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Since 1928

Black Pearl® Waterproofing

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

Black Pearl warranted waterproofing 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 are subject to more 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. It must be done right.

Ideally there should be a preconstruction conference held with all interested parties attending. This usually includes your firm, the G.C., Architect, plumber, deck installer, and anyone that has equipment on the roof as the project may require.

If any detail or site 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 must be visited and confirmed to be ready for the waterproofing installation. Check that all drains are properly installed, slightly depressed below the top of the roof deck and operative, all pipe and sleeve penetrations in place and properly secured, material storage and access areas determined and agreed to. Most importantly, concrete surfaces 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 and protrusions and high spots scraped down. 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. Standing water on the concrete surface at the time of installation is not acceptable and needs to be removed.



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All metal surfaces shall be cleaned 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. This should be determined before you visit the project.

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. Do not use or go over any release agent containing motor oil, fuel oil, 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 prior to application of waterproofing to provide an acceptable surface. Frost-free surfaces are required.

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

Purchase locally	2 Sawhorses and a Sheet of ¾ inch Plywood
Available to purchase from Barrett Company	6 inch and 10 inch Black Pearl® Squeegees
Available to purchase from Barrett Company	18 inch Wood Backed, Smooth Edge Black Pearl® Squeegee – NO TEETH
Purchase locally	Handles for the above
Purchase locally	4 inch and 9 inch Paint Rollers w/extension handles
Purchase locally	3 inch or 4 inch Chip Brushes
Purchase locally	Utility Knife – Hook and Straight Blades
Purchase locally	Ruler, Hammer, Brooms, etc.
Purchase locally	“Keil” type construction crayon
Purchase locally	Handheld Leaf Blower (Gas or Electric, Stihl recommended)
Purchase locally	Nitrile or similar work Gloves (Recommended)
Purchase locally	Empty 5 Gallon Water Pail (for tools overnight)
Purchase locally	1 Gallon Can of Naphtha (To Clean Tools)
Purchase locally	All currently required or recommended OSHA Safety Equipment



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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. Black Pearl Primer•Adhesive is classified as a “Flamable” material and must be treated accordingly.

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 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 6 by 4 inches for the first ply and 4 by 6 inches for the second ply, offset from the first sheet. 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 1.5 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, reversing the 6 by 4 inch dimension. Stagger all vertical laps by a half a sheet length. Seal all laps with additional BP•PA at the approximate rate of 0.5 gallons per 100 S.F.

If a third ply is required or specified, repeat procedure, extending the membrane legs an additional 2 inches.

Strip off the top of the flashing with BP•PA or Ram Mastic. Install termination bar over protection course.



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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 with solvent and powered wire brush if required. Make sure drain is set below or at the drainage plane so there are no dams preventing free flow of water.

Install a 39 inch square sheet of BP Sheet 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 any laps in clamping ring area. All drains require clamping rings, without exception.

VENT PIPES, SLEEVES AND CONDUIT

At round pipes or sleeves the first section (target) is installed first. A minimum of 4" beyond the outside perimeter. Cut a star pattern in the membrane slightly smaller than the outside diameter of the penetration. Coat the pipe/sleeve with BP•PA and the base. Then slide the membrane down and firmly embed with no bridging.

First Ply: Coat pipe/sleeve with BP•PA. Wrap the pipe/sleeve with BP Membrane to achieve a minimum of a 2" lap. Cut fingers 3" long in the wrap at the base to extend out at the change in direction. Membrane should extend a minimum of 8" above highest anticipated water level above ground and 8" beyond base below grade. All set with no voids/bridging in BP•PA.

Second Ply: Repeat procedure above. If above grade and exposed to sunlight. Cover with Ram 306 granular sheet or overcoat with RAM Ultra white Primer and 2 coats of Ultra White Acrylic Latex coating.

In all cases install stainless steel clamps at the top of flashings.

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.



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If using Black Pearl Flashing detail, cut target patch 12 inches beyond the pipe flange outside diameter. Center cut a hole smaller than the pipe in the middle of the sheet. Coat base and lower portion of pipe with BP•PA. Push the target patch over the pipe and set firmly in BP•PA. Wrap pipe to specified height with two plies of BP sheet each set in generous coat of BP•PA. Cut 2 to 3 inch “fingers” at the base of the vertical pipe wraps, fingered and staggered at base. Install protection course set in BP•PA over the flashing and install stainless clamping ring at top of flashing.

If permanently exposed to sunlight set one ply of Ram 306 granular flashing around the vertical pipe overlapping by 2 inch minimum or alternately after the Black Pearl has cured and the field work completed, overcoat Black Pearl with Ram Ultra White Primer and 2 coats of Ram Ultra-White Acrylic latex coating. Provide stainless steel clamping ring at the top of flashing. See Black Pearl Standard Detail for visual image.

“Kindorf” type supports are not acceptable flashing structures.

All pipes and projections should be 6 inches from any other projections or walls.

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, 1.5 to 2 gal./square, well adhered without any holidays, fish mouths or air bubbles, 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 (1.5 to 2 gal./square, approximate), that extends 4 inches beyond any mortar transition required



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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 by the contractor 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.

Start application at the drains or low points so that laps shed water unless otherwise approved by manufacturer. In some renovation projects it may be advantageous to start work at the high points.

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 1.5 to 2 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 3 inches (\pm 1 inch). Stagger all end laps a minimum of 6 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 1.5 to 2 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. Do not leave any "Fishmouths" or wrinkles unaddressed.
- 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 EVM survey (ASTM D-7877). If any leakage or voids are detected, repair the suspect area and retest until there is no leakage of any kind.



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- When testing is complete, uniformly top coat the finish sheet with BP Primer-Adhesive at the rate of 1.5 to 2 gals. per 100 S.F. If protection course is specified, it should be installed in the top coat of Black Pearl Sheet starting at the low points and fully adhered in BP•PA.
- Install any additional overburden such as aeration mats, root barriers, Greenroof-Roofscapes®, concrete pavers, stone ballast and similar components 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 to 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 3 inches. The bottom of the sheet shall start at the corner of the previously applied 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 with offset sidelaps.

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 1.5 to 2 gals per 100 S.F. Embed the sealing strip into place with hand held Black Pearl® squeegee. In above ground work install termination bars at the top of membrane fastened 8 inches on centers. Coat top of bar with BP•PA or Ram Mastic

- 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.



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- 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 feet by 4 feet wide sheets 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.
- 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 may be 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 money wastefully, they aggravate the Owner and put us both in a bad light, damaging our reputations and costing us both unnecessary expense and waste of our time.

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

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

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