

**proSeal - Mechanically Attached Inseam - Roof System****1. GENERAL CONDITIONS****1.1 Description****A. Scope of Work**

1. To install a **proSeal** - Mechanically Attached Inseam - Roof System including **proSeal** membrane, flashing, accessories and other items to comprise a complete roofing system.
2. All work is to be completed as per current published **proSeal** Roof Systems™ drawings, details and specifications.
3. All warranted **proSeal** roofing systems are recommended to include a perimeter **proSeal** Safety Zone see sections 3.8-C.2 & 3.12-B

**B. Related work**

The work includes but is not necessarily limited to the installation of:

1. Protection Board/Leveling Layer (where specified/required)
2. Vapor retarder (where specified)
3. Insulation
4. Fasteners for insulation and membrane fixation
5. Roof field membrane
6. Roof flashing membrane
7. Adhesives
8. Sealants
9. Roof walkways
10. Metal flashing

**1.2 Quality Assurance**

**A.** The **proSeal** - Mechanically Attached Inseam - Roof System shall be applied only by a contractor authorized by RPW Associates Inc.

**B.** The roofing contractor shall furnish with their bid written documentation stating that they are a **proSeal** Roofing System authorized contractor.

**C.** The roofing contractor shall employ **proSeal** Roof Systems™ trained field personnel for the installation of this roof system.

**D.** The roofing contractor shall provide to RPW Associates a completed Project Award Notification (PAN) form prior to commencement of the project and shipping of materials. The RPW Technical Department will review and return an approved (amended if necessary) copy to the contractor.

**E.** No deviations in the published **proSeal** Roof Systems™ drawings, details and specifications are permitted without the written consent of the RPW Technical Department.

**F.** Upon total completion of the installation of the roof system and submittal to RPW Associates, Inc. by the contractor a certification that all work has been installed in strict accordance with the contract specifications and **proSeal** Roof Systems™ drawings, details and specifications, a final site review shall be conducted by a RPW Technical Representative.

### 1.3 Submittals

At the time of bid submission or prior to commencement of the project (as applicable), the roofing contractor shall submit to the owner's representative the following items:

1. A Copy of the project specifications.
2. Samples of all **proSeal Roof Systems™** materials to be used in the roof system.
3. Written **proSeal Roof Systems™** product literature.
4. Written approval by the insulation and non- **proSeal Roof Systems™** roofing component suppliers/manufacturers (as applicable) for use and performance of the product in the proposed roof system and compliance with all pertinent industry standards and codes.
5. Sample copy of the **proSeal Roof Systems™** warranty.
6. Sample copy of the contractor's warranty.
7. Dimensioned roof plans and proposed **proSeal Roof Systems™** roofing detail.
8. Certification that the roof system complies with all pertinent codes and industry standards.

### 1.4 Product Delivery, Storage and Handling

- A. All materials delivered to the job site shall be in the original unopened containers or wrappings.
- B. All materials shall be clearly identified with the manufacturer's/suppliers product identification labels.
- C. All materials must be free from damage during delivery, storage, handling and installation. Place all materials on pallets and fully protect from moisture as required by the manufacturer/supplier.
- D. **proSeal** membrane rolls shall be stored in a horizontal position, and fully protected from the elements.
- E. Bonding adhesives shall be stored at temperatures above +40°F (+5°C).
- F. All flammable materials shall be stored in a cool, dry area away from sparks and open flames. Follow precautions as outlined by material manufacturer/supplier and the product container.
- G. Any materials that are determined by the owner's representative to be damaged are to be removed from the job site and replaced with new material.

### 1.5 Job Conditions

- A. The **proSeal** - Mechanically Attached Inseam - Roof System - Mechanically Attached Inseam - Roof System specification is designed for use in structures designed to support lightweight roof assemblies. The adequacy of the structural support must be verified in writing by the owner or the owner's design professional, architect, or engineer and is the sole responsibility of the owner. Potential live loads, such as snow and ponding water, must be considered in the total load calculations.
- B. Some project conditions may require modifications to the standard **proSeal** specification:
  1. Geographical areas in wind zone three as identified by Factory Mutual Loss Prevention Data Sheet 1-28.
  2. Where interior air pressure at the underside of the membrane is 2.6 lbs./sq.ft. (.125 Kpa) or greater.
  3. Specific code requirements or site situations.
- C. The roofing contractor shall take care during application and storage to prevent overloading of the deck and structure.
- D. **proSeal** Roof Systems™ materials may be installed under various adverse and extreme weather conditions (temperature, moisture, humidity), but only after consultation with and written authorization from the RPW Technical Department, as performance of **proSeal** Roof Systems™ materials and roof system may be negatively affected.

- E.** All work shall be scheduled and executed without exposing the interior building areas and its contents to the effects of inclement weather. The existing building shall be protected against all risks.
- F.** Install only as much of the new roofing system as can be made weather-tight each day. This includes all related flashing work necessary to maintain a weather-tight roof system.
- G.** All substrates/surfaces, which are to receive new insulation, membrane, or flashing, shall be thoroughly dry and free from dust, debris, dirt and other contaminants which may adversely affect the performance of the products and or roof system. The roofing contractor shall provide the necessary means to rectify the substrate/surface condition prior to the commencement of the installation of the roof system.
- H.** Projects that incorporate lightweight roof deck assemblies and all re-roof or retrofit projects shall have pull out tests performed by the owner's representative and or the roofing contractor prior to the installation of the new roof system.
- I.** It is the responsibility of the owner's representative and or contractor to ensure the structural decks yield sufficient pull out value for the roof system being utilized.
- J.** All new and temporary construction, including equipment and accessories, shall be secured in such a manner, at all times, as to preclude wind blow off or wind damage.
- K.** The roofing contractor shall verify that all roof drains and soil pipes are free from obstructions. The owner or the owner's representative shall be notified in writing of any obstructions. All obstructions shall be removed so that the roof drains and soil pipes are functioning properly prior to the installation of the new roof system.
- L.** Temporary water stops shall be installed at the end of each day's work or as inclement weather or adverse conditions warrant. The temporary water stops shall be removed before continuing or proceeding with the next day's work. The water stops shall not adversely affect the new roof system and be disposed of in a proper manner.
- M.** The contractor is cautioned that certain **proSeal** C3 membranes are compatible with asphalt, oil-based materials, cements, creosote and penta-based materials. Such materials can come into contact with **proSeal** C3 membranes at any time. Special precautions are required when in contact with coal tar pitch and RPW Associates should be consulted
- N.** The contractor should take necessary precautions when using 1700 solvent based adhesives around air in-takes. The smell of the adhesive could be a disturbance to the building owner and occupants. It is the roofing contractor's responsibility to coordinate equipment to be turned off and on with the owner if necessary.
- O.** The contractor shall follow all National, State, Provincial and Local safety regulations.
- P.** Schedule work events to avoid the use of the newly constructed roof system as a storage area, foot-traffic surface and equipment movement area. Where such use is absolutely required, the contractor shall provide all necessary protection and barriers to segregate the work area and to prevent damage to adjacent roof areas. Both plywood and polyester felt protection or other approved barriers must be provided for all new and existing roof areas that receive traffic during construction.
- Q.** All new and existing roofing, insulation, flashing, metal, etc. removed for construction shall be removed from the job site in a timely manner and legally transported to a legal dumping facility/site authorized to receive such materials.
- R.** Liquid materials such as solvents and adhesives shall be stored and used away from open flames, sparks, and excessive heat.
- S.** Contaminants, such as grease, fats, oils, and solvents, should not have adverse effects when in contact with certain **proSeal** membranes. Contact the RPW Technical Department for specific chemical compatibility.

T. If any unusual or concealed conditions are discovered which may adversely affect the performance of the products or roof system, stop work immediately and notify the owner or the owner's representative and RPW Associates Inc. in writing. Do not proceed with the installation of the roof system until all conditions have been rectified.

U. Site cleanup, including both interior and exterior building areas that have been affected by construction, shall be completed to the owner's satisfaction.

V. All landscaped areas affected by construction activities shall be restored to their original condition or better.

W. All building codes and authorities having jurisdiction over this project must be adhered to where applicable. Where there is a conflict in design with building codes, authorities and the **proSeal** Roof Systems™ manual, the more stringent situation shall apply.

## 1.6 Site Meeting/Review

A. A prebid conference may be held with a representative of the owner or the owner's representative and all involved trades to discuss all aspects of the project. The contractor's field representative or roofing foreman for the project should be in attendance.

B. All bidders shall visit the site and carefully examine the areas in question as to conditions that may affect proper execution of the work. All dimensions and quantities shall be determined or verified by the roofing contractor. No claims for extra costs will be allowed because of lack of full knowledge of the existing conditions, which may have been reasonably ascertained from a thorough site review.

## 1.7 Warranties

### A. proSeal Roof Systems™ Warranties

**proSeal** Roofing warranty to the owner as outlined below. Warranties are available for periods of 10, 15, 20, 25 and 30 years. **At no time shall these warranties be considered coverage for consequential damages to any component of the building structure, its contents or loss of income or revenues to the building owners or their occupants.**

#### 1. Material and Workmanship Warranty (included in all membrane sales)

The **proSeal** Material and Workmanship Warranty protects the building owner against leaks in the roof system, which are a result of **membrane material defects** and/or the workmanship involved in the **membrane installation only**. This warranty provides for the supply of labor and membrane materials to bring the roof back into a watertight condition.

#### 2. System Warranty

The **proSeal System Warranty** protects the building owner against leaks in the roof system resulting from material defects and/or workmanship involved in the installation of all material components (e.g. membrane, fasteners, insulation, etc.) of the roof system supplied by the RPW Associates, Inc. This warranty provides for the supply of labor and material components to bring the roof back into a watertight condition.

### B. Roofing Contractor's Warranty.

The roofing contractor shall supply to RPW Associates, Inc a minimum two-year workmanship warranty. In the event any workmanship related to the installation of the roofing system is found to be defective or otherwise not in accordance with the contract documents or **proSeal** Roof Systems™ drawings, specifications and details, within two years of substantial completion, the roofing contractor shall remove and replace said defects at no cost to the owner.

## 2. PRODUCTS

### 2.1 General

A. The **proSeal** - Mechanically Attached Inseam - Roof System components are to be produced or supplied by the **proSeal** Roofing System. These components are identified in the attached specification, drawings and details.

B. Components to be used that are other than those supplied or produced by the **proSeal** Roof Systems™ may be accepted based on product chemical compatibility and published performance data. The specifications, installation instructions, limitations, and/or restrictions of the respective manufacturers must be reviewed by the designer for acceptability for use with **proSeal** Roof Systems™ products. All components not supplied or produced by the **proSeal** Roof Systems™ may affect the **proSeal** Roof Systems™ warranty and, as such, must be considered on a project-by-project basis and must be approved in writing by the RPW Technical Department.

### 2.2 proSeal Roofing Membrane

**proSeal C3** PVC - polyester reinforced membrane. Minimum thickness is 45 mil (1.1 mm). Color white/Grey. **proSeal C3** PVC is also available in 47 mil 60 mil, and 80 mil (1.2mm, 1.5 mm, and 2.0 mm) thickness for the **proSeal** – mechanically attached in seam - Roof System. 45 mil & 47 mil **proSeal C3** is available in standard roll sizes of 78" x 108' or 120" x 100' the 60 mil **proSeal C3** roll size is 78" x 90' and the 80 mil **proSeal C3** rolls size is 78" x 75' Custom roll length are available.

A. **proSeal C3** PVC membrane shall conform to ASTM D4434.85 Standard. Classification: Type III.

B. **proSeal C3** PVC membrane shall conform to CAN/CGSB37.54-95 Standard for Polyvinyl Chloride Sheet roofing. Classification: Type 4, Class B, C and D.

C. **proSeal C3** PVC membrane when manufactured shall conform to or exceed the physical properties noted in the **proSeal** Product Data Sheets.

### 2.3 Related Materials Supplied by the proSeal Roof Systems™

The following products are supplied by RPW Associates and may be incorporated in specifications as required or detailed on the drawings:

A. ProVap 06 - polyethylene sheet 06 mil nominal thickness with anti-oxidants, used as the standard vapor retarder. ProVap 10 is an optional polyethylene sheet 10 mil nominal thickness where specified.

B. ProTape - pressure sensitive isobutyl tape used for sealing terminations, vapor retarder, air and condensation seals.

C. 1700 – solvent-based adhesive used for adhering **proSeal** membrane to approved substrates.

D. ProFlex - one part co-polymer caulking used as a termination sealant.

E. ProClad – PVC coated, 26 gauge galvanized (G-90) sheet metal used where the **proSeal** membranes are to be welded directly to the metal flashing.

F. ProFastener #14 - self-tapping, corrosion-resistant fasteners, modified buttress thread, FMRC approved for use in steel and wood decks. Corrosion resistance ASTM D-4470.

G. ProFastener #15 – self-tapping, corrosion-resistant fasteners, modified buttress thread, FMRC approved for use in steel, concrete and wood decks (concrete decks require predrilled holes). Corrosion resistance ASTM D-4470.

H. ProNails – FMRC approved for use in concrete decks (concrete decks require predrilled holes).

- I. ProDisc – 20 gauge 2" (50 mm) round diameter plate used for mechanically attaching the field membrane and anchoring around penetrations such as roof drains, pitch pans, stacks, etc., galvalume coated, meets FMRC 4470 standard.
- J. ProDisc barbed – 20 gauge 2" (50 mm) round diameter plate used for mechanically attaching the field membrane and anchoring around penetrations such as roof drains, pitch pans, stacks, etc., galvalume coated, meets FMRC 4470 standard.
- K. ProPlate – 26 gauge galvalume 3" (75 mm) metal plate used for mechanically attaching insulation to structural deck, meets FMRC 4470 standard.
- L. ProBar J - extruded aluminum bar, center punched 8" (200 mm) O.C., used as a termination bar on vertical surfaces.
- M. ProBar - extruded aluminum bar, center punched 6" (150 mm) O.C., used for mechanically attached flashing.
- N. ProStrip - 18 gauge galvanized (G-90) steel bar, center punched 12" (300 mm) O.C., used as a termination bar behind siding and as a fixation bar on a vertical surface (e.g. parapets, walls, etc.).
- O. ProCorner - 60 mil (1.5 mm) prefabricated PVC inside/outside corners.
- P. ProStack - 60 mil (1.5 mm) prefabricated PVC vent stacks flashing. Fits pipe sizes 2" to 7" (50 mm to 250 mm).
- Q. **proSeal** Safety Walkway - polyester reinforced, non-slip embossed PVC walkway. Thickness 55 mil (2.0mm). Color Red/Red. Or grey /grey
- R. ProDrain - PVC coated, spun aluminum drain complete with a cast strainer for use in new construction. Sizes 3" (75 mm), 4" (100 mm) and 6" (150 mm).
- S. Flashing Membrane
  - 1. **proSeal** C3 Minimum thickness is 45mil (1.2 mm). Used for fully adhered or mechanically attached flashing membrane. Color PVC white / grey
- T. **proSeal** Detail - non-reinforced PVC, used to detail inside and outside corner flashing. Thickness 60 mil (1.5 mm). Color white.

## 2.4 Related Materials (supplied by others)

- A. Wood blocking
  - 1. Wood blocking shall be #2 quality or better and can be treated for fire and rot resistance (wolmanized or osmose treated is not a requirement)
  - 2. Wood blocking shall conform to Factory Mutual's Loss Prevention Data Sheet 1-49
  - 3. Wood shall have maximum moisture content of 19% by weight on a dry weight basis.
- B. Plywood
  - 1. When bonding directly to plywood, a minimum standard ½" (50mm) smooth surfaced, exterior grade plywood, good one side, non-pressure treated, with exterior grade glue shall be used.
  - 2. Plywood shall have maximum moisture content of 19% by weight on a dry weight basis.

**C.** Vapor retarders (other than ProVap)

1. Vapor retarders for use in a **proSeal** - Mechanically Attached Inseam - Roof System shall meet identified code and/or insurance requirements i.e. UL, ULC, FM, ASTM, CGSB-51.34M standards.
2. Vapor retarders are to be approved in writing by the vapor retarder manufacturer for their intended use.
3. Vapor retarders are to be compatible with insulation and other accessories.
4. The RPW Technical Department shall review for acceptance all non-ProVap vapor retarders.
5. ProVap vapor retarders must be used in all **proSeal** Roof Systems™ NDL System warranties.

**D.** Insulation

1. Where specified or required, insulation shall be installed over the structural deck or as a separation layer over the existing substrate and/or to obtain the desired thermal value.
2. Insulation for use in a **proSeal** - Mechanically Attached Inseam - Roof System shall meet identified code and/or insurance requirements i.e. UL, ULC, FM, ASTM, CGSB standards.
3. Insulation's are to be approved in writing by the insulation manufacturer for their intended use and for use with **proSeal** Roof Systems™ materials.
4. Insulation shall be compatible with **proSeal** Roof Systems™ membrane.
5. The RPW Technical Department shall review for acceptance all non approved insulations.
6. The following insulation board is acceptable below **proSeal** C3 membrane in a **proSeal** - Mechanically Attached Inseam - Roof System. For insulation's not specified contact the RPW Technical Department.
  - a) Polyisocyanurate insulation with non-asphaltic fiberglass facers, meeting the requirements of UL, ULC, FM, ASTM, CGSB standards and have a minimum compressive strength of 18 p.s.i. (125 Kpa).
  - b) Fibreboard insulation meeting the requirements of UL, ULC, FM, ASTM, CGSB standards
7. The **proSeal** Roof Systems™ Systems Warranties require specific insulation products to be incorporated into the roof composition. Please contact the RPW Technical Department for the specific requirements.
8. The insulation shall have a minimum "R" ("RSI") value of \_\_\_ based on the jurisdictional authority i.e. ASTM, CGSB, NRCA, NRC standard. The thickness of the insulation as shown on drawings
9. The insulation manufacturer shall send its technical recommendations, for the use of its product in the **proSeal** - Mechanically Attached Inseam - Roof System, to the owner and a copy to the RPW Technical Department with its specific warranty conditions.

**E.** Walkways (Other than **proSeal** Safety Walkway)

Due to the dynamic nature of the **proSeal** -Mechanically Attached Inseam - Roof System the RPW Technical Department must approve all walkway systems other than **proSeal** Safety Walkway prior to installation.

**F. Miscellaneous fasteners and anchors**

All fasteners shall be the same types as the metal being secured. In general, all fasteners, anchors, screws, and straps shall be of zinc or cadmium plated steel, galvanized, or stainless steel. All fasteners and anchors shall have a minimum embedment of 1" (25 mm) and shall be approved for such use by the fastener manufacturer. All fasteners shall meet Factory Mutual Standard 4470 for corrosion resistance.

**3. EXECUTION**

**3.1 General**

The Roofing contractor shall coordinate the installation of the roof system to ensure that each area is left in a weather-tight condition at the end of each work period.

**3.2 Deck Conditions/Preparation**

The following general conditions apply to the structural deck that is to receive a **proSeal** - Mechanically Attached Inseam - Roof System.

**A.** The roof deck must be structurally sound to provide support for the **proSeal** - Mechanically Attached Inseam - Roof System and other anticipated loads.

**B.** The specifier and/or the roofing contractor shall determine the condition of the existing roof deck. Areas with deteriorated decking or showing loss of structural integrity shall be repaired and or replaced prior to installing the new roof system.

**C.** The roof deck shall be installed to the structural framing as per the applicable building codes and/or Factory Mutual's requirements to resist all anticipated wind loading for the geographical area.

**D.** The **proSeal** Roof Systems™ require projects that incorporate lightweight roof deck assemblies and all reroof or retrofit projects shall have pull-out tests performed by the owner's representative and or the roofing contractor prior to the installation of the new roof system. The pullout tests shall be conducted in the areas where mechanical attachment of the insulation or membrane occurs. A minimum of 10-pullout test is required per project under 50,000 sq.ft. Projects larger than 50,000 shall have additional pullout tests conducted at a rate of 1 pullout test per 5,000 sq.ft. Approximately 60% of the pullout test should be taken in the defined perimeter/corner zone of the building/roof area and 40% in the defined field zone of the building/roof area. Consult the RPW Technical Department when structural decks that do not yield the minimum specified pullout values.

**E.** The roofing contractor shall load the roof in such a manner as to eliminate the risk of deck overload due to point loading of materials and equipment.

**F.** The contractor shall consult the RPW Technical Department when the deck substrate is exposed to excessively high humidity levels and/or a corrosive environment is present. These conditions may require specific details and or installation requirements.

**G.** The following structural decks are acceptable substrates to install the **proSeal** - Mechanically Attached Inseam - Roof System when an acceptable insulation and / or an appropriate leveling layer is incorporated in the design.

**1. Steel Deck**

**a)** The roof deck shall be a minimum 22 Ga. and shall conform and be installed to Factory Mutual's Loss Prevention Data Sheet 1-28 and/or manufacturer's and/or local building code requirement.

**b)** All rusted or deteriorated decking shall be treated with rust-inhibiting paint, and sections that have rusted through shall be completely removed and replaced.



**2. Wood Deck**

- a)** The roof deck shall be minimum nominal 2" (50 mm) and shall conform to Factory Mutual's requirements for Class I impregnated decks. Deck shall conform and be installed according to Factory Mutual and/or local building code requirements.
- b)** All rotted and deteriorated wood shall be completely removed and replaced.

**3. Plywood Deck**

- a)** The roof deck shall be minimum nominal 5/8" (59 mm) and shall conform to Factory Mutual's requirements for Class I impregnated decks. Deck shall conform and be installed according to Factory Mutual and/or local building code requirements.
- b)** All rotted and deteriorated wood shall be completely removed and replaced.

**4. Poured Structural Concrete Deck**

The roof deck shall be a minimum of 3000 p.s.i. cured and dry to industry standards. The surface shall be smooth, level and free from debris, dust and moisture or frost. Sharp ridges or other projections above the surface shall be removed. Deck shall conform and be installed according to local building code requirements.

**5. Precast and Prestressed Concrete Deck**

The roof deck shall be a minimum of 3000 p.s.i. cured and dry to industry standards. The surface shall be smooth, level and free from debris, dust and moisture or frost. Sharp ridges or other projections above the surface shall be removed before roofing over precast, prestressed concrete decks. All joints shall be grouted. Differentials in deck elevation of more than 1/4" (6.4mm) must be corrected by applying a lightweight fill over the entire deck, or a grout applied over the joints and feathered out to create a smooth transition. Deck shall conform and be installed according to manufacturers and/or local building code requirements.

**6. Cementitious Wood Fiber Deck**

- a)** The deck shall be installed in accordance with the manufacturer's requirements and industry standards. Please contact the RPW Technical Department for acceptability of the specific deck to be installed. Voids and joints over bulb tees shall be grouted. Grouting shall be done with materials supplied or recommended by the deck manufacturer. Deck planks shall be secured to structural supports as recommended by the deck manufacturer. Deck shall conform and be installed according to manufacturers and/or local building code requirements.
- b)** All wet and deteriorated sections of decking shall be removed completely and replaced.
- c)** Consult the RPW Technical Department when the insulation substrate is to be mechanically attached.

**7. Poured Gypsum Deck**

- a)** The gypsum shall be installed by an approved applicator and in accordance with the manufacturer's requirements and industry standards. The roof deck shall be cured and dry to the deck manufacturer's and/or industry standards. The surface shall be smooth, level and free from debris, dust and moisture or frost. Sharp ridges, depressions or other projections above the surface shall be removed. Deck shall conform and be installed according to manufacturers and/or local building code requirements.

- b) All saturated and deteriorated gypsum shall be removed completely and replaced.
  - c) Consult the RPW Technical Department when the insulation substrate is to be mechanically attached.
8. Lightweight Insulating Concrete Fills
- a) The lightweight fill shall be installed by an approved applicator and in accordance with the manufacturer's requirements and industry standards. The roof deck shall be cured and dry to the deck manufacturer's and/or industry standards. The surface shall be smooth, level and free from debris, dust and moisture or frost. Sharp ridges, depressions or other projections above the surface shall be removed. Proper venting as recommended by the roof deck manufacturer shall be provided. Deck shall conform and be installed according to manufacturers and/or local building code requirements.
  - b) All saturated and deteriorated insulating fill shall be removed and replaced.
  - c) Consult the RPW Technical Department when the insulation substrate is to be mechanically attached.
9. Poured Lightweight Concrete Decks
- a) The lightweight fill shall be installed by an approved applicator and in accordance with the manufacturer's requirements and industry standards. The surface shall be sealed as recommended by the lightweight concrete manufacturer to ensure the surface is free from dust and loose fragments. The roof deck shall be cured and dry to the deck manufacturer's and/or industry standards. The surface shall be smooth, level and free from debris, dust and moisture or frost. Sharp ridges, depressions or other projections above the surface shall be removed. Deck shall conform and be installed according to manufacturers and/or local building code requirements.
  - b) All saturated and deteriorated insulating fill shall be removed and replaced.
  - c) Consult the RPW Technical Department when the insulation substrate is to be mechanically attached.

### 3.3 Substrate Preparations with Removal (Reroof) of Existing Roof System

The following general conditions apply to the substrates that are to receive a **proSeal** - Mechanically Attached Inseam - Roof System.

- A. Remove only as much of the existing roof system that can be replaced in a weather-tight condition at the end of the work period. All work shall be scheduled and executed without exposing the interior building areas and its contents to the effects of inclement weather. The existing building shall be protected against all risks.
- B. The substrate shall be dry, clean, smooth, and free of flaws, sharp edges, loose and foreign material, oil and grease.
- C. The substrate shall be inspected for defects such as surface roughness, contamination, structural unsoundness or any other conditions that can affect the integrity of the roof system.
- D. The existing roofing membrane and/or insulation are to be removed to the structural deck and/ or substrate as specified or required. The specifier and/or the roofing contractor shall determine the condition of the existing substrate. All structural decking found to be deteriorated or unsound is to be repaired and/or replaced (refer to Section 3.2). All wet and/or deteriorated insulation substrate is to be removed and replaced as specified or required.

- E.** The existing membrane flashing, deteriorated wood blocking and related metal flashing shall be removed to the substrate.
- F.** All deteriorated wood blocking shall be removed and replaced as per the specifications.
- G.** All materials removed from the roof system are to be disposed of by an authorized contractor at an authorized disposal or recycling facility. The removed materials shall not be stored on the job site and are to be removed from the job site on a daily basis.
- H.** All substrates shall be acceptable for the installation of the new **proSeal** - Mechanically Attached Inseam - Roof System.
- I.** All structural substrates shall resist a minimum force of 175 pounds per lineal foot (2.5 kn. / m) in any direction
- J.** The following substrates are acceptable for the installation of the **proSeal** field membrane:
1. New insulation's (refer to Section 2.4D) that are recommended by their manufacturer for use in a mechanically attached inseam roof system.
  2. Existing insulation's (refer to Section 2.4D Insulation) that are recommended by their manufacturer for use in a mechanically attached roof system
  3. Structural steel decks (refer to Section 3.2) overlaid with leveling layer of insulation (refer to section 2.4D) or exterior-grade gypsum boards meeting ASTM, CGSB standards.
  4. Structural decks (refer to Section 3.2) overlaid with a leveling/separation layer of ProFelt 250 or ProFelt 400. Job site conditions dictate the appropriate leveling/separation layer required. Consult the RPW Technical Department for project specific recommendations.
    - a) Wood.
    - b) Plywood.
    - c) Poured concrete.
    - d) Precast or Prestressed Concrete.
    - e) Cementitious Wood Fiber.
    - f) Poured Gypsum.
    - g) Lightweight Insulating Concrete Fills.
    - h) Poured Lightweight Concrete.
- K.** The following substrates are acceptable for the installation of the **proSeal** flashing membrane:
1. New polyisocyanurate insulation with fiberglass facer, free of bitumen or other contaminants. The insulation is to be mechanically attached with an appropriate ProFastener and ProPlate at a rate of 1 per 2 sq.ft. (1 per .2 m<sup>2</sup>).
  2. New ½" (13 mm) "Good One Side" exterior grade plywood free of bitumen or other contaminants. The plywood is to be mechanically anchored with an approved fastener at a rate of 1 per 2 sq.ft. (1 per .2 m<sup>2</sup>).
  3. New 24 gauge (or heavier) galvanized metal flat stock, free of bitumen or other contaminants. The metal is to be anchored as per SMACNA latest edition.
  4. New ProFelt 400. The ProFelt is to be mechanically anchored with appropriate ProFastener and ProPlate at a rate of 1 fastener per 2 sq.ft. (1 per .2 m<sup>2</sup>).
  5. Poured Concrete, with steel float finish, free of bitumen or other contaminants.

### 3.4 Substrate Preparations without Removal (Retrofit) of Existing Roof System

1. ***It is the sole responsibility of the owner's representative, roofing contractor and professional roof designer to ensure the condition of the existing roof assembly is suitable for the installation of a retrofitted roof system that utilizes an proSeal - Mechanically Attached Inseam - Roof System. All previous general conditions relating to approved insulations, substrates and structural roof decks, etc. shall apply.***

**B.** The existing roof system shall be inspected for defects such as surface roughness, contamination, structural unsoundness or any other conditions that can affect the integrity of the roof system.

**C.** The owner's representative, roofing contractor and professional roof designer shall conduct building physics analysis to ensure the proper dew point placement and that condensation will not occur within the new retrofitted roof assembly.

**D.** The owner's representative, roofing contractor and professional roof designer shall conduct the appropriate engineering study to determine that the existing structure and structural decking will withstand all anticipated dead and live loads.

**E.** The owner's representative, roofing contractor and professional roof designer shall determine the existing roof system is free from moisture and will not affect the integrity of the new roof system. Thermographic scans with an infrared camera (or other non-destructive test methods) may be used to determine the areas of wet/damp insulation and roof membrane. Also, destructive testing such as core sampling should be taken to verify the existing condition.

**F.** All wet and/or deteriorated insulation is to be removed and replaced as specified and/or required. An authorized contractor shall remove all insulation removed from the existing roof system from the job site to an authorized disposal or recycling facility on a daily basis.

**G.** All existing loose aggregate is to be removed from the roof surface/substrate by means of power scraping, power broom or vacuuming. All existing aggregate is to be removed from the job site by an authorized contractor to an authorized disposal or recycling facility on a daily basis.

**H.** Scarify and remove accumulations of bitumen or other irregularities to produce a relatively smooth roof surface/substrate.

**I.** All blisters, ridges and irregularities are to be removed and repaired to match the original construction or as specified.

**J.** Contact the RPW Technical Department for project-specific installation procedures.

### 3.5 Wood Blocking Installation

**A.** Install continuous wood blocking at the perimeter of the entire roof and around roof projections and penetrations as specified and shown on the detail drawings.

**B.** Blocking shall be anchored to resist a minimum force of 175 pounds per lineal foot (2.5 kn. / m) in any direction. Fastener spacing shall be a maximum of 2 ft. (600 mm) on center. Fasteners shall be installed within 6" (150 mm) of each end. Spacing and fastener embedment shall conform to Factory Mutual Loss Prevention Data Sheet 1-49.

**C.** Thickness shall be as required to match substrate or insulation height.

**D.** Any existing woodwork that is to be reused shall be firmly anchored in place and shall resist a minimum force of 175 pounds per lineal foot (2.5 kn. / m) in any direction and free from rot. Only woodwork designated to be reused in detail drawings shall be left in place, and all other woodwork shall be removed.

### 3.6 Vapor Retarder Installation (where specified)

**A.** Interior and/or exterior climatic conditions (ambient temperature, relative humidity, and internal air pressure) may warrant the use of a vapor retarder/air barrier in the building construction. It is the responsibility of the design professional, based on geographical location and the intended use of the building, to determine if a vapor retarder/air barrier is required. Also, the design professional shall determine the type and location of the required vapor retarder/air barrier.

**B.** The **proSeal** Roof Systems™ recommends the use of a vapor retarder to protect the integrity of the insulation and when the interior relative humidity is 45% or greater and/or the outside mean average January temperature is below 40 degrees F. (5 degrees C). The **proSeal** Roof Systems™ may require the use of a vapor retarder to protect the integrity of the roofing system in System Warranty applications and/or special situations such as freezers and high humidity environments. Contact the RPW Technical Department for further information.

**C.** A vapor retarder may also perform as an air barrier within the building envelope. The **proSeal** Roof Systems™ recommends that strong consideration should be given to the installation of an air barrier for buildings subject to high internal air pressures such as air plane hangers or structures with sufficient openings in the wall area directly below the structural roof deck to adjust the wind uplift pressures. Contact the RPW Technical Department for further information.

**D.** Installation of ProVap 06 polyethylene vapor retarders.

Install the vapor retarder to the approved substrate (i.e. deck, insulation or existing roof surface) loose laid and parallel to the roof deck (where applicable). Overlap the joints in the vapor retarder a minimum of 6" (150 mm). Install ProTape in all side laps, end laps, terminations and penetrations and seal to ensure the continuity of the vapor retarder within the roof system. Consult the RPW Technical Department for specific tie-in requirements to other building vapor retarders.

**E.** Installation of manufactured vapor retarder other than ProVap.

Install the vapor retarder as per the manufacturer's current published specifications to ensure the continuity of the vapor retarder within in the roof system. The vapor retarder may be loose laid over the approved substrate. Asphalt and bituminous-based products must not come in contact with the **proSeal** membranes. Consult the RPW Technical Department for specific detailing requirements.

**F.** Installation of field fabricated vapor retarder.

Install a 2-ply felt & asphalt vapor retarder as per NRCA and CRCA specifications as determined by the approved substrate. Consult the RPW Technical Department for specific detailing requirements.

### 3.7 Insulation Installation

**A.** Insulation shall be installed according to the insulation manufacturer's current published specifications for use with a mechanically attached roof system.

**B.** Insulation shall be laid over an acceptable substrate (deck, vapor retarder or existing roof membrane), parallel to the deck (where applicable). Install insulation in parallel courses, butted together in moderate contact without gaps and staggered end joints. Provide full support at ends. When multiple layers of insulation are specified the subsequent layers shall be installed with joints offset from the underlying layer.

**C.** Insulation shall be attached to the approved substrate by the following methods:

1. Mechanical Attachment.

a) Fasteners and insulation plates shall meet Factory Mutual Standard 4470 for corrosion and wind uplift resistance.

- b) Insulation shall be mechanically attached to an approved substrate as per Factory Mutual Approval Guide (latest addition), the insulation manufacturer and **proSeal** Roof Systems™. Fastening rates increase in the perimeter zone and in the corner zone, by 50% and 75% respectively compared to the field fastening rates when a Factory Mutual design criteria is required
- c) The placement of the fastener and plates shall be a minimum of 6 per 4' x 8' bd, placed 6" from the long side of the sheet and 12" from the cross section of the board sheet( see detail 109) or as required per Factory Mutual, insulation manufacturer and **proSeal** Roof Systems™ fastening patterns.
- d) The fasteners shall be installed using tools with a depth locator as recommended by the fastener manufacturer. Fasteners must penetrate the structural deck as per Factory Mutual, fastener manufacturer and the **proSeal** Roof Systems™.
- e) Structural decks other than 5/8" (59 mm) plywood, 2" (50 mm) wood, 22 gauge steel, precast, pre-stressed or poured concrete decks consult the RPW Associates Technical Department.
- f) Vapor retarders affect the fastening rates in mechanically attached roof systems. Contact the RPW Technical Department for project specific requirements.

Note:

1. *Fasteners shall penetrate the underside of a steel deck a minimum of ½" (13 mm).*
2. *Fasteners shall penetrate the underside of a plywood deck a minimum of ½" (13 mm).*
3. *Fasteners shall penetrate wood deck a minimum of 1" (25 mm).*
4. *Fasteners shall penetrate poured structural, precast and pre-stressed concrete decks a minimum of 1" (25 mm).*
5. *Consult the technical Department for fastener penetration depths on all other structural decks.*

2. Hot Asphalt Attachment.

- a) Insulation attached with hot asphalt shall be installed according to Factory Mutual, insulation manufacturer's and deck manufacturer's current printed specifications.
- b) The structural deck / substrate shall be prepared for the installation of the new insulation as per the insulation manufacturers and deck manufacturer's current printed specifications.
- c) The insulation shall be set into a continuous coating of type III steep asphalt. Refer to the asphalt manufacturers current printed specifications for EVT and application rates of asphalt. Minimum application rate of asphalt shall be 25 – 30 lbs. per 100 sq.ft. (1.2 to 1.5 kg per m<sup>2</sup>). Additional securement may be required at perimeters and corners. Contact the RPW Technical Department for project specific requirements.
- d) Insulation shall be a maximum of 4' x 4' (1.2 m x 1.2 m) in size.
- e) Insulation shall be fully adhered to the prepared structural deck/substrate.
- f) Consult the RPW Technical Department for project specific recommendations or when a system's warranty is required.

3. Adhesive Attachment.

- a) Insulation attached with adhesive shall be installed according to Factory Mutual, insulation manufacturer's, adhesive manufacturers and deck manufacturer's current printed specifications.

- b) Consult the RPW Technical Department for project specific requirements when adhesive attachment method is to be utilized.
- D. Insulation shall be neatly cut to fit around penetrations and projections without gaps.
- E. Install tapered insulation in accordance with the insulation manufacturer's shop drawings.
- F. Install tapered insulation around drains to create a drain sump.
- G. Do not install more insulation than can be covered with **proSeal** membrane by the end of the work period or onset of inclement weather.

### 3.8 **proSeal Membrane Installation**

- A. The surface of the insulation or substrate shall be inspected prior to installation of the **proSeal** C3 field membrane. The substrate shall be swept clean, dry and smooth with no excessive surface roughness and contamination. All fasteners (where applicable) shall be properly seated and flush. Any damaged, broken, contaminated or delaminated insulation boards are to be removed and replaced.
- B. General:
  - 1. Over the properly installed and prepared substrate surface, unroll the **proSeal** membrane and draw tight without folds or wrinkles. Adjacent sheets shall be overlapped 5" (125 mm). End laps shall be overlapped 3" (75mm).(Detail 104)
  - 2. ProFastener and ProDisc are to be installed centered along the line marked approximately 1.5" from the edge on the membrane sheet leaving approximately .5" outside the ProDisc (refer to **proSeal Roof Systems™** (detail 106). Adjacent sheets shall overlap the underlying sheet along the line marked approximately 5" from the edge leaving approximately 2.5" between the line and the ProDisc. Hot air weld the seam area as per the appropriate seam welding techniques (refer to Section 3.9). Note: ProDisc are required on systems that do not incorporate a vapor retarder.
  - 3. The ProFastener and ProDisc are to be placed within the seam at the rate as determined by the Factory Mutual and / or the RPW Technical Department. Consult the RPW Technical Department for project specific calculations.
  - 4. The fasteners shall be installed using tools with a depth locator as recommended by the fastener manufacturer. Fasteners must penetrate the structural deck as per Factory Mutual, fastener manufacturer and the **proSeal** Roof Systems™.
  - 5. Structural decks other than 5/8" (59 mm) plywood, 2" (50 mm) wood, 22 gauge steel, precast, prestressed or poured concrete decks consult the RPW Technical Department.
  - 6. Consult the RPW Technical Department for project specific sheet layouts and fastening rates.
- C. Perimeter and Corner Zones
  - 1. The perimeter and corner zones are defined as per Factory Mutual 1-29. Refer to Appendix A to determine perimeter and corner zone dimensions and the appropriate wind exposure classification.
  - 2. **proSeal** PVC 3' wide perimeter sheets are to be installed parallel with the entire perimeter of the building/roof area. Adjacent sheets shall be overlapped 5" (125 mm). End laps shall be overlapped 3" (75mm).

**proSeal Safety Zone Walkway** can be used as an optional perimeter sheet where the perimeter of the building is defined in section 3.8.C-1

3. A minimum of one (1), **proSeal** C3 half perimeter sheets with a minimum of (1) **proSeal** Safety walkway are required to be installed on all projects
4. Corner zones require an increased rate of mechanical attachment compared to the perimeter zones. Refer to **proSeal** Roof Systems™ detail 101, 102 or 103, for typical perimeter and corner sheet layout.

D. Field Zone

**proSeal** C3 field sheets are to be installed perpendicular to the structural deck (where applicable). Adjacent sheets shall be overlapped 5" (125 mm). End laps shall be overlapped 3" (75mm). Position the membrane (where possible) to minimize the flow of water against the seam.

### 3.9 Welding of Seams

A. General.

1. Seam areas are to be dry, clean and free of dirt, debris and adhesives.
2. **proSeal** membrane seams are to be thermally fused (hot air welded).
3. Lap membrane seam joints 5" (125 mm).
4. Welding equipment shall be designed and manufactured for the purpose of thermally fusing PVC roof membranes. Consult the RPW Technical Department for manufacturer's of welding equipment.
5. Prior to commencement of welding process, determine correct temperature setting and welding speed of equipment using test samples.

B. Hand Welding:

Perform hand welding in the following stages.

1. Warm up hot-air welding equipment as recommended by the equipment manufacturer.
2. All mechanics that intend to use the equipment shall have successfully completed a course of instruction provided by a RPW Technical Representative prior to welding.
3. Position **proSeal** membrane in place with specified seam joint overlaps.
4. Pre-weld back edge, with narrow continuous welds approximately .5" (12 mm) wide to prevent heat loss during the final welding stage. The pre-weld shall be positioned, from the outside edge, the distance of the width of the nozzle used for the welding application.
5. Finally, weld the outside edge with a continuous seam of approximately 0.5" to 1" (12 mm to 25 mm.) width. Insert the nozzle into the seam at a 45-degree angle. When the membrane begins to flow and the proper welding temperature is reached, position the hand roller perpendicular to the nozzle and press adequately to achieve a continuous homogeneous weld. Move the hot-air welder and roller in smooth continuous motion along the seam. Welding seam ranges from 1 ft. to 2 ft. (0.30 m to 0.60 m) per minute. For straight laps use a 1 ½" (40 mm) wide nozzle. For corners and compound connections use a ¾" (20 mm) wide nozzle. Remove residue collected at nozzle with steel wire brush prior to start of new seam.



**C. Automatic (Machine) Welding:**

Perform automatic welding in the following stages.

1. Warm up hot-air welding equipment as recommended by the equipment manufacturer.
2. All mechanics that intend to use the equipment shall have successfully completed a course of instruction provided by a RPW Technical Representative prior to welding.
3. Position **proSeal** membrane in place with specified seam joint overlaps.
4. Perform machine welding as per welding machine instructions. Continuously guide and supervise welding machine during entire welding process. Remove membrane residue collected at nozzle with steel wire brush at least every 100 ft. (30.5 m) and prior to the start of a new seam. Welding speed ranges from 8 ft. to 10 ft. (2.40 m to 3.00 m) per minute. Local codes for electrical supply, grounding, over-current protection and other related items are to be observed. Typically automatic welding machines require 218 to 230 volts at 30 to 40 amps. The use of a portable generator (minimum output of 6500W) or direct wiring are the recommended power supplies.

**D. Quality control of seams.**

1. Visual evidence of proper welding is minor smoke development during the welding process, shiny membrane surface and an uninterrupted bead of thermally fused material from the underside of the top membrane.
2. The roofing contractor shall physically check all completed hot-air welded seams after cooling for continuity of weld using a flat #3 screwdriver. Any voids or deficiencies in the membrane seaming are to be repaired by the end of the work period. Apply an additional layer of membrane extending 3" (75 mm), in all directions, beyond the area to be repaired and hot air weld using the hand welding procedures.
3. On-site physical evaluation of hot-air welded seams shall be made daily by the roofing contractor at various seam locations or as directed by the owner's representative or RPW Technical Representative. 2" (50 mm) wide cross-sectional samples shall be taken three times a day (minimum) through completed seams. Correct welds display failure from shearing of the membrane prior to separation of the weld. The contractor at no extra charge to the owner shall patch each test cut. All field hot-air 60 mil welded seams shall be left exposed until reviewed and accepted by a RPW Technical Representative. Any voids or deficiencies in the membrane seaming are to be repaired by the end of the work period. Apply an additional layer of membrane extending 3" (75 mm), in all directions, beyond the area to be repaired and hot-air weld using the appropriate (hand or automatic) welding procedures.

**3.10 Mechanical Fixation Installation**

- A.** Install ProDisc at all transitional changes between the field (horizontal) and flashing (vertical) surfaces (e.g. perimeters, walls, curbs, etc.).
- B.** Position the ProDisc approximately .5" (12 mm) from the flashing surface on the field surface.
- C.** ProDisc shall be spaced, at all perimeters, as per the perimeter zone spacing requirements. ProDisc shall be spaced a maximum 12" (300-mm) on center at all other transitions. All fasteners shall be approved and penetrate into the structural substrate the appropriate depth.

Note:

1. Fasteners shall penetrate the underside of a steel deck a minimum of ½" (13 mm).
2. Fasteners shall penetrate the underside of a plywood deck a minimum of ½" (13 mm).
3. Fasteners shall penetrate wood deck a minimum of 1" (25 mm).
4. Fasteners shall penetrate poured structural; precast and prestressed concrete decks a minimum of 1" (25 mm).
5. Consult the RPW Technical Department for fastener penetration depths on all other structural decks.

D. Install ProDisc at all penetrations (e.g. drains, vent pipes, etc.) on the roof surface spaced a maximum of 6" (150 mm) O.C. with a minimum of 4 fasteners per penetration.

E. Position the ProDisc approximately 1" (25mm) from the edge of the flange (if applicable), penetration on the horizontal (field) membrane.

F. Mechanically fasten the ProDisc with approved fasteners, penetrating into the structural substrate the appropriate depth.

### 3.11 **proSeal Membrane Flashing Installation**

A. **proSeal** flashing membrane shall be installed concurrently with the roof membrane as the job progresses. No temporary flashing shall be allowed without the prior written approval of the owner's representative and/or the Technical Department. All areas where water enters the new roof system shall be inspected and the effected area shall be removed and replaced at no expense to the owner. **proSeal** membrane flashing shall be installed on compatible, dry, smooth, and solvent resistant surfaces.

B. **proSeal** flashing shall extend a minimum of 8" (200 mm) above the field (horizontal) surface level unless previously accepted by the owner's representative and the Technical Department.

C. Over the properly installed and prepared substrate surface, 1700 (for PVC) adhesive shall be applied using approved solvent-resistant paint rollers. The adhesive shall be applied at a rate of approximately 1.5 gal/100 sqft (.75 L/m<sup>2</sup>) depending upon the surface of the substrate. The adhesive shall be applied in smooth, even coatings with no globs, puddles, or similar irregularities. Only an area that can be covered completely in the same day's operations shall be coated with adhesive. The adhesive on the substrate surface shall be allowed to dry completely prior to installing the membrane. Refer to adhesive product data sheet for adhesive application rates on approved substrates.

Notes:

1. Drying time increases with cooler temperatures and high humidity conditions allow the adhesive to dry (minimum of 1 hour and a maximum of 3 hours).
2. using approved solvent resistant paint rollers.

D. On a dry surface, the **proSeal** flashing membrane is cut to a workable length, approximately 6 ft. (1.83 m), and the underside shall be evenly coated with 1700 (for PVC) at a rate of .5 gal/100 sqft. (.25 L/m<sup>2</sup>). While adhesive is tacky (produces strings when touched with a dry finger), the coated membrane shall be rolled carefully onto the previously coated substrate to avoid wrinkles. Do not allow adhesive on the underside of the **proSeal** membrane to dry completely. Ambient temperature, humidity, and personnel will determine the amount of membrane that can be coated with adhesive before applying to substrate. No 1700 (for PVC) adhesive shall be applied in lap areas that are to be hot-air welded to flashing or adjacent sheets. All sheets shall be applied in the same manner, lapping all sheets as required by welding techniques. Adjacent sheets shall be overlapped a minimum of 3" (75 mm) and hot- air welded.

E. The **proSeal** adhered flashing membrane sheet shall be pressed firmly into place with a hand roller.

F. **proSeal** flashing shall extend 5" (125 mm) onto the field roofing membrane and shall extend 2½" (63 mm) beyond the edge of the ProDisc. The **proSeal** field and flashing membrane shall be hot-air welded together to form a monolithic membrane.

**G.** **proSeal** flashing membranes shall be fully adhered to solvent-resistant substrates. All interior and exterior corners and miters shall be cut and hot-air welded into place as per **proSeal** details and procedures. No bituminous elements shall be in contact with the **proSeal** membrane.

**H.** **proSeal** flashing membrane shall be terminated according to **proSeal** recommended details. All fixation bars (ProBar, ProStrip and ProBar J) shall be fastened a minimum of 12" (300 mm) O.C.. Install ProTape and ProFlex caulking as detailed.

**I.** Mechanically Attached Flashing

An air barrier must be incorporated within the building envelope, behind the membrane flashing, if the membrane flashing is mechanically attached. There are several methods for mechanically attaching flashing that may be incorporated into the **proSeal** - Mechanically Attached Inseam - Roof System:

**1.** ProDisc Inseam

- a)** The maximum spacing between the field (horizontal) surface and the first row of the vertically positioned ProDisc is 9" (225 mm), all subsequent rows shall be spaced a maximum of 18" (450 mm) O.C.
- b)** Measure the entire area to receive new **proSeal** flashing membrane (allow for an extra 3/4" (19 mm) of flashing membrane for each row of ProDisc. Cut the **proSeal** flashing membrane in a maximum width of 15-1/2" (390 mm) wide for the first piece and a maximum of 23" (550 mm) wide for all subsequent pieces. Position the strips of **proSeal** flashing membrane, on a horizontal surface, subsequent sheets shall overlap the previous sheet 5" (125 mm). Hot-air weld the flashing strips, using approved welding techniques, to create a prefabricated flashing membrane with inseam laps on the backside of the flashing membrane. Refer to detail MF – 2.16  
**Or**
- c)** Measure the entire area to receive new **proSeal** flashing membrane (allow for an extra 3/4" (19 mm) of flashing membrane for each row of ProDisc and cut to suit. Next cut 5" (125 mm) wide strips of **proSeal** flashing membrane. Place the **proSeal** flashing membrane on a horizontal surface, position all 5" (125 mm) strips on the backside of the **proSeal** flashing membrane. The bottom edge of the first strip shall be positioned at a distance from the bottom edge of the flashing membrane not exceeding 5.5" (137 mm). The bottom edge of all subsequent strips shall be positioned at a distance from the bottom edge of the previous strip not exceeding 18" (450 mm). Hot-air weld the bottom edge of the flashing strips to the backside of the **proSeal** flashing membrane, using approved welding techniques, to create a prefabricated flashing membrane with inseam laps on the backside of the flashing membrane.
- d)** Position the prefabricated flashing membrane on the flashing surface to ensure proper width and alignment. Fold back the flashing membrane to expose the lowermost inseam row. Draw the flashing membrane tight without folds or wrinkles. Starting in the center of the flashing sheet mechanically fasten through the flashing membrane with ProDisc and approved fasteners and continue fastening in sequence to the outside edge of the sheet. Repeat the process for subsequent inseam rows and adjacent flashing sheets. Do not install ProDisc within 2" (50 mm) of corners.
- e)** All sheets shall be applied in the same manner, lapping all sheets as required by welding techniques. Adjacent sheets shall be overlapped 3" (75 mm) and hot air welded.
- f)** A minimum of one row of ProDisc shall be installed on all vertical surfaces except on parapets of less than 6" (150 mm) in height. A row of ProDisc shall be placed at all transitional changes unless covered by metal flashing that is secured with a starter strip.

2. ProDisc & Coverstrip
  - a) The maximum spacing between the field (horizontal) surface and the first row of the vertically positioned ProDisc is 9" (225 mm), all subsequent rows shall be spaced a maximum of 18" (450 mm) O.C.
  - b) The maximum spacing between the ProDisc within the seam is 12" (300 mm) O.C.
  - c) Position the **proSeal** flashing membrane on the flashing surface to ensure proper width and alignment. Draw the flashing membrane tight without folds or wrinkles. Chalk lines on the flashing membrane to indicate the spacing between the rows of the ProDisc. Position the ProDisc on the uppermost vertical chalked line of the flashing sheet. Starting in the center of the flashing sheet mechanically fasten the ProDisc through the flashing membrane with approved fasteners and continue fastening in sequence to the outside edge of the sheet. Install a hot-air welded **proSeal** cover strip over the row of ProDisc. Repeat the process for subsequent in-seam rows and adjacent flashing sheets. Do not install ProDisc within 2" (50 mm) of corners.
  - d) All sheets shall be applied in the same manner, lapping all sheets as required by welding techniques. Adjacent sheets shall be overlapped 3" (75 mm) and hot air welded.
  - e) A minimum of one row of ProDisc shall be installed on all vertical surfaces except on parapets of less than 6" (150 mm) in height. A row of ProDisc shall be placed at all transitional changes unless covered by metal flashing that is secured with a starter strip.

### 3.12 Roof Walkway Installation

#### A. General:

Walkways shall be provided for regular maintenance of rooftop equipment and for roof areas subject to foot traffic. Walkways shall consist of **proSeal** walkway, precast concrete pavers or other approved surface. Contact the RPW Technical Department for project specific recommendations.

#### B. Installation of **proSeal** Safety Zone Walkways

1. Chalk lines on the **proSeal** field membrane to indicate where the walkway is to be located.
2. The **proSeal** field membrane shall be clean, dry and free of all debris.
3. Apply 1700 adhesive to the **proSeal** field membrane, at a rate of .67 gal / 100 sq.ft (1.3 L / m<sup>2</sup>), in the area where the walkways are to be installed, to a width 6" (150 mm) less than the width of the **proSeal** Walkway and allow to dry (minimum of 1 hour and a maximum of 3 hours).
4. Apply 1700 adhesive to the backside of the **proSeal** Safety Walkway, at a rate of .5 gal/100 sq.ft. (1 L/m<sup>2</sup>), Do not apply adhesive within 3" (75 mm) of the edge of the **proSeal** Walkway and allow to dry until the adhesive is tacky (producing strings when touched by a dry finger).
5. The adhesive shall be applied in smooth, even coatings with no globs, puddles, or similar irregularities.
6. Place the **proSeal** Safety Walkway in position, such that the adhesive on the **proSeal** field membrane and the **proSeal** Safety Walkway come in contact, and roll frequently in two directions with a weighted, foam-covered lawn roller.

7. Hot-air weld the edges of the **proSeal** Safety Walkway to the **proSeal** field membrane, and check all seams with a #3 rounded screwdriver.

**C. Walkways (Other than **proSeal** Walkway)**

Due to the dynamic nature of the **proSeal** -Mechanically Attached Inseam - Roof System the **proSeal** Roofing System Technical Department must approve all walkway systems other than **proSeal** Walkway prior to installation.

### 3.13 ProClad Metal Edge Flashing Installation

**A.** ProClad metal flashing shall be installed concurrently with the roof membrane as the installation progresses.

**B.** All fabrication practices and installation procedures shall conform to the applicable requirements of the following, unless otherwise specified and/or detailed:

1. Sheet Metal and Air Conditioning National Association Inc. (SMACNA – latest edition)
2. Factory Mutual Loss Prevention Data Sheet 1-49 (or latest edition)
3. National Roofing Contractors Association (NRCA – latest edition)
4. Canadian Roofing Contractors Association (CRCA – latest edition)

**C.** ProClad metal flashing shall be mechanically anchored into wood blocking with approved fasteners. Two rows of fasteners shall be installed 4" (100 mm) O.C. and staggered. The fasteners shall penetrate the wood blocking a minimum of 1" (25 mm).

**D.** Hot-air weld **proSeal** flashing membrane, 4" (100 mm) wide by the width of the flange, over the joint in the ProClad metal.

**E.** Hot-air weld **proSeal** flashing membrane, a minimum of 4" (100mm) from the outside edge of the ProClad metal flashing, onto the **proSeal** field membrane.

**F.** Check all seams with a #3 rounded screwdriver.

### 3.14 Metal Flashing Installation (other than ProClad)

**A.** All fabrication practices and installation procedures shall conform to the applicable requirements of the following, unless otherwise specified and/or detailed:

1. Sheet Metal and Air Conditioning National Association Inc. (SMACNA – latest edition)
2. Factory Mutual Loss Prevention Data Sheet 1-49 (or latest edition)
3. National Roofing Contractors Association (NRCA – latest edition)
4. Canadian Roofing Contractors Association (CRCA – latest edition)

**B.** Metal, other than ProClad metal, is not covered under the **proSeal** Roof Systems™ warranty.

### 3.15 Tie-ins

**A.** Temporary

Temporary tie-ins shall be installed at the end of each work period and when work is postponed due to inclement weather conditions. The staggered insulation substrate shall be straightened using partial filler pieces of insulation loose laid. The new **proSeal** field membrane shall be sealed to the deck and/or substrate (creating a water cut-off) to prevent water migration from the existing roof system into the new roofing system. The edge of the membrane shall be sealed in a continuous heavy application of roof cement or hot asphalt 6" (150 mm) wide or other acceptable methods.

When work resumes, the contaminated **proSeal** field membrane shall be cut out. All sealant, contaminated membrane, insulation fillers, etc., shall be removed from the work area and disposed of off-site.

None of these materials shall be used in the new work. All temporary tie-ins shall be constructed to provide a 100% watertight seal. If any water penetrates the new completed roof system all affected areas shall be removed and replaced at no cost to the owner.

**B. Permanent**

Permanent tie-ins shall be installed at the end of the project or as dictated by construction scheduling. Permanent tie-ins shall incorporate a water cut-off to prevent water migration from the existing roof system into the new roofing system. A tie-in to asphaltic built up roof membranes shall be performed with Aluflex oil and asphalt resistant membrane. Refer to the standard tie-in details or contact the RPW Technical Department for project specific recommendations.

**3.16 Completion**

**A.** Upon completion the contractor shall clean up and remove from the job site all rubbish, debris and surplus materials.

**B.** The owner, owner's representative and roofing contractor shall review the completed work and document all deficiencies. Upon inspection of the completed roof system by a RPW Technical Representative, the contractor shall promptly correct all documented deficiencies and noncompliance's with **proSeal** Roof Systems™ current published specifications and details.

**C.** All **proSeal** Roof Systems™ warranties (refer to Section 1.7) shall have been submitted and approved prior to the commencement of the project. All approved **proSeal** Roof Systems™ warranties will be issued upon total completion of the project and in compliance with the **proSeal** Roof Systems™ current published specifications and details.

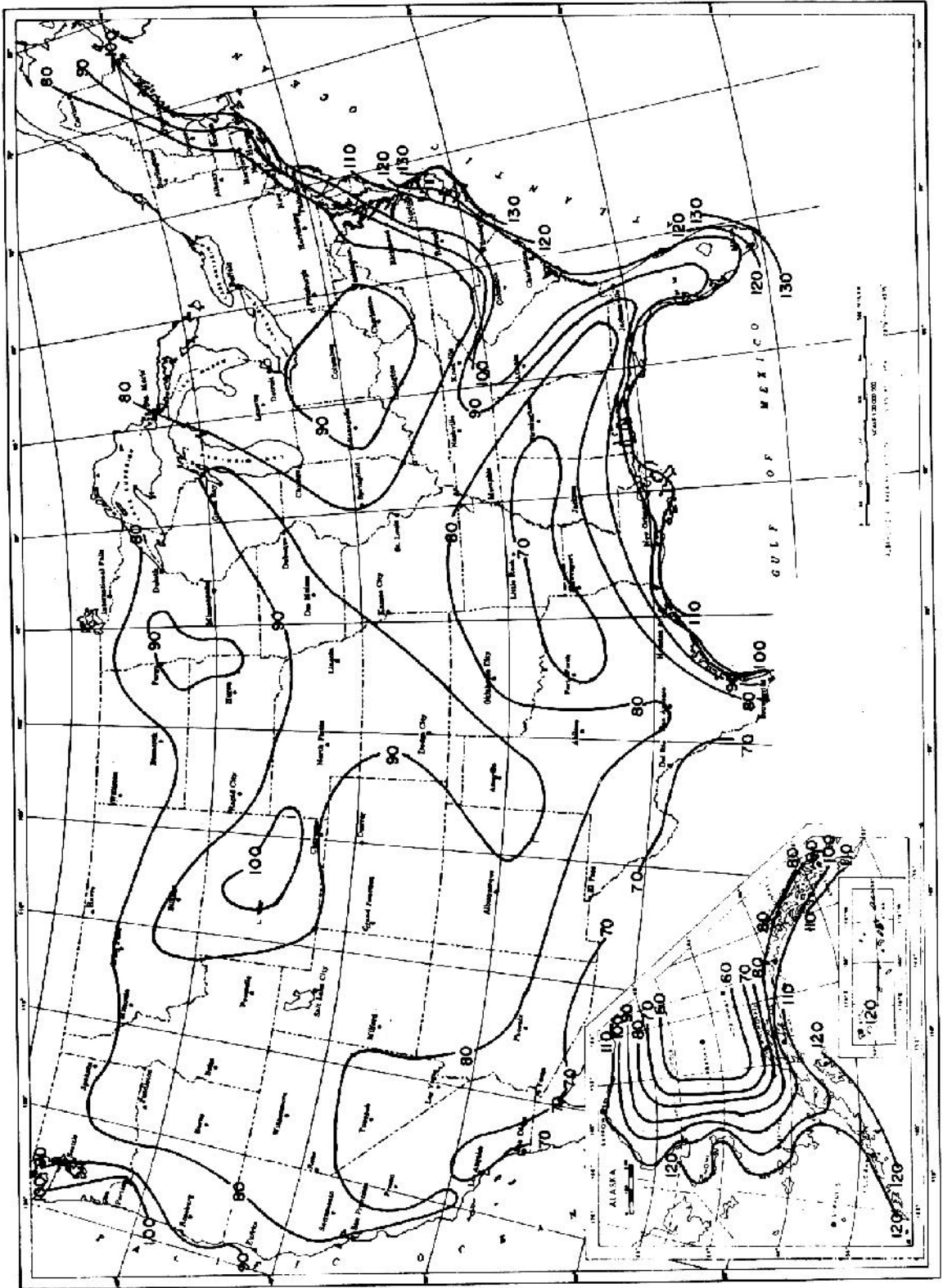
**3.17 Maintenance**

Maximization of the anticipated life cycle of a roofing system is dependent upon the successful implementation of an appropriate maintenance program. The **proSeal** Roof Systems™ requires the building owner to implement an inspection and maintenance program. Please refer to the warranty package, which includes a suggested inspection and maintenance program. Contact the RPW Technical Department for project specific recommendations.

**DISCLAIMER**

**RPW Associates, Inc has attempted to obtain information from the manufacturers of other products often used in conjunction with our roofing systems and / or products with respect to the characteristics of such products, as well as their compatibility with those of the requested roof system.. Inasmuch as these other products as supplied in the field are subject to possible variation in their production, and inasmuch as their specifications and performance characteristics are subject to change without notification by the manufacturers, RPW Associates, inc expressly excludes from its warranty any responsibility for the performance or quality of the products of others used in conjunction with **proSeal** Roofing Systems™ or products whereas prior written acknowledgement and acceptance was obtained**

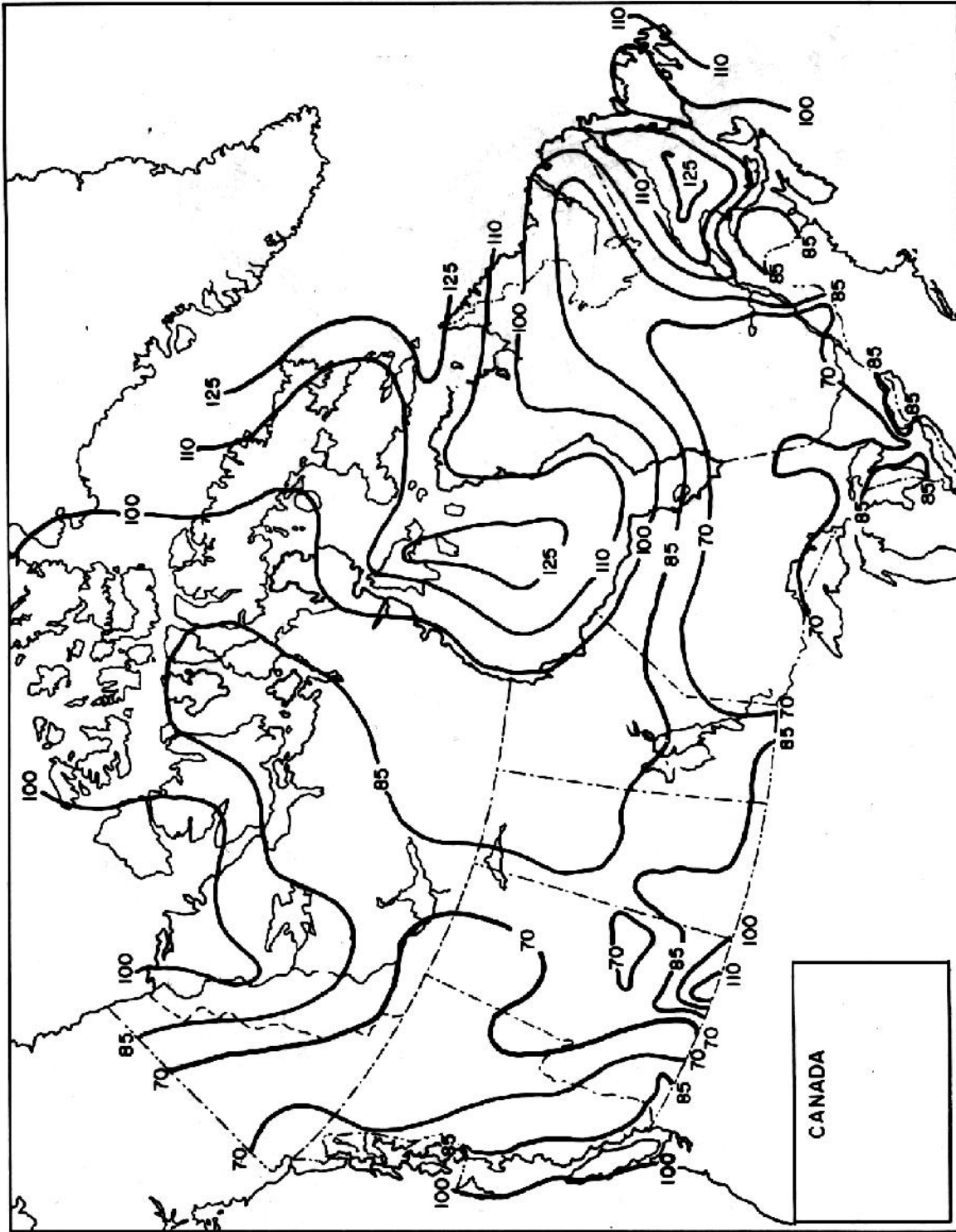
Figure 1a.



Basic wind speed in miles per hour. Annual extreme - mile 30 ft.  
(9 m) above ground, 100-yr recurrence interval.

Note: Design wind speeds for Puerto Rico are 110 mph (177 km/hr).

Figure 1b.



Wind speed map for Canada. Maximum speed over a 1 minute period.



**TABLE 1**

| <b>GROUND ROUGHNESS B LOW SLOPED ROOFS</b> |                 |                 |    |                 |                 |     |     |
|--|-----------------|-----------------|----|-----------------|-----------------|-----|-----|
| Wind Uplift Pressure (psf)                 |                 |                 |    |                 |                 |     |     |
| Wind Isotech mph (from map)                |                 |                 |    |                 |                 |     |     |
| Height Above Ground, ft.                   | 70              | 80              | 90 | 100             | 110             | 120 | 130 |
| <b>0-15</b>                                | 10              | 11              | 14 | 17              | 20              | *   | *   |
| <b>30</b>                                  | 10              | 13              | 17 | 21              | 25              | *   | *   |
| <b>50</b>                                  | 12              | 15              | 19 | 24              | 29              | *   | *   |
| <b>75</b>                                  | 14              | 18              | 22 | 27              | 33              | *   | *   |
| <b>100</b>                                 | 15              | 20              | 25 | 31              | 37              | *   | *   |
| <b>200</b>                                 | 19              | 24              | 31 | 38              | 45              | *   | *   |
| <b>300</b>                                 | 22              | 28              | 36 | 44              | 53              | *   | *   |
| <b>400</b>                                 | 24              | 31              | 39 | 48              | 58              | *   | *   |
| <b>500</b>                                 | 26              | 33              | 42 | 52              | 63              | *   | *   |
|  | Wind Exposure 1 | Wind Exposure 2 |    | Wind Exposure 3 | Wind Exposure 4 | *   | *   |

- Notes:
- 1) Contact technical department for Wind Exposure 3 and greater
  - 2) Wind Uplift Pressure excludes corners and perimeter
  - 3) \* = Special Designs are needed

| <b>GROUND ROUGHNESS B LOW SLOPED ROOFS</b> |               |                 |      |               |               |     |     |
|--|---------------|-----------------|------|---------------|---------------|-----|-----|
| Wind Uplift Pressure (Kpa)                 |               |                 |      |               |               |     |     |
| Wind Isotech mph (from map)                |               |                 |      |               |               |     |     |
| Height Above Ground, m.                    | 70            | 80              | 90   | 100           | 110           | 120 | 130 |
| <b>0-5</b>                                 | 0.48          | 0.53            | 0.67 | 0.81          | 0.96          | *   | *   |
| <b>9</b>                                   | 0.48          | 0.62            | 0.81 | 1.00          | 1.20          | *   | *   |
| <b>15</b>                                  | 0.57          | 0.72            | 0.91 | 1.15          | 1.39          | *   | *   |
| <b>23</b>                                  | 0.67          | 0.86            | 1.05 | 1.29          | 1.58          | *   | *   |
| <b>30</b>                                  | 0.72          | 0.96            | 1.20 | 1.48          | 1.77          | *   | *   |
| <b>61</b>                                  | 0.91          | 1.15            | 1.48 | 1.82          | 2.20          | *   | *   |
| <b>91</b>                                  | 1.05          | 1.34            | 1.72 | 2.11          | 2.54          | *   | *   |
| <b>122</b>                                 | 1.15          | 1.48            | 1.87 | 2.30          | 2.78          | *   | *   |
| <b>152</b>                                 | 1.24          | 1.58            | 2.01 | 2.49          | 3.02          | *   | *   |
|  | Wind Exposure | Wind Exposure 2 |      | Wind Exposure | Wind Exposure | *   | *   |

- Notes:
- 1) Contact technical department for Wind Exposure 3 and greater
  - 2) Wind Uplift Pressure excludes corners and perimeter
  - 3) \* = Special Designs are needed

**TABLE 2**

| <b>GROUND ROUGHNESS C LOW SLOPED ROOFS</b> |                 |                 |    |                 |                 |                 |     |
|--|-----------------|-----------------|----|-----------------|-----------------|-----------------|-----|
| Wind Uplift Pressure (psf)                 |                 |                 |    |                 |                 |                 |     |
| Wind Isotech mph (from map)                |                 |                 |    |                 |                 |                 |     |
| Height Above Ground, ft.                   | 70              | 80              | 90 | 100             | 110             | 120             | 130 |
| <b>0-15</b>                                | 14              | 18              | 23 | 29              | 35              | 41              | *   |
| <b>30</b>                                  | 16              | 21              | 27 | 33              | 40              | 48              | *   |
| <b>50</b>                                  | 18              | 24              | 30 | 37              | 44              | 53              | *   |
| <b>75</b>                                  | 20              | 26              | 33 | 40              | 49              | 58              | *   |
| <b>100</b>                                 | 21              | 28              | 35 | 43              | 52              | 62              | *   |
| <b>200</b>                                 | 25              | 32              | 41 | 50              | 61              | 72              | *   |
| <b>300</b>                                 | 27              | 35              | 44 | 55              | 66              | 79              | *   |
| <b>400</b>                                 | 29              | 37              | 47 | 58              | 71              | 84              | *   |
| <b>500</b>                                 | 30              | 39              | 50 | 62              | 74              | 89              | *   |
|  | Wind Exposure 1 | Wind Exposure 2 |    | Wind Exposure 3 | Wind Exposure 4 | Wind Exposure 5 | *   |

- Notes:
- 1) Contact technical department for Wind Exposure 3 and greater
  - 2) Wind Uplift Pressure excludes corners and perimeter
  - 3) \* = Special Designs are needed

| <b>GROUND ROUGHNESS C LOW SLOPED ROOFS</b> |                 |                 |      |                 |                 |                 |     |
|--|-----------------|-----------------|------|-----------------|-----------------|-----------------|-----|
| Wind Uplift Pressure (Kpa)                 |                 |                 |      |                 |                 |                 |     |
| Wind Isotech mph (from map)                |                 |                 |      |                 |                 |                 |     |
| Height Above Ground, m.                    | 70              | 80              | 90   | 100             | 110             | 120             | 130 |
| <b>0-5</b>                                 | 0.67            | 0.86            | 1.10 | 1.30            | 1.68            | 1.96            | *   |
| <b>9</b>                                   | 0.77            | 1.00            | 1.29 | 1.58            | 1.92            | 2.30            | *   |
| <b>15</b>                                  | 0.86            | 1.15            | 1.44 | 1.77            | 2.11            | 2.54            | *   |
| <b>23</b>                                  | 0.96            | 1.24            | 1.58 | 1.92            | 2.35            | 2.78            | *   |
| <b>30</b>                                  | 1.00            | 1.34            | 1.68 | 2.06            | 2.49            | 2.97            | *   |
| <b>61</b>                                  | 1.20            | 1.53            | 1.96 | 2.39            | 2.92            | 3.45            | *   |
| <b>91</b>                                  | 1.29            | 1.68            | 2.11 | 2.63            | 3.16            | 3.78            | *   |
| <b>122</b>                                 | 1.39            | 1.77            | 2.25 | 2.78            | 3.40            | 4.02            | *   |
| <b>152</b>                                 | 1.44            | 1.87            | 2.39 | 2.97            | 3.54            | 4.26            | *   |
|  | Wind Exposure 1 | Wind Exposure 2 |      | Wind Exposure 3 | Wind Exposure 4 | Wind Exposure 5 | *   |

- Notes:
- 1) Contact technical department for Wind Exposure 3 and greater
  - 2) Wind Uplift Pressure excludes corners and perimeter
  - 3) \* = Special Designs are needed

**TABLE 3**

| <b>GROUND ROUGHNESS D LOW SLOPED ROOFS</b> |                 |                 |                 |                 |     |                 |     |
|--|-----------------|-----------------|-----------------|-----------------|-----|-----------------|-----|
| Wind Uplift Pressure (psf)                 |                 |                 |                 |                 |     |                 |     |
| Wind Isotech mph (from map)                |                 |                 |                 |                 |     |                 |     |
| Height Above Ground, ft.                   | 70              | 80              | 90              | 100             | 110 | 120             | 130 |
| <b>0-15</b>                                | 17              | 23              | 29              | 35              | 43  | 51              | 60  |
| <b>30</b>                                  | 19              | 25              | 32              | 39              | 48  | 57              | 66  |
| <b>50</b>                                  | 21              | 27              | 34              | 42              | 51  | 61              | 71  |
| <b>75</b>                                  | 23              | 29              | 37              | 46              | 55  | 66              | 77  |
| <b>100</b>                                 | 24              | 31              | 39              | 48              | 58  | 69              | 81  |
| <b>200</b>                                 | 26              | 34              | 43              | 54              | 65  | 77              | 91  |
| <b>300</b>                                 | 28              | 37              | 46              | 57              | 69  | 82              | 96  |
| <b>400</b>                                 | 29              | 38              | 49              | 60              | 72  | 86              | 101 |
| <b>500</b>                                 | 30              | 40              | 50              | 62              | 75  | 89              | 104 |
|  | Wind Exposure 1 | Wind Exposure 2 | Wind Exposure 3 | Wind Exposure 4 |     | Wind Exposure 5 | *   |

- Notes:
- 1) Contact technical department for Wind Exposure 3 and greater
  - 2) Wind Uplift Pressure excludes corners and perimeter
  - 3) \* = Special Designs are needed

| <b>GROUND ROUGHNESS D LOW SLOPED ROOFS</b> |                 |                 |                 |                 |      |                 |      |
|--|-----------------|-----------------|-----------------|-----------------|------|-----------------|------|
| Wind Uplift Pressure (Kpa)                 |                 |                 |                 |                 |      |                 |      |
| Wind Isotech mph (from map)                |                 |                 |                 |                 |      |                 |      |
| Height Above Ground, m.                    | 70              | 80              | 90              | 100             | 110  | 120             | 130  |
| <b>0-5</b>                                 | 0.81            | 1.10            | 1.39            | 1.68            | 2.06 | 2.44            | 2.87 |
| <b>9</b>                                   | 0.91            | 1.20            | 1.53            | 1.87            | 2.30 | 2.73            | 3.16 |
| <b>15</b>                                  | 1.00            | 1.29            | 1.63            | 2.01            | 2.44 | 2.92            | 3.40 |
| <b>23</b>                                  | 1.10            | 1.39            | 1.77            | 2.20            | 2.63 | 3.16            | 3.69 |
| <b>30</b>                                  | 1.15            | 1.48            | 1.87            | 2.30            | 2.78 | 3.30            | 3.88 |
| <b>61</b>                                  | 1.25            | 1.63            | 2.06            | 2.59            | 3.11 | 3.69            | 4.36 |
| <b>91</b>                                  | 1.34            | 1.77            | 2.20            | 2.73            | 3.30 | 3.93            | 4.60 |
| <b>122</b>                                 | 1.39            | 1.82            | 2.35            | 2.87            | 3.45 | 4.12            | 4.84 |
| <b>152</b>                                 | 1.44            | 1.92            | 2.39            | 2.97            | 3.59 | 4.26            | 4.98 |
|  | Wind Exposure 1 | Wind Exposure 2 | Wind Exposure 3 | Wind Exposure 4 |      | Wind Exposure 5 | *    |

- Notes:
- 1) Contact technical department for Wind Exposure 3 and greater
  - 2) Wind Uplift Pressure excludes corners and perimeter
  - 3) \* = Special Designs are needed

**TABLE 4**

| WIND EXPOSURE CLASSIFICATION | STRUCTURAL DECK              | BAR SPACING & ATTACHMENT | INSULATION ATTACHMENT          | COMMENTS  |
|------------------------------|------------------------------|--------------------------|--------------------------------|---|
| 1<br>(with a vapor retarder) | <b>METAL</b>                 |                          |                                |   |
|                              | 22 gauge steel (min.)        | 18" (450 mm) O.C.        | 1 per 2.9 ft.2 (1 per 0.27 m2) | All fasteners must penetrate through the underside of the deck a minimum of 1/2" (13 mm). |
|                              | <b>WOOD</b>                  |                          |                                |   |
|                              | nominal 2" (50 mm) wood      | 18" (450 mm) O.C.        | 1 per 2.9 ft.2 (1 per 0.27 m2) | All fasteners must penetrate the deck a minimum of 1" (25 mm).                            |
|                              | nominal 3/4" (19 mm) plywood | 18" (450 mm) O.C.        | 1 per 2.9 ft.2 (1 per 0.27 m2) | All fasteners must penetrate through the underside of the deck a minimum of 1/2" (13 mm). |
| <b>CONCRETE*</b>             |                              |                          |                                |   |
|                              | 3.6 ksi (25 mpa) structural  | 12" (300 mm) O.C.        | 1 per 6.4 ft.2 (1 per 0.58 m2) | All fasteners must penetrate the deck a minimum of 1" (25 mm).                            |

Note: \*ProDisc Barbed are to be used with these structural decks.  
 a) Increase insulation fastening rate by 50% in the perimeter zone & 75% in the corner zone.

**TABLE 5**

| WIND EXPOSURE CLASSIFICATION    | STRUCTURAL DECK              | BAR SPACING & ATTACHMENT | INSULATION ATTACHMENT          | COMMENTS  |
|---------------------------------|------------------------------|--------------------------|--------------------------------|---|
| 1<br>(without a vapor retarder) | <b>METAL*</b>                |                          |                                |   |
|                                 | 22 gauge steel (min.)        | 12" (300 mm) O.C.        | 1 per 6.4 ft.2 (1 per 0.58 m2) | All fasteners must penetrate the underside of the deck a minimum of 1/2" (13 mm). |
|                                 | <b>WOOD*</b>                 |                          |                                |   |
|                                 | nominal 2" (50 mm) wood      | 12" (300 mm) O.C.        | 1 per 6.4 ft.2 (1 per 0.58 m2) | All fasteners must penetrate the deck a minimum of 1" (25 mm).                    |
|                                 | nominal 3/4" (19 mm) plywood | 12" (300 mm) O.C.        | 1 per 6.4 ft.2 (1 per 0.58 m2) | All fasteners must penetrate the underside of the deck a minimum of 1/2" (13 mm). |
| <b>CONCRETE*</b>                |                              |                          |                                |   |
|                                 | 3.6 ksi (25 mpa) structural  | 12" (300 mm) O.C.        | 1 per 6.4 ft.2 (1 per 0.58 m2) | All fasteners must penetrate the deck a minimum of 1" (25 mm).                    |

Note: \*ProDisc are to be used with these structural decks.  
 II. Increase insulation fastening rate by 50% in the perimeter zone & 75% in the corner zone.

**TABLE 6**  
**ATTACHMENT 3**

| WIND EXPOSURE CLASSIFICATION | STRUCTURAL DECK              | BAR SPACING & ATTACHMENT | INSULATION ATTACHMENT          | COMMENTS  |
|------------------------------|------------------------------|--------------------------|--------------------------------|---|
| 2<br>(with a vapor retarder) | <b>METAL</b>                 |                          |                                |   |
|                              | 22 gauge steel (min.)        | 18" (450 mm) O.C.        | 1 per 2.0 ft.2 (1 per 0.19 m2) | All fasteners must penetrate through the underside of the deck a minimum of 1/2" (13 mm). |
|                              | <b>WOOD</b>                  |                          |                                |   |
|                              | nominal 2" (50 mm) wood      | 18" (450 mm) O.C.        | 1 per 2.0 ft.2 (1 per 0.19 m2) | All fasteners must penetrate the deck a minimum of 1" (25 mm).                            |
|                              | nominal 3/4" (19 mm) plywood | 18" (450 mm) O.C.        | 1 per 2.0 ft.2 (1 per 0.19 m2) | All fasteners must penetrate through the underside of the deck a minimum of 1/2" (13 mm). |
| <b>CONCRETE*</b>             |                              |                          |                                |   |
|                              | 3.6 ksi (25 mpa) structural  | 12" (300 mm) O.C.        | 1 per 6.4 ft.2 (1 per 0.58 m2) | All fasteners must penetrate the deck a minimum of 1" (25 mm).                            |

Note: \*ProDisc are to be used with these structural decks.  
III. Increase insulation fastening rate by 50% in the perimeter zone & 75% in the corner zone.

**TABLE 7**

| WIND EXPOSURE CLASSIFICATION    | STRUCTURAL DECK              | BAR SPACING & ATTACHMENT | INSULATION ATTACHMENT          | COMMENTS  |
|---------------------------------|------------------------------|--------------------------|--------------------------------|---|
| 2<br>(without a vapor retarder) | <b>METAL*</b>                |                          |                                |   |
|                                 | 22 gauge steel (min.)        | 6" (150 mm) O.C.         | 1 per 6.4 ft.2 (1 per 0.58 m2) | All fasteners must penetrate the underside of the deck a minimum of 1/2" (13 mm). |
|                                 | <b>WOOD*</b>                 |                          |                                |   |
|                                 | nominal 2" (50 mm) wood      | 6" (150 mm) O.C.         | 1 per 6.4 ft.2 (1 per 0.58 m2) | All fasteners must penetrate the deck a minimum of 1" (25 mm).                    |
|                                 | nominal 3/4" (19 mm) plywood | 6" (150 mm) O.C.         | 1 per 6.4 ft.2 (1 per 0.58 m2) | All fasteners must penetrate the underside of the deck a minimum of 1/2" (13 mm). |
| <b>CONCRETE*</b>                |                              |                          |                                |   |
|                                 | 3.6 ksi (25 mpa) structural  | 6" (150 mm) O.C.         | 1 per 6.4 ft.2 (1 per 0.58 m2) | All fasteners must penetrate the deck a minimum of 1" (25 mm).                    |

Note: \*ProDisc are to be used with these structural decks.  
IV. Increase insulation fastening rate by 50% in the perimeter zone & 75% in the corner zone.

**TABLE 8**

| Uplift Pressure (psf)                     | Wind Exposure Classification |
|---|------------------------------|
| psf $\leq$ 30 (Kpa $\leq$ 1.4)            | 1                            |
| 30 < psf $\leq$ 45 (1.4 < Kpa $\leq$ 2.2) | 2                            |
| 45 < psf $\leq$ 60 (2.2 < kpa $\leq$ 2.9) | 3                            |
| 60 < psf $\leq$ 75 (2.9 < Kpa $\leq$ 3.7) | 4                            |
| 75 < psf < 90 (3.7 < Kpa < 4.3)           | 5                            |

Note: Contact technical department for Wind Exposure Classification 3 and greater

**TABLE 9**

| Roof Slope  | Roof Area (Figure 2a. 2b. 2c.)<br>(for Determining Uplift Pressure Calculations) |           |           |        |
|---|--|-----------|-----------|--------|
|   | 1  | 2         | 3         | 4      |
| >10° and $\leq$ 45°<br>[>2 in. per ft. and $\leq$ 12 in. per ft.] | field  | perimeter | perimeter | corner |
| $\leq$ 10°<br>[ $\leq$ 2 in. per ft.]<br>{ $\leq$ 167 mm/m}       | field  | perimeter | field     | corner |

Notes: 1) if the roof slope is greater than 10o Roof Area 3 is defined as a perimeter zone

2) if the roof slope is greater than 10° the roof height is defined as the mean (average) height