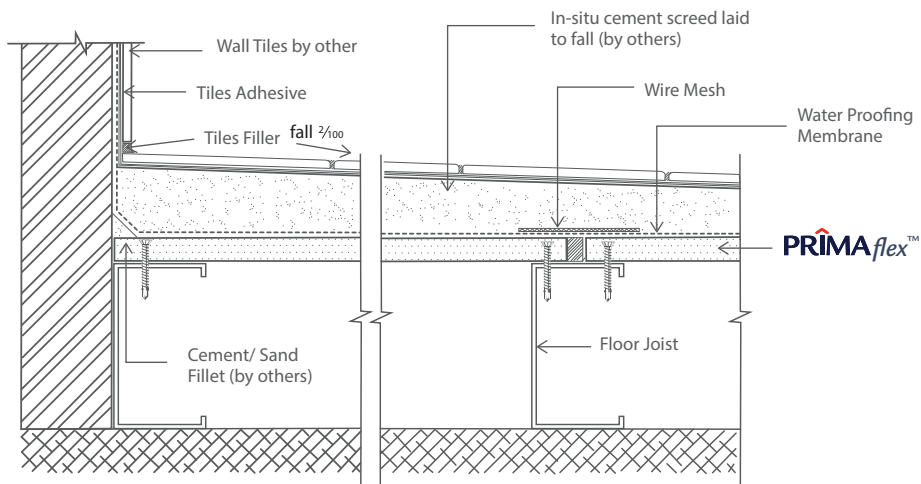


Figure 7.4 – Wet Area Waterproofing

8 Permanent Formwork

8.1 General

PRIMAflex™ board serves as better alternative to conventional plywood formwork. It provides temporary support to which fresh concrete is poured to form reinforced concrete slab. It is recommended to be applied as permanent formwork in the construction of bridges, flyovers, floor and approach slab for elevated MRT / LRT stations and many other usages.

The key advantages are:-

- No propping is required
- Faster than conventional formwork method
- Eliminate / minimize labour for dismantling formwork and scaffoldings
- Suitable for bridge construction with limited excess
- Will not rot & resistant to termite attack
- Aesthetically pleasing

8.2 Design Consideration

PRIMAflex™ permanent formwork boards are supplied in a standard size of **1220mm x 2440mm**. Boards can be cut at the project site to the required sizes to fit to the void (between beams) before steel bar reinforcement is tied and subsequently concrete is poured to form deck slab. Board must be kept dry prior to installation. Refer to the load table below for the appropriate span and concrete thickness.

8.3 Cutting & Installation

The following describes a step-by-step instruction to a successfully application of **PRIMAflex™** permanent formwork. Any deviation from the recommended steps below may result board failure and personal injury.

1. Select that suitable board thickness based on the information in **Table 8.1**.
2. To obtain the permanent formwork width, add **80mm** (allowance of **40mm** support at each side) to the clear span.
3. Cut **PRIMAflex™** PFW board across the **2440mm** side, forming a panel size of **1220mm x "Clear Span + 80mm"**. Board must be cut as shown in **Figure 8.1**.
4. Position the cut panel centrally with its **1220mm** edges running parallel to, and resting on the beam edges.
5. The remaining boards are laid into position with their edges in moderate contact with each other.
6. Install the reinforcing steel bar as per relevant construction drawings.
7. Pour fresh concrete to form the slab, ensuring no excessive accumulation of fresh concrete at the mid-span of board.

8.4 Details

The following diagrams show typical details of **PRIMAflex™** permanent formwork application. Ensure particular attention with respect to the board cutting and requirement for waterproofing (if required) are adhered to. Contact Saint-Gobain Prima Technical Department if you require specific details that are not covered in this section.

Table 8.1 : Loading table for permanent formwork

Board Thickness	Recommended maximum clear span (mm)														
	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000
	Concrete Thickness (mm)														
12mm	590	420	325	255	200	165	140	120	-	-	-	-	-	-	-
16mm	1040	750	580	450	370	300	250	210	180	160	135	120	-	-	-
20mm	1600	1150	900	710	570	470	390	330	285	240	215	190	165	150	135

Note:

1. Clear span refers to the net edge-to-edge distance between beams. This is the area where **PRIMAflex™** board provides temporary support for the fresh concrete that forms the deck slab.
2. For safety purpose of using **PRIMAflex™** permanent formwork, do not stand, step or walk on bare suspended **PRIMAflex™** board (temporary support) prior to installation of steel reinforcement and concrete.
3. Concrete density is assumed at 25kN/m³
4. Waterproofing material to be applied onto both surfaces and all board edges (optional).
5. Do not apply in area where will be 'exposed to standing water' or 'continuously in contact with water'.
6. Fresh concrete must be poured at the 'beam' area and progressively spread to the other area to form the required 'slab thickness'.
7. Accumulation of 'fresh concrete' in excess of the recommended thickness, particularly at the mid-span of board may result in failure.
8. Standard safety precautionary measures have to comply with the requirements set by licensed Safety Officer in charge of the project.

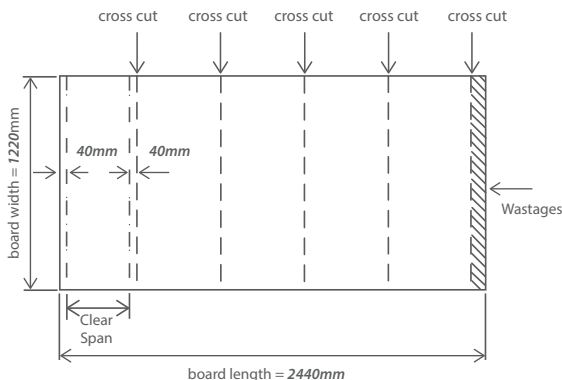


Figure 8.1 – Board Cutting Method

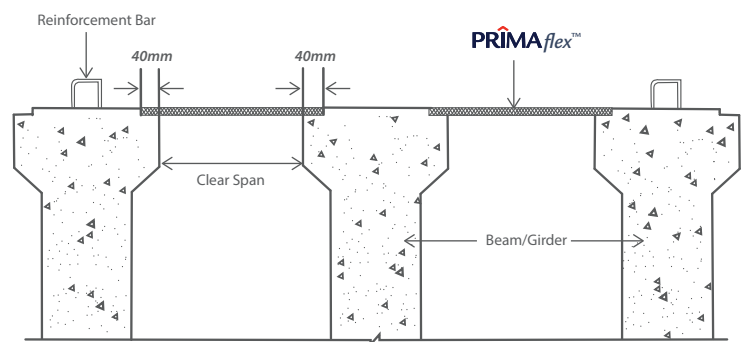


Figure 8.2 – Single Span Formwork System

9 Working Instructions

9.1 Cutting

PRIMAflex™ sheets can be cut using common power assisted tools such as circular saw equipped with a diamond-tipped cutting blade. This operation must be carried out in a well-ventilated area only. Do not wet the sheet or the saw blade during cutting process. Power tools fitted with dust-extracting attachments are recommended. A dust mask and safety goggle must always be worn when cutting, drilling or grinding the sheet.

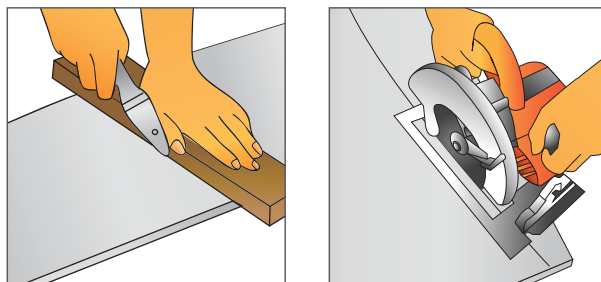


Figure 9.1: Score and Snap Method (left), Machine Cut (right)

9.2 Penetrations

Round holes can be formed by drilling a series of smaller holes around the perimeter of the proposed opening, and subsequently tapping the waste piece out carefully. Trim the rough edges with rasp if required. Use suitable high-speed heavy duty drill bit. Rectangular or square openings can be achieved by using power assisted circular saw.

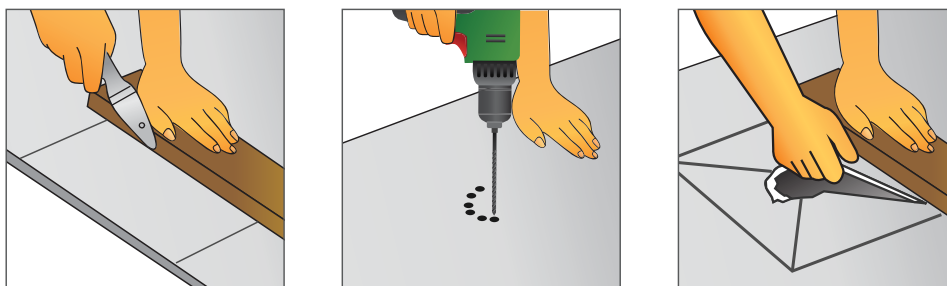


Figure 9.2: Notching and penetration











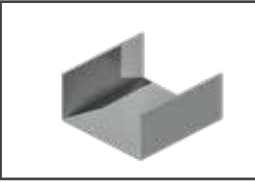





9.3 Handling & Storage

Always lift sheets vertically, on-edge and lengthwise. Store **PRIMAflex™** neatly on a flat surface supported evenly on bearers spaced at **600mm** centres maximum, clear from ground to avoid damage and moisture ingress. Store under cover and ensure **PRIMAflex™** is dry prior to fixing. Never install damp or wet sheets as they are prone to shrinkage and subsequently may lead to joint failure. Damp or wet sheets must be allowed to dry to equilibrium moisture content before fixing.






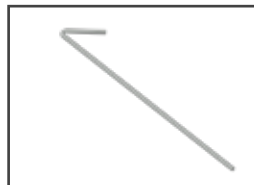












Figure 9: Handling

PRIMA™ accessories - List of Components

	<p>PRIMA M6 Threaded Rod ACC/U/001 Specifications : M6 Threaded Rod Length 3000mm Quantity : 50 pcs/box Category : Ceiling Application : Ceiling hanger / suspension</p>		<p>PRIMA Corner Piece for Klassik ACC/W/009 Specifications : 31mm x 31mm x 2440mm per pcs Quantity : one piece Category : Finishing trim for PRIMAplank™ Klassik Application : Walls & Cladding</p>
	<p>PRIMA M6 Push In Anchor ACC/U/002 Specifications : M6 Push In Anchor Quantity : 200 pcs/box Category : Anchor Application : Use as anchor to mount onto slab soffit. Ceiling hanger / suspension will be attach to it</p>		<p>PRIMA C-Channel Stud 51mm x 0.75mm BMT ACC/U/010 Specifications : 51mm x 3000mm x 0.75mm BMT Quantity : 100 pcs/pack Category : Primary section Application : Walls / Floors / Ceilings</p>
	<p>PRIMA M6 Nut ACC/U/003 Specifications : No #6 nut Quantity : 1500 pcs/box Category : Fastener Application : Ceiling rod / hanger fasteners</p>		<p>PRIMA U-Channel Track 51mm x 0.75mm BMT ACC/U/011 Specifications : 51mm x 3000mm x 0.75mm BMT Quantity : 100 pcs/pack Category : Primary section Application : Walls / Floors / Ceilings</p>
	<p>PRIMA Furring Channel 38mm x 28mm x 0.50mm BMT ACC/U/004 Specifications : 38mm x 28mm x 3660mm Quantity : 200 pcs/pack Category : Ceiling Application : Ceiling secondary section</p>		<p>PRIMA M6 x 65mm Stud Anchor ACC/U/012 Specifications : M6 x 65mm Stud Anchor Quantity : 250 pcs/box Category : Anchor / Fastener Application : Universal for floors / walls</p>
	<p>PRIMA Furring Channel 38mm x 16mm x 0.50mm BMT ACC/U/005 Specifications : 38mm x 28mm x 3660mm Quantity : 200 pcs/pack Category : Ceiling Application : Ceiling secondary section</p>		<p>PRIMA Flat Head 10g 16mm x 20mm ACC/U/013 Specifications : No #10 x 20mm Quantity : 1000 pcs/box Category : Fastener Application : To secure angle cleat on steel member</p>
	<p>PRIMA Furring Channel Joiner 38mm ACC/U/006 Specifications : 38mm Quantity : 400 pcs/box Category : Ceiling Application : Ceiling secondary section as connector / joiner</p>		<p>PRIMA Hex-Head 10g 16mm x 20mm ACC/U/014 Specifications : No #10 x 12mm Quantity : 1000 pcs/box Category : Fastener Application : To secure angle cleat to steel member</p>
	<p>PRIMA Tophat Bracket ACC/U/007 Specifications : 80mm x 46mm x 50mm Quantity : 60 pcs/box Category : Floor joist / Cladding Application : Secondary section connector to primary frame</p>		<p>PRIMA L-Bracket 50mm x 50mm x 1.5mm BMT ACC/U/015 Specifications : 50mm x 50mm x 1.5mm BMT Quantity : 80 pcs/box Category : Angle cleat Application : Universal. To hold steel frame onto structure</p>
	<p>PRIMA Corner Piece for Shiplap ACC/W/008 Specifications : 31mm x 2440mm per pcs Quantity : one piece Category : Finishing trim for PRIMAplank™ Shiplap Application : Wall & Cladding</p>		<p>PRIMA L-Bracket 75mm x 75mm x 1.5mm BMT ACC/U/016 Specifications : 75mm x 75mm x 1.5mm BMT Quantity : 40 pcs/box Category : Angle cleat Application : Universal. To hold steel frame onto structure</p>

Remark :
Please refer to the latest PRIMA Technical Manual prior to the installation.

PRIMA™ accessories - List of Components

	<p>PRIMA L-Bracket 55mm x 50mm x 1.9mm BMT ACC/U/017 Specifications : 55mm x 50mm x 1.9mm Quantity : 60 pcs/box Category : Angle cleat Application : Universal. To hold steel frame on structure</p>		<p>PRIMA Furring Wall Track 16mm ACC/C/025 Specifications : 16mm x 16mm Quantity : 120 pcs/pack Category : Trims Application : Ceiling</p>
	<p>PRIMA L-Bracket 75mm x 50mm x 1.9mm BMT ACC/U/018 Specifications : 75 mm x 50 mm x 1.9 mm Quantity : 50 pcs/box Category : Angle cleat Application : Universal. To hold steel frame on structure</p>		<p>PRIMA Suspension Rod 4mm ACC/C/026 Specifications : 4mm diameter Quantity : 100 pcs/box Category : Suspension Application : Ceiling</p>
	<p>PRIMA L-Bracket 100mm x 50mm x 1.9mm BMT ACC/U/019 Specifications : 100 mm x 50 mm x 1.9 mm Quantity : 30 pcs/box Category : Angle cleat Application : Universal. To hold steel frame on structure</p>		<p>PRIMA Spring Adjustable Ceiling Clip ACC/C/027 Specifications : 132mm (L) x 22mm (W) Quantity : 180 pcs/box Category : Suspension clip / bracket Application : Ceiling</p>
	<p>PRIMA Tophat 25mm x 50mm x 0.75mm BMT ACC/U/020 Specifications : 25mm x 50mm x 0.75mm BMT Quantity : 120 pcs/pack Category : Secondary section Application : Universal / Floor joist, cladding</p>		<p>PRIMA Threaded Adjustable Ceiling Clip ACC/C/028 Specifications : 96mm (L) x 22mm (W) Quantity : 340 pcs/pack Category : Suspension clip/bracket Application : Ceiling</p>
	<p>PRIMA Tophat 35mm x 50mm x 0.75mm BMT ACC/U/021 Specifications : 35mm x 50mm x 0.75mm BMT Quantity : 120 pcs/pack Category : Secondary section Application : Universal / Floor joist, cladding</p>		<p>PRIMA M6 Eye Anchor ACC/C/029 Specifications : M6 x 60mm Quantity : 400 pcs/box Category : Anchor/ Fasteners Application : Ceiling</p>
	<p>PRIMA Tophat 50mm x 50mm x 0.75mm BMT ACC/U/022 Specifications : 50mm x 50mm x 0.75mm BMT Quantity : 120 pcs/pack Category : Secondary section Application : Universal / Floor joist, cladding</p>		<p>PRIMA Batten Cross Joiner ACC/C/030 Specifications : 100mm (L) x 35mm (W) Quantity : 480 pcs/box Category : Joiners Application : Ceiling</p>
	<p>PRIMA Direct Fixing Clip ACC/W/023 Specifications : Direct fixing clip 36mm x 66mm Quantity : 50 pcs/box Category : Joiners Application : Wall, cladding</p>		<p>PRIMA Direct Fixing Clips 175mm ACC/C/031 Specifications : 190mm (L) x 76mm (W) Quantity : 200 pcs/box Category : Suspension clip / bracket Application : Ceiling</p>
	<p>PRIMA Ceiling Batten 36mm x 16mm ACC/C/024 Specifications : 3600mm x 36mm x 16mm x 0.42mm BMT Quantity : 500 pcs/pack Category : Secondary section Application : Ceiling</p>		<p>PRIMA Direct Fixing Clips 75mm ACC/C/032 Specifications : 90mm (L) x 65mm (W) Quantity : 200 pcs/box Category : Suspension clip / bracket Application : Ceiling</p>

Remark :
 Please refer to the latest PRIMA Technical Manual prior to the installation.

PRIMA™ accessories - List of Components



PRIMA Flipped Direct Fixing Clips 75mm
ACC/U/033
 Specifications : 68mm (L) x 65mm (W)
 Quantity : 100 pcs/box
 Category : Suspension clips/Brackets
 Application : Universal / To secure steel elements at the right angle



PRIMA Angle 25mm x 25mm x 0.75mm BMT
ACC/U/041
 Specifications : 25mm x 25mm x 3000mm
 Quantity : 500 pcs/pack
 Category : Angles
 Application : Ceiling/Wall/Cladding



PRIMA Furring Channel 50mm x 28mm
ACC/U/034
 Specifications : 50 mm x 28 mm x 3600mm
 Quantity : 200 pcs/pack
 Category : Secondary section
 Application : Ceiling



PRIMA Angle 35mm x 35mm x 0.75mm BMT
ACC/U/042
 Specifications : 35mm x 35mm x 3000mm
 Quantity : 400 pcs/pack
 Category : Angles
 Application : Ceiling/Wall/Cladding



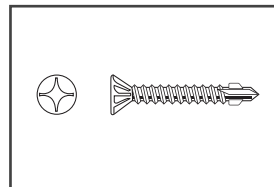
PRIMA Hat Batten 38mm x 28mm x 0.50mm
BMT
ACC/U/035
 Specifications : 38 mm x 28 mm x 3600mm,
 Quantity : 200 pcs/pack
 Category : Secondary section
 Application : Ceiling



PRIMA Angle 50mm x 50mm x 0.75mm BMT
ACC/U/043
 Specifications : 50mm x 50mm x 3000mm
 Quantity : 240 pcs/pack
 Category : Angles
 Application : Ceiling/Wall/Cladding



PRIMA Hat Batten 50mm x 28mm x 0.50mm
BMT
ACC/U/036
 Specifications : 50mm x 28mm x 3600mm,
 Quantity : 200 pcs/pack
 Category : Secondary section
 Application : Ceiling



PRIMA Fastener Wing-Tek Screw Class 1
(22mm/28mm/32mm/44mm)
ACC/U/044
 Specifications : 22mm/28mm/32mm/44mm,
 Quantity : 1000 pcs/box
 Category : Fasteners
 Application : Wall/Cladding



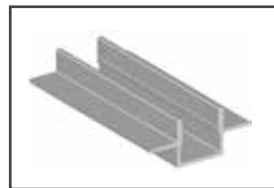
PRIMA Furring Channel Wall Track 28mm
ACC/C/037
 Specifications : 30mm x 28mm
 Quantity : 120 pcs/pack
 Category : Trims
 Application : Ceiling



PRIMA Decking CFS (Top Cover)
ACC/D/045
 Specifications : Aluminium Powder Coated (Black)
 Decking Strip Top-Cover
 15mm (Gap), 3000mm (L)
 Quantity : 20 pcs/box
 Category : Strip Top Cover
 Application : Decking



PRIMA C-Channel Cross Joiner - SS1 to
FC3828
ACC/C/038
 Specifications : 38mm x 76mm x99mm
 Quantity : 180 pcs/box
 Category : Joiners
 Application : Ceiling



PRIMA Decking CFS (Base Unit)
ACC/D/046
 Specifications : Aluminium Powder Coated (Black)
 Decking Strip Base-Unit
 3000mm (L)
 Quantity : 20 pcs/box
 Category : Strip Base Unit
 Application : Decking



PRIMA 51mm Stud to Furring Cross Joiner -
SS1 to FC5028
ACC/C/039
 Specifications : 38mm x 76mm x 99mm
 Quantity : 120 pcs/box
 Category : Joiners
 Application : Ceiling



PRIMA Deck Concealed 3mm Fixing Clip
ACC/D/047
 Specifications : Conceal 3mm (Gap) Decking
 Fix Clip, 3000mm (L)
 Quantity : one piece
 Category : Fasteners
 Application : Decking

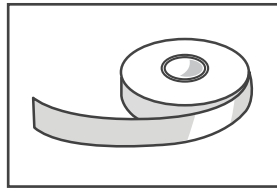


PRIMA Furring Channel Joiner 50mm
ACC/C/040
 Specifications : 61mm x 98mm
 Quantity : 350 pcs/box
 Category : Joiners
 Application : Ceiling



PRIMA Deck Concealed 10mm Fixing Clip
ACC/D/048
 Specifications : Conceal 10mm (Gap)Decking
 Fix Clip, 3000mm (L)
 Quantity : one piece
 Category : Fasteners
 Application : Decking

PRIMA™ accessories - List of Components



PRIMA Mesh Tape
ACC/U/049
 Specifications : 50 meter / roll
 Quantity : one piece
 Category : Mesh tape
 Application : Flush Jointing for wall and ceiling



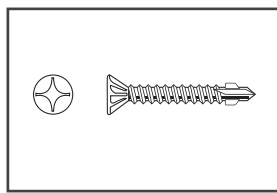
PRIMA C-Studs 76mm x 0.55mm BMT
ACC/U/057
 Specifications : 76mm C-Studs x 0.55mm BMT (S7655), 76mm x 35mm x 3000mm
 Quantity : one piece
 Category : Primary Section
 Application : Walls / Floors / Ceilings



PRIMA Fastner Needle Point no#6 x 19mm
ACC/U/050
 Specifications : 19mm (L),
 Quantity : 1000 pcs/box
 Category : Fasteners
 Application : Ceiling



PRIMA C-Studs 92mm x 0.55mm BMT
ACC/U/058
 Specifications : 92mm C-Studs x 0.55mm BMT (S9255), 92mm x 35mm x 3000mm
 Quantity : one piece
 Category : Primary Section
 Application : Walls / Floors / Ceilings



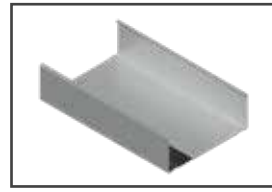
PRIMA Fastner Wing-Tek Screw Class 3
ACC/U/051
 Specifications : 22mm/28mm/32mm/44mm,
 Quantity : 1000 pcs/box
 Category : Fasteners
 Application : Wall/Cladding



PRIMA C-Studs 100mm x 0.55mm BMT
ACC/U/059
 Specifications : 100mm C-Studs x 0.55mm BMT (S10055), 100mm x 35mm x 3000mm
 Quantity : one piece
 Category : Primary Section
 Application : Walls / Floors / Ceilings



PRIMA Jointing Compound PLUS+
ACC/U/052
 Specifications : Jointing Compound Plus+
 Quantity : one bucket , 28KG/bucket
 Category : Sealers
 Application : Wall/Ceiling



PRIMA C-Studs 125mm x 0.55mm BMT
ACC/U/060
 Specifications : 125mm C-Studs x 0.55mm BMT (S12555), 125mm x 35mm x 3000mm
 Quantity : one piece
 Category : Primary Section
 Application : Walls / Floors / Ceilings



PRIMA C-Studs 51mm x 0.50mm BMT
ACC/U/053
 Specifications : 51mm C-Studs x 0.50mm BMT (S5150), 51mm x 35mm x 3000mm
 Quantity : one piece
 Category : Primary Section
 Application : Walls / Floors / Ceilings



PRIMA C-Studs 64mm x 0.75mm BMT
ACC/U/061
 Specifications : 64mm C-Studs x 0.75mm BMT (S6475), 64mm x 35mm x 3000mm
 Quantity : one piece
 Category : Primary Section
 Application : Walls / Floors / Ceilings



PRIMA C-Studs 64mm x 0.50mm BMT
ACC/U/054
 Specifications : 64mm C-Studs x 0.50mm BMT (S6450), 64mm x 35mm x 3000mm
 Quantity : one piece
 Category : Primary Section
 Application : Walls / Floors / Ceilings



PRIMA C-Studs 76mm x 0.75mm BMT
ACC/U/062
 Specifications : 76mm C-Studs x 0.75mm BMT (S7675), 76mm x 35mm x 3000mm
 Quantity : one piece
 Category : Primary Section
 Application : Walls / Floors / Ceilings



PRIMA C-Studs 51mm x 0.55mm BMT
ACC/U/055
 Specifications : 51mm C-Studs x 0.55mm BMT (S5155), 51mm x 35mm x 3000mm
 Quantity : one piece
 Category : Primary Section
 Application : Walls / Floors / Ceilings



PRIMA C-Studs 92mm x 0.75mm BMT
ACC/U/063
 Specifications : 92mm C-Studs x 0.75mm BMT (S9275), 92mm x 35mm x 3000mm
 Quantity : one piece
 Category : Primary Section
 Application : Walls / Floors / Ceilings



















PRIMA C-Studs 64mm x 0.55mm BMT
ACC/U/056
 Specifications : 64mm C-Studs x 0.55mm BMT (S6455), 64mm x 35mm x 3000mm
 Quantity : one piece
 Category : Primary Section
 Application : Walls / Floors / Ceilings



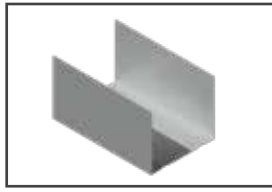
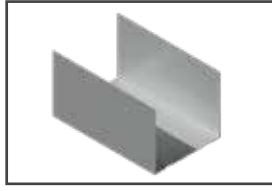
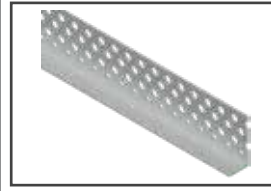

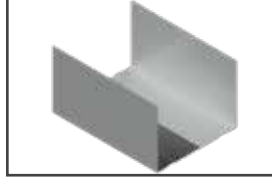







PRIMA C-Studs 100mm x 0.75mm BMT
ACC/U/064
 Specifications : 100mm C-Studs x 0.75mm BMT (S10075), 100mm x 35mm x 3000mm
 Quantity : one piece
 Category : Primary Section
 Application : Walls / Floors / Ceilings

PRIMA™ accessories - List of Components

	<p>PRIMA C-Studs 125mm x 0.75mm BMT ACC/U/065 Specifications : 125mm C-Studs x 0.75mm BMT (S12575), 125mm x 35mm x 3000mm Quantity : one piece Category : Primary Section Application : Walls / Floors / Ceilings</p>		<p>PRIMA U-Track 100mm x 0.55mm BMT ACC/U/073 Specifications : 100mm U-Track x 0.55 bmt (T10055), 100mm x 32mm x 3000mm Quantity : one piece Category : Primary Section Application : Walls / Floors / Ceilings</p>
	<p>PRIMA C-Studs 150mm x 0.75mm BMT ACC/U/066 Specifications : 150mm C-Studs x 0.75mm BMT (S15075), 150mm x 35mm x 3000mm Quantity : one piece Category : Primary Section Application : Walls / Floors / Ceilings</p>		<p>PRIMA U-Track 125mm x 0.55mm BMT ACC/U/074 Specifications : 125mm U-Track x 0.55 bmt (T12555), 125mm x 32mm x 3000mm Quantity : one piece Category : Primary Section Application : Walls / Floors / Ceilings</p>
	<p>PRIMA U-Track 51mm x 0.50mm BMT ACC/U/067 Specifications : 51mm U-Track x 0.50 bmt (T5150), 51mm x 32mm x 3000mm Quantity : one piece Category : Primary Section Application : Walls / Floors / Ceilings</p>		<p>PRIMA U-Track 64mm x 0.75mm BMT ACC/U/075 Specifications : 64mm U-Track x 0.75 bmt (T6475), 64mm x 32mm x 3000mm Quantity : one piece Category : Primary Section Application : Walls / Floors / Ceilings</p>
	<p>PRIMA U-Track 64mm x 0.50mm BMT ACC/U/068 Specifications : 64mm U-Track x 0.50 bmt (T6450), 64mm x 32mm x 3000mm Quantity : one piece Category : Primary Section Application : Walls / Floors / Ceilings</p>		<p>PRIMA U-Track 76mm x 0.75mm BMT ACC/U/076 Specifications : 76mm U-Track x 0.75 bmt (T7675), 76mm x 32mm x 3000mm Quantity : one piece Category : Primary Section Application : Walls / Floors / Ceilings</p>
	<p>PRIMA U-Track 51mm x 0.55mm BMT ACC/U/069 Specifications : 51mm U-Track x 0.55 bmt (T5155), 51mm x 32mm x 3000mm Quantity : one piece Category : Primary Section Application : Walls / Floors / Ceilings</p>		<p>PRIMA U-Track 92mm x 0.75mm BMT ACC/U/077 Specifications : 92mm U-Track x 0.75 bmt (T9275), 92mm x 32mm x 3000mm Quantity : one piece Category : Primary Section Application : Walls / Floors / Ceilings</p>
	<p>PRIMA U-Track 64mm x 0.55mm BMT ACC/U/070 Specifications : 64mm U-Track x 0.55 bmt (T6455), 64mm x 32mm x 3000mm Quantity : one piece Category : Primary Section Application : Walls / Floors / Ceilings</p>		<p>PRIMA U-Track 100mm x 0.75mm BMT ACC/U/078 Specifications : 100mm U-Track x 0.75 bmt (T10075), 100mm x 32mm x 3000mm Quantity : one piece Category : Primary Section Application : Walls / Floors / Ceilings</p>
	<p>PRIMA U-Track 76mm x 0.55mm BMT ACC/U/071 Specifications : 76mm U-Track x 0.55 bmt (T7655), 76mm x 32mm x 3000mm Quantity : one piece Category : Primary Section Application : Walls / Floors / Ceilings</p>		<p>PRIMA U-Track 125mm x 0.75mm BMT ACC/U/079 Specifications : 125mm U-Track x 0.75 bmt (T12575), 125mm x 32mm x 3000mm Quantity : one piece Category : Primary Section Application : Walls / Floors / Ceilings</p>
	<p>PRIMA U-Track 92mm x 0.55mm BMT ACC/U/072 Specifications : 92mm U-Track x 0.55 bmt (T9255), 92mm x 32mm x 3000mm Quantity : one piece Category : Primary Section Application : Walls / Floors / Ceilings</p>		<p>PRIMA U-Track 150mm x 0.75mm BMT ACC/U/080 Specifications : 150mm U-Track x 0.75 bmt (T15075), 150mm x 32mm x 3000mm Quantity : one piece Category : Primary Section Application : Walls / Floors / Ceilings</p>

Remark :
Please refer to the latest PRIMA Technical Manual prior to the installation.

PRIMA™ accessories - List of Components

	<p>PRIMA Deflection Head Track 51mm x 0.75mm BMT ACC/U/081</p> <p>Specifications : 51mm Deflection Head Track x 0.75 bmt (D5175) 51mm x 50mm x 3000mm</p> <p>Quantity : one piece Category : Primary Section Application : Walls / Floors / Ceilings</p>		<p>PRIMA Stopping Angle 10mm x 30mm x 0.35mm BMT ACC/C/089</p> <p>Specifications : 10mm x 30mm x 0.35mm BMT 3000mm (L)</p> <p>Quantity : 500pcs/pack Category : Trim Application : Ceiling</p>
	<p>PRIMA Deflection Head Track 64mm x 0.75mm BMT ACC/U/082</p> <p>Specifications : 64mm Deflection Head Track x 0.75 bmt (D6475) 64mm x 50mm x 3000mm</p> <p>Quantity : one piece Category : Primary Section Application : Walls / Floors / Ceilings</p>		<p>PRIMA Stopping Angle 13mm x 30mm x 0.35mm BMT ACC/C/090</p> <p>Specifications : 13mm x 30mm x 0.35mm BMT 3000mm (L)</p> <p>Quantity : 500pcs/pack Category : Trim Application : Ceiling</p>
	<p>PRIMA Deflection Head Track 76mm x 0.75mm BMT ACC/U/083</p> <p>Specifications : 76mm Deflection Head Track x 0.75 bmt (D7675) 76mm x 50mm x 3000mm</p> <p>Quantity : one piece Category : Primary Section Application : Walls / Floors / Ceilings</p>		<p>PRIMA Stopping Angle 16mm x 30mm x 0.35mm BMT ACC/C/091</p> <p>Specifications : 16mm x 30mm x 0.35mm BMT 3000mm (L)</p> <p>Quantity : 500pcs/pack Category : Trim Application : Ceiling</p>
	<p>PRIMA Deflection Head Track 92mm x 0.75mm BMT ACC/U/084</p> <p>Specifications : 92mm Deflection Head Track x 0.75 bmt (D9275) 92mm x 50mm x 3000mm</p> <p>Quantity : one piece Category : Primary Section Application : Walls / Floors / Ceilings</p>		<p>PRIMA Shadowline 10mm x 10mm x 30mm x 0.35mm BMT ACC/C/092</p> <p>Specifications : 10mm x 10mm x 30mm x 0.35mm BMT, 3000mm (L)</p> <p>Quantity : 500pcs/pack Category : Trim Application : Ceiling</p>
	<p>PRIMA Deflection Head Track 100mm x 0.75mm BMT ACC/U/085</p> <p>Specifications : 100mm Deflection Head Track x 0.75 bmt (D10075) 100mm x 50mm x 3000mm</p> <p>Quantity : one piece Category : Primary Section Application : Walls / Floors / Ceilings</p>		<p>PRIMA Shadowline 20mm x 10mm x 30mm x 0.35mm BMT ACC/C/093</p> <p>Specifications : 20mm x 10mm x 30mm x 0.35mm BMT, 3000mm (L)</p> <p>Quantity : 500pcs/pack Category : Trim Application : Ceiling</p>
	<p>PRIMA Deflection Head Track 125mm x 0.75mm BMT ACC/U/086</p> <p>Specifications : 125mm Deflection Head Track x 0.75 bmt (D12575) 125mm x 50mm x 3000mm</p> <p>Quantity : one piece Category : Primary Section Application : Walls / Floors / Ceilings</p>		<p>PRIMA Control Joint ACC/C/094</p> <p>Specifications : 0.35mm BMT flexible control joint 3000mm (L)</p> <p>Quantity : 100pcs/pack Category : Trim Application : Ceiling/Wall</p>
	<p>PRIMA Deflection Head Track 150mm x 0.75mm BMT ACC/U/087</p> <p>Specifications : 150mm Deflection Head Track x 0.75 bmt (D15075) 150mm x 50mm x 3000mm</p> <p>Quantity : one piece Category : Primary Section Application : Walls / Floors / Ceilings</p>		<p>PRIMA Ceiling Batten Cross Joiner ACC/C/095</p> <p>Specifications : 40mm x 50mm</p> <p>Quantity : 500pcs/box Category : Joiners Application : Ceiling</p>
	<p>PRIMA Corner Bead 30mm x 30mm x 0.35mm BMT ACC/U/088</p> <p>Specifications : 30mm x 30mm x 0.35mm BMT 3000mm (L)</p> <p>Quantity : 480pcs/pack Category : Trim Application : Wall/Cladding</p>		

Remark :
Please refer to the latest PRIMA Technical Manual prior to the installation.



PRIMAflex™



PPS (BAHAN BINAAN)
No. Pendaftaran: 1190903SL0387
1190910PK0394



BAHAN KELAS 'O'
BS 476 : PART 6 : 1989
BS 476 : PART 7 : 1987



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041-026
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CERT. NO.: OHS 00386



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59200 Kuala Lumpur, Malaysia

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

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