

**PART 1 - GENERAL****1.01 SCOPE OF WORK - SLATE ROOF SECTIONS A, B, F, H**

- A. Furnish all labor and material for the following: Empire Slate roofing tiles; Glacier Guard base ply underlayment 6' (or two rows) from drip edge, centered over valleys, all rake edges and penetrations followed by the installation of Aqua Guard 4" over the Glacier guard followed by a full installation of the GAF Versa Shield to achieve a class A fire rating. Mechanically fastened; Kynar coated .040" aluminum cladding step flashing; install new Kynar coated .040" aluminum valley metal details; installation of new ridge vent cap system; re-use existing gutters and downspouts however repair as needed; replacement of deteriorated wood plank decking and other missing or deteriorated wood components. These specifications are directed to **Meramec Schools. All copper metal is to become the property of Clayton School District.**
- B. Work includes:
1. Removal and replacement of existing slate tile roof system and roofing felt down to the structural wood plank deck.
  2. Localized deck repair and/or replacement, if needed.
  3. Removal of all deteriorated wood fascia and other wood components.
  4. Installation of the following:
    - a. One (1) layer of Glacier Guard 100 installed in all valleys.
    - b. One (1) layer of Glacier Guard 100 installed along perimeter edge for ice and water dam protection. A total of 6' or two rows.
    - c. One (1) layer of Aqua Guard base ply membrane; mechanically fastened to the wood deck.
    - d. One (1) layer; GAF VersaShield underlayment must be installed over the entire deck surface including over the Glacier Guard in conjunction with EcoStar Class A Empire Slate Tiles for those projects requiring a UL Class A fire rating. GAF VersaShield should be installed per manufacturer's specification.
    - e. Empire Slate, 12" wide by 18" long with a nominal thickness of 1/4"; surface marked for two (2) nails; special shapes field cut to suit valley, ridge, rake, eave, and other conditions.
    - f. **Empire Slate Tiles Reveal: 7"**
    - g. New saddle hip & ridge lap tiles, as required.
    - h. New Snow Guards installed at perimeter edges and over building entrances.
    - i. Install new wood fascia and other associated wood components in locations where deteriorated wood was removed.
    - j. All existing wood components associated with roof and soffits to be covered with Kynar coated .040" aluminum.

**1.02 QUALITY CONTROL**

- A. Roofing contractor shall:
1. Be experienced in all work required to complete this project.
    - a. Four (4) years minimum.
  2. Be acceptable by Owner, Manufacturers and Consultant.
  3. **Project must be started immediately after school is finished for the school year and must be finished prior to School start-up in August.**
- B. Project meetings:
1. Pre-job conference:
    - a. Will be scheduled by Consultant within ten (10) days after notice of award.

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- b. Attendance:
    - .1 Owner's Representative.
    - .2 Contractor.
    - .3 Project foreman.
    - .4 Consultant Project Manager.
  - c. Agenda:
    - .1 Submittal of project completion schedule.
    - .2 Submittal of insurance certificates.
    - .3 Submittal of executed payment and performance bonds.
    - .4 Execution of Owner-Contractor Agreement.
    - .5 Review specification documents distributed during invitation to Bid.
    - .6 Review and approve submittals for project.
    - .7 Review Safety Manual.
    - .8 Submittal of list of subcontractors, material & product submittals.
    - .9 Designation of responsible personnel.
    - .10 Walkover inspection.
2. Pre-construction conference:
- a. Will be scheduled by Owner and/or Consultant on or before project start date at Owner's discretion.
  - b. Attendance:
    - .1 Owner's Representative.
    - .2 Job superintendent.
    - .3 Project foreman.
    - .4 Consultant Project Manager.
  - c. Agenda:
    - .1 Submittal of applicable Building Permits.
    - .2 Review of specifications.
    - .3 Walkover inspection.
    - .4 Identify area where project will begin and areas in which admittance to building will be temporarily restricted.
3. Progress meetings:
- a. Will be scheduled by Owner or Consultant as required.
  - b. Attendance:
    - .1 Project foreman.
    - .2 Owner's Representative.
    - .3 Job superintendent.
    - .4 Consultant Project Manager.
  - c. Minimum agenda:
    - .1 Review of work progress. **Contractor is expected to maintain progress schedule.**
    - .2 Field observations, problems, and decisions.
    - .3 Identification of problems that impede planned progress.
    - .4 Maintenance of progress schedule.
    - .5 Corrective measures to regain projected schedules. Provide in writing to Owner.
    - .6 Planned progress during succeeding work period.
    - .7 Coordination of projected progress.
    - .8 Maintenance of quality and work standards.
    - .9 Effect of proposed changes on progress schedule and coordination.
    - .10 Review Safety Manual, procedures and requirements.
4. Final inspection:
- a. Will be scheduled by Consultant upon job completion.

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- b. Attendance:
  - .1 Owner's Representative.
  - .2 Consultant Project Manager.
  - .3 Project Foreman.
- c. Minimum agenda:
  - .1 Walkover inspection.
  - .2 Identification of problems that may impede issuance of warranty.

**C. Regulatory requirements:**

- 1. UL 790, Class C
- 2. UL 997-81
- 3. BOCA National Building Code/1996
- 4. OSHA Fall Protection
- 5. EPA for ACRM

**D. Plans and specifications:**

- 1. Contractor must notify Project Manager of any omissions, contradictions or conflicts three (3) days before bid due date. Project Manager will provide necessary corrections or additions to plans and specifications by addendum. If he does not so notify owner and Consultant of any such condition, it will be assumed he has included the necessary items in his bid to complete this specification.

**E. It is the intent that this be a completed project as far as the contract documents set forth. It is not the intent that different phases of work on this project be delegated to various trades and subcontractors by the contract documents. Contractor must make his own contracts with various subcontractors, setting forth the work these subcontractors will be held responsible for. Contractor alone will be held responsible by the owner for the completed project.**

- 1. If the contractor feels a conflict exists between what is considered good roofing practice and these specifications he shall state in writing all objections prior to submitting quotations.
- 2. It is the contractor's responsibility during the course of the work, to bring to the attention of the Project Manager any defective membrane, insulation or deck discovered where not previously identified.

**1.03 SUBMITTALS****A. Submit at Pre-Job Conference:**

- 1. Product data:
  - a. Product data sheets.
  - b. Material safety data sheets.
  - c. Shop drawings or samples of metal coping and flashings, scuppers details, etc., showing exact profile, lengths, joints, terminations, and methods of attachment.
- 2. Gantt (or equal) progress chart to project completion, identifying all segments of work, with appropriate timetables.
- 3. Do not order project materials or start work before receiving approval for this project work.

**1.04 DELIVERY, STORAGE AND HANDLING****A. Delivery of materials:**

- 1. Deliver materials to job-site in new, dry, unopened, and well-marked containers/pallets showing product and manufacturer's name.

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2. Deliver materials in sufficient quantity to allow continuity of work.
3. Coordinate delivery with Project Manager.

**B. Storage of materials:**

1. Store rolled goods on ends only. Discard rolls that have been flattened, creased, or otherwise damaged. Place materials on pallets. Do not stack pallets.
2. Stack slate on pallets.
3. Store materials marked "keep from freezing" in areas where temperatures will remain above 40°F.
4. Neatly stack wood on dunnage.
5. Remove plastic packaging shrouds. Cover top and sides of all stored materials with canvas or plastic reinforced tarpaulin (not polyethylene). Secure tarpaulin.
6. Rooftop storage: Disperse material to avoid concentrated loading.
7. Cover top and sides of all exterior stored materials with canvas tarpaulin (not polyethylene). Secure tarpaulin.
8. No materials may be stored in open or in contact with ground or roof surface.
9. Should Contractor be required to quickly cover material temporarily, such as during an unanticipated rain shower, all materials shall be stored on a raised platform covered with secured canvas tarpaulin (not polyethylene) top to bottom.
10. Contractor shall assume full responsibility for the protection and safekeeping of products stored on premises.

**C. Material handling:**

1. Handle materials to avoid bending, tearing, or other damage during transportation and installation.
2. Material handling equipment shall be selected and operated so as not to damage existing construction or applied roofing. Do not operate or situate material handling equipment in locations that will hinder smooth flow of vehicular or pedestrian traffic.

**1.05 SITE CONDITIONS****A. Field measurements and material quantities:**

1. **Applicator shall have SOLE responsibility for accuracy of all measurements, estimates of material quantities and sizes, and site conditions that will affect work.**

**B. Existing conditions:**

1. Building space directly under roof area covered by this specification will be utilized by on-going operations. Do not interrupt Owner operations unless written approval is received from Owner.
2. Access to roof shall be from exterior only. No roofing employees will be allowed within building without prior approval from Owner and/or Project Manager.
3. All HVAC or electrical disconnection and re-connection, if necessary, shall be performed by a mechanical and/or electrical company licensed to perform such work and shall be the responsibility of the Contractor.
4. Appropriate measures shall be taken to prevent dust, vapors, gases or odors from entering the building during roof removal, replacement or repair.
5. Debris shall be removed from job site by the Contractor on a daily basis.
6. **Roof project cannot begin until 7:00 am on a daily basis.**

**C. Environmental requirements:**

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1. Do not work in rain, snow, or in presence of water.
2. Do not work in temperatures below 40°F.
3. Do not install materials marked "keep from freezing" when daily temperatures are scheduled to fall below 40°F.

**D. Safety requirements:**

1. Fall protection measures shall be incorporated into this roof project as found in the Code of Federal Regulations 29 - Part 1926, Sub-part M - Fall Protection, effective February 6, 1995.
2. All application, material handling, and associated equipment shall conform to and be operated in conformance with OSHA safety requirements.
3. Comply with federal, state, local and Owner fire and safety requirements.
4. Advise Owner whenever work is expected to be hazardous to Owner employees and/or operators.
5. Maintain fire extinguisher within easy access whenever power tools are being used.
6. Advise Owner when volatile materials are to be used near air ventilation intakes so they can be shut down or blocked.

**E. Security Requirements:**

1. Comply with Owner's security requirements.
2. Provide Owner with current list of accredited persons scheduled to work on the project.

**F. Temporary sanitary facilities:**

1. Furnish, install, and maintain temporary sanitary facilities for employee use during project. Remove on project completion.
2. Place portable toilets in conformance with applicable laws, codes, and regulations.

**1.06 CONSTRUCTION PROJECT SAFETY****A. GENERAL**

1. Description:
  - a. Work Included:

To assure the work site environment is safe for the employees of all contracts, subcontract inspectors, and building occupants. This section has been written to identify and underline the importance of safe working conditions. If any conflict should arise over a specific provision or rule, the laws and rules governing that specific location shall be followed.
2. Related Work:
  - a. Additional safety items may be found in the individual technical sections.
3. Standards:
  - a. Occupational Safety and Health Act of 1970.
  - b. 29 CFR - Part 1926, Sub-part M - Fall Protection.
  - c. 40 CFR - Part 61, Sub-part M, Appendix A - Interpretive Rule Governing Roof Removal.
  - d. State, County, and City requirements, as applicable.
4. Quality Assurance:
  - a. Contractor shall have sole responsibility in seeing that the job site is safe, whether or not the Owner or Consultant is present on the project. Contractor shall appoint a "competent person" to be present on the project who will have authority to make decisions regarding safety and health issues on the Contractor's behalf.
5. Submittals:
  - a. Contractor shall submit Material Safety Data Sheets for materials to be used on the project.

**B. PRODUCTS**

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1. Materials and Equipment:
  - a. General: Contractor shall supply all necessary material and equipment required to complete the work in a manner consistent with a safe work site, and as required by regulatory agencies.
  - b. All equipment used on the project shall be in a safe operating condition and be maintained in a safe condition for the project duration. Equipment found to be unsafe or in disrepair will be repaired and made safe or will be removed from the job site and replaced if necessary at no cost to the Owner.
  - c. Disposal of any solvents, containers, and other regulated materials shall meet all applicable laws.

**C. EXECUTION**

1. General: The safety requirements listed here are by design broad in nature. The Contractor will augment as necessary the information contained in this section with more specific information from OSHA and roofing industry requirements.
2. Contractor Employee Training:
  - a. Contractor will provide adequate training for employees to ensure their safety and the safety of others on the project site. Provide instruction in the proper operation of power tools, hoisting equipment and other pieces of equipment employees will be required to use in the completion of the work.
  - b. One (1) employee per job crew is required to have received Red Cross Training.
  - c. Ensure each worker is aware of job and site specific hazards and the safety precautions appropriate to each.
  - d. Contractors shall present a safety and loss prevention orientation program to each new employee before that employee starts work.
  - e. Contractors and subcontractors shall inform their employees of all safety and health rules pertaining to their particular job.
  - f. Contractors and subcontractors shall inform their employees of location and use of safety devices such as first aid kits, phones, fire extinguishers, etc.
  - g. Contractors shall implement a regular system of work inspection to detect and correct hazardous conditions, safety rule violations and unsafe working practices.
3. Accident Reporting:
  - a. The proper reporting and investigating of accidents is necessary for all contractors and subcontractors. An accident report and investigation shall be immediately made out by the foreman in charge, reviewed and approved by the contractor. Contractor shall provide to the Owner's Representative a copy of the Completed Accident Report, Employer's First Report of Injury or Illness or such other similar reports required by federal, state, county and municipal or local safety laws. All record keeping requirements will be in accordance with OSHA.
4. First Aid:
  - a. Contractors and subcontractors shall be responsible for providing first aid and medical treatment for their employees. The name, address and telephone number of contractor's and subcontractor's doctors, hospital and ambulance services shall be conspicuously posted, as required by law.
  - b. An OSHA approved first aid kit will be located at all times on the job. It shall be conspicuously located and readily accessible at all times. The unit shall be of an appropriate size for the roofing crew.
5. Individual Conduct and Safety:

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- a. Contractor's and subcontractor's employees shall be made aware of and comply with the following rules which will be in effect on all job sites.
  - b. Alcoholic beverages and illegal drugs will not be permitted. Employees entering job site under the influence or possession of alcohol or drugs shall be subject to removal from the job site. The carrying of firearms and all other weapons is prohibited. Fighting, gambling, stealing, soliciting and horseplay will not be tolerated. Abusive language or disrespectful behavior in public areas will not be tolerated.
6. Employees shall be made aware of any job site alarm, code signal, appropriate responses, and the requirements for actions that will be needed to be taken.
7. Protective Equipment and Clothing:
- a. The contractor shall furnish and require the use and wearing of proper personal protective equipment by its employees.
  - b. Approved eye and face protection should be worn when warranted by the exposure. Safety glasses are required in all circumstances where there is an exposure to flying particles. Side shields offer additional protection. Plastic face shields should be worn for guarding against flying particles and spraying liquids or corrosives.
  - c. Appropriate clothing and eye protection shall be worn when chipping, grinding and during roof tear-off.
  - d. Hard hats must be worn at all times whenever there is a possibility of head injury from impact, flying or falling objects.
8. Housekeeping:
- a. The contractor or subcontractor shall maintain good housekeeping standards at all times as an integral part of his work. **Daily cleanup of work, lay-up, and personnel areas is required and must be performed.**
  - b. Materials shall be piled so that safe clearances are maintained and topping or movement is prevented. Loose materials on the roof must be secured so they cannot be blown or bumped off.
  - c. Accumulation of material that may create a fire hazard is not permitted. Never store excessive amounts of material in one place to overweigh the roof.
  - d. **Roof areas are to be "watertight at night" at all times during the job. Contractors or subcontractors failure to do so can be grounds for dismissal.**
    - .1 Roofing Contractor will be held liable for any and all damage to occupied areas and its contents resulting from his work or negligence.
    - .2 Roofing Contractor is required to respond within two (2) hours for any leak occurring to the interior. The leak will be repaired or measures taken to insure that interior operations are not interrupted until the leak can be repaired and clean-up is affected.
9. Signs and Barricades:
- a. When it is necessary to barricade an area for overhead work to protect Club Members and Staff, pedestrians and personnel from hazardous operations or to move equipment or cranes, barricades are to be provided by the contractor or subcontractor. Barricades must be erected before the work requiring them begins. If the barricades are in a roadway or walkway, blinking lights must be used after dark. When the work is completed, the barricades must be removed from the job site.
  - b. Contractors or subcontractors are forbidden to remove posted signs. All barricades must be scheduled and approved by Project Manager before erection.
  - c. A warning line system as described in 29 CFR 1926 Guarding of Low-Pitched Roof Perimeters for protection of employees will be erected by contractors or subcontractors on roofs with pitch less than 4:12 with roof height of more than 16 feet and width of 50 feet or more. The warning line will consist of rope, wire or similar material, flagged with highly visible material at 6 foot intervals which must be installed 42 to 45 inches above the roof

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- and be able to take 16 pounds of pressure against the rope before falling over. Toe boards or personal fall arrest systems as described in 29 CFR 1926 shall also be installed and utilized on roof areas with pitch greater than 4:12.
- d. Inspect all rigging equipment prior to use (chains, ropes, slings, shackles, etc.)
  - e. Ground fault detectors or an assured equipment guarding conductor program are to be used on all job sites as required by Law, Section 1926-400 (h), (1), (2), and (3).
10. Ladders:
- a. Contractors and subcontractors shall provide good ladders on the job. Ladders with split or cracked side rails and damaged rungs will be removed. They should be tagged "out of service" until they are fixed. Ladders in doorways, walkways or other congested areas must be barricaded or guarded.
  - b. Ladders should be of adequate length and must extend at least three feet above the upper landing.
  - c. Place straight ladders on solid, level footings with the foot of the ladder in a minimum distance from the wall equal to one fourth the length of the ladder from the resting point.
  - d. Straight ladders shall have non-skid feet and be securely tied off.
  - e. Face the ladder and use both hands going up or down.
  - f. Do not climb or descend ladders with tools, equipment or material in your hands.
  - g. Metal ladders must not be used near or for electrical service.
11. Fire Protection:
- a. Fire extinguishers must be located at all times on the job site. A fire extinguisher rated not less than 2A shall be provided for each 3,000 sq. ft. of the roof area under construction. Travel distance from any point of the protected area to the nearest fire extinguisher shall not exceed 100 feet.
  - b. Extinguishers in poor condition, not an appropriate size, or have been discharged will be required to be replaced.
  - c. Smoking may be prohibited on job site for various reasons. Employees will be expected to obey all "No Smoking" signs.
  - d. All flammable liquids will be required to be stored in approved safe containers. Contents will be described and marked flammable.
  - e. Storage in excess of 10 gallons of flammable liquids on the roof will not be permitted.
  - f. When using flammable liquids to clean, dispose of the rags in OSHA approved containers and they should be removed from the roof daily to prevent possible spontaneous combustion.
  - g. Never store bulk flammable material or liquids closer than 25 feet from source of ignition.
12. Crane and Hoist:
- a. Contractor shall comply with the manufacturer's specifications and limitations. Rated load capacities, recommended operating speeds, and special hazard warnings or instructions shall be conspicuously visible from the operator's station.
  - b. Accessible areas within the swing radius of the rear of the rotating superstructure shall be properly barricaded to prevent the public or employees from being struck or crushed by the crane.
  - c. All crawler or truck cranes in use shall meet the requirements as prescribed in the ANSI B30-5-1968 Safety Code for Crawler and Truck Cranes.
13. Tear-off Chute Set-up Procedures, if needed:
- a. The following guidelines shall be followed when setting up a chute:
    - 1. No material shall be dropped to any point lying outside the exterior walls of the structure unless the area is effectively protected. Protection shall consist of barriers that will prevent the public or employees from entering the danger zone.



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2. All material chutes or section of chutes at an angle of more than 45 degrees from the horizontal shall be entirely enclosed.
3. All buildings over 2 stories high or above 25 feet shall use a fully enclosed trash chute according to the referenced specifications.
4. Chutes may be job-fabricated or purchased pre-made. If pre-made chutes are used, manufacturer's set-up and operating instructions shall be followed.
5. When installing trash chutes, proper counter balance shall be used to off-set the weight and use of the chute. If wood boards or metal struts are used, they shall be set-up to prevent a tripping hazard to employees. A safety factor of 5 shall be used to determine counter balance.
6. No job site materials shall be used as counter balance of chute.
7. Guard rails shall be installed on either side of chute 6 feet from the opening. Guard rails shall be installed according to OSHA standards.
8. A substantial gate shall be installed at each chute at or near the discharge end. A competent person shall be assigned to control the operation of the gate and the disposal of trash down the chute.
9. Where the material is dumped from mechanical equipment or wheelbarrows, a securely attached toe board or bumper not less than 4 inches thick and 6 inches high shall be provided at each chute.
10. Chutes shall be designed and constructed of such strength as to eliminate failure due to impact of materials or debris loaded therein.

**YOU WILL NEED TO KNOW THE WEIGHT OF THE CHUTE TO DETERMINE THE COUNTER BALANCE REQUIREMENTS.**

14. Public Liability:
  - a. Unauthorized persons are not allowed access to the roof at any time. Contractor shall control access to the roof.
  - b. Barricades and signs should be posted on the ground around the work area to warn the public.
  - c. Locate air intake ducts, air conditioners or air pumps. Notify Owner's Representative when dust or fumes may be drawn into the facility so the unit may be shut down or covered.
  - d. At night, lock and secure trucks, deactivate hoisting equipment and take down ladders.
  - e. Park vehicles so they do not pose a hazard to other traffic moving around the job site. Trucks and equipment should not block sidewalks or other pedestrian's travel ways without providing a clear, well-marked, alternate route of travel.

**1.07 SUBSTITUTIONS**

- A. When a particular make or trade name is specified, it shall be indicative of standard required. Bidders proposing substitutes shall submit following at least three (3) days prior to bid due date to RMT:
  1. Written application with explanation of why it should be considered.
  2. Accredited testing laboratory certificate comparing substitute's physical/performance attributes to those specified.
  3. Three (3) job references available for inspection within fifty (50) miles of Owner where substitutes were used under similar conditions.
  4. Only substitutes approved in writing by Owner prior to scheduled bid date will be considered.
- B. Notification of approvals will be mailed at least three (3) days before bid opening.

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- C. Owner reserves right to be final authority on acceptance or rejection of any substitute.

**1.08 PAYMENT SECURITY**

- A. The following is required:
1. Payment and Performance Bond.
- B. Progress payments:
1. Contractor shall establish with Owner, owner's procedure for payment and retainage prior to commencement of work on this project.
  2. Retainage: Ten (10%) percent.
  3. Partial unconditional lien waivers for every entity that could assert a claim of more than \$5,000.00 for the PREVIOUS pay application, assuming payment has been received.
  4. Each pay application must be accompanied by a memo indicating any known claims for time and cost that have arisen during the period.
  5. Partial or progress payments shall not relieve contractor of performance obligations under this contract nor shall such payments be viewed as approval or acceptance of work performed.
  6. Final payment shall be withheld until all provisions of the specifications are met.

**1.09 UNIT PRICES**

- A. Quote unit prices on:
1. As stated on Bid Proposal Form.
  2. Wood fascia
  3. Copper gutter per 10' section
  4. Copper drip edge per 10' section
  5. Deck repair

**1.10 WARRANTY/GUARANTEE**

- A. Warranty:
1. Upon project completion, Consultant and Owner acceptance, and before final payment can be made, Contractor shall:
    - a. Shall submit signed written guarantee for the repairs, installation of roofing and flashing to be watertight for a period of two (2) years from the date of completion of the roof replacement project. The Contractor shall make all repairs during this two (2) year period to maintain the wall, window and roof areas watertight and in conformance with these specifications.
      1. All defects shall be repaired by the Contractor at his own expense.
      2. If, within 24 hours after notification of roof leakage, the Contractor has not responded, the Owner shall have the right without invalidating this guarantee to make any temporary repairs required in order to protect the building and the building contents from damage due to the roof, walls or windows leaking.
    - b. **Roofing manufacturer for slate tiles to provide standard 50 year warranty.**
    - c. **Roofing manufacturer for modified bitumen roof system to provide ND10 year warranty.**

**PART 2 - PRODUCTS****2.01 GENERAL**

- A. Comply with quality control, references, specifications, and manufacturer's data. Products containing asbestos are prohibited on this project. Use only asbestos-free products.

**2.02 ACCEPTABLE MANUFACTURER**

- A. EcoStar by Carlisle

**2.03 ROOF DECKING**

- A. Wood Decking – Plywood Sheathing:
  - 1. APA C-D Rated Sheathing, Exposure 1, Structural 1, 15/32" (1/2") thick, 5 ply, PS 1-83
    - a. Long Dimension parallel to supports
    - b. Panel continuous over two or more spans
    - c. Fasten 6" o.c. along supported panel edges and 12" o.c. at intermediate supports
    - d. 1/8" spacing between panels
    - e. Minimum Span Rating: 24/16
    - f. 1 panel clip per span

**2.04 MECHANICAL FASTENERS**

- A. Wood to wood:
  - 1. Galvanized, common, annular ring nail.
  - 2. Length: Sufficient to penetrate underlay blocking 1-1/4".
- B. Mechanical fasteners for roofing:
  - 1. Glacier Guard 100 to deck
    - a. Type: Self adhered.
  - 2. Aqua Guard
    - a. Type: FM 1-60 approved for wood decks, 1" cap nails.
    - b. GAF VersaShield: FM 1-60 approved for wood decks, 1 " cap nails.
  - 3. Slate Tile to deck:
    - a. EcoStar Roofing Nail with a 3/8" diameter head and a minimum of 1-1/2" long ring shank made from stainless steel. Nails can be supplied either as a hand drive style or in coils for use in pneumatic tools.
    - b. 2" – Minimum for hip and ridge slates.
- C. One (1) inch cap nails:
  - 1. Type: Spiral or annular ring shank, twelve (12) gage minimum, with integral one (1) inch cap.
  - 2. Acceptable manufacturers:
    - a. Hillwood Manufacturing Co., Cleveland, OH.
    - b. Hoffer Wire Products Co., Inc., Nevada City, CA.
    - c. Independent Nail, Inc., Bridgewater, MA.
    - d. W. H. Maze Co., Peru, IL.
    - e. National Nail Corp., Grand Rapids, MI.
    - f. Simplex Nails, Inc., Americus, GA.

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- D. Galvanized sheet steel to wood blocking and deck sheathing:
1. FS FF-N-105B(3) Type II, Style 20, roofing nails; galvanized steel wire, flat head, diamond point, round, barbed shank.
  2. Length: Sufficient to penetrate wood blocking 1-1/4 inches minimum.
- E. Aluminum sheet metal to wood blocking and deck sheathing:
1. FS FF-N-105B(3) Type II, Style 20, roofing nails; 6061-T913 alloy wire, flat head, diamond point, round, barbed shank.
  2. Length: Sufficient to penetrate wood blocking 1-1/4 inches minimum.

**2.05 ROOFING MATERIALS**

- A. Roofing System:
1. Empire Slate tiles are made of a thermoplastic polyolefin compound with appropriate colorants and UV stabilizers, at 10" or 12" widths by 18" long, and with a tapered nominal thickness of 1/4". Weight shall be determined by the following acceptable tile exposures:  
12"            10"  
7"            = 300 - 320 lbs per square  
7"            = 269 - 289 lbs per square  
6-1/2" = 325 - 345 lbs per square  
6-1/2" = 290 - 310 lbs per square  
6"            = 350 - 370 lbs per square  
6"            = 313 - 333 lbs per square
  2. Colors:
    - a. Meramec: Federal Gray
- B. Related materials:
1. Shingle underlayment:
    - a. Glacier Guard, peel and stick.
    - b. Aqua Guard, Mechanically fastened.
    - c. GAF Versa Shield Mechanically fastened.
  2. Sealants:
    - a. Coping sealant:
      - 1) FS TT-S-00227E (3), Type II, Class A; multi-component, non-sag epoxidized polyurethane sealant.
    - b. Reglet sealant:
      - 1) Reglet Joint Sealant
  3. Lumber:
    - a. Southern Pine; No. 2 grade; free from warping and visible decay; pressure treated with chromated copper arsenate (CCA) to meet AWPB, LP-22, 0.40 retention, and marked.
  4. Snow Guards:
    - a. Copper/stainless steel, hook type or mechanically fastened under slate tiles in alternating courses between slate tiles.
    - b. Alpine or EcoStar
  5. Ridge Cap:
    - a. EcoVent rolled ridge vent by EcoStar
    - b. Continuous tile over ridge vent.

**2.06 METAL FLASHINGS**

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- A. Counterflashing and Step Flashing:
  - 1. Aluminum: ASTM B 209-86, alloy and temper - 3003-H14, 0.040 inch thick aluminum sheet, Kynar coated finish for step flashing and metal valley metal.
- B. Metal Drip Edge at Rake and Eave locations:
  - 1. Kynar coated .040" aluminum.
- C. Plumbing Vents:
  - 1. ASTM B 29-79 (1984), four (4) lb. sheet lead.

**2.07 SYSTEM PERFORMANCE REQUIREMENTS:**

A. Empire Slate Tiles:	
<u>Property</u>	
Materials	<b>EMPIRE</b>
Product Characteristic:	
Length	18"
Width	12"
Weight	1.4 lbs.
Thickness	1/4" nominal
U.L. Class A Fire Rating	UL 790 Test Standard Fire Resistance
Tensile	500 psi (UL 2218 Test Standard)
Water absorption	0% by weight

**2.08 VAPOR-RETARDER / AIR BARRIER INSTALLATION**

- A. Deck to be as clean as possible. Insure the concrete is in good condition. If concrete deck is wet allow sufficient amount of time for the moisture to dry. **No torches to be used to dry deck of moisture!**
- B. Install Self-Adhered over a SA Primer WB. In concrete applications allow concrete to cure for at least 7 days. Do not install when it is raining, snowing, or on wet/humid surfaces. Install in temperatures 32°F (0°C) and above. The use of a primer is required on the following substrates: wood, concrete, lightweight concrete, gypsum boards and decks, and DensDeck Prime® boards.
- C. Begin application at the bottom of the slope. Unroll Self-Adhered onto the substrate without adhering for alignment. Overlap each preceding sheet by 3 in. (75 mm) lengthwise following the reference line and by 6 in. (150 mm) at each end. Stagger end laps by at least 12 in. (300 mm). Do not immediately remove the silicone release sheet.
- D. Once aligned, peel back a portion of the silicone release sheet and press the membrane onto the substrate for initial adherence. Hold Self-Adhered tight and peel back the release sheet by pulling diagonally.
- E. Use a 75 lb. (34 kg) roller to press Self-Adhered down into the substrate including the laps. Finish by aligning the edge of the roller with the lower end of the side laps and rolling up the membrane. Do not cut the membrane to remove air bubbles trapped under the laps. Squeeze out air bubbles by pushing the roller to the edge of the laps.

**2.09 INSULATION**

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- A. Polyisocyanurate board insulation: Closed cell polyisocyanurate foam with black glass reinforced mat laminated to faces, complying with ASTM 1289-03, Type 2, Class 1, Grade 2, with the following additional characteristics:
  - 1. Thickness: Two (2) layers 2.0" top and bottom layers.
  - 2. Size: 48" x 48", nominal. Mechanically attached bottom layer can be 4'x8'.
  - 3. R-Value (LTTR):
    - a. 4.0-inch Thickness: R-24, minimum.
  - 4. Compressive Strength: 20 PSI when tested in accordance with ASTM C 1289.
  - 5. Ozone Depletion Potential: Zero; made without CFC or HCFC blowing agents.
  - 6. Recycled Content: 19 percent post-consumer and 15 percent post-industrial, average.
  
- B. Tapered Polyisocyanurate board for crickets:
  - 1. Closed cell polyisocyanurate foam with black glass reinforced mat laminated to faces, complying with ASTM 1289-03, Type 2, Class 1, Grade 2.
    - a. All layers fully adhered with low rise foam. 6" ribbons in the 8' perimeter, 4" ribbons in the corners, and 12" ribbons in field.
    - b. Thickness: 1/2" minimum per ft. slope.
    - c. Density: 20 pcf.
  
- C. Cant strip:
  - 1. ASTM C 208-72 (1982), impregnated fiberboard. Length: Forty-eight (48) inches.
  - 2. Thickness: 1-1/2 inches. Face: Four (4) inches.

**2.10 DUAL COMPONENT POLYURETHANE ADHESIVE**

- A. General: Provide a dual component polyurethane adhesive that is intended for the attachment of polyisocyanurate insulation to various substrates. The dual component polyurethane adhesive has to have approvals from the insulation and roofing system manufacturer for attaching the polyisocyanurate insulation to approved substrates, multiple layers of polyisocyanurate insulation, and cover boards. Consult adhesive roofing system manufacturer on current acceptable substrates to apply dual component polyurethane adhesive to various substrates.
  
- B. Dual component polyurethane adhesive: The low-slope dual component polyurethane adhesive shall have the following minimum properties:
  - 1. Density ASTM D-1622: Free Rise, 3.2 lb./cf.
  - 2. Compressive Strength ASTM D-1621: Parallel, 38 psi @ 6% deflection.
  - 3. Tensile Strength ASTM D-1623: 35 psi
  - 4. Water Absorption ASTM D-2843: 5.1%
  - 5. Closed Cell Content ASTM D-6226: 90% min.
  - 6. R-Value ASTM C-518 3.8/inch (new)
  - 7. VOC Content ASTM D-2369 <5 g/l (1&2 combined)
  - 8. Weight/Gallon: Part A Component 10.32 lbs. Part B Component 8.54 lbs.
  
- C. Approved Roofing system manufacturer and Product:
  - 1. OMG Roofing Products, "OlyBond 500® SpotShot."

**2.11 ROOFING MATERIALS**

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- A. Adhesives:
1. Adhesive for board attachment Two-component low-rise polyurethane foam adhesive for adhering polyisocyanurate insulation to approved substrates.
    - a. Derbibond PG,
    - b. I.S.O. Twin Pack
    - c. Olybond 500, or approved equal.
    - d. Application rate: 1.5 – 2.0 gal./100 sq. ft. 4” ribbon spacing.
  2. Cap ply, interply and Polybase membrane adhesive:
    - a. Firestone MB cold adhesive
    - b. Permastic cold adhesive.
  3. All laps to be heat welded with hot air self-drive mechanical welder where possible.
  4. All end laps to utilize 220 volt welder. **110 volt welder is not acceptable.**
- B. APP modified bitumen base sheet:
1. Fiberglass scrim/polyester mat composite impregnated and coated with high quality APP modified bitumen.
  2. Thickness: 155 mils.
  3. ASTM D 6222.
- C. APP Modified bitumen membrane Cap Sheet and Flashing Membrane:
1. APP Modified Bitumen
  2. 180 mil FR Ultra White
  3. Granule Surfaced
  4. ASTM D 6222 Ultra White
- D. Related materials:
1. Liquid Flashing:
    - a. Derbiflash by Derbigum or equivalent.
    - b. Ultraflash by Firestone Building Products
  2. Asphalt mastic:
    - a. ASTM D 4601-86 - **Asbestos Free**
  3. Asphalt primer:
    - a. ASTM D 41-85
  4. APP mastic:
    - a. 1 Part APP roofing mastic
  5. Flashing bitumen:
    - a. Manufactures Cold Application Flashing Adhesive:
      1. Performance/Firestone or approved equal
  6. Flashing ply:
    1. One ply ASTM D 6222, APP modified bitumen smooth surface 155 mil
    2. One ply ASTM D 6223, APP modified bitumen granule surface 180 mil
  7. Roofing granules:
    - a. ASTM D 451-85, No. 11 sieve.
  8. Sealants:
    - a. Coping sealant:
      - 1) FS TT-S-00227E, (3), Type II, Class A; multi-component, non-sag epoxidized polyurethane sealant.
    - b. Draw band sealant:
      - 1) Reglet Joint Sealant
    - c. Reglet sealant:

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- 1) Reglet Joint Sealant
9. Walkway panels:  
Cold applied alternate color cap ply membrane or equivalent to cap sheet.
10. Lumber:
  - a. Southern Pine; No. 2 grade; free from warping and visible decay; pressure treated with chromated copper arsenate (CCA) to meet AWPB, LP-22, 0.40 retention, and marked.
11. Plywood:
  - a. Plywood shall have a maximum moisture content of 19% by weight on a dry weight basis. Unless kiln-dried after treatment, wolmanized plywood is not acceptable due to moisture content.

**2.12 METAL FLASHINGS**

- A. Termination bar:
  1. Metal-Flash Termination Bar Flashing: 1/8 x 1 inch flat aluminum bar
- B. Termination bar sealant:
  1. Metal cleaner: No. 200 Cleaner
  2. Metal primer: Primer No. 6
  3. Reglet joint sealant
- C. Metal coping:
  1. Kynar coated sheet steel: ASTM A 526-85, 26 gage, thick steel.
  2. Cleat: ASTM A 526-85, 24 gage thick G-90 galvanized sheet steel with 1.25 oz./sq. ft. galvanized coating.
- D. Perimeter edge metal fascia:
  1. Kynar coated sheet steel: ASTM A 526-85, 26 gage, thick steel.
  2. Cleat: ASTM A 526-85, 24 gage thick G-90 galvanized sheet steel with 1.25 oz./sq. ft. galvanized coating.
- E. Counterflashing:
  1. Kynar coated sheet steel: ASTM A 526-85, 26 gage, thick steel.
- F. Existing Pitch Pans:
  1. To be removed and wherever possible, replaced with 0.040 inch thick aluminum sheet, mill finish. Pitch pans and covered metal umbrella flashing - see drawing details.
- G. Pitch pan cement:
  1. ASTM C 928-80 for "setting" of pitch pan flange only
- H. Pitch pan mastic:
  1. Self-reinforcing, polyurethane modified, two-component mix.
- I. Work shall be in accordance with Architectural Sheet Metal Manual, Third Edition, as issued by Sheet Metal and Air Conditioning Contractors' National Association, Inc. (SMACNA).
- J. Plumbing Vents:
  1. Pre-formed flashing boot: 4 lb. lead with base flange



**2.13 SYSTEM PERFORMANCE REQUIREMENTS**

**A. APP MODIFIED BITUMEN CAP SHEET & FLASHING MEMBRANE**

<u>Property</u>	<u>Typical Value</u>	<u>Test Method</u>
Thickness @ lap edge	180 mil	ASTM D 5147
Peak Load @ 73°F	110/lbf/in. MD,XMD	ASTM D 5147
Elongation @ Peak Load 73°F	5% MD, 5% XMD	ASTM D 5147
Tear Strength @ 73°F	190lbf, MD, XMD	ASTM D 5147
Compound Stability	270°F.	ASTM D 5147
Low temperature flexibility	32°F	ASTM D 5147

**B. APP MODIFIED BITUMEN BASE PLY MEMBRANE**

<u>Property</u>	<u>Typical Value</u>	<u>Test Method</u>
Thickness	155 mil	ASTM D 6222-16
Weight (per 100 sq. ft.)	88 lbs.	
Tensile Strength @0°F	90 lbf/in MD, 65CD	ASTM D 6222-16
Tensile Strength @77°F	80 lbf/in MD, 60CD	
Elongation@0°F	10% MD, CD	ASTM D 6222-16
Elongation@77°F	37% MD, 45 CD	
Tear Resistance@77°F	100 lbf. MD, 80CD	ASTM D 6222-16
Compound Stability	275°F	ASTM D 6222-16

**C. FIBRATED ASPHALT MASTIC**

<u>Property</u>	<u>Typical Value</u>	<u>Test Method</u>
Asbestos content	None	ASTM D 276-87
Viscosity @ 77°F	480,000 - 1,000,000 cP	ASTM D 2196-81
Density @ 77°F	9.3 lb/gal	ASTM D 1475-85
Solids by weight, min	80%	ASTM D 4586-86
Resistance to sag, max	1/8 in.	ASTM D 4586-86
Moisture vapor Transmission rate	0.10 - 0.40 hrs @ 0.020 in. thickness g/100 in. <sup>2</sup> /24	ASTM E 398-83

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**D. ASPHALT CUTBACK PRIMER - QUICK DRYING**

<u>Property</u>	<u>Typical Value</u>	<u>Test Method</u>
Asbestos content	None	ASTM D 276-87
Viscosity @ 77°F, (Ford cup b1)	14.5 s	ASTM D 1200-82
Density @ 77°F.	7.8 lb/gal	ASTM D 1475-85
Solids by weight	44%	ASTM D 1644-75
Flash point	>100°F	ASTM D 3278-82

<u>Property</u>	<u>Typical Value</u>	<u>Test Method</u>
Asbestos content	None	ASTM D 276-87
Viscosity @ 77°F	480,000 - 1,000,000 cP	ASTM D 2196-81
Density @ 77°F	9.3 lb/gal	ASTM D 1475-85
Solids by weight, min	80%	ASTM D 4586-86
Resistance to sag, max	1/8 in.	ASTM D 4586-86
Moisture vapor Transmission rate	0.10 - 0.40 hrs @ 0.020 in. Thickness	ASTM E 398-83

**PART 3 - EXECUTION**

**3.01 EXAMINATION**

- A. Verify conditions are satisfactory to receive work.
- B. Do not begin roofing until all unsatisfactory conditions are corrected. Beginning work constitutes acceptance of conditions.
- C. Verify work of other trades penetrating roof deck or requiring men and equipment to traverse roof deck has been approved by Owner, manufacturer, and roofing contractor.
- D. Check projections, curbs, and deck for inadequate anchorage, foreign material, moisture, or unevenness that would prevent quality and execution of new roof system.

**3.02 GENERAL WORKMANSHIP**

- A. Substrate: Free of foreign particles prior to laying shingle base roof membrane. Deck surface must be swept prior to felt installation.
- B. Wrapper and packaging materials: Not to be included in roofing system.
- C. Entrapped debris and aggregate: Not permitted within new roof assembly. Its discovery is sufficient cause for rejection.
- D. Mechanical fasteners:

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1. Driven manually or mechanically straight with head seated firmly against the shingle surface not cutting or breaking shingle surface
2. Length: Sufficient to penetrate plywood sheathing thickness through underside 3/4".

**3.03 PREPARATION**

## A. Protection:

1. **Existing roof tiles shall be removed to minimize debris from falling to the ground. The use of removal machinery is not allowed. Tiles shall be removed with minimum disturbance and breakage.**
2. **Roofing tiles shall be lifted into dumpster and not thrown in from the roof.**
3. Contractor shall be responsible for protection of property during course of work. Lawns, shrubbery, paved areas, and building shall be protected from damage. Repair damage at no extra cost to Owner. Contractor shall install one layer of 6 mil poly 6' around all sides of dumpster.
4. **Contractor is responsible for clean-up and potential falling debris.**
5. Roofing and flashings shall be **installed and sealed in a watertight manner on same day of installation or before arrival of inclement weather. Complete coverage with shingles is considered watertight.**
6. Preparation work shall be limited to those areas that can be covered with installed roofing material on same day or before arrival of inclement weather.
7. Arrange work sequence to avoid use of newly constructed roofing walking surface.
8. Move equipment and ground storage areas as work progresses.
9. Protect building surfaces at set-up areas with tarpaulin. Secure tarpaulin. Remove dump container from premises when full and empty at approved dumping or refuse area. Deliver empty dump container to site for further use. Upon job completion, dump container and tarpaulin shall be removed from premises. Spilled or scattered debris shall be cleaned-up immediately. **Contractor is required to utilize a rolling magnet to pick up scattered nails.** Removed material to be disposed from roof as it accumulates.
10. Seal roof system at perimeters, projections, and other roof penetrations at end of each day.
11. Cover windows with protective covering prior to removal of roofing material.
12. Do not allow debris to fall through deck sheathing joints and penetrations.

## B. Surface preparation:

1. Remove existing roofing shingles.
2. Remove deteriorated plywood deck sheathing.
3. Remove roof and flashings to substrate around roof penetrations.

**3.04 CARPENTRY**

- A. Remove all deteriorated wood including fascia and associated wood components.
- B. Replace with treated wood of the same dimension and mechanically fastened with zinc plated common nails.

**3.05 ROOF DECK REPAIRS**

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- A. Replace all deteriorated wood deck planking with 15/32" exterior grade treated plywood secured to structural framing 6" o.c. with 8d nails sufficient to penetrate the wood structural supports.
- B. Install one (1) panel clip per side to ensure 1/8" spacing between adjacent panels.
- C. Deck Repair:
  - 1. Re-attach loose decking; replace warped and rotted deck panels. Face nail each deck panel with two nails per support.

### 3.06 ROOF SYSTEM APPLICATION

- A. Glacier Guard application: wood deck
  - 1. Ensure surface to receive Glacier Guard is clean, dry, and free of debris.
  - 2. Felt shall be laid in horizontal (shingled) layers. First and succeeding courses to be 36" in width. Lap 4" on sides and ends. The underlayment should be fastened appropriately for the slope of the roof, as necessary, to hold the Glacier Guard in place until the slate tiles are installed.
  - 3. Felt shall be installed under perimeter fascia at rake.
- B. Slate roofing tile application:
  - 1. After installing underlayment and before installing the Majestic Slate Tiles, clean the surface of debris and dirt.
  - 2. Beginning at the eave, install a layer of Majestic Slate tiles gapped a minimum of 3/8" between tiles and any projections with two (2) roofing fasteners per tile (in location shown on tiles). This layer of tiles will become the starter row. Install another layer of tiles in the same manner as the first with the exception of the second layer having a 1/2 tile offset to the first layer.
  - 3. Continue installing tiles per the chosen exposure.
  - 4. Care must be taken to place tiles so color variations are evenly distributed over the entire roof area. Tiles between bundles and pallets **MUST** be shuffled to ensure even distribution of color variations. "Patchy" or "Blotching" in appearance is not acceptable and the EcoStar Authorized Gold Star applicator will be required to correct. It is recommended the work should not begin until all EcoStar materials have been delivered to the job site.
  - 5. It is the responsibility of the Gold Star Authorized Applicator to ensure that all Majestic Tiles are bent back in a downward curve prior to installation. **Do not install tiles with an upward curve.**
  - 6. Either an open or closed valley design may be used.
    - a. With an open valley design leave a minimum of 2" on each side of the center of the valley exposed and uncovered by the roof tiles. A V-Style or W-Style Valley metal may be used.
  - 7. Minimum Fastening – No less than 2 EcoStar Fasteners per tile shall be used with a minimum length of 1-1/2".
  - 8. CAUTION: When using a pneumatic nailer, care should be taken to ensure nails are not over driven causing the tiles to curl upward. If tiles have been installed with over driven nails causing the ends of the tile to curve upward, tiles will never lay flat. Overdriven tiles must be removed and re-nailed properly.
  - 9. Install EcoStar Attic Guard ridge vent system per the manufacturer's application instructions and then place the Majestic Slate – Universal Hip/Ridge Tile over the ridge vent. A minimum 2.5" stainless steel hand-driven EcoStar fastener should be used on a ventilated hip/ridge to fasten the hip/ridge tile to the deck. A minimum 2" stainless steel hand-driven EcoStar fastener should be used on an unventilated hip/ridge to fasten the hip/ridge tile to the deck. Place fasteners in the location marked on the tile. Majestic Slate – Universal Hip/Ridge Tile must be installed with 6" exposure.
  - 10. Majestic Slate Tiles may not be installed if the tiles have been stored in temperatures lower than 40°F. If tiles have been stored in temperatures below 40°F, tiles must be brought back to an

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ambient material temperature of 40°F. As the temperature rises, Majestic Slate will expand beyond the designed installation pattern if the product is installed while cold or frozen.

11. Do not install tiles directly adjacent to each other. A minimum gap of 3/8" must be maintained between installed tiles.
12. After the initial row of tiles has been installed, it is recommended a chalk line be placed parallel to the roof edge and running perpendicular to the first row of tiles. This chalk line will ensure the tiles stay true and plumb to the roof edge throughout installation.
13. Care must be taken to minimize foot traffic over completed areas of the roof. Majestic Slate tiles will show mud and dirt and cause appearance problems. The removal of dirt and debris is the responsibility of the applicator.
14. The slate shall project 2" at the eaves and from 1/2" to 1" as directed at all gable ends and shall be laid in horizontal courses with 3" head lap and each course shall break joints with the preceding one by at least 3".
15. Slates at the eaves or cornice line shall be doubled using same thickness slate for under eaves at first exposed course. Under eave slate to be approximately 3" longer than exposure of first course.
16. Slates overlapping sheet metal work shall have the nails so placed as to avoid puncturing the sheet metal. Exposed nails shall be permissible only in top courses where unavoidable.
17. Neatly fit slate around all pipes, ventilators and other vertical surfaces.
18. Nails shall not be driven so far as to produce a strain on the slate.
19. Cover all exposed nail heads with elastomeric sealant. Hip slates and ridge slates shall be laid in elastomeric sealant spread thickly over unexposed surface of under courses of slate, nailed securely in place and carefully pointed with elastic cement.
20. All valleys shall be laid to form 'Open' installation of valleys utilizing existing valley metal.
21. All ridges shall be laid to form 'Saddle' ridge installation under the new venting ridge cap.
22. Application of roofing shall be in accordance with roofing system manufacturer's instructions and the following requirements. Application of roofing shall immediately follow application of base sheet as a continuous operation.
23. **Aesthetic considerations**; The overall appearance of the finished roof application is a standard requirement for this project. The contractor shall make necessary preparations, utilize recommended application techniques, apply the specified materials (ie. granules, metallic powder, etc.), and exercise care in ensuring the finished application is acceptable to the Owner.
24. Prime metal flanges (all jacks, edge metal, lead drain flashings, etc.), concrete and masonry surfaces with a uniform coating of asphalt primer ASTM D-41-73.
25. All polymer-modified rolls shall be unrolled and allowed to relax for 15 minutes prior to application.
26. Utilize manufacturer's recommended installation procedures for cold weather or hot weather application.
27. All layers of roofing shall be laid parallel to the slope of the deck.

C. Flashings and accessories:

1. The roof flange of the metal flashing should extend back up the slope of the roof 2" - 3" or more as required to rest smoothly on the roof deck. Secure the flashing with appropriate length nails spaced approximately 10" on center, staggered.

D. Slate Saddle Ridge:

1. Install 3/16" wood nailer on each side of ridge joint in wood deck with mechanical fasteners.
2. Install wood lath on each side of the wood nailers, securing to deck with fasteners on 12" centers.
3. Nail top course of slate tiles to wood nailer with two (2) nails per slate tile with fasteners sufficiently long enough to penetrate wood deck.
4. The finishing venting ridge vent shall be nailed with 6d (min.) common zinc plated nails.

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- E. Flashing at vertical walls:
1. Install 8" .040" Kynar coated finish aluminum flashing at intersection of horizontal and vertical surfaces, if existing and original metal cannot be utilized. Bend metal at a right angle to form two (2) - 4" flanges.
  2. Mechanically fasten flange on vertical deck surface with nails 12" o.c., staggered.
  3. For step flashing, overlap 4" minimum in shingle fashion.
  4. Maintain siding at a minimum of 2" above field slate tiles.
- F. Plumbing vent flashing:
1. Remove existing vent flashing. Discard.
  2. Install new base ply membrane to flange of vent pipe.
  3. Prime metal surfaces to be covered by flashing.
  4. Apply 1/16" uniformly thick layer of asphalt mastic to surface receiving metal flange.
  5. Fabricate and install plumbing vent flashing from lead (4 lb./sf. minimum).
  6. Roll lead flashing minimum of 1" down into pipe. If the lead should break or crack, remove and replace with new.
  7. Install polymeric slate tile roofing around vent flashing stack.
- G. Snow Guards:
1. Snow guards shall be installed from a line no closer than 2'-0" from the eaves/perimeter edge of the roof and shall extend uniformly upward and laterally over the entire perimeter area directly over all entrances to the building.
  2. Snow guards shall be spaced approximately at every other shingle in both vertical and horizontal directions but no less than 16" apart vertically and not less than 24" horizontally and shall be staggered from course to course.
  3. Each Snow guard shall hang from the head edge of slate tiles by means of its own suspension feature without the use of exposed nails or fasteners.
  4. Leave a minimum of 3/4" gap between top vertical edge of Snow Guard and leading edge of Majestic Slate Tile.

**END OF THIS SECTION**

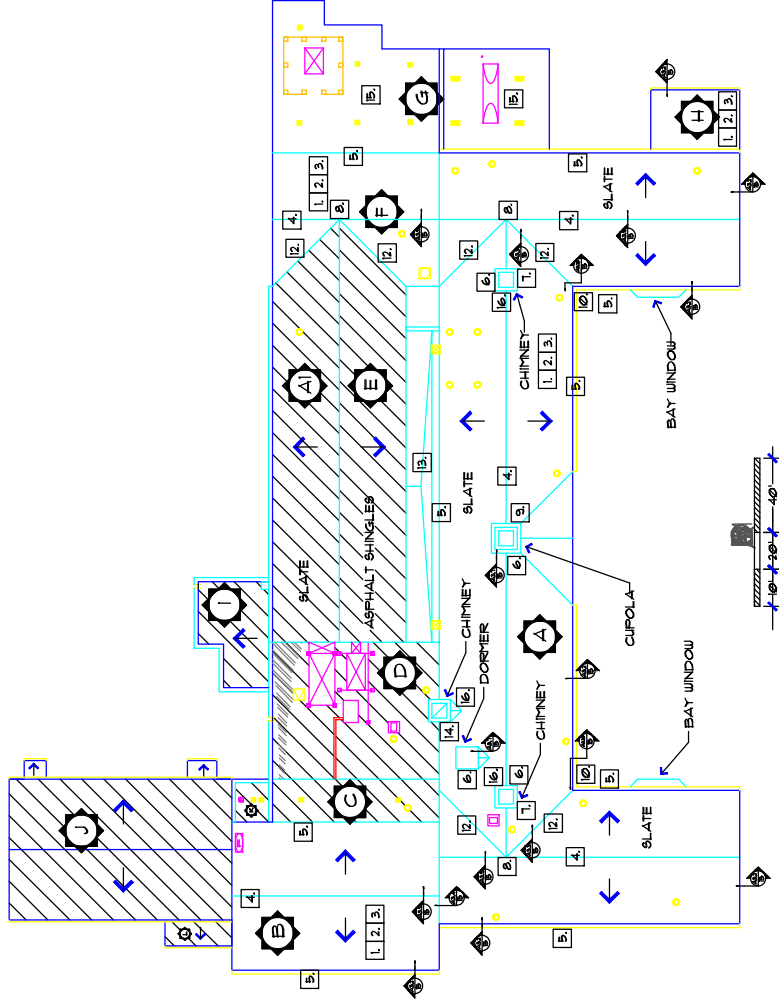


# MERAMEC

REV	DATE	COMMENTS

## RENOVATION NOTES - MERAMEC ELEMENTARY

1. MECHANICALLY ATTACH AQUA GUARD BASE PLY MEMBRANE TO WOOD DECK SURFACE.
2. FULLY ADHERE GLACIER GUARD ICE & WATER SHIELD TO AQUA GUARD UNDER ALL VALLEY METAL, 6' UP FROM ALL GUTTER EDGES, AROUND ALL PROJECTIONS AND AT ALL RAKE EDGES. INSTALL ECOSTAR ROOF TILES ON SECTIONS A, B, F & H.
3. INSTALL NEW ECOSTAR RIDGE CAP ON ALL RIDGES.
4. AFFECT ALL NECESSARY REPAIRS TO EXISTING COPPER GUTTERS.
5. INSTALL NEW 16 OZ. COPPER STEP FLASHING.
6. INSTALL NEW 26 GA. GALVANIZED CHIMNEY COVER TO ALL CHIMNEYS
7. INSTALL NEW 16 OZ. COPPER TRANSITION FLASHING AT RIDGE INTERSECTIONS.
8. INSTALL NEW COPPER STEP FLASHING UNDER WOOD SIDING OF CUPOLA
9. INSTALL NEW SNOW GUARDS ABOVE ALL DOORWAY ACCESS.
10. DO NOT REMOVE COMPLETE COPPER FASCIA, ONLY CAP PIECE.
11. INSTALL NEW 16 OZ COPPER VALLEY METAL.
12. INSTALL NEW ELASTOMERIC COATING TO VALLEY.
13. INSTALL ECOSTAR TILE ON VERTICAL SURFACES OF AIR INTAKE UNIT DORMER.
14. ALTERNATE #1: INSTALL APP MODIFIED BITUMEN ROOF SYSTEM ON SECTION G.
15. RE-POINT ALL BRICK ENCLOSED CHIMNEYS - AS REQUIRED.



SYMBOL	DESCRIPTION
1	EXISTING ROOF
2	NEW ROOF
3	EXISTING GUTTER
4	NEW GUTTER
5	EXISTING FLASHING
6	NEW FLASHING
7	EXISTING CHIMNEY
8	NEW CHIMNEY
9	EXISTING DORMER
10	NEW DORMER
11	EXISTING VALLEY
12	NEW VALLEY
13	EXISTING RIDGE
14	NEW RIDGE
15	EXISTING SNOW GUARD
16	NEW SNOW GUARD
17	EXISTING FASCIA
18	NEW FASCIA
19	EXISTING DOWNSPOUT
20	NEW DOWNSPOUT

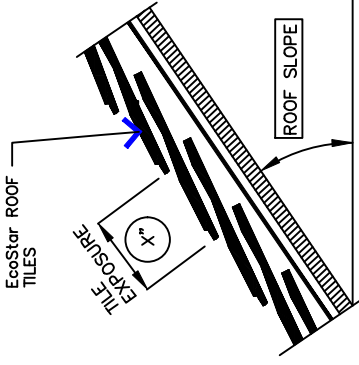
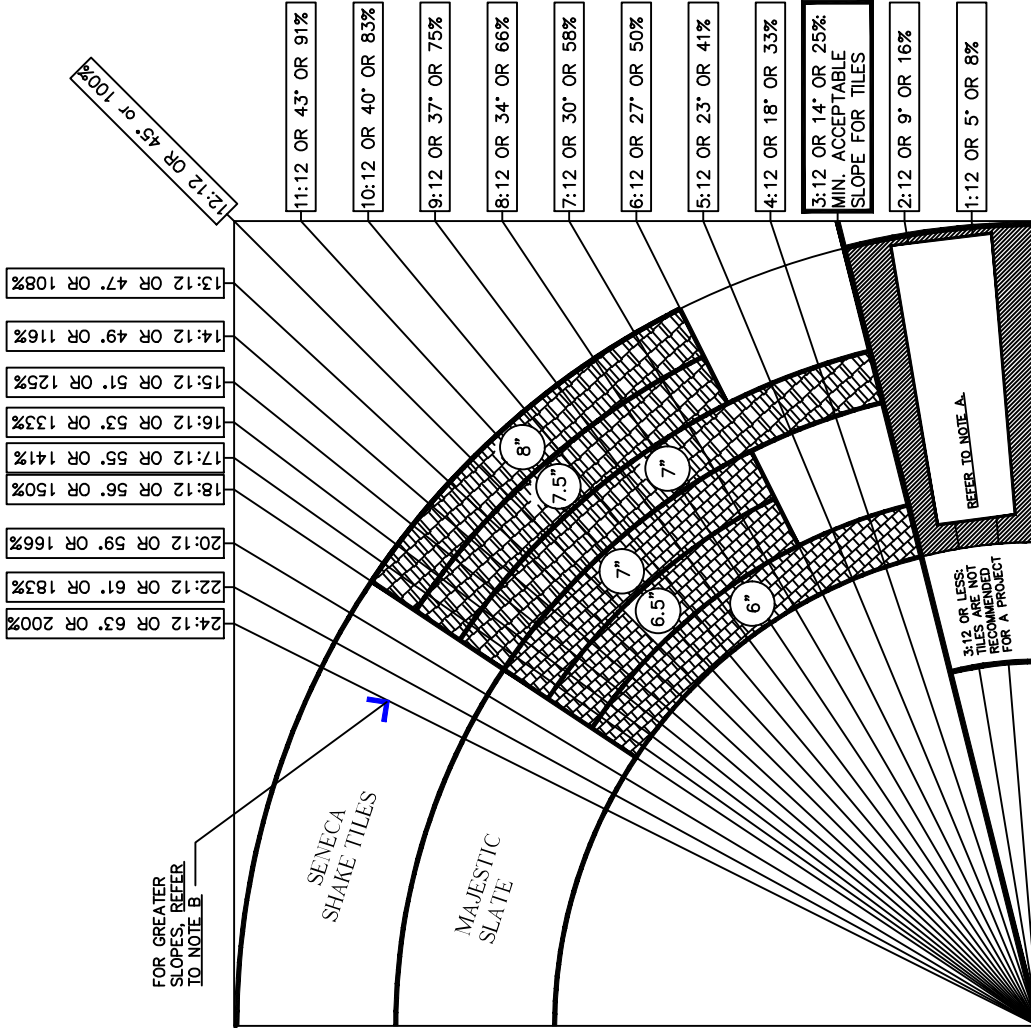


CLAYTON SCHOOL DISTRICT  
 1501 13TH AVENUE S.W.  
 BENTON, MN 55005



# MERAMEC

## ROOF SLOPE



### A TILE EXPOSURE EXAMPLE DIAGRAM

#### NOTES:

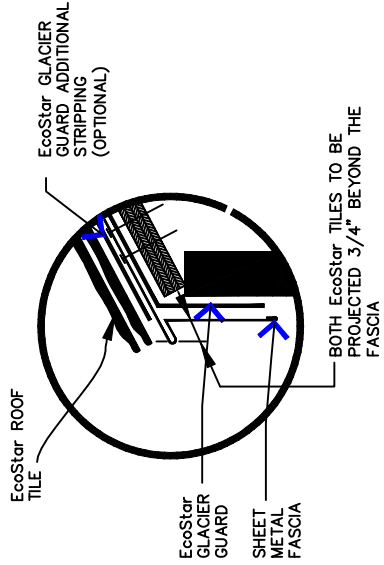
- A. ROOF SLOPES LESS THAN 3:12
  1. EcoStar ROOF ASSEMBLIES ARE NOT PERMITTED ON ROOF SLOPES LESS THAN 3:12 WITHOUT PRIOR WRITTEN CONSENT OF EcoStar.
  2. ON LIMITED AREAS, WHERE DECK IS LESS THAN 3:12, THERE EcoStar MAY ALLOW THE TILE INSTALLATION, BUT ENTIRE DECK AREA SHALL BE REQUIRED TO COVER WITH GLACIER GUARD UNDERLAYMENT. SUBMIT ROOF PLAN WITH DETAILS OF SUBJECT AREAS VIA E-MAIL TO EcoStar FOR REVIEW
- B. ROOF SLOPES GREATER THAN 18:12
  1. COORDINATE WITH THE TECHNICAL STAFF OF EcoStar AT (800) 211-7170 FOR TECHNICAL REVIEW. SUBMIT ROOF PLAN WITH DETAILS OF SUBJECT AREAS VIA E-MAIL TO EcoStar FOR REVIEW.

SCALE	N/A
PROJECT NUMBER	9TL 3655-20
DRAWN BY	KFO
PLOT DATE	
AutoCAD FILE	63655-11.dwg
REV DATE	
COMMENTS	



ROOF PLAN  
CLAYTON SCHOOL DIST.  
MERAMEC ELEMENTARY

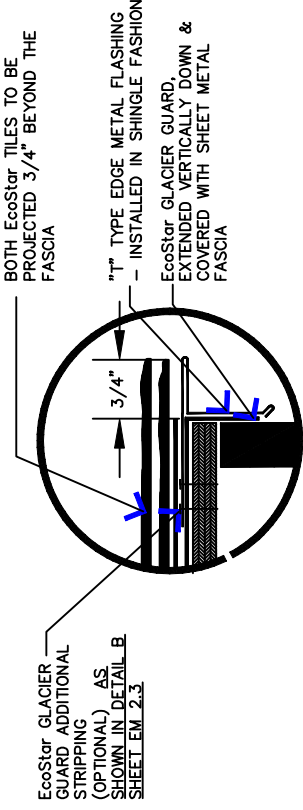
# MERAMEC



**A** TILES' PROJECTION AT EAVES - NO GUTTER

NOTE:  
 1. FOR ADDITIONAL INFORMATION SEE DETAIL A.  
 2. ADDITIONAL STRIPPING OF GLACIER GUARD OVER FASCIA'S UPPER FLANGE IS OPTIONAL, PER DETAILS SHEET EM 2.5

**C** GUTTER PROFILE A  
 OPTION A

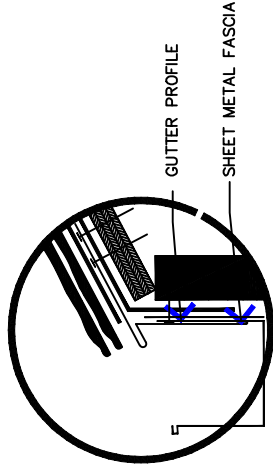
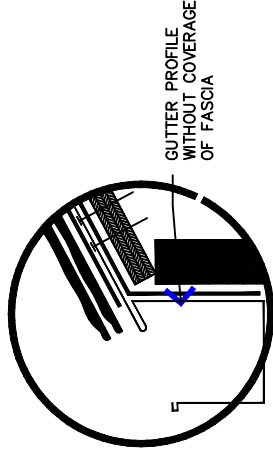


NOTE:  
 "T" EDGE IN SHEET METAL FASCIA IS PREFERRED TO SUPPORT THE UNDERSIDE OF ROOF TILES, IN LIEU OF 90° TURN. SEE DETAILS SHEET EM 2.5

**B** TILES' PROJECTION AT RAKES

NOTE:  
 1. FOR ADDITIONAL INFORMATION SEE DETAIL A.  
 2. ADDITIONAL STRIPPING OF GLACIER GUARD OVER GUTTER'S UPPER FLANGE IS OPTIONAL, PER DETAILS SHEET EM 2.5

**D** GUTTER PROFILE B  
 OPTION B



SCALE	PROJECT NUMBER	AUTOCAD FILE
N/A	87L 34495-20	86899-PT-04.dwg
REV	DRAWN BY	PLOT DATE
DATE	KFO	
COMMENTS		

MERAMEC

EcoStar GLACIER GUARD ICE & WATER UNDERLAYMENT

OVERLAP MIN. 9" VALLEY METAL AND SECURE WITH FASTENERS. FASTENER HEADS TO BE COVERED WITH A STRIPPING OF GLACIER GUARD NOT SHOWN HERE.

METAL CLIP (APPROX. 2" WIDE). BEND CLIP BACK OVER TO COVER FASTENER HEAD.

INVERTED V-GROOVE, 3/4" TO 1" HIGH

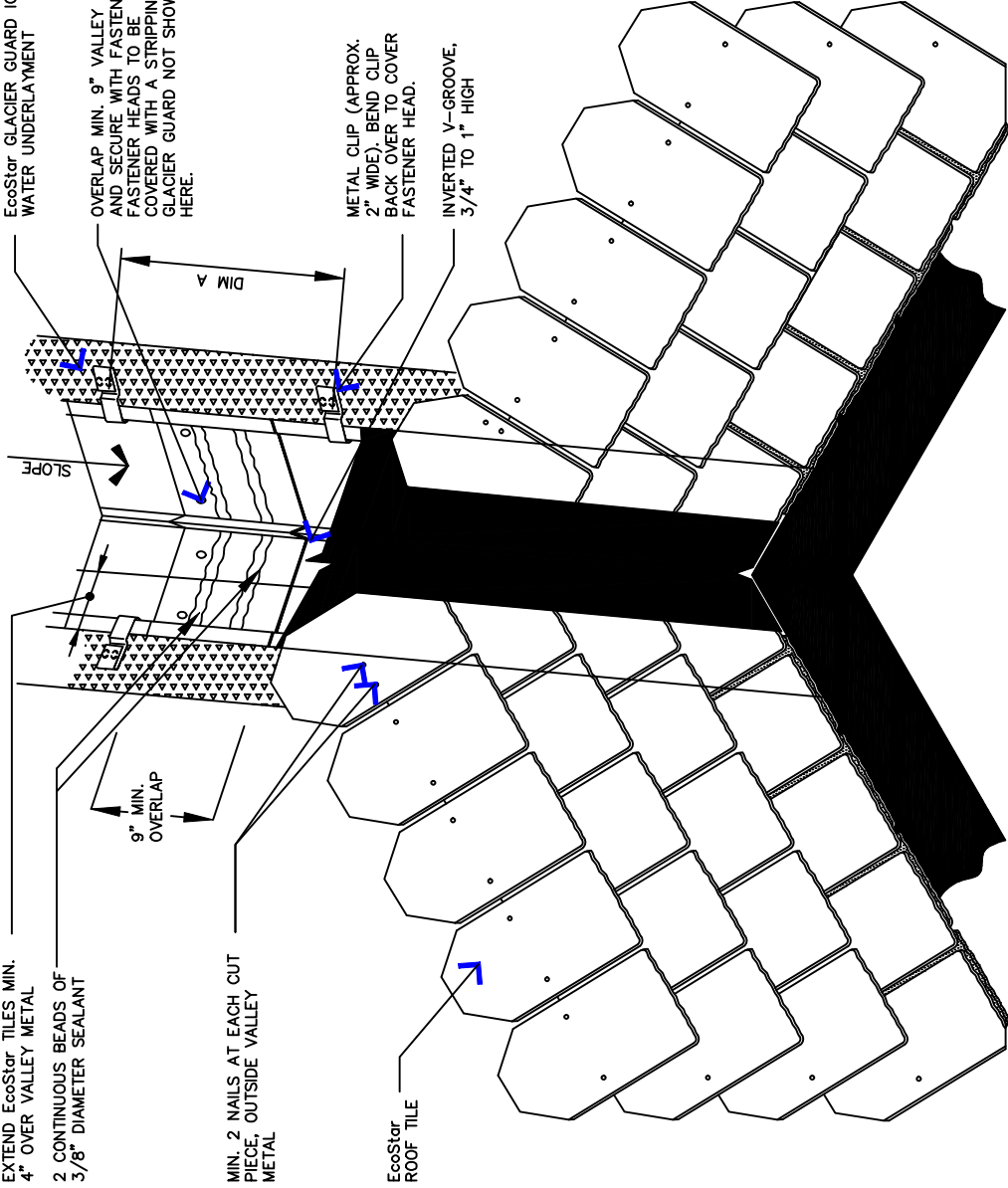
EXTEND EcoStar TILES MIN. 4" OVER VALLEY METAL

2 CONTINUOUS BEADS OF 3/8" DIAMETER SEALANT

9" MIN. OVERLAP

MIN. 2 NAILS AT EACH CUT PIECE, OUTSIDE VALLEY METAL

EcoStar ROOF TILE



NOTES:

1. EcoStar GLACIER GUARD ICE & WATER UNDERLAYMENT IS RECOMMENDED FOR USE AT VALLEY AREAS. SEE DETAIL ES2.1 FOR ADDITIONAL INFORMATION.
2. EXTEND EcoStar TILES MIN. 4" OVER THE VALLEY METAL, BUT DO NOT NAIL TILES THROUGH THE PORTION OF SHEET METAL VALLEY BELOW.
3. DESIGNER TO REFER TO THE SLAZE BOOK FOR DIMENSION A AND THE TOTAL WIDTH OF VALLEY METAL, AS IT VARIES FROM ROOF TO ROOF.
4. DOW CORNING 790 MAY BE USED TO PROVIDE ADHESION TO VALLEY METAL OTHER THAN COPPER WHERE REQUIRED. FOR COPPER VALLEY FLASHING CONTACT EcoStar's TECHNICAL DEPARTMENT FOR ASSISTANCE.
5. OPTIONAL LAYER OF AQUA GUARD MAY BE INSTALLED OVER GLACIER GUARD PRIOR TO INSTALLATION OF VALLEY METAL.



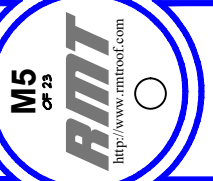

SCALE: N/A

PROJECT NUMBER: STL 3688-20

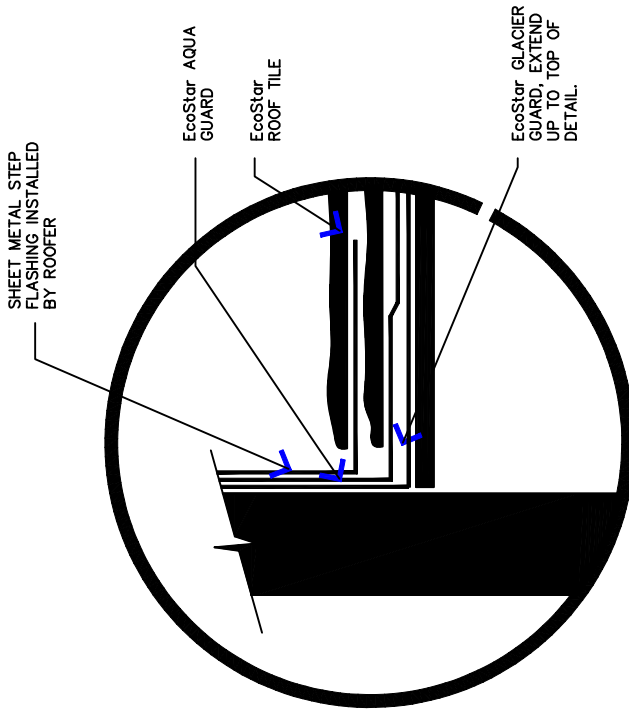
DRAWN BY: KPO

PLOT DATE:

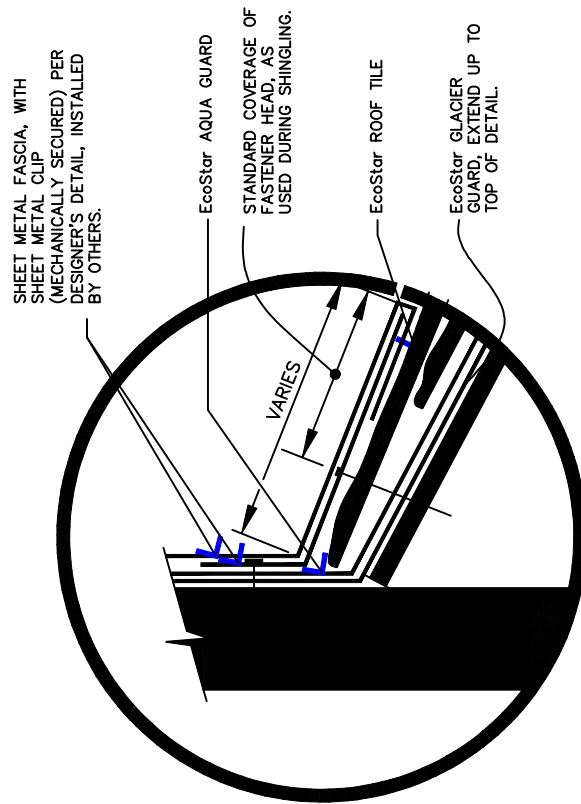
AUTOCAD FILE: 83888-11-08.dwg



# MERAMEC



**A** RISING SIDE-WALL FLASHING



**B** RISING WALL FLASHING AT TOP END OF ROOF

REV	DATE	COMMENTS

SCALE: N/A

PROJECT NUMBER: 811 3455-210

DRAWN BY: KSO

PLOT DATE: \_\_\_\_\_

AUTOCAD FILE: 83455-11-04.dwg

**M6** OF 23

**RMT**

<http://www.rmtroof.com>

CLAYTON SCHOOL DISTRICT  
MECHANICAL ELEMENTARY  
ROOF PLAN

# MERAMEC

REV DATE COMMENTS

SCALE

N/A

PROJECT NUMBER

STL 3635-20

DRAWN BY

KFO

PLOT DATE

AUTOCAD FILE

63635-11.dwg

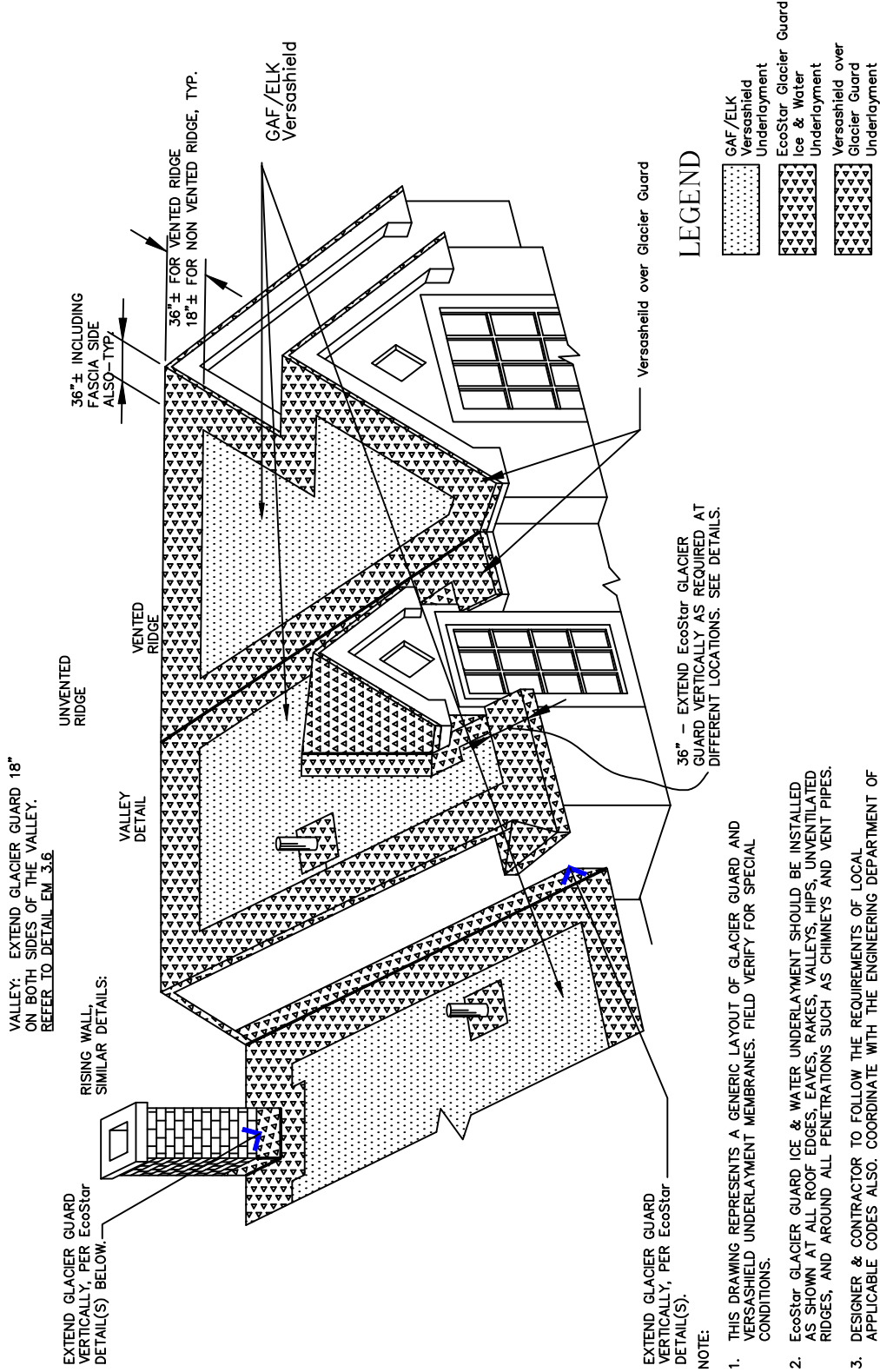
M7  
OF 23

AMT

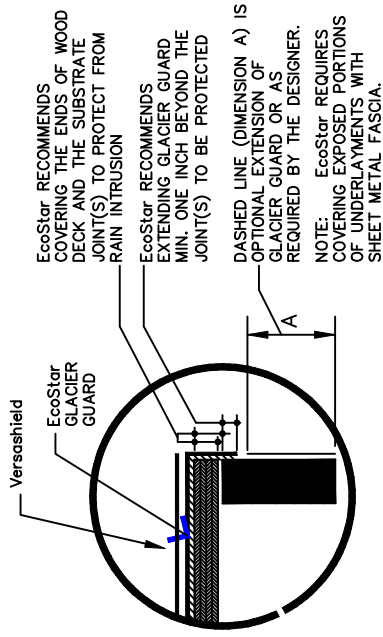
http://www.mtrroof.com

CLAYTON SCHOOL DIST  
MERAMEC ELEMENTARY

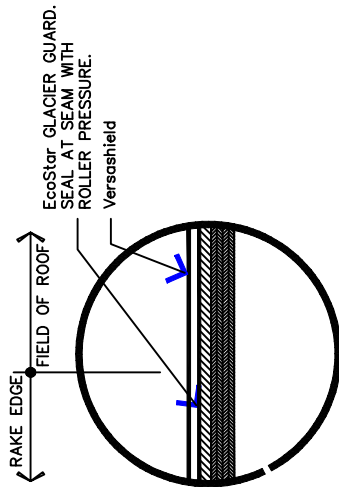
ROOF PLAN



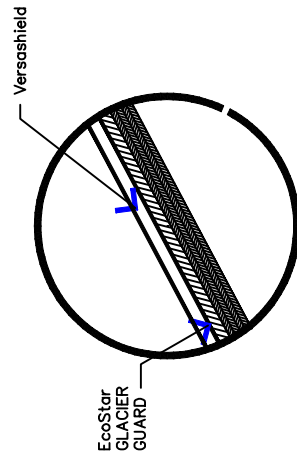
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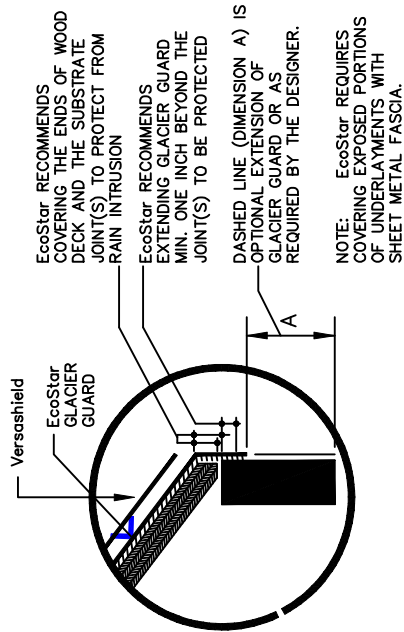
**C** UNDERLAYMENT EXTENSION AT RAKES



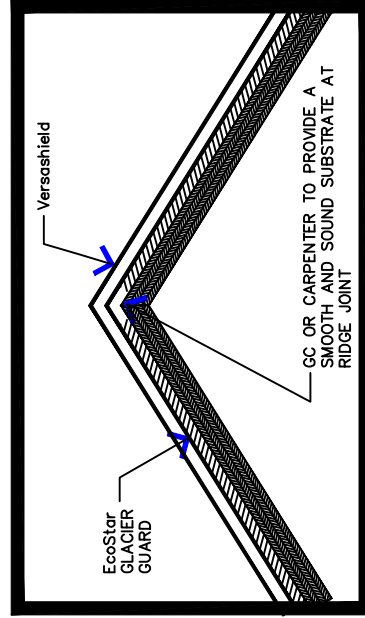
**B** UNDERLAYMENT LAPS PARALLEL TO RAKES



**A** UNDERLAYMENT LAPS PARALLEL TO EAVES



**D** UNDERLAYMENT EXTENSION AT EAVE



**E** SOLID OR UNVENTED RIDGE

REV	DATE	COMMENTS

SCALE	N/A
PROJECT NUMBER	BTL 24495-20
DRAWN BY	KFD
PLOT DATE	
AUTOCAD FILE	24495-11-10.dwg

M8  
OF 25  
**RMT**  
http://www.rmtroof.com

# MERAMEC

REV	DATE	COMMENTS

SCALE  
N/A

PROJECT NUMBER  
071-3689-240

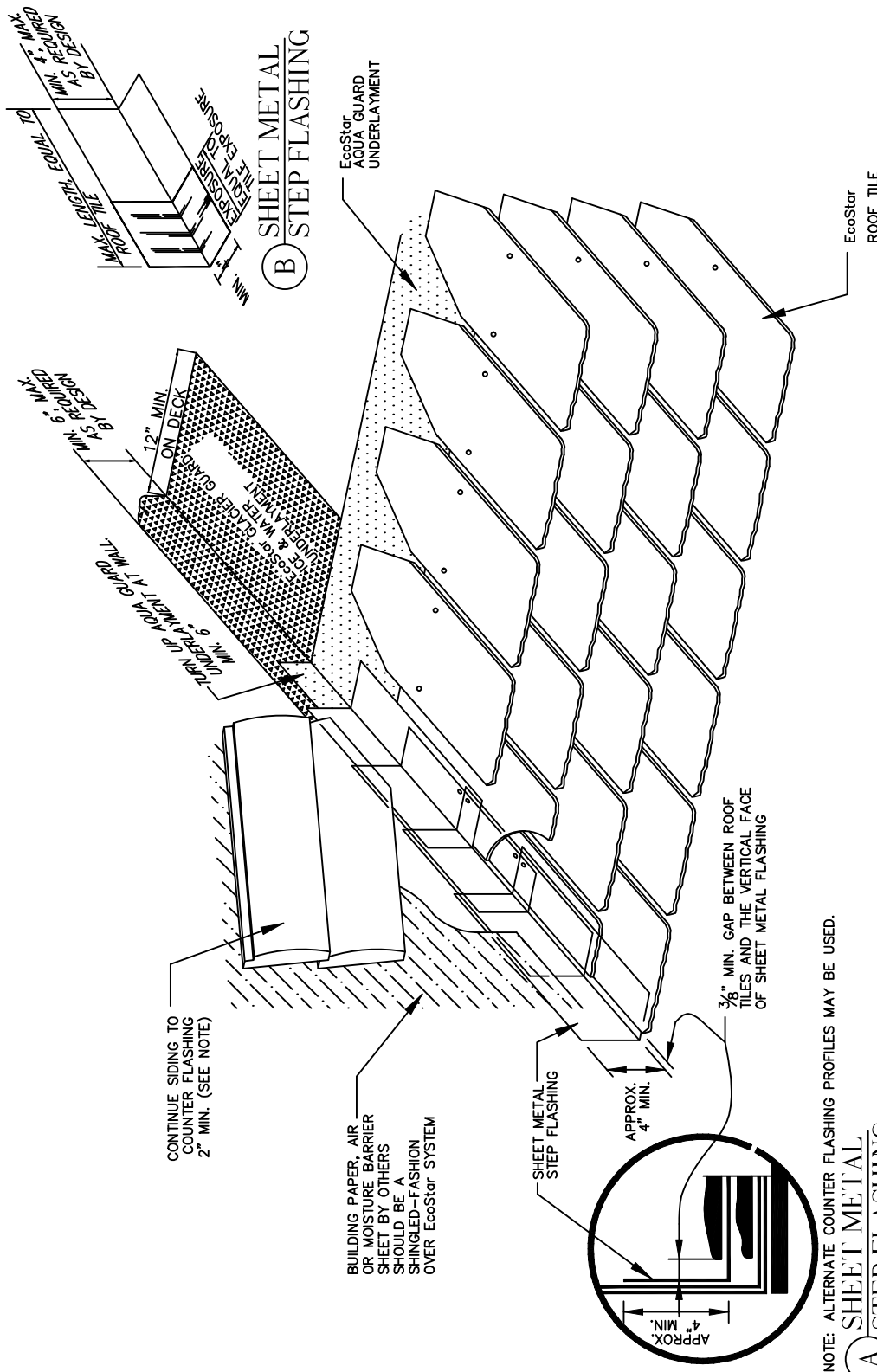
DRAWN BY  
KSC

PLOT DATE

AutoCAD FILE  
09099-11-09.dwg



ROOF PLAN  
CLAYTON SCHOOL DIST  
TRIMBLE ELEMENTARY



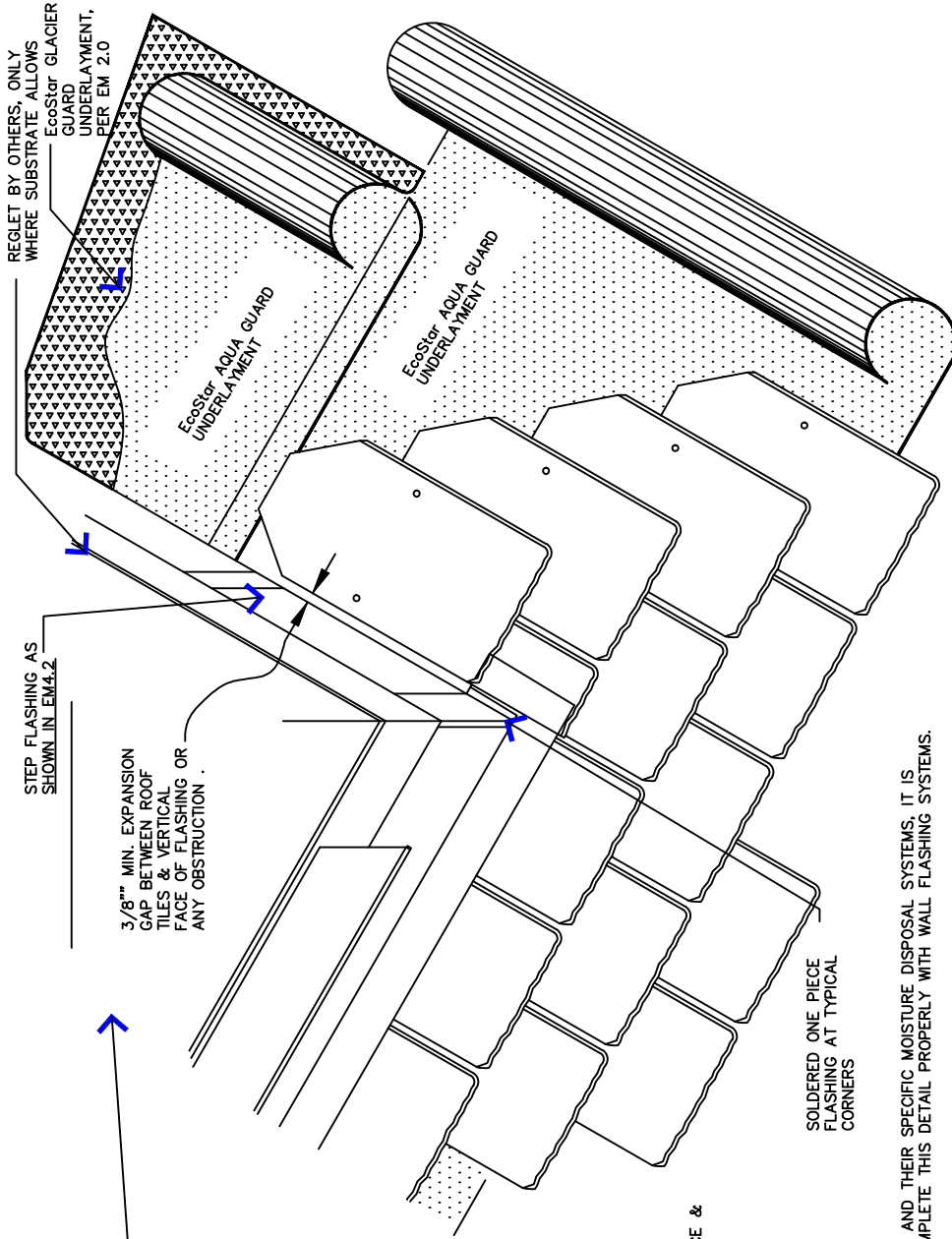
## B SHEET METAL STEP FLASHING

## A SHEET METAL STEP FLASHING

NOTE: ALTERNATE COUNTER FLASHING PROFILES MAY BE USED.

NOTE: ALTERNATE COUNTER FLASHING PROFILES MAY BE USED.

# MERAMEC






WATERPROOFING, WATER SHEDDING OR DRAINAGE SYSTEM OF RISING WALLS BY OTHERS.

STEP FLASHING AS SHOWN IN EM4.2

3/8" MIN. EXPANSION GAP BETWEEN ROOF TILES & VERTICAL FACE OF FLASHING OR ANY OBSTRUCTION.

REGLET BY OTHERS, ONLY WHERE SUBSTRATE ALLOWS EcoStar GLACIER GUARD UNDERLAYMENT, PER EM 2.0

-  EcoStar AQUA GUARD UNDERLAYMENT
-  EcoStar GLACIER GUARD ICE & WATER UNDERLAYMENT
-  ROOF TILES

SOLDERED ONE PIECE FLASHING AT TYPICAL CORNERS

**NOTES:**

1. DUE TO VARIATION OF WALL TYPES AND THEIR SPECIFIC MOISTURE DISPOSAL SYSTEMS, IT IS IMPERATIVE THAT DESIGNER SHOULD COMPLETE THIS DETAIL PROPERLY WITH WALL FLASHING SYSTEMS.
2. ROOFER TO ENSURE THAT DRAINAGE SYSTEM OF RISING WALL IS NOT OBSTRUCTED, e.g., WEEP HOLES OF MASONRY THROUGH WALL FLASHINGS ARE NOT COVERED UNDER THE ROOF FLASHING.

REV	DATE	COMMENTS

SCALE: N/A

PROJECT NUMBER: 91L 3685-20

DRAWN BY: KAO

PLOT DATE: \_\_\_\_\_

AUTOCAD FILE: 9999-11-10.dwg

**M10**  
CF 23

**RMT**

<http://www.rmtroof.com>

**ROOF PLAN**

CLAYTON SCHOOL DIST

MERAMEC ELEMENTARY

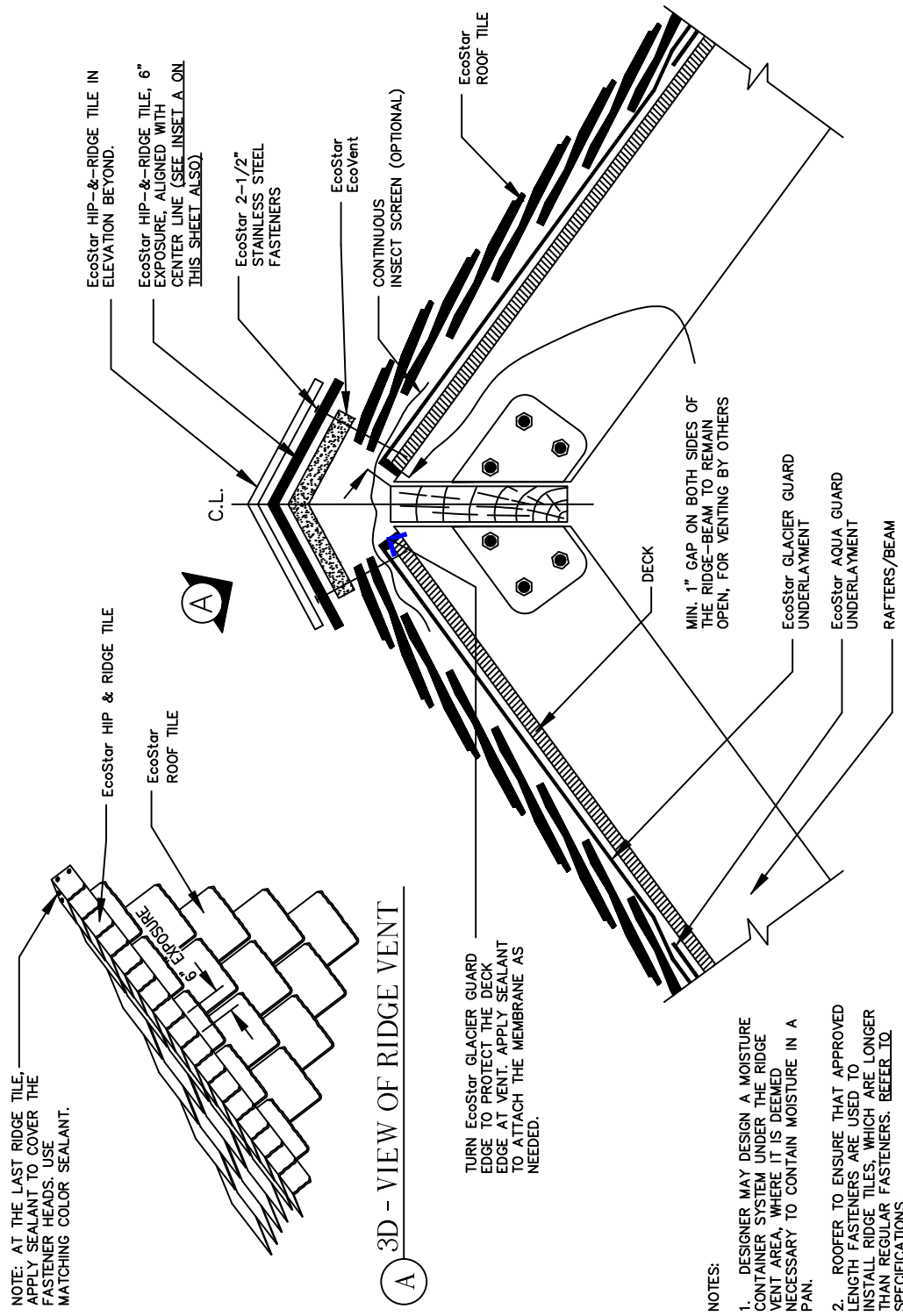


# MERAMEC

CLAYTON SCHOOL DISTRICT  
 TECHNICAL ELEMENTARY  
 ROOF PLAN

REV	DATE	COMMENTS

SCALE: N/A  
 PROJECT NUMBER: 671-3485-20  
 DRAWN BY: KPO  
 PLOT DATE:   
 AutoCAD FILE: 65666-PT-1.dwg



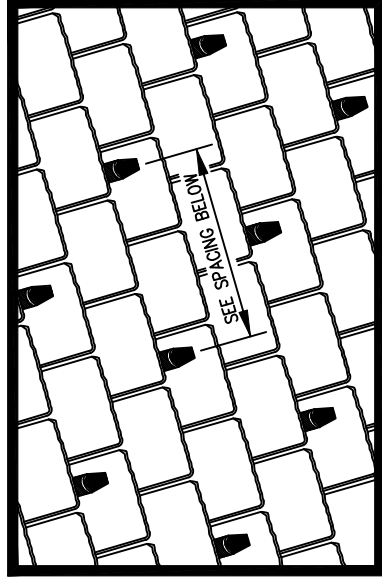
NOTE: AT THE LAST RIDGE TILE, APPLY SEALANT TO COVER THE FASTENER HEADS. USE MATCHING COLOR SEALANT.

3D - VIEW OF RIDGE VENT

TURN EcoStar GLACIER GUARD EDGE TO PROTECT THE DECK EDGE AT VENT. APPLY SEALANT TO ATTACH THE MEMBRANE AS NEEDED.

- NOTES:
- DESIGNER MAY DESIGN A MOISTURE CONTAINER SYSTEM UNDER THE RIDGE VENT AREA, WHERE IT IS DEEMED NECESSARY TO CONTAIN MOISTURE IN A PAN.
  - ROOFER TO ENSURE THAT APPROVED LENGTH FASTENERS ARE USED TO INSTALL RIDGE TILES, WHICH ARE LONGER THAN REGULAR FASTENERS. REFER TO SPECIFICATIONS.

# MERAMEC

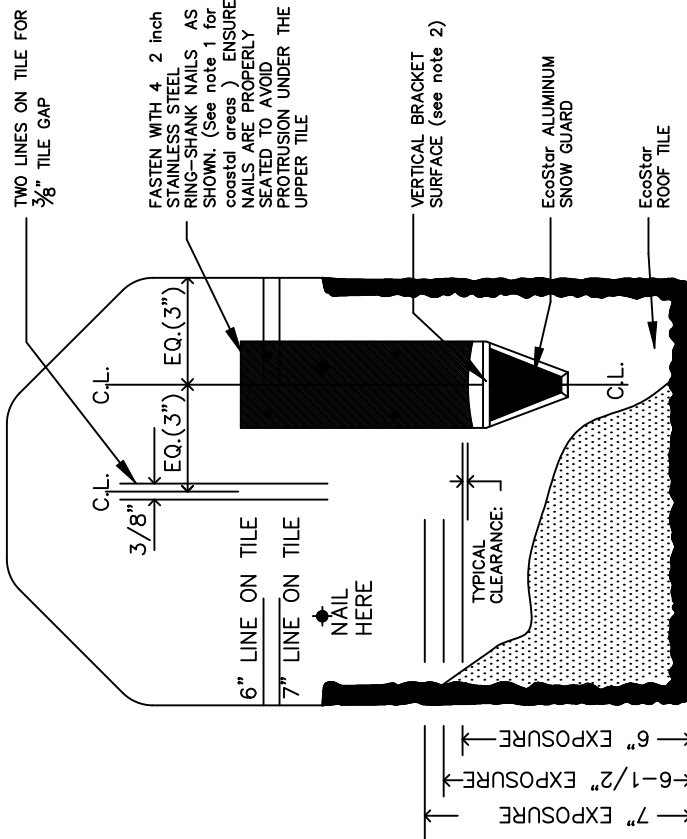


MAJESTIC SLATE TRADITIONAL 24" O.C.

B TYPICAL LAYOUT OF EcoStar SNOW GUARDS

NOTES:

1. EcoStar APPROVED NAILS MUST BE USED WITH THE EcoStar SNOW GUARD TO ENSURE PROPER ATTACHMENT OF THE SNOW GUARD BRACKET IN COASTAL AREAS (within 15 miles of a saltwater coastline) USE ALUMINUM RING-SHANK NAILS FOR THE ATTACHMENT OF ALUMINUM SNOW GUARDS.
2. ENSURE THE SNOW GUARD BRACKET IS LOW ENOUGH ON THE ROOF TILE TO ACCOMMODATE THE NEXT ROW OF TILES ABOVE IT. THE BOTTOM EDGE OF THE NEXT ROW OF TILES MUST BE NO CLOSER THAN 1/2" TO THE TOP OF THE VERTICAL BRACKET SURFACE.
3. PLACE THE SNOW GUARD BRACKET SO AS NOT TO BE DIRECTLY IN LINE WITH THE SPACE BETWEEN THE TILES ABOVE.
4. THE LOCATION AND NUMBER OF SNOW GUARDS IS DETERMINED BY THE SPECIFICS OF THE ROOF DESIGN AND PROJECT GEOGRAPHIC LOCATION. REFER TO LAYOUT CALCULATOR ON THE WEB SITE FOR JOB SPECIFIC LAYOUTS.
5. ADJUST THE LOCATION OF EcoStar SNOW GUARD, AS THE EXPOSURE CHANGES WITH THE ROOF SLOPE.

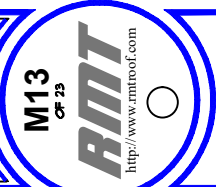


A EcoStar SNOW GUARD POSITIONING

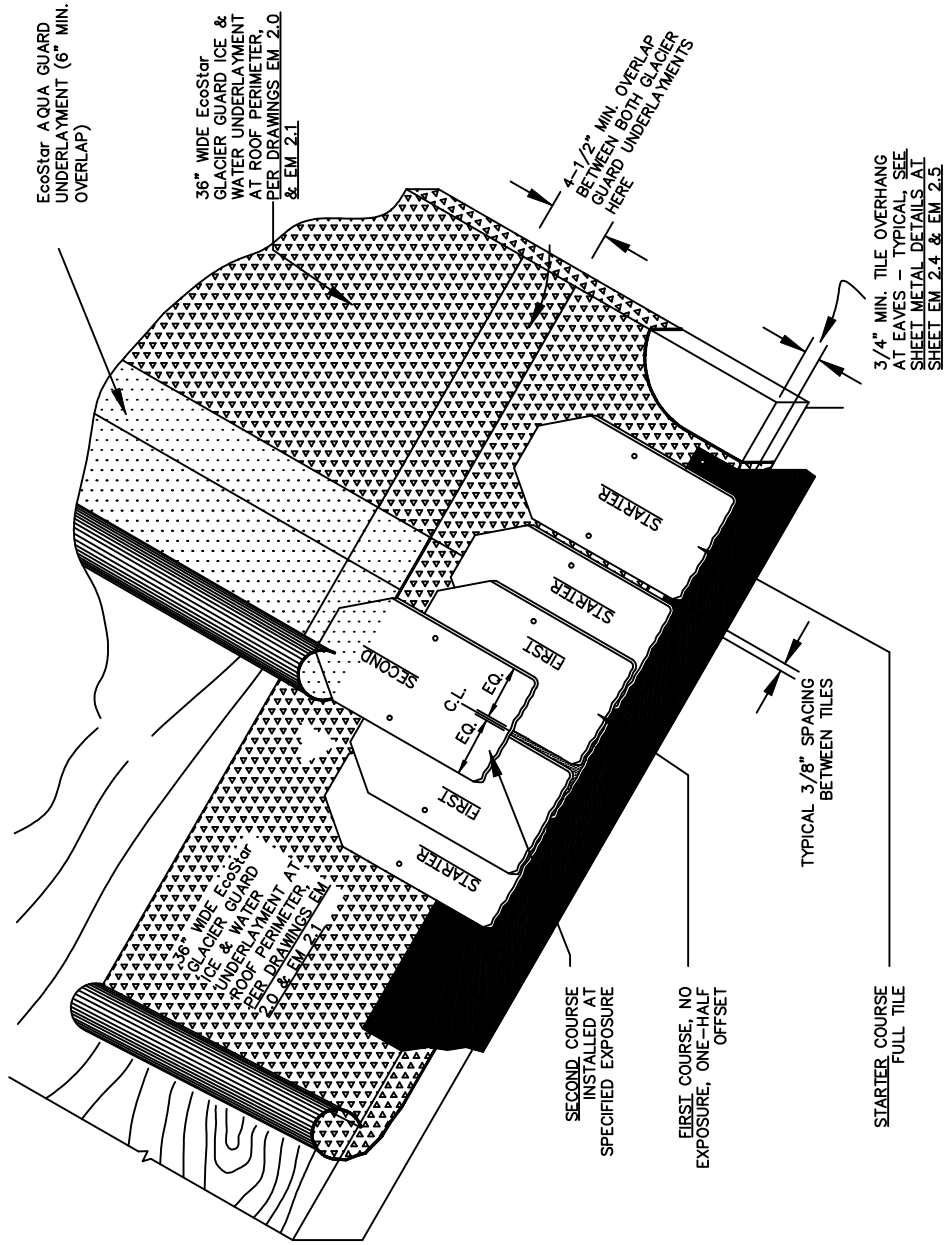
# MERAMEC

REV	DATE	COMMENTS

SCALE N/A  
 PROJECT NUMBER 97L 3699-20  
 DRAWN BY KPO  
 PLOT DATE  
 AutoCAD FILE 98999-11-b.dwg



ROOF PLAN  
 CLAYTON SCHOOL DIST.  
 MERAMEC ELEMENTARY



# MERAMEC

REV	DATE	COMMENTS

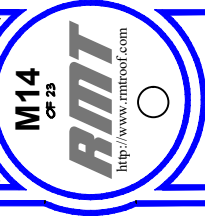
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PROJECT NUMBER  
91L 3655-20

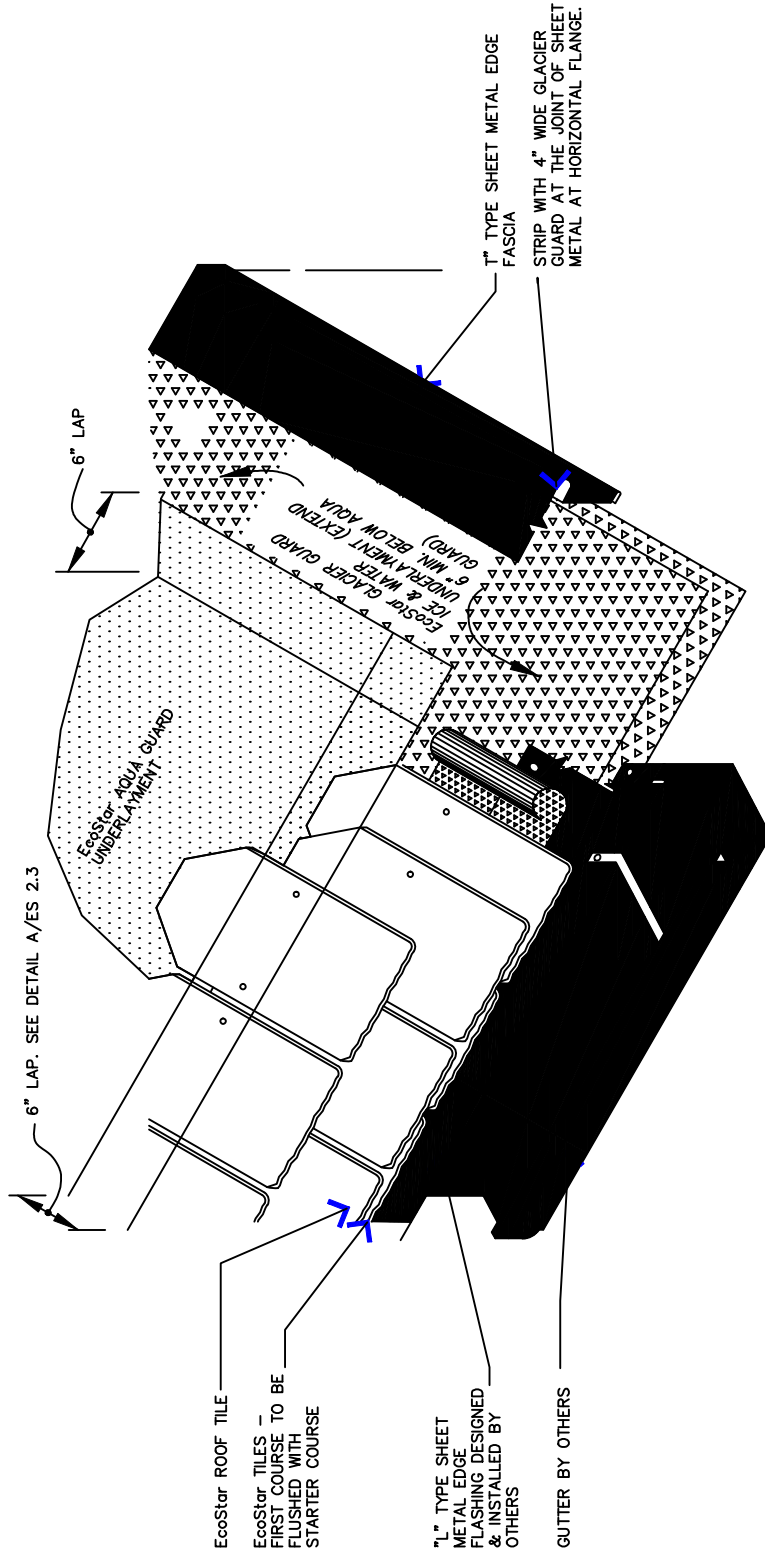
DRAWN BY  
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PLOT DATE

AUTOCAD FILE  
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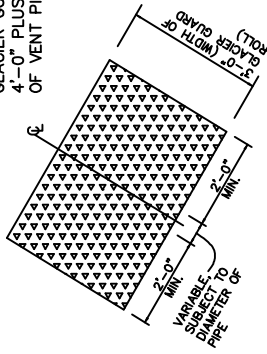
ROOF PLAN  
CLAYTON SCHOOL DIST.  
MERAMEC ELEMENTARY



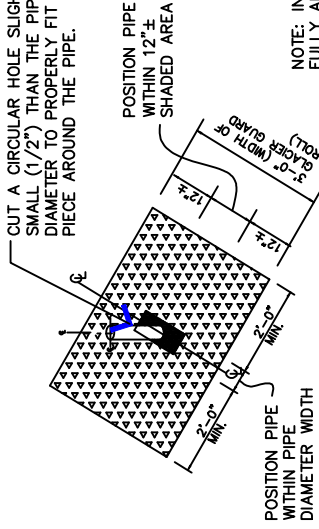
- NOTES:
1. GLACIER GUARD ICE & WATER SHIELD UNDERLAYMENT IS RECOMMENDED FOR USE AT ALL EAVE & RAKE EDGES. REFER TO DRAWINGS EM2.0 & EM2.1.
  2. ALL SHEET METAL WORK PER DESIGNER'S DETAILS.
  3. ALL SHEET METAL PROVIDED & INSTALLED BY OTHERS.
  4. ADDITIONAL GLACIER GUARD STRIPPING OVER METAL FLANGE IS OPTIONAL.

# MERAMEC

STEP 1. CUT A PIECE OF GLACIER GUARD, 3'-0" X 4'-0" PLUS DIAMETER OF VENT PIPE



CUT A CIRCULAR HOLE SLIGHTLY SMALL (1/2") THAN THE PIPE DIAMETER TO PROPERLY FIT THE PIECE AROUND THE PIPE.



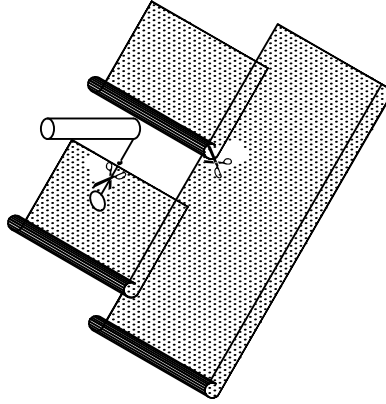
NOTE: INSERT THE PIPE OVER THE PIPE AND FULLY ADHERE TO ROOF DECK, PRIOR TO THE INSTALLATION OF AQUA GUARD UNDERLAYMENT

## A STEP 1 - CUT A PIECE OF GLACIER GUARD

B

## STEP 2 - INSTALLATION OF PIECE

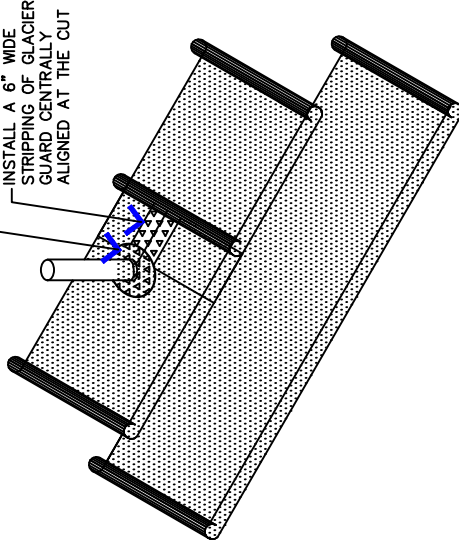
OPTIONAL: ADDITIONAL STRIPPING OF GLACIER GUARD AROUND THE PIPE. EXTEND MIN. 2" VERTICALLY UP. SEE DETAIL A SHEET EM 5.2.



## C STEP 3 - AQUA GUARD FABRICATION AT PIPE

D

## 3-D VIEW OF STEP 3



## E STEP 4 - INSTALLATION OF AQUA GUARD & STRIPPING

## ROOF PLAN

CLAYTON SCHOOL DISTRICT  
TERRACE ELEMENTARY

AutoCAD FILE  
8/26/99-11-19-2000

PLOT DATE

DRAWN BY

PROJECT NUMBER

SCALE

REV DATE

COMMENTS

M15  
OF 23

RMT

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# MERAMEC

REV	DATE	COMMENTS

SCALE  
N/A

PROJECT NUMBER  
81L 3655-20

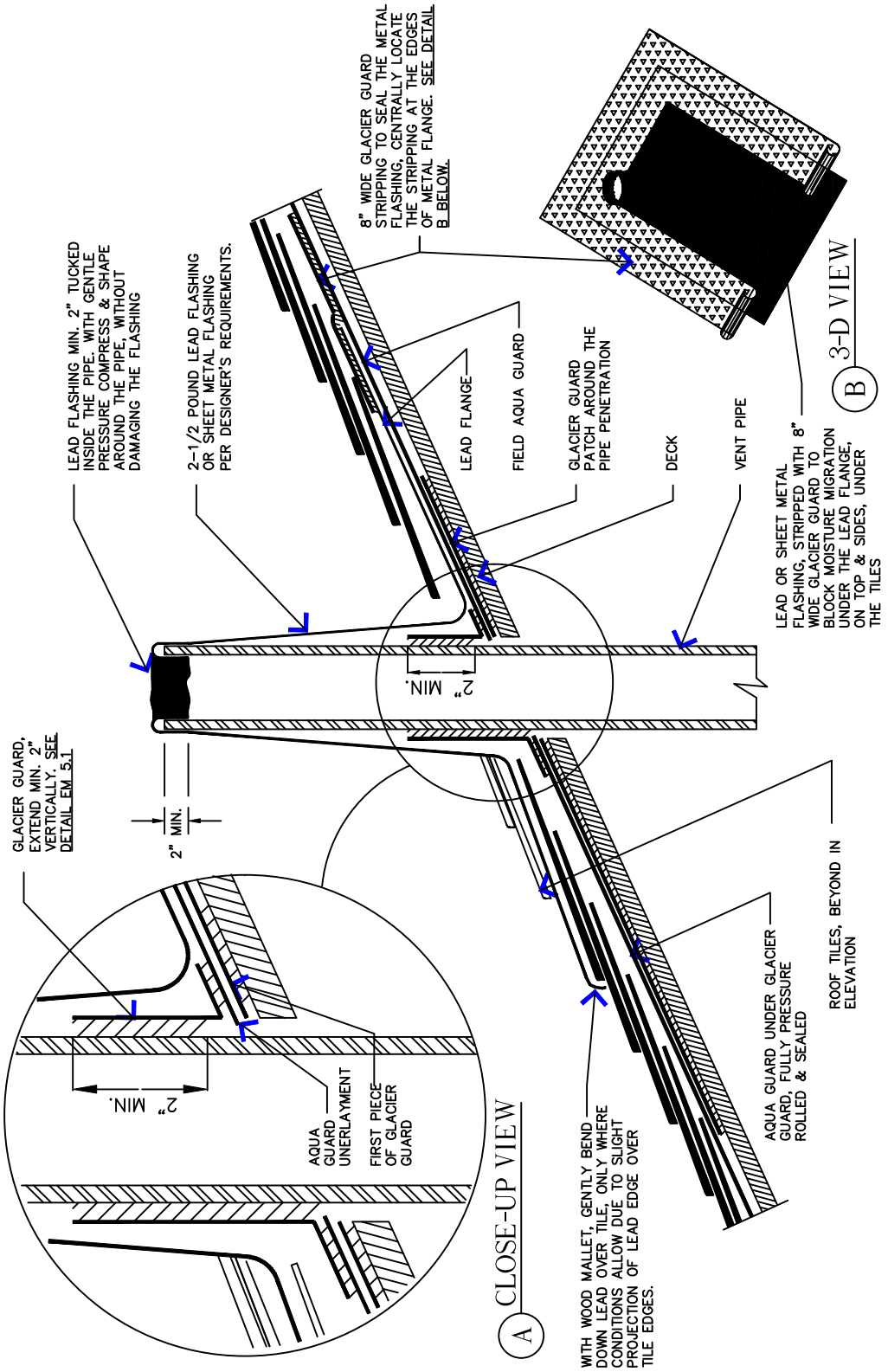
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PLOT DATE

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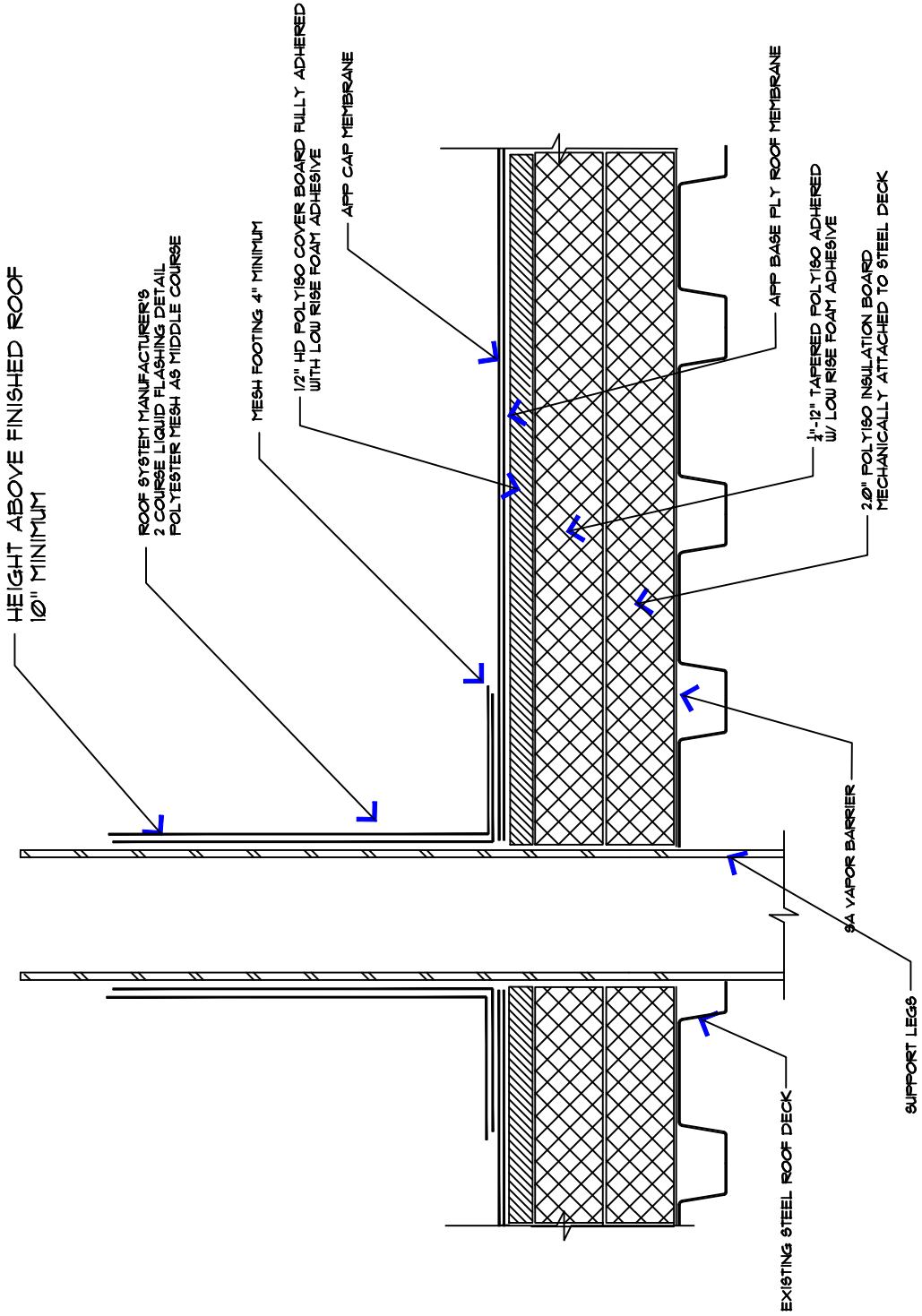


ROOF PLAN  
CLAYTON SCHOOL DIST  
TECHNICAL ELEMENTARY





# POST FLASHING



REV	DATE	COMMENTS

SCALE  
N/A

PROJECT NUMBER  
91L 3655-20

DRAWN BY  
KFC

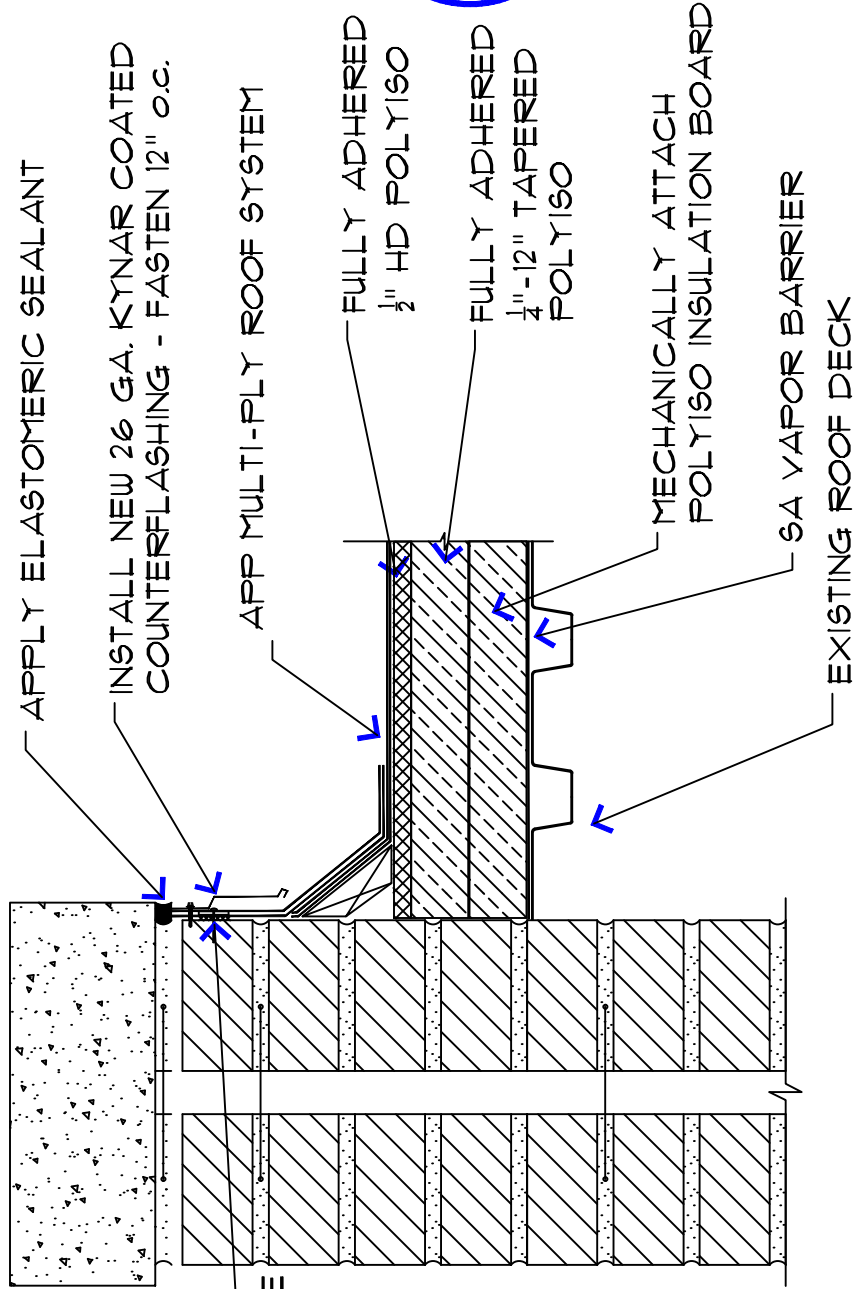
PLOT DATE

AUTOCAD FILE  
63635-11-19.dwg





# LOW PARAPET WALL



TERM BAR  
- FASTEN 12" O.C.  
APPLY WATER SEALANT  
BEHIND EPDM MEMBRANE

APPLY ELASTOMERIC SEALANT  
INSTALL NEW 26 GA. KYNAR COATED  
COUNTERFLASHING - FASTEN 12" O.C.  
APP MULTI-PLY ROOF SYSTEM  
FULLY ADHERED  
1/2" HD POLYISO  
FULLY ADHERED  
1/2"-12" TAPERED  
POLYISO  
MECHANICALLY ATTACH  
POLYISO INSULATION BOARD  
5/8" VAPOR BARRIER  
EXISTING ROOF DECK

REV	DATE	COMMENTS

SCALE: N/A

PROJECT NUMBER: 671-3459-20  
DRAWN BY: KFO  
PLOT DATE:      

AUTOCAD FILE: 63459-11-1.dwg

**M19**  
OF 23

**AMT**  
<http://www.amtroof.com>

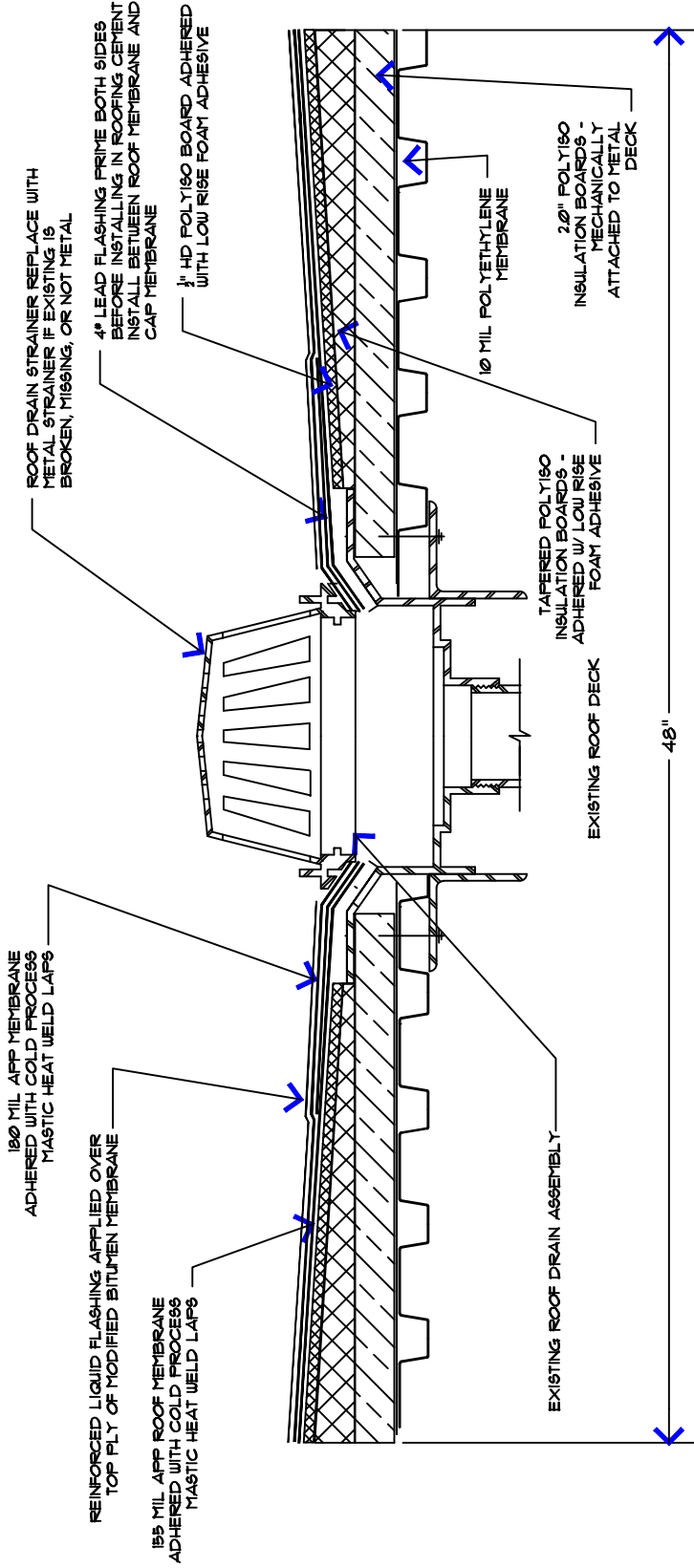
ROOF PLAN  
CLAYTON SCHOOL DIST.  
MECHANIC ELEMENTARY



# DRAIN FLASHING

**NOTES:**

1. MINIMUM 32" SQUARE, 4-LB. LEAD FLASHING, SET ON MODIFIED BITUMEN MEMBRANE IN MASTIC. FRIME BOTH SURFACES BEFORE STRIPPING.
2. MEMBRANE FLIES, METAL FLASHING AND FLASH-IN FLIES EXTEND UNDER CLAMPING RING.
3. ALL LAPS INSIDE GUMP MUST BE 3 COURSED WITH LIQUID FLASHING.



REV	DATE	COMMENTS

SCALE  
N/A

PROJECT NUMBER  
67L 3659-20

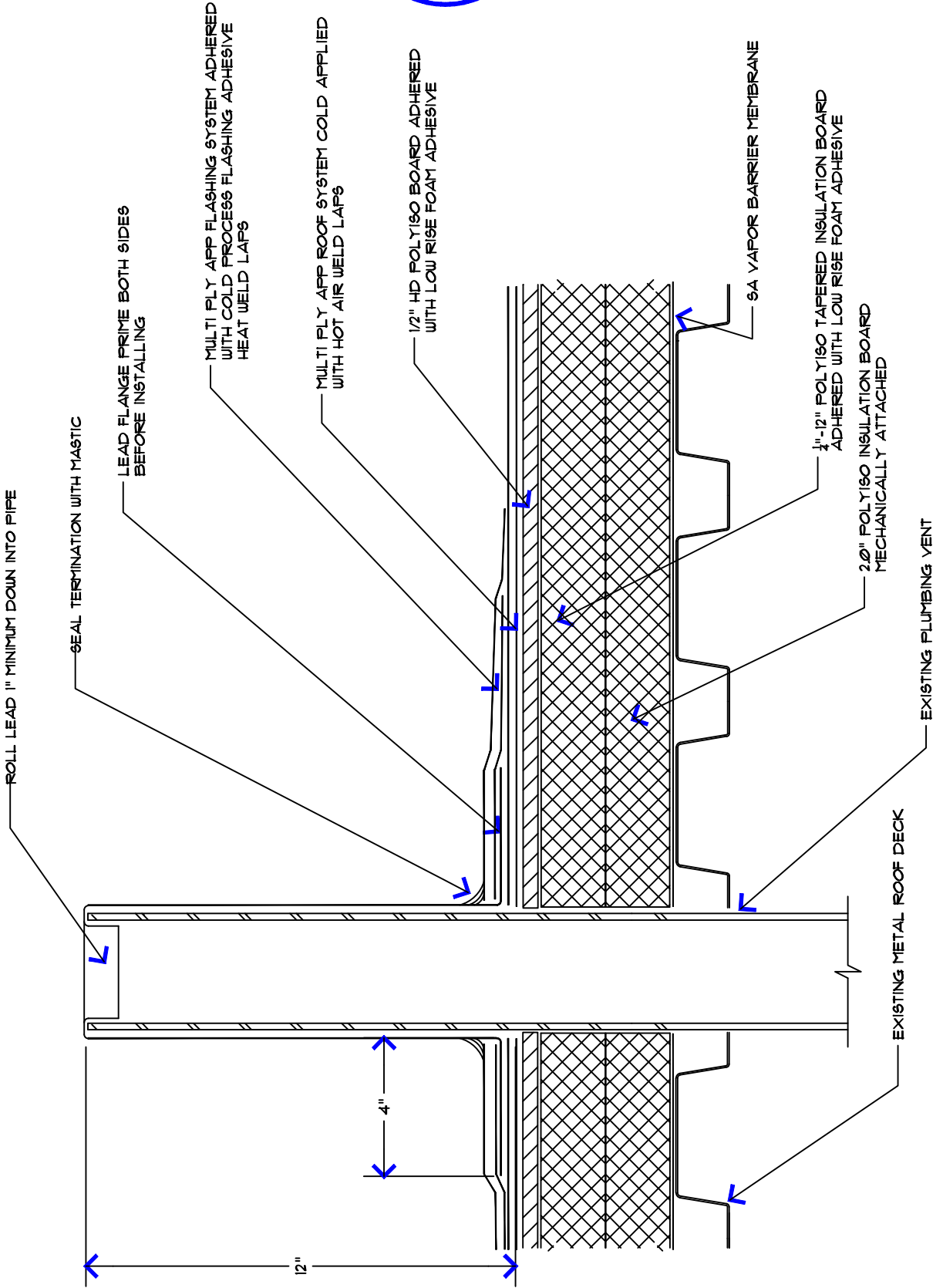
DRAWN BY  
KFO

PLOT DATE

AUTOCAD FILE  
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# LOW PARAPET WALL



REV	DATE	COMMENTS

SCALE  
N=9

PROJECT NUMBER  
91L 3689-20

DRAWN BY  
KFO

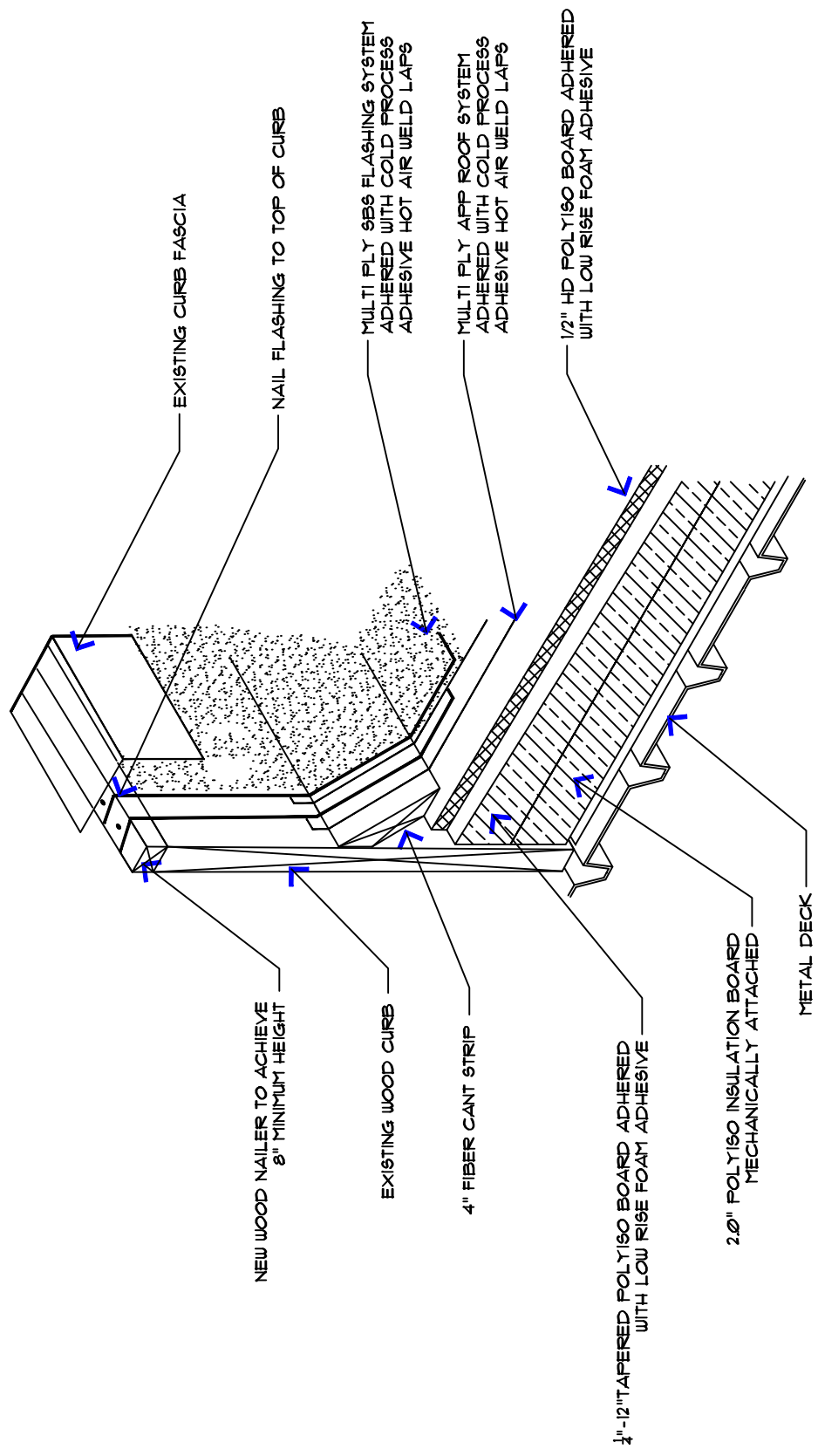
PLOT DATE

AUTOCAD FILE  
93689-11-22.dwg



ROOT PLAN  
CLAYTON SCHOOL DIST  
TRAYNOR ELEMENTARY

# SKYLIGHT CURB FLASHING



NEW WOOD NAILER TO ACHIEVE  
8" MINIMUM HEIGHT

EXISTING WOOD CURB

4" FIBER CANT STRIP

1/4"-1/2" TAPERED POLYISO BOARD ADHERED  
WITH LOW RISE FOAM ADHESIVE

2.0" POLYISO INSULATION BOARD  
MECHANICALLY ATTACHED

METAL DECK

EXISTING CURB FASCIA

NAIL FLASHING TO TOP OF CURB

MULTI PLY SBS FLASHING SYSTEM  
ADHERED WITH COLD PROCESS  
ADHESIVE HOT AIR WELD LAPS

MULTI PLY APP ROOF SYSTEM  
ADHERED WITH COLD PROCESS  
ADHESIVE HOT AIR WELD LAPS

1/2" HD POLYISO BOARD ADHERED  
WITH LOW RISE FOAM ADHESIVE

REV	DATE	COMMENTS

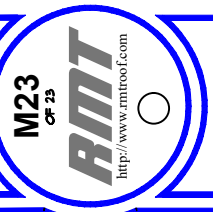
SCALE  
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PROJECT NUMBER  
STL 2405-20

DRAWN BY  
KFO

PLOT DATE

AUTOCAD FILE  
63665-11-23.dwg



**BID PROPOSAL FORM - FILL OUT COMPLETELY**

- A. Contractor shall use the following form. Fill in all items.
- B. Roofing Contractor Name: \_\_\_\_\_
- C. Roof ID: MERAMEC ROOFING PROJECT 2020
- D. The undersigned declares that he has carefully examined the instruction and specifications and will furnish the items as specified for the price set forth in this bid.
- E. The undersigned has checked carefully the bid figures and understands that he shall be responsible for any error of omission in this bid offer and is in receipt of all addenda as issued. Addendum # \_\_\_\_\_ through Addendum # \_\_\_\_\_ has been received and understood.
- F. It is understood and agreed that all items bid, will be delivered F.O.B. Job Site and remain firm for at least sixty (60) days from the date of the bid opening. It is further understood and agreed that the Clayton School District reserves the right to accept or reject any part of or complete bid and to waive any informality in the bid process.
- G. It is also understood that the Clayton School District requires that the work under said contract be completed by the specified and that by submission of a bid, the undersigned agrees to all terms and provisions set forth in the Specifications.
- H. The Clayton School District requires bids to be submitted as follows:

**BASE BID #1 MERAMEC SECTIONS A, B, F, H:**

**FURNISH ALL LABOR AND MATERIAL FOR THE FOLLOWING: EMPIRE SLATE ROOFING TILES; GLACIER GUARD BASE PLY UNDERLAYMENT 6' (OR TWO ROWS) FROM DRIP EDGE, CENTERED OVER VALLEYS, ALL RAKE EDGES AND PENETRATIONS FOLLOWED BY THE INSTALLATION OF AQUA GUARD 4" OVER THE GLACIER GUARD FOLLOWED BY A FULL INSTALLATION OF THE GAF VERSA SHIELD TO ACHIEVE A CLASS A FIRE RATING. MECHANICALLY FASTENED; KYNAR COATED .040" ALUMINUM CLADDING STEP FLASHING; INSTALL NEW KYNAR COATED .040" ALUMINUM VALLEY METAL DETAILS; INSTALLATION OF NEW RIDGE VENT CAP SYSTEM; RE-USE EXISTING GUTTERS AND DOWNSPOUTS HOWEVER REPAIR AS NEEDED; REPLACEMENT OF DETERIORATED WOOD PLANK DECKING AND OTHER MISSING OR DETERIORATED WOOD COMPONENTS. THESE SPECIFICATIONS ARE DIRECTED TO MERAMEC SCHOOLS. ALL COPPER METAL IS TO BECOME THE PROPERTY OF CLAYTON SCHOOL DISTRICT.**

**CONTRACTOR TO FURNISH A GUARANTEE AGAINST DEFECTIVE WORKMANSHIP, MATERIALS AND LEAKS FOR A PERIOD OF TWO (2) YEARS FOR THE ENTIRE ROOF AREA.**

**MANUFACTURER TO FURNISH A GUARANTEE AGAINST DEFECTIVE MATERIALS, LABOR AND LEAKS FOR A PERIOD OF TWENTY (20) YEARS FOR THE ENTIRE ROOF AREAS REPLACED.**

**BY SIGNING AND SUBMITTING THIS BID, THE BIDDER CERTIFIES THAT HE WILL FURNISH SAID GUARANTEE FROM MANUFACTURER. IN THE EVENT THAT THE REQUIRED**

**SPECIFICATION NO. STL 3655-19  
ROOF REPLACEMENT PROJECT  
JANUARY 27, 2020**

**MANUFACTURER'S WARRANTY/GUARANTEE CANNOT BE PROVIDED, THE CONTRACTOR'S BID WILL BE REJECTED.**

**BY SIGNING AND SUBMITTING THIS BID, THE BIDDER CERTIFIES THAT HE WILL FURNISH PERFORMANCE AND LABOR AND MATERIAL PAYMENT BONDS IN AMOUNTS SUFFICIENT TO COVER THE TOTAL PROPOSED COST OF THE WORK, IF REQUESTED BY THE OWNER. THE BONDS WILL BE AMENDED AND MAINTAINED CURRENT AS REQUIRED BY OWNER WITH ALL ADDITIONS OR DELETIONS FROM THE CONTRACT WORK.**

**BY SIGNING AND SUBMITTING THIS BID, THE BIDDING CONTRACTOR WILL IDENTIFY THE NUMBER OF WORKDAYS ANTICIPATED FOR FULL COMPLETION AND FINAL SIGN-OFF FOR THIS PROJECT.**

**CLAYTON SCHOOL DISTRICT EXPECTS PROJECT TO BE COMPLETED BETWEEN JUNE 1, 2020 AND JULY 31, 2020. IF THE JOB GOES BEYOND THE PROPOSED JOB SCHEDULE, THE CONTRACTOR WILL REIMBURSE CLAYTON SCHOOL DISTRICT FOR THE COST OF ON-SITE QUALITY ASSURANCE / PROJECT MANAGEMENT AT THE RATE OF \$600.00/DAY. THIS REIMBURSED COST WILL BE DEDUCTED FROM THE OVERALL CONTRACT SUM.**

**START TIME AFTER RECEIPT OF NOTICE TO PROCEED:**

\_\_\_\_\_

**BASE BID #1 – MERAMEC SCHOOL ROOF REPLACEMENT SECTIONS A, B, F:**

(\$ \_\_\_\_\_) \_\_\_\_\_

**NUMBER OF WORK DAYS ANTICIPATED FOR COMPLETION:**

\_\_\_\_\_

**PAYMENT AND PERFORMANCE BOND (IF REQUESTED BY OWNER):**

(%) \_\_\_\_\_

**UNIT PRICE PROPOSAL****Clayton School District  
Clayton, MO**

- 1.01 Unit prices will be used to determine the cost to be added to the base bid for the unknown items that are determined by the Owner to require replacement after the existing roofing materials are removed.
- 1.02 Unit prices will be used to determine the amount to be added to, or deducted from, the base bid for minor adjustments in the total area to be re-roofed as stated in the original quotation.
- 1.03 Unit prices shall be stated in the Contractor's proposal as to the amount to be added or deducted from the base bid as specified, including labor, materials, overhead, profit and taxes to remove and dispose of the existing and provide and install the following:

- |    |  |                          |
|----|--|--------------------------|
| A. | Wood Deck replacement  | \$ _____ /sq. ft.        |
| B. | Deck repair (steel)<br>(for repairs 12" or less using 18 gage sheet steel) | \$ _____ /sq. ft.        |
| C. | Deck replacement (steel)   | \$ _____ /3 span panel   |
| D. | Slate Tile Replacement w/ Slate Tile                                       | \$ _____ /25 tiles       |
| E. | Concrete deck repair   | \$ _____ /sq. ft.        |
| F. | Elastomeric Coating  | \$ _____ /10' x 10' area |
| G. | Copper Gutters   | \$ _____ /10 ft.         |
| H. | Copper drip edge   | \$ _____ /10 ft.         |
| I. | Labor Cost for Extra Work  | \$ _____ /man hour       |
| J. | Mark-up on Materials   | _____ %                  |

NAME OF COMPANY \_\_\_\_\_

SIGNATURE &amp; TITLE \_\_\_\_\_

ADDRESS \_\_\_\_\_

PHONE # \_\_\_\_\_ EMERGENCY RESPONSE PHONE # \_\_\_\_\_ DATE \_\_\_\_\_

**END OF BID PROPOSAL FORM**