

SECTION 07540 – SINGLE PLY MEMBRANE ROOFING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions, apply to this Section.

1.2 SUMMARY OF WORK- Binks Gym, John Morrison Gym and Bldg. 400

- A. This Section includes the following:
 1. Contractor to furnish and install [n] layers of Polyisocyanurate for a total of five [5] inches, and ¼ inch Dens deck over field of roof. Furnish and install [n] insulation crickets to promote positive drainage as required.
 2. Roof membrane: Mechanically attached single ply membrane over wood decks and fully adhered of concrete decks. Concrete decks: Morrison mid level and walkway and elevator decks on Bldg. 40.
 3. Penetrations and projections.
 4. Contractor to furnish and install [n] wood nailers at perimeters and designated locations.
 5. Contractor to furnish and installation of [n] flashings at curbs, walls etc.
 6. Contractor to furnish and installation of [n] gutters/downspouts. See Sheetmetal section.
 7. Furnish and install [n] Bilco aluminum roof hatch with Safety railing on Binks.
 8. Morrison Gym: Field fabricate new expansion joint with new single ply and tie into new membrane. Terminate top of flashing with flat bar covered by surface mounted counter flashing and caulked.
 9. Miscellaneous details.
- B. Related Sections include the following:
 1. Division 7 Section 1732 “Selective Demolition”
 2. Division 7 Section 7620 "Sheet Metal Flashing and Trim" for metal roof penetration flashings, flashings, and counterflashing's.
 3. Division 7 Section 6105 “Miscellaneous Carpentry”

1.3 DEFINITIONS

- A. Roofing Terminology: Refer to ASTM D 1079 and glossary of NRCA's "The NRCA Roofing and Waterproofing Manual" for definition of terms related to roofing work in this Section.
- B. Design Uplift Pressure: The uplift pressure, calculated according to procedures in SPRI's "Wind Load Design Guide for Fully Adhered and Mechanically Fastened Roofing Systems," before multiplication by a safety factor.

1.4 PERFORMANCE REQUIREMENTS

- A. General: Provide installed roofing membrane and base flashings that remain watertight; do not permit the passage of water; and resist specified uplift pressures, thermally induced movement, and exposure to weather without failure.
- B. Material Compatibility: Provide roofing materials that are compatible with one another under conditions of service and application required, as demonstrated by roofing membrane manufacturer based on testing and field experience.
- C. Roofing System Design: Provide a membrane roofing system that is identical to systems that have been successfully tested by a qualified testing and inspecting agency to resist uplift pressure calculated according to ASCE 7.
- D. FMG Listing: Provide roofing membrane, base flashings, and component materials that comply with requirements in FMG 4450 and FMG 4470 as part of a membrane roofing system and that are listed in FMG's "Approval Guide" for Class 1 or noncombustible construction, as applicable. Identify materials with FMG markings.
 - 1. Fire/Windstorm Classification: Class 1A **90**.
 - 2. U.L. Class A fire rating
- E. Roofing System Design: Provide a membrane roofing system that is identical to systems that have been successfully tested by a qualified testing and inspecting agency to resist the factored design uplift pressures calculated according to SPRI's "Wind Load Design Guide for Fully Adhered and Mechanically Fastened Roofing Systems."
- F. Product Data: For each type of product indicated.
- G. Shop Drawings: For roofing system. Include plans, sections, details, and attachments to other Work.
 - 1. Base flashings and membrane terminations.
 - 2. Data sheet and color for Fascia metal
 - 3. Data sheet for gutters and downspouts
- H. Samples for Verification: For the following products:
 - 1. 12-by-12-inch square of roofing membrane, of color specified.
 - 2. New counterflashing metal
 - 3. New perimeter metal
- I. Installer Certificates: Signed by roofing system manufacturer certifying that Installer is approved, authorized, or licensed by manufacturer to install roofing system.
- J. Qualification Data: For Installer and manufacturer.
- K. Product Test Reports: Based on evaluation of comprehensive tests performed by manufacturer and witnessed by a qualified testing agency, for components of roofing system.

- L. Research/Evaluation Reports: For components of membrane roofing system.
- M. Maintenance Data: For roofing system to include in maintenance manuals.
- N. Warranties: Special warranties specified in this Section. **Provide unexecuted copy of warranty for review and approval.**
- O. Inspection Report: Copy of roofing system manufacturer's inspection report of completed roofing installation.

1.5 QUALITY ASSURANCE

- A. Installer Qualifications: An employer of workers trained and certified by manufacturer, including a full-time on-site supervisor with a minimum of five years' experience installing products comparable to those specified, able to communicate verbally with Contractor, Architect, and employees, and qualified by the manufacturer to install manufacturer's product and furnish warranty of type specified. Contractor must have an established office/shop located within a fifty [50] miles radius of project to properly service project and leak response.
- B. Certified/approved contractor: Manufacturer letter: Contractor to provide letter by said manufacture confirming the contractor is either certified or approved by manufacturer and will provide a 20 year full systems NDL warranty meeting all value added service requirements. The letter shall be submitted with bid.
- C. Manufacturer Qualifications: Approved manufacturer with UL listed roofing systems comparable to those specified for this Project, with minimum five years' experience in manufacture of comparable products in successful use in similar applications, and able to furnish warranty with provisions matching specified requirements.
 1. Approval of Comparable Products: Submit the following in accordance with project substitution requirements, within time allowed for substitution review:
 - a. Product data, including certified independent test data indicating compliance with requirements.
 - b. Samples of each component.
 - c. Sample submittal from similar project.
 - d. Project references: Minimum of five installations of specified products not less than five years old, with Owner and Architect contact information.
 - e. Sample warranty, unexecuted with follow up inspections and dates indicated on warranty form.
 - f. Sample copy of weekly report
 2. Request for substitution: Submit separate request for each substitution. Document each request with complete data substantiating compliance of proposed substitution with the requirements of contract documents. Schedule for submittal for Architect review and comment: Ten [10] days prior to date of bid. Give itemized comparison of proposed substitution with specified product, product by product, listing variations and reference to specifications. 3rd party independent test results are required with each product. Highlight all specified standards and limitations in both the specified product submittal and the substituted product request to make comparison direct and obvious. Submittals that are not complete, not highlighted and not clear shall be rejected upon receipt.
 3. Approved manufacturers must meet separate requirements of Submittals Article.

- D. Roofing Inspector Qualifications: A technical representative of manufacturer not engaged in the sale of products and experienced in the installation and maintenance of the specified roofing system, qualified to perform roofing observation and inspection specified in Field Quality Control Article, to determine Installer's compliance with the requirements of this Project, and approved by the manufacturer to issue warranty certification. The Roofing Inspector shall be one of the following:
1. An authorized full-time technical employee of the manufacturer.
 2. An independent party certified as a Registered Roof Observer by the Roof Consultants Institute, retained by the Contractor or the Manufacturer and approved by the Manufacturer.
- E. Manufacture Qualifications. A qualified manufacture that has UL listing, FMG approval for membrane roofing system identical to that used for this project.
- F. Source Limitations: Obtain components for membrane roofing system **from** roofing membrane manufacturer.
- G. Fire-Test-Response Characteristics: Provide membrane roofing materials with the fire-test-response characteristics indicated as determined by testing identical products per test method below by UL, FMG, or another testing and inspecting agency acceptable to authorities having jurisdiction. Materials shall be identified with appropriate markings of applicable testing and inspecting agency.
1. Fire-Resistance Ratings: UL Class A, for fire-resistance-rated roof assemblies of which roofing system is a part.
- H. Preinstallation Conference: Conduct conference at Project site. Comply with requirements in Division 1 Section "Project Management and Coordination." Review methods and procedures related to roofing system including, but not limited to, the following:
1. Meet with Owner, Architect, Owner's insurer if applicable, testing and inspecting agency representative, roofing Installer, roofing system manufacturer's representative, deck Installer, and installers whose work interfaces with or affects roofing including installers of roof accessories and roof-mounted equipment.
 2. Review methods and procedures related to roofing installation, including manufacturer's written instructions.
 3. Review and finalize construction schedule and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
 4. Examine deck substrate conditions and finishes for compliance with requirements, including flatness and fastening.
 5. Review structural loading limitations of roof deck during and after roofing.
 6. Review base flashings, special roofing details, roof drainage, roof penetrations, equipment curbs, and condition of other construction that will affect roofing system.
 7. Review governing regulations and requirements for insurance and certificates if applicable.
 8. Review temporary protection requirements for roofing system during and after installation.
 9. Review roof observation and repair procedures after roofing installation.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver roofing materials to Project site in original containers with seals unbroken and labeled with manufacturer's name, product brand name and type, date of manufacture, and directions for storing and mixing with other components.
- B. Store liquid materials in their original undamaged containers in a clean, dry, protected location and within the temperature range required by roofing system manufacturer. Protect stored liquid material from direct sunlight.
 - 1. Discard and legally dispose of liquid material that cannot be applied within its stated shelf life.
- C. Protect roof insulation materials from physical damage and from deterioration by sunlight, moisture, soiling, and other sources. Store in a dry location. Comply with insulation manufacturer's written instructions for handling, storing, and protecting during installation.
- D. Handle and store roofing materials and place equipment in a manner to avoid permanent deflection of deck.

1.7 PROJECT CONDITIONS

- A. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit roofing system to be installed according to manufacturer's written instructions and warranty requirements.

1.8 WARRANTY

- A. Special Warranty: Manufacturer's standard warranty form, without monetary limitation, in which manufacturer agrees to repair or replace components of roofing system that fail in materials or workmanship within specified warranty period. Failure includes roof leaks.
 - 1. Special warranty includes roofing membrane, baseflashings, roofing membrane accessories, roof insulation, fasteners, cover boards, substrate board, and other components of roofing system, whether manufactured by or approved by the manufacturer for 20 [twenty] years from date of Substantial Completion.
- B. Maintenance Service Agreement: Manufacturer's standard form, in which manufacturer agrees to provide the following service for the roof system during the second, fifth, tenth, and year fifteen of the warranty period specified above:
 - 1. Inspection of the roof membrane and associated roofing system components listed above by a manufacturer's technical service representative.
 - 2. Report of inspection documenting roofing conditions.
 - 3. Routine preventive maintenance and repairs to damage to the roof system, excluding such damage to the roof system excluded from the warranty and service agreements as a result of neglect, negligence, vandalism or other excluded cause as described in manufacturer's published terms and conditions at the date of this contract.
 - 4. General rooftop housekeeping and cleanup, subject to limits, but generally including removal of incidental debris.

5. Special Project Warranty: Submit roofing Installer's warranty, on warranty form at end of this Section, signed by Installer, covering Work of this Section, including all components of roofing system such as roofing membrane, base flashing, roof insulation, fasteners, cover boards, substrate boards, vapor retarders, roof pavers, and walkway products, for the following warranty period: years from date of Substantial Completion.
- C. Special project warranty: Submit roofing installers warranty, on warranty form at end of this section, signed by installer, covering work of this section, including all components of the membrane roofing system such as membrane, baseflashing, roof insulation, fasteners, walkway products, for the following warranty period:

Contractor warranty: Provide a contractors installation warranty for a period of two [2] years.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Basis of design: Product requirements in section are based TPA/PVC based products named in Part 2 articles. Subject to compliance with requirements, provide the named product.
- B. Manufacturer: Subject to compliance with requirements, provide the following:
 1. TPAPVC single ply membrane: CRRC approved membrane system in current edition meeting 110 SRI.
 2. Roof system meeting the following requirements:
 - a. Warranty requirements and coverage. Follow up inspections, housekeeping and preventative maintenance.
 - b. Regulatory requirements: Class A fire rated assembly. Wind uplift requirements meeting: I- 90.
 - c. Product and system performance as stated. Product shall be 25% recycled materials based on pre consumer content.

2.2 SINGLE PLY ROOFING – TPA/PVC MEMBRANE

- A. Polyester Fabric-Reinforced Sheet: Uniform, flexible sheet formed from a thermoplastic fabric or scrim reinforced, and as follows: Products /systems tested per ASTM 4434 Type III
 1. Thickness: **60 mil FB and 60 mils bare back product.**
 2. Exposed Face Color: **White**
 3. Physical Properties: Performance requirements
 - a. Tensile Strength: MD 412 lbf/in and XMD 538 lbf/in ASTM D 751, grab method.
 - b. Elongation at Break: 29% MD and 31% XMD ; ASTM D 751.
 - c. Breaking Strength: ASTM D 751 350 lb/in MD and 360 lbs/in XMD

- d. Brittleness Point: Minus 22 deg F.
- e. Linear Dimension Change: 1 ; ASTM D 1204.
- f. Seam strength : D 751 – 800 lbf

2.3 AUXILIARY MATERIALS

- A. General: Auxiliary materials recommended by roofing system manufacturer for intended use and compatible with membrane roofing.
 - 1. Liquid-type auxiliary materials shall meet VOC limits of authorities having jurisdiction.
- B. Sheet Flashing: Manufacturer's standard sheet flashing of same material, type, reinforcement, thickness, and color as TPA sheet membrane.
- C. Sheet Flashing: Manufacturer's standard unreinforced thermoplastic sheet flashing, **55 mils** thick, minimum, of same color as sheet membrane.
- D. Bonding Adhesive: Manufacturer's standard **water**-based bonding adhesive for membrane, and solvent-based bonding adhesive for base flashings. Elastomeric adhesive by roof systems manufacturer
- E. Metal Termination Bars: Manufacturer's standard predrilled stainless-steel or aluminum bars, approximately 1 by 1/8-inch-thick; with anchors.
- F. Fasteners: Factory-coated steel fasteners and metal or plastic plates meeting corrosion-resistance provisions in FMG 4470, designed for fastening membrane to substrate, and acceptable to membrane roofing system manufacturer.
- G. Miscellaneous Accessories: Provide pourable sealers, preformed cone and vent sheet flashings, preformed inside and outside corner sheet flashings, T-joint covers, termination reglets, cover strips, and other accessories.
- H. Liquid applied coatings: Fluid applied system consisting of: primer, base coat, fiberglass reinforcement and top coat. Primer: Multi use primer – Low volatile, water based quick drying primer, one [1] part used to promote adhesion Base coat –One [1] part, moisture triggered polyurethane base roof coating, fiberglass reinforcement. Top coat – one [1] part moisture triggered polyurethane top coat.
- I. Caulking: one [1] and two [2] part polyurethane sealant.
- J. Exterior paint for flashings/vents: Sherman Williams exterior grade Latex, Super Paint grade or better. Submit sample for approval.
- K. Dens Deck:- cover board: ASTM C 1177 1/4 inch, Dens Deck by Georgia Pacific or equal. Dens deck to be primed when fully adhering the sheet.
- L. Insulation and Tapered insulation: Providing 1/4 inch per foot slope. Product shall meet ASTM 1289/ ASTM C-209, 20 PSI TYPE II, Class I, Grade 2.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with the following requirements and other conditions affecting performance of roofing system:
 - 1. Verify that roof openings and penetrations are in place and set and braced and that roof drains are securely clamped in place.
 - 2. Verify that wood blocking, curbs, and nailers are securely anchored to roof deck at penetrations and terminations and that nailers match thicknesses of insulation.

3.2 PREPARATION

- A. Clean substrate of dust, debris, moisture, and other substances detrimental to roofing installation per roofing system manufacturer's written instructions. Remove sharp projections. Using a power broom or acceptable means, remove all loose, non adhered gravel, dirt and debris.
- B. Prevent materials from entering and clogging roof drains and conductors and from spilling or migrating onto surfaces of other construction. Remove roof-drain plugs when no work is taking place or when rain is forecast.
- C. Complete terminations and base flashings and provide temporary seals to prevent water from entering completed sections of roofing system at the end of the workday or when rain is forecast. Remove and discard temporary seals before beginning work on adjoining roofing.
- D. Dead/ unused equipment: Remove from roof and premises all dead or un-used equipment.

3.3 INSULATION AND DENS DECK INSTALLATION

- A. Coordinate installing membrane roofing system components so the wood deck is not exposed to precipitation or left exposed at the end of the workday.
- B. Comply with membrane roofing system manufacturer's written instructions for installing roof substrate board.
- C. Mechanically attach Insulations & Dens Deck: Install layers of Insulation and cover board of Dens Deck and secure layer to deck using mechanical fasteners specifically designed and sized for fastening specified Insulation & Dens Deck to deck type.
 - 1. Fasten layer[s] of Insulation and layer of Dens Deck according to requirements in FMG's "Approval Guide" for specified Windstorm Resistance Classification. Wind uplift I-90 rating.
 - 2. Fasten layer[s] of Insulation and layer of Dens Deck to resist uplift pressure at corners, perimeter, and field of roof.
 - 3. Install boards with long joints of Insulation in a continuous straight line with end joints staggered between rows, abutting edges and ends between boards. Fill gaps ¼ with like same product.

4. Trim surface where necessary so completed surface is flush and does not restrict flow of water.
5. Install layer of Dens Deck over insulation set in Low rise foam adhesive per manufactures recommendations.

3.4 MECHANICALLY ATTACHED ROOFING MEMBRANE INSTALLATION

- A. Install roofing membrane over area to receive roofing according to roofing system manufacturer's written instructions. Unroll roofing membrane and allow to relax before installing.
 1. Install sheet according to ASTM D 5082.
 2. On concrete decks install fully adhered FB membrane. Set FB membrane in a continuous application of adhesive and roll in for maximum adhesion. Heat weld laps as specified.
- B. **Start installation of roofing membrane in presence of roofing system manufacturer's technical personnel. Note: Prior to beginning the installation of the new single ply membrane, the contractor must confirm the following:**
- C. Accurately align roofing membranes and maintain uniform side and end laps of minimum dimensions required by manufacturer. Stagger end laps.
- D. Mechanically attach membrane system meeting I-90 wind uplift fastening pattern and requirements, with approved fasteners and plates. Adhere roofing membrane securely at terminations, penetrations, and curbs/walls of roofing with approved adhesive. Set bare back single ply membrane in manufacturers approved adhesive at the rate of 1 gallon per 100 square feet. Roll in for maximum adhesion as required prior to heat welding laps.
- E. Apply roofing membrane with side laps shingled with slope of roof deck where possible.
- F. Seams: Clean seam areas, overlap roofing membrane, and hot-air weld side and end laps of roofing membrane according to manufacturer's written instructions to ensure a watertight seam installation.
 1. Test lap edges with probe to verify seam weld continuity. Apply lap sealant to seal cut edges of roofing membrane.
 2. Verify field strength of seams a minimum of twice daily and repair seam sample areas.
 3. Repair tears, voids, and lapped seams in roofing membrane that does not meet requirements.
- G. Spread sealant or mastic bed over deck drain flange at deck drains and securely seal roofing membrane in place with clamping ring.
- H. In-Splice Attachment: Secure one edge of roofing membrane using fastening plates or metal battens centered within membrane splice and mechanically fasten roofing membrane to roof deck. Field-splice seam.

- I. Through-Membrane Attachment: Secure roofing membrane using fastening plates or metal battens and mechanically fasten roofing membrane to roof deck. Cover battens and fasteners with a continuous cover strip.
- J. Install roofing membrane and auxiliary materials to ensure system is made watertight nightly.

3.5 BASE FLASHING/ DETAIL INSTALLATION

- A. Install sheet flashings and preformed flashing accessories and adhere to substrates according to membrane roofing system manufacturer's written instructions.
- B. Apply solvent-based bonding adhesive to substrate and underside of sheet flashing at required rate and allow to partially dry. Do not apply bonding adhesive to seam area of flashing.
- C. Flash penetrations and field-formed inside and outside corners with sheet flashing.
- D. Clean seam areas and overlap and firmly roll sheet flashings into the adhesive. Weld side and end laps to ensure a watertight seam installation.
- E. Misc. flashings –As needed: Prime metal with metal primer. Apply fluid applied base coat. while base is still wet, apply reinforcing mat and trowel in without wrinkles or voids. Apply top coat of fluid applied.
- F. Penetrations/projections: Furnish and install pre-manufactured boot. Heat weld flange to field membrane. Clamp and caulk top of flashing.
- G. Drains: Pull strainers, clamping rings and set aside. Ensure drain is clear and free flowing. Report all plugged drains to owner. Furnish and install water block. Center 55 mil unreinforced target, centered over drain. Run field sheet into drain and trim off neatly. Set clamping ring in TF tape and tighten evenly. Furnish and install new washered bolts. Reinstall strainer and secure.
- H. Gravel stop: Furnish and install new gravel stop metal secured to 22-gauge cleat. Mechanically fasten flange three [3] inches O.C. staggered and strip in with single ply membrane. Heat weld directly to metal. See sheet metal section.
- I. Gutters/downspouts: As directed, furnish and install [n] gutters/downspouts. See Sheetmetal section.
- J. Pipe blocking: Furnish and install [n] Dura block supports under pipes and conduit. Spacing of blocking shall meet current code requirements for pipe size.
- K. Walkways: Furnish and install [n] walkway by manufacturer, and tack weld to secure. Pattern of walkway to be provided by owner.
- L. Ductwork legs: Contractor to adjust ductwork legs after roof installation to properly adjust to slope and provide properly support ducting. Furnish and install [n] rubber blocking under leg.
- M. New wood blocking @ [e] mechanical units: Change out all wood members under units with [n] Dura blocks to accommodate the size/height required.

- N. Blocking for gas/electrical lines: Furnish and install Dura blocks under gas/electrical lines. Spacing of blocking shall meet current UBC requirements.
- O. Electrical removal/ replacement: to be performed by others. Roofing contractor to work with electrical contractor to ensure all electrical components are properly remove and re-installed, flashed in and secured properly.
- P. Mechanical/ducting: to be performed by others. Roofing contractor to work with the mechanical contractor to ensure all mechanical units and ducting are properly removed and re-installed, flashed in and securely properly. All areas of ductwork disconnected must be properly waterproofed when re -installed.
- Q. Expansion joint – Morrison Gym: Furnish, fabricate and install new field fabricated expansion joint. Furnish components to create and support billow with closed cell foam. Terminate top of new sheet to wall with termination bar fastened eight [8] inches O.C. and cover with a surface mounted counterflashing, secure to wall twelve [12] inches O.C. with washered drives. Caulk and tool top of flashings to seal.

3.6 FIELD QUALITY CONTROL

- A. Testing Agency: Contractor will engage a qualified independent testing and inspecting agency or manufacturer to perform roof tests and inspections and to prepare test reports. Provide eight [8] days of full time inspection.
- B. Final Roof Inspection: Arrange for roofing system manufacturer's technical personnel to inspect roofing installation on completion and submit report to Architect.
 - 1. Notify Owner 48 hours in advance of date and time of inspection.
- C. Repair or remove and replace components of membrane roofing system where test results or inspections indicate that they do not comply with specified requirements.
- D. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.

3.7 PROTECTING AND CLEANING

- A. Protect membrane roofing system from damage and wear during remainder of construction period. When remaining construction will not affect or endanger roofing, inspect roofing for deterioration and damage, describing its nature and extent in a written report, with copies to Architect and Owner.
- B. Correct deficiencies in or remove membrane roofing system that does not comply with requirements, repair substrates, and repair or reinstall membrane roofing system to a condition free of damage and deterioration at time of Substantial Completion and according to warranty requirements.
- C. Clean overspray and spillage from adjacent construction using cleaning agents and procedures recommended by manufacturer of affected construction.

3.8 ROOFING INSTALLER'S WARRANTY

- A. WHEREAS **<Insert name>** of **<Insert address>**, herein called the "Roofing Installer," has performed roofing and associated work ("work") on the following project:
1. Owner: **<Insert name of Owner.>**
 2. Address: **<Insert address.>**
 3. Building Name/Type: **<Insert information.>**
 4. Address: **<Insert address.>**
 5. Area of Work: **<Insert information.>**
 6. Acceptance Date: **<Insert date.>**
 7. Warranty Period: **<Insert time.>**
 8. Expiration Date: **<Insert date.>**
- B. AND WHEREAS Roofing Installer has contracted (either directly with Owner or indirectly as a subcontractor) to warrant said work against leaks and faulty or defective materials and workmanship for designated Warranty Period,
- C. NOW THEREFORE Roofing Installer hereby warrants, subject to terms and conditions herein set forth, that during Warranty Period he will, at his own cost and expense, make or cause to be made such repairs to or replacements of said work as are necessary to correct faulty and defective work and as are necessary to maintain said work in a watertight condition.
- D. This Warranty is made subject to the following terms and conditions:
1. Specifically excluded from this Warranty are damages to work and other parts of the building, and to building contents, caused by:
 - a. lightning;
 - b. peak gust wind speed exceeding **<Insert wind speed>** mph (m/sec);
 - c. fire;
 - d. failure of roofing system substrate, including cracking, settlement, excessive deflection, deterioration, and decomposition;
 - e. faulty construction of parapet walls, copings, chimneys, skylights, vents, equipment supports, and other edge conditions and penetrations of the work;
 - f. vapor condensation on bottom of roofing; and
 - g. activity on roofing by others, including construction contractors, maintenance personnel, other persons, and animals, whether authorized or unauthorized by Owner.
 2. When work has been damaged by any of foregoing causes, Warranty shall be null and void until such damage has been repaired by Roofing Installer and until cost and expense thereof have been paid by Owner or by another responsible party so designated.
 3. Roofing Installer is responsible for damage to work covered by this Warranty but is not liable for consequential damages to building or building contents resulting from leaks or faults or defects of work.
 4. During Warranty Period, if Owner allows alteration of work by anyone other than Roofing Installer, including cutting, patching, and maintenance in connection with penetrations, attachment of other work, and positioning of anything on roof, this Warranty shall become null and void on date of said alterations, but only to the extent said alterations affect work covered by this Warranty. If Owner engages Roofing Installer

to perform said alterations, Warranty shall not become null and void unless Roofing Installer, before starting said work, shall have notified Owner in writing, showing reasonable cause for claim, that said alterations would likely damage or deteriorate work, thereby reasonably justifying a limitation or termination of this Warranty.

5. During Warranty Period, if original use of roof is changed and it becomes used for, but was not originally specified for, a promenade, work deck, spray-cooled surface, flooded basin, or other use or service more severe than originally specified, this Warranty shall become null and void on date of said change, but only to the extent said change affects work covered by this Warranty.
6. Owner shall promptly notify Roofing Installer of observed, known, or suspected leaks, defects, or deterioration and shall afford reasonable opportunity for Roofing Installer to inspect work and to examine evidence of such leaks, defects, or deterioration.
7. This Warranty is recognized to be the only warranty of Roofing Installer on said work and shall not operate to restrict or cut off Owner from other remedies and resources lawfully available to Owner in cases of roofing failure. Specifically, this Warranty shall not operate to relieve Roofing Installer of responsibility for performance of original work according to requirements of the Contract Documents, regardless of whether Contract was a contract directly with Owner or a subcontract with Owner's General Contractor.

E. IN WITNESS THEREOF, this instrument has been duly executed this **<Insert day>** day of **<Insert month>**, **<Insert year>**.

1. Authorized Signature: **<Insert signature.>**
2. Name: **<Insert name.>**
3. Title: **<Insert title.>**

END OF SECTION 07540