SECTION 07 54 19
THERMOPLASTIC PVC MEMBRANE ROOFING
IB ROOF SYSTEMS FULLY ADHERED PVC SINGLE PLY MEMBRANES

Part 1 GENERAL

1.0 SECTION INCLUDES

A. IB Roof Systems Fully Adhered, (Smooth or Fleece Backed) Polyester- Reinforced Thermoplastic PVC Roofing Membrane
B. Cover Board
C. Thermal Roof Insulation
D. Flexible Membrane Flashings
E. Metal Flashings
F. IB Roof Systems Accessories

1.1 RELATED SECTIONS

A. Section 03 30 00 Cast-In-Place Concrete
B. Section 03 40 00 Precast Concrete
C. Section 03 51 13 Cementitious Wood Fiber
D. Section 03 51 16 Gypsum Concrete
E. Section 03 52 00 Lightweight Insulating Concrete Roof Insulation
F. Section 05 30 00 Metal Decking
G. Section 06 10 00 Rough Carpentry
H. Section 07 25 00 Weather Barriers
I. Section 07 60 00 Flashing and Sheet Metal
J. Section 07 70 00 Roof and Wall Specialties and Accessories
K. Section 08 60 00 Roof Windows and Skylights
L. Section 22 14 00 Facility Storm Drainage

1.2 REFERENCES

A. American Society of Civil Engineers (ASCE):
   1. ASCE 7; Minimum Design Loads for Buildings and Other Structures. Revision as adopted by local code and Authority Having Jurisdiction.
B. ASTM International (ASTM):
   1. ASTM C208: Standard Specification for Cellulosic Fiber Insulating Board
   2. ASTM C578: Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation
   3. ASTM C1177: Standard Specification for Glass Mat Gypsum Substrate for Use as Sheathing
   4. ASTM C1278: Standard Specification for Fiber-Reinforced Gypsum Panel
   5. ASTM C1289: Standard Specification for Faced Rigid Cellular Polyisocyanurate Thermal Insulation Board
   6. ASTM D4263: Standard Test Method for Indicating Moisture in Concrete by the Plastic Sheet Method
   7. ASTM D4434: Standard Specification for Poly (Vinyl Chloride) Sheet Roofing
   8. ASTM E96: Standard Test Methods for Water Vapor Transmission of Materials
   9. ASTM E108: Standard Test Methods for Fire Tests of Roof Coverings.
C. Factory Mutual (FM Approvals / Roof Nav.):
   1. Factory Mutual Standard 4450: Approval Standard for Class 1 Insulated Steel Decks
   2. Factory Mutual Standard 4470: Approval Standard for Class 1 Roof Covers
   3. Loss Prevention Data Sheets 1-28, 1-29
D. Underwriters Laboratories (UL):
   1. UL 790: Standard Test Method for Fire Tests of Roof Coverings
E. International Code Council (ICC)
   1. International Building Code (IBC)
   2. International Residential Code (IRC)
F. CAN / CGSB 37.54-95

G. ANSI / SPRI / FM4435 / ES-1: Wind Design Standard for Edge Systems Used with Low Slope Roofing Systems, Revision as adopted by local code and AHJ.
H. Roof Consultants Institute (RCI): Glossary of Roofing Terms.
I. National Roofing Contractors Association (NRCA): Low Slope Roofing and Waterproofing Manual, Current Edition.
J. Sheet Metal and Air Conditioning Contractors National Association, Inc. (SMACNA): Architectural Sheet Metal Manual.

1.3 DESIGN CRITERIA

A. Provide installed roofing system that remains watertight, resists specified uplift pressures and exposure to normal weathering conditions without failure. Roofing materials and accessories shall be tested and compatible for use within the assembly, installed in accordance with manufacturer requirements.
B. Building Code Compliance: The roofing assembly shall comply with the requirements of the local building code and authorities having jurisdiction.
C. Fire Resistance Performance: Class _____ (A, B, C) external fire classification as tested in accordance with ASTM E108 or UL 790.
D. Wind Uplift Performance: Roof system shall be designed and installed to withstand wind uplift pressures as calculated using ASCE 7, revision as adopted by the authorities having jurisdiction.
   1. Roofing system shall be tested by a qualified testing agency to resist the following design pressures:
      a. Field of Roof: _____ psf
      b. Perimeter Zone: _____ psf
      c. Corner Zone: _____ psf
   2. Perimeter and corner areas shall receive supplemental fastening in accordance with IB specifications, project design and applicable building code requirements to meet pressures calculated under ASCE 7.
   3. Factory Mutual Approval (FM Projects Only): Roof system shall be installed in accordance with Class 1 or noncombustible construction in compliance with requirements of Factory Mutual Global FM 4450 and FM 4470.
      a. Fire Hazard Classification: Class _____ (A, B or C)
      b. Wind Uplift Classification: FM Class_____
      c. Hail Resistance: _____ Severe Hail (SH) or Moderate Hail (MH)
E. Roof System Reflectivity and Thermal Performance: Provide installed roofing system that complies with the following thermal performance and reflectivity requirements:
   1. Provide roof assembly to achieve a minimum total R-value of ____.
   2. Roof membrane shall be tested in accordance with ANSI / CRRC-1 Standard and comply with the following minimum reflectivity and emissivity requirements:
      a. Minimum Initial Reflectance: _____
      b. Minimum 3 year Aged Reflectance: _____
      c. Initial SRI (Solar Reflectance Index): _____
      d. Energy Star: Initial solar reflectance of 0.65 with 3 year aged reflectance of .50 or greater.
      e. Roof system shall comply with the requirements of California Title 24.

1.4 ENVIRONMENTAL AND GREEN CONSTRUCTION DESIGN REQUIREMENTS

A. Roof system shall comply with the following Environmental and Sustainable Design requirements:
   1. United States Green Building Council LEED Certification Program
      a. Roof system shall be installed to achieve the following required LEED credits: _____
   2. Green Building Initiative Green Globes Certification
      a. Roof system shall be installed to achieve the following Green Globes Rating System Certification points:_____

1.5 SUBMITTALS

A. Submit product data, samples, shop drawings and installer certification under provisions of Division 1 General Requirements; Section 01 30 00.
B. Product Data: Submit product data sheets indicating membrane materials, base flashing, insulation, separator/ thermal insulation, accessories and manufacturer's installation instructions and details including:
   1. Product Data Sheets
   2. Material Safety Data Sheets

3. Roof assembly installation instructions and recommendations
4. Required storage and handling recommendations
5. Sample of Manufacturer's Warranty
6. Manufacturer recommended Maintenance Program Data
7. Submit certification from manufacturer of membrane roofing system certifying the installer is authorized by the manufacturer for installation of the specified roofing system and eligible to obtain the required Manufacturer's Warranty.

C. Detail Drawings:
1. Provide roof system elevation, section, plan, attachment and construction detail drawings showing methods, components, flashing conditions and location of work on the project.
2. Submit shop drawings of tapered insulation system for approval; show direction and amount of slope, cricket locations, lengths and details.

D. Verification Samples: Submit a quantity of _____ samples for each product specified. Submit 6" x 9" PVC membrane samples in the specified color for approval.

1.6 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum 20 years documented experience.

B. Installer Qualifications:
1. Company specializing in the installation of thermoplastic roofing and all products included in this section with minimum five years documented experience.
2. Installer must be authorized by the manufacturer and eligible to provide the required Manufacturer's Warranty.
3. Installer must provide an adequate number of experienced workers, trained in jobsite safety practices and skilled in the use of hot air welding equipment and the installation of materials and flashings used in the construction of the roofing assembly.
4. Installer shall provide a project supervisor on the job at all times while work is in progress.

C. Application of Roofing: Work of this section shall conform to contract documents and manufacturer specifications. No deviations shall be made from this specification without the approval of the designer of record. Deviations from published manufacturer requirements require review and approval of the designer of record and written approval from the manufacturer on manufacturer's letterhead, signed by an authorized technical manager of the company. Where discrepancies exist, the Installer shall promptly notify the design professional, project engineer or owner for resolution prior to commencing work.

D. Materials: Provide only top quality materials of manufacturer complying with specification requirements. All materials shall be provided by the primary roofing system manufacturer or approved for use in conjunction with installation of the roofing assembly.

E. Manufacturers Final Inspection: Manufacturer's technical representative shall conduct a final inspection upon completion of projects requiring a Manufacturer's Total System Warranty covering workmanship and material to determine if the assembly is in compliance with manufacturer requirements for issuance of the warranty. A punch list of defective work and conditions requiring repair shall be provided to the installer for correction.

1.7 PRECONSTRUCTION CONFERENCE

A. Preconstruction Conference: A pre-roofing conference will be held in accordance with the contract documents at least one week prior to initiation of roofing work. Manufacturer representative, foreman for roofing contractor, estimator for roofing contractor, architect, owner representative, sheet metal contractor, general contractor and other required parties should be present to discuss the execution of the work.

1.8 DELIVERY, STORAGE AND HANDLING

A. Materials and equipment stored on the roof must be properly staged and supported to avoid damage and / or permanent deflection of deck. Spread loads of roofing materials on roof structures to avoid damage to existing structure. Use protective plywood as required. No material storage or construction traffic shall be allowed over new roofing unless properly protected to prevent damage and contamination on the finished roofing.

B. Follow manufacturer's recommendations for environmental conditions and product storage. Bonding adhesives shall be stored at temperatures above 40º F. Materials shall be stored and maintained within manufacturer's published temperature ranges.

C. Storage and disposal of hazardous materials shall comply with the requirements of local authorities having jurisdiction.

1.9 PROJECT CONDITIONS

A. Precautions: Install roofing only when adequate application temperatures exist to maintain a satisfactory roofing system application. Apply no insulation or membrane adhesives to the substrate or roofing membranes when deck surface temperatures are less than the recommended application temperature range stated on the products labels, or printed literature. Install no roofing material when water in any form is present on roof deck or substrate surface, or when materials are damp or wet. Proceed with roofing work only when existing and forecasted weather conditions will permit work to be performed in accordance with manufacturer's recommendations and warranty requirements.
B. Temporary Roofing: Install watertight seals to protect work when adverse job conditions or weather conditions prevent permanent roofing and associated work from being installed in accordance with project requirements. Consult the designer of record and the primary roofing manufacturer regarding installation and removal of temporary roofing.
C. Install new roofing to be complete and watertight by the close of each day's work.
D. Avoid exposure of combustible materials to ignition source and follow all safety and handling cautions, warnings and recommendations for safe handling of materials. Material Safety Data Sheets shall be maintained at the jobsite, during transport and storage at all times.
E. Moisture: Do not proceed with installation where potential exists for condensation or uncontrolled moisture migration into the roof system from construction-related moisture or installation over moisture bearing substrates or interiors without adequate ventilation and moisture control.
F. All work shall be performed in accordance with applicable federal, state and local requirements, codes and safe work practices. Use of roof assembly adhesives, sealants, caulks and related accessory materials shall conform to the requirements and VOC limits of the Authority Having Jurisdiction.

1.10 WARRANTY

A. Contractor Warranty: Contractor shall warrant roofing assembly components, accessories and associated work of this section against leaks or defective workmanship from date of substantial completion.
   1. Term of Warranty _____ years [two, five]
B. Manufacturer's Limited Material Warranty: Submit executed copy of roofing manufacturer's (Commercial Limited Material, Warranty Plus Limited, Lifetime Residential Limited Material) warranty on materials from date of substantial completion.
   1. Term of Warranty _____ years [ten, fifteen, twenty, twenty-five]
C. Manufacturer's Total System Warranty: Submit executed copy of roofing manufacturer's Total System Warranty against leaks due to defective materials or workmanship according to its standard published coverage, terms and conditions from date of substantial completion.
   1. Term of Warranty _____ years [ten, fifteen, twenty, twenty-five]

Part 2 PRODUCTS

2.0 MANUFACTURERS

A. Acceptable Manufacturer: IB Roof Systems, 8181 Jetstar Drive, Suite 150, Irving, Texas 75063
   Toll-free: 800-426-1626
   Fax: 541-610-1726
   Email: technical@ibroof.com
   Website: www.ibroof.com
B. Substitutions: Not permitted.
C. Substitution Requests: Submit in accordance with Section 01 60 00.

2.1 SCOPE / APPLICATION

A. Roof System: Provide a waterproof roof system manufactured and supplied or approved by the primary roofing materials manufacturer as specified in this section.
   1. Fully Adhered Membrane: IB Roof Systems Specification _____ is the basis of design for the roofing assembly.

B. Base Flashing: Provide waterproof base flashing assemblies and flashings at all penetrations, vertical walls, curbs and terminations.
C. Thermal Roof Insulation: Provide roof insulation components as specified herein, secured to the substrate in accordance with IB Specifications and the performance requirements of this section.

2.2 POLYVINYL CHLORIDE (PVC) MEMBRANE

A. Roof Covering: Provide IB PVC Single Ply Roofing Membrane with non-wicking polyester fiber reinforcement conforming to ASTM D4434, Type III. Flashings and accessories shall be factory-manufactured or approved by IB Roof Systems coordinated with the specified membrane and finish color.
   1. Membrane Type:
      a. Smooth Back
      b. Fleece Back
   2. Color: _____
      a. White
      b. Cool Sand
      c. Tan
      d. Gray
      e. Red
      f. Brown
      g. Evergreen
   3. Membrane Thickness: 50 mil nominal
      a. Breaking strength (ASTM D751): 332 MD / 256 CD lbf
      b. Tearing strength (ASTM D751): 54 MD / 68 CD lbf
      c. Elongation at break (ASTM D751): 34% MD / 29% CD
      d. Field sheet width: 72 inches
      e. Length: 90 feet
   4. Membrane Thickness: 60 mil nominal
      a. Breaking strength (ASTM D751): 371 MD / 308 CD lbf
      b. Tearing strength (ASTM D751): 58 MD / 72 CD lbf
      c. Elongation at break (ASTM D751): 34% MD / 29% CD
      d. Field sheet width: 72 inches
      e. Length: 90 feet
   5. Membrane Thickness: 80 mil nominal
      a. Breaking strength (ASTM D751): 408 MD / 388 CD lbf
      b. Tearing strength (ASTM D751): 62 MD / 78 CD lbf
      c. Elongation at break (ASTM D751): 34% MD / 29% CD
      d. Field sheet width: 72 inches
      e. Length: 60 feet
B. Roof Covering: Provide IB ChemGuard™ PVC Single Ply Roofing Membrane manufactured with Elvaloy® and non-wicking polyester fiber reinforcement conforming to ASTM D 4434, Type III flashings and accessories shall be factory manufactured or approved by IB Roof Systems, coordinated with the specified membrane and finish color.
   1. Membrane Type:
      a. Smooth Back
   2. Color: _____
      a. White
   3. Membrane Thickness: 50 mil nominal
      a. Breaking strength (ASTM D751): 332 MD / 256 CD lbf
      b. Tearing strength (ASTM D751): 54 MD / 68 CD lbf
      c. Elongation at break (ASTM D751): 34% MD / 29% CD
      d. Field sheet width: 72 inches
      e. Length: 90 feet
   4. Membrane Thickness: 80 mil nominal
      a. Breaking strength (ASTM D751): 408 MD / 388 CD lbf
      b. Tearing strength (ASTM D751): 62 MD / 78 CD lbf
      c. Elongation at break (ASTM D751): 34% MD / 29% CD
      d. Field sheet width: 72 inches
      e. Length: 60 feet

2.3 INSULATION

A. Polyisocyanurate: Rigid thermal roof insulation board with fiber reinforced facers on both sides meeting or exceeding the requirements of ASTM C1289.
   1. IB Energy Board II supplied by IB Roof Systems
      a. Board Size: _____
         I. 4’ x 4’
         II. 4’ x 8’
      b. Minimum Thickness: _____
      c. Minimum R-Value: _____
      d. Compressive Strength: 20 psi

B. Polyisocyanurate: Rigid thermal, tapered roof insulation board with fiber reinforced facers on both sides meeting or exceeding the requirements of ASTM C1289.
   1. Tapered IB Energy Board II supplied by IB Roof Systems
      a. Board Size:_____
         I. 4’ x 4’
         II. 4’ x 8’
      b. Minimum Slope per Foot: _____
         I. 1/8”
         II. 1/4”
         III. 1/2”
      c. Minimum Starting Thickness: _____
      d. Minimum Average R-Value: _____
      e. Compressive Strength: 20 psi

C. Polyisocyanurate: Rigid thermal roof insulation board with fiberglass facers on both sides meeting or exceeding the requirements of ASTM C1289.
   1. IB Energy Board III supplied by IB Roof Systems
      a. Board Size: _____
         I. 4’ x 4’
         II. 4’ x 8’
      b. Minimum Thickness: _____
      c. Minimum R-Value: _____
      d. Compressive Strength: 20 psi

D. Polyisocyanurate: Rigid thermal, tapered roof insulation board with fiberglass facers on both sides meeting or exceeding the requirements of ASTM C 1289.
   1. Tapered IB Energy Board III supplied by IB Roof Systems
      a. Board Size: _____
         I. 4’ x 4’
         II. 4’ x 8’
      b. Minimum Slope per Foot: _____
         I. 1/8”
         II. 1/4”
         III. 1/2”
      c. Minimum Starting Thickness: _____
      d. Minimum Average R-Value: _____
      e. Compressive Strength: 20 psi

E. High Density Polyisocyanurate Cover Board: Rigid thermal, high density roof insulation board with coated fiberglass facers on both sides meeting or exceeding the requirements of ASTM C1289, Type II, Class 4, Grade 1.
   1. Atlas ACFoam®-HS CoverBoard supplied by IB Roof Systems
      a. Board Size: _____
         I. 4’ x 4’
         II. 4’ x 8’
      b. Minimum Thickness: 1/2”
      c. Minimum Average R-Value: 2.5
      d. Compressive Strength: 80 – 110 psi

F. Gypsum Fiber Roof Board: Moisture resistant, fiber reinforced gypsum roof board with integral water resistant core conforming to the requirements of ASTM C1177 or ASTM C1278.
   1. Securock® Gypsum-Fiber Roof Board supplied by IB Roof Systems

a. Board Size: _____
   I. 4’ x 4’
   II. 4’ x 8’
b. Board Thickness: _____
   I. 1/4”
   II. 3/8”
   III. 1/2”
   IV. 5/8”
c. Minimum R-Value: _____

G. Gypsum Roof Board with Glass Mat Facer: Standard or pre-primed, moisture-resistant gypsum board with silicone treated core and embedded fiberglass facer on both sides conforming to the requirements of ASTM C1177.
   1. DensDeck® Prime Roof Board supplied by IB Roof Systems
      a. Board Size: _____
         I. 4’ x 8’
      b. Board Thickness: _____
         I. 1/4”
         II. 1/2”
         III. 5/8”
      c. Minimum R-Value: _____

H. Expanded Polystyrene (EPS): Rigid, closed cell foam insulation conforming to the requirements of ASTM C 578.
   1. Insulfoam EPS insulation supplied by IB Roof Systems.
   2. Cellofoam EPS insulation supplied by IB Roof Systems.
      a. Board Size: _____
         I. 4’ x 8’
      b. Board Thickness: _____
      c. Minimum R-Value: _____
      d. Board Type: _____
         I. Type II: Density 1.35 pcf; Compressive Strength: 15 psi min.
         II. Type IX: Density 1.80 pcf; Compressive Strength: 25 psi min.

2.4 INSULATION ADHESIVE

A. Two Component Insulation Adhesive: Two-component, low-rising expanding polyurethane adhesive designed for bonding layers of rigid roof insulation to various substrates using a factory supplied, dual cartridge applicator.
   1. IB Rapid Set Insulation Adhesive by IB Roof Systems.
   2. OMG OlyBond Spot Shot supplied by IB Roof Systems.

B. Insulation Adhesive Primer: All-purpose water-based primer designed for use with IB Rapid Set Insulation Adhesive over existing prepared asphalt Built-Up, Modified Bitumen and Metal roofs. Red tint for identification of primed surfaces.
   1. Millennium Universal Primer supplied by IB Roof Systems.

2.5 MEMBRANE FLASHINGS AND ACCESSORIES

A. Flashing Detail Membrane: Non-reinforced 60 mil thermoplastic PVC flashing and detailing membrane.
   1. IB N.R. Detail Flashing Membrane

B. T-Joint Patches: Reinforced PVC T-Joint flashing cut into 5” diameter circular targets for reinforcing lap intersections in membrane and flashings.
   1. IB Round T-Joint Patch
   2. IB Round T-Joint Patch ChemGuard™

C. Inside Corners: Dielectrically welded, factory-manufactured 60 mil non-reinforced inside corner flashing for non-canted 90° corners.
   1. IB Inside Corner

D. Outside Corners: Dielectrically welded, factory-manufactured 60 mil non-reinforced outside corner flashing for non-canted 90° corners.
   1. IB Outside Corner

E. Pipe and Conduit Flashings: Dielectrically welded, factory manufactured PVC flashing with reinforced membrane base and 60 mil PVC upper flashing used for pipe penetrations.
   1. IB PVC Single Ply Cone Flashing
      a. Type: _____
         I. Short A: 1/4" to 1"
         II. A: 1" to 2-1/2"
         III. B: 2-1/2" to 4"
         IV. C: 4" to 8"
         V. D: 7-1/2" to 10"
         VI. E: 10" to 14"
   2. IB PVC Single Ply Split Cone Flashing
      a. Type: _____
         I. Short A: 1/4" to 1"
         II. A: 1" to 2-1/2"
         III. B: 2-1/2" to 4"
         IV. C: 4" to 8"
         V. D: 7-1/2" to 10"
         VI. E: 10" to 14"
   3. IB PVC Single Ply 0.25 Cone Flashing
      a. Oval
         I. Size: _____ (4" flashings)
      b. Round
         I. Size: _____ (4", 6" or 8" flashings)
   4. IB PVC Single Ply ChemGuard™ Cone Flashing
      a. Type: _____
         I. Short A: 1/4" to 1"
         II. A: 1" to 2-1/2"
         III. B: 2-1/2" to 4"
         IV. C: 4" to 8"
         V. D: 7-1/2" to 10"
         VI. E: 10" to 14"
   5. IB PVC Single Ply ChemGuard™ Split Cone Flashing
      a. Type: _____
         I. Short A: 1/4" to 1"
         II. A: 1" to 2-1/2"
         III. B: 2-1/2" to 4"
         IV. C: 4" to 8"
         V. D: 7-1/2" to 10"
         VI. E: 10" to 14"
   6. IB PVC Single Ply ChemGuard™ 0.25 Cone Flashing
      a. Oval
         I. Size: _____ (4" flashings)
      b. Round
         I. Size: _____ (4", 6" or 8" flashings)

F. Penetration Pocket Flashings: Factory-manufactured split PVC clad metal flashing with reinforced membrane base used for pitch pan penetrations.
   1. IB PVC Single Ply Split Pitch Pan Flashing
      a. Size: _____
         I. 4" x 4" x 4"
         II. 6" x 6" x 4"
         III. 8" x 8" x 4"
   2. IB PVC Single Ply ChemGuard™ Split Pitch Pan Flashing
      a. Size: _____
         I. 4" x 4" x 4"
         II. 6" x 6" x 4"
         III. 8" x 8" x 4"

G. Vents: One and two way PVC molded roof vents manufactured from heavy duty, UV-stabilized PVC with factory welded reinforced membrane target patch bases.

1. 5” Two Way Recover Vent
   a. IB PVC Single Ply Recover Membrane Vent
   b. IB PVC Single Ply ChemGuard™ Recover Membrane Vent
2. 8” Two Way Roof Vent
   a. IB PVC Single Ply 8” Roof Vent
   b. IB PVC Single Ply ChemGuard™ 8” Roof Vent
3. 8” One Way Roof Vent
   a. IB PVC Single Ply 8” One Way Roof Vent
   b. IB PVC Single Ply ChemGuard™ 8” One Way Roof Vent

H. PVC Clad Metal Scuppers: Factory-fabricated, custom sized through wall scupper manufactured from 24 gauge G90 galvanized, PVC clad metal with IB 0.060 non-reinforced membrane flashing.
   1. IB Custom Clad Metal Through-Wall Scupper

I. Walkway Pad: Calendared and embossed 80 mil puncture resistant, heat weldable gray PVC walk tread for use with IB Roof Systems in 3’ x 60’ rolls.
   1. IB WalkTread™

2.6 CLEANERS, PRIMERS, ADHESIVES AND SEALANTS

A. Water-Based PVC Bonding Adhesive: Water-based membrane adhesive designed for onesided, fully adhered application of IB Roof Systems Single Ply membranes to approved horizontal substrates.
   1. IB Water Borne Adhesive

B. Solvent-Based PVC Bonding Adhesive: Solvent-based membrane adhesive designed for two-sided, fully adhered contact adhesion of IB Roof Systems Single Ply membranes to approved vertical and horizontal substrates.
   1. IB Vertibond Adhesive

C. Water Cut-Off Mastic: Butyl-based one-component mastic used for temporary night seals and as a compression sealant between IB membrane and flashings to applicable substrates.
   1. IB Water Stop

D. Polyurethane Caulk Sealant: One part polyurethane sealant suitable for sealing upper lip of exposed termination bars and around upper edge of penetration clamping rings, meets or exceeds ASTM C920;
   1. Solar Seal #900 Terpolymer Rubber Adhesive / Sealant by NPC supplied by IB Roof Systems.

E. One Part Pourable Penetration Sealant: One part pourable sealant suitable for filling pitch pans at irregularly-shaped penetrations.
   1. Chemlink 1-Part Pourable Sealer supplied by IB Roof Systems.

F. Self-Adhered Vapor Retarder Primer: Solvent-based primer with enhanced resins and polymers for use over prepared substrates to improve self-adhered membrane adhesion to a variety of substrates.
   1. Elastocol Stick Primer supplied by IB Roof Systems
   2. Elastocol Stick Zero Primer supplied by IB Roof Systems

2.7 SEPARATION SHEETS, FIRE SHEETS AND VAPOR RETARDERS

A. Polyester Separation / Protection Sheet: Non-woven polyester UV-stabilized mat, used as a separation sheet beneath membranes, or as a protection layer over membranes in ballast-applied and overburden assemblies.
   1. IB Poly Separator Sheet (7’ 6” x 360’)
   2. IB HD Poly Separator Sheet (7’ 6” x 150’)

B. Separation Sheet: High-strength, polypropylene scrim reinforced fabric with polypropylene coating both sides used as separation sheet beneath membranes to resist contaminant, residue transfer and moisture from existing substrates.
   1. IB Separator Sheet (5’ 10” x 515’)

C. Fire Sheet: Fire resistant glass fiber mat used as a separation sheet over polystyrene foam insulation or beneath insulation over wood substrates.
   1. IB Fire Sheet 10 (4’ x 250’)

D. Vapor Retarder: Self-adhered SBS-modified bitumen vapor retarder for steel, concrete, plywood and approved insulated substrates with tri-laminated woven polyethylene top surface and integral release film on bottom.
   1. Sopravap’r supplied by IB Roof Systems (3’ 7” x 133’)

2.8 FASTENERS

A. HD Fasteners: Heavy duty gauge alloy steel fastener with corrosion resistant e-coating and .232 inch diameter thread: Factory Mutual Standard 4470 approved #3 Phillips truss head for use on approved decks.
   1. IB HD #14 Roofing Fastener
B. XHD Fasteners: Heavy duty gauge alloy steel fastener with corrosion resistant e-coating and .263 inch diameter thread: Factory Mutual Standard 4470 approved #3 Phillips truss head for use on approved decks.
   1. IB XHD #15 Roofing Fastener
C. Standard Fasteners: Standard gauge alloy steel fastener with corrosion resistant e-coating and .228 inch diameter thread: Factory Mutual Standard 4470 approved #3 Phillips truss head for use on approved decks.
   1. IB SD #12 Insulation Fastener
D. Concrete Fasteners: Hammer-in, non-threaded fastener designed to secure insulation and membrane to structural concrete. Alloy steel fastener with a corrosion resistant e-coating and .239 inch shank diameter.
   1. Dekspike Fastener supplied by IB Roof Systems
E. Barbed Seam Plate: Galvalume, barbed fastening plate used with IB HD #14 and IB XHD #15 Roofing Fasteners for securement and termination of IB membranes at penetrations and perimeter walls or edges.
   1. IB 2-3/8" Barbed Seam Plate
   2. IB 2" Barbed Seam Plate
F. Insulation Plate: Galvalume-coated steel insulation plates used with IB SD #12, HD #14, XHD #15 and DekSpike Roofing Fasteners to attach approved separator sheets, rigid insulation and cover boards to approved substrates below IB membranes.
   1. IB 3" Galvalume Insulation Plate
G. Batten Bar: 1" Galvalume Steel or Polymer Batten Bar with pre-punched holes used inseam or through membrane with cover strip on IB membranes.
   1. IB Heavy Duty Steel Batten Bar
   2. IB Polymer Batten Bar

2.9 EDGINGS AND TERMINATIONS

A. PVC Clad Metal Edge: 24 gauge G90 corrosion resistant galvanized steel laminated to 0.045 PVC non-reinforced cladding, formed into Drip Edge or Gravel Stop Metal termination and supplied by IB Roof Systems.
   1. IB PVC Clad Drip Edge (3" deck flange, 10' lengths)
      a. Face Size: _____
         I. 2"
         II. 3"
         III. 4"
         IV. 5"
      b. Color: _____
         I. White
         II. Bronze
   2. IB PVC Clad Gravel Stop with 3/4" Raised Edge (3" deck flange, 10' lengths)
      a. Face Size: _____
         I. 2"
         II. 3"
         III. 4"
         IV. 5"
      b. Color: _____
         I. White
         II. Bronze
B. PVC Termination Bar: 24 gauge G90 corrosion resistant galvanized steel laminated to 0.045 PVC non-reinforced cladding formed into termination bar with angled lip caulk receiver and lower him stiffener.
   1. IB PVC Clad Termination Bar (2" x 10' lengths)
      a. Color: _____
         I. White
         II. Bronze
C. PVC Coated Metal: 24 gauge G90 corrosion resistant galvanized steel sheets laminated to 0.045 PVC non-reinforced cladding used in the fabrication of PVC flashings.
   1. IB PVC Clad Metal (4' x 10' sheets).
      a. Color: _____
         I. White

II. Bronze

D. Aluminum Termination Bar: Extruded aluminum bar with angled lip caulk receiver and lower leg bulb stiffener. Pre-punched holes at 6" o.c.
   1. IB Aluminum Termination Bar (1" x 10' lengths)
E. Pre-Manufactured Two Piece Edge Metal System: Two-part edge metal assembly with a rigid 20 gauge galvanized steel retainer/clip base plate with 9/32" pre-punched holes, 12" o.c. and decorative 24 gauge Kynar 500 coated snap on fascia cover in 10' lengths. Optional availability in formed / extruded aluminum.
   1. IB 155 Fascia
   2. IB 110 Fascia
   3. IB Snap Fascia
F. Pre-Manufactured Snap Coping: Three piece coping assembly with mill finish Aluminum or pre-coated 24 gauge galvanized metal with Kynar 500 finish snap coping cap, concealed splice plate and rigid 16 or 20 gauge galvanized steel hold down cleat / chair.
   1. IB Snap-On Coping
   2. IB 155 Snap-On Coping

Part 3 EXECUTION

3.0 EXAMINATION

A. Prior to roof installation, inspect substrates to ensure all penetrations, drainage outlets and flashings are in place and ready to receive roofing.
B. Roof deck and flashing substrates must be clean, dry and properly secured. Existing substrates, flashings or materials scheduled for re-use must be carefully inspected and properly prepared to ensure they are suitable for incorporation into the new roof system, free of defects, contaminants or moisture.
C. Examine substrates for deterioration, defects and entrapped or excess moisture. Wet or deteriorated decking shall be replaced or repaired prior to start of work. Fastener and / or adhesive pull tests should be conducted to confirm adequate condition and acceptable performance of decking.
D. Review work plan to avoid excess loading of roof areas during material transport, temporary storage, or during installation. Protect building components and fixtures from damage during work.

3.1 PREPARATION

A. All surfaces shall be cleaned and primed where required prior to installation.
B. Avoid construction traffic or work by other trades over completed roof sections. Where unavoidable, install adequate and secured temporary protection with tarps, plywood and / or layers of protective sheathing or insulation to avoid contamination and physical damage.
C. Proper deck and substrate preparation is the responsibility of the contractor or building owner. Review manufacturer recommended preparation requirements and methods for specific project conditions and materials.
D. Equipment, penetrations and supports scheduled for demolition or renovation should be completed prior to the start of work.
E. Confirm flashing details, terminations and penetrations have adequate height or clearance to receive roofing materials and comply with manufacturer requirements.
F. Review decking and substrates for the presence of above or below deck conduit, equipment, fixtures or structural elements that may interfere with roof installation.
G. Recover and reroofing installations require careful preparation and examination of existing decking, substrates, terminations, flashings, rooftop equipment and supports. Qualified review by a design professional is recommended where air or vapor retarders are present or required, where high interior humidity or cold storage conditions are present, or where potential exists for condensation to occur below or within the roof assembly.
   1. Inspect and clean all substrate surfaces to remove contaminants, bituminous materials, mastics, sealants, coatings, previous roofing and incompatible materials. Make ready to receive new roofing materials.
   2. Prepared roof deck surfaces retaining excess contaminant or incompatible materials. Make ready to receive new roofing materials.
   3. Remove and replace areas of deteriorated decking. Steel decking exhibiting rust shall be inspected for condition and suitability to receive new materials. Repair areas of minor rusting with a rust inhibitor coating.

4. Existing vertical surfaces at walls and curbs retaining excess contaminant or incompatible materials require separation from new materials with a layer of plywood / OSB sheathing or approved cover board. IB separation sheet may be used for separation of existing substrates at mechanically attached base and wall flashings.
5. Replace all deteriorated or damaged decking, supports, drains, sheet metal and wood blocking or nailers. Inspect drainage outlets for proper operation; replace broken or stripped drain bolts.
6. Existing flashings, membranes, integrated sheet metal, drain leads and related accessories must be removed at perimeter edges, terminations and penetrations. Confirm flashing substrates and conditions conform with IB Flashing Details and requirements.

H. Re-roofing Installation: Remove all existing roof system components including ballast, surfacing/overburden materials, membranes, insulations, fasteners / anchors, flashings, sheet metal, copings, counterflashings, and penetration flashings.
1. Visual observation and fastener pull tests should be performed to confirm performance of the deck to meet IB Roof Systems and project requirements and may be required for issuance of IB Total System Warranties.
2. Direct adhesion of thermal insulation to existing substrates with bituminous or other material residue requires field uplift testing to confirm adequate adhesive and insulation securement.

I. Recover Installation: Do not install roofing over existing roof assemblies or substrates containing moisture. Moisture surveys are recommended prior to installation of recover materials to avoid infiltration of moisture into or beneath the new roof assembly.
1. Review existing roof system type and materials for compatibility and manufacturer's required separation or preparation prior to installation of new materials.
2. Existing adhered and mechanically attached single ply membranes left in place must be cut on 10' centers in both directions. IB Mechanically Attached and Ballasted Roof Systems may be installed directly over approved and prepared existing roof systems with use of approved IB Separation or Fire Sheets in accordance with IB Specifications and Construction Details. Fully adhered IB Recover Roof Systems require a minimum layer of approved IB roof insulation or recover board mechanically attached or adhered to the prepared existing roof.
3. Visual observation, uplift testing and fastener pull tests should be performed to confirm adequacy of attachment of existing roof assembly and performance of the deck to meet project requirements and may be required for issuance of IB Total System Warranties.
4. Direct adhesion of IB roof insulations or approved IB PVC Fleece back membranes to prepared existing roof systems and substrates requires field uplift testing to confirm adequate adhesive and insulation securement. In-seam, cover bar or plate-bonded mechanically attached and loose-laid ballasted roof membranes are not acceptable for direct adhesion of IB recover roof systems.
5. Install IB One-Way Roof Vents at the rate of 1 per 1000 square feet over existing insulated or lightweight insulating concrete roof assemblies.

3.2 SUBSTRATE PREPARATION

A. Structural Concrete Deck:
1. Deck shall be finished to a smooth uniform surface free of sharp edges, ridges and irregular surfaces with minimum thickness of 4 inches.
2. Sumps where provided for roof drains shall be cast into the deck.
3. Cracks in excess of 1/8" in width must be repaired in accordance with the deck manufacturer's recommendations.
4. Roof deck shall be dry, free of frost or surface moisture and permitted to cure 28 days before start of roof system application. Underside shall be open and designed to allow adequate ventilation for drying with form materials removed.
5. Composite form concrete decks, decks with painted, insulated or other condition restricting underside drying require review by IB Technical Services.
6. Primers, when used, must be allowed to dry prior to the application of insulation adhesive and balance of the roofing system.
7. Field uplift resistance testing of insulation adhesives is recommended to confirm acceptable roof system attachment and adhesive performance.

B. Steel Deck:
1. Minimum 22 gauge cold-formed steel decking with G-90 galvanized or minimum finish coat of primer paint on both sides. Galvanized steel decking where appropriate to project design criteria is recommended.

2. Inspect and repair areas of surface corrosion in accordance with deck manufacturer's recommendations. Replace damaged or deflected panels and deteriorated areas, securing loose or inadequately attached decking.
3. Install adequate support and framing at new and existing openings in deck.
4. Comply with applicable building code, deck manufacturer and/or project required Factory Mutual gauge and span requirements in the current FM Approval Guide and Loss Prevention Data Sheets 1-28 and 1-29.

C. Wood Plank:
1. Wood boards shall be kiln-dried with tongue and groove or shiplap long dimension edges, minimum 1" nominal thickness with nominal 4" to 6" minimum width.
2. Lumber shall be dry, properly stored against weather and covered with the roofing assembly in a timely manner after installation.
3. Boards shall be securely fastened with ends bearing on rafters or joists.
4. Cover knotholes, and cracks greater than 1/4" with sheet metal securely fastened into position.

D. Plywood Deck:
1. Plywood sheathing shall be not less than 15/32" thick, minimum 4-ply construction conforming with C-D, Exposure 1 grade.
2. Install deck over joists spaced 24" o.c. or less. Install deck with all sides bearing on and secured to joist and cross blocking.

E. Oriented Strand Board:
1. OSB Sheathing shall be not less than 7/16" thick, conforming with PS 2-10, Exposure 1, Structural 1 grade material.
2. Install deck over joists spaced 24" o.c. or less. Install deck with all sides bearing on and secured to joist and cross blocking.

F. Lightweight Insulating Concrete Decks (LWIC):
1. Lightweight Insulating Cellular Concrete decks shall be minimum 2" thick over approved steel or concrete form deck with minimum compressive strength of 200 psi and density of 22 pcf or greater.
2. Lightweight fill shall be tested and confirmed dry, certified by the deck manufacturer and installer, and ready to receive roofing material.
3. Fastener withdrawal testing (pull tests) are required prior to project acceptance by IB Roof Systems. Retrofit LWIC applications and roof applications over existing LWIC decks require the written prior approval of IB Technical Services.
4. Frozen decks are not acceptable and must be replaced. Remove and replace any wet areas of existing or new decks that exhibit entrapped or excess moisture and allow to dry prior to start of roofing.

G. Cementitious Wood Fiber:
1. Minimum panel thickness of 2" secured to supports in accordance with deck manufacturers requirements to resist uplift and lateral movement
2. Grout and level deflections and irregularities between panels to provide a level, smooth deck. Offsets, deflection or deteriorated panels shall be repaired or replaced prior to start of work.
3. Protect panels from weather during storage and application.
4. Composite deck panels containing EPS/XPS polystyrene insulation are not suitable for use with solvent-based roof system adhesives.

3.3 WOOD NAILERS

A. Wood Nailers: Install #2 or better solid wood nailers where required by project and manufacturer details. Minimum 1/2" plywood may be used in conjunction with solid wood nailers to fully shim or match insulation height.
1. Nailers should be nominal 4" to 6" in width extending approximately 1/2" beyond perimeter metal edge flanges; mechanically secured to resist expected wind and other loads at perimeter edges and corners. Secure nailers with fasteners approved for the substrate using a minimum of two fasteners per nailer. Fastener spacing should not exceed 48" o.c. into structural concrete, cement filled masonry or structural steel / wood framing; and 12" o.c. into steel or wood decking determined adequate for expected loads, beginning approximately 4" in from each end. Reduce fastener spacing at corner areas by one-half.
2. Where two or more nailers are required, attach second nailer to first sufficient to resist design loads with corrosion resistant fasteners installed a minimum of 12" o.c. staggered and 6" o.c. staggered within corner areas.

3.4 VAPOR RETARDER

A. Where required by project details and conditions, install an IB approved vapor retarder assembly over the prepared substrate, thermal barrier or minimal thickness of approved insulation board. Installation shall conform to the vapor retarder manufacturer, IB Roof Systems and applicable assembly approval and regulatory requirements. Surfaces to receive a vapor retarder shall be smooth, clean and dry; primed where required with a primer approved by the vapor retarder manufacturer and IB Roof Systems. Allow primer to dry prior to membrane application.
B. Seal all side and end laps, terminations and penetrations to form a weather-tight, permanent seal. Coordinate vapor retarder installation, detailing and integration into other building envelope components and / or existing vapor / air barrier assemblies. Prior to roof system installation, IB recommends the building owner, design professional and installer confirm project design, roof assembly and associated detail requirements including wind resistance, adequate thermal resistance and insulation, and the provision of adequate ventilation where project conditions require use of a vapor retarder.

3.5 SEPARATION AND FIRE SHEETS

A. Where required by project details, install one or more layers of IB Fire Sheet 10, IB Separator Sheet, IB Poly or HD Poly Separator Sheets over the prepared substrate. Install separation and fire sheets in conformance with project design, regulatory and IB specification requirements.
B. Lap sheets a minimum of 2” on sides and ends. Where two layers are required, install the second layer with all side and end laps offset a minimum of 12” from the first course. Fasten installed separation sheets with approved IB fasteners and 3” Galvalume Insulation plates as required to hold in position.
C. Fully adhered roof membrane and flashing applications require IB separation and fire sheets to be set below a minimum layer of approved IB thermal insulation or cover board.

3.6 THERMAL BARRIERS

A. Install one layer of approved thermal barrier board over the prepared deck where required by local code, UL fire rated assembly or applicable roof system approval listing. For combustible decks, install one layer of UL classified minimum 1/2” gypsum board, 1/4” DensDeck or 1/4” Securock gypsum board over the substrate.
B. Thermal barrier board joints shall be staggered in one direction and offset a minimum of 6” from all joints in underlying plywood decks. Secure thermal barrier boards with approved fasteners in accordance with the requirements of the approved IB Roof System assembly.

3.7 INSULATION PLACEMENT

A. Set insulation over the substrate with board edges fitted uniformly and closely together. Install insulation boards over steel decks with long dimension edges parallel to and bearing on ribs. Avoid joints or gaps greater than 1/4” and fill gaps in excess of 1/4” with matching insulation material. Offset board joints a minimum of 12” in one direction from preceding course. For multiple layer installations, all joints must be staggered and offset both horizontally and vertically from preceding courses and layers.
B. Do not install wet, damaged or warped insulation boards.
C. Where insulation board thickness is greater than 3” insulation should be installed in two layers.
D. Fit and miter cut board edges at crickets, valleys, hips, ridges and other changes in plane to provide a smooth transition and surface without voids. Install boards flush to the substrate, edges fully supported or bearing on deck ribs to avoid puncture or breakage.
E. Install sumps with minimum 1/2” per foot factory tapered insulation panels at drains to provide a minimum 36” x 36” or larger sump area.
F. Fasten or adhere roof insulation with IB Roof Systems approved insulation fasteners and stress plates, or IB insulation adhesive in accordance with IB specifications and project requirements.
G. Do not install any more insulation than will be completely waterproofed each day.
H. Enhance the perimeter and corner areas with additional fasteners or rows of adhesive in accordance with manufacturer requirements and the International Building Code (ASCE 7) or ANSI/SPRI WD-1.

3.8 INSULATION ATTACHMENT

A. Adhered Insulation Attachment to Structural Concrete and Approved Existing Roofs: Install IB insulation in approved IB insulation adhesive to the roof deck, approved existing asphaltic smooth or granule surfaced roof; or over mechanically attached base layers of insulation in accordance with IB specifications. Insulation attachment shall meet or exceed IB Roof Systems requirements. Comply with design uplift pressures calculated under ASCE 7 and as required by local building codes or the Authority Having Jurisdiction.

1. Insulation layers installed in approved IB insulation adhesive shall be limited to maximum 4’ x 4’ board sizes. Install adhesive in 3/4” to 1” ribbons set a minimum of 12” o.c. or as required to meet project wind uplift resistance. Stagger the joints of additional layers in relation to the insulation joints in the layer(s) below by a minimum of 12”.
2. Secure all insulation layers at Perimeter and Corner areas with additional rows of adhesive (reduce spacing between ribbons) as required to meet higher uplift pressures, specific wind uplift assembly design, the Authority Having Jurisdiction, and IB specification and construction detail guidelines.
3. For reroofing and recover applications, confirm adhesive uplift resistance and insulation securement with field pull tests. Prime existing asphaltic surfaces with required insulation adhesive primer when required and allow to dry.
4. Install insulation layers applied with adhesive applied at coverage rate necessary to achieve the specified attachment and uplift rating. Press each board firmly into place after adhesive has risen and activated, beginning to string when touched, but prior to skinning over or losing tack. Allow adequate open time prior to board installation for full activation and adhesive rise, typically one to two minutes after bead application, adjusted for weather conditions at time of installation. Roll boards with a weighted roller and apply temporary weight to ensure boards are in full, uniform contact with the applied adhesive until set.

B. Mechanically Attached Insulation: Mechanically attach insulation to the deck with IB approved fasteners and insulation plates to meet or exceed IB Roof Systems requirements. Install roof assembly to comply with design uplift pressures calculated under ASCE 7 and as required by local building codes or the Authority Having Jurisdiction.
1. Install insulation with cross or short dimension joints staggered. Multi-layer insulation assemblies may be simultaneously mechanically attached to the deck using the approved fastening rate and spacing requirements for the top insulation layer with all joints staggered and offset between layers.
2. Increase insulation securement with supplemental fasteners or rows of fasteners within Perimeter and Corner Zones as required to meet higher uplift pressures, specific wind uplift assembly design, the Authority Having Jurisdiction, and IB specification and construction detail guidelines.

3.9 FULLY ADHERED MEMBRANE APPLICATION

A. Position PVC Single Ply Smooth or Fleece backed membrane over the installed roof insulation beginning from the low side of the roof. Install membrane either perpendicular or parallel to slope so that water runs over or with, but not against, membrane laps.

B. Extend membrane over and below lower outside edge of perimeter edge nailers a minimum of 1” and fasten 12” o.c. At parapet walls, curbs and other vertical terminations, fasten membrane to roof deck or turn up and terminate into approved substrate 12” o.c. through IB Aluminum Lip Termination Bar or IB barbed plates.

C. Membrane Application: Ensure insulation substrates are clean, dry and properly secured in accordance with project requirements and IB specifications. Remove all debris, dirt, trash or contaminants from insulation surfaces prior to installation. Measure and mark courses as needed to maintain alignment and keep roll courses square to the overall roof deck and structure. Avoid contamination of membrane surfaces within the seam areas (side, end and flashing laps) during application of bonding adhesives. Ensure all seam areas are clean and free of debris or other contamination prior to welding. Use only IB Roof Systems recommended cleaning procedures and products where necessary to clean membrane prior to seaming or after completed installation.
1. Full Sheet Method:
   a. Align membrane to provide a minimum 3” side lap. Fold membrane sheet back lengthwise so the underside of the membrane is exposed and apply IB membrane bonding adhesive at the specified coverage rate to required surfaces.
   b. Reinstall membrane into the applied adhesive when ready avoiding wrinkles or air pockets.
   c. Continue with remaining courses lapping 3” on sides.
2. Half Sheet Method:
   a. Install two adjacent courses of membrane dry and align to provide a minimum 3” side lap. Fold both courses of membrane back lengthwise so half the underside of the membrane is exposed and apply IB membrane bonding adhesive at the specified coverage rate to required surfaces.
   b. Reinstall membrane into the applied adhesive when ready beginning with the underlapping course and followed by the overlapping course taking care to avoid wrinkles or air pockets.
   c. Fold back the un-bonded half of the sheet lengthwise along with the adjoining membrane course and repeat the bonding procedure.

D. Membrane Adhesive Application:

1. IB PVC Single Ply Membranes: Apply IB bonding adhesive in accordance with project specifications and requirements at the following application rates:
   a. IB Water Borne Adhesive: apply adhesive to installed insulation or horizontal field of roof substrate only at the approximate rate of one gallon per 160 square feet. Install adhesive in a uniform, thin coating and set membrane into the adhesive while wet.
   b. IB Vertibond Adhesive: apply as contact adhesive to both the underside of the membrane and to installed insulation, horizontal and vertical substrates at the approximate rate of one gallon per 60 square feet of net applied coverage area. Allow the adhesive open time to a dry substrate / tacky on back of membrane condition. Dry condition is tacky without stringing to a dry finger touch.
2. IB PVC Single Ply Fleece Back Membranes: Apply IB bonding adhesive in accordance with project specifications and requirements at the following application rates:
   a. IB Water Borne Adhesive: apply adhesive to installed insulation or horizontal field of roof substrate only at the approximate rate of one gallon per 160 square feet. Install adhesive in a uniform, thin coating and set membrane into the adhesive while wet.
      I. Broom membrane surfaces immediately after installation with a soft bristle push broom to ensure full contact eliminating air pockets and wrinkles. Follow with a weighted roller and roll the membrane in both directions to achieve maximum contact. Follow all cold weather and applicable handling procedures and do not apply when temperatures are less than 40° F. Do not apply IB Water Borne Adhesive when temperatures may fall below 40° before the adhesive can completely dry.
3. Avoid application or contamination of seam areas and laps with bonding adhesive. Clean and remove all contaminants immediately and before final welding and completion of the seam.
4. A thin prime coat of additional adhesive may be required over rough or porous surfaces such as masonry or block walls. Allow adhesive prime coats to dry fully prior to application of membrane materials and bonding adhesives.

E. Position IB PVC Single Ply smooth membrane rolls to provide a minimum 3” overlap at end laps. Stagger and offset end laps or membrane courses a minimum of 12” apart.
F. Install IB PVC Single Ply Fleece back membranes with rolls closely butted together on ends for cover strip application. Install a 6” wide strip of IB Cover Strip centered over the butt joint in accordance with IB Flashing Details. Continuously weld cover strip into position after completion and welding of membrane side laps.
G. IB membrane side laps and seams shall be hot-air welded using either an automatic hot air welding machine or hot air hand welder in accordance with IB Roof Systems specifications, flashing details and welding procedures. Follow all IB weld speed and temperature recommendations for IB membranes and pre-flashed accessories.

3.10 SEAM WELDING

A. Minimum recommended weld widths for seams completed with an automatic hot air welder is 1-1/2”. Seams, laps and flashings completed with a hot air hand welder shall maintain a minimum 1-1/2” weld width. Hand welded seams and laps shall be rolled with a silicone roller during welding to ensure a continuous welded seam.
B. Regular test welds shall be conducted during all hot air welding operations to verify attainment of watertight, properly welded membrane laps and seams, and to adjust welding parameters and settings as required. IB recommends test weld samples be retained for review, dated and labeled, as part of a thorough Quality Control program by the installer.
C. Only install as much roofing in one day as can be seamed and completed to a watertight condition. Seam areas must be kept clean and free of contaminants, adhesives, dirt or moisture. Clean spills and accidental seam contamination immediately before drying or setting occurs. Avoid use of solvents to clean IB PVC Single Ply membranes or wipe down laps. Follow IB recommended cleaning procedures for welding to existing weathered membrane or cleaning areas of contamination. Denatured alcohol may be used to wipe and remove moisture from within membrane laps prior to welding.
D. Install IB Round T-Joint Patches at all t-joint locations in field laps and flashing seams on 80 mil membrane installations. Hot air weld t-joint patches over the prepared seam intersections and laps in accordance with IB flashing details.
E. All seams and laps shall be visually inspected and physically probed after they have set and cooled. Probe all seams to locate cold welds or presence of voids.
F. Repair all seam defects and deficiencies the same day they are discovered.

3.11 FLASHING

A. Flashing of parapets, curbs, expansion joints and other penetrations of the roof must be performed using approved IB PVC Single Ply smooth reinforced membrane and IB factory-manufactured accessories. Non-reinforced membrane may be used for flashing pipe penetrations, penetration pockets, and scuppers, as well as inside and outside corners, in accordance with IB details when the use of IB factory manufactured accessories cannot be used.
B. Field membrane shall be fastened at base of vertical walls, edges, curbs, equipment supports and terminations a minimum of 12” o.c. with approved fasteners and barbed seam plates.
C. Follow IB Flashing Details and procedures for all wall, curb, termination and penetration flashings including metal edging/coping and drainage outlets using IB manufactured and supplied accessories. Inside and outside corners shall be reinforced with an additional layer of IB Inside / Outside corners or reinforcing membrane.
D. Install IB PVC Pipe Flashings around pipes and circular penetrations. Terminate and secure field membrane near the base of the penetration, 6” o.c. with a minimum of 3 fasteners and plates for pipes less than 12” diameter, and 12” o.c. with a minimum of 4 fasteners and plates for penetrations larger than 12” in diameter. Mark and trim cone flashings to an opening size smaller than the pipe outside diameter to provide a 1/2” or wider flared top edge when set and drawn down over the pipe. Slide the flashing over penetration and center. Flared upper edge of cone flashing must fit tightly against the pipe without gaps or voids. Heat weld perimeter edge of the target sheet to field membrane. Apply stainless steel banding clamp and seal with a continuous bead of approved IB sealant around the top of the completed penetration. Probe and repair all non-welded areas.
E. IB PVC Clad metal is required for detail constructions requiring welding of membranes or flashings to PVC clad, sheet metal flashings at penetration pockets, scuppers, edge metal, coated metal transition flashings and terminations.
F. Install sheet metal in compliance with IB Flashing Details and SMACNA guidelines for type, grade and forming of seams.
G. Insulation and substrate surfaces should be tapered and sumped to drains and outlets. Flash drains with a reinforced, smooth back target sheet in accordance with IB Flashing Details. Do not extend field or flashing seams through roof drain flashings or beneath clamping rings. Secure target sheet around drain sump fastened a minimum of 12” o.c. with approved fasteners. Make small cuts or holes around drain bolts and seal underside of target flashing to prepared drain flange in a continuous bed of IB Water Stop sealant. Install clamping ring to provide a watertight compression seal. Cut an opening in the membrane directly above and slightly wider than the drain opening with a minimum of 1/2” past inside edge of drain bolts.
H. Conduits and piping shall be properly secured and supported above the completed roof on approved support details. Surface-mounted supports bearing on the membrane surface shall be installed over a course of IB WalkTread™ or IB approved protection pad.

3.12 WALKWAYS

A. Clean the membrane prior to walkway pad installation at locations designated to receive walkways. Provide manufacturers walkway pads at roof access points, hatches, areas of foot traffic, and around rooftop equipment requiring periodic maintenance.
B. IB WalkTread™ where required shall be continuously perimeter welded to the membrane in accordance with IB Flashing Details. Do not install walk treads directly over completed seams. Hold back walk tread edges a minimum of 3” on either side of a completed membrane or flashing seams.
C. Walkway pad installation must be monitored to avoid overheating the underlying membrane or walk tread while welding in place. Probe welds to ensure adequate bond to membrane surfaces.

3.13 DAILY SEALS

A. Install night seals as temporary closure to prevent moisture infiltration at membrane terminations and flashings that cannot be finished by the close of each day. Remove temporary seals prior to next day’s work to avoid contamination or damage to the completed membrane.
B. Remove and replace areas that are damaged, wet or contaminated prior to continuation of work. Clean and prepare seams in accordance with IB recommendations.
C. Clean temporary sealant materials from deck and flashing substrates, and prepare surfaces to receive permanent roofing and flashing materials.

3.14 CLEAN UP AND PROTECTION

A. During installation, keep all work surfaces clean and free of dirt and debris. Remove excess materials, trash, cartons, loose fasteners, tools and debris from the roof daily. Dispose of waste material, packaging and debris in accordance with project requirements and applicable regulatory requirements.
B. Avoid contamination of finished membrane surfaces. Install protective materials and tarps as necessary to protect completed roof areas from damage. Remove adhesive spills, residue and other contaminants immediately before drying or setting up.
C. IB recommends contractor pre-inspection of the completed installation in advance of a requested IB final inspection. Pre-inspection should include review of all project details, drainage outlets, inspection of laps and seams, sheet metal work, sealants and caulks.
D. Avoid construction traffic or material staging over completed membrane areas. Install protective tarping and plywood secured against wind and the elements to prevent membrane contamination and physical damage from other trades or work.

END OF SECTION