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PART 8 – BUR APPLICATION

8.01.1 General

- A. These requirements are supplemental to the General Requirements in Part 3, the BUR Flashing Details in Part 9, and are designed to establish minimum project requirements by IKO.
- B. Furnish and install the IKO BUR Roofing System in accordance with the IKO published guidelines and details. This part of the IKO Technical Reference Manual is intended as a procedural and application guide for installing IKO hot asphalt applied BUR systems. Reference to Part 3, General Requirements is necessary to assure that the completed roof system is installed in accordance with IKO requirements.
- C. The roofing contractor must be an IKO Registered Contractor prior to the roof installation as noted in Part 3 General Requirements, subsection 3.05.1, Contractor Qualifications if an IKO Registered Limited Warranty is to be applicable.

8.02.1 Base Sheet Attachment

8.02.1.1 Hot Asphalt Attachment of Base Sheet

- A. Install the base sheet in hot asphalt applied at the rate of twenty-five pounds (25 lbs.) per one hundred square feet (100 ft²) (1.2 kg/m²), plus or minus (twenty) 20%.
- B. The base sheet side and end laps shall be fully adhered. All end laps shall be a minimum of six inches (6") (150 mm). All side laps shall be a minimum of three and one half inches (3.5") (90 mm). Stagger all end laps a minimum of twenty four inches (24") (610 mm) and side laps a minimum of twelve inches (12") (300 mm).
- C. The base sheet must lay flat and be fully and uniformly bonded to the substrate. Fiberglass base sheets must be broomed to prevent voids and insure embedment.
- D. The base sheet must extend far enough to accommodate flashing requirements illustrated in the detail section of this specification.
- E. To reduce the possibility of asphalt displacement due to "point loading," foot and machine traffic shall be kept to a minimum on freshly applied components of the system. In order to permit the asphalt to harden, do not travel over the freshly laid membrane system for a sufficient period of time.
- F. Discontinue application of asphalt over any substrate where the asphalt foams.

8.03.1 Ply Sheet Installation

- A. Install the ply sheets using the method specified by the project designer.
- B. Ply sheet side laps shall be a minimum of two inches (2") (50 mm).
- C. All ply sheet end laps shall be a minimum of six inches (6") (150 mm).
- D. In all cases, the side and end laps of the ply sheets shall be staggered a minimum of twelve inches (12") (300 mm) from successive ply sheet side and end laps.

- E. Begin installation at the low point of the roof. Unroll and align the ply sheet prior to attachment. Use chalk lines where necessary to insure proper alignment.
- F. Wrinkles, fishmouths, and any other defect that would cause buckles or stress in the finished system must be removed and patched.
- G. Gang rolling of fiberglass felts is not permitted. Organic felts can be applied using this technique. A mini-mopper can be used for glass and organic felts as an option to hand rolling; however a felt layer is not to be used with glass felts.

8.03.1.1 Hot Asphalt Attachment of Ply Sheets

- A. Install the ply sheet in hot asphalt applied at the rate of twenty-five (25 lbs.) pounds per one hundred square feet (100 ft²) (1.2 kg/m²) plus or minus twenty (20%) percent.
- B. The ply sheet side and end laps shall be fully adhered.
- C. The ply sheet must lay flat and be fully and uniformly bonded to the substrate. Fiberglass ply sheets must be broomed to prevent voids and insure embedment.
- D. The ply sheet must extend far enough to accommodate flashing requirements illustrated in the detail section of this specification.
- E. To reduce the possibility of asphalt displacement due to “point loading,” foot and machine traffic shall be kept to a minimum on freshly applied components of the system. In order to permit the asphalt to harden, do not travel over the freshly laid membrane system for a sufficient period of time.
- F. Discontinue application of asphalt over any substrate where the asphalt foams.

8.03.1.2 Two Ply Interply Application of Ply Sheets

- A. Install a nineteen and five-eighths inches (19 5/8”) (498 mm) and a thirty-nine and three-eighths inches (39 3/8”) (1 m) wide starter plies.
- B. Install a second thirty-nine and three-eighths inches (39 3/8”) (1 m) wide ply that laps the first thirty-nine and three-eighths inches (39 3/8”) (1 m) ply seventeen and five-eighths inches (17 5/8”) (448 mm).
- C. Lap successive plies twenty and eleven-sixteenths inches (20 11/16”) (525 mm).

8.03.1.3 Three Ply Interply Application of Ply Sheets

- A. Install three starter strip plies; one thirteen and one-eighth inches (13 1/8”) (333 mm) one twenty-six and one-quarter inches (26 1/4”) (667 mm), and one thirty-nine and three-eighths inches (39 3/8”) (1 m) wide.
- B. Install a second thirty-nine and three-eighths inches (39 3/8”) (1 m) wide ply that laps the first thirty-nine and three-eighths inches (39 3/8”) (1 m) ply by twenty-six and fifteen-sixteenths inches (26 15/16”) (684 mm)

- C. Lap successive plies twenty-six and fifteen-sixteenths inches (26 15/16") (684 mm).

8.03.1.4 Four Ply Interply Application of Ply Sheets

- A. Install four starter strip plies; one nine and twenty-seven thirty-seconds inches (9 27/32") (250 mm), one nineteen and eleven-sixteenth inches (19 11/16") (500 mm), one twenty-nine and seventeen-thirty-seconds inches (29 17/32") (750 mm), and one thirty-nine and three-eighths inches (39 3/8") (1 m) wide.
- B. Install a second thirty-nine and three-eighths inches (39 3/8") (1 m) wide ply that laps the first thirty-nine and three-eighths inches (39 3/8") (1 m) ply by thirty and one-sixteenth inches (30 1/16") (764 mm).
- C. Lap successive plies thirty and one-sixteenth inches (30 1/16") (764 mm).

8.04.1 Multiple Ply "Hybrid" Membrane roofing System

- A. Apply one (1) layer of SBS modified bitumen base sheet, mopping grade to the suitable substrate and follow with an additional ply sheet of glass felt as previously indicated in the sections detailed above. Membranes that require an IKO Limited Warranty must include an additional three (3) plies or four (4) plies above the SBS base sheet application to qualify. Consult IKO Technical Services for specific membrane options covering specific warranty terms.
- B. It is permissible to apply a base membrane of 3 plies of glass felt with a finished surface of granulated cap sheet. Please note that this membrane composition will NOT carry the same surface burning designation as a flood coat and gravel.

8.05.1 Separation Layer

- A. Where a BUR roofing membrane system is installed over an insulated deck using a wood fiber or other such coverboard of a similar composition, a layer of #15 perforated organic felt can be applied first prior to the application of the coverboard system. The felt "separation layer" is not included in the ply count but rather facilitates a well defined surface to act as a protective layer guarding the insulation from damage when reroofing is required. In this way, the insulation layer is retained without damage.

8.06.1 Built-Up Roof Surfacing

8.06.1.1 Flood Coat And Gravel - Single Pour

- A. IKO Built-Up Roofing Systems must be surfaced with gravel or clean slag aggregate being nominally three-eighths inches (3/8") (9 mm) to five-eighth inches (5/8") (20 mm), round stone free of fines and dust. Preferably round washed river stone.
- B. The aggregate shall be applied to a flood coat of asphalt that is applied at the rate of sixty (60 lbs.) pounds per one hundred square feet (100 ft²) (2.9 kg/m²). The asphalt shall be ASTM D312 Type III or IV or CSA A123.4 Type II or III asphalt.
- C. While the asphalt is still hot, embed the gravel surfacing at the rate of four hundred (400) pounds per one hundred square feet (100 ft²) (19.5 kg/m²).
- D. The aggregate must be dry before it is embedded into the asphalt. Prior to application in cold weather, it may be necessary to heat the aggregate.

8.06.1.2 Flood Coat And Gravel - Double Pour

- A. After the “single pour” described, sweep all loose gravel from the surface of the roof.
- B. The aggregate shall be applied to a flood coat of asphalt that is applied at the rate of sixty (60 lbs.) pounds per one hundred square feet (100 ft²) (2.9 kg/m²). The asphalt shall be ASTM D 312 Type III or IV or CSA A123.4 Type II or III asphalt.
- C. While the asphalt is still hot, embed the gravel surfacing at the rate of two hundred and sixty pounds (260 lbs.) per one hundred square feet (100 ft²) (19.5 kg/m²) to provide a total weight (including asphalt) of not less than seven hundred and twenty pounds (720 lbs.) per one hundred square feet (100 ft²) (36 kg/m²).

8.07.1 Flashing Installation - General Guidelines

- A. Flashing shall be installed as specified by the project designer.
- B. Refer to the construction details in Part 9 - BUR Flashing Details, for illustrations of common penetration and perimeter flashings.
- C. For an IKO Registered Limited Warranty, SBS modified bitumen polyester reinforced flashings MUST be used for all strippings. Consult Part 9 - BUR Flashing Details for specifics.
- D. Modified bitumen base flashings shall extend out onto the field of the BUR roof membrane a minimum of six inches (6”) (150 mm) from the toe of the cant or the field/parapet intersection. The cap flashing shall extend a minimum of two inches (2”) (50 mm) beyond the end of the base flashing.

8.08.1 Flashing Installation Multi-Ply Base Sheet Flashings

- A. Multi-ply flashings comprised of organic/glass felt shall not be suitable for any applications where an IKO Registered Limited Warranty is applicable. Consult IKO Technical Services for clarification if there is any doubt on the composition of the flashings.
- B. The written descriptions of details in this section are intended to be supplemental to the details in Part 9 - BUR Flashing Details.

8.08.1.1 Walls, Curbs, And Expansion Joint Flashings With Cant Strips

- A. Install the built-up roof so that all plies extend to the top of the cant strip. The completed flashing shall extend a minimum of eight inches (8”) (200 mm) and a maximum of twenty- four inches (24”) (610 mm) above the surface of the roof.
- B. Beginning at the flashing termination point, apply hot asphalt to the parapet, the surface of the roofing plies on the cant strip, and a minimum of four inches (4”) (100 mm) onto the horizontal surface past the toe of the cant strip. Immediately place the membrane base flashing ply into the hot asphalt, smoothing the ply firmly into the asphalt. Overlap successive flashing sections a minimum of two inches (2”) (50 mm).

- C. Repeat the process for the second membrane base flashing ply. The second membrane base flashing ply shall extend from the flashing termination point to a minimum of eight inches (8") (200 mm) past the toe of the cant strip. Additional membrane base flashing plies, if required, shall extend four inches (4") (100 mm) beyond the previous ply on the horizontal surface.
- D. When required, the top of all cap sheet flashing must be fastened six inches (6") (150 mm) on center with appropriate fasteners. If cap sheet flashing is used in lieu of, or in addition to, membrane base flashing plies, then all cap sheet flashing side laps shall have a forty-five (45°) degree section removed from the bottom layer of the lap on the horizontal surface.
- E. Install the appropriate counter-flashing to complete the detail.

8.08.1.2 Roof Drains Using a Clamping Ring

- A. Create a sump to the drain and a smooth transition by installing tapered insulation around the drain. The slope of the drain sump shall not exceed one inch (1") per horizontal foot (8%). All drains shall be located a minimum of (1/2") (12.7 mm) below the lowest point of the roof.
- B. After the drain bowl has been secured to the underside of the deck, ensure the built-up roof plies carry over to the inside edge of the drain bowl.
- C. Set in hot asphalt, one layer of polyester reinforced SBS sanded surface base sheet around the drain opening such that the flashing forms a minimum of three feet (3') (1m) square set at a forty-five (45°) degree angle to the ply sheets.
- D. Apply the clamping ring and tighten in accordance with the drain manufacturer's instructions. Do not over-tighten the clamping ring. Improper bolting of the drain flange can cause distortion of the assembly leading to leaks.
- E. Remove any excess flashing over the drain bowl and check for obstructions caused by roofing debris. Appropriate surfacing such as that applied for the field of the roof will complete the assembly around the drain.

8.08.1.3 Pipe Penetration Using a Stack Flashing

- A. Install the built-up roof lies to the edge of the plumbing vent stack.
- B. Apply a layer of ASTM D41 primer or CGSB 37-GP-9 IKO asphalt primer to both top and bottom surfaces of the metal pipe flashing to be installed. Set the flashing over the pipe and apply an even coat of roofing cement to the bottom of the metal flashing.
- C. Cut and install a three foot (3') (1m) square of SBS modified bitumen, polyester reinforced mopping grade membrane around the top of the metal flashing mopped into place with hot asphalt. The membrane should be installed at a forty-five (45°) degree angle to the plies.
- D. Cut an additional sheet of SBS granulated cap sheet, mopping grade, and apply over the base flashing membrane in hot asphalt such that the cap sheet flashing exceeds the base flashing in all directions by a minimum of four inches (4") (100 mm).
- E. Apply a bead of sealant around the intersection of the membrane and vertical pipe stack flashing to prevent puddling.

8.08.1.4 Roof Edge Metal

- A. Install wood nailers in accordance with Section 3.15.1. The wood nailers must completely support the edge metal.
- B. Install the built-up roof plies to the edge of the wood nailer and fasten with one inch (1") (25 mm) diameter head cap nails at six inches (6") (150 mm) on center. Where low softening point asphalts have been used, a felt envelope should wrap the end of the membrane to prevent asphalt drippings down the face of the building.
- C. Light gauge metals such as copper, hot galvanized steel, and aluminum shall be used. Reference the Sheet Metal and Air Conditioning Contractors Association (SMACNA) details for recommendations of metal gauge, size, and cleat requirements.
- D. The metal should be thoroughly cleaned and primed on both sides with an ASTM D 41 or CGSB 37-GP-9 IKO asphalt primer and allowed to dry.
- E. Install the metal into a one-eighth of an inch (1/8") (3.2 mm) layer of roof cement. The layer of roof cement should be continuous and applied the entire width of the metal flange. The metal flange is fastened three inches (3") (76 mm) on center in staggered fashion. The vertical face of the metal edge can be either face fastened or supported by a continuous cleat.
- F. Flash in the metal edge with two (2) plies of the appropriate roofing felts set in hot asphalt. The flashing felts should be eight inches (8") (200 mm) on the first ply and ten inches (10") (250 mm) wide on the second ply.

8.08.1.5 Welded Watertight Scuppers

- A. Install wood nailers in accordance with Section 3.15.1. The wood nailers must completely support the scupper flange on the horizontal surface.
- B. Install the built-up roof plies to the outside edge of the wood nailer and fasten with one inch (1") (25 mm) diameter head cap nails at six inches (6") (150 mm) on center.
- C. The metal should be thoroughly cleaned and primed on both sides with an ASTM D 41 or CGSB 37-GP-9 IKO asphalt primer and allowed to dry.
- D. Install the metal into a one-eighth of an inch (1/8") (3.2 mm) layer of roof cement. The layer of roof cement should be continuous and applied the entire width of the metal flange. The metal flange is fastened three inches (3") (76 mm) on center in staggered fashion.
- E. Flash in the metal edge with two (2) plies of the appropriate roofing felts set in hot asphalt. The flashing felts should be eight inches (8") (200 mm) on the first ply and ten inches (10") (250 mm) wide on the second ply.

8.08.1.6 Pitch Pans

- A. IKO does not recommend pitch pans as they constitute a maintenance item. Contact the IKO Technical Services Department for alternative flashing details. However, at times there is no other choice for flashing pipe clusters and unusual shaped projections. Note: IKO MS Detail can be used as a pitch pan filler or as a liquid flashing membrane in such cases. Consult IKO Technical Services for specific guidelines in such cases.

- B. Install wood nailers in accordance with Part 3- General Requirements. The wood nailers must completely support the pitch pan flange on the horizontal surface.
- C. Install the built-up roof plies as close around the penetration(s) as possible.
- D. The parts of the metal pan, as well as the penetration(s), that will come into contact with bituminous materials should be thoroughly cleaned and primed with an ASTM D 41 or CGSB 37-GP-9 IKO asphalt primer and allowed to dry.
- E. Set the flange of the pitch pan into a one-eighth of an inch (1/8") (3.2 mm) layer of roof cement. The layer of roof cement should be continuous and applied the entire width of the pitch pan flange. The metal flange is fastened three inches (3") (76 mm) on center in staggered fashion.
- F. Flash in the metal edge with two (2) plies of the appropriate roofing felts set in hot asphalt. The flashing felts should be eight inches (8") (200 mm) on the first ply and ten inches (10") (250 mm) wide on the second ply.
- G. Before filling the pitch pan, fill any holes around the penetration(s) with insulation. Fill the pitch pan with two to three inches (2" to 3") (50 mm to 76 mm) of roofing cement. The roofing cement should be worked into the pitch pan to ensure full contact with the penetration(s) and the sides of the pan and should be crowned for drainage. NOTE: IKO MS Detail is acceptable as a filler for this application.

8.08.1.7 Sheet Metal Flashing Installation

- A. Sheet metal shall conform to and be installed as noted in Part 3 General Requirements,
- B. Metal flanges for drip edges or gravel stops shall be a minimum of three and one-half inches (3 1/2") (90 mm) wide, overlap a minimum of three inches (3") (76 mm), and be fastened four inches (4") (100 mm) on center to wood nailers. All metal flashing overlaps shall be coated with an ASTM D 41 or CGSB 37-GP-9 IKO asphalt primer and a trowel grade cold adhesive.
- C. All metal flashing that comes into contact with asphalt or other bituminous materials shall be primed with an ASTM D 41 or CGSB 37-GP-9 IKO asphalt primer.
- D. Fasteners shall be of the same type of metal as the metal flashing material.
- E. Metal counter-flashing shall have a minimum four inches (4") (100 mm) vertical face with a minimum one-half inch (1/2") (12.7 mm) thirty (30°) degree bend drip edge. The bottom edge of the metal counter-flashing shall cover to the top of the membrane flashing by a minimum of four inches (4") (100 mm). Metal counter-flashing shall be fastened twelve inches (12") (300 mm) on center and skirt fasteners must be watertight.

8.09.1 Temporary Closures

- A. While the roof is under construction, temporary closures must be used to protect the finished roof system from infiltration of water during inclement weather.
- B. Reference Part 3 General Requirements, subsection 3.31.1 for recommendations regarding weather.

- C. The temporary tie-in material shall extend at least two feet (2') (610 mm) past the last course of insulation. The tie-in area must be clean, smooth, dry, and free of debris or contaminants. Install a continuous application of asphalt or roofing cement onto the substrate and the tie-in material. Embed the tie-in material into the asphalt or roofing cement and apply continuous compression over the length of the tie-in. If the temporary tie-in must remain for more than overnight, then it must be checked daily to confirm that it has remained sealed.
- D. Temporary tie-ins must be completely removed prior to continuing installation of the new roofing system.

8.10.1 Built-Up Roof Repair

- A. Use the following procedure to detect and repair deficiencies in the membrane application:
 - 1. Any large unsealed wrinkle or fishmouth must be cut so that the sheet lays flat and does not create a hump or void.
 - 2. The repair sections must extend a minimum of six inches (6") (150 mm) past the deficiency in two directions plus the full width of the ply sheet. Use the same materials as are used on the built up roof field area. At least two (2) plies are required if felts are used to make the repair.
 - 3. The new ply sheet must be fused to the existing ply sheet with hot asphalt without holes, voids or depressions.

8.11.1 Test Cuts

- A. Test cuts, if required, shall be performed as outlined in Part 3 General Requirements, subsection 3.30.1

8.12.1 Roof Walkways

- A. Roof walkways shall be installed as outlined in Part 3 General Requirements, subsection 3.27.1.
- B. Walkways can be constructed from IKO modified bitumen granulated cap sheet. The cap sheet can be hot asphalt or cold adhesive applied. Full adhesion is not necessary; however, care must be exercised on installation to ensure the protective cap remains in place during inclement weather.
- C. An additional layer of IKO modified bitumen cap sheet as walkway should be no longer than ten feet (10') (3 m). Leave approximately four inches (4") (100 mm) between each section to permit drainage.

8.13.1 Weather Precautions

- A. Reference Part 3 General Requirements, subsection 3.31.1 for information on recommendations.

End Of Section