

Ram QuikFlash® PMMA

Polymethyl Methacrylate (PMMA) Membrane Roofing System

DESCRIPTION

The Ram QuikFlash® PMMA roofing system is a fully reinforced, cold liquid-applied membrane system. It is based primarily upon Polymethylmethacrylate (PMMA) technology, incorporating a liquid component and a powdered catalyst, with each component curing in approximately one hour. A decorative PMMA finish can be applied as either a smooth color coating or a textured aggregate surfacing.

The Ram QuikFlash® PMMA system includes the following components:

- Ram QuikFlash® Primer
- Ram QuikFlash® Catalyst
- Ram QuikFlash® Membrane
- Ram QuikFlash® Fleece

The Ram Quik Flash PMMA system components average under 32 g/L VOC and are not solvent-based.

BASIC USE

The Ram QuikFlash® PMMA roofing system is intended for use in roofing applications where the quick-curing speed is of paramount importance. Typical applications include: green, white, and blue roofing; recover roofing; insulated roofing; IRMA roofing; metal recover roofing.

Ram QuikFlash® PMMA bonds tenaciously to all common construction materials including concrete, CMU block, brick, wood, stainless steel, copper, galvanized steel, aluminum, cast iron, glass, cement board, treated gypsum board, and rigid PVC.

TECHNICAL ADVANTAGES

The Ram QuikFlash® PMMA same-day application system is suitable for exterior applications only where the speed of system application is critical. The system is exceptionally durable, reliable, and long-lasting, and has a combination of physical properties that makes it ideal for an exceptionally wide range of applications.



Unlike many other modern roofing systems, the Ram QuikFlash® PMMA system incorporates flashings that are made of the same materials as the roofing membrane itself, essentially creating a seamless, self-terminating, monolithic membrane that readily adapts to the contours of the substrate.

The Ram QuikFlash® PMMA system can be used to transition from one material to another without need of intermediate separation flashings. The system eliminates seams, pitch pockets, metal sleeves and termination bars, which are the locations where most leakage occurs.

The Ram QuikFlash® PMMA system is resistant to UV exposure, is root and rot resistant, and resists degradation by most oils, grease, and other common chemical substances. Additionally, the system is unaffected by standing water and ice, and can be left submerged indefinitely.

INSTALLATION PROCESS

The Ram QuikFlash® PMMA system follows a four-step application process:

1. Preparation and cleaning of the substrate
2. Application of primer suitable for substrate
3. Application of the membrane
4. Application of surfacing, coating or overburden, if required.

Immediately before the application of any component of the system, the substrate shall be dry, with any remaining dust or loose particles removed using clean, dry, oil-free compressed air, industrial vacuum, cloth-wipe or a combination.



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SURFACE PREPARATION

Concrete:

New concrete shall have cured a minimum of 28 days in accordance with ACI-308, or as approved by Barrett. New or existing concrete shall be free of oil, grease, curing compounds, loose particles, moss, algae growth, laitance, friable matter, dirt, bituminous products and previous waterproofing materials. Where required, concrete shall be abrasively cleaned in accordance with ASTM D4259 to provide a sound substrate free from laitance. Achieve an open concrete surface in accordance with ICRI surface profiles CSP 3-5.

When using mechanical methods to remove existing waterproofing products or surface deterioration, the surface profile is not to exceed ¼ inch (peak to valley). The substrate shall be sound and all spalls, voids and blow holes on vertical or horizontal surfaces must be repaired prior to placement of the primer coat. Areas of minor surface deterioration of ¼ inch (6 mm) or greater in depth shall be repaired to prevent possible ponding of the system, leading to excessive use of primer and resin. For concrete materials with a compressive strength of less than 3,000 psi, please contact Barrett for substrate preparation requirements. Hollow-core panels, T-panels, and Twin-T panels shall have grouted joints between panels and shall be provided with mechanical securement from panel to panel.

Concrete shall be dry and confirmed by measuring the moisture level with the following methods:

ASTM F2170:

Standard Test Method for Determining Relative Humidity in Concrete Floor Slabs Using in situ Probes. A 75% or greater is an indication of high moisture content and will require additional priming.

ASTM F1869:

Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride. A maximum result is 3 lb/1,000 ft²/24-hour period.

ASTM D2216:

Standard Test Method for Laboratory Determination of Water (Moisture) Content of Soil and Rock by Mass. A maximum result is 6% moisture content by weight.

ASTM F2659:

Standard Guide for Preliminary Evaluation of Comparative Moisture Condition of Concrete, Gypsum Cement and other Floor Slabs and Screeds Using a Non-Destructive Electronic Moisture Meter. Tramex Concrete Moisture Encounter Meter CME4 may be used to determine the moisture content of the top 3/4" of the concrete slab. A maximum acceptable reading is 5%.

Masonry:

All masonry walls will need to be mechanically prepared to remove any contaminants and allow for proper pore saturation. Walls shall be built with hard kiln dried brick or waterproof concrete block construction. Areas of soft or scaling brick or concrete, recessed or faulty mortar joints, or walls with broken, damaged or leaking coping shall be repaired prior to placement of the primer coat. Repair in a manner previously described for structural concrete repair. Walls shall be dry in accordance with the above referenced methods.

Steel/Metal:

Clean and prepare metal surfaces to near white metal in accordance with SSPC - SP3 (power tool clean). Extend preparation a minimum of three (3) inches beyond the termination of the membrane flashing materials. Notch steel surfaces to provide a rust-stop. In addition to cleaning, all metal surfaces shall be abraded to provide a rough open surface. **A WIRE BRUSH FINISH IS NOT ACCEPTABLE.** Wipe prepared metal surface with MEK or other acceptable solvent cleaner prior to application of primer.

Steel/Metal:

Moisture content in wood cannot exceed 18% or higher. Plywood must be fully dry. Plywood shall be identified with American Plywood Association (APA) grade trademarks and shall meet the requirements of product standard PS1. Fit plywood to all penetrations, projections, and nailers. Plywood shall be secured, with joints not greater than 1/4 inch. Fill all joints and gaps up to 1/2 inch with polyurethane joint sealant. Strip all plywood joints with fleece reinforcement imbedded into the wet primer or resin. Under no circumstances shall the membrane be left unsupported over a space greater than 1/4 inch.

Existing Modified Bitumen:

Perform an adhesion test to evaluate the compatibility with the existing membrane. Existing flashings shall be removed down to the structural substrate / penetration at all flashing areas. Damaged / saturated areas of existing roofing membrane and underlying assembly shall be removed and replaced, or repaired in kind. Granule-surfaced membrane shall have all loose granules removed from the surface by vacuuming and power brooming. Smooth-surfaced membrane with applied coating shall have all loose coating removed. Where the adhesion results dictate, adhere polyisocyanurate foam insulation (R=6 min.) and ½" cementitious cover board over the roof surface. Damaged / saturated areas of existing roofing membrane and underlying assembly shall be removed and replaced in kind.



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Existing Gravel Surfaced Bituminous/Coal Tar Pitch:

Do not install Ram QuikFlash® PMMA Membrane directly to coal tar pitch roofing systems. Existing flashings shall be removed down to the structural substrate / penetration at all flashing areas. Damaged / saturated areas of existing roofing membrane and underlying assembly shall be removed and replaced, or repaired in kind. Gravel-surfaced membrane shall have all loose gravel removed. Adhere polyisocyanurate foam insulation (R=6 min. for bituminous or R=20 min. or greater for coal tar to prevent the pitch from reaching 85°F) and ½" cementitious cover board over the roof surface.

Existing Single Ply Roofing:

Existing flashings shall be removed down to the structural substrate / penetration at all flashing areas. Damaged and/or saturated areas of existing roofing membrane and underlying assembly shall be removed and replaced in kind. Mechanically fasten or adhere polyisocyanurate foam insulation (R=6 min.) and ½" cementitious cover board over the roof surface.

Other Substrate Surfaces:

Substrates not listed in the Primer Selection Table will require adhesion testing or approval by your local Barrett Technical Representative for acceptance and preparation procedures.

REPAIRS

Joints, cracks, and fractures in the structural deck shall be prepared before installation of waterproofing membrane. Clean out cracks by brushing and oil-free compressed air. Fill crack with Liquid Flash 100, KeeneSeal 100, or another approved multi-purpose joint sealant. Allow for a minimum of twelve (12) hours cure or as required by Sealant Manufacturer. Moving joints or cracks larger than 1/4" should be stripped in with a strip of membrane. Joints, cracks and fractures may telegraph through the waterproofing membrane.

| | POWDER (100g/bag) | MATERIAL TEMP (°F) | POT LIFE | CURE TIME |
|----------|----------------------|-----------------------|----------|-----------|
| CATALYST | 2 Bags | 35 - 50°F | 20 min | 45 min |
| | 2 Bags | 50 - 65°F | 20 min | 30 min |
| | 1 Bag | 65 - 80°F | 15 min | 30 min |
| | 1/2 Bag | >80°F | 10 min | 10 min |

NOTE: Ram QuikFlash® Primer is extremely fast curing. Excessive mixing time reduces the available working time for the primer. Do not break down units in smaller quantities— Mix the entire work pack.

PRIMER — MIXING

Step 1: Premix Component A thoroughly with a clean spiral agitator on low speed.

Step 2: Determine the correct amount of catalyst powder, Component B, based upon ambient temperature (see table) add catalyst powder Component B into Component A and mix the components for approximately 2 minutes with a clean spiral agitator on low speed.

DO NOT AERATE. DO NOT THIN PRIMER.

For 5 kg primer work packs, the following catalyst quantities are recommended:

PRIMER — APPLICATION

After mixing, apply the primer with a roller or brush evenly onto the surface in a cross directional method, or utilizing the pour and spread method to fully cover the substrate. Porous substrates may require an adjustment to the primer application rate or multiple coats to achieve proper pore saturation.

Higher contents of moisture or vapor within a concrete substrate may cause pin-holing of the primers due to vapor drive. Application of primer after 4pm in the day, when temperatures subside can improve this condition.

Curing time is approximately 30 - 60 minutes for Ram QuikFlash® Primer. Ram QuikFlash® membrane may be applied when the primer is completely dry and without tack. Do not apply Ram QuikFlash® membrane to tacky or wet primer. Provide and maintain positive airflow over freshly applied Ram QuikFlash® PMMA materials during entire curing period to facilitate complete cure.

****Listed coverage rates are estimates and may vary dependent upon substrate characteristics.**

NOTE: Exposure of primer in excess of 48 hours or premature exposure to moisture may require removal and application of new primer. Primer application past the Ram QuikFlash® membrane terminations requires surfacing with an approved material.

Temporary Waterproofing:

Primers may be utilized to achieve temporary waterproofing. As such, the contractor is responsible for ensuring proper night time tie-off & seal to prevent water infiltration into the new assembly.



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MEMBRANE — MIXING

Step 1: Mix resin Component A with a spiral agitator on low speed, until the liquid is a uniform color, with no light or dark streaks present.

Step 2: Add the Catalyst Powder, Component B, to resin Component A and mix with the same agitator on low speed for 2-4 minutes or until the powder is completely dissolved throughout the liquid resin. The amount of Catalyst Powder must be adjusted according to the temperature (see table).

| | POWDER (300g/bag) | MATERIAL TEMP (°F) | POT LIFE | CURE TIME |
|----------|----------------------|-----------------------|----------|-----------|
| CATALYST | 2 Bags | 23 - 35°F | 45 min | 90 min |
| | 2 Bags | 35 - 50°F | 35 min | 70 min |
| | 1 1/2 Bags | 50 - 70°F | 30 min | 40 min |
| | 1 Bag | 70 - 80°F | 20 min | 30 min |
| | 1/2 Bag | >80°F | 20 min | 30 min |

NOTE: Ram QuikFlash® Membrane is extremely fast curing. Excessive mixing time reduces the available working time for the primer.

MEMBRANE/FLEECE — APPLICATION

Step 1: After the Membrane is mixed, apply 1/2 of the resin liberally and evenly onto the surface in even strokes using a roller or brush.

Step 2: Roll the Ram QuikFlash® Fleece directly into the resin, making sure that the SMOOTH SIDE IS FACING UP (natural unrolling procedure), avoiding folds and wrinkles. Use the roller or brush to work the resin into the fleece, saturating from the bottom up.

Step 3: Apply the remaining 1/2 of the resin to the top of the fleece to complete the saturation. Rolling the final coat of resin onto the fleece should result in a glossy appearance. The fleece can only hold so much resin and all excess should be rolled forward to the unsaturated portion of the fleece. The correct amount of resin will completely saturate the fleece and no white color will be visible. Work wet membrane to avoid any blisters, openings, or lifting at corners, junctions, and transitions. Always assure full resin saturation of fleece.

TOOL USE/CLEAN UP

If allowed to sit, any remaining material will harden quickly as resin begins to cure. Brushes and rollers must be discarded once they stiffen. Roller handles can be cleaned with MEK or acetone-based solvent. To minimize cleaning, wipe handle with clean, dry cloth every 15 - 20 minutes and schedule work to avoid stopping.

LAPS, SEAMS, & TIE OFFS

At all fleece seams, allow a 2" (5 cm) overlap for all side joints and a 4" (10 cm) overlap for all end joints. At membrane tie-offs, clean in-place membrane with MEK when resin has cured. Allow solvents to fully evaporate before application of new resin.

****DO NOT PRIME EXISTING RAM QF MEMBRANE.**

FLASHINGS — APPLICATION

Install membrane flashings in accordance with the requirements & recommendations of Barrett and as depicted on standard drawings and details. Provide system with base flashing, edge flashing, penetration flashing, counter flashing, and all other flashings required for a complete watertight system. Work wet membrane to avoid any blisters, openings, or lifting at corners, junctions, and transitions. Assure full resin saturation of fleece.

CURING & STAGING

Protect all areas where membrane has been installed. Do not work off installed membrane during application of remaining work before two (2) hours of curing. Movement of materials and equipment across installed membrane is not acceptable. If movement is necessary, provide complete protection of affected areas.

Protect finished membrane from damage by other trades by the use of a cushioning layer such as 1" thick extruded polystyrene insulation and an impact layer such as 1/2" thick exterior-grade plywood.

RECOMMENDATIONS

Wherever possible, install the flashings before installing the field membrane to minimize foot traffic over newly installed field membrane.

All membrane flashings shall be installed concurrently with the waterproofing membrane as the job progresses. Temporary flashings are not allowed without prior written approval from the Membrane manufacturer. Should any water penetrate the new waterproofing membrane because of incomplete flashings, the affected area shall be removed and replaced at the contractor's expense.

Provide a minimum vertical height of 8" for all flashing terminations. Flashing height shall be at least as high as the potential water level that could be reached as a result of a deluging rain and / or poor slope. Do not flash over existing through-wall flashings, weep holes and overflow scuppers.



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Metal Flashing:

Metal flashings shall be fabricated in accordance with the current recommendations of SMACNA, as well as in accordance with standard drawings and project details.

Metal flashing flanges to which membrane is to be bonded shall be a minimum of four (4) inches in width, and secured to the structural deck, or to treated wood nailers, six (6) inches on center staggered with fasteners appropriate to the substrate type. The flanges shall be provided with a roughened surface that has been cleaned of all oil and other residue. Metal edges that will be overlaid with membrane shall be provided with a 1/4" min. hemmed edge. Apply primer, resin and fleece to metal flange, extending membrane to outside face of metal edging, and to vertical face of metal base / curb flashing.

Membrane Flashing:

Primer, resin, and fleece mixing and application methods as specified for field membranes are also suitable for membrane flashing.

Membrane flashings shall be fabricated with primer appropriate for the substrate surface, resin of the same base chemical type as the field membrane, and fleece of the same weight as the field membrane unless specified otherwise. Fleece shall overlap two (2) inch (5 cm) minimum for all joints. Fleece shall be cut neatly to fit all flashing conditions without a buildup of multiple fleece layers. Work wet membrane with a brush or roller to eliminate blisters, openings, or lifting at corners, junctions, and transitions.

Pipes, Conduits, & Unusually Shaped Penetrations:

Flashing is typically constructed as a two part assembly consisting of a vertical wrap and a horizontal target patch. There must be a minimum of a two (2) inch (5 cm) overlap between vertical and horizontal flashing components.

Drains & Scuppers:

Acceptable drain/scupper materials are galvanized, galvalum, cast iron, cast aluminum, copper, hard PVC, and ABS.

Flashing material shall extend four (4) inches minimum onto drain or scupper flange and into drain / scupper body. Install clamping ring if provided as part of the drain or scupper design. Install a strainer basket to prevent debris from clogging the drainage line.

Hot Stacks:

Protect the membrane components from direct contact with steam or heat sources when the in-service temperature exceeds 170 °F. In all such cases flash to an intermediate "cool" sleeve.

Fabricate "cool" sleeve in the form of a flanged metal cone using galvanized metal, mechanically attached to the structure or wood nailers. Flashing is typically constructed as a two part assembly consisting of a vertical wrap and a horizontal target patch. There must be a minimum of a two (2) inch (5 cm) overlap between vertical and horizontal flashing components.

Flexible Penetrations:

Provide a weathertight gooseneck of round cross-section for each penetration or group of penetrations. Set in water cut-off mastic and secure to the structural substrate. Acceptable gooseneck material is copper, of a sheet weight appropriate for the application.

Flashing is typically constructed as a two part assembly consisting of both a vertical wrap and a horizontal target patch. There must be a minimum of a two (2) inch (5 cm) overlap between vertical and horizontal flashing components.

Walls, Curbs, & Base Flashings:

Wall, curb and base flashings shall be installed to solid substrate surfaces only. Adhering to gypsum-based panels, cementitious stucco, synthetic stucco, wood or metal siding, and other similar materials is not acceptable.

Reinforce all transition locations and other potential wear areas with a four (4) inch wide membrane strip evenly positioned over the transition prior to installing the exposed flashing layer.

Reinforce all inside and outside corners with a four (4) inch diameter conical piece of membrane prior to installing the exposed flashing layer. All pins, dowels and other fixation elements shall be flashed separately with a vertical flashing component prior to installing the exposed flashing layer.

Extend flashing a minimum of four (4) inches to (6) inches onto the field substrate surface.

Metal drip edges and gravel stops shall be installed to solid substrate surfaces or treated wood nailers only. Securement to gypsum-based panels, cementitious stucco, synthetic stucco, wood siding or metal siding or coping, and other similar materials is not acceptable. Before installing drip edges and gravel stops extend the membrane all the way to the edge of the structure.



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Prepare, prime and strip in the metal flange with a separate 8" wide strip of membrane adhered to both the securement flange and to the field membrane. Clean the field membrane prior to stripping in the flange. If the field membrane has been exposed for over 48 hours lightly abrade the surface of the membrane not to exceed 10 mils of cured membrane and clean with a solvent.

****DO NOT APPLY PRIMER TO THE EXISTING FIELD MEMBRANE.**

For conditions where water infiltration behind the exposed drip edge or gravel stop face is possible, install a separate membrane bottom layer positioned behind the face area and extending a minimum of four (4) inches past the securement flange onto the field substrate prior to installing the drip edge or gravel stop.

Field-Fabricated Control or Expansion Joint Flashing:

Control or expansion joints in excess of two (2) inches in width and all joints subjected to vehicular traffic require the use of a separate engineered joint system.

Grind or otherwise bevel the inside edges of the joint opening to provide a smooth transition edge for the fleece. Apply bond breaker tape on both sides of the joint.

Flashing typically consists of a fully saturated membrane bottom layer looped into the joint as a cradle, a compressible foam or rubber insert at 25% compression fitted into the joint with half the compressible material protruding above the joint, and a membrane top layer applied over the joint. Extend both fleece layers four (4) inches minimum onto the field substrate on both sides of the joint. An alternate approach is to insert the compressible foam or rubber insert into the joint completely sitting in the membrane cradle and fill it with a urethane trafficable grade sealer.

For insulated assemblies, wood nailers of a thickness to match the insulation / cover board must be installed on either side of an expansion joint.

Electrical Conduit, Gas Lines, & Lightning Protection:

Supports for electrical conduit and gas lines greater than one (1) inch in diameter require the use of a separate engineered support system.

Supports for electrical conduit and gas lines one (1) inch or less in diameter, and bases for lightning protection rods and cable, can be adhered directly to the membrane surface with a single-component, high quality polyurethane sealant.

Coatings, sealers, Surfacing Sand, or Ceramaquartz surfacing may be applied to Ram Quick Flash Membranes to achieve various performance and / or aesthetic purposes.

IT IS REQUIRED that all coatings and sealers be applied within 48 hours following membrane application in order to achieve the best bond. After 48 hours the membrane surface must be sanded or lightly abraded before the coatings may be applied. An MEK solvent wipe will be required to remove any abraded particles that remain.

When mixing coatings and sealers prior to application, DO NOT AERATE the material as this will result in bubbles and pinholes in the applied finish.



LIMITED WARRANTY: Barrett warrants its Products to be free of defects in materials, but makes no warranty as to appearance or color. Since methods of application and on-site conditions are beyond our control and can affect performance, Barrett makes no other warranty, expressed or implied, including warranties of MERCHANTABILITY and FITNESS FOR A PARTICULAR PURPOSE, with respect to The Barrett Company, LLC. Barrett to replace or to refund the purchase price of the quantity of Barrett proven to be defective, and Barrett shall not be liable for any loss or damage.



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