MANUFACTURER'S GUIDE SPECIFICATION

SECTION 07 52 00

MODIFIED BITUMINOUS ROOFING SYSTEMS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Modified bituminous membrane heat welded (torch applied) roofing.

B. Modified bituminous membrane Self-Adhered roofing.

C. Coverboard.

D. Roof Insulation.

E. Vapor Retarder.

1.2 RELATED SECTIONS

A. Section 03510 – Cast Concrete Decking: Decking and decking substrate preparation

B. Section 05300 - Metal Decking: Decking and decking substrate preparation.

C. Section 06100 - Rough Carpentry.

D. Section 06114 - Wood Blocking and Curbing: Wood nailers and cant strips.

E. Section 07220 - Insulation Board: Insulation and fastening.

F. Section 07620 - Sheet Metal Flashing and Trim: Weather protection for base flashings.

G. Section 07710 - Manufactured Roof Specialties: Counter flashing gravel stops, and fascias.

H. Section 07724 - Roof Hatches: Frame and integral curb; Counter flashing.

I. Section 08620 - Unit Skylights: Skylight frame and integral curb and counter flashing.

J. Section 08630 - Metal-Framed Skylights: Skylight frame and integral curb and counter flashing.

K. Section 08950 - Translucent Wall and Roof Assemblies: Counter flashing

L. Section 08960 - Sloped Glazing Assemblies: Counter flashing.

M. Section 15120 - Piping Specialties: Roof Drains, Sumps.

1.3 REFERENCES

A. ASTM C1289 - Standard Specification for Faced Rigid Cellular Polyisocyanurate Thermal Insulation Board.

B. ASTM D41 - Standard Specification for Asphalt Primer Used in Roofing, Dampproofing, and Waterproofing.

C. ASTM D312 - Standard Specification for Asphalt used in Roofing.

D. ASTM D6163 - Standard Specification for Styrene Butadiene Styrene (SBS) Modified Bituminous Sheet Materials Using Glass Fiber Reinforcements.

E. ASTM D6164 - Standard Specification for Styrene Butadiene Styrene (SBS) Modified Bituminous Sheet Materials Using Polyester Reinforcements.

F. ASTM D6222 - Standard Specification for Atactic Polypropylene (APP) Modified Bituminous Sheet Materials Using Polyester Reinforcements.

G. ASTM D7897 - Standard Practice for Laboratory Soiling and Weathering of Natural Exposure on Solar Reflectance and Thermal Emittance.

H. NRCA - The NRCA Roofing and Waterproofing Manual. National Roofing Contractors Association (NRCA) - Roofing and Waterproofing Manual.

I. Sheet Metal and Air Conditioning Contractors National Association, Inc. (SMACNA) - Architectural Sheet Metal Manual.

J. ANSI-SPRI ES-1 Wind Design Standard for Edge Systems used with Low Slope Roofing Systems.

K. UL - Fire Resistance Directory.

L. FM Approvals - Roof Coverings.

M. FBC - Florida Building Code.

N. Miami-Dade Building Code Compliance - N.O.A. (Notice of Acceptance)

1.4 CODE AND TEST REQUIREMENTS

A. Perform work in accordance with all federal, state and local codes.

B. Windstorm Classification: Roofing system, which will achieve the required uplift resistance as calculated in accordance with the most current revision of ASCE 7-16 or determined by the Design Professional, local Code Agency, or Authority having Jurisdiction (AHJ).

1.5 SUBMITTALS

A. Submit under provisions of Section 01300.

B. Product Data: Manufacturer's data sheets on each product to be used, including:
   1. Preparation instructions and recommendations.
   2. Storage and handling requirements and recommendations.

3. Installation instructions.

C. Shop Drawings: Shop drawings including installation details of roofing, flashing, fastening and insulation, including notation of roof slopes and fastening patterns of insulation and base modified bitumen membrane, prior to job start.

D. Design Pressure Calculations: Design pressure calculations for the roof area in accordance with ASCE 7-16 and local Building Code requirements. Include a roof system attachment analysis report, certifying the system's compliance with applicable wind load requirements before Work begins. Report shall be signed and sealed by a Professional Engineer registered in the State of the Project who has provided roof system attachment analysis for not less than 5 consecutive years.

E. Verification Samples: As required. For each modified bituminous membrane ply product specified, two samples, minimum size 6 inches (150 mm) square, representing actual product, color, and patterns.

F. Manufacturer's Field Reports: As required.

G. Manufacturer's Certificates: Certify products meet or exceed specified requirements.

1.6 QUALITY ASSURANCE

A. Perform Work in accordance with NRCA Roofing and Waterproofing Manual.

B. Manufacturer Qualifications: Company specializing in manufacturing products specified with ten years documented experience.

C. As an ISO 9001:2015 Certified Company, Polyglass provides quality products worldwide.

D. Dependent upon the type of warranty requested or specified, roof observations may be required. Polyglass reserves the right to conduct roof observations to ensure quality of installation.

E. Polyglass provides installers assistance with a qualified team of technical field representatives. Please contact Technical Services or your local sales representative for information regarding the Technical Representative assigned to your region.

1.7 PRE-INSTALLATION MEETINGS

A. Convene minimum one week prior to commencing Work of this section.

B. Review installation procedures and coordination required with related Work.

C. Inspect and make notes of job conditions prior to installation:
1. Record minutes of the conference and provide copies to all parties present.
2. Identify outstanding issues in writing designating the responsible party for follow-up action and the timetable for completion.
3. Installation of roofing system shall not begin until all outstanding issues are resolved to the satisfaction of the Architect.

1.8 DELIVERY, STORAGE, AND HANDLING

A. Ensure all materials are stored in a manner which prevents them being exposed to moisture.

B. Materials should be examined when received. Damaged or unlabeled materials should not be used.

C. Materials must be stored in a dry area with adequate ventilation. Care should be taken to only remove stored materials that can be installed in a reasonable amount of time. All excess materials must be kept in storage.

D. Roll membranes shall be stored upright on an elevated surface, such as a pallet on a flat surface. Rolls stored or transported in a laid down position will result in distorted, damaged, or “flattened” rolls. The exception being Polystick P, as it is palletized horizontally.

E. Prior to beginning installation, remove all roll wrapping tape by cutting carefully and not ripping the material.

F. Polyglass does allow double stacking of pallets of membranes with the use of slip boards. Please see the Technical Bulletin “Guidelines for Rotation and Storage of Polyglass Rolled Roofing Products” online at www.polyglass.us.

G. Polyglass self-adhered membranes to be stored at room temperature whenever possible and in an upright position on a flat surface. Avoid storing out of packaging for prolonged periods, especially above 88°F (31°C), in direct sunlight. Do not take the roll out of the packaging until it is ready for application. Refer to technical bulletins found at www.polyglass.us for more instructions on storage and handling.

H. Polyglass ADESO® membranes shall remain stored in boxes or wraps until time of application.

I. Polyglass Cold Applied Cements, Adhesives and Mastics shelf life is typically 18 months, if stored in original unopened containers – between 40°F–100°F (4°C– 38°C).

J. All containers should be sealed when not in use.

1.9 COORDINATION

A. Coordinate Work with installing associated metal flashings as work of this section proceeds.

1.10 PROJECT CONDITIONS

A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.

1.11 WARRANTY

A. WARRANTY TYPE: NDL Roofing System Warranty

B. WARRANTY FORM: Low Slope

C. WARRANTY TERM: 20 years from date of acceptance

D. Roofing System Warranty: Upon completion of Work. Written and signed, warranting that, if a leak develops in the roof during the term of this warranty, due

either to defective material or defective workmanship by the installing contractor, the manufacturer shall provide the Owner, at Manufacturer's expense, with no dollar limit, the labor and material necessary to return the defective area to a watertight condition.

E. Contractor is to guarantee all work against defects in materials and workmanship for a period indicated following final acceptance of the Work.
   1. Warranty Period: minimum of 2 years.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Acceptable Manufacturer: Polyglass USA, Inc., which is located at: 1111 W. Newport Center Dr.; Deerfield Beach, FL 33442; Toll Free Tel: 888-410-1375; Tel: 954-233-1330; Fax: 954-418-4453; Web: www.polyglass.us; Email: request info (pgmarketing@polyglass.com).

B. Substitutions: Not permitted.

2.2 INSULATION

A. Insulation

1. Polyglass Flat and Tapered Polytherm: Closed-cell polyisocyanurate; polyiso, foam core integrally bonded to non-asphaltic, fiber- reinforced organic felt facers. Tapered Polytherm is offered in a variety of slopes, to achieve positive drainage as well as long-term thermal resistance (LTTR). Available in 4 by 4 foot (1220 by 1220 mm) panels with 1/8 inch (3 mm), 1/4 inch (6 mm) and 1/2 inch (12 mm) per foot slope. Manufactured in accordance with ASTM C1289, Type II, Class 1, Grade 2 (20 psi) 3, or Grade 3 (25 psi) and CAN/ULC-S704
type 2, Class 3 or Type 3, Class 3.
   a. Slope Required: 1/4" inches per foot.
   b. VALUE OF INSULATION: N/A
   c. PSI: N/A
   d. INSULATION THICKNESS: 0

2.3 ROOF COVERBOARD

A. Securock Gypsum-Fiber Roof Board: Fiber reinforced gypsum panel available in 4 by 8 ft (1220 by 2440 mm) and 4 by 4 ft (1220 by 1220 mm) panels conforming to ASTM C1278.

B. DensDeck Prime Roof Board: Enhanced to provide a broader compatibility for adhered, self-adhered, hot-mopped, cold adhesive, and torch-applied modified bitumen membranes conforming to ASTM C1177.

C. Polyboard E: multi-ply, semi-rigid asphaltic panel composed of a mineral-fortified asphaltic core, formed between two asphalt-saturated fiberglass liners. Polyboard E is designed to be used as a base material in low-slope roofing. It may be installed over wood, concrete, rigid insulation or as a recover sheet over an existing roof surface which is to be re-roofed.

D. Polyboard HD: high-density polyisocyanurate (iso) insulation panel which has been specifically designed for use as a cover board and has been manufactured with a premium performance coated glass facer on both sides. The 1⁄2″ thick material provides an R-Value of 2.5 which is significantly higher than cover boards made with

other materials. (Also available in 5⁄8″ thickness – Western Regions only.)

E. COVER BOARD THICKNESS: 1/4" In

2.4 MODIFIED BITUMINOUS ROOFING MEMBRANE

A. Base Sheet:
   1. Elastoflex SA V or Elastoflex SA V FR
      a. ASTM: D6163 - Styrene Butadiene Styrene (SBS) Modified Bituminous Sheet Materials Using Polyester Reinforcements
      b. Reinforcement: Polyester
      c. Type: I
      d. Thickness: 80 mils (2.0 mm)
   2. Method of application: Self Adhered

B. Cap Sheet:
   1. Polyflex G or Polyflex G FR
      a. ASTM: D6222 - Atactic Polypropylene (APP) Modified Bituminous Sheet Materials Using Polyester Reinforcements
      b. Reinforcement: Polyester
      c. Type: I
      d. Thickness: 180 mils (4.5 mm)
   2. Method of application: Heat Welded

2.5 FLASHINGS

A. WALL FLASHINGS
   1. Same as Field: Minimum of 1 ply of base/interply as reinforcement and cap sheet for all flashing systems.
   2. PENETRATION FLASHINGS
      a. Liquid Flashings - Polyflash 1C: one-component, moisture-cure silane modified polyurethane, white flashing compound.
      b. Must be installed in 3-course fashion using PolyBrite Reinforcing Polyester Fabric.

2.6 FASTENERS

A. Fasteners and Plates: Provide FM Approved fasteners and plates and other devices as required to suit the system specified.

B. Wood: Roofing nails of galvanized or stainless steel, of length to penetrate the wood by at least 3/4 inch (19 mm) on flashings and parapet walls.

C. Masonry: Nail-in expansion type device with zinc body, plated steel nail, and mushroom head or approved equal and of length to embed into the masonry a minimum of 1 inch (25 mm).

D. Insulation: Mechanical fasteners for securing of insulation to decking shall be approved by the insulation manufacturer for the system specified and shall be FM Approved and be in compliance with Appendix "E" of FM 4470 for corrosion resistance.
   1. Use the same brand fastener throughout the work.
   2. Provide the number of fasteners and layout as recommended by the manufacturer and per FM Approvals.
   3. Determine length of fastener by the thickness of the decking and any fill and

the thickness of the insulation. Fasteners shall be of sufficient length to achieve a minimum of 1 inch (25 mm) penetration.

E. Pre-Assembled Fastener/Plate Combination: Case hardened carbon steel and use specific head, shank and thread diameters, point types and head styles meeting building code and FM approvals for corrosion and simulated wind uplift criteria requirements.
   1. Fasteners are designed for the attachment of insulation and membrane to steel (18-24 gauge), wood, and structural concrete.
   2. Provide to meet FM requirements, fastener shall penetrate the steel deck 3/4 inch (19 mm). Minimum penetration is 1 inch (25 mm) in wood, 3/4 inch (19 mm) through wood that is less than 3/4 inch (19 mm) thick and 1-1/4 inches (32 mm) in concrete.

2.7 PRIMER

A. Asphalt Primer: Polyglass PG100 Asphalt Primer conforming to ASTM D41.
   1. Applied on all dissimilar materials except insulation.
   2. General purpose penetrating asphalt primer used to promote adhesion prior to the application of hot-mopped, cold-applied, and self-adhesive membrane systems as well as roof cements, mastics, and asphalt-based adhesives.

B. Water-Based Acrylic Primer: Polyglass WB-3000 Water-Based Acrylic Primer:
   1. Low-VOC water-based acrylic primer enhances the adhesion of self-adhered roof membranes to a variety of porous and non-porous substrates.

C. High-Tack Contact Adhesive: Polytack:
   1. Low-VOC, quick drying, solvent based, high-tack contact adhesive which applications where adhesion is more challenging.

2.8 MISCELLANEOUS

A. Adhesive/Sealant:
   1. Polyglass PG 500 Modified Cement. Meets or exceeds the requirements of ASTM D4586 Asphalt Roof Cement Type I.
   2. Polyglass PolyPlus 50 Premium MB Flashing Cement. Meets or exceeds the requirements of ASTM D4586 Asphalt Roof Cement Type I.

B. Insulation Adhesive:
   1. Approved low-rise foam adhesive.

C. Roofing Insulation: As specified in Section 07220.

PART 3 EXECUTION

3.1 EXAMINATION

A. Do not begin installation until substrates have been properly prepared.

B. Inspect and approve the deck condition, slopes and fastener backing if applicable, parapet walls, expansion joints, roof drains, stack vents, vent outlets, nailers and surfaces and elements.

C. Verify that work penetrating the roof deck, or which may otherwise affect the roofing, has been properly completed.

D. If substrate preparation and other conditions are the responsibility of another

installer, notify Architect of unsatisfactory preparation before proceeding.

3.2 SUBSTRATE/PREPARATION

A. Polyglass is not responsible for design, selection, or performance of the deck. Roof decks are to be designed and constructed as per the deck manufacturers specifications and shall be suitable to receive a Polyglass roofing assembly.

B. Prior to roof construction, the acceptance of the suitability of the substrate shall remain the responsibility of the applicator and/or the Authority Having Jurisdiction.

C. Field verification of the suitability of the substrate shall include fastener withdrawal resistance, moisture content, as well as the overall condition of the substrate. Testing standards such as ANSI/SPRI FX-1 (withdrawal resistance), ANSI/SPRI 1A-1 (adhesion testing), as well as ASTM D4263 (surface moisture testing over concrete) shall be applied when assessing the condition of the substrate.

D. Re-cover applications will require the use of moisture scans to verify the moisture content of the assembly that currently in place.

E. GENERAL: Clean surfaces thoroughly prior to installation.

1. Prepare surfaces using methods recommended by manufacturer for achieving the best result for the substrate under the project conditions.
2. Fill substrate surface voids that are greater than 1/4 inch (6 mm) wide with an acceptable fill material.
3. Roof surface to receive roofing system to be smooth, clean, free from loose gravel, dirt and debris, dry and structurally sound.
4. Wherever necessary, surfaces to receive roofing materials are to be power broomed and vacuumed to remove debris and loose matter prior to starting work.
5. Do not apply roofing during inclement weather. Do not apply roofing membrane to damp, frozen, dirty, or dusty surfaces.
6. Fasteners and plates for fastening components mechanically to the substrate shall provide a minimum pull-out capacity of 300 lb. (1334 N) per fastener. Base or ply sheets attached with cap nails require a minimum pullout capacity of 40 lb. (178 N) per nail.
7. Prime surfaces where required, in accordance with requirements and recommendations of the primer and deck manufacturer.

F. 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. Deck panels are to be anchored to the supporting members by welding or mechanically fastening. Requirements as established by Factory Mutual for gauge and span should be in compliance with Factory Mutual (FM) LPDS 1-28 and 1-29.
3. Decks shall be clean a free of moisture and debris as well as free of corrosion.
4. Damaged or deflected panels as well as deteriorated portions must be removed and replaced.

G. STRUCTURAL CONCRETE:

1. Decks shall me a minimum compressive strength of 2,500 psi with a minimum

thickness of 4" (10 cm).
2. The surface is to be smooth, and free of ridges, sharp edges, and irregular surfaces.
3. The underside of the concrete deck must remain unobstructed to allow for the escape of moisture. This would include the applications of items such as paint, spray fireproofing etc.
4. Concrete decks typically require a minimum of 28 days cure time. Evaluation of determination of moisture content should be in accordance to ASTM D4263 (Plastic Sheet Method).
5. Field uplift resistance for adhesive applications is recommended as per ANSI/SPRI 1A-1.
6. Primers applied to the deck, when applied, must be dry prior to application of adhesives.
7. Cracks greater than 1⁄8" (3 mm) shall be filled or treated as per the direction of the deck manufacturer.

H. LIGHTWEIGHT INSULATING CONCRETE/LWIC:
1. Must have a minimum 200 psi compressive strength as well provide a minimum withdrawal resistance of 40 lbs. (18 kg) as an average pull value.
2. Deck installation shall comply with the deck manufacturer.
3. Installation shall not proceed during inclement weather including both precipitation as well as freezing temperatures. Any and all frozen deck sections shall be completely removed and replaced.
4. All measures should be taken to ensure that there is no entrapment of moisture within the deck prior to roofing applications.

I. WOOD PLANK:
1. Thickness to be a nominal 1" (2.5 cm) and width of 4"–6" (10 cm–15 cm).
2. Wood plank boards shall have a bearing on rafters at each end and must be securely fastened.
3. Boards shall be kiln-dried and preferably a tongue-and-groove style to eliminate the shrinkage or warping of planks.
4. Knotholes/cracks exceeding 1⁄4" (6 mm) must be covered with secured sheet metal.

J. PLYWOOD:
1. Thickness to be a minimum of 15⁄32" (12 mm) with a minimum 4-ply conforming with C-D Exposure 1 grade.
2. The maximum joist spacing shall be 24" (61 cm) O.C. or less using minimum 1⁄8"–1⁄4" (3 mm–6 mm) spacing between panels.

K. ORIENTED STRAND BOARD (OSB):
1. OSB shall be PS 2-10, Exposure 1, Structural 1 not less than 7⁄16" (11 mm) in thickness.
2. The sheathing is installed with all sides bearing on and secured to joists and cross blocking in accordance the APA (Engineered Wood Association).

L. CEMENTITIOUS WOOD FIBER:
1. That application of cementitious wood fiber decking shall be in accordance to the individual deck manufacturer.
2. Panels shall be a minimum of 2" (5 cm).
3. Panels must be protected from inclement weather when stored as well as during the application of the panels.

4. Joints between panels in excess of 1⁄4" (6 mm) as well as offsets in adjacent panels exceeding 1⁄8" (3 mm) must be grouted as per the panel manufacturer's instruction.

M. GYPSUM:
1. Gypsum decks must have a minimum deck thickness of 2" (5 cm).
2. Panels shall be a minimum of 2" (5 cm).
3. Panels must be protected from inclement weather when stored as well as during the application of the panels.
4. Joints between panels in excess of 1⁄4" (6 mm) as well as offsets in adjacent panels exceeding 1⁄8" (3 mm) must be grouted as per the panel manufacturer's instruction.

N. POURED REINFORCED CONCRETE:
1. Shall be smooth, dry, clean and free of ice/frost, projections and depressions.
2. The concrete shall be fully cured and the surface shall be broom cleaned and free of release/curing agents prior to commencement of work.
3. The prepared concrete surfaces shall be primed with Polyglass PG 100 Fast-Drying Asphalt Primer ASTM Type D41 at a rate of approx. 1 gallon/100 square feet. Polyglass requires no less than 30 days cure time for new concrete pours.
4. All primed areas shall be fully dried before proceeding with the application of the roof system.

O. Other Deck Types: Contact Polyglass for recommendations in any situation which involves other deck types, new or unusual deck construction.

P. RE-COVER OR RE-ROOFING APPLICATIONS: Polyglass products are suitable for many re-cover roofing applications. While it is necessary to completely remove any areas of decking, roof covering and insulation that are badly deteriorated and/or moisture laden, some existing roofs may be suitable for re-covering without complete removal, provided they are adequately prepared. All re-roofing projects must be considered unique and each should be assessed on an individual basis. Some general procedures are recommended in considering any project.

1. NOTE: Analysis of the existing conditions (such as drainage, existing moisture, deck & structural integrity, etc.) is the responsibility of the building owner or the design professional. The determination of need for a vapor retarder is the sole decision of a design professional i.e. Registered Professional Engineer or Architect, or Registered Roof Consultant. Polyglass recommends that a professional moisture survey and analysis be carried out to determine the existing moisture content of the roof, just prior to commencing the re-roof or re-cover work. To qualify for certain system guarantees, which may be obtainable through Polyglass Registered Contractors, the need for an infrared (IR) scan, or other suitable survey may be mandatory for obtaining a guarantee.
2. NOTE: Where the existing roofing system (all existing waterproofing and insulation materials, including any vapor retarders) is to be removed down to the deck, AND where it is determined (by the owner, design professional, architect or engineer) that the existing deck is suitable for applying a new roofing system, the requirements for new roofing may be applicable. Where existing roofing materials are to be left in place the following requirements are to be adhered to.

Q. The following recommendations provide some guidelines for assessment of the existing roof system to determine the appropriate Polyglass re-cover/re-roof system:

1. Evaluate existing roof conditions including interior and exterior surveys. Locate points of interior leakage, condition of underside of deck, and areas where moisture may be present in the system/insulation.
2. The adequacy needs for a vapor retarder (see section on Vapor Retarders) should be established, by a party other than Polyglass.
3. Establish whether the deck is structurally sound and able to accept the imposed weight of a new system.
4. Determine whether the method of existing roof attachment is adequate.
5. Ensure adequate provision made for clearance (height) of new or existing curbs, counter flashing, walls, etc.
6. Determine whether the roof system drains properly and what measures are necessary prior to the re-cover/re-roof operation. Existing deck deflection or ponding water may require upgrading of the drainage provisions, including possible addition of new drains, increased bar joist support, etc.
7. Ensure that there is no more than one existing roof covering.

Once the applicability and practicality of a re-cover/re-roof has been determined, by the building owner or his design professional, and when all preliminary evaluations and necessary adjustments, or allowances, have been made the following preparations must be carried out.

PREPARATION

The ultimate performance of any re-cover project is the direct result of adequate preparation of the existing roof assembly. The following are the minimum recommendations for a successful re-cover:

1. Power broom and vacuum all surfaces to remove loose aggregate.
2. All wet or deteriorated areas of membrane, insulation or decking, components, blisters, splits, and surface irregularities shall be removed and patched to create a stable, smooth and even surface.
3. Remove existing roof flashings from curbs and parapet walls down to roof surface.
4. Remove existing flashings at roof drains and roof penetrations.
5. Install new wood nailers as necessary to accommodate insulation/recovery board or new nailing patterns.
6. When mechanically attached, the fastening pattern for the insulation/recovery board shall be as recommended by the specific product manufacturer.
7. Re-roofing over coal tar pitch generally requires a mechanically attached recovery board or insulation and a base sheet prior to the application of a Polyglass roofing system.

3.3 INSTALLATION

A. INSULATION INSTALLATION AND ATTACHMENT:

1. Incorrectly installed insulation can lead to roof system loss (blow-offs) and is the responsibility of the insulation installer, not the roof membrane manufacturer.
2. Polyglass does not warrant against improperly attached insulation or insulation failure caused by incorrect application.
3. All joints between layers should be staggered when multiple layers of insulation are installed.
4. Insulation shall be kept dry at all times. Install only as much insulation as can be covered with completed roofing membrane before the end of the day's work (or prior to onset of inclement weather).

5. Edges shall butt tightly, and all cuts shall fit neatly against adjoining surfaces to provide a smooth overall surface. Gaps of greater than 1⁄4" (6 mm) width shall be filled with insulation.
6. Install tapered insulation around roof drains and penetrations to provide adequate slope for proper drainage.
7. Mechanically attached insulation shall be fastened in accordance with Factory Mutual (FM) Approvals requirements for the applicable geographic Zone with the required number (and type) of fasteners and plates. Exception: where Polyglass requirements are more stringent than Factory Mutual (FM) Approvals or third-party manufacturers, Polyglass requirements shall be followed.
8. When asphalt or foam adhesive attachment is selected by the project designer, the proposed insulation shall be compatible with the roof substrate, the proposed bitumen and the requirements of the specific Polyglass membrane. NOTE: Expanded polystyrene (EPS) materials shall not be installed with hot bitumen products.
9. Maximum 4' × 4' (1.2 m × 1.2 m) insulation boards can be attached with hot asphalt.
10. Asphalt for insulation attachment shall meet ASTM D312 Type III or IV criteria, as dictated by the roof slope or other design conditions.

Install modified bitumen membranes and flashings in accordance with manufacturer's instructions and with the recommendations provided by the National Roofing Contractors Association’s Roofing and Waterproofing Manual, the Asphalt Roofing Manufacturers Association, and applicable codes.

B. COLD WEATHER INSTALLATION

1. Polyglass advises against installing modified bitumen membranes at temperatures lower than 40°F–45°F (4°C–7°C) (wherever practicable). Where work is unavoidable at such temperatures, we recommend the following precautions be taken:
    a. Take extra care during cold weather installation (Below ambient temperatures of 40°F–45°F (4°C–7°C), whereas ambient temperatures are affected by wind, humidity, etc.), to ensure adequate bonding is achieved between the surfaces to be joined. This applies to both material seam welds and adhesion of the applied product to the appropriately prepared substrate (substrate can be affected by such temperature constraints as well).

2. In addition, unrolling of cold materials, under very low ambient conditions must be avoided to prevent the likelihood of unnecessary stress cracking. The rolls must be at least 40°F (4°C) at the time of application. Should the membrane roll become stiff or difficult to install, it should be replaced with a new roll from the storage area.

3. To prevent the aforementioned situations and to ease the progress of installation under unfavorable conditions we recommend the following procedures:
    a. The general recommendations of the National Roofing Contractors Association (NRCA) and Asphalt Roofing Manufacturers Association (ARMA) should be taken into account and will be helpful.
    b. Remember that wind chill will have an effect on the application

temperature.

c. Ensure that membrane is only installed to properly dry, clean and primed (where necessary) surfaces as required by the specifications.
d. Store membrane, until immediately prior to installing the roll. Minimum ambient temperature of the storage area should be 55°F–60°F (13°C–15°C).
e. Once rolls of material are taken from the temperature controlled storage area, install before the temperature of the material drops below 40°F–45°F (4°C–7°C).

4. SELF-ADHERED APPLICATION
   a. For temperatures between 25°F–60°F (-4°C–16°C), use Polyglass' Elastoflex SA V Polar Base; ADESO® Self-Adhered membranes for cold weather application.

C. BASE AND PLY SHEET INSTALLATION:
1. Install in a manner approved for the specific product, e.g., fully adhered as self-adhered or with asphalt adhesive, torch applied or mechanically attached.
2. Start at the low point of the roof.
3. Unroll the material and allow it to relax, then re-roll the membrane once it is relaxed.
4. Application Methods:
   a. Start at the low point of the roof.
   b. Unroll the material and allow to relax.
   c. Start by removing the first 18–24" of release film.
   d. Press the membrane into place with firm and even pressure. Roll the edges with a silicone hand roller to ensure complete adhesion.
   e. Gradually remove the remaining release film applying pressure from the center to the edges as you go.
   f. Position successive rolls providing a minimum 6" end lap and 4" side lap. Laps can be sealed for additional water tightness with a hot air welder.
   g. Roll with a 75# split-face linoleum roller. Take care on sloped roofs by securing the roller and applicator with the appropriate safety equipment.
5. Details and flashing may be installed using Self Adhered base sheet with a hot air welder or with PG 500 Cement. Check project details for proper installation requirements.

A. CAP SHEET INSTALLATION:
1. Polyglass APP or SBS cap sheet membranes are intended to be used as the primary weathering surface in new and re-roof applications.
2. Apply over clean, dry, dust and debris-free substrates. Prime concrete decks and required substrates, prior to application with PG 100 Fast-Drying Asphalt Primer or applicable ASTM D-41 asphalt primer as approved by Polyglass.
3. Install with traditional heat-welding roofing techniques ensuring proper heating of the roofing material.
4. When re-roofing, remove all prior roofing materials down to a clean debris-free substrate and properly close-off all abandoned roof penetrations.
5. Do not overheat to expose or compromise the reinforcement.
6. While installing Cap Sheet:
   a. Start at the low point of the roof.
   b. Unroll the material and allow to relax then re-roll the membrane once relaxed.
   c. Install by fully torching the burnoff film creating a pool of asphalt. Pay close attention to the sidelap.
   d. Position successive rolls providing a minimum 6" end lap and 3" side

lap. Asphalt bleed out shall be 1⁄4" to 3⁄8" on all seams.

e. Matching loose granules may be sprinkled onto the bleed out.

7. Details and flashings may be installed using heat-welding techniques.
8. In addition, unrolling of cold materials, under very low ambient conditions must be avoided to prevent the likelihood of unnecessary stress cracking. The rolls must be at least 40°F (4°C) at the time of application. Should the membrane roll become stiff or difficult to install, it should be replaced with a new roll from the storage area.
9. To prevent the aforementioned situations and to ease the progress of installation under unfavorable conditions we recommend the following procedures:
   a. The general recommendations of the National Roofing Contractors Association (NRCA) and Asphalt Roofing Manufacturers Association (ARMA) should be taken into account and will be helpful.
   b. Remember that wind chill will have an effect on the application temperature.
   c. Ensure that membrane is only installed to properly dry, clean and primed (where necessary) surfaces as required by the specifications.
   d. Store membrane, until immediately prior to installing the roll. Minimum ambient temperature of the storage area should be 55°F–60°F (13°C– 15°C).
   e. Once rolls of material are taken from the temperature controlled storage area, install before the temperature of the material drops below 40°F–45°F (4°C–7°C).

B. VAPOR RETARDERS

1. Adequate moisture vapor control is recommended (when appropriate) as a lack thereof may result in the accumulation of moisture in the roofing assembly.
2. An analysis of dew point and vapor flow should be assessed during an initial project design for the building as well as for re-roofing and re-cover applications as they can alter existing vapor flow.
3. In general, vapor retarders may be required when high interior relative humidity is present. The condition is typically seen with food processing facilities, swimming pools, paper mills, laundry facilities, etc.
4. Vapor retarders are sometimes referred to as temporary or secondary roofs. The necessity for use of a vapor retarder is the responsibility of the design professional and should be reviewed and approved by the building owner. The type, location and method of application is also to be determined by the design professional.
5. The National Roofing Contractors Association (NRCA) as well as the American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE) may be referenced for recommendations on the necessity of a vapor retarder.

C. SPECIAL APPLICATIONS

1. Polyglass roofing assemblies are sometimes selected for installation over buildings that include unique environments and are deemed special purpose. These would include cold storage facilities, pools, as well as partially enclosed and open buildings such as hangars.
2. These should be carefully reviewed as they pose design and building conditions such as elevated moisture or humidity, unusually elevated or lowered temperatures, and elevated pressure conditions.
3. Special applications also include overburden or plaza deck assemblies. These typically include the addition of additional materials for protection of the newly installed roof.

4. Technical Services should be contacted prior to these installations.

D. DRAINAGE
1. Adequate drainage is required for a well-functioning low-slope roof system. The minimum recommended slope is 1⁄4" (6 mm) per foot.
2. Absence of proper drainage often results in “Ponding”. It is defined by the National Roofing Contractors Association (NRCA) as water that has not dissipated from the roof within 48 hours.
3. Ponding water negatively affects the membrane and can result in premature deterioration, and is not covered by Polyglass warranties.
4. The ideal structural roof deck is designed to provide adequate slope and drainage. When the roof deck has not be constructed to provide proper slope and drainage, the use of tapered insulation is required.
5. Primary and secondary drains shall be of sufficient number and diameter and located so as to provide adequate drainage of the entire roof surface.
6. The adequacy of drainage provisions, placement, sizing and/or number of drains required is the responsibility of the design professional. Drainage conditions should meet the requirements of codes as well as standard industry recommendations.

E. CANTS
1. Cant Strips are required at all horizontal/vertical intersections. They may be mechanically fastened or adhered to the substrate depending upon the deck type.
2. Material type of Cant strip is dependent upon the application method of the roofing assembly. Hot asphalt applied systems may utilize Perlite (conforming to ASTM C728) or wood fiber (conforming to ASTM C208). Heat welded flashing assemblies require the use of Perlite only. Self-Adhered flashing applications are recommended to include wood Cant strip (primed).

3. Roofing assemblies that do not include a Cant must incorporate the use of PolyFlash® 1C One Part Flashing Compound with reinforcement at the horizontal and vertical transition. Please contact Polyglass Technical Services for details on this application.

F. WOOD NAILERS
1. It should be noted that both wood nailers and blocking materials are deemed as a component of the structure – not the roofing assembly. However, wood nailers are critical to the success of a well-performing roof.
2. Care for selection of proper lumber used for nailers is important to ensure the selection of the appropriate type and level of corrosion resistance for fasteners.
3. All nailers should be installed as per Factory Mutual (FM) LPDS 1-49 “Perimeter Flashing”.
4. ANSI/SPRI ES-1 should also be referenced for edge metal and parapet wall top conditions to ensure the installation of the nailer materials/attachment to resist calculated wind loads.

G. EXPANSION JOINTS/AREA DIVIDERS
1. Expansion joints are part of the building, considerations such as design and location must be taken at the time of original building design by design professionals and reviewed by the building owner. The purpose of the expansion joint is to minimize stress on the building from movement.
2. Per typical flashing details, expansion joints must me extended a minimum of 8" (20 cm) above the roof surface on curbs. Sheet metal caps or flexible

expansion joint covers are used at the top surface of the expansion joint.

3. Expansion joints must be located so as the typical drainage flow is not blocked.
4. Expansion joints are continuous along the break in the structure. They shall not be terminated short of the end of the roof deck.

H. AREA DIVIDERS

1. Area dividers can be similar to but are not considered expansion joints.
2. Typical uses for dividers are to section off roof sections which were not included in original building design/construction. They can relieve stress in an existing roofing system, and can server as a separator between two dissimilar roofing materials.
3. Area dividers are typically capped with a coping cap style sheet metal detail.

I. MEMBRANE FLASHINGS

1. Membrane flashings and their locations are particularly volatile and are most susceptible to moisture penetration. Proper installation at these locations is critical to the integrity of the roofing assembly.
2. Flashings, or, “Base Flashing”, are locations on the roof whereby the field of the roof (horizontal surface) intersects with a wall, curb, penetrations (vertical surfaces), etc.
3. Membrane flashings entail the installation of two (2) plies of membrane at flashing locations. The products associated with the flashings may utilize same plies used for the overall roofing assembly.
4. Flashing locations that include irregularly shaped penetrations, low flashing clearance heights, or items too close to be properly flashed with membrane may be treated with PolyFlash 1C. Contact Technical Services for more information. Minimum flashing height is 8" (20 cm) and the maximum flashing height is 24" (61 cm).
5. Base flashings shall me mechanically fastened at the top edge and terminated with a proper termination bar and counterflashing.

J. WALKAWAYS AND PROTECTED MEMBRANES

1. Walkways help protect the membrane from damage due to routine rooftop service traffic. Walkways may consist of an additional layer of similar Polyglass membrane of a contrasting color granulated surface, or another approved walkway system. The following are typical roof locations that utilize walkways:
    a. All roof access points (ladders, hatches, doorways, etc.).
    b. Areas subjected to traffic in excess of one monthly visit.
    c. Areas with high pedestrian traffic or subject to frequent maintenance operations.
2. In addition to typical locations requiring walkways, the walkway material may also be applied beneath rooftop equipment such as blocking to support gas/plumbing lines, and small non curb mounted HVAC (or other) equipment placed on wood sleepers.

K. SAFETY AND HEALTH

Strict Safety and Health precautions are necessary at all times. PLEASE READ, UNDERSTAND AND FOLLOW ALL INSTRUCTIONS ON LABELS AND PACKAGING AS WELL AS ANY APPLICABLE INDUSTRY STANDARDS AND REGULATIONS. See also all relevant sections above. All volatile, or potentially volatile, materials such as primers, gas, cleaners, etc., shall be kept away from all ignition sources (e.g. flames, torches, fire, sparks, etc.). Consult product container labels and Safety Data Sheets for specific

safety instructions. The application of those products installed with hot asphalt or torch may result in burns and other physical injury. Surfaces which contact the melted bitumen or torch may ignite. The installer should take utmost care when using hot materials such as asphalt or when heat-welding any product. This is especially important when there may be a danger of contact with materials which may smolder, such as cellulose and wood materials, wood fiber, etc. or flammable or highly flammable solvents or chemicals. Polyglass membranes may present a slip and fall hazard. This risk is increased when wet or icy conditions exist. Adequate precautions should be taken when working. Manufacturer recommends the use of OSHA approved fall protection for project conditions.

L. LIMITATIONS
   1. Polyglass membranes should never be applied directly to TPO, EPDM, PVC, or other single ply membranes.
   2. Not to be installed over or under polystyrene insulation.

M. Surface Coatings: Apply roof coatings in strict conformance with the specific manufacturer's recommended procedures.

N. Provide any corrections to bring the roofing installation into conformance with Polyglass USA, Inc. requirements.

3.2 FIELD QUALITY CONTROL

A. Inspection: Manufacturer shall conduct field observations as deemed necessary by Polyglass for projects requiring Polyglass Roofing Systems Warranty. The number and frequency of field observations shall be as required by Polyglass USA, Inc. Technical Services Department.

B. Contractor shall correct any deficiencies observed by Polyglass Technical Services to bring the roofing installation into specification conformance with Polyglass USA, Inc. warranty requirements.

3.3 CLEANING

A. Clean-up and remove daily from the site all wrappings, empty containers, paper, loose particles and other debris resulting from these operations.

B. Remove asphalt markings from finished surfaces.

C. Repair or replace defaced or disfigured finishes caused by Work of this section.

3.4 PROTECTION

A. Provide traffic ways, erect barriers, fences, guards, rails, enclosures, chutes and the like to protect personnel, roofs and structures, vehicles and utilities.

B. Protect exposed surfaces of finished walls with tarps to prevent damage.

C. Plywood for traffic ways required for material movement over existing roofs shall be not less than 5/8 inch (16 mm) thick.

D. In addition to the plywood listed above, an underlayment of minimum 1/2 inch (13 mm) recover board is required on new roofing.

E. Special permission shall be obtained from the Manufacturer before any traffic shall be permitted over new roofing.

END OF SECTION