

**MAINE TURNPIKE AUTHORITY**

**ADDENDUM NO. 1**

**CONTRACT 2015.09**

**INTERCHANGE 53**  
**TOLL PLAZA REPLACEMENT**  
**MM 52.4**

**The bid opening date is Thursday 10/01/15 at 11am.**

The following changes are made to the Specifications and Plans.

**SPECIFICATIONS**

The following Specification is changed:

Special Provision 105.4.1 Page SP-14 - the following Paragraph is added:

“The contractor is also responsible for protecting newly placed concrete from all winter maintenance deicing operations.”

Special Provision 107.1.1 Page SP-20

Under “Substantially complete shall be defined by the Authority as the following:”  
Delete “The new Toll Administration Building has been completed.” and Replace with “The new Toll Administration Building has been accepted by the MTA for occupancy with minor punch list items.”

Special Provision Section 631 Page SP-168

Under subsection 631.08 Basis of Payment – Paragraph 2, delete “15 percent” and replace with “5 percent”.

Special Provision Section 639 Page SP-179

Under subsection 639.04 Field Offices – Paragraph 1, delete “wireless”.

The following Specifications are added:

Division 800

05300 Metal Decking (See Attached)

07530 single Ply Membrane Roofing and Flashing (See Attached)

## PLANS

- Plan Sheet EM-11 (Page 78 of 95) Electrical and Mechanical Booth Details – The following changes are made:
  - The Roof-Mounted Heat Pump RHP-1 Design Manufacturer and Model “DOMESTIC B59516 or approved equal” is deleted and replaced with “MITSUBISHI MUZ-FH18NA Condenser Unit with a MFZ-KA18NA wall mounted unit”
  - Note 7 is deleted and replaced with “PROVIDE A 240 VOLT 20A/IP WEATHERPROOF DISCONNECT SWITCH AT THE OUTDOOR CONDENSER UNIT, RHP-1. WIRE RHP-1 (INDOOR AND OUTDOOR) TO A 240 VOLT 20A/IP IN THE RESPECTIVE DIRTY POWER PANEL.

## QUESTIONS

**The following are questions asked at the pre-bid meeting held on September 15, 2015 or submitted to the Maine Turnpike Authority in writing. Answers to the questions are noted. Bidders shall utilize this information in preparing their bid.**

Question 1: Contract Documents state that the contractor shall be both highway and bridge prequalified. Is this correct?

Answer: Yes, this is correct. The contract language has been changed regarding prequalification; contractor should become familiar with the new contract language prior to bid submittal.

Question 2: Flag poles are in spec section 10200 can you reference where to find on the drawings or if there are any for the project? Please clarify.

Answer: Relocated flagpole is shown on GP-01 (Page 31 of 95)

Question 3: On drawing S2 section 2 calls for Galvanized Steel Grating at the utility pit. Spec section 10200-3.05 Calls for aluminum grating. Can you clarify?

Answer: Per Drawing S2 the grate for the utility pit shall be galvanized steel.

Question 4: On sheet 50 of 95 what is the length of the temporary gantry? Can you clarify?

Answer: The length of the gantry will be determined in the field dependent on the design of the temporary ramp detour. The gantry shall be long enough to suspend the AVI antenna in the middle of the proposed temporary detour ramp.

Question 5: In the exit lanes, are there existing concrete pavement slabs under the HMA?

Answer: No, all existing concrete is at roadway grade.

## **ATTACHMENTS**

- Pre-Bid Agenda (4 pages)
- Pre-Bid Sign-In sheets (1 page)
- Specifications (12 page)

**Notes:** The above items shall be considered as part of the bid submittal.

The total number of pages included with this addendum is Twenty-one (21).

All bidders are requested to acknowledge the receipt of the Addendum No. 1 by signing below and faxing this sheet to Nathaniel Carll, Purchasing Department, Maine Turnpike Authority at 207-871-7739. Bidders are also required to acknowledge receipt of this Addendum No. 1 on Page P-20 of the bid package.

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Business Name

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Print Name and Title

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Signature

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Date

September 28, 2015

Very truly yours,

MAINE TURNPIKE AUTHORITY

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Nathaniel Carll  
Purchasing Department  
Maine Turnpike Authority

# MAINE TURNPIKE AUTHORITY

## Pre-Bid Conference

### CONTRACT 2015.09

#### Interchange 53

#### Toll Plaza Replacement

#### MM 52.4

September 15, 2015 11:00 AM

1. Location:

Interchange 53 at Mile 52.4 on the Maine Turnpike.

2. General Description:

This work includes the complete replacement of the toll plaza west of its current location with an added toll lane at Interchange 53; and the widening of both the entry and exit lanes at plaza and the associated roadway widening; and the relocation of the existing VMS to accommodate roadway widening.

This work also includes constructing a new toll administration building at Interchange 53. Work includes all mechanical, electrical and plumbing, site work, grading, drainage, removal of the existing utility building and relocation of the existing toll equipment.

3. Bid:

- a) Opening: October 01, 2015 at 11:00 A.M. at MTA Headquarters 2360 Congress Street, Portland
- b) All bid and contractual questions shall be directed to Mr. Nate Carll. Phone No. (207) 871-7771, Ext. 115 and all questions on plans and specifications shall be in writing and shall be directed to Nate Carll, Purchasing Manager, of the Maine Turnpike Authority. Fax No. (207) 871-7739 or email questions to [ncarll@maineturnpike.com](mailto:ncarll@maineturnpike.com).
- c) The Contractor must enter the electrical contractor prequalified by the Maine Department of Transportation for Traffic Signals and Lighting Projects for all the 655 pay item work if awarded the Project in the Proposal.

4. Notification:

- a) Contractor shall notify and obtain approval from the Authority prior to visiting the Project site for field inspection. The contact person is Mr. Steve Tartre at (207) 871-7771, ext. 144 for access to main line and Mr. Rick Barra at (207) 871-7771, ext. 353 for access to toll facilities.

5. Construction Schedule/Prosecution of Work:

- a) October 28, 2015 – Contract Start Date (Incorrect date stated in Contract Special Provisions)
- b) November 30, 2017 – Substantial Completion (defined in Special Provision Section 107.1.1)
- c) June 29, 2018 – Contract Completion Date

6. Maine Department of Labor – Fair Hourly Wages (Special Provision 104.3.8)
  - a) Contract includes Heavy and Bridge, Highway and Earthwork as well as Building wage rates
7. Response to Damage Claims (General Provision 104.3.11):
  - a) Contractor responsible for responding to all damage claims, in writing, within 30 days.
8. Utilities (Special Provision 104.4.6)
  - a) Authority-owned underground electrical and communication lines are present.
  - b) CMP will be installing new three phase power overhead service. The Authority has a work order in process and the contractor will coordinate with the Authority and CMP for power into the utility shed and the new toll building.
9. Cooperation With Other Contractors (Special Provision 104.4.7):
  - a) The Maine Turnpike will have the following adjacent work during this Contract:
    - 2014.13 Piscataqua River Bridges
    - 2015.01 Pavement Rehabilitation, Guardrail and Clear Zone Improvements
    - 2015.12 Tier 3 Toll Plaza Upgrades
    - 2015.13 Exit 52 ORT
    - 2016.01 Paving MM 54.5 to 64.4
    - 2016.02 Exit 63 Interchange Improvements
  - b) Simultaneous work by the System Integrator
10. Maintenance During Winter Construction (Special Provision 105.4.3)
  - a) The Contractor is responsible for the maintenance of erosion control and traffic control devices.
  - b) The Contractor is also responsible for snow and ice removal from all drainage paths and catch basins located behind traffic control devices, in order to maintain drainage away from the paved travel way.
  - c) The Authority is responsible for winter road maintenance on lanes open to traffic.
11. Permit Requirements (Special Provision 105.8.2)

The permits for this include:

  - a) MaineDOT Best Management Practices followed and a Spill Prevention Control and Countermeasure Plan.
  - b) Limit of Disturbance Plan
  - c) Newly disturbed soils shall be mulched on a daily basis
12. General Safety Requirements
  - a) U-Turns at toll plazas and median openings are not allowed (General Provision 105.5.1)

- b) Refer to Special Provision 652, Specific Project Maintenance of Traffic Requirements, for lane closure requirements and restrictions.
- c) All vehicles used on the Project, including company, personal, and delivery vehicles shall be equipped with amber flashing beacons in accordance with the General Provision 652.6.1.
- d) Class 3 safety vests must be worn at all times in accordance with Special Provision 652.2.5

13. Limitations of Operations (Special Provision 107.4.7) See Special Provision for all requirements:

- a) Once work commences on the entering wide load lane it shall proceed expeditiously until completed. No work shutdown will be allowed.
- b) The temporary parking area for Turnpike employees shall be constructed prior to closing the existing parking lot.
- c) Wide loads will be allowed to safely pass through the Project area during daylight hours as authorized by the Authority unless otherwise approved. Wide loads are restricted from moving on the Turnpike from a half hour after sunset until a half hour before sunrise. The request to implement wide load restrictions must be made two weeks in advance.
- d) The Contractor will be allowed to mill the entire work area prior to beginning the paving operation in the work area provided the milled areas can be surfaced within two weeks. Temporary ramps shall be installed if the milling and paving operation do not occur in the same closure(s). Temporary bituminous ramps, incidental to paving operations, shall be a minimum 35 feet per two inches of pavement elevation change and will be required at all butt joints. The Contractor shall submit his milling and paving schedule for review and acceptance.
- e) The Contractor shall limit the construction operations such that temporary pavement markings or pavement markers are applied prior to the roadway being open to traffic. Temporary pavement marking tape shall be used on all new surface pavement; no grinding of new surface pavement will be permitted.
- f) No clearing operations, tree cutting or removal, shall take place in June or July.

14. Traffic Control Highlights, See Special Provision Section 652 for all requirements:

- a) Two toll plaza lanes shall remain open at all times from 05:00 a.m. to 07:00 p.m. unless approved.
- b) Temporary toll plaza lane closures may be required for lanes not designated for long term closure on the Maintenance of Traffic Control Plans. (See 652 for further details).
- c) Two-lane traffic shall be maintained on Gray Road at all times, unless otherwise approved by the Resident. Shoulder closures shall be in accordance with the latest version of the Manual of Uniform Traffic Control Devices (MUTCD) and details shown on the Plans with the exception of installing and removing traffic control devices. The Resident shall notify the Town of Falmouth when work is starting.
- d) Erection or removal of structural steel and overhead signs is allowed nightly between the hours of 10:00 p.m. and 5:00 a.m. with traffic stoppages (maximum stoppage of 25 minutes). Traffic stoppages are not allowed during holidays.

- e) The Resident is required to receive approval from the Maine Turnpike Authority for all lane closures. The request shall be submitted to the Authority by the Resident at least two (2) working days prior to the day of the requested lane closure.

15. Specific Contract Items

- a) Section 424 – Asphalt Rubber Fiber Crack Sealer
  - i) All milled surfaces will be cracked sealed prior to shimming or paving.
- b) Section 645 – Relocation of VMS and Support Structure
- c) Section 800 – Toll Administration Building (Lump Sum for all items)

16. Other:

- a) The MaineDOT Standard Specifications, 2002, shall be used for this project NOT the new 2014 edition.

17. Questions:

Metric Calculations For	Job No.	Sheet No.
Made by	Date	
Checked by	Date	
Backchecked by	Date	

9/15/2015

Exit 53 Pre-Bid

1.

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SECTION 05300

METAL DECKING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Examine Drawings, Contract Conditions all other Sections of the Specifications for requirements which affect work of this Section whether or not such work is specifically mentioned in this Section.
- B. Coordinate work with that of all other trades affecting, or affected by work of this Section. Cooperate with such trades to assure the steady progress of all Project work.

1.2 DESCRIPTION

Furnish all materials, equipment, tools, supplies, labor and supervision, and perform all work necessary for providing metal decking and accessories as shown on the Drawings, as specified herein, and as is additionally necessary to properly complete the work, unless otherwise definitely excluded.

1.3 REFERENCE STANDARDS:

- A. Except as modified by the requirements specified herein and/or the details on the Drawings, all work shall conform to the applicable provisions of the following codes and standards:
  - 1. ASTM-Specifications and standards referred to herein, latest edition.
  - 2. AISI-Light Gauge Cold-formed Steel Design Manual.
  - 3. AWS-Structural Welding Code.
  - 4. SDI-All relevant portions of the design manual.

1.4 SUBMITTALS

- A. Submit shop drawings in accordance with Contract requirements, showing complete details of typical and special units; means for fastening together as well as to supporting construction, including all weld details (type, size, spacing, etc.); and erection plans showing a complete layout of the work, including end and side laps, closure plates, fittings, etc.
- B. Submit engineering calculations substantiating the section properties prior to fabrication.

## 1.5 DELIVERY AND STORAGE

Schedule steel deck delivery to the jobsite as required for erection. If deck must be stored at the site, store in bundles off the ground on substantial timbers, with one end elevated to provide drainage, and protect with waterproof materials.

## 1.6 PROTECTION

Protect installed deck from excessive traffic, dirt and debris prior to the installation of the roofing.

# PART 2 - MATERIALS

## 2.1 MATERIALS

- A. Materials and fabricated members shall conform to SDI "Recommended Standard Practice" and "Basic Design Specifications", contained in the "Steel Deck Institute Design Manual for Composite Decks, Form Decks and Roof Decks".
- B. Deck material shall be high tensile strength galvanized steel conforming to ASTM A 446, Grade A zinc-coated in accordance with ASTM A 525, G60.
- C. Accessory metal sections such as end angle bearing stiffeners, closure plates, and other miscellaneous accessories indicated on the drawings or required to provide a complete installation, shall be two gauge numbers heavier than the gauge of the metal decking, of the same material and finish, and designed especially for the decking being used.
- D. Flat Closures: Not less than 8 inches wide, lapped 4 inches on each side. Angle bent edge strips shall be 6 inches wide with 3 inch laps on the flat and vertical legs.
- E. Welding Washers: 16 gauge.
- F. Welding Rods: 1/8 inch Series E 60 electrodes.

## 2.2 FABRICATION

- A. Fabricate decking at the shop in accordance with the approved shop drawings to fit the conditions and supporting members shown. Where possible, decking shall bear on three supports.
- B. The metal deck shall be as manufactured by Epic, Vulcraft, United Steel Deck, or approved equal.

# PART 3- EXECUTION

## 3.1 ERECTION

- A. Erect and weld the deck using only experienced, skilled workmen in accordance with the

manufacturer's approved specifications and shop drawings, and as additionally specified herein.

- B. Prior to erection, verify that all bearing plates are in proper alignment and that their surfaces are clean for welding.
- C. All welds shall be fusion types not less than 1/2 inch diameter. Use welding washers on all welds. Show details of all welds on the shop drawings and conform to the manufacturer's system approval. Burn holes through the metal deck or supporting members will cause rejection of the deck.
- D. Cut and reinforce the deck as required at all openings for the work of other trades.
- E. Carefully align ribs perpendicular to supports before welding in place. Lap ends a minimum of 2 inches, always over supports. Deck side laps shall be one half corrugation. Weld to supports using welding washers immediately after alignment.
- F. After erection of the deck, clean all scars, abrasions, weld areas, etc., on both top and underside surfaces and apply an approved galvanizing touch-up compound in accordance with the manufacturer's instructions.

### 3.2 CLEANING

The surface and channels of the metal decking shall be clean, free from dirt and debris, and in a proper condition to receive the roofing.

END OF SECTION

SECTION 07530

SINGLE PLY MEMBRANE ROOFING AND FLASHING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Examine Drawings, Contract Conditions all other Sections of the Specifications for requirements which affect work of this Section whether or not such work is specifically mentioned in this Section.
- B. Coordinate work with that of all other trades affecting, or affected by work of this Section. Cooperate with such trades to assure the steady progress of all Project work.

1.2 DESCRIPTION

- A. Provide all labor, materials, equipment, services and transportation required to complete the elastomeric roofing and flashings for the Toll Plaza Canopy as shown on the Drawings and as specified herein.
- B. Coordinate work with that of other trades affecting or affected by work of this Section. Cooperate with such trades to assure the steady progress of all work under the Contract.

1.3 SUBMITTALS

- A. Submit shop drawings to the Engineer for approval in accordance with Contract Requirements. Show details, dimensions, locations and installation methods of all elastomeric sheet roofing, insulation, metal flashings, elastomeric flashing and specialty items as indicated on the Drawings.
- B. Do not commence fabrication of any work or begin installation until shop drawing approval has been obtained from the Engineer.
- C. Submit samples of all materials as requested by the Engineer for approval.
- D. Current EPDM membrane manufacturer's application specifications.
- E. Manufacturer's details of the proposed fascia system.
- F. History of roofing applications by the Contractor.
- G. Roofing applicator's licensing.

#### 1.4 QUALITY ASSURANCE

- A. Roof systems provided shall comply with FM I-90 requirements.

All elastomeric membrane roofing and flashing materials furnished and installed under this Section shall be the products of a single manufacturer, or shall be specifically approved for use by the manufacturer whose roofing specification is used. Materials shall be high grade, first quality of domestic manufacturer with an application history of ten (10) years in the United States. Furnish a written affidavit stating that these requirements have been complied with.

- B. Roofing and flashing shall be applied by a roofing applicator licensed, franchised or approved by the roofing materials manufacturer, using experienced skilled roofers. Furnish a written affidavit stating that the roofing applicator is licensed by the roofing manufacturer.
- C. All roofing and flashing work shall be applied in strict accordance with the roofing manufacturer's written requirements and specifications applicable to roof conditions. There shall be no deviations made from this specification or the approved shop drawings without prior written approval by the manufacturer and the Engineer.
- D. Where additional work or materials, or greater quantities of materials than required by roofing manufacturer are specified herein, these Specifications shall govern.
- E. Upon completion of the installation, an inspection shall be made in the presence of the Engineer by a representative of the roofing manufacturer to ascertain that the roofing system has been installed according to the applicable manufacturer's specifications and details.
- F. In order to define the level of quality (material characteristics, thickness, performance, etc.), appearance, and type of roofing membrane system required, "Design A" fully adhered, FM I-90 rated, EPDM roofing system by Carlisle SynTec Systems, Carlisle, PA has been specified. Other EPDM systems, equal in all respects, such as thickness, reinforcing, tensile strength, puncture resistance, etc., may be submitted to the Engineer for evaluation.

#### 1.5 PRE-ROOFING CONFERENCE

- A. After approval of all materials and prior to installation, a pre-roofing conference shall be held at the site. In attendance shall be the Engineer, the Contractor, the roofing subcontractor and a manufacturer's representative. Notify all participants at least 3 working days prior to date of meeting.
- B. The parties shall review Drawings, Specifications and approved materials. Correct conflicts, if any, between approvals and specification requirements. Examine site conditions, including inspection of deck, material labels and methods of storing materials. Confirm that all nailers, curbs and edges are provided and correctly installed. Review

installation procedures, scheduling and temperature requirements, and establish protection methods for finished roof from other trades.

- C. Submit a copy of pre-roofing conference records covering all discussions and agreements to the Engineer and other participants.

#### 1.6 DELIVERY AND STORAGE

Materials shall be delivered in their original, unopened containers, clearly labeled with manufacturer's name, brand name, and such identifying numbers as are appropriate. Adhesives, sealant and mastics shall be stored at a temperature between 60°F and 80°F. Should they be exposed to lower temperatures, restore to room temperatures for 3 to 5 days prior to use. Do not use and immediately remove from jobsite any materials damaged in handling or on storage. All cardboard containers shall be stored in dry areas or on pallets.

#### 1.7 FINAL INSPECTION

Upon completion of the installation, an inspection shall be made in the presence of the Engineer by an inspector of the EPDM roofing material manufacturer in order to ascertain that the roofing system has been properly installed. Should there be any deviation from the specifications without the prior written consent of the roofing material manufacturer and the Engineer; the Contractor shall correct such deviation to the roofing material at no additional cost to the Authority.

#### 1.8 WARRANTY

The Contractor shall provide the Authority with a ten (10) year written warranty issued by the primary manufacturer of the new roofing system covering full cost of labor and materials necessary to affect water tightness. The original copy of the warranty shall be delivered to the Authority when the job is completed and a 20 year all Material Only Warranty as issued by the primary manufacturer of the EPDM sheeting shall be provided to the Authority. Warranties from fabricator's agents or installers will not constitute compliance with these warranty requirements.

#### 1.9 TESTING OF FASTENERS

Field testing of fasteners will be required. For each separate roof area ten random fasteners shall be tested for minimum pull-out resistance of 400 pounds. A report of the findings shall be forwarded to the Engineer. Testing shall be performed by the fastener manufacturer without additional cost to the Authority.

#### 1.10 INTENT

It is not the intent herein to describe all of the details for roofing and flashing. The Contractor shall assure himself that all items and details not otherwise specified herein but shown on or reasonably inferred or implied by the Drawings, or as otherwise required by the membrane manufacturer to achieve a complete watertight installation, shall be provided under this Contract at no additional cost to the Authority .

## PART 2 - MATERIALS

### 2.1 MEMBRANE AND MATERIALS

- A. General: Trade names and materials specified herein for elastomeric materials are based on Carlisle SynTec System and are used throughout for purposes of establishing the quality of materials to be used on this Contract. All requested substitutions submitted for approval shall meet the physical properties, test methods and warranty specified or inferred herein. Substitutions not meeting these requirements will be rejected.
- B. Membrane shall be based on 0.060 inch thick "Black" polyester reinforced elastomeric membrane, Ethylene Propylene Diene Monomer sheet "EPDM" compound as manufactured by Carlisle SynTec Systems, Division of Carlisle Corporation, Carlisle, PA or other manufacturer's membrane having equal or better physical characteristics as approved by the Engineer.
- C. Metal flashing shall be System 100/200, FA-65 by Metal-Era, Inc. or approved equal. Fascia and extender to be .050" mill finish aluminum.
- D. Elastomeric flashing shall be 1/16 inch thick compatible uncured EPDM sheet, flashing furnished by the membrane manufacturer.
- E. Bonding adhesive shall be synthetic rubber adhesive furnished by the roofing membrane manufacturer and formulated for bonding elastomeric membrane to substrates.
- F. Splicing cement shall be high strength solvent base contact synthetic rubber cement furnished by the roofing membrane manufacturer and formulated for splicing EPDM membranes to them.
- G. In-seam sealant shall be silicone base type sealant furnished by the roofing membrane manufacturer and formulated for splice seams following cement application.
- H. Splice solvent shall be solvent base cleaner furnished by the roofing membrane manufacturer to provide clean surfaces for application of splicing cement.
  - H. Lap sealant shall be heavy bodied trowel or gum consistency material furnished by the roofing membrane manufacturer and formulated to seal the exposed edges of elastomeric membrane lap splice and at mechanical terminations of vertical or horizontal surfaces, or to seal off membrane terminating in reglets in accordance with manufacturer's details.

- I. Water cut-off mastic shall be a low viscosity butyl compound furnished by the roofing membrane material manufacturer, compounded and designed to be used as a sealing agent between membranes and most substrates for the compartmentalization of waterproof areas, and as a sealant in conjunction with deck drain details.
- J. Night seal shall be a two-component, fluid applied elastomer furnished by the roofing membrane manufacturer and compounded for use to temporarily seal the loose edge of the membrane to protect completed sections of roof from infiltration of water and outside elements.
- K. Pourable sealer shall be a two-component, fluid applied elastomer furnished by the roofing membrane manufacturer and compounded for use to temporarily seal the loose edge of the membrane to protect completed sections of roof from infiltration of water and other elements.
- L. Rubber fastening strips shall be extruded hard rubber, predrilled at 12 inches on center to accommodate screw fasteners, furnished by the roofing material manufacturer, designed to secure roof membrane at roof perimeter, or other conditions as recommended by the manufacturer's details.

## 2.2 ROOF BOARD (CANOPY)

Glass mat faced, non-combustible, moisture-resistant silicone treated gypsum core panels equal to "DensDeck" as manufactured by Georgia-Pacific of the thickness indicated on the Drawings.

## 2.3 FASTENERS

Fasteners required for fiberboard underlayment fastening shall be non-corrosive Phillips-head predrilled self-tapping screw-type with 2-1/2 inch diameter 24-gauge deformed tin-plated steel discs in screw, length approved for conditions respectively to penetrate the wood deck a minimum of 3/4 inch in depth and metal deck as required by the roofing membrane manufacturer. Fastener layout shall conform to FM Class I-90 and membrane manufacturer's specifications and requirements.

## PART 3 –EXECUTION

### 3.1 INSPECTION OF SURFACES AND COORDINATION OF WORK

- A. Before roofing work begins, roof areas shall be carefully inspected and checked for all conditions affecting insulation, roof board roofing applications and performance. Carefully check nailing strips for suitability as anchorage. Defects shall be reported in writing to the Engineer and roofing work shall not proceed until defects have been corrected. Commencement of work shall constitute acceptance of the conditions of the surfaces to which the complete roofing system work is to be applied, and all defects in work resulting

from such accepted surfaces shall be corrected by this trade without additional cost to the Authority.

B. Coordinate all work with that of other trades affecting, or affected by roofing work. Verify the placement of nailers for all locations and conditions where materials of this Section are affected.

C. Roof Surface Preparation

1. Remove all debris from the roof.
2. Verify that all woodwork is properly installed to receive the roofing materials and that the woodwork is compatible with the roofing membrane and flashing.
3. Make sure surfaces are clean and dry. Sweep, vacuum or use compressed air to clean roof substrate surfaces as required for application of insulation, roofing membrane, and flashings.
4. Repair all joints and cracks wider than 1/4" with approved sealant.
5. Fill depressions with non-asphaltic felt as necessary to provide a level substrate surface where insulation is to be mechanically fastened.

3.2 INSTALLATION OF INSULATION

- A. Install apply each layer of insulation (flat and tapered) in accordance with the approved Shop Drawings, with joints closely butted and staggered in both directions at mid-points. Boards shall be uniform throughout, with square edges and corners, and with no voids, open joints, broken corners, or damaged edges. Immediately remove all wet, broken, bowed and otherwise defective boards from the site.
- B. Install only as much insulation as can be covered with completed roofing membrane and flashings, and sealed the same day.
- C. Scribe insulation tight to roof projections and vertical surfaces unless otherwise indicated on the approved Shop Drawings or installation instructions.
- D. Install insulation with all joints offset. Tightly butt insulation and fill all joints over 1/4" wide with approved sealant. Mechanically fasten the insulation to the deck as required to meet FM I-90 requirements and the membrane manufacturer in open areas and at the perimeter, at curbs and openings, and at intersections with vertical and sloped surfaces.
- E. Check all completed insulation installations with accurate optical instruments (e.g., transits) to insure that proper slope has been provided; correct non-compliant work.

### 3.3 INSTALLATION OF ROOF BOARD

Install roof board in accordance with the requirements specified for insulation above, and the requirements of the board manufacturer.

### 3.4 INSTALLATION OF DRAINS

- A. New drains shall be installed in accordance with the details as shown on the Plans, the recommendations of the manufacturer and/or as directed by the Engineer.
- B. Roof drain flashing flanges shall extend beyond the drains to a minimum of 6 inches in all directions. Flashing flanges shall be secured to the drains by means of a clamping ring furnished and set with the drain.

### 3.5 ELASTOMERIC MEMBRANE INSTALLATION (ADHESIVE APPLIED)

- A. Elastomeric sheet roofing shall be installed in strict accordance with manufacturer's standard roofing specifications for a fully adhered sheet roofing system and as specified herein. Comply with manufacturer's recommendations for temperature during installation.
- B. Position roofing membrane over insulation without stretching. Allow membrane to relax for approximately one hour prior to bonding. Fold sheet back so one half of sheet is exposed. Sheet fold shall be smooth, no wrinkles or buckles. Apply bonding adhesive evenly, no globs or puddles, with a plastic core paint roller. Adhesive shall be applied to both sheet and substrate at rate recommended by the manufacturer. Allow adhesive to dry until tacky. Roll coated membrane into adhesive, void wrinkles, and brush down with a push broom to achieve maximum contact. Repeat procedure for unbonded half of membrane.
- C. At each lap, fold top sheet back about 12 inches and clean both mating surfaces at a splice area using clean rags with splice solvent. Apply splicing cement using 3 inch paint brush at a rate of approximately 175 lineal feet of 3 inch splice per gallon of splicing cement. Cement shall be brushed on in a circular motion obtaining 100 percent coverage on both mating surfaces. Cement coat shall be smooth with no globs or puddles. Allow cement to dry until it does not string or stick to dry finger touch.
- D. Follow procedures using inseam sealant at splice joints applied continuously. Roll top sheet toward splice area until cemented area is nearly touching cement on bottom sheet. Allow top sheet to fall freely into place. Avoid stretching and wrinkling. Roll the splice with 2 inch wide steel roller, using positive pressure, toward outer edge of splice. Solvent clean splice edge, extending at least 1 inch onto top and bottom membranes. Apply bead of lap sealant completely covering splice edge, carefully tooling lap sealant with putty knife or trowel.

- E. Install rubber fastening strips at vertical and/or horizontal surfaces to secure membrane flashing, using the approved non-corrosive fastenings in accordance with manufacturer's written instructions.
- F. Except where otherwise shown, perimeter flashing and other flashings shall be done with uncured EPDM elastomeric flashing sheet, using the longest pieces practicable. Splicing between flashing and main roof sheet shall be completed before bonding of flashing to the vertical surface. This splice shall be sealed at least 3 inches beyond the fasteners which attach horizontal membrane to nailers. Apply bonding adhesive to both the membrane and the surface to which it is being bonded. After bonding adhesive has dried so that it does not string or stick to dry finger touch, roll the flashing into the adhesive. Take care to assure that the flashing is not bridging where there is any change of direction of the flashing (e.g., where vertical surfaces meet roof deck).
- G. Install water cut-off mastic between membrane and substrates in accordance with manufacturer's written specifications and details.
- H. Flash all projections passing through the membrane using pipe seals. All flashings and terminations shall be done in accordance with manufacturer's standard printed details. Flash and make watertight roof drains and all other penetrations.
- I. At the end of each day's work, take care to ensure that water does not flow beneath any completed sections of roof by temporarily sealing loose edge of membrane with night sealer when weather is threatening. Prepare sealer according to manufacturer's written instructions. Apply sealer at a rate of approximately 100 lineal feet per gallon, 12 inches back from edge of sheet. Use a trowel as necessary to spread sealer material in order to achieve prescribed coverage. After membrane is embedded in night sealer, weight the edge, providing continuous pressure over the length of the cutoff. When work is resumed, pull the sheet free before installation is continued. Allow no unfinished roof areas to be left unprotected in wet weather or at night.
- J. After completion, protect elastomeric roofing from traffic and damage of all kinds.

### 3.6 ALUMINUM FASCIA

- A. Sheet aluminum shall be .040" thick, finish to match existing fascia.
- B. Fabricate and install sheet metal with lines, arises and angles sharp and true and plane surfaces free from objectionable wave, warp or buckle. Exposed edges of sheet metal shall be folded back to form a 1/2" wide hem on the side concealed from water leakage under all weather conditions. The workmanship and methods employed for framing, anchoring, cleating and the expansion and contraction of sheet metal work shall conform to applicable details and description as indicated in current edition of the following publications unless other methods are indicated on project

drawings or specified herein.

Architectural Sheet Metal Manual as published by the Sheet Metal and Air Conditioning contractors National Association, Inc. and hereinafter referred to as “The SMACNA Manual”

### 3.7 PROTECTION

This trade shall be responsible for, and repair, all damage resulting from his work or operations. Particular care shall be taken to avoid staining any part of the exposed structure or finished work. Hoisting of materials shall be done with extreme care. Use approved means to protect exposed surfaces.

### 3.8 CLEAN UP

At completion of work, remove from the site and legally dispose of the packaging, containers, and other accumulated materials, and leave the work in a cleaned and satisfactory condition as approved by the Engineer.

END OF SECTION