GENERAL REQUIRMENTS AND SPECIFICATIONS

CITY HALL PLAZA 1ST STORY WEST ROOF REPLACEMENT PROJECT 1-13

PART 1 GENERAL

1.01 DESCRIPTION

- A. The City of Marshfield's City Hall Plaza is located at 630 S Central Ave, Marshfield, WI. 54449. The 1st story west roof level are in need of replacement. The base bid includes a roof area that contains approximately 68 square of roofing work including an average of R20 insulation. Alternate #1 is for additional R9 insulation to be added to the base bid's roof area. Alternate #2 is reroofing of a small area adjacent to the base bid's roof. Alternate #2 consists of approximately 3 square of roofing work with an average of R20 insulation. Alternate #2 also includes replacement of fiberglass "light panels" that make up an adjacent wall. These panels need to be removed to complete the roofing work and then have new approved panels installed. Submit for Owner approval similar type heavy duty sunlight resistant materials and fastening means, prior to replacement. A mandatory walk through for all potential bidders shall be held at 10:30 AM on Tuesday, March 19, 2013. Please phone 715.486.2016 to contact Building Services staff to schedule all other pre-bid jobsite inspections, over and above the mandatory walk through.
- B. All existing cast iron roof drain assemblies in the project's work area(s) need to be removed and replaced with Sioux Chief #868-P4M cast aluminum (for PVC use) dome roof drains. These new assemblies will be installed with PVC piping and connect properly to existing interior roof drain piping. Plumbing vent pipes shall be converted to PVC with a proper roof boot, if they need to be extended in height due to the addition of insulation. When roof is complete, all plumbing vents shall be at least 12" above the level of the new roof membrane. Installation of all roof drain assemblies and all plumbing vent piping changes shall be completed by a licensed plumbing contractor.
- C. The project generally consists of the removal of existing roofing, flashing, and insulation materials down to the existing deck and also includes removal of parapet metals and vertical wall flashing material. Samples of existing roofing, wall and curb flashings, and insulation materials have been tested for asbestos content. Reports indicate that the existing flashing materials do consist of asbestos containing materials. Bids submitted by all roofing contractors shall include all costs for removing, handling, and disposing of asbestos containing material in a legal and proper manner per Federal, State, and Local requirements.
- D. Contractor to install new wood blocking if needed at all perimeter edges to facilitate new gravel stop and fascia metal. Contractor to install new factory prefinished 24 gauge metal gravel stop, parapet caps, fascia, and counter-flashing. Owner to choose color.
- E. Contractor shall properly terminate, secure, flash, and seal connections of new roofing membrane by manufacturer's recommendations at all roof penetrations, fixed equipment or structure, and wall edges. Properly raise and support mechanical equipment and extend new roofing materials under all such equipment. Replace all existing wood supports of mechanical equipment or gas piping with new treated materials. Do not use plastic or foam assemblies for support blocking.
- F. New flat and tapered polyisocyanurate roof insulation will be added in multiple layers to achieve an average of R-20 value with a minimum 1 ½" thickness at roof drains and a minimum sloping pitch of ¼" per foot for the entire roof system as measured from the drains. Alternate #1 consists of the additional installation of polyisocyanurate insulation equaling a minimum of R9. If Alternate #1 is chosen by the Owner, then an additional 1 ½" of polyisocyanurate is to be installed on the roof area designated by the base bid. Insulation is to be adhered in hot asphalt or urethane adhesive per manufactures requirements with minimum of 6" stagger between joints in each subsequent

- layer of insulation. Crickets and saddles are to be installed as necessary to eliminate any ponding water conditions. Ponding water shall not be deeper than ¼" and shall not be present 48 hours after a rain event.
- G. The new 60 mil Carlisle Sure-Seal EPDM to be fully adhered to insulation. Membrane to be standard black color. Please note that these specifications are based around Carlisle Syntec. Acceptable manufactures are: Carlisle, Firestone, and Johns-Manville. No other substitutions allowed. Substitute equivalent manufacturer's approved products for those stated in bid documents. Install approved system per individual manufacturer's specifications and recommendations. Do not mix product lines unless manufacturer of the installed membrane system specifically states the allowance for using the alternate product. Upon completion, manufacturer's 10 year material & labor warranty needs to be issued to the Owner.
- H. Provide EPDM adhered walk pads from roof access ladder to the three rooftop air handling units (AHU) in a plan preapproved by the Owner. Please note that there will be many pads installed, so make sure that bid prices include enough to satisfy the Owner.
- I. Walkway pads should be properly spaced as to not impede the positive drainage of runoff.
- J. Contractor is to verify all structural slopes to create positive drainage as necessary. Contractor is responsible for all measurements and quantities. All drains, walkway pads, and HVAC locations are to be field verified by the contractor.
- K. Contractor shall be responsible for removal and reinstallation of the City Hall Plaza sign letters that are fastened on top of the metal parapet cap. Owner shall approve of method and fastener selection.

1.02 EXTENT OF WORK

- **A.** Provide all labor, material, tools, equipment, and supervision necessary to complete the installation of EPDM membrane fully adhered roofing system including walkway pads, wood, curbing, flashings, and insulation as specified herein and as indicated in bid documents in accordance with the manufacture's most current specifications and details. Contractor is responsible for all measurements pertinent to this project for required work stated in bid documents. **Any dimensions provided by the Owner are general in nature and not to be used by the Contractor for determinations of bids, materials, or other needs.**
- B. All mechanical, plumbing, and electrical costs involved in re-roofing shall be included in bids.
- C. The roofing contractor shall be fully knowledgeable of all requirements of the contract documents and shall make themselves aware of all job site conditions that will affect their work.
- D. The roofing contractor shall confirm all given information and advise the building Owner, prior to bid, of any conflicts that will affect their cost proposal.
- E. The roofing contractor shall be bonded and fully insured and shall meet City of Marshfield insurance requirements included within these bid documents. Reference Minimum Insurance Coverage document.
- F. A building permit is required for this project. Contractor is responsible for obtaining this permit and paying all permit fees for all described work. Subcontractors shall also be responsible for permits if needed per City of Marshfield requirements.
- G. A 100% performance and payment bond shall be furnished by the Contractor prior to commencing work.

1.03 SUBMITTALS

- A. Prior to starting work, the roofing contractor must submit the following:
 - 1. Shop drawings showing layout details of construction, walkway paths, and identification of materials.
 - 2. Sample of the manufacturer's Membrane System Warranty.
 - 3. Submit a letter of certification from the manufacturer which certifies the roofing contractor is authorized to install the manufacturer's roofing system and lists foremen who have received training from the manufacturer along with the dates training was received.

1.04 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. Deliver materials to the job site in the manufacturer's original, unopened containers or wrappings with the manufacturer's name, brand name, and installation instructions intact and legible. Deliver in sufficient quantity to permit work to continue without interruption.
- B. Comply with the manufacturer's written instructions for proper material storage.
 - 1. Store materials, except membrane, between 60°F and 80°F in dry areas protected from water and direct sunlight. If exposed to lower temperature, restore to 60°F minimum temperature before using.
 - 2. Store materials containing solvents in dry, well ventilated spaces with proper fire and safety precautions. Keep lids on tight. Use before expirations of their shelf life.
- C. Insulation must be on pallets, off the ground and tightly covered with waterproof materials.
- D. Any materials which are found to be damaged shall be removed and replaced at the applicator's expense.

1.05 WORK SEQUENCE

- A. Schedule and execute work to prevent leaks and excessive traffic on completed roof sections. Care should be exercised to provide protection for the interior of the building and to ensure that water or hot asphalt is not allowed to flow into the facility or beneath any completed sections of the membrane system. Watertight night seals are required at the end of each work day.
- B. Do not disrupt activities in occupied spaces. Contractor shall not peel off old substrate or asphalt when persons are working below. Schedule such noise disruptions during outside of normal business hours. See additional information on noise issues as found in the Instructions to Contractors.
- C. The start of any roofing work shall be coordinated with the Owner and the successful bidder at least seven (7) days prior to commencement of work. The completion date for all work shall be no later than June 1, 2013. A cost shall be assessed to the Contractor, for liquidated damages totaling \$100.00 per day for each calendar day past June 1, 2013, that the work is not completed. If the Contractor does not complete the work as described elsewhere within the specified time. The specified amount shall be deducted from payments due the Contractor for every calendar day that the work remains uncompleted. The deducted amounts are not a penalty but are actual damages due the Owner from the Contractor.

1.06 USE OF THE PREMISES

- A. Before beginning work, the roofing contractor must secure approval from the building owner's representative for the following;
 - 1. Areas permitted for personnel parking.
 - 2. Access to the site.
 - 3. Areas permitted for storage of materials and debris.
 - 4. Areas permitted for the location of cranes, hoists, dumpsters, and chutes for loading and unloading materials and debris to and from the roof.
- B. Interior portions of the building may not be used for storage, removing debris or delivering materials, except as authorized by the Owner.

1.07 EXISTING CONDITIONS

A. If discrepancies are discovered between the existing conditions and those noted on the bid documents, immediately notify the owner's representative by email and phone and solicit the manufacturer's approval prior to commencing with the work. Necessary steps shall be taken to make the building watertight until the discrepancies are resolved.

1.08 MANDATORY PRE BID WALK THROUGH

- A. Prior to bid submittal all potential Contractors shall attend a mandatory pre bid walkthrough to observe actual conditions and verify all dimensions on the roofs. The walk through meeting is scheduled for 10:30 AM Tuesday, March 19, 2013 at the Building Services Office at City Hall Plaza 630 S. Central Ave. Marshfield, WI 54449. Access to the roof area will be provided.
- B. Any conditions which are not shown on bid documents should be clarified with the Owner prior to bid submittal.

1.09 TEMPORARY FACILITIES AND CONTROLS

- A. Temporary Utilities:
 - 1. Water and power for construction purposes are available at the site and will be made available to the roofing contractor.
 - 2. Provide all hoses, valves, and connections for water from source designated by the owner when made available.
 - 3. When available, electrical power should be extended as required from the source. Provide all trailers, power cords, connectors, and electrical disconnects.

B. Sanitary Facilities

1. Interior sanitary facilities will be available at the job site on the first floor of City Hall Plaza during weekdays. The Contractor shall be responsible for keeping these public facilities clean and free of jobsite dirt and debris. Contractor is responsible to notify the Owner if the facilities are damaged or if excessively dirtied due to company personal.

C. Building Site:

- 1. The roofing contractor shall use reasonable care and responsibility to protect the building and site against damages. The contractor shall be responsible for the correction of any damage incurred as a result of the performance of the contract.
- 2. The roofing contractor shall remove all debris from the job site in a timely and legally acceptable manner so as to not detract from the aesthetics or the functions of the building.

D. Security:

1. Obey the owner's requirements for personnel identification, inspection, and other security measures.

1.10 JOB SITE PROTECTION

- A. The roofing contractor shall adequately protect building, paved areas, service drives, lawn, shrubs, trees, etc. from damage while performing the required work. Provide canvas, boards, and sheet metal (properly secured) as necessary for protection and remove protection material at completion. The contractor shall repair or be responsible for costs to repair all property damaged during the roofing application. Contractor shall be responsible for protection of walking surfaces for accessed floor areas or will pay any City of Marshfield's bill(s) for having these areas professionally cleaned, repaired or replaced.
- B. During the roofing contractor's performance of the work, the building owner will continue to occupy the existing building. The contractor shall take precautions to prevent the spread of dust and debris, particularly where such material may filter into the building. The roofing contractor shall provide labor and materials to construct, maintain, and remove necessary temporary enclosures to prevent dust or debris in the construction area(s) from entering the building.
- C. Do not overload any portion of the building, either by use of or placement of equipment, storage of debris, or storage of materials.
- D. Protect against fire and flame spread. Maintain proper and adequate fire extinguishers.
- E. Take precautions to prevent drains form clogging during the roofing application. Remove debris at the completion of each day's work and clean drains, if required. At completion, test drains to ensure the system is free running and drains are watertight. Remove strainers and plug drains in areas where work is in progress. Install flags or other telltales on plugs. Remove plugs each night and screen drain.
- F. Store moisture susceptible materials above ground and protect with waterproof coverings.
- G. Remove all traces of piled bulk materials and return the job site to its original condition upon completion of work.

1.11 SAFETY

A. The roofing contractor shall be responsible for all means and methods as they relate to safety and shall comply with all applicable local, state, and federal requirements that are safety related. Safety shall be the responsibility of the roofing contractor. All related personnel shall be instructed daily to be mindful of the full time requirement to maintain a safe environment for the facility's occupants including staff, visitors, customers, and the occurrence of the general public on or near the site.

1.12 WORKMANSHIP

A. Applicators installing new roof, flashing, and related work shall be factory trained and approved by the manufacturer they are representing.

- B. All work shall be of highest quality and in strict accordance with the manufacture's published specifications and to the building owner's satisfaction.
- C. There shall be a supervisor on the job site at all times while work is in progress.

1.13 QUALITY ASSURANCE

- A. The manufacture must have a minimum of 40 years of experience in the manufacturing of vulcanized thermal set sheeting.
- B. Unless otherwise noted in this specification, the roofing contractor must strictly comply with the manufacturer's current specifications and details.
- C. The roofing system must be installed by an applicator authorized and trained by the manufacturer in compliance with shop drawings as approved by the manufacturer. The roofing applicator shall be thoroughly experienced and upon request be able to provide evidence of having at least 10 years successful experience installing single-ply EPDM roofing systems and having installed at least 3 roofing applications or several similar systems of equal or greater size within one year.
- D. Provide adequate number of experienced workmen regularly engaged in this type of work who are skilled in the application techniques of the materials specified. Provide at least one thoroughly trained and experienced superintendent on the job at all times roofing work is in progress.
- E. There shall be no deviations made from these specifications or the approved shop drawings without the prior written approval of the Owner. Any deviation from the manufacturer's installation procedures must be supported by a written certification on the manufacturer's letterhead and presented for the Owner's consideration.
- F. Upon completion of the installation, the applicator shall arrange for an inspection to be made by a non-sales technical representative of the membrane manufacturer in order to determine whether or not corrective work will be required before the warranty will be issued. Notify the building owner seventy-two (72) hours prior to the manufacturer's final inspection.
- G. The EPDM membrane roofing system must achieve a UL Class A rating.

1.14 JOB CONDITIONS, CAUTIONS, AND WARNINGS

Refer to manufacturer's Design "A" fully adhered roofing systems specification for general job site considerations.

- A. Material Safety Data Sheets (MSDS) should be on location at all times during the transportation, storage, and application of materials.
- B. When positioning membrane sheets, exercise care to locate all field splices away from low spots and out of drain sumps. All field splices should be shingled to prevent bucking of water.
- C. When loading materials onto the roof, the manufacturer's stated authorized roofing applicator must comply with the requirements of the building owner to prevent overloading and possible disturbance to the building structure.
- D. Proceed with roofing work only when weather conditions are in compliance with the manufacturer's recommended limitations, and when conditions will permit the work to proceed in accordance with the manufacturer's requirements and recommendations.

- E. Proceed with roofing work so new roofing materials are not subject to construction traffic. When necessary, new roof sections shall be protected and inspected upon completion for possible damage.
- F. Provide protection, such as ¾ inch thick plywood, for all roof areas exposed to traffic during construction. Plywood must be smooth and free of fasteners and splinters.
- G. The surface on which the insulation or roofing membrane is to be applied shall be clean, smooth, dry, and free of projections or contaminants that would prevent proper application of or be incompatible with the new installation, such as fins, sharp edges, foreign materials, oil and grease.
- H. New roofing shall be complete and weather-tight at the end of the work day.
- I. Contaminants such as grease, fats, and oils shall not be allowed to come in direct contact with the roofing membrane.

1.15 WARRANTY

- A. Provide manufacturer's 10 year Roofing System Warranty covering both labor and material with no dollar limitation. The maximum wind speed coverage shall be peak gusts of 55 mph measured at 10 meters above ground level. Certification is required with bid submittal indicating the manufacturer has reviewed and agreed to such wind coverage. Contractor shall also be responsible for a two year labor and installation warranty that starts upon final payment.
- B. Pro-rated Membrane Systems Warranties shall not be accepted.

PART 2 PRODUCTS

2.01 GENERAL

A. All components of the specified roofing system shall be products of Carlisle Syntec, Firestone, or Johns Manville as comparable and compatible.

2.02 MEMBRANE

A. Ballasted and Standard Fully Adhered Roof System: Furnish black .060" non-reinforced EPDM (Ethylene Propylene Diene Monomer {Terpolymer}) in the largest sheet possible. The membrane shall conform to the minimum physical properties of ASTM D4637.

2.03 INSULATION/UNDERLAYMENT

- A. On fully adhered sections, insulation shall be installed over the existing deck. **Insulation will not be secured by screws or other mechanical fasteners to the roof deck, even if it is made with metal.** At least one layer consisting of 1½" polyisocyanurate, plus additional layers including tapered polyisocyanurate shall be installed in all areas to achieve an average R-20 insulation value. The insulation shall also create a slope for water drainage to roof drains that will be at least ¼" per foot of run as measured from the drains. If Alternate #1 is included in the contract, install an additional layer of 1½" polyisocyanurate over the average R-20 insulation layers. Insulation shall be hot mopped in Type III Asphalt or adhered with FAST adhesive to the existing substrate. Use membrane manufacturer's published specification for adhering requirements/patterns. Add additional layers of insulation as needed to achieve the R value as agreed upon in the contract.
- B. At the contractor's option, tapered expanded polystyrene (EPS) insulation may be substituted in lieu of the specified tapered polyisocyanurate insulation. The EPS insulations shall be UL labeled and certified as Type I per ASTM C578

- 1. The EPS insulation will require a urethane type adhesive to attach the EPS to the existing deck. Attachment methods/products shall not be used that would void the warranty requirements for the finished roof system. Use of Type III hot asphalt shall not be permitted with the EPS insulation option.
- An adhered cover board of high density fiberboard will be required to allow for the installation
 of the single ply EPDM membrane. The cover board shall be approved for use by the EPDM
 manufacturer's warranty requirements. Care should be taken to not allow the EPDM bonding
 adhesive to penetrate through the high density board and come in contact with any EPS
 insulation.
- 3. The EPS insulation thickness shall conform to the specified R-values of R-20 in the base bid and an additional R-9 in the alternate bid per Section 2.03 Insulation/Underlayment.
- 4. The EPS shall be installed in multiple layers with staggered joints per the specifications.
- 5. All additional costs (including but not limited to subcontractors, labor, and material) required to raise any existing roof penetrations/curbs to accommodate the additional EPS insulation thickness shall be included in your proposal.
- 6. Use of the EPS insulation option must maintain the 10 year total system warranty and 55 mile per hour wind speed required from the membrane supplier/contractor in Section 1.15 Warranty.

2.04 ADHESIVES AND CLEANERS

- A. All products shall be furnished by Carlisle, Firestone, or Johns Manville and specifically formulated for the intended purpose.
 - 1. Bonding adhesive
 - 2. Splicing cement
 - 3. Splice tape
 - 4. Cleaning solvent such as weathered membrane cleaner
 - 5. Lap sealant
 - 6. Sealers such as the pourable type

2.05 FASTENERS AND PLATES

To be used for additional membrane securement:

- A. <u>HP Fasteners:</u> a threaded black epoxy electro-deposition coated fastener used with steel, wood, and minimum 3,000 psi structural concrete decks.
- B. <u>Concrete Spikes:</u> a non-threaded, black epoxy electro-deposition coated fastener used with structural concrete roof decks rated 3,000 psi or greater.
- C. <u>Termination Bar Nail-In:</u> an expansion anchor with stainless steel drive pin used for fastening the Sure-Seal Termination Bar or Seam Fastening Plates to concrete, brick, or block walls.
- D. <u>Seam Fastening Plates</u>: a 2 inch diameter FM approved metal plate used in conjunction with RUSS or EPDM membrane for membrane securement.

- E. <u>RUSS</u> (Reinforced Universal Securement Strip): a 6 or 9 inch wide, 100 foot long strip of Sure-Seal reinforced EPDM membrane.
 - 1. The 6 inch wide RUSS shall be utilized horizontally or vertically (in conjunction with Seam Fastening Plates) below the EPDM membrane for additional membrane securement.
 - 2. The 9 inch wide RUSS shall be utilized in conjunction with metal edgings to allow the continuation of the EPDM deck membrane as flashing in accordance with manufacturer's details.

2.06 METAL COPING AND MEMBRANE TEMINATIONS

- A. **Prefinished Metal Edge:** 10 foot continuous sections of coping cap or edge metal. Metal coping cap or edge metal shall be fabricated from 24 gauge steel with standard Kynar factory finish, color shall be as designated by the Owner.
- B. **Sure-Seal Termination Bar:** a 1 inch wide and .098 inch thick extruded aluminum bar prepunched 6 inches on center; incorporates a sealant ledge to support lap sealant and provide increased stability for membrane terminations.

2.07 WALKWAYS

A. Protective surfacing for roof traffic shall be EPDM adhered walk installed with manufacturer's recommended adhesive.

2.08 CURBINGS

A. New curbing materials or additions to existing parapets, shall be made out of similar surrounding materials used for existing parapets, minimum 2" x 6" nominal treated wood, or other Owner approved materials.

2.09 OTHER MATERIALS

A. Contractor to provide and install metal flashings and other miscellaneous items needed to fulfill the project requirements.

PART 3 EXECUTION

3.01 GENERAL

- A. Comply with the manufacturer's published instructions for the installation of the membrane roofing system including proper substrate preparation, jobsite considerations, and weather restrictions.
- B. Position sheets to accommodate contours of the roof deck and shingle splices to avoid bucking water.

3.02 INSULATION PLACEMENT

A. Install insulation or membrane underlayment over the substrate with boards butted tightly together with no joints or gaps greater than 3/16". Stagger joints both horizontally and vertically if multiple layers are provided.

3.03 MEMBRANE PLACEMENT

- A. Unroll and position membrane without stretching. Allow the membrane to relax for approximately ½ hour prior to splicing.
- B. Install adjoining membrane sheets in the same manner, overlapping edges approximately 4 inches.
- C. Fully adhere membrane to faced insulation per manufacturer's requirements.

3.04 MEMBRANE SPLICING (Tape Splice)

- A. Follow guidelines set forth by manufacturer for proper installation of SecureTape or equal. Prime matting surfaces of EPDM membranes with primer.
- B. Remove the release plastic film and press the top sheet onto the tape using hand pressure.
- C. Roll the seam toward the splice edge with a 2 inch wide steel roller and apply lap sealant in accordance with the manufacturer's requirements.

3.05 FLASHING

- A. Wall and curb flashing shall be cured EPDM membrane. Continue the deck membrane as wall flashing where necessary.
- B. Follow manufacturer's typical flashing procedures for all wall, curb, and penetration flashing including metal edging/coping and roof drain applications.

3.06 WALKWAYS

A. Install adhered walkway pads per manufacturers requirements on to membrane at all traffic concentration points (such as roof hatches, access doors, rooftop ladders, etc.) and all locations as identified on by the Owner in approved shop drawings.

3.07 DAILY SEAL

- A. On phased roofing, when the completion of flashings and terminations is not achieved by the end of the work day, a daily seal must be performed to temporarily close the membrane to prevent water infiltration.
- B. Use Sure-Seal Pourable Sealer or other acceptable membrane seal in accordance with the manufacturer's requirements.

3.08 CLEAN UP

- A. Perform daily clean-up to collect all wrappings, empty containers, paper, and other debris from the project site. Upon completion, all debris must be disposed of in a legally acceptable manner.
- B. Prior to the manufacturer's inspection for warranty, the applicator must perform a pre-inspection to review all work and to verify all flashing has been completed as well as the application of all caulking.