

Black Pearl Waterproofing

———— FOREMEN'S ———— INSTALLATION GUIDE AND DETAILS ————

Black Pearl Waterproofing warranted installations can only be installed by a Barrett Approved Contractor. A Barrett Approved Contractor must meet high standards for workmanship, financial stability and proven customer satisfaction. We put a lot of faith in our chosen contractors, which are either “Provisionally Approved” or “Fully Approved”. Provisionally Approved Contractors generally require frequent quality control inspections. As a Barrett Approved Contractor your firm has distinguished itself as among the select best in the industry.

By carefully reviewing and following this guide you will have the tools and information to make a First-Class, professional installation that will further enhance your company’s reputation and your own job security. The installation you are providing will be warranted by your company and Barrett, to the Building Owner, for many years to come.

If any detail or condition is unclear or unaddressed, before starting or on a jobsite, pick up the phone and call Barrett Tech Services, 800-647-0100, or email at info@barrettroofs.com for a quick response.

Before starting a project, the actual site should be visited and confirmed to be ready for the waterproofing installation. Check that all drains are properly installed and operative, all pipe and sleeve penetrations in place and properly secured, material storage and access areas determined and agreed to. Most importantly, the concrete surface must be inspected and determined by you to be acceptable. All honeycomb, form tie holes or cones, air holes, bug holes and other defects must be parged/filled prior to membrane application. Any questions about concrete surface acceptability can be determined by evaluating the concrete surface using ASTM D-5295 and American Concrete Institute (ACI) ACI 117R-90 re-approved 2002 Section 4.5.6, Section 4.5.7, Detail F_F 191.4 or F_F 52.9 Guides. Fresh concrete that supports foot traffic is acceptable. Any standing water on the concrete surface at the time of installation is not acceptable and needs to be removed.

All metal surfaces shall be clean of oils, paints, silicones and rust. Power wire brushing, shot blast, sand blasting, ice blasting and similar treatments can be used as required. Depending on

specifications and contract terms, surface preparation may be your responsibility or that of the G.C. or one of their other subcontractors, most likely the concrete subcontractor.

Water curing of concrete with impermeable covers is recommended when long-term curing is employed.

Formboard release agents like No. 20 weight motor oil or diesel fuel are commonly used on concrete wall forms. Prior to application of waterproofing, frost-free surfaces are required. Do not use or go over any release agent containing animal fats or stearates. Surface applied wax based and acrylic curing agents are not acceptable. Suspect areas must be shot blast, sand blast, ice blast or similarly treated.

When pre-installation inspections and all remedial work are complete, we are ready to go to work. Call Barrett at 800-647-0100 at least two weeks before starting installation to coordinate inspection schedules. Failure to do so may endanger schedules, inspections and warranty requests.

APPLICATION TOOLS

2 Sawhorses and a Sheet of $\frac{3}{4}$ inch Plywood

6 inch and 10 inch Black Pearl® Squeegees

18 inch Wood Backed, Smooth Edge Black Pearl® Squeegee – NO TEETH and Handles

3 inch and 9 inch Paint Rollers w/extension handles

3 inch or 4 inch Chip Brushes

Utility Knife – Hook and Straight Blades

Ruler, Hammer, Brooms, etc.

“Keil” type construction crayon

Handheld Leaf Blower (Gas or Electric, Stihl recommended)

Nitrile or similar work Gloves (Recommended)

Empty 5 Gallon Water Pail (for tools overnight)

1 Gallon Can of Naphtha (To Clean Tools)

All currently required or recommended OSHA Safety Equipment

MATERIAL STORAGE

- Sheet goods should remain in the box and stored on pallets, covered with breathable canvas tarps, kept out of sun in a cool place, 70° F in the summer and heated to 55°F in the winter. Shelf life, properly stored, is one year.
- Pail goods should be kept in similar temperature conditions which will provide a shelf life of one year.
- Temperature controlled warehousing extends storage time of both materials.
- Read and be familiar with the Safety Data Sheets (SDS) before using any materials.

STARTING THE INSTALLATION

The Black Pearl Primer•Adhesive (BP•PA) compound is generally self-priming for concrete and wood substrates. Priming the substrate with RAM Primer and Surface Conditioner is only used under special conditions such as concrete surfaces contaminated with residuals from certain form release and curing agents. If thought to be required, contact Barrett Tech Services.

Ensure adequate ventilation is provided in confined areas and “dead air” spaces. Almost all installations start with the detailing work, including wall-slab and footing-wall intersections known as base flashings. Pre-cut sheets on the work bench to desired size. With most base flashings, provide horizontal legs of 3 or 4 inches for the first ply and 6 to 8 inches for the second ply. Height of flashings will be determined by job conditions. A minimum of 8 inches above the highest expected waterline is required.

Uniformly coat base flashing substrate with Black Pearl Primer-Adhesive (BP•PA) at the rate of 1 ½ to 2 gallons (45-60 mils) per 100 S.F. and allow to dry to a tacky state. Embed first ply of Black Pearl Sheet (BP Sheet) from the top of the flashing downward, firmly seated at the change of plane. Use the 2 x 4 wood block and hammer or squeegee to seat the sheet perfectly into the corner so there is no “bridging” of the sheet and the sheet is firmly and 100% embedded to the substrate.

Repeat process with second ply, extended 3 inches past the first ply in both directions. Stagger all vertical laps by a half a sheet length. Seal all laps with additional BP•PA at the approximate rate of ½ gallon per 100 S.F.

If a third ply is required or specified, repeat procedure, extending the membrane legs an additional 3 inches.

Strip off the top of the flashing with 6 inch wide strip of Polyfelt 125 and RAM MASTIC, applied generously both under and over the Polyfelt 125 reinforcement.

CORNERS

Exterior and interior corners are installed with 2 plies of Black Pearl Sheet (BP Sheet) membrane 10 inches wide, the first layer installed 4 inches on one side and 6 inches on the other side. The second sheet is installed with 6 inches over the 4 inch side and 4 inches over the 6 inch side, squeegeed firmly into place without any holidays, voids or air pockets. At parapet walls, membrane assembly should extend full height and to the outside edge of the parapet unless there is a thru-wall flashing or reglet. Do not, under any circumstances, cover up any weep holes or thru-wall flashings.

DRAIN DETAILS

Drains are a very common source of leaks. Carefully clean drain sumps of any process oils, rust or other contaminants. Make sure drain is set below or at the drainage plane so there are no dams preventing free flow of water.

A 36 inch square sheet of BP Sheet is installed first into a solid coating of BP•PA before running the ply sheets over the field of the deck. Install all waterproofing sheets over the drain and carefully cut out a small circular opening with slits carefully cut back to partially conform to the drain bowl shape. Install clamping ring and cut back interior slit sheets to within 1 to 2 inches from the inside of the clamping ring. Do not allow only laps in clamping ring area. All drains require clamping rings, without exception.

VENT PIPES, VENTS

Coat the pipe with BP•PA and then wrap the pipe with BP Sheet 12 inches wide, extending 9 inches up the pipe with 3 inch star-cuts extending out onto the deck. Install one ply of sheet 12 inches larger than outside diameter of pipe, with a hole cut slightly smaller than the pipe over pipe flashing. Pull the sheet down over the pipe, set into a generous coat of BP Primer•Adhesive.

Apply BP Primer•Adhesive over entire pipe and flat flashing and repeat process with another sheet 18 inches larger than outside diameter of the pipe and a 15 inch vertical sheet. If permanently exposed to sunlight, overcoat with Ram Ultra White Primer and 2 coats of Ram Ultra-White latex coating after the completion of the field work. Provide stainless steel clamping ring at the top of flashing.

Metal pipe flashings of stainless steel, copper (if compatible), or lead-coated copper, may be used in lieu of Black Pearl flashing. Coat the base and first 6 inches of the pipe with BP•PA before installing metal flashing over the completed field membrane plies and strip in metal flashing base with one additional ply of BP Sheet and BP•PA coating.

JOINTS

Expansion joints, control joints, cold joints and pre-cast joints are all always reinforced.

Expansion joints may take many different forms, complicated by different manufacturers such as Watson-Bowman-Acme, Emseal, Construction Specialties, Migutan and other proprietary systems. Such assemblies are best detailed on a job-specific detail. For Black Pearl standard expansion joint detail, follow our standard drawing detail, making allowance for application temperature and joint width.

Control joints are not required for the Black Pearl system, but if the structure has them they must also be addressed with an extra ply of BP Sheet membrane and BP Primer•Adhesive as described on our standard detail sheet. If control joints are recessed, fill with Black Pearl butyl tape before ply application.

Cold joints require one ply of BP Sheet, 6 inches wide, centered over the cold joint, set in BP Primer•Adhesive, 1 ½ gal./square, well adhered without any holidays, fish mouths or air bubbles, the same as control joints, before the primary membrane is installed.

Pre-cast concrete decks generally require a topping slab as recommended by ASTM and most authorities. Consult Barrett for applications over precast decks without a topping slab. Pre-cast joint treatment will vary with pre-stressed and post-stressed T's, hollow core decks and site conditions. Any joints that are uneven must be filled with cement rich mortar and finished to provide a smooth transition from one plank to the next. The joints are then stripped in, first with a 9 inch and followed by a 12 inch sheet of BP Sheet, both set in BP Primer•Adhesive (1 ½ gal./square, approximate), that extends 4 inches beyond any mortar transition required by uneven joints. In cases where the mortar transition is wider than 6 inches, the stripping width shall be increased to extend a minimum of 3 inches beyond the mortar. All joints are reinforced before the field of the deck is waterproofed. When all detailing work is complete it is time to start with the field of the deck.

PRIMARY MEMBRANE APPLICATION

The deck should have been checked and accepted before starting the detail work. If any conditions on the deck have changed, now is the time to raise any objections or reservations. Starting work usually implies an acceptance of the deck with the G.C. and Owner as well as the Barrett Company.

Start application at the drains or low points so that laps shed water unless otherwise approved by manufacturer.

Ensure all contaminants such as dirt, debris, loose materials, laitance, visible moisture or surface irregularities that could interfere with a satisfactory installation and long-term performance of the system are addressed immediately without reservation. The American Concrete Institute (ACI) and ASTM both provide very good guides for what is acceptable and what is not with concrete decks.

Apply Black Pearl Primer-Adhesive with a non-serrated straight edge squeegee at the rate of 1.25 to 1.5 gals. per 100 S.F. as a thin coat. Allow it to dry to a tacky condition before installing the Black Pearl Sheets. Apply only as much adhesive as can be covered with sheet before the self-priming adhesive loses tack. Rub the sheet into the Primer-Adhesive with a stiff broom, squeegee, hand garden roller or similar method.

Lap all edge seams a minimum of 4 inches (\pm 1 inch). Stagger all end laps a minimum of 12 inches.

Pay special attention that total contact with the substrate is maintained. Any membrane “bridging” is unacceptable and will come back to haunt you the installer.

- If this is a multiple ply application, coat the top of the first ply with Primer-Adhesive at the rate of 0.75 to 1.0 gals per 100 S.F. Allow to dry to tack state. Smoothly embed the second ply, offsetting the side laps of the first ply by half a sheet’s width.
- If additional plies are specified, repeat the same procedure. With multiple ply application, check the adhesion of each ply by applying hand pressure to the sheet and if sheet moves, delay the next ply application until the underlying sheet has set.
- When all specified plies are installed it is time to run the flood test (ASTM D-5957), or EFVM survey. If any leakage or voids are detected, repair the suspect area and retest until there is no leakage of any kind.
- When testing is complete, uniformly top coat the finish sheet with BP Primer-Adhesive at the rate of 1.5 to 1.75 gals per 100 S.F. If protection course is specified, it should be installed in the top coat of Black Pearl Sheet in the same manner the ply sheets were installed.
- If insulation or drainage mat is specified, Black Pearl Primer-Adhesive shall be applied to the underlying surface at the rate of 1.5 to 2.0 gals per 100 S.F. after the membrane applications have solidified.
- Allow this adhesive coat to become tacky and then apply the insulation or drainage mat well embedded into the BP Primer-Adhesive.
- Install any additional overburden such as aeration mats, root barriers, Greenroof-Roofscapes®, concrete pavers, stone ballast and similar components shall be installed in accordance with plans and specifications.

VERTICAL WORK

For applications on vertical surfaces, the Black Pearl Sheets shall be applied in vertical strips, like wallpaper. Apply BP Primer-Adhesive to the vertical substrate surfaces in “globs” with a 9” solvent resistant paint roller. Spread to an even thickness with Black Pearl® squeegees at about 25 mils using a rate of 1.5 to 1.75 gals per 100 S.F. Allow to dry to a tacky state. Pre-cut BP Sheets to workable lengths, usually about 5 to 7 feet. Allow BP Primer-Adhesive to dry to a tacky state before embedding the sheet smoothly and fully adhering it to the vertical substrate.

Side laps shall be maintained at 4 inches. The bottom of the sheet shall start at the corner of the previously applied corner base flashing and run up the vertical substrate to termination of the sheet. Ensure that the top edge of the sheet is sealed tight to the vertical substrate using either BP Primer-Adhesive or Ram Mastic.

The succeeding plies on vertical substrates should overlap the lower application plies by 4 inches.

Multiple plies shall be installed in the same manner as the first ply.

Protection course for vertical substrate is recommended to be 1 inch thick and 1 pound minimum density expanded or extruded polystyrene made or cut into 2 foot by 4 foot blocks and adhered with BP Primer-Adhesive using 1.75 to 2 gallons of BP Primer-Adhesive per 100 S.F. Protection course insulation shall be laid up in brick pattern.

Where required, at the top edge of the topmost lift, apply a sealing strip of BP Sheet 8 to 9 inches wide, cut lengthwise from the sheet, in BP Primer-Adhesive, applied at the rate of 1.0 to 1.25 gals per 100 S.F. Embed the sealing strip into place with hand held Black Pearl® squeegee.

- For multiple ply applications, check the adhesion set-up of each ply by applying hand pressure to the sheet and exerting sideway pressure. If the sheet moves, delay installation of the next ply until the underlying plies are firmly set.
- Inspection and approval of all waterproofing membrane installations shall occur before application of any protection, insulation board or other overburden. All warranted installations must be inspected and accepted by Barrett Company before it is covered with any overburden.
- Vertical waterproofing backfill operations should be monitored by the membrane installer and completed as soon as possible. Hand backfilling is preferred over machine operations. Backfill shall not have any significant rocks or other deleterious materials that could damage the waterproofing assembly. Backfill damage is not covered under Barrett’s warranty but it probably is under a contractor’s warranty. Caution is advised.

- Any problems or issues, call Barrett Tech Services at 1-800-647-0100 or info@barrettroofs.com.
- Our objectives should be the same, providing both a first-class installation that is undamaged and not going to leak and to make a fair profit doing so. Defects and leaks cause your employer to spend wasteful money, aggravate the Owner and put us both in a bad light and costing us both unnecessary expense.

IT IS IN YOUR HANDS! DO IT RIGHT THE FIRST TIME.

TECH REP SERVICE – 800-647-0100 or info@barrettroofs.com.