

GUIDE SPECIFICATIONS

SECTION 07·10·10 BLACK PEARL INSULATED VERTICAL BP·2·V-I COLD RUBBERIZED ASPHALT WATERPROOFING

PART 1 - GENERAL

1.01 RELATED SECTIONS

Section 02 41 19	Demolition
Section 04 01 00	Masonry Repair
Section 06 10 00	Carpentry
Section 07 22 00	Insulation
Section 07 60 00	Sheet Metal
Section 07 72 00	Accessories
Section 07 92 00	Caulking and Sealants

Edit to project
conditions

1.02 SUBMITTALS

- A. Submit Manufacturer's written approval or license of Applicator for installation of the herein specified roofing system.
- B. Submit Manufacturer's sample Labor and Material System Warranty and Manufacturer's Intent to Warranty Certification for this project.
- C. Submit most recent copy of Manufacturer's literature applicable to products and specifications to be used, as specified herein, including applicable flashing details.
- D. Submit three sheet samples each, of ply sheet and flashing sheet, approximately 8 inches x 10 inches.
- E. Submit, certification from the primary Manufacturer, properly attested, stating that all materials being supplied comply with the specifications and requirements of the contract documents, including conformance to all federal, state and local building codes including United States Code, Section 41:10, Subsections a-d, popularly known as the "Buy American Act".

1.03 QUALITY ASSURANCE

- A. All the materials specified herein are cited as a minimum standard of quality and shall not preclude consideration of equal or superior materials. All suggested "equivalent materials" or other substitutions are to be submitted to the Architect for consideration a minimum of ten (10) days prior to bid date. Submittal shall include all evidence of compliance or superiority of material from the proposed substitute Manufacturer. If accepted by the Architect, an addendum will be issued to all bidders for their consideration of the proposed substitute Manufacturer. Determination of equivalency of all substitutions shall rest exclusively with the Architect and such decision shall be final.
- B. Contractor shall have a minimum of five (5) years documented experience in the application of similar waterproof systems. Lack of proficiency as shown by past work under other contracts which, in the sole judgment of the Owner, might hinder or prevent the prompt completion of additional work, if so awarded, or involvement in any legal actions which relate to past or present performances shall be sufficient cause to reject any bid offer.

1.04 DELIVERY, STORAGE AND HANDLING

- A. Deliver materials to jobsite on pallets. Package labels shall indicate material name, production date and product code.
- B. Store materials in dry, protected areas in an upright position. Control temperature of storage areas in accordance with Manufacturer's instructions. Protect moisture sensitive materials with breathable tarps on sides and top surfaces.

1.05 PROJECT CONDITIONS

- A. Follow local, state and federal regulations, safety standards and codes. When a conflict exists use the stricter requirements.
- B. Do not apply waterproofing materials when water is present on the surfaces to be waterproofed.
- C. Application can be made to 0°F, however workmanship standards tend to diminish below freezing temperatures and require extra supervision.

1.06 CODE COMPLIANCE

It shall be the Contractor's responsibility to ensure that the work on this project shall follow applicable safety code requirements, including obtaining any required permits prior to the start of the Work.

1.07 WARRANTY

Prior to project close out, the Contractor shall submit the Manufacturer's pre-approved 5 year Labor and Material Warranty including membrane flashings.

PART 2 - PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

The Barrett Company is set forth as the referenced standard of quality. Other manufacturers of equal or better quality may request approval in conformance with specification requirements. Architect approved equals remain subject to all specification requirements.

2.02 WATERPROOFING MATERIALS

A. Waterproofing Membrane System:

Project Specification minimum standard of quality as set forth in Barrett Company Black Pearl BP·2·V-I specification or approved equal as noted above, in strict compliance with the following minimum specifications.

Black Pearl Waterproofing Membrane (BP·WM)	2 plies
Black Pearl Primer and Adhesive (BP·PA)	5 gals. Unit
Protection Course	1 ply
Drainage Mat	1 course

1. Black Pearl Reinforcing Membrane shall comply with requirements set forth in ASTM D-6769 in addition to the following minimum specifications. The Reinforcement Fabric shall be polyester fortified with fiberglass set in the machine direction.

<u>TEST</u>	<u>METHOD</u>	<u>TYPICAL TEST RESULTS</u>
Reinforcement Basis Weight	ASTM D-3776	140 gm/m ²
Sheet Thickness	ASTM D-1777	50 mils
Tensile Strength, lbf	ASTM D-4830	75 lbf/in.
Elongation, %	ASTM D-4830	26 MD, 28 XD
Tear Strength, lbf	ASTM D-4830	30 MD, 27 XD
Fatigue Life	ASTM D-8B	>10,000 cycles

2. Primer/Adhesive: Black Pearl Primer•Adhesive (BP•PA) shall comply with the requirements set forth in ASTM D-6769 and the following minimum specifications:

<u>TEST</u>	<u>METHOD</u>	<u>TYPICAL TEST RESULT</u>
Softening Point of bitumen Component	ASTM D-36	160°F
Solids content	ASTM D-3236	55% min.
Penetration (dmm)	ASTM D-5	30 dmm
Elongation @ 77°F min	ASTM D-412	100%
Tensile & adhesive	ASTM D-1004 DIE C	>1,000 psi avg.
Ductility 77°F	ASTM D-113	40 cm
Low Temp Flexibility	ASTM D-3111	-10°F min.
Solubility	ASTM D-2024	99% min.

3. Insulation: Plaza insulation board shall be a dense, rigid, extruded polystyrene insulation, one inch thick, designed for vertical applications, by Dow, Owens Corning, or approved equal, and approved by the membrane Manufacturer for system warranty. Insulation shall meet the following values:

<u>TEST</u>	<u>TYPICAL METHOD</u>	<u>TEST RESULTS</u>
Thermal Conductivity @ 75°F	ASTM C-518	0.20 K
Compressive Strength, min.	ASTM D-1621	25 PSI
Flexural Strength, min.	ASTM C-203	75 lb/in.
Water Absorption	ASTM C-272	0.1%
Water Vapor Permeance	ASTM E-96	0.3-.8 perm
Dimensional Stability	ASTM D-2126	2% max

2.03 Related Materials:

- A. Cold-applied flashing system: Comprised of a two-component polymethyl methacrylate primer, reinforcing fleece and membrane system.
 - 1. Barrett Roofing, RamFlash PMMA System
- B. Detailing Mastic: A trowel grade SBS modified cold process cement.
 - 1. RamMastic
- C. Joint Sealant: single component silyl-terminated polyether elastomeric sealant that meets ASTM C920.
 - 1. KeeneSeal 100
- D. Protection Course Series: Manufacture protection course materials recommended by application.
 - 1. Fiberglass sheet: A smooth surfaced 3.0 mm (118mil) heavy-duty fiberglass reinforced rubberize sheet
 - a) Ram 200
 - 2. Fiberglass sheet: A smooth surfaced 2.2 mm (86mil) medium-duty fiberglass reinforced rubberize sheet
 - b) Ram 203

2.02 Drainage Panels

- A. Drainage materials with a drainage core and filter fabric recommended by waterproofing manufacture.
 - 1. Polymeric 1/4" cusplate core with a nonwoven filter fabric. Flow rate 9 gpm per foot (112 lpm per m).
 - RamDrain DD 025
 - 2. Polymeric 7/16" cusplate core with a non-woven spunbonded filter fabric with a high flow rate. Flow rate 18 gpm per foot (224 lpm per m).
 - RamDrain DD 050
 - 3. Polymeric entangled net prefabricated composite drain 0.13-inches thick, "zig-zag" geometric patterned core, drainage mat with a layer of non-woven geotextile.
 - RamDrain EN 36 013

4. Polymeric entangled net prefabricated composite drain 0.25-inches thick, “zig-zag” geometric patterned core, drainage mat with a layer of non-woven geotextile
 - RamDrain EN 36 025
5. Polymeric entangled net prefabricated composite drain 0.45-inches thick, “zig-zag” geometric patterned core, drainage mat with a layer of non-woven geotextile
 - RamDrain EN 36 045

PART 3 - EXECUTION

3.01 PREPARATION

Optional:

Sand-blasting and/or shot-blasting procedures may be required on certain applications to provide the best possible surface. If required, provide unit price per square foot in bid documents.

- A. Condition of Surface: New concrete surfaces shall comply with ACI 301-11.7.3 wood float finish and cured for a minimum of 48 hrs. with no visible surface water. The General Contractor shall certify no wax base or stearate based curing compounds have been used. All concrete surfaces shall comply with ASTM D-5295 standard preparation guide

Existing concrete surfaces shall be examined for any defects or failure to meet ASTM D-5295 standard. All surfaces shall be free from laitance, grease, oil, unapproved curing compounds or other foreign matter detrimental to performance of the waterproofing membrane.

Before commencing work, examine all areas and report in writing to Architect and manufacturer any conditions that will adversely affect successful installation. Do not begin work until the conditions have been addressed and corrected. Voids, cracks, holes and other damaged surfaces shall be repaired with materials compatible with **Black Pearl** such as Sika epoxy concrete or approved equal.

- B. Expansion Joints: Expansion joints shall be sharply formed and free of broken edges, loose aggregate and completely free of preformed joint fillers, sealants or back-up materials to a depth that is at least twice the width of the joint. Chamfer edges of the joints.

3.02 APPLICATION

A. Waterproofing Membrane:

1. Installation of Black Pearl Membrane is required at all flashing conditions including footings, box-cuts, changes of plane, all joints and cracks and all penetrations such as pipes, rebar and conduits before proceeding with the wall waterproofing. All flashings are installed in a 2-layer redundant configuration prior to the vertical field of the wall membrane being installed.
2. Start detailing installation with a full coating of BP Primer Adhesive applied at the standard rate of 1.0 gallons per 80 square feet at flashing conditions and allow to dry to tacky condition. Install the first ply of BP Membrane a minimum of 6 inches beyond the corner or penetration in each direction. Each succeeding ply shall extend at least 4 inches beyond the underlying ply one side and shall be adhered to the previous reinforcement layer with additional adhesive applied at the same rate. At pipe penetrations the flat sheet is installed first, followed by the vertical “wrap” where the “fingers” shall extend a minimum of 2 inches out onto the vertical wall.
3. Follow the standard details of ASTM D-5898 and Barrett standard BP detail unless otherwise required by the manufacturer or designer. All laps are to be inspected and completely sealed with BP Primer Adhesive and all flashing reinforcement shall be rubbed or rolled into place with a steel hand roller.
4. For expansion joints up to 3 inches in width, with a designed total movement of 50% or less, Ram Flash 327 HDR neoprene flashing shall be placed over the joint as shown on the drawings creating a “hammock”. The “hammock” shall be looped into the joint 1-1/2 times the joint width at maximum opening and extend 4 inches onto the deck on each side of the joint. Embed the horizontal flashings into a thick coating of Black Pearl·PA. Install customized Black Pearl foam joint in a width ¼ inch smaller than the opening and the bridge centered as shown. Install a sheet of Black Pearl·WM looped over the foam extending 12 inches beyond the joint on each side set in Black Pearl·WM. Overcoat the flange on each side.
5. Start the Black Pearl Primer-Adhesive application over the field of the walls after completing all detail work for contiguous work area. Begin installation of BP Waterproofing Membrane at the bottom of the walls unless otherwise approved by the manufacturer.

6. Apply Black Pearl Primer-Adhesive (BP-PA) at a rate of 1.0 gals. per 80 square feet and allow to dry to a tacky condition before installing the first layer of Black Pearl Membrane (BPM) vertically to the appropriate height. Apply only as much adhesive as can be covered with membrane before the adhesive loses its tack.
7. Lap all edge seams a minimum of 4 inches and stagger all end laps a minimum of 6 inches. Continue the membrane 4 inches over any horizontal surfaces.
8. When installing the membrane rub the membrane into place with stiff brooms or a squeegee. Total contact with all substrates is required. No “bridging” or unlaminated membrane will be accepted.
9. Install second layer of BP Membrane in a BP-PA coating applied at the rate of 1.0 gal. per 80 square feet, after allowing the BP-PA to reach a tacky state. Broom or squeegee in place. Offset the side laps from the first ply by half a sheet width and end laps by 6 inches.
10. If an electric vector mapping (EVM) survey is to be conducted, it shall occur at this time.

B. Protection Course:

After quality control tests and the Manufacturer has approved the membrane installation, install specified protection course in topcoat of BP Primer-Adhesive installed at 1.0 gal. per 80 square feet. Provide 3 inch side lap overlaps.

C. Insulation and Drainage Mat:

Insure that membrane, flashing and other associated work is completed, tested and approved by Manufacturer. Upon acceptance of the waterproofing application, install polystyrene insulation directly on the protection course using Black Pearl Primer Adhesive. Stagger end joints. Tightly abut all boards. The maximum acceptable opening between boards is 1/4 inch. Install drainage mat over the insulation and drape over the footing, running over the drainage tile. Provide temporary ballast required to prevent wind damage.

3.03 FIELD QUALITY CONTROL

- A. Material usage and adhesion tests shall be monitored by the Installer’s Quality Control Representative every hour throughout the application process.

B. Core Cuts:

Test cuts shall be taken as directed by a representative of the Architect at their discretion. Test cuts should be 3 inches by 48 inches and run perpendicular to the direction of the reinforcement to provide a representative sample of the waterproofing work. Test cuts generally will not exceed 1 per 100 squares of area.

1. Follow field audit criteria basically as outlined by ASTM Standard D 3617-83.
2. Send cuts to: Structural Research Inc., Madison, Wisconsin, or Manufacturer approved, equally accredited laboratory, for laboratory examinations. Contractor shall allow \$500.00 for testing fees per 100 squares of area. Laboratory reports shall be submitted by the laboratory directly to the Architect.
3. Repair sampled areas by filling in the cut-out area then use a "feathered in" patch consisting of same number of plies as in the waterproof specification following the Manufacturer's and NRCA procedures.

C. Correct deficiencies in membrane, if any, (determined by core cut analysis) as prescribed by material Manufacturers and approved by the Architect.

3.04 CLEANING

- A. Remove equipment, trash, debris and any excess material from the jobsite.
- B. Repair any damage and remove any stains caused by work of this Section.

3.05 PROTECTION

General Contractor and the Owner shall protect finished waterproofed areas from damage during subsequent construction not related to the areas.

MAINTENANCE:

Semi-annual inspections and a systematic maintenance program are recommended to the Owner and Architect. Consult your Barrett Representative or Barrett Approved Applicator for further information
Barrett Tech Services 800/647-0100 www.barrettroofs.com info@barrettroofs.com