SAINT-GOBAIN

GLASROC® X

EXTERIOR WALL CLADDING SYSTEM GUIDELINES

gyproc SAINT-GOBAIN · isover SAINT-GOBAIN · Ecophon SAINT-GOBAIN · weber SAINT-GOBAIN · abe SAINT-GOBAIN · TEK BOND SAINT-GOBAIN · CHRYSO SAINT-GOBAIN · PAM SAINT-GOBAIN · SolarGard SAINT-GOBAIN · NORTON SAINT-GOBAIN

Contents

GLASROC X EXTERIOR WALL CLADDING SYSTEM DESCRIPTION

Glasroc® X Exterior Wall Cladding System is a non-combustible exterior wall cladding system for use on light weight steel-framed buildings. The exterior of the steel framework is clad using Glasroc® X board and plastered using Saint-Gobain Weber Basecoat. Saint-Gobain Isover CavityBatt™ insulation is installed between the steel framing members and the interior is lined with RhinoBoard® FireStop® dB plasterboard. The system has a thermal resistance of 2.6 m²K/W and it is suitable for use in all South African energy zones. The cladding system consists of two (2) variants with a fire resistance of 30min and 60min and an acoustic performance of Rw 51 dB and Rw 55 dB respectively.

1. MATERIALS

1.1. TECHNICAL SPECIFICATION OF MATERIALS

1.1.1. **Glasroc® X board -** 12.5 mm x 1200 mm x 2400 mm moisture and mould proof gypsum board lined with reinforced glass tissue mat on both surfaces and finished with a UV resistant coating. The Glasroc® X board thickness is 12.5 mm with a surface density of 10.9 kg/m² and a minimum bending radius of 1.2 mm.

1.1.2. **Weber Basecoat -** A polymer modified dry powder cement-based render mortar supplied in 20 kg bags and mixed on site with 4.5 L water. It is used a base coat for bonding and bedding fibre glass mesh and as an adhesive for bonding the insulation boards to the substrate.

1.1.3. **Marmoran RBP acrylic primer -** Is applied to the base coat before application of polymeric topcoat.

1.1.4. **Marmoran Permacrete -** Referred as polymeric topcoat, is a ready-mixed finishing plaster supplied in 20 L buckets. It is trowel applied to an approximate thickness of 2 mm.

1.1.5. **Polymeric paint -** Acrylic based paint applied using a paint roller and brush. These products include Marmoran Rolon, Marmoran Reo Spray and Marmoran Marakesh.

1.1.6. **Glasroc® X Fibre Mesh -** Alkali resistant fiberglass mesh with a nominal mesh size of 5 mm x 5 mm and an approximate weight of 160 g/m². It is supplied in rolls measuring 1.5 m x 50 m.

1.1.7. **Jack-Point Screws –** 25 mm, 41 mm and 60 mm long Gyproc Jack-Point Screws specifically designed for the fixing of gypsum board into structural steel frame studs. Minimum 48-hour salt spray test. Screws heads for screws used externally are painted with rust protective enamel paint e.g., Rust-oleum.

1.1.8. **abe.®drain 8 –** 8 mm abe.®drain is a dimpled high density polyethylene (HDPE) used as a weather barrier membrane. It is a water and wind-tight membrane which is installed in the external part of the construction and protects it from dampness and allows for ventilations of the cavity.

1.1.9. **RhinoBoard® FireStop® dB -** Saint-Gobain Gyproc 15 mm gypsum fire resistant board used an internal lining board. The gypsum board complies with SANS 266. RhinoBoard® FireStop® dB boards are manufactured in accordance with to ISO 9001:2000.

1.1.10. **RhinoBoard® MoistureResistant -** Saint-Gobain Gyproc 15mm moisture resistant board used an internal lining board in wet areas. The gypsum board complies with SANS 266. RhinoBoard® Moisture Resistant's board is manufactured in accordance with to ISO 9001:2000.

1.1.11. **Isover Cavitybatt™ insulation -** Non-combustible glass wool insulation of density 14 kg/m³ installed in the steel frame cavity for improved acoustic and thermal performance. Isover glass wool insulation is manufactured in accordance with to ISO 9001:2000.

1.1.12. **Gyproc RhinoLite® -** Gypsum based plaster used as skimming plaster for RhinoBoard® FireStop® dB internal lining. Gyproc Rhinolite® is used internally where skim finish is required.

1.1.13. **Gyproc RhinoGlide® -** Gypsum based jointing plaster for RhinoBoard® FireStop® dB internal lining. Gyproc RhinoGlide® is used internally where jointed finish has been specified.

1.1.14. **abe.® Ecofelt membrane** saturated with **abe.® Duraflex -** Cementitious waterproofing used on windows sills lined with Glasroc® X or waterproofing of Glasroc® X boards less than 200 mm from the ground or Glasroc® X boards at balcony or flat roof level.

1.1.15. **abe.® super laykold tape 150 mm and 50 mm -** is a bitumen Aluminium self-adhesive waterproofing tape used around window sills.

1.1.16. **Glasroc® X Accessories -** The following beads are available:

- **Glasroc® X Base Trim -** PVC bead available in 3.6 m lengths. It is used as an end-trim for Weber Basecoat render systems.
- **Glasroc® X Corner Bead -** PVC corner bead available in 3.6 m lengths. It is used to reinforce external corners for Weber Basecoat render system.
- **Glasroc® X Corner Bead** with **drip -** PVC corner bead available in 3.6 m lengths. It is used to reinforce opening heads for Weber Basecoat render system.
- **Glasroc® X Expansion Joint -** PVC profile available in 3 m lengths. It is used on expansion joints cover for Weber Basecoat render systems.

1.1.17. **RhinoBoard® Accessories -** The following accessories are available:

- **Gypframe® Corner Bead –** 25 mm x 25 mm Z150 corner bead used to reinforce interior 90° corners for RhinoBoard® FireStop® dB internal lining.
- **Gyproc RhinoTape® -** 48 mm x 45 m long Fiberglass reinforcement with a pressure sensitive adhesive designed for reinforcing joints for RhinoBoard® FireStop® dB internal lining.

1.1.18. **Other Accessories -** The following accessories are required:

- **Aluminium starter angle –** 20 mm x 20 mm x 2 mm aluminum angle used to cover the base of the cavity created by thermal breaks and the base of the Glasroc® X board.
- **Buffalo tapes Hannoband BG1 10/ 5- 10 -** High performance sealing tape use around openings to seal the gap between abe.®drain and Glasroc® X board.

1.1.19. **Load bearing steel frame -** Steel framework design and installation to comply with SANS 517.

1.1.20. **Security Mesh or Sheet -** Security expanded metal mesh of thickness 1.6 mm or galvanised sheet of thickness 0.5 mm. The expanded metal mesh or galvanised steel sheet is fixed to the steel frame in areas where improved security is required. For example, ground floors.

1.1.21. **250micron DPC which complies with SANS 952 -** DPC is installed under coping and under between the steel frame and concrete surface as a damp proof membrane.

1.1.22. **Precast Concrete Window Sill -** Precast concrete window sill designed to continue behind the window frame.

1.1.23. **50micron builder's polythene -** Internal lining for improved air-tightness and in areas prone to interstitial condensation.

1.2. MANUFACTURE

Cladding gypsum-based materials (Glasroc® X board, RhinoBoard® FireStop® dB and RhinoBoard® MoistureResistant), insulation (Isover Cavitybatt™) and plasters (Weber Basecoat, Gyproc RhinoGlide®, Gyproc Rhinolite®) used in the Glasroc® X system are manufactured in accordance with ISO 9001. Gypsum plasterboard consists of gypsum plaster (calcium sulfate dihydrate) pressed between two layers of paper or fiberglass mat. Weber Basecoat is a polymer modified dry powder cement-based render mortar/plaster.

Gyproc RhinoGlide® and Gyproc RhinoLite® are gypsum plasters manufactured from phosphor-gypsum.

The steel frame is manufactured in a proprietary roll former using for Z275, 550Mpa galvanised steel sheets. The steel frame shall comply with SANS 517.

The individual materials are transported to site and assembled on site to create the Glasroc® X Exterior Wall Cladding System. Glasroc® X Exterior Wall Cladding System has a unique set of materials. Only materials approved by Saint-Gobain should be used.

1.3. HANDLING AND STORAGE OF MATERIALS

1.3.1. All products should be stored on a firm, clean, level base, off the ground and must be protected from exposure to rain and sunlight and shall be stored in dry conditions.

1.3.2. The powder mortars should be stored in dry conditions, off the ground, and be protected from frost at all times.

1.3.3. Polymeric coating should be stored in a safe area, under cover, and be protected from excessive heat and frost at all times.

1.4. USE OF APPROVED MATERIALS

Glasroc® X Exterior Wall Cladding System has a unique set of compatible materials. Materials from different systems or unapproved materials may not be compatible and may not be used. Verify that Saint-Gobain approves the use of materials that are not listed in the specifications. Information on the approved materials is contained in the materials list above and in the installation instructions.

2. CONDITIONS OF INSTALLATION

Unfinished Glasroc® X board can be exposed to weather conditions for up to 6 months before protection render systems.

Do not apply Weber Basecoat and finishing coating (render system):

- If frost is forecast within 24 hours of use.
- In damp/wet conditions or in strong winds.
- In temperatures below 5°C or above 30°C.
- On elevations in direct sunlight or where the substrate is hot.

Applied render system must be protected from rain, frost, strong wind, and direct sunlight until fully cured, for at least 72 hours. This can be achieved by adopting suitable technical measures e.g., by additional shading of the area exposed to direct sunlight.

If protection cannot be done, after application of Weber Basecoat render systems, wet the coated walls three times during the next day using clean water.

Allow the Weber Basecoat render to dry before application of polymeric coating.

Internal lining of RhinoBoard® FireStop® dB should be installed when the building is weather tight. That is when the external cladding, door and glazing are installed. In the event that the doors and glazing are not yet installed, install polythene tarpaulin to cover the openings.

2.1. FOUNDATIONS

Glasroc® X Exterior Wall Cladding System is erected on concrete foundations that are approved for specific site conditions. The foundations and surface bed details are the responsibility of a professional engineer who classifies the sites in accordance with the SAIEG Guidelines for Urban Engineering Geological Investigations.

3. INSTALLATION PROCEDURE

Install the Glasroc® X Exterior Wall Cladding System strictly in accordance with Saint-Gobain specifications.

3.1. STEEL FRAMEWORK

External walls of light weight steel frame buildings are load bearing- they carry the weight of the structure itself and resist wind loads. The load bearing structure must be designed and installed accordance with SANS10162:2 *Cold Formed Steel Structures* and SANS 517:2011: *Light steel frame building*. Vertical metal framework shall be spaced at 600 mm, 400 mm and/or 300 mm centres.

3.2. STARTER ANGLES

Aluminium starter angle must be fitted before installation of abe.®drain. Fix starter angle to the steel frame or foundation wall using proprietary fixing spaced at 600 mm centres. Uneven surfaces of the substrate shall be leveled by cement mortar. On corners the starter angle should be mitred or shall be overlapped and connected with couplings or fasteners respectively. Using a 6mm metal drill bit, drill openings spaced at 600 mm centres into the starter channel. The openings shall be positioned not more than 10 mm from the inner corner of the angle.

3.3. SECURITY MESH OR GALVANISED SHEET

In areas requiring additional security e.g., ground floors, expanded metal mesh or galvanised sheet shall be installed and fixed onto the steel frame using proprietary Tek screws. In areas that do not require security e.g., from first floor/raised floors, the security mesh or galvanised sheet can be omitted.

3.4. WEATHER BARRIER

Install abe.®drain 8 to steel framework using 25 mm Jack-Point Screws spaced at 300 mm centres. Use the following guidelines:

- Work from the bottom of the wall up, overlapping the lower courses by 200 mm. Using a continuous bead of silicone adhesive glue together overlapping seams.
- Fix abe.®drain 8 to the steel framework using 25 mm Jack-Point Screws spaced at 300 mm centres. Locate the screws at the crest of the dimples.
- Install abe.®drain 8 before doors and windows.
- abe.®drain 8 should extend into the starter angle.
- abe.®drain 8 should extend over parapet walls as shown in the details.

3.5. INSTALLATION OF WINDOWSILL WATERPROOFING

After Installation of weather barrier (abe.®drain 8) install waterproofing on all window openings.

- 150 mm abe.® Super laykold Tape shall be installed under the window sill.
- abe.® Super laykold Tape application shall extend 150mm up the window jambs and 50 mm onto the abe.®drain 8.

3.6. INSTALLATION OF GLASROC® X BOARDS

Install Buffalo tapes Hannoband BG1 above and on both sides of the openings before application of Glasroc® X boards.

Boards should be installed horizontally starting at least 100 mm from the ground, or waterproof first 100 mm using abe.® Ecofelt membrane saturated with abe.® Duraflex. Avoid Glasroc® X board direct contact with the ground. Install Glasroc® X boards with a maximum joint gap of 3 mm between boards. Boards should be fixed to metal profiles

using 41 mm Jack-Point Screws. The metal profiles shall comply with SANS 517. The metal profiles shall be spaced at 300 mm, 400 mm and/or 600 mm centres.

The longer side of Glasroc® X board should be placed horizontally, and panels should be installed with all joints staggered. All joints or board ends shall be fixed to the framework.

Stagger all Glasroc® X board joints. The distance between the vertical joints of two rows of adjacent boards should be no less than 600 mm. Installing of Glasroc® X board off-cuts is not recommended. Achieving vertical dimension shall not be achieved by stacking off-cuts above one another.

Boards should be fixed to the metal frame using 41 mm Gyproc Jack-Point Screws spaced at maximum 150 mm centres. The screws shall be positioned not less than 10 mm from the board edges. Screw heads should finish flush with the board surface without damage to the core. Where required protect the screw heads with rust protection enamel paint e.g., Rust-Oleum spray paint.

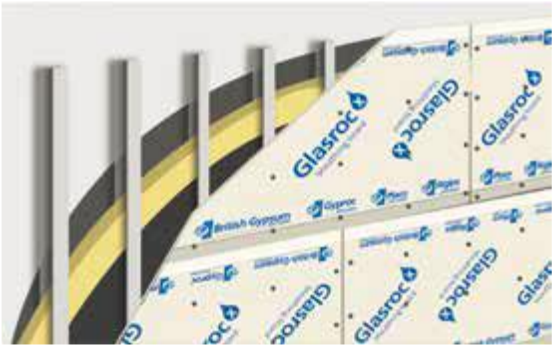

Fig 1-Board Fixing pattern

For windows and doors, board joints should not coincide with the plumb line of lintels, window cases or door jambs. There should be at least 400 mm between vertical joints

and the edge of the openings and 150 mm between horizontal joints and the edge of the opening.

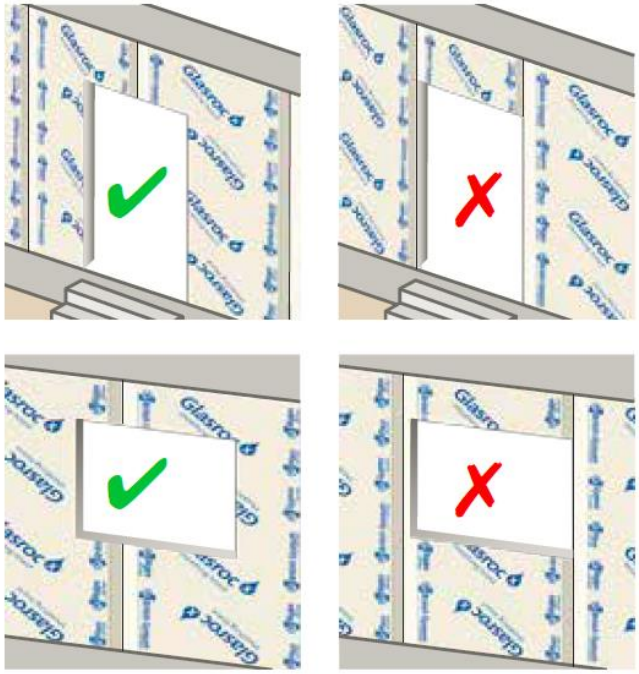

Fig 2- Correct cladding around openings

Window frames and door frames must be fixed to structural frames so as not to transfer loads onto the Glasroc® X boards. In sections where Glasroc® X boards are used for forming window sills, boards should slope of at least 10° for water drainage.

3.7. APPLICATION OF RENDER SYSTEM

Render system must be applied to the Glasroc® X boards within 6 months of installation.

When applying Weber Basecoat, protect the adjacent constructions, flashing, fixtures, and perforating elements against contamination.

3.7.1. Glasroc® X Board Joints

Option 1 - Using Glasroc® X Mesh and Weber Basecoat

A band of 300 mm wide Glasroc® X Fibre Mesh should be applied over the joints. The 300 mm wide Glasroc® X Fibre Mesh should be embedded in Weber Basecoat render/plaster. The reinforcing mesh shall be overlapped by at least 150 mm at joints and connections to ensure continuity. 300 mm Glasroc® X Fibre Mesh embedded in Weber Basecoat render/plaster should also be applied to internal corners.

Option 2 - Using Glasroc® X Tape

Apply Gyproc Glasroc® X Tape to all the joints including all external corners and internal corners. Centre the tape on all joints.

3.7.2. Strengthening Reinforcement to areas of concentrated stress

A band of 300 mm wide Glasroc® X Fibre Mesh should be applied over the joints. The 300 mm wide Glasroc® X Fibre Mesh should be embedded in Weber Basecoat render/plaster. The reinforcing mesh shall be overlapped by at least 150 mm at joints and connections to ensure continuity. 300 mm Glasroc® X Fibre Mesh embedded in Weber Basecoat render/plaster should also be applied to internal corners.

Strengthening reinforcement of Glasroc® X accessories shall be installed. Install Glasroc® X Base Trim at the base of the wall. Install Glasroc® X Corner Bead at external corners and on both sides of openings and at external corners, install Glasroc® X Corner Bead with drip at the head/top of openings. Install Glasroc® X Expansion Joint where expansion joints are required. The accessories should be embedded in Weber Basecoat or if required, the accessories can be secure to the wall using staples at 300 mm centres.

Zones of anticipated concentrated tension e.g., openings, shall be reinforced by using Glasroc® X Fibre Mesh of the minimum dimensions of 400 mm x 200 mm, placed at 45º in the corners.

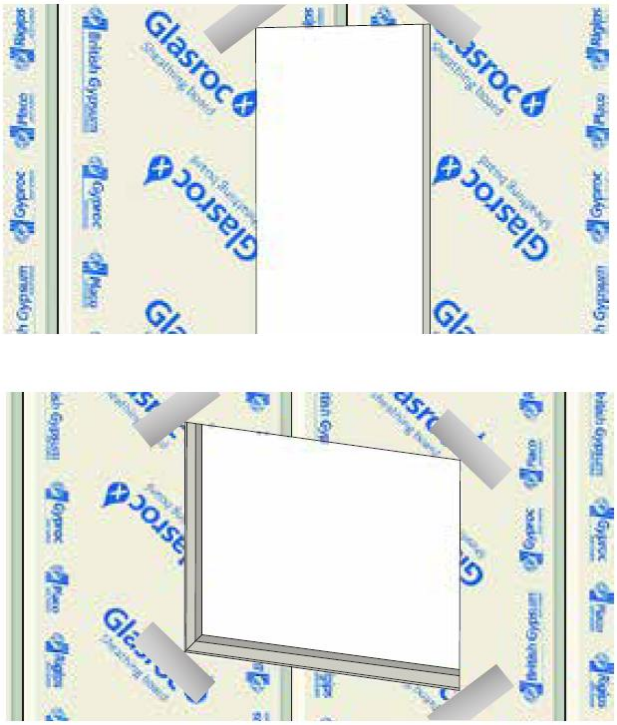

Fig 3- reinforcement around openings

3.7.3. First Application of base coat – render system

The second application of base coat should be installed when the first application of base coat has stiffened enough to resist being dislodged during the application of the second layer base coat. If the first application of Weber Basecoat applied to the joints and accessories has dried. Wet the dry layer of base coat with a block brush before the second application. Do not apply another layer of Weber Basecoat directly onto a dry layer of Weber Basecoat.

Apply a coat of Weber Basecoat of 3-5 mm each using a 10 mm x 10 mm notched steel trowel. Embed Glasroc® X Fibre Mesh into the wet first layer of Weber Basecoat by floating the mesh into the wet Weber Basecoat surface. The Glasroc® X Fibre Mesh shall be applied in vertical strips and the strips must overlap by at 100 mm.

3.7.4. Second Application of base coat – render system

The third application of base coat should be installed when the second application of base coat has stiffened enough to resist being dislodged during the application of third layer of base coat. If the second application of Weber Basecoat has dried, wet the dry layer of basecoat with a block brush before the third application. Do not apply another layer of Weber Basecoat directly onto a dry layer of Weber Basecoat.

Apply a coat of Weber Basecoat of 3-5 mm each using a 10 mm x 10 mm notched steel trowel. Float the final layer until a satisfactory finish is achieved.

Applied Weber Basecoat must be protected from rain, frost, strong wind, and direct sunlight until fully cured, for at least 72 hours. This can be achieved by adopting suitable technical measures e.g., by additional shading of the area exposed to direct sunlight.

If protection cannot be done, after application of Weber Basecoat render systems, wet the coated walls three times during the next day using clean water.

Allow the Weber Basecoat render to dry before application of polymeric coating.

3.8. FINISHING

Marmoran RBP Primer to the dry and clean base coat.

3.8.1. Polymeric coating

Marmoran ‘Permacrete topcoat shall be applied onto a dry and clean base coat. The topcoat should be applied within a single set of work operations by sufficient number of workers. The works can be interrupted when working on borderlines of surfaces with different colours, on angles and other edges. Protect the adjacent constructions, flashing and fitted and protruding elements against contamination. We recommend using polymeric coating of the same production batch to achieve the same colour.

To prevent the polymeric topcoat coating from drying too rapidly, it should not be applied in direct sunlight. The finished render surface should be protected from rain and frost until the material is cured - approximately 24 hours in favorable conditions. The curing time might take longer in winter.

3.8.2. Polymeric Paint

Polymeric based paint coating shall be applied onto a dry and clean base coat. Polymeric coat shall be Marmoran Rolon, Marmoran Reo Spray or Marmoran Marakesh.

3.9. CAVITY INSULATION

102 mm Isover Cavitybatt™ insulation is installed in the 90 mm framework cavity for improved thermal and acoustic performance. The insulation batts shall be tightly butted against each other leaving no gaps. The thermal resistance of 90mm wide Isover Cavitybatt™ is 2.38 m²K/W.

3.10. INTERNAL LINING

RhinoBoard® FireStop® dB board are fixed to the interior of the steel framework using Gyproc Jack-Point Screws 25 mm and/or 41 mm at 220 mm centers. Apply reinforcing tape (Gyproc RhinoTape®) to all joints and Gypframe® Corner Bead to all the external corners in preparation for plastered finish with Gyproc RhinoLite®/Gyproc Cretestone® or jointed finish with Gyproc RhinoGlide®. In wet areas replace face layer of RhinoBoard® FireStop® dB with RhinoBoard® MoistureResistant 15 mm.

In areas susceptible to high humidity indoors, install minimum 50µm general purpose polythene membrane before installation of internal lining.

3.11. PAINTING THE INTERNAL LINING

Paint the internal plastered/ jointed lining in accordance with paint manufacturer specification.

4. DESIGN CONSIDERATIONS

4.1. FIXTURES AND FITTINGS

Water intrusion can occur at any unsealed areas where the Glasroc® X Exterior Wall Cladding System is penetrated. In order to prevent water penetration into the system, we recommend installing perforating elements in the decreasing pitch from the Glasroc® X board towards the exterior. The joint along the circumference of penetrating element be sealed by a flexible sealant to stop water intrusion.

Newly fitted plumbing elements must be fitted in such a way to ensure that the edge of the pipe is placed at least 20 mm in front of the Glasroc® X Exterior Wall Cladding System and in the required pitch.

4.2. WINDOW SILLS

4.2.1. Precast concrete window sill

Proprietary precast concrete window sill shall be used. Polysulphide sealant shall be used between the window frame and wall or sill to stop water intrusion. Precast concrete window sills shall be fixed to the steel frame using brackets/angle cleats positioned on both ends of the window sill. The window sills should extend beyond the face of the render system.

After installation of window sill, 50 mm abe.® Super laykold Tape should be installed the interior to cover the gap between the steel frame and the window sill.

4.2.2. Glasroc® X board window sill

Glasroc® X boards should slope of at least 10° for water drainage. abe.® Ecofelt membrane saturated with 3 coats of abe.® Duraflex waterproofing shall be applied on the window sill board and the application shall extend 150 mm up the window jambs and 150 mm on the vertical sided of the walls.

After installation of window sill, 50 mm abe.® Super laykold Tape should be installed the interior to cover the gap between the steel frame and the window sill.

4.3. WINDOW AND DOOR HEADS AND JAMBS

Window/door heads and jambs shall be lined with Glasroc® X board. Hannoband shall be installed between the Glasroc® X board lining and abe.®drain 8 polysulphide sealant shall be used between the window/door and the wall to stop water intrusion.

4.4. ABUTMENTS

When joining Glasroc® X faced systems to adjacent constructions, crack formations and water penetration to Glasroc® X Exterior Wall Cladding System must be prevented. For this purpose, extend abe.®drain 8 to the adjacent construction. Secure abe.®drain 8 to the adjacent construction using silicone adhesive. Apply polysulphide sealants between the Glasroc® X and the adjacent construction.

When a roof is butting against Glasroc® X Exterior Wall Cladding System, water penetration must be prevented. For this purpose, flashing must be used. See details for more information.

4.5. EAVES AND PARAPETS

At the tops of walls, the system must be protected by an adequate overhang or by an adequately sealed purpose-made flashing. Extend the abe.®drain 8 over the parapet wall. Clad the top of the parapet wall with Glasroc® X board. Extend Weber Basecoat plaster over the parapet wall. Waterproofing by waterproofing specialist shall be applied to Weber Basecoat. Waterproofing should extend 150mm over on the vertical sided of the parapet wall. Apply DPC under the coping as and additional measure to stop water ingress. The coping must extend beyond the render system.

4.6. EXPANSION JOINTS

Glasroc® X board has high dimensional stability thus making it ideal for large continuous façade areas, which are only interrupted every 15 m maximum for vertical joints, in addition to those required by the building's structural joints. Horizontal joints in curtain wall shall be portioned at maximum 15 m vertical centres. The edges of the boards at expansion joints shall be supported by the structural framework.

The steel framework shall be terminated on both sides of the structural expansion joints. To maintain fire performance, stone wool insulation shall be used to close the gap between the frames.

4.7. ACOUSTICS

Glasroc® X Exterior Wall Cladding Systems are primarily designed to provide improved acoustic insulation. Glasswool insulation offers a significant contribution to the acoustic performance. Glasroc® X Exterior Wall Cladding System has an acoustic performance of Rw 51 dB for 30min fire resistant system and Rw 55 dB for 60min fire resistant system. Glasroc® X systems are suitable for use in all occupancies.

4.8. JUNCTION BETWEEN WALLS IN MULTISTORY BUILDINGS

In deflections of upper floors and roof slabs can cause appreciable stress in the Glasroc® X Exterior Wall Cladding System. Where such deflection is likely to occur the structural soffit junction detailing must be designed to accommodate movement.

4.9. FIRE RESISTANCE

Glasroc® X Exterior Wall Cladding System is classified as a Type-F wall – wall with full fire resistance; in accordance with SANS 10400: Part T: Fire Protection. Glasroc® X Exterior Wall Cladding System offers 30min and 60min. The fire rating is provided by a

combination of the RhinoBoard® FireStop® dB board, the steel framework and Glasroc® X board.

For the safety distances calculations, the entire wall will be regarded as non-combustible.

4.10. FIRE SPREAD

Glasroc® X Exterior Wall Cladding System is regarded as non-combustible external cladding and will not contribute towards fire spread. No special detailing is required. Designers should use guidance contained in SANS 10400: Part T: Fire Protection.

The current fire regulations/Fire engineer should always be consulted as a more onerous requirement may be implemented during review of the relevant parts of a given building.

4.11. SYSTEM THERMAL PERFORMANCE

Glasroc® X Exterior Wall Cladding System has a thermal performance of 2.6 m²K/W. Glasroc® X Exterior Wall Cladding System meets the requirements of SANS 10400-XA in all Energy Zones.

Finishes were not considered in the calculation because finishes might vary and their contribution was considered negligible. The base performance of 2.6 m²K/W is quoted in this document. This base performance does not consider the beneficial contribution of the thermal break and 8 mm void.

The thermal performance of the Glasroc® X Façade system is calculated as follows:

Materials	Thickness (m)	K-values (W/mK)	R-value (m²K/W)	Source of information
Air film –Still Air Vertical	-	-	0.12	SANS 204 2011. Table F.2 — Typical R-values for air spaces and air films
RhinoBoard® FireStop® dB	0.015	0.21	0.07	Saint-Gobain Data
Cavitybatt™	0.09	0.038	2.36	Saint-Gobain Data
Glasroc® board	0.0125	0.231	0.054	Saint-Gobain Data
Weber Basecoat	0.006	0.71	0.008	Saint-Gobain Data
Air film –Moving Air	-	-	0.03	SANS 204 2011. Table F.2 — Typical R-values for air spaces and air films
Total System R-value			**2.64**	

Table 1: System R-value calculation.

4.12. WALLS IN WET AREAS

All walls in wet areas shall be clad with face layer of 15 mm RhinoBoard® MoistureResistant. Replace face layer of Gyproc 15mm RhinoBoard® FireStop® with a layer of 15 mm Gyproc RhinoBoard® MoistureResistant.

Walls in wet areas shall receive tiles as per project requirements. Wall in shower areas shall receive waterproofing before tiling.

4.13. ROOFS

Conventional roof systems shall be used on Glasroc® X Exterior Wall Cladding System. The roof structure shall be of timber frame or steel frame. The roof structure shall be secured to the walls in accordance with SANS 517.

Roofing materials installation and structure shall comply with SANS 10400-L: Roofs and or as specified by manufacturer. Roof materials shall consist of corrugated profile roof sheeting, corrugated fibre cement sheets, clay roof tiles or metal roof tiles.

4.14. WINDOWS AND DOORS

Conventional window frames made from timber, aluminium or UPVC shall be used on the Glasroc® X Exterior Wall Cladding System. Windows shall be fixed to the load-beading steel frame using proprietary fasteners as recommended by the manufacture of the window frame. Sealants or tapes shall be used as per window frame manufacturer specifications.

4.15. SERVICES

Electrical and plumbing services less than or equal to 130 kg shall be wall mounted. Services more than 130 kg shall be mounted on the floor or on structural noggings.

Electrical conduits and plumbing pipes will be accommodated in the cavity of the walling systems.

5. MAINTENANCE

5.1. INSPECTIONS

Glasroc® X Exterior Wall Cladding System should be inspected visually at reasonable intervals. A ground survey is sufficient in the first instance. Closer inspection is only required where the areas of damage or defect are suspected. Visual inspection should be carried out to identify:

- Areas of discoloration.
- Where spalling and or cracking is taking place.
- Areas where sealants or other forms of protection are not working.
- Areas of mechanical damage caused accidentally or maliciously.

Where access is provided by means of a ladder, care must be taken to ensure that the wall finishes are not damaged mechanically as this can have a detrimental effect on the appearance of the system. It is advisable to spread the load on the surface of the system using a spreader batten. Wrap the spreader batten in sponge or cloth and avoid dragging the ladder across the surface when moving.

5.2. CLEANING

Normally, dirt deposits causing staining on the surface are accepted as part of the normal weathering process. If however the surface requires to be cleaned this should be carried out using generous amounts of water and a soft brush. Mild detergents can be used in solutions worked gently into the surface before washing down. Under no circumstances should aggressive treatments be used involving scrubbing down surfaces, acid cleaning or high-pressure power washing. For remodeling purposes, the surface can be painted with conventional external paints.

5.3. REPAIRS

Polymeric based coating is a pre-coloured material and it is unavoidable that repairs, no matter how carefully executed, are always likely to be visible on completion. Judgment therefore has to be made regarding the extent and location of any damage and likely result.

Where the walls have been seriously damaged and the Glasroc® X board is visible, removal of part and reinstatement of the Glasroc® X board might be necessary.

Minor cracks are common in plastered systems. These cracks are caused by cycles heating and cooling of the surface. In an unlikely event that cracks appear. Fix the cracks using the following procedure:

1. Clean efflorescence around the crack using a soft brush and detergent.
2. Using a Grinder, remove 100mm wide finish on either side of the crack taking care not to grind the mesh layer.
3. Apply masking tape around the area to be finished to avoid affecting the adjacent areas.
4. Using a block brush wet the area where base coat going be applied. Apply Weber Basecoat and embed Glasroc® X Fibre Mesh into the base coat. Ensure that the mesh is positioned 100 mm on either side of the crack. Cover the mesh with a second layer of base coat. Ensure that the basecoat matches the level of the existing base coat.
5. Apply Marmoran 'Permacrete' or polymeric paint as per specification. Ensure that the colour of the new finish matched that on the existing finish.
6. Remove the masking tape and float the new finish to match the existing finish.

Misplaced holes/opening in the wall can be fixed using the following procedure:

1. Using a Grinder, remove 100 mm wide finish around the hole/opening taking care not to grind the mesh layer.
2. Fix a suitable length (spanning 100 mm on either side of the opening) of framework to the boards on either side of the hole/opening.
3. Cut a piece of Glasroc® X board to match the hole /opening size. Fix the Glasroc® X board to the framework.
4. Apply masking tape around the area to be finished to avoid affecting the adjacent areas.
5. Using a block brush wet the area where base coat going be applied. Apply Weber Basecoat and embed Glasroc® X Fibre Mesh into the base coat. Ensure that the mesh is positioned 100 mm on either side of the crack. Cover the mesh with a second layer of base coat. Ensure that the base coat matches the level of the existing base coat.
6. Apply Marmoran 'Permacrete' or polymeric paint as per specification. Ensure that the colour of the new finish matched that on the existing finish.
7. Remove the masking tape and float the new finish to match the existing finish.

5.4. SEALS

It is important to carefully examine the conditions of seals and soft joints to verify their continuing effectiveness. Sealed joints are limited in their life span and must be considered as renewable during the life of the system. Defective sealants should be cut off and removed, the affected surfaces cleaned down and re-primed and a new seal created.

5.5. ANCILLARY FIXTURES AND FITTINGS

Externally, all fixtures must be anchored back to the steel framework. Heavy items that might be subject to movement in wind should be fixed through to the steel framework. Sealants should be incorporated to prevent water entering the system around circumference of the fixings.

Internally, heavy fixtures shall be fixed to the steel framework or 16 mm plywood of suitable length and depth. Light to medium fixtures can be fixed directly onto plasterboard. Use table below for guidance on the maximum allowable load on one screw. Some objects might require more than one screw. Always follow the manufacturer's instructions when mounting objects.

Fastener detail	Fischer/Upat fastener Code	Number of RhinoBoard® FireStop® dB	Maximum Allowable load (Kg) per fastener
	UX6/UX8/UX10	1	20
		2	25

Table 2- Recommended fixing devices for static light to medium duty fixtures and fittings.

6. INSTALLERS

Application of the systems shall carried out by approved installers. An approved installer is a company:

- Employing workers who have been trained and approved by Saint-Gobain to install the systems and who have been issued with appropriate certificate of attendance.
- Having undertaken to comply with Saint-Gobain application procedure, which contains the requirement for each application team to include at least one member who has been trained.

Subject to supervision by Saint-Gobain and its partners. This may include unannounced site inspection.