Insulation Attachment

• Mechanical fasteners

• Asphalt

• Adhesives
Mechanical Attachment
Observer Items - Mechanical Attachment

**Fastener placement**

- Fastener placement as well as type and number determine uplift resistance
- Make sure base layer thickness has not changed
- Fasteners must engage top flange (this requirement is waived for recover roofing by FM)
Fig. 3. Fastener placement 2 x 4 ft (0.6 x 1.2 m) boards.
Observer Items
Insulation Screws and Plates

• Correct Manufacturer to achieve wind rating

• Should be driven with clutch controlled driver – make sure screws are not over or under driven
Heat Loss through Fasteners
Observer Items Cover Board

- Correct type, thickness
- Observe staggered joints, both directions
Asphalt Attachment
Observer Items Asphalt Attachment

• Correct type of bitumen, Type III or IV
• Place in hot bitumen
• Walk in and walk in again
• 4’ x 4’ maximum size limitations with many insulations
Adhesive Attachment
Observer Items Adhesive Attachment

- Size of beads
- Bead spacing
- Lineal feet of bead per board
- Manufacturer’s warranty requirements
- 4’ x 4’ maximum board size limitations with many insulations
Membrane

• Built-up membrane (BUR)
• Single-ply
• Modified bitumen
• Metal roofing
• Polyurethane foam (PUF)
Built-Up Membrane

- Bitumen
- Roofing felts or reinforcements
- Cold-applied BUR systems
Bitumen

• Asphalt
• Coal tar
• Rubberized (modified) asphalt
  • APP
  • SBS
  • SEBS
• Cold applied asphalt
Bitumen

Asphalt

Coal Tar
Identifying Asphalt versus Coal Tar Pitch

• Solvent test – mineral spirits
• Asphalt floats in saltwater
• Smell while burning or when fresh
Asphalt Checks

• Proper type, slope requirements
• EVT temperature
• Handling characteristics
• EVT application of +/- 25°F (13.9 °C), batch specific
• Provides uniform coverage and adhesion
• Do Not Exceed Flash Point
• Do not hold at 500°F (260°C) for more than 4 hours
• ASTM D312 – Standard specification or Asphalt used in Roofing
Roofing Felts

• Asphalt saturated organic felt
• Coal tar saturated organic felt
• Asphalt impregnated glass felt
• Coal tar-impregnated glass felt
• Nonwoven Polyester felt
Multiple Plies
Observer Items

Bitumen Displacement

Caused by displacing bitumen between plies
  • Traffic on membrane while bitumen is hot
  • Setting hot bucket on BUR

Most prevalent with glass felts because of stiffness
Bitumen Displacement
Bitumen Displacement Results
Stay Off the Felts
Mechanical Installation
Assure Adhesion/Embedment
Assure Adhesion/Embedment
BUR Membrane
Flashing

- Membrane base flashing
- Metal flashing / Counterflashing
- Flashing details are integral
- Flashing materials must be
  - Flexible
  - Compatible
  - Resistant to traffic and natural damage
  - Durable and weather resistant
Base Flashing

Metal Parapet Cap (Coping and Base Flashing)

NOTE:
These are suggested roofing details. Please consult the roofing membrane manufacturer for final recommendations.
Base Sheet Flashing
Cap Sheet Flashing
Termination Bar

- Weep Tube
- Polyurethane Caulk
- Sealing Mastic
- Acceptable Fastener and Sealing Washer
  6" (150mm) O.C. or as required to maintain a seal to the substrate
- Termination Bar
  (1/4" (8mm) gap between sections)
- Membrane
- Acceptable Substrate
Metal Counterflashing
Expansion Joints Raised Profile
Expansion Joints Zero Profile
Expansion Joints Zero Profile