

**FIRESTONE BUILT-UP ROOFING SYSTEMS  
APPLICATION GUIDE  
3/22/2013**

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### **2.01.1 GENERAL**

This Guide provides instructions for the installation of Firestone's BUR Roof Systems. Reference to the Design Guide, Technical Information Sheets (T.I.S.), and other sections of Firestone's Technical Documents is necessary to ensure that the finished roof system is installed in compliance with Firestone requirements. Extended warranties may require special considerations with regards to fasteners, insulations, flashing, and attachment requirements. Refer to the System Design Guide of this Technical Manual for specific requirements.

NOTE: If a proposed application falls outside this Guide contact your Coordinator at 800-428-4511 for additional information.

### **2.02.1 JOB SITE CONSIDERATIONS (CAUTION AND WARNINGS)**

- A.** Keep all adhesives, sealants and cleaning materials away from all ignition sources. Do not smoke while using these materials.
- B.** Consult container labels, Material Safety Data Sheets and Technical Information Sheets for specific safety instructions for all products used on the project.
- C.** Care must be used when installing fasteners to avoid possible conduits and other piping in and under the deck.
- D.** Occupied Buildings: The contractor shall take precautions to prevent the spread of fumes, dust, and debris, where such material may enter into the building. The roofing contractor shall provide labor and materials to construct, maintain and remove, as necessary, temporary enclosures to prevent fumes, dust, and debris in the construction area(s) from entering the building.
- E.** Store Firestone ply sheet rolls on end to protect them from becoming damaged. Do not stack B.U.R. rolls.
- F.** Insulation must be properly stored and protected from ignition sources, moisture and damage.
- G.** Cold weather:
  - 1. When the outside temperature is below 40 °F (4.4 °C), certain combinations of temperature and humidity may cause condensation on the surface of solvent-based adhesives and primers. If this condition occurs, discontinue the application. When the ambient air conditions no longer cause condensation on adhesive surfaces, re-apply additional adhesive or primer and proceed.
  - 2. The consistency of sealants, adhesives and primers will begin to thicken as the temperature drops and membrane will become stiff. To minimize this, the following is recommended:
    - a. Start work with sealants, adhesives, and primers that have been stored between 60 °F (15.5 °C) and 80 °F (26.7 °C). Insulated heated boxes may be helpful.
    - b. Complete test areas to determine if conditions will cause problems such as condensation with the application of the material.
    - c. Stop the operation or change to another warm container when material becomes too thick or stiff to properly apply.
  - 3. Do not use heat guns or open flames to dry adhesives and primers.
- H.** Follow all OSHA and NRCA provisions for fire protection.

## 2.03.1 ROOF SUBSTRATE PREPARATION

### A. Correct Substrate Defects:

1. Defects that need to be corrected before work can commence should be brought to the attention of the General Contractor and/or Building Owner in writing and addressed by them.
2. For re-roofing applications, remove existing roof system components as specified by the project designer. If components are discovered during installation that could be detrimental to the performance of the new roof system, they should be brought to the attention of the project designer for corrective action.
3. Good roofing practice requires a complete tear-off to the structural deck if soundness and integrity of the existing roof system cannot be verified. Recovering an existing roof system is an alternative to removing existing roof components. However, non-destructive testing, in conjunction with core cuts, must be completed to determine the condition of the existing roof system and decking.
4. The building owner or project designer is responsible for assuring that all wet insulation and/or wet substrate materials are removed prior to the commencement of re-roofing application. The diagnostic technique is taking and evaluating a series of roof cuts. There are three other techniques that are currently available to make this determination by indirect means:
  - nuclear moisture detection
  - infrared thermography
  - electric capacitance.
5. These techniques provide measurement of factors that can be associated with the presence of moisture, which can then be correlated to the roofing cuts to verify the results of the non-destructive testing.

### B. Remove Moisture:

Ponded water, snow, frost and ice must be removed from the work surfaces prior to installing a Firestone B.U.R. Roofing System.

### C. Prepare Surface:

Acceptable substrates to which the Firestone BUR Roofing System will be installed must be prepared prior to membrane installation. The surface must be relatively even, clean, dry, smooth, free of sharp edges, fins, loose or foreign materials, oil, grease and other materials that may damage the membrane. Rough surfaces that could cause damage to the membrane must be overlaid with insulation.

### D. Prime substrates as necessary:

Prime the substrates as necessary with ASTM D-41 primer, at a rate of 1-1/2 to 2 gallons per 100 square feet (0.61 to 0.82 L/sq. m)

### E. Fill Voids:

All surface voids of the immediate substrate greater than 1/4" (6.35 mm) wide must be filled with insulation or other appropriate material.

### F. Install Vapor Retarder (When Specified):

Install a vapor retarder as specified by the project designer.

## 2.04.1 WOOD NAILER LOCATION AND INSTALLATION

Wood nailers must be installed as specified by the project designer or as noted in Firestone Details and the System Design Guide. Install wood nailers as follows:

### A. Position Wood Nailer

Total wood nailer height must match the total thickness of insulation being used and should be installed with a 1/8" (3.2 mm) gap between each length and each change of direction.

**B. Secure Wood Nailer**

Wood nailers must be firmly fastened to the deck or building. Mechanically fasten wood nailers to resist a force of 200 lbf (890 N) in any direction, typically 12" (305 mm) o.c. Refer to attachment requirements as specified by the project designer.

**C. Taper Wood Nailer**

The wood nailer must be tapered (if applicable) so that it will always be flush at the point of contact with the insulation (refer to Firestone Details).

**D. Chemical Treating of Wood Nailer**

Do not use chemically treated wood that may affect the performance of the Firestone BUR membrane and accessories.

**E. Installation of Wood Nailers by Others**

Make these specifications and details available when nailers are to be installed by others. Work that compromises the integrity of the system may jeopardize the warranty for the project.

**2.05.1 INSULATION INSTALLATION**

**A. Install Insulation:**

Install only as much insulation as can be covered with roofing membrane and completed before the end of the day's work or before the onset of inclement weather.

**B. Fit Insulation:**

Neatly fit insulation to all penetrations, projections, and nailers. Insulation should be loosely fitted, with gaps greater than 1/4" (6.4 mm) filled with acceptable insulation. On metal decks, the edge of the board parallel with the roof deck should be completely supported. The membrane should not be left unsupported over a space greater than 1/4" (6.4 mm). Firestone recommends that Tapered insulation with acceptable facers for bonding be installed around roof drains so as to provide proper slope for drainage as shown in Firestone Details.

**C. Stagger Insulation Joints:**

When installing multiple layers of insulation, all joints between layers shall be staggered.

**2.05.1.1 Attach Insulation**

**A. Mechanical Attachment:**

Insulation may be attached using Firestone Insulation Plates and Fasteners. The choice of fastener type depends on the substrate. Contact your Technical Coordinator at 800-428-4511 for information.

1. Refer to the Firestone Codes Guide, and Technical Information Sheets for attachment patterns and insulation fastening rates.
2. When installing a multi-layer insulation assembly, the fastening pattern is determined by the type and thickness of the top layer of insulation and code requirements.
3. For proper performance, fasteners must be fully seated, but not overdriven. Insulation plates may cup if fasteners are overdriven.
4. Multiple layers may be installed using a common fastener.

**B. Asphalt Attachment:**

Insulation may be attached using a solid mopping of ASTM D 312 Type III or Type IV asphalt or Firestone SEBS Asphalt, except DensDeck. If asphalt attachment is desired for DensDeck products they must be installed in Type III asphalt as follows: "**Mopping asphalt temperature must not exceed 450 °F when mopping to DensDeck Prime. Use only ASTM D 312 Type III asphalt.**"

1. The insulation should be no larger than 4' X 4' (1.2 m X 1.2 m).
2. The substrate may require priming prior to installing the insulation. Refer to the Firestone Asphalt Design Guide for specific information.

3. The asphalt shall be at the manufacturer's stated Equiviscous Temperature (EVT) at the point of application.
4. Built-Up Roofing plies should be installed in 25 pounds/100 sq. ft (1.2 k/sq. m) +/- 15% of asphalt to ensure that complete adhesion and a monolithic structure are achieved.
5. Insulation boards should be walked in to ensure complete adhesion to the substrate.
6. Additional layers of insulation may be installed in the same fashion.

**C. Adhesive Attachment:**

1. Insulation may be attached using I.S.O. Fix™, I.S.O.SPRAY S™, I.S.O. Twin Pack™, I.S.O. Stick™ or LiquiGard™.
  - a. Apply the adhesive in accordance with the instructions provided with the product and Firestone Technical Information Sheets.
  - b. It may be necessary to prime the substrate prior to installing the insulation in adhesive.
  - c. If installing on a metal deck (where allowed by specification), the edge of the board parallel with the roof deck must be completely supported.
  - d. The insulation boards must be no larger than 4' X 4' (1.2 m X 1.2 m).
  - e. Insulation boards must be walked in to ensure complete adhesion to the substrate.
  - f. Additional layers of insulation may be installed in the same fashion, with joints staggered.

**2.06.1 CANT STRIP INSTALLATION**

Install non-combustible cant strips at all walls and curbs as required by the appropriate design specifications and details using hot asphalt, Firestone Multi-Purpose MB Flashing Cement, Firestone insulation adhesive or LiquiGard. Refer to the Firestone Asphalt Design Guide at [www.firestonebpc.com](http://www.firestonebpc.com) for additional information.

**2.07.1 BASE SHEET INSTALLATION**

**2.07.1.1 Hot Asphalt Attachment**

Base sheets may be attached to an appropriate substrate using ASTM D 312 Type III or IV asphalt or Firestone SEBS Mopping Asphalt. Refer to the on-line Asphalt Design Guide for suitable substrates and the appropriate Technical Information Sheets for product information. Adhesion asphalt must be applied at the manufacturer's stated EVT at the point of application. Align subsequent rolls, shingling the laps, maintaining a minimum 2" (50.8 mm) side lap and minimum 6" (152.4 mm) end lap and repeat the application.

**A. Solid Mopping**

1. Starting at the low point of the roof, align the base sheet and unroll into a solid mopping of hot asphalt.
2. With a stiff push broom, immediately broom the base sheet to ensure full contact with the asphalt.

**B. Spot Mopping**

Firestone does not approve spot mopping or ribbon mopping.

Note:

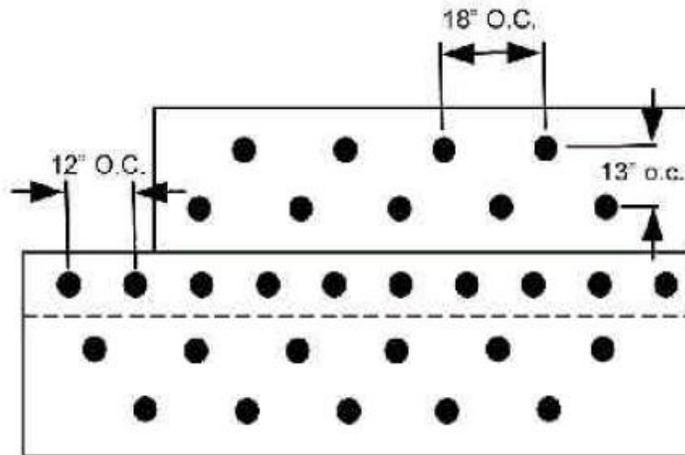
1. Firestone recommends that a half sheet be used as the first course to ensure that the base sheet laps and the cap sheet laps are not atop one another.
2. Do not install base or ply sheets directly to polyiso Insulation with hot asphalt. Base sheets can be mechanically attached. A Firestone FiberTop, SECUROCK or DensDeck coverboard may be installed over Firestone ISO 95+ polyiso insulation before the base sheet is installed.

### 2.07.1.2 Mechanical Attachment

Starting at the low point of the roof, align the base sheet, unroll and allow the sheet to relax prior to attaching. Begin attachment at one end and work towards the other end, keeping the roll tight and wrinkle free. Align subsequent rolls, shingling the laps and maintaining a minimum 3" (76.2 mm) side lap and a minimum 6" (152.4 mm) end lap. Stagger all end laps.

#### 2.07.1.2.1 Base Sheet Attachment

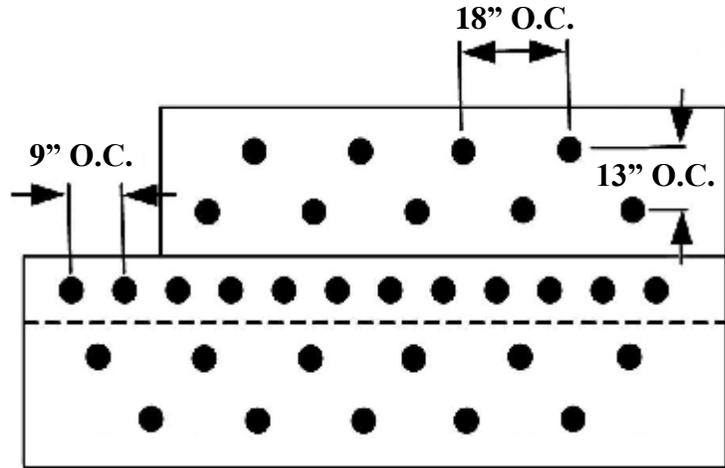
- A. Using Firestone insulation plates and fasteners, base sheets may be attached through insulation into the deck.
- B. Firestone fasteners may be used to install base sheets direct to a deck. When fastening base sheets direct to poured-in-place concrete, wood, gypsum, cementitious wood fiber, or lightweight concrete decks, refer to the on-line Design Guide for information on the proper fastener to be used with a particular deck type. Contact your Technical Coordinator at 800-428-4511 for specific information.
- C. Direct-to-deck attachment of Firestone base sheets and cap sheets used as base sheets must be mechanically attached 12" (304.8 mm) o.c. in the side and end laps and 18" (457.2) o.c. in two staggered rows in the field of the sheet. Each row shall be 13" (330.2 mm) (approx.) in from the sides of the base sheet. See diagram below.



This attachment pattern applies to all Firestone base sheets and cap sheets used as base sheets.

#### 2.07.1.2.2 Fasten Base Sheet Using Cap Nails

- A. Using cap nails with 1" (25.4 mm) diameter steel heads, base sheets may be attached to plywood, wood plank, and oriented strand board decks. The base sheet must be mechanically attached with cap nails specified by the project designer at 9" (228.6 mm) o.c. in the side and end laps and 18" (457.2 mm) o.c. in two staggered rows in the field of the sheet.
- B. Each row shall be 13" (330 mm) in from the sides of the base sheet.
- C. Cap nails cannot be used to attach insulation, attach a base sheet through an existing insulated roof, attach a base sheet over a gravel surfaced built-up roof, or through a smooth surfaced un-insulated built up roof.
- D. The fasteners used to attach base sheet must be manufactured for the particular deck type. Refer to the diagram below.



### 2.07.1.2.3 Fasten Base Sheet Using Specialty Fasteners

Using nail-in type fasteners and plates, base sheets may be attached to gypsum, cementitious wood fiber or lightweight insulating concrete decks. The base sheet must be mechanically attached with fasteners as specified by the project designer and the fastener manufacturer. Nail-in fasteners cannot be used to attach insulation, attach a base sheet through an existing insulated roof, attach a base sheet over a gravel surfaced built-up roof, or through a smooth surfaced built-up roof. The fasteners used to attach base sheet must be Factory Mutual Approved and manufactured for the particular deck type.

### 2.07.1.3 Cold Adhesive Attachment

Starting at the low point of the roof, install base sheet in a uniform application of Firestone Multi-Purpose MB Cold Adhesive. Align subsequent rolls, shingling the laps, maintaining a minimum 3" (76.2 mm) side lap and minimum 6" (152.4 mm) end lap and repeat the application.

1. Lay out the first base sheet by unrolling and aligning into final position.
2. Re-roll the sheet halfway and apply MB Cold Adhesive to the substrate with an airless sprayer or a 1/4" (6.4 mm) notched neoprene squeegee at a rate of 1-1/2 to 2 gallons per 100 square feet (0.6 to 0.8 L/sq. m). Some substrates may take more adhesive depending on the porosity and texture of the surface.
3. Roll the base sheet into the adhesive and broom into place.
4. Re-roll the other half and install using the same process.
5. Install additional base sheets in the same fashion, assuring that the application of the Multi-Purpose MB Cold Adhesive is applied fully in the lap areas as well.

### 2.07.1.4 Lap Base Sheets

Base sheets must be lapped a minimum of 2" (50.8 mm) for side laps when hot steep asphalt applied and 3" (76.2 mm) for side laps when mechanically attached, or applied in Firestone Multi-Purpose MB Cold Adhesive. End laps must be minimum 6" (152.4mm). In all cases, an offset of 12" (304.8 mm) minimum must be maintained between the side and end laps of the base sheet and the cap sheet.

## **2.08.1 INSTALLATION of METIRC PLY SHEETS**

### **2.08.1.1 General**

- A. Install each ply felt in a full mopping of ASTM D 312 Type III (3) or Type IV (4) asphalt or IV CSA A123.4 Type III (3) or Type IV (4) or Firestone SEBS Mopping Asphalt. Install each ply felt so that it will be set firmly and uniformly into the asphalt without voids.
- B. Do not walk on freshly laid BUR felts.
- C. The asphalt temperature at the point of application must be within 25 °F of the EVT.
- D. Apply adhesion asphalt uniformly at a rate of 25 lb per 100 sq. ft. ± 15%. Broom-in all ply sheets as they are installed.
- E. Maintain a 2" (50.8 mm) headlap plus or minus 1/4" (6.4 mm) to assure the correct number of plies at any given point of the roof membrane. Maintain a minimum overlap of 12 inches (304.8 mm) at roll end laps.

### **2.08.1.2 Three-Ply Installation**

Starting from the low point of the roof, apply a full 39.4" width of Firestone Ply IV or Ply VI . Apply a second layer of Ply felt 12 ½ " (317 mm) up from the lower edge of the first ply. Apply a final full width of ply felt 12 ½ " (317 mm) up slope from the edge of the second ply in a shingle fashion so that at least three plies cover the entire roof surface. Extend Ply IV or Ply VI sheets 2" (51 mm) above the top of the cant as illustrated by Firestone Details.

### **2.08.1.3 Four-Ply Installation**

Starting from the low point of the roof, apply a 9 3/8" (238 mm) width of Firestone Ply IV or Ply VI sheet, followed by an 18 3/4" (476 mm) width and a 28 1/8" (714 mm) width directly over each other. Apply remaining ply sheets in full 39" (1 m) widths in a shingle fashion so that at least four plies cover the entire roof surface. Extend Ply IV or Ply VI sheets 2" (51 mm) above the top of cants as illustrated by Firestone Details.

## **2.09.1 FLASHING**

### **2.09.1.1 General**

- A. All flashing must be completed using Firestone SBS Membrane and any additional membrane layers as required by Firestone Details.
- B. Remove existing flashings (i.e. metal, bituminous, mastic, etc.).
- C. Flash penetrations in accordance with the appropriate Firestone Details (MB-P-1 through MB-P-6).
- D. The flashing seal must be made directly to the penetration (except as shown in details with metal sleeves).
- E. Details may be flashed with Firestone SBS and Multi-Purpose MB Flashing Cement, LiquiGard Adhesive or with UltraFlash.

### **2.09.1.2 FLASHING - Walls, Parapets, Mechanical Equipment Curbs, Skylights, Gravel Stops, and Roof Edges**

- A. Flashing shall be installed in accordance with Firestone Details using Firestone SBS Flashing sheets (hot asphalt or Multi-Purpose MB Flashing Cement), SBS Torch Grade or Firestone UltraFlash Liquid Flashing.
- B. The following substrates require an overlayment of 1/2" (12.7 mm) exterior grade plywood mechanically fastened and covered with an approved, mechanically attached base sheet.
  - Gypsum board (except 1/2" (12.7 mm) DensDeck Prime or 1/2" SECUROCK Gypsum-Fiber)
  - Stucco
  - Textured masonry
  - Corrugated metal panels
  - Other uneven substrates

- C. Install the required base ply to the mechanically attached base.
- D. After the base sheet and field membrane have been installed, cut flashing sections from the appropriate Firestone SBS Cap Sheet as necessary. Flashing sections shall be of a size that will not allow cooling of adhesion asphalt before they can be placed into final position. Flashing must extend a minimum of 6" (152.4 mm) onto the field membrane.

**Note:**

When torching to a granule surfaced sheet, granules must be embedded before a lap is made. Granule embedment is required prior to constructing end laps, base flashings, base tie-ins and membrane repairs. Granule embedment, on the receiving surface can be accomplished by heating the surface and troweling-in all granules until a uniform black surface coated with compound is achieved in the lap area. Any area of the sheet not protected by a granule surface can be dressed with additional granules. Specialty tools are available that aid in the embedding of the granules. Contact your Technical Coordinator at 800-428-4511 for additional information.

**2.09.1.3 Install Metal Flash AL**

**A. METAL FLASH-AL Application to Masonry.**

Flash masonry parapet walls and curbs using Firestone SBS Poly Torch Base and Firestone Metal Flash-AL. The Firestone SBS Poly Torch Base reinforcing strip shall have minimum three (3) inch side laps and extend a minimum of six (6) inches onto the base ply surface and three (3) inches on the parapet wall above the cant in accordance with Firestone detail MB-BT-14.

1. Torch apply an SBS Poly Torch Base reinforcing sheet, fully adhering it in place. The laps of Firestone Metal Flash-AL flashing layer and the lap seams in the SBS Poly Torch Base reinforcing layer must not coincide.
2. After the final roofing ply has been applied to the top of the cant prepare the surface area of the field sheet that is to receive flashing sheet by heating the granule surface and embedding the granules.
3. Torch apply Firestone Metal Flash-AL into place using three foot widths always lapping the factory selvage edge. Extend the flashing sheet a minimum of six (6) inches beyond the toe of the cant onto the prepared surface of the finished roof and up the wall to the desired flashing height.
4. Exert pressure on the Firestone Metal Flash-AL sheet during application to ensure complete contact with the wall/roof surfaces preventing air pockets; this can be accomplished by using a damp sponge or shop rag. Check and seal all loose laps and edges. Nail the top edge of the flashing on 8 inch (203 mm) centers.

**B. METAL FLASH-AL APPLICATION - WOOD SURFACES.**

Flash wood or plywood parapet walls and curbs using a Firestone SBS Poly Torch Base reinforcing sheet followed by a layer of Firestone Metal Flash-AL flashing membrane. Firestone SBS Poly Torch Base reinforcing sheet shall have minimum three (3) inch side laps and extend a minimum of three (3) inches onto the base ply surface and to the top of the parapet wall curb etc.

1. Mechanically fasten an approved base sheet to the vertical wood surface on twelve (9) inch centers from the top of the cant to top of wall curb etc.
2. Fully adhere SBS Poly Torch Base that extends over the cant and on to the field of the roof.
3. After the final roofing ply has been installed, prepare the field sheet surface area that is to receive flashing by heating granular surfaces and embedding granules.

4. Torch apply the Firestone Metal Flash-AL into place using three foot widths always lapping the factory selvage edge. Extend the flashing sheet a minimum of six (6) inches beyond the toe of the cant onto the prepared surface of the finished roof and up the wall to the desired flashing height.

5. Exert pressure on the Firestone Metal Flash-AL sheet during application to ensure complete contact with the wall/roof surfaces preventing air pockets; this can be accomplished by using a damp sponge or shop rag. Check and seal all loose laps and edges. Nail the top edge of the flashing on nine (9) inch centers.

#### **2.09.1.4 Special Consideration for Copper/Lead Coated Copper Edging**

Special cleaning techniques must be used to prepare the metal surface to which the Firestone membrane will be adhered. Firestone requires the cleaning with acetone or lacquer thinner, using clean cotton cloths. After the surface has dried, apply ASTM D-41 asphalt primer at approximately one (1) gallon per 100 square feet (0.4 l/m<sup>2</sup>). Allow the primer to dry before installing the Firestone membrane.

### **2.10.1 PENETRATION FLASHINGS**

#### **2.10.1.1 General**

- A. Remove all existing flashings (i.e. metal, bituminous, mastic, etc.).
- B. Flash all penetrations which pass through the membrane in accordance with Firestone Details MB-P-1 through MB-P-6.
- C. The flashing seal must be made directly to the penetration (except as shown in details with metal sleeves).

#### **2.10.1.2 Roof Drains**

These guidelines apply for installation of cast iron drains only. For acceptability of other drain types contact Firestone Roof Solutions Department and Firestone Details MB-D-1 and MB-D-2.

- A. Remove existing flashings (including metal flashings), roofing materials and cement from the existing drain
- B. Provide a clean even finish on the mating surfaces between the clamping ring and the drain bowl.
- C. Install tapered insulation around the drain to provide a smooth transition from the roof surface to the drain. Slope should not exceed 1" per foot (8.3%).
- D. Install the base sheet. Cut an opening in the base sheet so that it stops short of the clamping ring area.
- E. Extend the Field Base Sheet down the bowl into the clamping ring. Do not allow base sheet laps into the clamping ring.
- F Fully adhere the lead flashing in a continuous layer of Firestone Multi-Purpose MB Flashing Cement, and prime the top surface with ASTM D 41 asphalt primer.
- G. .Install interply sheet(s) appropriate to the desired warranty.
- H. Extend the field membrane down the drain sump and into the drain bowl.
- I. Make round holes in the membranes and align with clamping bolts.
- J. Install the roof drain clamping ring and clamping bolts. Tighten the clamping bolts to achieve continuous compression.

#### **2.10.1.3 Pipe Clusters and Unusual Shaped Penetrations**

Fabricate and secure penetration pockets in accordance with Firestone Detail MB-P-8.

#### **2.10.1.4 Pipes**

##### **A. Pipes:**

Many pipe penetrations can be flashed with a Firestone UltraFlash Liquid Flashing in accordance with Firestone Detail MB-P-7.

##### **B. Hot Pipes:**

Protect the roofing components from direct contact with steam or heat sources when the in-service temperature is in excess of 180 °F (82.2 °C). In all such cases, flash to an intermediate "cool" sleeve in accordance with Firestone Detail MB-P-9.

#### **2.10.1.5 Scuppers**

- A. Remove existing scupper and provide a new welded watertight scupper.
- B. Flash wall in accordance with Firestone Specification Detail MB-S-1 or MB-S-2.
- C. Set welded watertight scupper in the approved Firestone adhesive and secure to the structure.
- D. Flash in accordance with Firestone Details .MB-S-1 or MB-S-2

#### **2.10.1.6 Expansion Joints/Area Dividers**

Install expansion joints and roof dividers in accordance with Firestone Specification Details MB-E-1 through MB-E-4 as appropriate.

### **2.11.1 GRAVEL SURFACING AND COATINGS**

#### **2.11.1.1 Gravel Surfacing**

For every 100 sq. ft of roof surface, install approximately 500 lb (24.4 kg/sq. m) of roofing gravel or 400 lb (19.5 kg/ sq. m) of slag (both + 25%) applied directly over a 60 lb per 100 ft.<sup>2</sup> (2.9 kg/sq. m) ± 15% flood coat of Type III or Type IV asphalt or Firestone SEBS Mopping Asphalt. No more asphalt must be spread or poured at one time than can be covered with gravel or slag before the asphalt cools. Gravel, slag or other accepted surfacing material shall comply with ASTM D 1863 and be 1/4" (6.4 mm) to 3/4" (19.1 mm) in diameter, substantially opaque, dry, free from dust or other foreign materials.

#### **2.11.1.2 Application of Firestone Aluminum Fibered Roof Coating**

1. If the system is to be coated, Firestone Aluminum Fibered Roof Coating may be applied from 30 to 90 days after the application of the B.U.R. membrane. Note that if the membrane is coated immediately, there may be some staining of the coating but this should disappear within about two months.
2. Substrate must be clean, dry and free of foreign materials such as oil, grease, and contaminants. If coating an existing weathered surface, the surface should be cleaned with pressure washers to remove loose dirt and allowed to dry.
3. Mix contents thoroughly to insure complete dispersion of aluminum pigments.
4. Apply at 60 °F (15.5 °C) or above, with no forecast of rain within 24 hours.
5. Use directly from the container and DO NOT THIN.
6. Pour Firestone Aluminum Fibered Roof Coating out of the container in small amounts and brush in parallel strokes to form an even layer. Over-brushing causes some of the aluminum sheen to lessen, reducing reflective qualities. Repeat as necessary to insure complete coverage. The coverage needed.
7. Coverage varies depending on the surface texture.
8. Replace and secure the cover of the can when not in use.
9. The Firestone Aluminum Fibered Roof Coating must be regularly maintained to ensure continuing warranty coverage.

**Precautionary Information:**

1. Firestone Aluminum Fibered Roof Coating is combustible and must be kept away from fire and other sources of ignition during storage
2. Always keep ample fire extinguishing equipment near any area of application.
3. Avoid skin contact and inhalation of vapors. Always work in well-ventilated areas with proper clothing and safety equipment.
4. Occupied Buildings: The contractor shall take precautions to prevent the spread of fumes, dust, and debris, where such material may enter into the building. The roofing contractor shall provide labor and materials to construct, maintain and remove, as necessary, temporary enclosures to prevent fumes, dust, and debris in the construction area(s) from entering the building.
5. Do not thin Firestone Aluminum Fibered Roof Coating.
6. Review all Material Safety Data Sheets prior to using Firestone Aluminum Fibered Roof Coating.
7. Store all unopened containers at room temperature, 60 °F (15.5 °C) to 80 °F (26.6 °C), until ready for use.

**2.11.1.3 Application of Firestone Acrylic Coating System for Asphalt**

The Firestone Acrylic Coating System for Asphalt is a two-coat system consisting of a first coat of Firestone Acrylic Base Coat for Asphalt followed by a second coat of Firestone AcryliTop PC-100 top coat.

- A. It is essential that the Base Coat be applied on glaze coated BUR surfaces, as it is this coat that ensures good adhesion to asphaltic substrates and long-term performance of the two-coat system.
- B. Substrates must be clean, dry and free of foreign material and contaminants. Install the Firestone Asphalt Roof System in accordance with all current Firestone specifications.
- C. Roof inspection by Firestone, with subsequent repairs and re-inspection, is required prior to application of the Firestone Acrylic Coating System for Asphalt if a warranty is required.
- D. The membrane surfaces must be clean, dry, and free of foreign material and contaminants prior to the Acrylic Base Coat for Asphalt application.
- E. The membrane surface will require additional cleaning in the areas where dirt has accumulated due to ponding water.
- F. Clean soiled areas with a mild detergent and water. Rinse the area thoroughly and allow it to dry before the application of the coating.
- G. Apply Acrylic Base Coat for Asphalt in a one-coat application to achieve a minimum coverage rate of 1 gallon per hundred (100) square feet (0.4 m<sup>2</sup> /L) on glaze coated BUR membranes.
- H. Coatings can be spray or roller to achieve the proper coverage rate.
- I. Allow Acrylic Base Coat for Asphalt to dry 24 hours before applying an AcryliTop PC-100 top coat. Dry time depends on ambient air conditions.
- J. Inspect the application to assure that complete coverage of the membrane is achieved. Apply additional Acrylic Base Coat for Asphalt to areas with incomplete coverage.

**B. Firestone AcryliTop PC-100**

- A. A top coat of AcryliTop PC-100 is applied in exactly the same manner as the Base Coat, at a minimum coverage rate of one gallon per 100 square feet (0.4 m<sup>2</sup> /L).
- B. Inspect the application to assure complete coverage of the membrane. Apply additional AcryliTop PC-100 top coat to areas where complete coverage has not been achieved.
- C. Coverage will be visually obvious as the AcryliTop PC-100 top coat is white, tan, or gray and will be covering the yellow tint of the Acrylic Base Coat for Asphalt.
- D. Allow the AcryliTop PC-100 top coat to dry 24 hours before allowing traffic on the roof.

- E. The coating must be regularly maintained to ensure any continuing warranty coverage and may be required to ensure continuing fire or all other code approvals.

**Precautionary Information:**

1. Do not contaminate the coating with foreign materials.
2. DO NOT apply the acrylic products when ambient air temperatures will be below 45 °F (7.2 °C) within a 24-hour period after application.
3. Do not apply acrylic products when inclement weather is expected within 24 hours.
4. Do not expose acrylic products to temperatures greater than 140 °F (60 °C) or lower than 33 °F (0.6°C).
5. Do not thin Firestone acrylic products.
6. Recommended cleaner is water.
7. It is recommended that periodic inspections of the roof system be conducted by the owner, with the subsequent re-application of Firestone White Acrylic Coating System to areas that may need touch-ups. Where the asphalt surface is exposed, it will be necessary to re-apply a coat of Acrylic Base Coat for Asphalt before re-applying the AcryliTop PC-100 top coat.
8. Review Material Safety Data Sheets prior to using Acrylic Base Coat for Asphalt and AcryliTop PC-100 top coat.

**2.12.1 PLY SHEET REPAIR**

When necessary to repair the ply sheets, use the following criteria:

- A. A wrinkle or fishmouth must be cut and laid flat, so as not to create a hump or void, and repaired with a section of Firestone Ply Sheet installed in hot asphalt and equal to the number of plies cut out.
- B. If the repair is due to a puncture in the membrane system, repair the area by installing a minimum of 4 plies of Firestone Ply IV or Ply VI sheets in hot asphalt over the affected area.

**2.13.1 TEMPORARY CLOSURE**

A. Temporary closures must be used to prevent water from flowing beneath the roofing system during inclement weather.

1. The roof membrane must extend at least two (2) feet (609.6 mm) over the last row of insulation (where applicable).
  2. Apply a continuous layer of asphalt or roofing cement onto the substrate and the membrane edge. Mating surfaces must be smooth, clean, dry and free of any loose foreign material and gravel.
  3. Firmly embed roof membrane into the asphalt or roofing cement and provide continuous pressure over the length of the cut-off by using sufficient weight.
- B. The closure described in A. above is an overnight tie-in only and is not intended for long-term use. If temporary tie-in must remain for more than one day's time, it must be checked on a daily basis to assure the tie-in remains sealed and reworked if necessary.
  - C. Refer to Firestone's acceptable tie-in detail when long-term tie-ins are necessary.
  - D. Temporary tie-ins must be completely removed providing a clean surface for the new roofing system.
  - E. Tie-ins, either temporary or permanent, are not warranted by Firestone.

**2.14.1 ROOF WALKWAYS**

Install asphalt composition walk pads as specified by the project designer. Walk pads shall be fully bonded to the roof surface in a full mopping of asphalt or heat welded with appropriate membrane.

### **2.15.1 SHEET METAL WORK**

- A. For specific installation instructions for Firestone Sheet Metal, refer to the Asphalt System Design Guide.
- B. For sheet metal work not supplied by Firestone, refer to fabrication and installation requirements specified by the project designer as well as industry standards.

END OF SECTION