REQUEST FOR PROPOSAL (RFP)

2025 PELLSTON PUBLIC SCHOOLS ROOF REPLACEMENT PROJECTS

Pellston Public Schools

April 7, 2025

Questions/Communications to:
Pellston Public Schools
Stephen Seeyle, Superintendent
127 Park Street
Pellston, MI 49769
P: 231.539.8421

PELLSTON PUBLIC SCHOOLS

Advertisement for Request for Proposals

Pellston Public Schools Roofing Project

Proposals for the Pellston Public Schools Roofing Project will be received by the Pellston Public School District at the Office of the Superintendent, 172 Park Street, Pellston, MI 49769 until Wednesday, April 30, 2025 at 3:30 PM. Any proposal received after the designated closing time will be returned unopened.

The purpose of this Request for Proposals is to seek the service of qualified roofing contractors certified in the application of PVC/ shingle roofing and metal siding to cover selected school roofs and walls at Pelston Elementary and Middle/High Schools. The proposal is to remove existing asphalt shingles, replace any damaged plywood subsurface and install new shingles at the Elementary. Install new PVC roofing over the existing roof at the Elementary gymnasium and install new PVC roofing over existing as indicated at the Middle/High School. Contractor is also to install metal siding on the brick wall as indicated on the documents.

A pre-bid project review meeting has been planned for April 16, 2025 at 3:30 PM. Although it is not mandatory, it is highly recommended that the site be visited to verify site limitations, layout and exact condition/location of the project.

An original and one (1) copy of the proposal shall be submitted in a sealed envelope addressed to Mr. Stephen Seelye, Superintendent and marked Pellston Public Schools Roofing Projects.

The School District reserves the right to accept or reject any and all proposals and to waive any technicalities or irregularities therein. The district further reserves the right to award the contract to that proposer whose proposal best complies with the project requirements. Proposers may not withdraw their proposal for a period of ninety (90) days for the date set for the opening thereof.

Stephen Seelye
Superintendent

Dated: 7 April 2025

1. INTRODUCTION

1.1 PURPOSE AND GENERAL INFORAMATION

The Pellston Public School District is requesting responses to this Request for Proposal (RFP) to enter into a contract with a Roofing/Metal Siding Contractor/s to install new PVC roofs at the Elementary and Middle/High Schools and to replace the shingle roof at the Elementary School along with metal siding at the Middle/High School in designated areas.

A copy of this RFP can be obtained from the Pelston Public School District www.pelstonschools.org and The State of Michigan SIGMA Website. It is incumbent upon Respondents to check the School District website www.pellstonschools.org for additional information and/or addendums. Questions regarding the substance of the RFP or scope of services must be submitted via e-mail to Stephen Seelye at sseelye@pellstonschools.org the school districts representative on this project. Oral comments are not official responses.

Responses are due prior to the deadline indicated and must be delivered or mailed to Pellston Public Schools, 172 Park Street, Pellston, MI 49769. **Late responses will not be accepted** – NO EXCEPTIONS.

1.2 DEFINITIONS

In this RFP the following definitions shall apply:

"**District"** means Pellston Public School District;

"District Representative" has the meaning set out in section 1.5;

"Website" means www.pellstonschools.org

"Closing Time" has the meaning set out in section 1.3;

"Contract" means a formal written contract between the District and a Preferred Proponent to undertake the Services, the preferred contract form will be a Pellston Public School Purchase Order.

"Preferred Proponent" means the Proponent selected by the District to enter into negotiations for a Contract;

"Proponent" means an entity that submits a Proposal;

"RFP" means this Request for Proposals;

"Services" has the meaning of any and all construction and administration work necessary to complete this project;

"Site" means the place where the Services are to be performed.

1.3 PROPOSAL SCHEDULE

Closing Time and Address for Proposal Delivery

Proposal must be received by the office of:
Office of the Superintendent
172 Park Street.
Pellston, MI 49769

Proposal Closing Date and Time: **Wednesday, April 30, 2025 at 3:30 PM** (Local Time).

Submissions by email **will** be accepted.

LATE PROPOSALS

Proposals received after the Closing Time will not be accepted or considered. Delays caused by and delivery, courier or mail service(s) will not be grounds for an extension of the closing time.

1.4 INFORMATION MEETING

A pre-bid meeting has been planned for April 16, 2025 at 3:30 PM. Interested suppliers/contractors are encouraged to attend the site meeting to review the existing conditions. Although it is not mandatory, it is highly recommended that the site be visited to verify site limitations, layout and exact location of the project.

1.5 AMMENDMENTS TO PROPOSALS

Proposals may be revised by written amendment, delivered to the location set out above, at any time before the closing time but not after. An amendment must be signed by an authorized signatory of the Proponent in the same manner as provided in the original proposals.

All inquiries related to this RFP shall be directed in writing, via e-mail to the person named below (the '**District Representative").** Information obtained from any person or source other than the District Representative may not be relied upon.

District Representative:
Mr. Stephen Seelye
Phone: 231.593.8421
E-mail: sseelye@pellstonschools.org

Inquiries should be made no later than 3 days before Proposal Closing Time. The District reserves the right not to respond to inquiries made within 3 days of Closing Time. Inquiries and responses will be recorded and posted on the District Website. It is the responsibility of the Proponent to check the Website for Addendums prior to submitting their proposal.

Proponents finding discrepancies or omission in the Contract or RFP or having doubts as to the meaning or intent of any provision should immediately notify the District Representative. If the District determines that an amendment is required to this RFP, the District Representative will issue an addendum in accordance with section 1.6. No oral conversation will affect or modify the terms of this RFP or may be relied upon by any Proponent.

1.6 ADDENDA

If the District determines that an amendment is required to this RFP, the District Representative will post a written addendum on the Website at www.pellstoneschools.org and upon posting will be deemed to form a part of this RFP. No Amendment of any kind to the RFP is effective unless it is posted in a formal written addendum on the Website. Upon submitting a Proposal, Proponents will be deemed to have received notice of all addenda that are posted on the Website.

1.7 EXAMINATION OF CONTRACT DOCUMENTS AND SITE

Proponents will be deemed to have carefully examined the RFP, including any attached schedules, the Contract and the Site (as applicable) prior to preparing and submitting a Proposal with respect to any and all facts which may influence a Proposal.

1.8 STATUS INQUIRIES

All inquiries related to the status of this RFP, including whether or not a Contract has been awarded, should be directed to the District Representative.

2. PROPOSAL SUBMISSION FORM AND CONTENTS

2.1 PACKAGE

Proposals shall be in a sealed package, marked on the outside with the Proponent's name and title of the Project.

2.2 FORM OF PROPOSAL

Proponents are to complete the form of Proposal attached as Schedule A.

2.3 SIGNATURE

The legal name of the person or firm submitting the Proposal should be inserted in Schedule A. The Proposal should be signed by a person authorized to sign on behalf of the Proponent and include the following:

A. If the Proponent is a corporation then the full name of the corporation should be included, together with the names of authorized signatories. The Proposal should be executed by all of the authorized signatories or by one or more of them provided that a copy of the corporate resolution authorizing those persons to execute the Proposal on behalf of the corporation is submitted;

B. If the Proponent is a partnership or joint venture then the name of the partnership or joint venture and the name of each partner or joint venturer should be included and each partner or joint venturer should sign personally (or, if one or more person(s) have signing authority for the partnership or joint venture, the partnership or joint venture should provide evidence to the satisfaction of the District that the person(s) signing have signing authority for the partnership or joint venture). If a partner or joint venture is a corporation then such corporation should sign as indicated in subsection (A) above; or;

C. If the Proponent is an individual, including a sole proprietorship, the name of the individual should be included.

2.4 ADDITIONAL INFORMATION

The District may, at its discretion, request clarifications or additional information from a Proponent with respect to any Proposal, and may make such requests to only selected Proponents. The District may consider such clarifications or additional information in evaluating a Proposal.

2.5 NEGOTIATION OF CONTRACT AND AWARD

If the District selects a Preferred Proponent or Proponents, then it may:

A. Enter into a Contract with the Preferred Proponent(s); or

B. Enter into discussions with the Preferred Proponent(s) to clarify any outstanding issues and attempt to finalize the terms of the Contract(s), including financial terms. If discussions are successful, the District and the Preferred Proponent(s) will finalize the Contract(s); or

C. If at any time the District reasonably forms the opinion that a mutually acceptable agreement is not likely to be reached within a reasonable time, give the preferred Proponent(s) written notice to terminate discussions, in which event the District may then either open discussions with another Proponent or terminate this RFP and retain or obtain the Services in some other manner.

The District is under no obligation to accept any Proposal submitted. The District reserves the right in its sole discretion to waive informalities in, or reject any or all Proposals, or to accept any Proposal deemed most favorable in the interest of the District, or cancel the competition at any time without award. Thereafter, the District may issue a new Invitation/Request, sole source or do nothing.

All costs incurred in the preparation and presentation of the proposal shall be wholly absorbed by the contractor. All supporting documentation and manuals submitted with this proposal will become the property of the Pellston Public School District unless otherwise requested by the contractor at the time of submission.

3. GENERAL CONDITIONS

3.1 NO DISTRICT OBLIGATION

This RFP is not a tender and does not commit the District in any way to select a Preferred Proponent, or to proceed to negotiations for a Contract, or to award any Contract, and the District reserves the complete right to at any time reject all Proposals, and to terminate this RFP process.

3.2 NO CONTRACT

By submitting a Proposal and participation in the process as outlined in this RFP, Proponents expressly agree that no contract of any kind is formed under, or arises from, this RFP prior to the signing of a formal written Contract.

3.3 CONFLICT OF INTEREST

Proponents shall disclose any potential conflicts of interest and existing business relationships that they may have with the District. If requested by the District, Proponents should provide all pertinent information regarding ownership of their company within forty-eight (48) hours of the District's request.

3.4 SOLICITATION OF DISTRICT BOARD MEMBERS

Proponents and their agents will not contact any Board Member of the District or staff with respect to this RFP at any time prior to the award of a contract or the termination of this RFP. The District may reject the proposal of any Proponent that makes any such contact.

3.5 CONFIDENTIALITY

All submissions become the property of the District and will not be returned to the Proponent. The District will hold all submissions in confidence unless otherwise required by law.

4. SCOPE OF SERVICES

4.1 **Elementary School** (Gymnasium) Flat Roof Replacement Services will include but not limited to:

1. Remove existing PVC roof membrane and return to Duro Last Roofing for recycling.
2. Inspect existing roof deck and remove/replace any loose fasteners.
3. Remove existing perimeter edge metal and dispose of in a legal manner
4. Provide and install (1) layer of 3/8" XPS fanfold insulation.
5. Provide and install a 50 mil Duro Last PVC roof system. The roof system is to be mechanically fastened per manufacturers specifications.
6. Flash and seal all penetrations per manufacturers specifications.
7. Provide and install new PVC coated, 24 ga, metal drip edge to roof perimeter. Drip edge is to be provided and warrantied by roof membrane manufacturer.
8. Provide and install two way breather vents per manufacturers specifications.
9. Provide complete clean up and removal of all job related debris.
10. Provide a manufacturers 20 year NDL warranty covering material and labor

4.2 **Elementary School** (Shingled Area) Roof Replacement Services will include but not be limited to:

1. Remove existing roof system down to the roof deck and dispose of in a legal manner
2. Inspect existing roof deck and replace bad decking at a predetermined square foot price.
3. Provide and install a 9' row of ice and water underlayment to all eave edges.
4. Provide and install a 9' row of ice and water underlayment to all valleys.
5. Provide and install a 3' row of ice and water underlayment to all rake edges
6. Provide and install shingle manufacturer's recommended underlayment to remainder are of the roof.
7. Provide and install 24-gauge (standard color) perimeter drip edge to all roof edges. New drip edge face is to extend down enough to cover witness line from old drip edge. Drip edge is to be installed utilizing a full under cleat metal. Face fastening will not be allowed.

8. Provide and install a complete Malarkey – Vista Shingle system (or equal) to entire roof area.
9. Flash and seal all roof penetrations per manufacturer's specifications.
10. Provide and install new ridge vent per manufacturer's specifications.
11. Provide complete clean up and removal of all job-related debris.
12. Repair any damage to landscaping, lawns, sidewalks and parking lots due to construction operations.
13. Provide manufacturers lifetime shingle warranty.

4.3 **Middle/High School** (Excluding Area 1) Flat Roof Replacement Services will include but not limited to:

1. Remove and dispose of existing perimeter edge metal.
2. Slice existing roof membrane around perimeter and around all penetrations
3. Remove and replace any wet insulation at a predetermined square foot price.
4. Install (1) layer of 1.75" ISO
5. Install (1) layer of ½" HD ISO board
6. Install 60 mil Duro Tuff membrane. Membrane is to be mechanically fastened
7. Flash and seal all roof penetrations.
8. Install two way breather vents per manufacturers specifications.
9. Install walk pads at the top and bottom of all ladders.
10. Provide complete clean up and removal of all job related debris.
11. Provide a 25 year manufacturers warranty.

4.4 **Middle/High School** Metal Wall installation (Wall between roof area 3 & 4):

1. Install fire treated 2 x 4 vertical nailers (horizontal) or 1 ½" metal Z strips over existing brick.
2. Install 1 ½" polyisocyanurate insulation panel between nailers,
3. Install metal wall panels over entire wall area
4. Install metal corner trims at areas noted on roof plan
5. Provide all trims and closures for a complete job.
6. Provide complete clean up and removal of all job related debris.

4.5 Contractors will be responsible for any and all damage due to construction. Any damage caused by the contractor must be repaired within ten (10) working days at the expense of the contractor. If damage occurs, the contractor will be liable for such damage.

4.6 It is expressly agreed and understood that the Contractor is, in all respects, an independent contractor as to work; however, in certain aspects, the Contractor is bound to follow the directions of the District Superintendent or appointed designee at the time of repair and/or construction, and that the Contractor is in no respect an agent, servant or employee of the District.

4.7 The Contractor's timeliness and delivery of quality products shall be monitored by the District Superintendent or appointed designee. If at any time the Contractor is performing less than satisfactory work, the Contractor, upon notification by the District Superintendent or appointed designee, shall do whatever is necessary to perform the work properly at no

additional cost to the District. Failure to give such notification shall not relieve the Contractor of his obligation to perform the work at the time and in the manner specified.

5. INSURANCE REQUIREMENTS

5.1 The selected service provider shall agree to indemnify and hold harmless the District and its officers, agents, and employees for any and all claims, causes, or actions, and damages of every kind, for injury to or death of any person and damages to property arising out of or in connection with the work done by the Contractor under this contract, and including acts of omissions of the District or its officers, agents, or employees in connection with said contract.

5.2 The District will require proof of professional liability insurance with errors and omissions coverage, workers compensation insurance, general liability and automobile insurance with companies authorized to do business in Michigan, and in amounts meeting or exceeding the amounts listed in Attachment B.

5.3 Each proposal that exceeds $50,000 must be submitted with an attached certified check, money order, or a bid bond from a surety company approved to do business in the State of Michigan, payable to the **Owner** in an amount not less than 5% of the base proposal sum of the work.

5.4 Prior to the execution of the contract, furnish Performance and Payment Bonds covering the faithful performance of the contract and the payment of all obligations arising there under. Include cost of bonds in the base proposal. The bidder shall require the attorney-in-fact who executes the required bonds on behalf of the surety to affix thereto a certified and current copy of their power of attorney.

5.5 The successful Contractor, within ten (10) days after the contract award, shall furnish the District with proof of insurance as stated in Attachment B.

5.6 The District shall be named as additional insured on all policies as directed in Attachment B. Should any insurance required by this contract lapse, the Contractor shall immediately cease any operations until authorized in writing by the District. If the lapse period extends fifteen (15) days, the contract shall automatically terminate and the Contractor shall be in breach of this contract.

6. AGREEMENT/EXCEPTIONS

6.1 Submission of a proposal indicates the Contractor agrees to the terms, conditions and other provisions contained in the RFP, unless the Contractor clearly and specifically presents in its proposal any exceptions to the terms, conditions, and other provisions contained in the RFP.

6.2 Exceptions presented in a proposal are not to be considered incorporated into the contract between the District and the selected Contractor unless and until the District agrees to accept such exceptions.

6.3 The selected Contractor must acknowledge and agree that the contract resulting from this RFP include the terms, conditions, and other provisions contained in the RFP, the proposal selected (including any exceptions accepted by the District) which is acceptable to the District and is not in conflict or contravention of the RFP, and any other documents mutually agreed upon by the District and selected Contractor.

6.4 No oral statements or any person shall modify or otherwise change or affect the terms, conditions, or specifications stated in the RFP or the resulting contract.

6.5 A formal contract will be negotiated after the selection of a contractor for the services identified in the scope of services by the District.

6.6 The contractor shall not assign the contract or any part thereof to any other person unless such assignment is first approved in writing by the District, it being understood that the contract shall not be assignable unless the proposed assignee is acceptable to the District. The request for assignment must include evidence that the proposed assignee qualifies under all requirements of the contract and must be addressed as defined in the contract for services.

7. PROPOSAL SUBMITTAL

One original plus one (copy) of the entire bid package must be submitted to the District as follows:

Pellston Public Schools Roofing Project
Pellston Public School District
Office of the Superintendent
172 Park Street
Pellston, MI 49769

All proposals must be received prior to, Wednesday, April 30, 2025 at 3:30 PM. Proposals may be mailed or dropped off at the Office of the Superintendent. Proposals must be received in the Superintendents Office for it to be considered in the RFP process.

SCHEDULE A
PELLSTON PUBLIC SCHOOLS
2025 PELLSTON SCHOOLS ROOFING PROJECTS
BID FORM

TO: Mr. Stephen Seelye, Superintendent
Pelston Public School District
Pellston, MI 49769

Having carefully reviewed the bidding documents described in the RFP and understanding the scope of work involved in the proposed Bid and those that interface with it, we hereby propose to furnish labor, materials, tools, equipment, supervision, insurance and services required for the completion of all work required for the Bid indicated in accordance with the RFP.

BASE BID, ELEMENTARY SHINGLE ROOFING PROJECT:

_____

BASE BID, ELEMENTARY, MIDDLE/HIGH SCHOOL ROOFING/SIDING PROJECT:

_____

BIDDERS NAME:_____

ADDENDA:
And having Received and Examined the Following Addenda: (include date for acknowledgement)

Addendum Number_____, dated_____, 2025

Addendum Number_____, dated_____, 2025

SUBSTITUTIONS:

The school district will consider substitutions from the original specified materials. The following substitutions for the “Standards” specified are listed herein for consideration, and if accepted, the contract sum may be adjusted in accordance with the following:

_____Add / Deduct $_____

_____Add / Deduct $_____

CONTRACT:

The undersigned agrees that the above Base Bid Prices shall hold for 60 days and Alternate Prices for 90 days after receipt of proposals, to accept provisions of “Instructions to Bidders”

IRAN BUSINESS RELATIONSHIP AFFIDAVIT:

Pursuant to the Michigan Iran Economic Sanctions Act, 2012 P.A. 517, by submitting a bid, proposal or response, Respondent certifies, under civil penalty for false certification, that it is fully eligible to do so under law and that it is not an "Iran Linked Business," as that term is defined in the Act.

SUBMITTED BY:

Firm Name:_____

Address:_____

Email Address:_____

Signed:_____

Typed Name:_____

Date:_____ Title:_____

Phone:_____ Fax:_____

If bidder is a Corporation, indicate State of Incorporation:_____

If a Partnership, give full names of all Partners:_____

_____

Please submit (1) one original copy and (1) one copy of this proposal. Contractor should retain (1) one copy for your records.

FAMILIAL DISCLOSURE STATEMENT

All bidders must complete the following familial disclosure from in compliance with MCL 380.1267 (Public Act 232 of 2004) and attach this information to the bid.

By the attached sworn and notarized statement we are disclosing the following familial relationship(s) that exist between the owner or any employee of the bidder and any member of the board, intermediate school board, or board of directors or the superintendent of the school district, intermediate superintendent of the intermediate school district, or chief executive officer of the public school academy. The Owner shall not accept a bid that does not include this sworn and notarized disclosure statement.

Disclose any familial relationship and complete the form below in its entirety:

The following are familial relationships as described above (provide employee name, family contact name, family contact position, and familial relationship or NONE.)

Signature(s): Title: Name of Firm:

STATE OF MICHIGAN
SS COUNTY OF

On this day of _____, 20____, before me a Notary Public in and for ,

Said county, personally appeared agent of the said firm

And acknowledged the same to be his free act and deed as such agent.

Notary Public

SCHEDULE B
PELLSTON PUBLIC SCHOOLS
2025 PELLSTON SCHOOLS ROOFING PROJECT
INSURANCE REQUIREMENTS

WORKER'S COMPENSATION AND EMPLOYER'S LIABILITY INSURANCE:

Worker's Compensation: State of Michigan Statutory Limits

Employer's Liability: $500,000 – each accident
$500,000 – disease (each employee)
$500,000 – disease (policy limit)

The limits for Commercial General Liability insurance including -coverage for Premises-Operations, Independent Contractors' Protective, Products-Completed Operations, Contractual Liability, Personal Injury and Broad Form Property Damage (including coverage for Explosion, Collapse, and Underground Hazards) shall be as follows:

COMMERCIAL GENERAL LIABILITY INSURANCE:

Each occurrence $2,000,000 – aggregate

Each occurrence $2,000,000 – aggregate

Fire Damage (any one fire) $100,000

Medical Expense (any one person) $5,000

The Contractor shall furnish and maintain during the entire period of construction, a Protective/Contractual Liability policy written in the name of the Owner and Architect with the following limits:

Bodily Injury $1,000,000 – each occurrence
Property Damage $1,000,000 – each occurrence
Property Damage $1,000,000 – aggregate

Notes;
Products-Completed Operations Insurance shall be maintained for a minimum period of one (1) year after final payment.
The Owner and Architect shall be listed as additional insured. The Owner shall be the certificate holder.

Automobile Liability insurance (owned, non-owned and hired vehicles) for bodily injury and property damage:

AUTOMOBILE LIABILITY INSURANCE:

Bodily Injury $1,000,000
Property Damage $1,000,000

Umbrella or Excess Liability Coverage: UMBRELLA/EXCESS LIABILITY INSURANCE:

Umbrella/Excess Insurance $2,000,000 – each occurrence
$2,000,000 – aggregate

SCHEDULE C
PELLSTON PUBLIC SCHOOLS
2025 PELLSTON ELEMENTARY SCHOOL
GYM ROOF REPLACEMENT SPECS

PART 1 GENERAL

1.1 SUMMARY

A. Membrane Type: Duro-Last 50-mil Membrane (Custom Fab: Regular Rolls)
    1. Roll Width: 60" (Installed widths may vary)
    2. Membrane Color: White
    3. Attachment Type: Mechanically Fastened
B. Insulation Assembly Type: Duro-Guard XPS 3/8" Fanfold
    1. Board Application: Flat Stock
    2. Board Style: Assembly Thickness
    3. Attachment Type: Mechanically Fastened
C. Existing Roof Type: PVC
D. Deck Type: OSB Deck (5/8 in.)
E. Prefabricated flashings, corners, parapets, stacks, vents, and related details.
F. Fasteners, adhesives, and other accessories required for a complete roofing installation.
G. Traffic Protection.

1.2 REFERENCES

A. ASTM INTERNATIONAL (ASTM)
    1. (2019) Standard Test Methods for Coated Fabrics (D751)
    2. (2021) Standard Specification for Poly(Vinyl Chloride) Sheet Roofing (D4434/D4434M)
    3. (2022) Standard Specification for Faced Rigid Cellular Polyisocyanurate Thermal Insulation Board (C1289)
    4. (2020) Standard Test Methods for Fire Tests of Roof Coverings (E108)
    5. (2020) Standard Test Methods for Fire Tests of Building Construction and Materials (E119)
B. UL SOLUTIONS (UL)
    1. (2021) UL Roofing Systems (TGFU.R10128)
C. AMERICAN SOCIETY OF CIVIL ENGINEERS (ASCE)
    1. (2014) Minimum Design Loads for Buildings and Other Structures (ASCE Standard - ASCE/SEI 7-10)
    2. (2017) Minimum Design Loads and Associated Criteria for Buildings and Other Structures (ASCE Standard - ASCE/SEI 7-16)

3. (2022) Minimum Design Loads and Associated Criteria for Buildings and Other Structures (ASCE Standard - ASCE/SEI 7-22)

D. NATIONAL ROOFING CONTRACTORS ASSOCIATION (NRCA)
   1. (2019) NRCA Roofing Manual - Membrane Systems

1.3 SYSTEM DESCRIPTION

A. General: Provide installed roofing membrane and base flashings that remain watertight; do not permit the passage of water; and resist specified uplift pressures, thermally induced movement, and exposure to weather without failure.

B. Material Compatibility: Provide roofing materials that are compatible with one another under conditions of service and application required, as demonstrated by roofing membrane manufacturer based on testing and field experience.

C. Physical Properties (must meet or exceed):
   1. Roof product must meet the requirements of Type III PVC sheet roofing as defined by ASTM D4434.
   2. Thickness: 50 mil, nominal, in accordance with ASTM D751.
   3. Thickness over Scrim: ≥ 28 mil in accordance with ASTM D7635.
   4. Breaking Strength: ≥ 438 lbf. (machine direction) and ≥ 390 lbf. (cross machine direction) in accordance with ASTM D751 Grab Method.
   5. Elongation at Break: ≥ 31% (machine direction) and ≥ 31% (cross machine direction) in accordance with ASTM D751 Grab Method.
   6. Seam Strength: ≥ 417 lbf. in accordance with ASTM D751 Grab Method.
   7. Tear Strength: ≥ 132 lbf. (machine direction) and ≥ 163 lbf. (cross machine direction) in accordance with ASTM D751 Procedure B.
   8. Low Temperature Bend: Pass at -40 °F in accordance with ASTM D2136.
   9. Heat Aging: Pass after being conditioned for 56 days in oven maintained at 176 °F in accordance with ASTM D3045.
   10. Accelerated Aging: Pass after 10,000 hours of total test time in accordance with ASTM G155.
   11. Dimensional Stability: Change of -0.30% (machine direction) and -0.45% (cross machine direction) in accordance with ASTM 1204.
   12. Water Absorption: < 1.7% at 158 °F for 168 hours in accordance with ASTM D570.
   13. Static Puncture Resistance: ≥ 56 lbf. in accordance with ASTM D5602.
   14. Dynamic Puncture Resistance: ≥ 14.7 ft-lbf. in accordance with ASTM D5635.

D. Cool Roof Rating Council (CRRC) (Membrane must be listed on the CRRC website):
   1. Solar Reflectance (Initial): ≥ 86%
   2. Solar Reflectance (3-Year Aged): ≥ 74%
   3. Thermal Emittance (Initial): ≥ 89%
   4. Thermal Emittance (3-Year Aged): ≥ 89%

5. Solar Reflectance Index (SRI) (Initial): ≥ 108%
6. Solar Reflectance Index (SRI) (3-Year Aged): ≥ 91%

E. Insulation:
    1. General Requirements
        a. Install using a minimum of two layers.
        b. Configuration as indicated on the drawings.
    2. Duro-Guard XPS 3/8" Fanfold
        a. Assembly Thickness:

1.4 SUBMITTALS

A. Product data sheets to be used, with the following information included:
    1. Preparation instructions and recommendations
    2. Storage and handling requirements and recommendations
    3. Installation methods
    4. Maintenance requirements
B. Sustainability Documentation:
    1. NSF/ANSI Standard 347 Certificate
    2. Type III product-specific Environmental Product Declaration
C. Shop Drawings: Indicate insulation pattern, overall membrane layout, field seam locations, joint or termination detail conditions, and location of fasteners.
D. Provide verification samples for each product specified (two samples representing each product, color and finish):
    1. 4-inch by 6-inch sample of roofing membrane, of color specified.
    2. 4-inch by 6-inch sample of walkway pad.
    3. Termination bar, fascia bar with cover, drip edge, and gravel stop if to be used.
    4. Each fastener type to be used for installing membrane, insulation/recover board, termination bar and edge details.
E. Installer Certification: Certification from the roofing system manufacturer that Installer is approved, authorized, or licensed by manufacturer to install roofing system.
F. Manufacturer's warranties.

1.5 QUALITY ASSURANCE

A. Perform work in accordance with manufacturer's installation instructions.
B. Manufacturer Qualifications: A manufacturer specializing in the production of PVC membranes systems and utilizing a Quality Control Manual during the production of the membrane roofing system that has been approved by and is inspected by Underwriters Laboratories.
C. Installer Qualifications: Company specializing in installation of roofing systems similar to those specified in this project and approved by the roofing system manufacturer.

D. Source Limitations: Obtain components for membrane roofing system from roofing membrane manufacturer.
E. There shall be no deviations from the roof membrane manufacturer's specifications or the approved shop drawings without the prior written approval of the manufacturer.

1.6 REGULATORY REQUIREMENTS

A. Conform to applicable code for roof assembly fire hazard, wind uplift, and cool roof requirements.
B. Fire Hazard Requirements: Provide membrane roofing materials with the following fire-test-response characteristics. Materials shall be identified with appropriate markings of applicable testing and inspecting agency.
    1. Class A
    2. Fire-test-response standard: Comply with ASTM E108 for application and roof slopes indicated.
    3. Fire-Resistance Ratings: Comply with ASTM E119 for fire-resistance-rated roof assemblies of which roofing system is a part.
    4. Conform to applicable code for roof assembly fire hazard requirements.
C. Wind Uplift Requirements: Roofing System Design: Provide a roofing system designed to resist uplift pressures calculated according to the current edition of ASCE/SEI 7, Minimum Design Loads and Associated Criteria for Buildings and Other Structures.

1.7 PRE-INSTALLATION MEETING

A. Convene meeting not less than one week before starting work of this section.
B. Review methods and procedures related to roof deck construction and roofing system including, but not limited to, the following:
    1. Meet with Owner, Architect, Owner's insurer if applicable, testing and inspecting agency representative, roofing installer, roofing system manufacturer's representative, deck installer, and installers whose work interfaces with or affects roofing including installers of roof accessories and roof-mounted equipment.
    2. Review and finalize construction schedule and verify availability of materials, installer's personnel, equipment, and facilities needed to make progress and avoid delays.
    3. Examine deck substrate conditions and finishes for compliance with requirements, including flatness and fastening.
    4. Review structural loading limitations of roof deck during and after roofing.
    5. Review base flashings, special roofing details, roof drainage, roof penetrations, equipment curbs, and condition of other construction that will affect roofing system.
    6. Review governing regulations and requirements for insurance and certificates if applicable.

7. Review temporary protection requirements for roofing system during and after installation.
8. Review roof observation and repair procedures after roofing installation.
9. Review existing roof manufacturer's recycling program and return roofing system to the manufacturer for recycling.

1.8 DELIVERY, STORAGE AND HANDLING

A. Deliver roofing materials to Project site in original containers with seals unbroken and labeled with manufacturer's name, product brand name and type, date of manufacture, and directions for storing and mixing with other components.
B. Store liquid materials in their original undamaged containers in a clean, dry, protected location and within the temperature range required by roofing system manufacturer. Protect stored liquid material from direct sunlight.
C. Protect roof insulation materials from physical damage and from deterioration by sunlight, moisture, soiling, and other sources. Store in a dry location. Comply with insulation manufacturer's written instructions for handling, storing, and protecting during installation.
D. Store roof materials and place equipment in a manner to avoid permanent deflection of deck.
E. Store and dispose of solvent-based materials, and materials used with solvent-based materials, in accordance with requirements of local authorities having jurisdiction.

1.9 WARRANTY

A. Contractor's Warranty: The contractor shall warrant the roof application with respect to workmanship and proper application for two (2) years from the effective date of the warranty issued by the manufacturer.
B. Manufacturer's Warranty: Must be no-dollar limit type and provide for completion of repairs, replacement of membrane or total replacement of the roofing system at the then-current material and labor prices throughout the life of the warranty. In addition the warranty must meet the following criteria:
    1. Warranty Period: 20 years from date issued by the manufacturer.
    2. Must provide adequate or sufficient drainage.
    3. Issued direct from and serviced by the roof membrane manufacturer.
    4. Transferable for the full term of the warranty.

PART 2 PRODUCTS

2.1 MANUFACTURER

A. Manufacturer: Duro-Last Roofing, which is located at: 525 Morley Drive, Saginaw, MI 48601. Telephone: 800-248-0280.

B. All roofing system components to be provided or approved by Duro-Last Roofing, Inc.
C. Substitutions: Not permitted.

2.2 ROOFING SYSTEM COMPONENTS

A. Roofing Membrane:
    1. Properties:
        a. Type: Duro-Last 50-mil Membrane (Custom Fab: Regular Rolls)
        b. Roll Width: 60" (Installed widths may vary)
        c. Membrane Color: White
        d. Attachment Type: Mechanically Fastened
    2. Features:
        a. ASTM D4434, Type III
        b. Fabric-reinforced, PVC, NSF/ANSI 347 Gold or Platinum Certification, and a product-specific third-party verified Environmental Product Declaration.
        c. Minimum recycle content 7% post-industrial and 0% post-consumer.
        d. Recycled at end of life into resilient flooring or concrete expansion joints.
B. Insulation:
    1. General Requirements
        a. Provide preformed roof insulation boards that comply with requirements and referenced standards, as selected from manufacturer's standard sizes.
        b. Provide preformed saddles, crickets, and other insulation shapes where indicated for sloping to drain. Fabricate to slopes indicated.
        c. Provide roof insulation accessories approved by the roof membrane manufacturer and as recommended by insulation manufacturer for the intended use.
    2. Missing layer properties!
C. Existing Roof:
    1. Properties:
        a. Type: PVC
D. Deck Type:
    1. Properties:
        a. Type: OSB Deck (5/8 in.)
E. Accessory Materials: Provide accessory materials supplied by or approved for use by Duro-Last Roofing, Inc.:
    1. Sheet Flashing: Manufacturer's standard reinforced PVC sheet flashing.
    2. Prefab Flashings: Manufactured using standard reinforced PVC membrane.
        a. Duro-Last® Inside and Outside Corners
        b. Duro-Last® Stack Flashing

c. Duro-Last® Curb Flashing

3. Metal Termination: Supplied by Duro-Last Roofing, Inc.
    a. Vinyl Coated Metal Drip Edge

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify that the surfaces and site conditions are ready to receive work.
B. Verify that the deck is supported and secured.
C. Verify that the deck is clean and smooth, free of depressions, waves, or projections, and properly sloped to drains, valleys, eaves, scuppers or gutters.
D. Verify that the deck surfaces are dry and free of standing water, ice or snow.
E. Verify that all roof openings or penetrations through the roof are solidly set.
F. If substrate preparation is the responsibility of another contractor, notify Architect of unsatisfactory preparation before proceeding.
G. Prior to re-covering an existing roofing system, conduct an inspection of the roof system accompanied by a representative of the membrane manufacturer or an authorized contractor.
    1. Determine required fastener type, length, and spacing.
    2. Verify that moisture content of existing roofing is within acceptable limits.
    3. Identify damaged areas requiring repair before installation of new roofing.
    4. Conduct core cuts as required to verify information required.

3.2 PREPARATION

A. Clean surfaces thoroughly prior to installation.
B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.
C. Surfaces shall be clean, smooth, free of fins, sharp edges, loose and foreign material, oil, grease, and bitumen.
D. Re-Roofing Over Existing Single-Ply System:
    1. Remove all loose or high fasteners.
    2. Membrane contaminated with bitumen must be immediately cleaned. If cleaning does not remove the bitumen, the contaminated membrane must be replaced, or covered with both a slip sheet and new membrane.
    3. Blisters, buckles and other surface irregularities must be repaired or removed. If the damage is extensive, an approved rigid board insulation or a cover board must be installed.

4. When the system is smooth or granular-surfaced, any approved slip sheet, insulation or cover board may be used to provide separation of the roof system and new membrane. Duro-Guard fan folds may be used if the surface is pea gravel or crushed stone which is ¼ to 3/8 inch in size and has been leveled and maintained at 4 psf. For larger rock/gravel, utilize an approved rigid insulation or cover board.
5. If rock/gravel surfacing is removed, an approved fan fold, rigid insulation or cover board must be used. If embedded rock/gravel remains that protrudes out of the deck more than ¼ inch, do not use fan fold board. Instead, use an approved cover board or rigid insulation.
6. When installing polystyrene insulation over coal tar pitch or asphalt-based roof systems, a slip sheet must be used between the insulation and existing roof.

3.3 INSTALLATION

A. Insulation:
    1. General Requirements
        a. Install insulation in accordance with the roof manufacturer's requirements.
        b. Insulation shall be adequately supported to sustain normal foot traffic without damage.
        c. Where field trimmed, insulation shall be fitted tightly around roof protrusions with no gaps greater than ¼ inch.
        d. Tapered insulation boards shall be installed in accordance with the insulation manufacturer's shop drawings.
        e. No more insulation shall be applied than can be covered with the roof membrane by the end of the day or the onset of inclement weather.
        f. If more than one layer of insulation is used, all joints between subsequent layers shall be offset by at least 6 inches.
    2. Duro-Guard XPS 3/8" Fanfold
        a. Use only fasteners, stress plates and fastening patterns accepted for use by the roof manufacturer. Fastening patterns must meet applicable design requirements.
        b. Install fasteners in accordance with the roof manufacturer's requirements. Fasteners that are improperly installed must be replaced or corrected.
        c. Install all layers in parallel courses with end joints staggered 50% and adjacent boards butted together with no gaps greater than ¼ inch.
B. Roofing Membrane:
    1. General Requirements
        a. Install membrane in accordance with the roof manufacturer's requirements.
        b. Cut membrane to fit neatly around all penetrations and roof projections.

2. Duro-Last 50-mil Membrane (Custom Fab: Regular Rolls)
    a. Use only fasteners, stress plates and fastening patterns accepted for use by the roof manufacturer. Fastening patterns must meet applicable design requirements.
    b. Install fasteners in accordance with the roof manufacturer's requirements. Fasteners that are improperly installed must be replaced or corrected.
    c. Mechanically fasten membrane to the structural deck utilizing fasteners and fastening patterns in accordance with the roof manufacturer's requirements.

C. Weld overlapping sheets together using hot air. Minimum weld width is 1-1/2 inches.

D. Check field welded seams for continuity and integrity and repair all imperfections by the end of each work day.

E. Flashings: Complete all flashings and terminations as indicated on the drawings and in accordance with the membrane manufacturer's requirements.
    1. Provide securement at all membrane terminations at the perimeter of each roof level, roof section, curb flashing, skylight, expansion joint, interior wall, penthouse, and other similar condition.
        a. Do not apply flashing over existing thru-wall flashings or weep holes.
        b. Secure flashing on a vertical surface before the seam between the flashing and the main roof sheet is completed.
        c. Extend flashing membrane a minimum of 6 inches (152 mm) onto the main roof sheet beyond the mechanical securement.
        d. Use care to ensure that the flashing does not bridge locations where there is a change in direction (e.g. where the parapet meets the roof deck).
    2. Penetrations:
        a. Flash all pipes, supports, soil stacks, cold vents, and other penetrations passing through the roofing membrane as indicated on the Drawings and in accordance with the membrane manufacturer's requirements.
        b. Utilize custom prefabricated flashings supplied by the membrane manufacturer.
        c. Existing Flashings: Remove when necessary to allow new flashing to terminate directly to the penetration.
    3. Pipe Clusters and Unusual Shapes:
        a. Clusters of pipes or other penetrations which cannot be sealed with prefabricated membrane flashings shall be sealed by surrounding them with a prefabricated vinyl-coated metal pitch pan and sealant supplied by the membrane manufacturer.
        b. Vinyl-coated metal pitch pans shall be installed, flashed and filled with sealant in accordance with the membrane manufacturer's requirements.
        c. Pitch pans shall not be used where prefabricated or field fabricated flashings are possible.

F. Roof Drains: Coordinate installation of roof drains and vents.
    1. Drain Assemblies with Clamping Rings:
        a. Remove existing roofing system materials from drain bowl and clamping ring.
        b. The membrane must extend beyond the inside of the clamping ring.
        c. Use a manufacturer supplied or approved sealant (1/2 tube minimum) between the membrane and drain bowl assembly.
        d. After the membrane is properly installed onto the bowl and the clamping ring set in place, all bolts securing the ring must be installed to provide constant, even compression on the sealant. If bolts are broken or missing, replacements must be installed.
    2. Drain Boots:
        a. Remove existing flashing and asphalt at existing drains in preparation for sealant and membrane.
        b. Use a manufacturer supplied or approved sealant (1/2 tube minimum) to the outside of the drain boot and insert it into the drain.
        c. Fasten membrane around the perimeter of the drain with the same fastening pattern as the field membrane, no less than 1 fastener per drain.
        d. Install a pair of composite drain rings (CDRs) to compress the boot to the pipe. Ensure the CDR openings face in opposite directions.
        e. Secure the manufacturer's drain guard over the opening by heat welding the attachment tabs to the roof membrane.
G. Edge Details:
    1. Provide edge details as indicated on the Drawings. Install in accordance with the membrane manufacturer’s requirements.
    2. Join individual sections in accordance with the membrane manufacturer’s requirements.
    3. Coordinate installation of metal flashing and counter flashing.
    4. Manufactured Roof Specialties: Coordinate installation of copings, counter flashing systems, gutters, downspouts, and roof expansion assemblies.
H. Walkways:
    1. Install walkways in accordance with the membrane manufacturer’s requirements.
    2. Provide walkways where indicated on the Drawings.
    3. Install walkway pads at roof hatches, access doors, rooftop ladders and all other traffic concentration points regardless of traffic frequency. Provided in areas receiving regular traffic to service rooftop units or where a passageway over the surface is required.
    4. Do not install walkways over flashings or field seams until manufacturer’s warranty inspection has been completed.

I. Water Cut-Offs:
    1. Provide water cut-offs on a daily basis at the completion of work and at the onset of inclement weather.
    2. Provide water cut-offs to ensure that water does not flow beneath the completed sections of the new roofing system.
    3. Remove water cut-offs prior to the resumption of work.
    4. The integrity of the water cut-off is the sole responsibility of the roofing contractor.
    5. Any membrane contaminated by the cut-off material shall be cleaned or removed.

3.4 FIELD QUALITY CONTROL

A. The membrane manufacturer's representative shall provide a comprehensive final inspection after completion of the roof system. All application errors shall be addressed and final punch list completed.

3.5 PROTECTION

A. Protect installed roofing products from construction operations until completion of project.
B. Where traffic is anticipated over completed roofing membrane, protect from damage using durable materials that are compatible with membrane.
C. Repair or replace damaged products after work is completed.

END OF SECTION

SCHEDULE D

PELLSTON PUBLIC SCHOOLS
2025 PELLSTON ELEMENTARY SCHOOL
ASPHALT SHINGLE ROOF SPECS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. High profile laminate asphalt shingles.
   1. Legacy Scotchgard (273).

B. Underlayment and accessories.

1.2 RELATED SECTIONS

A. Section 02 41 16.13 - Building Demolition.
B. Section 06 10 00 - Rough Carpentry.
C. Section 07 61 00 - Sheet Metal Roofing.

1.3 REFERENCES

A. ASTM International (ASTM):
   1. ASTM C209 - Standard Test Methods for Cellulosic Fiber Insulating Board.
   2. ASTM C1289 - Standard Specification for Faced Rigid Cellular Polyisocyanurate Thermal Insulation Board.
   3. ASTM D226 - Standard Specification for Asphalt-Saturated Organic Felt Used in Roofing and Waterproofing.
   4. ASTM D1621 - Standard Test Method for Compressive Properties of Rigid Cellular Plastics.
   5. ASTM D1970 - Standard Specification for Self-Adhering Polymer Modified Bituminous Sheet Materials Used as Steep Roofing Underlayment for Ice Dam Protection.
   6. ASTM D2126 - Standard Test Method for Response of Rigid Cellular Plastics to Thermal and Humid Aging.
   7. ASTM D3018 - Standard Specification for Class A Asphalt Shingles Surfaced with Mineral Granules.
   8. ASTM D3161 - Standard Test Method for Wind-Resistance of Asphalt Shingles (Fan-Induced Method).
   9. ASTM D3462 - Standard Specification for Asphalt Shingles Made from Glass Felt and Surfaced with Mineral Granules.
   10. ASTM D4586 - Standard Specification for Asphalt Roof Cement, Asbestos- Free.
   11. ASTM D4601 - Standard Specification for Asphalt-Coated Glass Fiber Base Sheet Used in Roofing.
   12. ASTM D4869 - Standard Specification for Asphalt-Saturated Organic Felt Underlayment Used in Steep Slope Roofing.

13. ASTM D6757 - Standard Specification for Underlayment Felt Containing Inorganic Fibers Used in Steep-Slope Roofing.
14. ASTM D7158 - Standard Test Method for Wind Resistance of Asphalt Shingles (Uplift Force/Uplift Resistance Method).
15. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials.
16. ASTM E96 - Standard Test Methods for Water Vapor Transmission of Materials.
17. ASTM E108 - Standard Test Methods for Fire Tests of Roof Coverings.

B. Canadian Standards Organization (CSA).
1. CSA A123.5 - Asphalt Shingles.
2. CSA A123.3 - Underlayment.

C. Florida Building Code (FBC).
1. FL14807 - Underlayments.
2. FL14809 - Asphalt Shingles.
3. FL 23186 - Underlayments.

D. ICC Evaluation Service (ICC-ES).
1. ICC Approval - ESR-1561: Roofing Felt and Underlayment.
2. ICC Approval - ESR-3150: Asphalt Shingles.
3. ICC-ES AC188: Acceptance Criteria for Roof Underlayments.

E. Intertek Testing Services (ITS).
1. Fire Resistance Directory, Current Edition.
2. Code Compliance Research Report - CCRR-1082: Roofing Felt and Underlayment.

F. Underwriters Laboratory (UL):
1. UL 790 - Standard Test Methods for Fire Tests of Roof Coverings.
2. UL 2218 - Impact Resistance of Prepared Roof Covering Materials.

1.4 SUBMITTALS

A. Submit under provisions of Section 01 30 00 - Administrative Requirements.
B. Product Data: Manufacturer's data sheets on each product to be used, including:
1. Preparation instructions and recommendations.
2. Storage and handling requirements and recommendations.
3. Installation methods.

C. Samples for Selection: For the following products, of sizes indicated: For each product specified, two complete sets of color samples representing manufacturer's full range of available colors and patterns.
1. Asphalt Shingles: Full size.
2. Asphalt Starter Shingles: Full size.
3. NEX Polymer Modified Fiberglass Hip and Ridge Shingles: Full size.
4. Synthetic Underlayment: 12 inches (305 mm) square.
5. NEX Polymer Modified Self-Adhering Fiberglass Reinforced

Underlayment or Synthetic self-adhering underlayment: 12 inches (305 mm) square.

6. Nails Used for Fastening Shingles: 5 of each nail type and size.

D. Samples for Verification: For the following products, of sizes indicated: For each product specified, two samples representing actual product, color, and patterns.
   1. Asphalt Shingles: Full size.
   2. Asphalt Starter Shingles: Full size.
   3. NEX Polymer Modified Fiberglass Hip and Ridge Shingles: Full size.
   4. Synthetic Underlayment: 12 inches (305 mm) square.
   5. NEX Polymer Modified Self-Adhering Fiberglass Reinforced Underlayment or Synthetic self-adhering underlayment: 12 inches (305 mm) square.
   6. Nail Used for Fastening Shingles: 5 of each nail type and size.

1.5 QUALITY ASSURANCE

A. IPrimary Roofing Materials Manufacturer Requirements:
   1. Only Malarkey Roofing Products are allowed.

B. Installer Qualifications: Approved by the manufacturer to install the specified products and provide the specified warranties. Contractor must be a Malarkey Emerald Premium or Emerald Pro certified contractor.

C. Source Limitations: Obtain hip and ridge shingles, starter, all underlayment products, from single manufacturer.

D. Fire-Resistance Characteristics: Where indicated, provide asphalt shingles and related roofing materials identical to those of assemblies tested for fire resistance per test method below by UL or another testing and inspecting agency acceptable to authorities having jurisdiction. Identify products with appropriate markings of applicable testing agency.

E. Exterior Fire-Test Exposure: Class A; ASTM E108 or UL 790, for application and roof slopes indicated.

F. Mock-Up: Provide a mock-up for evaluation of surface preparation techniques and application workmanship.
   1. Finish areas designated by Architect.
   2. Do not proceed with remaining work until workmanship, color, and sheen are approved by Architect.
   3. Refinish mock-up area as required to produce acceptable work.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Store products in manufacturer's unopened packaging until ready for installation.

B. Store and dispose of solvent-based materials, and materials used with solvent-based materials, in accordance with requirements of local authorities having jurisdiction.

1.7 PROJECT CONDITIONS

A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.

1.8 PROJECT MEETINGS

A. Pre-Construction Meeting:
   1. Prior to the start of the roofing project, the Owner will hold a job-site meeting and roof tour to review the scope of work.
   2. Authorized representatives of the Owner, the Roofing Contractor (Project Superintendent), the asphalt shingle manufacturer, other Subcontractors whose work complements, penetrates, or is mounted on the roof or will use the roof as a work platform, will be in attendance.
   3. The agenda for the meeting shall include:
      a. A review of the submittals.
      b. Distribution of approved submittals.
      c. A walkover inspection of the roof.
      d. Establishment of a schedule for the work.
      e. Selection of staging and storage locations.

B. Final Inspection: Following the completion of the work, a final inspection shall be scheduled by Owner's Representative. Any uncompleted work shall be noted on a punch list. Final payment shall be made only after punch list is completed.

1.9 WARRANTY

A. Standard Warranty: Shingles subjected to terms and conditions of the standard Manufacturer's Limited Warranty. Wind warranty coverage is subject to the shingles being sealed.
   1. Warranty Length: 20 years.
   2. Limited Term Resistance to Wind, 15 years: 130 mph.
   3. Scotchgard Protector warranty shall include 3M Scotchgard algae resistance to discoloration from algae growth for a Limited Lifetime period from the date of substantial completion.

B. Upon project completion and acceptance by Owner, the Roofing Contractor shall promptly provide executed copies of the specified warranties.

C. Furnish a list containing the names and contact telephone numbers of the Roofing Contractor's Service Manager, Superintendent, and Project Manager and the Roofing Contractor's current mailing address.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Acceptable Manufacturer: Malarkey Roofing Products, which is located at: 3131 N. Columbia Blvd. P.O. Box 17217; Portland, OR 97217; Toll Free Tel: 800-545-1191; Tel: 503-283-1191; Fax: 503-289-7644; Email: request info (jkouba@malarkeyroofing.com); Web: WWW.MALARKEYROOFING.COM

B. Substitutions: Must be approved prior to bidding

2.2 SHINGLES

A. High Profile Laminate Shingles:
   1. Legacy Scotchgard (273) as manufactured by Malarkey Roofing Products.
      a. Malarkey Legacy Scotchgard shingles hold a Class A Fire Rating.
      b. As manufactured, Legacy meets the requirements of:
         1) ASTM D7158 Class H, ASTM D3462, ASTM D3161 Class F, ASTM D3018 Type I, ASTM E108 Class A, UL 2218 Class 4 Impact Resistance, ICC-ES AC438, and CSA A123.5.
         2) ICC Approval: ESR-3150.
         3) FBC Approval: No. 14809.
         4) Listed with UL and Intertek/WHI.
      c. Performance:
         1) Limited Material Warranty: 50 years.
         2) Limited Wind Warranty: 15 years. 130 mph.
         3) Limited Lifetime Scotchgard Protector Warranty.
         4) Your Choice Warranty Program.
         5) Right Start Period: 20 years. (non-prorated)
         6) NEX polymer mix includes recycled rubber and plastics.
         7) SEBS polymer modified asphalt laminate adhesive.
         8) SEBS asphalt seal-down adhesive.
         9) 3M Smog-Reducing Granules.
         10) Enlarged nailing area of The Zone.

B. Color: Color shall be selected from the manufacturer's standard colors.

2.3 UNDERLAYMENT

A. Self-Adhering Fiberglass Underlayment or Synthetic self-adhering underlayment.:
   1. Product: Malarkey 401 Arctic Seal or 406 SecureStart HT.
   2. As manufactured, 401 Arctic Seal and 406 SecureStart HT meets the requirements of ASTM D1970.
   3. Self-adhering sheet shall be nominal 55 mils (1.4 mm) thick or 45 mils for the synthetic.
   4. Self-adhering sheet shall be 36 inches (0.91 meter) or meter in width.
   5. One (1) roll (2) squares.
   6. NEX polymer mix includes recycled rubber and plastics.

B. Synthetic Underlayment:
   1. Product: 1030 SecureStart SG.
   2. As manufactured, SecureStart SG meets the requirements of ASTM D226, ASTM D4869, ASTM E108 Class A, ICC-ES AC188, and CAN/CSA A123.3.
   3. FBC Approval: FL23186.
   4. Code Approval: CCRR-1082.
   5. Sheet shall be nominal 15 ±1 mils (0.4 mm) thick.
   6. Sheet shall be 48 inches (1.2 meter) in width.
   7. One (1) roll ten (10) squares.

C. Synthetic Underlayment:
   1. Product: Malarkey 1031 SecureStart Plus.
   2. As manufactured, SecureStart Plus meets the requirements of ASTM D226, ASTM D4869, ASTM E108 Class A, ICC-ES AC188, and CAN/CSA A123.3.
   3. FBC Approval: FL23186.
   4. Code Approval: CCRR-1082.
   5. Sheet shall be nominal 17 ±1 mils (0.43 mm) thick.
   6. Sheet shall be 48 inches (1.2 meter) in width.
   7. One (1) roll ten (10) squares of roof.

D. NEX Polymer Modified Fiberglass Underlayment:
   1. Product: Malarkey Right Start UDL.
   2. As manufactured, Right Start UDL meets the requirements of ASTM D4601 Type II, ASTM D4869, ASTM D226 Type II, ASTM D6757 Type II, and ASTM E108 Class A.
   3. ICC Approval: ESR 1561.
   4. FBC Approvals: No. 14807 and No. 15214.
   5. Listed with Intertek/WHI.
   6. Sheet shall be nominal 55 mils (1.4 mm) thick.
   7. Sheet shall be 39⅜ inches (1 meter) in width.
   8. Two (2) square roll.

2.4 RELATED PRODUCTS

A. NEX Polymer Modified 8 inches (203 mm) High-Profile Hip and Ridge: Malarkey No. 222 EZ-Ridge Scotchgard.
B. NEX Polymer Modified 10 inches (254 mm) High-Profile Hip and Ridge: Malarkey No. 224 EZ-Ridge XT Scotchgard.
C. NEX Polymer Modified 10 inches (254 mm) Hip and Ridge: Malarkey No. 225 RidgeFlex Scotchgard.
D. NEX Polymer Modified 12 inches (305 mm) Hip and Ridge: Malarkey No. 227 RidgeFlex Scotchgard.
E. NEX Polymer Modified Full-Width Perforated Starter Shingle: Malarkey Smart Start No. 210.

F. Plastic Roof Cement conforming to ASTM D4586.
G. Fasteners: Hot Dip Galvanized nails with minimum 3/8 inch (9.5 mm) head.

PART 3 EXECUTION

3.1 DELIVERY, STORAGE, AND HANDLING IMPORT

A. New and dry roof materials delivered to the job site in containers unopened and undamaged. Manufacturer's products stamped with labels, names, and run codes of manufacture and testing laboratory.
B. Store underlayment materials on ends only. Discard rolls which may have been flattened, creased, or otherwise damaged. Place materials on pallets or wood sleepers. Do not stack palletized materials.
C. Cover underlayment rolls with weatherproof materials secured to prevent materials from becoming exposed to moisture. Use breathable tarps.
D. Disperse materials stored on the roof surface to avoid concentrated loading. Set larger concentrations over structural members.

3.2 ENVIRONMENTAL REQUIREMENTS

A. Application of roofing materials shall not be performed when weather conditions interfere with good roofing practices.

3.3 UNDERLAYMENT AND EDGING

A. Apply specified underlayment as follows: For slopes 2:12 to 5:12 Install Arctic Seal over entire deck and then install one layer Malarkey synthetic or Right Start UDL over the Arctic Seal per manufacturer’s instructions or a double layer of mechanically fastened underlayment. For slopes greater than 5:12 install a single of underlayment.
B. Valleys: Only those valley installations listed in the manufacturer's installation instructions shall be permitted.
    1. Regardless of valley method used, begin application by centering a full-width valley liner of self-adhering underlayment to the roof deck in all valleys.

C. Pipe Flashing: Apply ASTM D1970 underlayment around the pipe, sealing it to the field underlayment prior to installing the metal pipe flashing. Install and secure the metal jack so the bottom flange laps over onto the shingles. Side and top flanges shall have shingles lapping onto the flange. Shingles that lap onto flanges shall be sealed to the metal with asphalt roof cement conforming to ASTM D4586.
D. Perimeter Flashing: Use non-corrosive, 24-gauge sheet metal drip edge flashing with full cleat. Install prior to underlayment on eave edges of roof and then along rake edges over the ends of installed underlayment. Install drip edge with flanges large enough (recommend 4-inch flanges) to completely cover roof edges. Secure with galvanized (or compatible) roofing nails, centered on the top flange at 8 to 10 inches O.C. or according to local code requirements.

3.4 APPLICATION OF SHINGLES

A. Laminate Shingle Application; 8 inches Offset - Diagonal Pattern:
   1. Starter courses: Use Malarkey starter shingles; apply to eave and rake edges of roof.
   2. Cut 6 inches off the length of the first starter shingle and apply at a lower corner of roof. The starter course shall overhang the edge metal 1/4 to 3/4 inch. Fasten with four (4) nails, 1-1/2 inches to 3 inches up from the eave with one fastener 1 inch from each end and the remaining two evenly spaced on the same line as the end fasteners.
   3. Continue starter course across the roof with a full-length shingles, butting them loosely together to avoid buckling.
   4. First course: Start with a full shingle applied directly over the starter course at the same lower corner of the roof, and secure with fasteners.
   5. Second course: Cut 8 inches off one end of a full shingle and apply the remaining piece over the underlying, first course shingle. Align the bottom edge along a line level with the "sawtooth" overlay in the preceding course, exposing the first course 5-5/8 inches. Secure with fasteners.
   6. Succeeding Courses: Courses three through five are begun with partial shingles, each progressively 8 inches shorter, establishing the overall diagonal pattern or stair-step effect. (Pieces cut from shingles along one rake edge can be used to finish off courses on the opposite rake.)
   7. Apply a full shingle adjacent to each of the first five courses to extend the pattern. Butt the shingles loosely together to prevent buckling.
   8. Courses six through ten repeat the process beginning with a full shingle and repeating the 1-to-5 course cycle on up the roof.
   9. Strike a chalk line every six courses or so to ensure straight courses. Shingles may be laid from either lower corner of the roof. Start at the rake edge and follow layout and cutting instructions as required for proper application. Installation of shingles with a 4-inch offset is also acceptable. Offsets must be no less than 4 inches

B. Valley Installation:
   1. Valley Underlayment: Center a full-width strip of self-adhering underlayment (or equivalent conforming to ASTM D1970) in the valley and apply it directly to the roof deck. Ensure this valley liner is tight to the deck without bridging in the center of the valley. Apply the field underlayment across the valley liner and up the opposite side at least 12" or overlap the valley liner a minimum of 6 inches on each side. When fastening, none should be placed closer than 6 inches from the valley centerline. Valley to have a minimum of 9' wide ice and water underlayment.
   2. Closed-cut valleys: Start on the roof face that has less slope or height. Lay a first course of shingles along the eave, across the valley, and onto the adjoining roof a minimum 12 inches. Press shingles well into the break of the valley and fasten no closer than 6 inches from the valley

centerline. Add a fastener in the upper corner of the last shingle crossing the valley. Repeat this process with the first course of shingles on the intersecting roof. Note: The first course of shingles is the only one woven in this fashion. Return to the side of the roof you began with, and resume laying shingle courses across the valley and onto the adjoining roof. Complete installation of shingles on that roof face. Snap a chalk line 2 inches from the centerline of the valley on the unshingled side, and begin applying shingle courses there, trimming the ends diagonally to match the centerline angle. Crop the tops of each valley shingle at a 1 inch, 45 degree cut. Embed the ends of the cut valley shingles in a continuous 3 inch wide bead of mastic.

3. Open metal valleys: Install minimum 24 inches wide, 26-gauge, metal valley flashing over the valley liner, and secure with fasteners no more than 1 inch from the outside edges at a spacing of 10 inches to 12 inches on center. For additional sealing, a continuous, 6-inch wide stripping ply of self-adhering Arctic Seal may be applied over the fasteners. Overlaps in the metal should be a minimum of 4 inches and embedded in a continuous bead of sealant. Do not fasten the metal laps. Lay a first course of shingles along the eave of one roof area and over the valley, making sure the end of the last shingle meets or goes beyond the centerline of the metal valley. Complete the installation of shingles on that roof section. After all shingles have been installed in the valley, snap a chalk line 2 inches from the center of the metal valley, and trim shingles to the chalk line, matching the centerline angle. Crop the tops of each shingle course at a 1 inch, 45 degree cut. Embed the ends of the cut valley shingles in a continuous 3 inch wide bead of mastic. Install shingles on the adjoining roof as described above.

3.5 FASTENERS

A. Laminate Nailing Pattern: Nails must be placed within the nailing zone, 1 inch in from each end of the shingle and the remaining nails evenly spaced on the same line as the end nails. Fasteners shall be seated flush to the shingle surface and not overdriven to cut into shingles. When fastening, butt shingles loosely together to prevent buckling.

1. Fasteners per shingle: 4 (four).
2. Steep slope fastening (roof decks > 21:12): Six (6), including starter shingles, and hand-sealing underneath with ASTM D4586 adhesive.

END OF SECTION

SCHEDULE E

PELLSTON PUBLIC SCHOOLS
2025 PELLSTON MIDDLE/HIGH SCHOOL
FLAT ROOF SPECIFICATIONS

PART 1 GENERAL

1.1 SUMMARY

A. Membrane Type: Duro-Last 60-mil Membrane Duro Tuff
   1. Roll Width: 60" (Installed widths may vary)
   2. Membrane Color: White
   3. Attachment Type: Mechanically Fastened
   4. Fasteners: Duro-Last® HD Screw (#14)
   5. Plates: Duro-Last® Cleat Plate™

B. Insulation Layer 1 Type: Duro-Guard® ISO HD-MA (Glass Reinforced Facer)
   1. Board Application: Flat Stock
   2. Board Style: Layer Thickness
   3. Board Size: 4' x 8'
   4. Thickness: 0.5"
   5. Attachment Type: Mechanically Fastened
   6. Fasteners: Duro-Last® HD Screw (#14)
   7. Plates: Duro-Last® 3-Inch Metal Plate

C. Insulation Layer 2 Type: Duro-Guard® ISO II (Glass Reinforced Facer)
   1. Board Application: Flat Stock
   2. Board Style: Layer Thickness
   3. Board Size: 4' x 8'
   4. Thickness: 1.8"
   5. Attachment Type: Loose-Laid
   6. Loose-Laid: Loose-Laid

D. Existing Roof Type: EPDM
   1. Existing Roof Thickness: 3”
   2. Core Samples: Yes
   3. Attachment Type: Adhered

E. Deck Type: Steel Deck (22 ga)
F. Prefabricated flashings, corners, parapets, stacks, vents, and related details.
G. Fasteners, adhesives, and other accessories required for a complete roofing installation.
H. Traffic Protection.

1.2 REFERENCES

A. ASTM INTERNATIONAL (ASTM)
   1. (2019) Standard Test Methods for Coated Fabrics (D751)
   2. (2021) Standard Specification for Poly(Vinyl Chloride) Sheet Roofing (D4434/D4434M)
   3. (2022) Standard Specification for Faced Rigid Cellular Polyisocyanurate Thermal Insulation Board (C1289)
   4. (2020) Standard Test Methods for Fire Tests of Roof Coverings (E108)
   5. (2020) Standard Test Methods for Fire Tests of Building Construction and Materials (E119)

B. UL SOLUTIONS (UL)
   1. (2021) UL Roofing Systems (TGFU.R10128)

C. AMERICAN SOCIETY OF CIVIL ENGINEERS (ASCE)
   1. (2007) Minimum Design Loads for Buildings And Other Structures (ASCE Standard - ASCE/SEI 7-05)
   2. (2014) Minimum Design Loads for Buildings and Other Structures (ASCE Standard - ASCE/SEI 7-10)
   3. (2017) Minimum Design Loads and Associated Criteria for Buildings and Other Structures (ASCE Standard - ASCE/SEI 7-16)

D. NATIONAL ROOFING CONTRACTORS ASSOCIATION (NRCA)
   1. (2019) NRCA Roofing Manual - Membrane Systems

1.3 SYSTEM DESCRIPTION

A. General: Provide installed roofing membrane and base flashings that remain watertight; do not permit the passage of water; and resist specified uplift pressures, thermally induced movement, and exposure to weather without failure.

B. Material Compatibility: Provide roofing materials that are compatible with one another under conditions of service and application required, as demonstrated by roofing membrane manufacturer based on testing and field experience.

C. Physical Properties (must meet or exceed):
   1. Roof product must meet the requirements of Type III PVC sheet roofing as defined by ASTM D4434.
   2. Thickness: 60 mil, nominal, in accordance with ASTM D751.
   3. Thickness over Scrim: ≥ 28 mil in accordance with ASTM D7635.
   4. Breaking Strength: ≥ 438 lbf. (machine direction) and ≥ 390 lbf. (cross machine direction) in accordance with ASTM D751 Grab Method.
   5. Elongation at Break: ≥ 31% (machine direction) and ≥ 31% (cross machine direction) in accordance with ASTM D751 Grab Method.
   6. Seam Strength: ≥ 431 lbf. in accordance with ASTM D751 Grab Method.
   7. Tear Strength: ≥ 132 lbf. (machine direction) and ≥ 163 lbf. (cross machine direction) in accordance with ASTM D751 Procedure B.
   8. Low Temperature Bend: Pass at -40 °F in accordance with ASTM D2136.

9. Heat Aging: Pass after being conditioned for 56 days in oven maintained at 176 °F in accordance with ASTM D3045.
10. Accelerated Aging: Pass after 10,000 hours of total test time in accordance with ASTM G155.
11. Dimensional Stability: Change of -0.45% (machine direction) and -0.20% (cross machine direction) in accordance with ASTM 1204.
12. Water Absorption: < 2.6% at 158 °F for 168 hours in accordance with ASTM D570.
13. Static Puncture Resistance: ≥ 56 lbf. in accordance with ASTM D5602.
14. Dynamic Puncture Resistance: ≥ 14.7 ft-lbf. in accordance with ASTM D5635.

D. Cool Roof Rating Council (CRRC) (Membrane must be listed on the CRRC website):
1. Solar Reflectance (Initial): ≥ 86%
2. Solar Reflectance (3-Year Aged): ≥ 74%
3. Thermal Emittance (Initial): ≥ 89%
4. Thermal Emittance (3-Year Aged): ≥ 89%
5. Solar Reflectance Index (SRI) (Initial): ≥ 108%
6. Solar Reflectance Index (SRI) (3-Year Aged): ≥ 91%

E. Insulation:
1. General Requirements
   a. Install using a minimum of two layers.
   b. Configuration as indicated on the drawings.
2. Duro-Guard® ISO HD-MA (Glass Reinforced Facer)
   a. Layer Thickness: 0.5"
3. Duro-Guard® ISO II (Glass Reinforced Facer)
   a. Layer Thickness: 1.75”

1.4 SUBMITTALS

A. Product data sheets to be used, with the following information included:
1. Preparation instructions and recommendations
2. Storage and handling requirements and recommendations
3. Installation methods
4. Maintenance requirements

B. Sustainability Documentation:
1. NSF/ANSI Standard 347 Certificate
2. Type III product-specific Environmental Product Declaration

C. Shop Drawings: Indicate insulation pattern, overall membrane layout, field seam locations, joint or termination detail conditions, and location of fasteners.

D. Provide verification samples for each product specified (two samples representing each product, color and finish):
1. 4-inch by 6-inch sample of roofing membrane, of color specified.
2. 4-inch by 6-inch sample of walkway pad.

3. Termination bar, fascia bar with cover, drip edge, and gravel stop if to be used.
4. Each fastener type to be used for installing membrane, insulation/recover board, termination bar and edge details.

E. Installer Certification: Certification from the roofing system manufacturer that Installer is approved, authorized, or licensed by manufacturer to install roofing system.
F. Manufacturer's warranties.

1.5 QUALITY ASSURANCE

A. Perform work in accordance with manufacturer's installation instructions.
B. Manufacturer Qualifications: A manufacturer specializing in the production of PVC membranes systems and utilizing a Quality Control Manual during the production of the membrane roofing system that has been approved by and is inspected by Underwriters Laboratories.
C. Installer Qualifications: Company specializing in installation of roofing systems similar to those specified in this project and approved by the roofing system manufacturer.
D. Source Limitations: Obtain components for membrane roofing system from roofing membrane manufacturer.
E. There shall be no deviations from the roof membrane manufacturer's specifications or the approved shop drawings without the prior written approval of the manufacturer.

1.6 REGULATORY REQUIREMENTS

A. Conform to applicable code for roof assembly fire hazard, wind uplift, and cool roof requirements.
B. Fire Hazard Requirements: Provide membrane roofing materials with the following fire-test-response characteristics. Materials shall be identified with appropriate markings of applicable testing and inspecting agency.
   1. Class A
   2. Fire-test-response standard: Comply with ASTM E108 for application and roof slopes indicated.
   3. Fire-Resistance Ratings: Comply with ASTM E119 for fire-resistance-rated roof assemblies of which roofing system is a part.
   4. Conform to applicable code for roof assembly fire hazard requirements.
C. Wind Uplift Requirements: Roofing System Design: Provide a roofing system designed to resist uplift pressures calculated according to the current edition of ASCE/SEI 7, Minimum Design Loads and Associated Criteria for Buildings and Other Structures.

1.7 PRE-INSTALLATION MEETING

A. Convene meeting not less than one week before starting work of this section.
B. Review methods and procedures related to roof deck construction and roofing system including, but not limited to, the following:

1. Meet with Owner, Architect, Owner's insurer if applicable, testing and inspecting agency representative, roofing installer, roofing system manufacturer's representative, deck installer, and installers whose work interfaces with or affects roofing including installers of roof accessories and roof-mounted equipment.
2. Review and finalize construction schedule and verify availability of materials, installer's personnel, equipment, and facilities needed to make progress and avoid delays.
3. Examine deck substrate conditions and finishes for compliance with requirements, including flatness and fastening.
4. Review structural loading limitations of roof deck during and after roofing.
5. Review base flashings, special roofing details, roof drainage, roof penetrations, equipment curbs, and condition of other construction that will affect roofing system.
6. Review governing regulations and requirements for insurance and certificates if applicable.
7. Review temporary protection requirements for roofing system during and after installation.
8. Review roof observation and repair procedures after roofing installation.
9. Review existing roof manufacturer's recycling program and return roofing system to the manufacturer for recycling.

1.8 DELIVERY, STORAGE AND HANDLING

A. Deliver roofing materials to Project site in original containers with seals unbroken and labeled with manufacturer's name, product brand name and type, date of manufacture, and directions for storing and mixing with other components.
B. Store liquid materials in their original undamaged containers in a clean, dry, protected location and within the temperature range required by roofing system manufacturer. Protect stored liquid material from direct sunlight.
C. Protect roof insulation materials from physical damage and from deterioration by sunlight, moisture, soiling, and other sources. Store in a dry location. Comply with insulation manufacturer's written instructions for handling, storing, and protecting during installation.
D. Store roof materials and place equipment in a manner to avoid permanent deflection of deck.
E. Store and dispose of solvent-based materials, and materials used with solvent-based materials, in accordance with requirements of local authorities having jurisdiction.

1.9 WARRANTY

A. Contractor's Warranty: The contractor shall warrant the roof application with respect to workmanship and proper application for two (2) years from the effective date of the warranty issued by the manufacturer.
B. Manufacturer's Warranty: Must be no-dollar limit type and provide for completion of repairs, replacement of membrane or total replacement of the

roofing system at the then-current material and labor prices throughout the life of the warranty. In addition the warranty must meet the following criteria:

1. Warranty Period: 25 years from date issued by the manufacturer.
2. Must provide adequate or sufficient drainage to prevent damage and/or leaks resulting from ponding water.
3. Issued direct from and serviced by the roof membrane manufacturer.
4. Transferable for the full term of the warranty.

PART 2 PRODUCTS

2.1 MANUFACTURER

A. Manufacturer: Duro-Last Roofing, which is located at: 525 Morley Drive, Saginaw, MI 48601. Telephone: 800-248-0280.

B. All roofing system components to be provided or approved by Duro-Last Roofing, Inc.

C. Substitutions: Not permitted.

2.2 ROOFING SYSTEM COMPONENTS

A. Roofing Membrane:

1. Properties:
    a. Type: Duro-Last 60-mil Membrane Duro Tuff
    b. Roll Width: 30”, 60” & 120”(Installed widths may vary)
    c. Membrane Color: White
    d. Attachment Type: Mechanically Fastened
    e. Fasteners: Duro-Last® HD Screw (#14)
    f. Plates: Duro-Last® Cleat Plate™

2. Features:
    a. ASTM D4434, Type III
    b. Fabric-reinforced, PVC, NSF/ANSI 347 Gol, and a product-specific thidrd-party verified Environmental Product Declaration.
    c. Minimum recycle content 7% post-industrial and 0% post-consumer.
    d. Recycled at end of life into resilient flooring or concrete expansion joints.

B. Insulation:

1. General Requirements
    a. Provide preformed roof insulation boards that comply with requirements and referenced standards, as selected from manufacturer's standard sizes.
    b. Provide preformed saddles, crickets, and other insulation shapes where indicated for sloping to drain. Fabricate to slopes indicated.
    c. Provide roof insulation accessories approved by the roof membrane manufacturer and as recommended by insulation manufacturer for the intended use.

2. Component:
    a. Properties:
        1. Type: Duro-Guard® ISO HD-MA (Glass Reinforced Facer)
        2. Board Application: Flat Stock
        3. Size: 4' x 8'
        4. Method: Layer Thickness: 0.5"
        5. Attachment Type: Mechanically Fastened
        6. Fasteners: Duro-Last® HD Screw (#14)
        7. Plates: Duro-Last® 3-Inch Metal Plate
    b. Features:
        1. 1/2-inch thick high density polyisocyanurate insulation panel manufactured on-line with an integrally laminated, fiber-reinforced facer
        2. Complying with ASTM C1289, Type II, felt or glass-fiber mat facer on both major surfaces
        3. Provide Duro-Last factory-coated steel fasteners and metal or plastic plates meeting corrosion-resistance provisions in FMG 4470, designed for fastening insulation and/or insulation cover boards in conformance to specified design requirements.
3. Component:
    a. Properties:
        1. Type: Duro-Guard® ISO II (Glass Reinforced Facer)
        2. Board Application: Flat Stock
        3. Size: 4' x 8'
        4. Method: Layer Thickness: 1.75”
        5. Attachment Type: Loose-Laid
    b. Features:
        1. Closed-cell polyisocyanurate foam core insulation board.
        2. Complying with ASTM C1289, Type II, felt or glass-fiber mat facer on both major surfaces.
        3. Provide Duro-Last factory-coated steel fasteners and metal or plastic plates meeting corrosion-resistance provisions in FMG 4470, designed for fastening insulation and/or insulation cover boards in conformance to specified design requirements.

C. Existing Roof:
    1. Properties:
        a. Type: EPDM
        b. Core Samples: Yes
        c. Attachment Type: Adhered

D. Deck Type:
    1. Properties:

a. Type: Steel Deck (22 ga)

E. Accessory Materials: Provide accessory materials supplied by or approved for use by Duro-Last Roofing, Inc.:
1. Sheet Flashing: Manufacturer's standard reinforced PVC sheet flashing.
2. Prefab Flashings: Manufactured using standard reinforced PVC membrane.
   a. Duro-Last® Inside and Outside Corners
   b. Duro-Last® Stack Flashing
   c. Duro-Last® Curb Flashing
3. Fasteners: Factory-coated steel fasteners meeting corrosion-resistance provisions in FMG 4470, designed for fastening membrane and insulation to substrate. Supplied by Duro-Last Roofing, Inc.
   a. Duro-Last® HD Screw (#14)
4. Plates: Metal or plastic plates meeting corrosion-resistance provisions in FMG 4470, designed for fastening membrane and insulation to substrate. Supplied by Duro-Last Roofing, Inc.
   a. Duro-Last® Cleat Plate™
   b. Duro-Last® 3-Inch Metal Plate
5. Metal Termination: Supplied by Duro-Last Roofing, Inc.
   a. All-Term™
      i. ANSI/SPRI ES-1 Compliant with 4" through 13" base and cover

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify that the surfaces and site conditions are ready to receive work.
B. Verify that the deck is supported and secured.
C. Verify that the deck is clean and smooth, free of depressions, waves, or projections, and properly sloped to drains, valleys, eaves, scuppers or gutters.
D. Verify that the deck surfaces are dry and free of standing water, ice or snow.
E. Verify that all roof openings or penetrations through the roof are solidly set.
F. If substrate preparation is the responsibility of another contractor, notify Architect of unsatisfactory preparation before proceeding.
G. Prior to re-covering an existing roofing system, conduct an inspection of the roof system accompanied by a representative of the membrane manufacturer or an authorized contractor.
1. Determine required fastener type, length, and spacing.
2. Verify that moisture content of existing roofing is within acceptable limits.
3. Identify damaged areas requiring repair before installation of new roofing.
4. Conduct core cuts as required to verify information required.

3.2 PREPARATION

A. Clean surfaces thoroughly prior to installation.
B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.
C. Surfaces shall be clean, smooth, free of fins, sharp edges, loose and foreign material, oil, grease, and bitumen.
D. Re-Roofing Over Existing Single-Ply System:
    1. Remove all loose or high fasteners.
    2. Membrane contaminated with bitumen must be immediately cleaned. If cleaning does not remove the bitumen, the contaminated membrane must be replaced, or covered with both a slip sheet and new membrane.
    3. Blisters, buckles and other surface irregularities must be repaired or removed. If the damage is extensive, an approved rigid board insulation or a cover board must be installed.
    4. When the system is smooth or granular-surfaced, any approved slip sheet, insulation or cover board may be used to provide separation of the roof system and new membrane. Duro-Guard fan folds may be used if the surface is pea gravel or crushed stone which is ¼ to 3/8 inch in size and has been leveled and maintained at 4 psf. For larger rock/gravel, utilize an approved rigid insulation or cover board.
    5. If rock/gravel surfacing is removed, an approved fan fold, rigid insulation or cover board must be used. If embedded rock/gravel remains that protrudes out of the deck more than ¼ inch, do not use fan fold board. Instead, use an approved cover board or rigid insulation.
    6. When installing polystyrene insulation over coal tar pitch or asphalt-based roof systems, a slip sheet must be used between the insulation and existing roof.

3.3 INSTALLATION

A. Insulation:
    1. General Requirements
        a. Install insulation in accordance with the roof manufacturer’s requirements.
        b. Insulation shall be adequately supported to sustain normal foot traffic without damage.
        c. Where field trimmed, insulation shall be fitted tightly around roof protrusions with no gaps greater than ¼ inch.
        d. Tapered insulation boards shall be installed in accordance with the insulation manufacturer’s shop drawings.
        e. No more insulation shall be applied than can be covered with the roof membrane by the end of the day or the onset of inclement weather.
        f. If more than one layer of insulation is used, all joints between subsequent layers shall be offset by at least 6 inches.

2. Duro-Guard® ISO HD-MA (Glass Reinforced Facer)
    a. Use only fasteners, stress plates and fastening patterns accepted for use by the roof manufacturer. Fastening patterns must meet applicable design requirements.
    b. Install fasteners in accordance with the roof manufacturer's requirements. Fasteners that are improperly installed must be replaced or corrected.
    c. Install all layers in parallel courses with end joints staggered 50% and adjacent boards butted together with no gaps greater than ¼ inch.
3. Duro-Guard® ISO II (Glass Reinforced Facer)
    a. Loosely lay insulation boards in parallel courses with end joints staggered 50% and adjacent boards butted together with no gaps greater than ¼ inch.

B. Roofing Membrane:
1. General Requirements
    a. Install membrane in accordance with the roof manufacturer's requirements.
    b. Cut membrane to fit neatly around all penetrations and roof projections.
    c. Duro-Last 60-mil Membrane Duro Tuff
    d. Use only fasteners, stress plates and fastening patterns accepted for use by the roof manufacturer. Fastening patterns must meet applicable design requirements.
    e. Install fasteners in accordance with the roof manufacturer's requirements. Fasteners that are improperly installed must be replaced or corrected.
    f. Mechanically fasten membrane to the structural deck utilizing fasteners and fastening patterns in accordance with the roof manufacturer's requirements.

C. Weld overlapping sheets together using hot air. Minimum weld width is 1-1/2 inches.

D. Check field welded seams for continuity and integrity and repair all imperfections by the end of each work day.

E. Flashings: Complete all flashings and terminations as indicated on the drawings and in accordance with the membrane manufacturer's requirements.
1. Provide securement at all membrane terminations at the perimeter of each roof level, roof section, curb flashing, skylight, expansion joint, interior wall, penthouse, and other similar condition.
    a. Do not apply flashing over existing thru-wall flashings or weep holes.
    b. Secure flashing on a vertical surface before the seam between the flashing and the main roof sheet is completed.
    c. Extend flashing membrane a minimum of 6 inches (152 mm) onto the main roof sheet beyond the mechanical securement.

d. Use care to ensure that the flashing does not bridge locations where there is a change in direction (e.g. where the parapet meets the roof deck).

2. Penetrations:
   a. Flash all pipes, supports, soil stacks, cold vents, and other penetrations passing through the roofing membrane as indicated on the Drawings and in accordance with the membrane manufacturer's requirements.
   b. Utilize custom prefabricated flashings supplied by the membrane manufacturer.
   c. Existing Flashings: Remove when necessary to allow new flashing to terminate directly to the penetration.

3. Pipe Clusters and Unusual Shapes:
   a. Clusters of pipes or other penetrations which cannot be sealed with prefabricated membrane flashings shall be sealed by surrounding them with a prefabricated vinyl-coated metal pitch pan and sealant supplied by the membrane manufacturer.
   b. Vinyl-coated metal pitch pans shall be installed, flashed and filled with sealant in accordance with the membrane manufacturer's requirements.
   c. Pitch pans shall not be used where prefabricated or field fabricated flashings are possible.

F. Roof Drains: Coordinate installation of roof drains and vents.
1. Drain Assemblies with Clamping Rings:
   a. Remove existing roofing system materials from drain bowl and clamping ring.
   b. The membrane must extend beyond the inside of the clamping ring.
   c. Use a manufacturer supplied or approved sealant (1/2 tube minimum) between the membrane and drain bowl assembly.
   d. After the membrane is properly installed onto the bowl and the clamping ring set in place, all bolts securing the ring must be installed to provide constant, even compression on the sealant. If bolts are broken or missing, replacements must be installed.

2. Drain Boots:
   a. Remove existing flashing and asphalt at existing drains in preparation for sealant and membrane.
   b. Use a manufacturer supplied or approved sealant (1/2 tube minimum) to the outside of the drain boot and insert it into the drain.
   c. Fasten membrane around the perimeter of the drain with the same fastening pattern as the field membrane, no less than 1 fastener per drain.
   d. Install a pair of composite drain rings (CDRs) to compress the boot to the pipe. Ensure the CDR openings face in opposite directions.

e. Secure the manufacturer's drain guard over the opening by heat welding the attachment tabs to the roof membrane.

G. Edge Details:
1. Provide edge details as indicated on the Drawings. Install in accordance with the membrane manufacturer’s requirements.
2. Join individual sections in accordance with the membrane manufacturer’s requirements.
3. Coordinate installation of metal flashing and counter flashing.
4. Manufactured Roof Specialties: Coordinate installation of copings, counter flashing systems, gutters, downspouts, and roof expansion assemblies.

H. Walkways:
1. Install walkways in accordance with the membrane manufacturer’s requirements.
2. Provide walkways where indicated on the Drawings.
3. Install walkway pads at roof hatches, access doors, rooftop ladders and all other traffic concentration points regardless of traffic frequency. Provided in areas receiving regular traffic to service rooftop units or where a passageway over the surface is required.
4. Do not install walkways over flashings or field seams until manufacturer’s warranty inspection has been completed.

I. Water Cut-Offs:
1. Provide water cut-offs on a daily basis at the completion of work and at the onset of inclement weather.
2. Provide water cut-offs to ensure that water does not flow beneath the completed sections of the new roofing system.
3. Remove water cut-offs prior to the resumption of work.
4. The integrity of the water cut-off is the sole responsibility of the roofing contractor.
5. Any membrane contaminated by the cut-off material shall be cleaned or removed.

3.4 FIELD QUALITY CONTROL

A. The membrane manufacturer’s representative shall provide a comprehensive final inspection after completion of the roof system. All application errors shall be addressed and final punch list completed.

3.5 PROTECTION

A. Protect installed roofing products from construction operations until completion of project.
B. Where traffic is anticipated over completed roofing membrane, protect from damage using durable materials that are compatible with membrane.
C. Repair or replace damaged products after work is completed.

END OF SECTION

SCHEDULE F
PELLSTON PUBLIC SCHOOLS
2025 PELLSTON SCHOOLS
METAL SIDING SPECIFICATIONS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Exposed fastener metal wall panels, with related metal wall trim and accessories.

1.2 REFERENCES

A. American Architectural Manufacturers Association (AAMA): aamet.org
   1. AAMA 621 – Voluntary specifications for High Performance Organic Coatings on Coil Coated Architectural Hot Dipped Galvanized (HDG) & Zinc-Aluminum Coated Steel Substrates.
   2. AAMA 809.2 – Voluntary Specification Non-Drying Sealants.

B. American Society of Civil Engineers (ASCE): www.asce.org/codes-standards
   1. ASCE 7 - Minimum Design Loads for Buildings and Other Structures

C. ASTM International (ASTM): www.astm.org:

   1. ASTM A 653 – Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process
   2. ASTM A 755 – Specification for Steel Sheet, Metallic Coated by the Hot-Dip Process and Prepainted by the Coil-Coating Process for Exterior Exposed Building Products.
   3. ASTM A 792/A 792/M – Standard Specification for Steel Sheetm 55% Aluminum-Zinc Alloy-Coated by the Hot-Dip Process.
   4. ASTM C 645 – Specification for Nonstructural Steel Framing Members.
   5. ASTM C 754 – Specification for Installation of steel Framing Members to Receive Screw-Attached Gypsum Panel Products.
   6. ASTM C 920 – Specification for Elastomeric Joint Sealants.
   7. ASTM D 1003 – Standard Test Method for Haze and Luminous Transmittance of Transparent Plastics.
   8. ASTM D 2244 – Test Method for Calculation of Color Differences from Instrumentally Measured Color Coordinates.
   9, ASTM D 4214 – Test Methods for evaluation Degree of Chalking of Exterior Paint Films.
   10. ASTM E 283 – Test Method for Determining Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen.

11. ASTM E 331 – Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Uniform Static Air Pressure Difference.
12. ASTM E 1646 – Standard Test Method for Water Penetration of Exterior Metal Roof Panel Systems by Uniform Static Air Pressure Difference.

D. International Accreditation Service (IAS)
1. IAS AC 472 – Accreditation Criteria for Inspection Programs for Manufacturers of Metal Building Systems, Part B.

E. US Green Building Council (USGBC): www.usgbc.org:
1. Leadership in Energy and Environmental Design (LEED) Green Building Rating Systems.

1.4 ADMINISTRATIVE REQUIREMENTS

A. Preinstallation Meeting: Prior to erection of framing, conduct pre-installation meeting at site attended by Owner and manufacturer's technical representative, inspection agency and related trade contractors.
1. Coordinate Building framing in relation to metal panel system.
2. Coordinate openings and penetration of metal panel system.

1.5 QUALITY ASSURANCE

A. Manufacturer/Source: Provide metal panel assembly and accessories from a single manufacturer providing fixed-base roll forming, and accredited under IAS AC 472 Part B.

B. Manufacturer Qualifications: Approved manufacturer listed in this Section with minimum five years experience in manufacture of similar products in successful use in similar applications.
1. Approval of Comparable Products: Submit the following in accordance with project substitution requirements, within time allowed for substitution review:
a. Product data, including certified independent test data indication compliance with requirements.
b. Samples of each component.
c. Sample submittal from similar project.
d. Project references: Minimum of five installations not less that five years old, with Owner and Architect contact information.
e. Sample warranty.
f. IAS AC 472 certificate.
2. Substitutions following award of contract are not allowed except as stipulated in General Requirements.
3. Approved manufacturers must meet separate requirements of Submittals Article.

C. Installer's Qualifications: Experienced Installer with minimum of five years experience with successfully completed project of a similar nature and scope.

1. Installer's Field Supervisor: Experienced mechanic, able to communicate with Owner and installers, supervising work on site whenever work is underway.

1.6 ACTION SUBMITTALS

A. Product Data: Manufacturer's data sheets for specified products.
B. Shop Drawings: Show layouts of metal panels. Include details of each condition of installation panel profiles, and attachment to building. Provide details at a minimum scale 1-1/2 inch per foot on edge conditions, joints, fastener and sealant placement, flashings, openings, penetrations, and special details. Make distinctions between factory and field assembled work.
   1. Indicate points of supporting structure that must coordinate with metal panel system installation.
   2. Include data indication compliance with performance requirements.
   3. Include structural data indication compliance with requirements of authorities having jurisdiction.
C. Samples for Initial Selection: For each exposed product specified including sealants. Provide representative color chars of manufacturer's full range of colors.
D. Samples for Verification: Provide 12 inch long section of each metal panel profile. Provide color chip verifying color selection.

1.7 INFORMATIONAL SUBMITTALS

A. Product Test Reports: Indicating compliance of products with requirements, witnessed by a professional engineer.
B. Qualification Information: For Installer firm and Installer's field supervisor.
C. IAS Accreditation Certificate: Indicating that manufacturer is accredited under provisions of IAS AC 472.
D. Manufacturer's Warranty: Sample copy of manufacturer's standard warranty.

1.8 CLOSEOUT SUBMITTALS

A. Maintenance data.
B. Manufacturer's Warranty: Executed copy of manufacturer's standard warranty.

1.9 DELIVERY, STORAGE, AND HANDLING

A. Protect products of metal panel system during shipping, handling and storage to prevent staining, denting, deterioration of components or other damage. Protect panels and trim bundles during shipping.
   1. Deliver, unload, store, and erect metal panel system and accessory items without misshaping panels or exposing panels to surface damage from weather or construction operations,
   2. Store in accordance with Manufacturer's written instructions Provide wood collars for stacking and handling in the field.

1.10 WARRANTY

A. Special Manufacturer's Warranty: On manufacturer's standard form, in which manufacturer agrees to repair or replace metal panel assemblies that fail in materials and workmanship within one tear from date of Substantial Completion.

B. Special Panel Finish Warranty: On Manufacturer's standard form, in which Manufacturer agrees to repair or replace metal panels that evidence deterioration of factory-applied finish within 25 years from date of Substantial Completion, including:

1. Fluoropolymer Two-Coat System
   a. Color fading in excess of 10 Hunter units per ASTM D 2244.
   b. Chalking in excess of 6 rating per ASTM D 4214.
   c. Failure of adhesion, peeling, checking, or cracking.

2. Modified Silicone-Polyester Two Coat System:
   a. Color fading in excess of 7 Hunter units per ASTM D 2244, for vertical applications.
   b. Chalking in excess of No. 7 rating per ASTM D 4214, for vertical applications.
   c. Failure of adhesion, peeling, checking or cracking.

PART 2 – PRODUCTS

2.1 MANUFACTURER

A. Basis of Design Manufacturer: Exceptional Metals' Metal Roof and Wall Systems, Division of Duro-Last, Inc. Exceptional Metals, Saginaw, MI 48601, (800) 248-0280, Email: info@EXCEPTIONALMETALS.com; Web: www.exceptionalmetals.com.

1. Provide basis of design product or comparable product approved by owner prior to bid.

2.2 PERFORMANCE REQUIREMENTS

A. General: Provide metal wall panel system meeting performance requirements as determined by application of specified tests by a qualified testing facility on manufacturer's standard assemblies.

B. Thermal Movements: Allow for thermal movements from variations in both ambient and internal temperatures. Accommodate movement of support structure caused by thermal expansion and contraction. Allow for deflection and design for thermal stresses caused by temperature differences from on side of the panel to the other.

C. Structural Performance: Provide metal panel assemblies capable of withstanding the effects of indicated loads and stresses with limits and under conditions indicated:

1. Wind Loads: Determine loads based on uniform pressure, importance factor, exposure category, and basic wind speed indicated on drawings.

2. Deflection Limits: Withstand inward and outward wind-load design pressures in accordance with applicable building code with maximum deflection of 1/240 of the span with no evidence of failure.
3. Seismic Performance: Comply with ASCE 7, Section 9, "Earthquake Loads."

G. Air Infiltration: ASTM E 1680: Maximum 0.006 cfm/sq. ft. at 6.24 lbf/sq. ft. static-air-pressure difference.

H. Water Penetration: ASTM E 1646: No uncontrolled water penetration at a static pressure of 20 lbf/sq. ft.

2.3 MATERIALS

A. Aluminum-Zinc Alloy-Coated Steel Sheet: ASTM A 792/A 792M, structural quality, Grade 50, Coating Class AZ50 (Grade 340, Coating Class AZM 150), pre-painted by the coil-coating process per ASTM A 755/A 755M.

B. Aluminum-Zinc Alloy-Coated Steel Sheet: ASTM A 792/A 792M, structural quality, Grade 50, Coating Class AZ55 (Grade 340, Coating Class AZM165) unpainted Galvalume Plus coating.

2.4 METAL WALL PANELS

A. Large Tapered-Rib-Profile, Exposed Fastener Metal Panels: Structural metal panel consisting of formed metal sheet with trapezoidal major ribs with intermediate stiffening ribs symmetrically placed between major ribs, installed by lapping edges of adjacent panels.
1. Basis of Design: EXCEPTIONAL Metals, EM PBR Panel, www.ExceptionalMetals.com
2. Coverage width: 36 inches.
3. Major Rib Spacing: 12 inches on center.
4. Rib Height: 1-1/4 inch.
5. Nominal Coated Thickness: 26 gage.
6. Panel Surface: Smooth.
7. Exterior Finish: Modified silicone-polyester two-coat system.
8. Color: As selected by Owner from manufacturer's standard colors.

2.5 METAL PANEL ACCESSORIES

A. General: Provide complete metal panel assembly incorporation base, corner, and opening trims and miscellaneous flashings, in manufacturer's standard profiles. Provide required fasteners, closure strips, support plates, and sealants as indicated in manufacturer's written instructions.

B. Flashing and Trim: Match material, thickness and finish of metal panel face sheet.

C. Panel Fasteners: Self-tapping screws and other acceptable fasteners recommended by metal panel manufacturer.
1. Exposed Fasteners: Long life fasteners with EPDM or neoprene gaskets, with heads matching color of metal panels by means of factory-applied coating.

D. Joint Sealers: Manufacturer's standard or recommended liquid and performed sealers and tapes, and as follows:
   1. Tape Sealers: Manufacturer's standard no-curing butyl tape, AAMA 809.2.

E. Steel Sheet Miscellaneous Framing Components: ASTM C 645, with ASTM A 653/A 653/M, G60 (Z180) hot-dip galvanized coating.

2.6

A. General: Provide factory fabricated and finished metal panels and accessories meeting performance requirements, indicated profiles and structural requirements.
B. Panel Lengths: Form panels in continuous lengths for full length of detailed runs, except where otherwise indicated on approved shop drawings.
C. Sheet Metal Flashing and Trim: Fabricate flashing and trim to comply with manufacturer's written instructions approved shop drawings and project drawings. Form from materials matching metal panel substrate and finish.

2.7 FINISHES

A. Finishes, General: Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.
B. Modified Silicone-Polyester Two-Coat System: 0.20-0.25 mil primer with 0.7-0.8 mil color coat, meeting solar reflectance index requirements.
   1. Basis of Design: EXCEPTIONAL Metals, Signature 200.

C. Fluoropolymer Two-Coat Metallic System: 0.2-0.3 mil primer with 0.7-0.8 mil 70 percent PVDF metallic fluoropolymer color coat, AAMA 621, meeting solar reflectance index requirements.
   1. Basis of Design: EXCEPTIONAL Metals, Signature 300 Metallic.

D. Interior Finish: 0.5 mil total dry film thickness consisting of primer coat and wash coat of manufacturers standard light-colored acrylic or polyester backer finish.

PART 3 – EXECUTION

3.1 EXAMINATION

A. Examine metal panel system substrate and supports with Installer present. Inspect for erection tolerances and other conditions that would adversely affect installation of metal panel installation.
   1. Inspect metal panel support substrate to determine if support components are installed as indicated on approved shop drawings. Confirm presence of acceptable supports at recommended spacing to match installation requirements of metal panels.
   2. Panel Support Tolerances: Confirm that panel supports are within tolerances acceptable to metal panel system manufacturer but not greater than the following:
      a. ¼ inch in 20 foot in any direction.

B. Correct out-of-tolerance work and other deficient conditions prior to proceeding with metal panel system installation.

3.2 PREPARATION

A. Miscellaneous Supports: Install sub-framing, girts, furring, and other miscellaneous panel support members according to ASTM C 754 and manufacturer's written instructions.
B. Flashings: Install flashing to cover exposed underlayment

3.3 METAL PANEL INSTALLATION

A. Exposed Fastener Metal Wall Panels: Install weathertight metal panel system in accordance with manufacturer's written instructions, approved shop drawings, and project drawings. Install metal panels in orientation, sizes, and locations indicated, free of waves, warps, buckles, fastening stresses, and distortions. Anchor panels and other components securely in place. Provide for thermal and structural movement.
B. Panel Sealants: Install manufacturer's recommended tape sealant at panel sidelaps and endlaps.
C. Panel fastening: Attach panels to supports using screws, fasteners, and sealants recommended by manufacturer and indicated on approved shop drawings.
    1. Fasten metal panels to supports at each location indicated on approved shop drawings with spacing and fasteners recommended by manufacturer.
    2. Provide weatherproof jacks for pipe and conduit penetrating metal panels of types recommended by manufacturer.
    3. Dissimilar Materials: Where elements of metal panel system with come into contact with dissimilar materials, treat faces and edges in contact with dissimilar materials as recommended by manufacturer.

3.4 ACCESSORY INSTALLATION

A. General: Install metal panel trim, flashing, and accessories using recommended fasteners and joint sealers, with positive anchorage to building, and with weather tight mounting. Coordinate installation with flashings and other components.
    1. Install components required for a complete metal panel assembly, including trim, copings, flashings, sealants, closure strips, and similar items.
    2. Comply with details of assemblies utilized to establish compliance with performance requirements and manufacturer's written installation instructions.
    3. Set units true to line and level as indicated. Install work with laps, joints, and seams that will be permanently weather resistant.

B. Joint Sealers: Install joint sealers were indicated and where required for weathertight performance of metal panel assemblies, in accordance with manufacturer's written instructions.
    1. Prepare joints and apply sealants per requirements

3.5 CLEANING AND PROTECTION

A. Remove temporary protective films immediately in accordance with metal panel manufacturer's instructions. Clean finished surfaces as recommended by metal panel manufacturer.

B. Replace damaged panels and accessories that cannot be repaired to the satisfaction of the Owner.

END OF SECTION

SCHEDULE G

PELLSTON PUBLIC SCHOOLS
2025 PELLSTON SCHOOLS ROOF DWGS & DTLS

Part 1 – GENERAL

1.1 See attached Roof Plans.

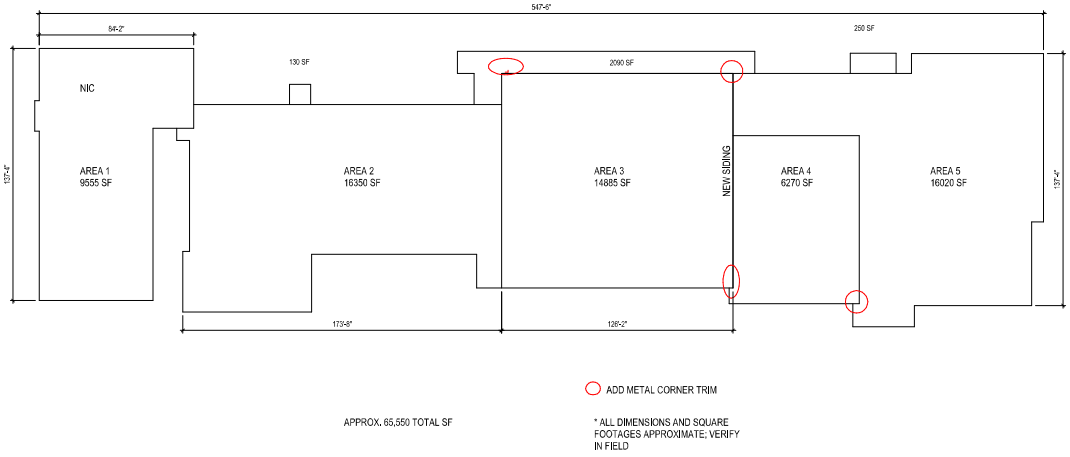
1.2 Flat Roof Details
- 1020 Insulation and Cover Board Fastening
- 2021 Roof Drain with Drain Guard
- 3110 Two Piece Compression Edge
- 3120 Vinyl Coated Metal Drip Edge
- 4010 Rectangular Penetration
- 4070 Round Penetration
- 4080 Heat Stack
- 5020 Two Way Vent
- 6020 Inside Wall Termination

1.3 Elementary School Shingle Roof Details
Drip Edge Detail

1.4 Middle/High School Metal Panel Details

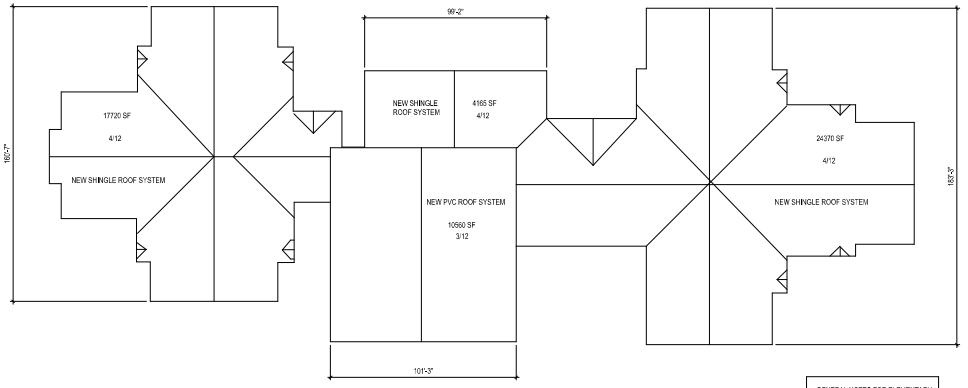
1.5 Elementary School Wind Calcs and Fastening Pattern

1.6 Middle/High School Wind Calcs and Fastening Pattern



2 Middle/High School Roof Plan

A2.3 1/32" = 1'-0"



GENERAL NOTES FOR ELEMENTARY

- 9' ROW OF ICE AND WATER MEMBRANE AT ALL EAVES
- 9' ROW OF ICE AND WATER MEMBRANE AT ALL VALLEYS
- 3' ROW OF ICE AND WATER MEMBRANE AT ALL RAKE EDGES

1 Elementary School Roof Plan

A2.3 1/32" = 1'-0"

4/1/2025 2:51:53 PM

SEAL OF ARCHITECT

ARCHITECT
SEDGEWICK + FERWEDA ARCHITECTS
410 East Court Street Flint, MI 48503
810-238-9647 | www.sfarch.us
Good clients + Good design + Great architecture

REVISIONS

Date	Description

Project
Pellston Schools Roof Renovations
172 Park St, Pellston, MI 49769

Drawing
Roof Plan

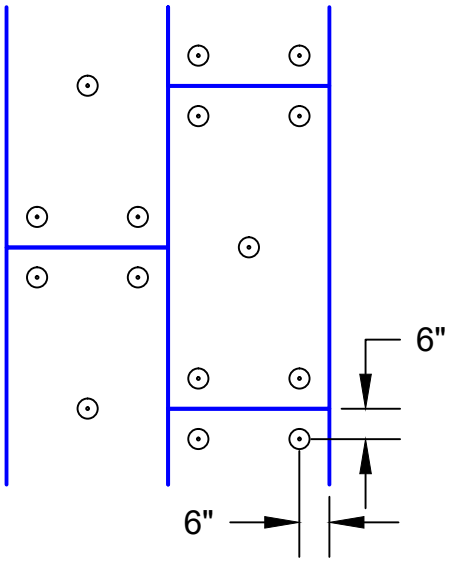
DRAWN BY: TAG
CHECKED BY: JSF

PROJECT NUMBER 25-015
DATE 04/01/2025
SCALE 1/32" = 1'-0"
SHEET NUMBER
A2.3

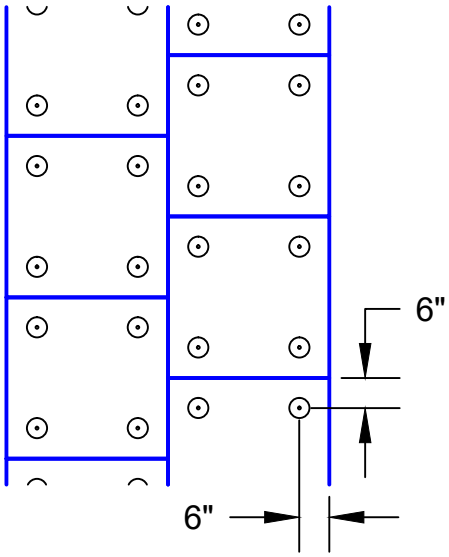
DURO-LAST
THE WORLD'S BEST ROOF

DETAIL 1020

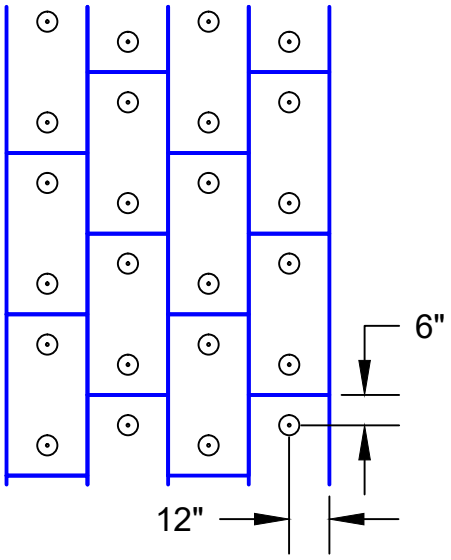
4 □8 ft
Approved Insulation



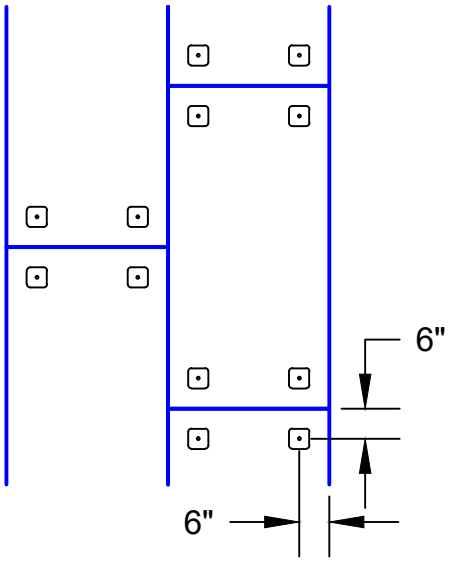
4 □4 ft
Approved Insulation



2 □4 ft
Approved Insulation



4 □8 ft
Approved Cover Board



Note 1: It is recommended to stagger all □oints between boards by 50□ from row to row and layer to layer.

Note 2: Ad□oin panel edges together. Neatly fit to the roof deck and around penetrations with no gaps greater than 1/4 inch.

Note 3: Fasten with approved plates and fasteners.

Note 4: **These fastening patterns are to be used with mechanically fastened systems only.**

REVISED:	01/30/2017	GENERAL DETAIL FOR MECHANICALLY FASTENED SYSTEMS
PREVIOUS:	01/01/2009	INSULATION AND RECOVER FASTENING
SCALE:	NONE	NEW CONSTRUCTION OR RE-ROOF

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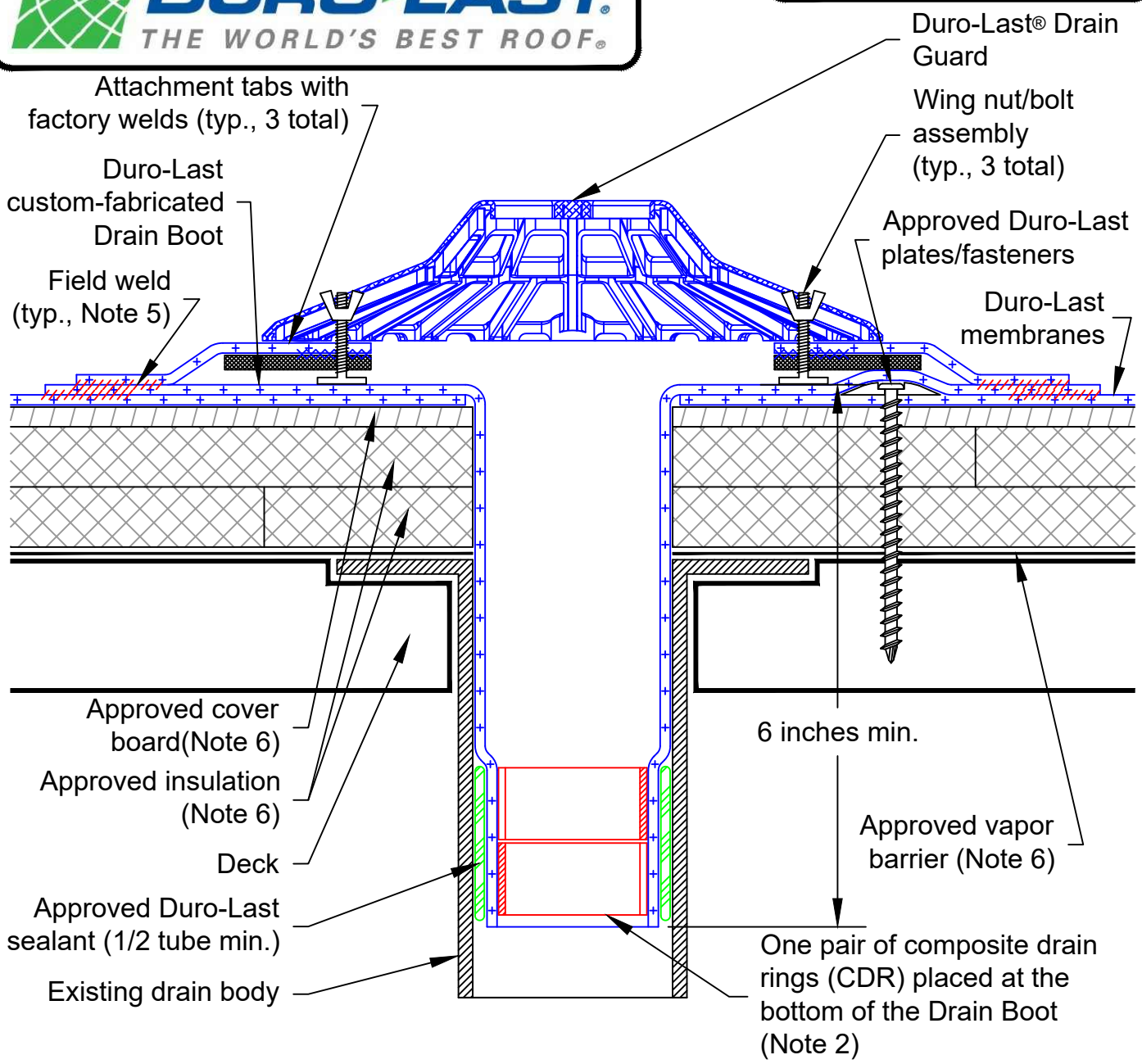
DETAIL 2021



Note 1: Membrane must be fastened around the perimeter of the drain with the same fastening pattern as the field membrane, no less than 1 fastener per drain.

Note 2: Openings in the CDRs must face in opposite directions. Sealant must be behind the membrane at the CDRs' location.

Note 3: Duro-Last Drain Guard attachment tabs are secured to the roof membrane by heat welding. Do not mechanically fasten.

Note 4: Duro-Last Drain Boots are made to fit specific drain sizes. Never install a Duro-Last Drain Boot into a drain of a different size.

Note 5: All field welds shall be a minimum of 1-1/2 inches wide.

Note 6: Refer to specifications for vapor barrier, insulation and cover board requirements.

REVISED: N/A	DRAINAGE DETAIL FOR MECHANICALLY FASTENED SYSTEMS
PREVIOUS: 06/03/2020	ROOF DRAIN WITH DRAIN GUARD
SCALE: NONE	NEW CONSTRUCTION OR RE-ROOF

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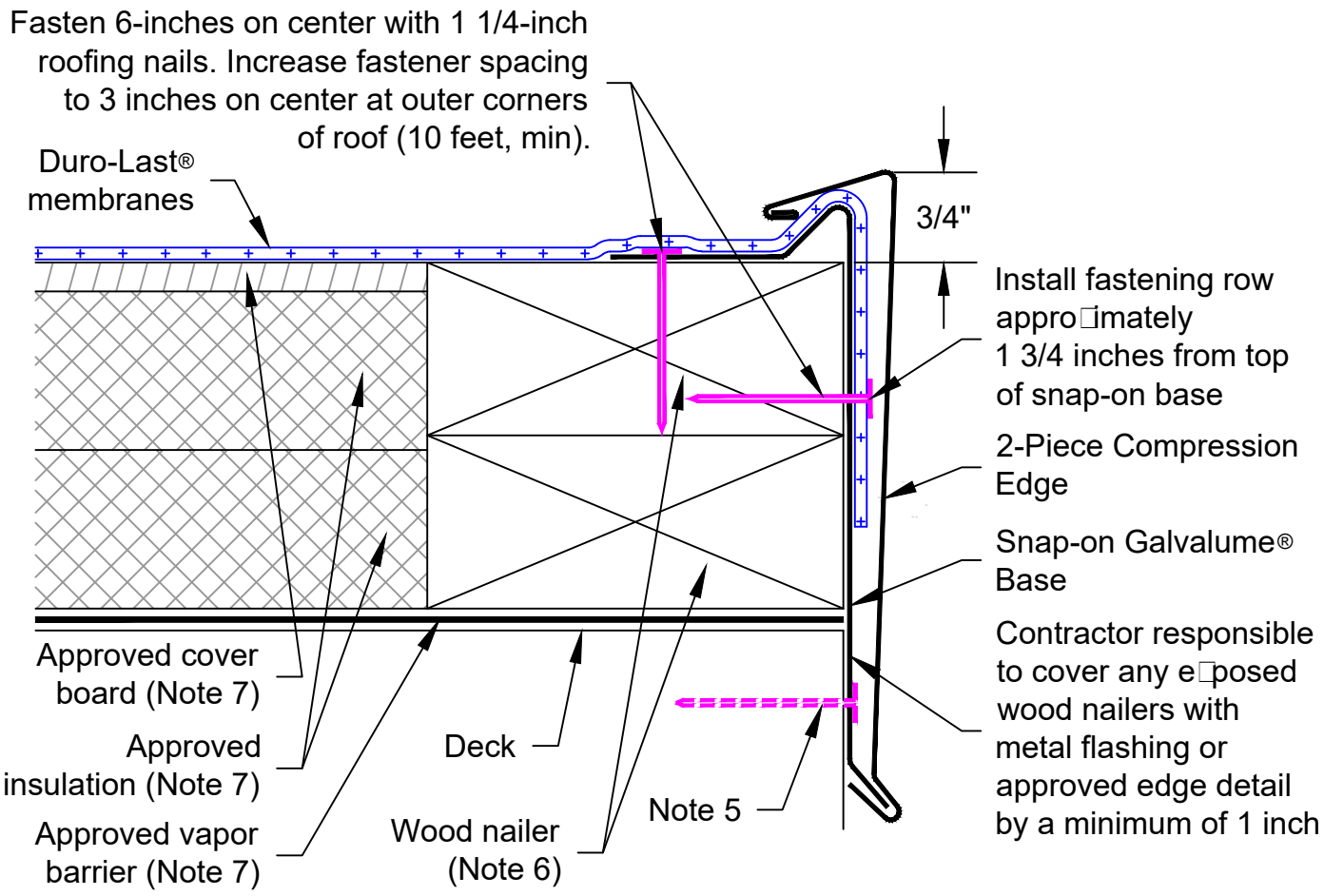
DETAIL 3110



Note 1: This detail is limited to membrane thicknesses of 60 mils or less.

Note 2: This detail may also be used on parapet walls.

Note 3: The use of this detail is not to exceed a 2-inch per 12-inch slope.

Note 4: Allow for 1/8-inch expansion gap between 10-foot lengths of snap-on base. Overlap snap-on covers by 2 inches between 10-foot lengths.

Note 5: When installing this detail with a 6-inch or greater vertical surface, an additional fastening row must be located approximately 1 1/8 inches from bottom of snap-on base.

Note 6: Wood nailers must withstand a minimum force of 180 pounds per lineal foot (per building code). Any pull values greater than 270 pounds will allow for a fastener spacing of 18 inches on center. Pull values less than 270 pounds will require additional fasteners. **The installing contractor is responsible for meeting building codes.**

Note 7: Refer to specifications for vapor barrier, insulation and cover board requirements.

REVISED: 08/24/2017	EDGE DETAIL FOR MECHANICALLY FASTENED SYSTEMS
PREVIOUS: 01/01/2009	UNIVERSAL 2-PIECE COMPRESSION EDGE
SCALE: NONE	NEW CONSTRUCTION OR RE-ROOF

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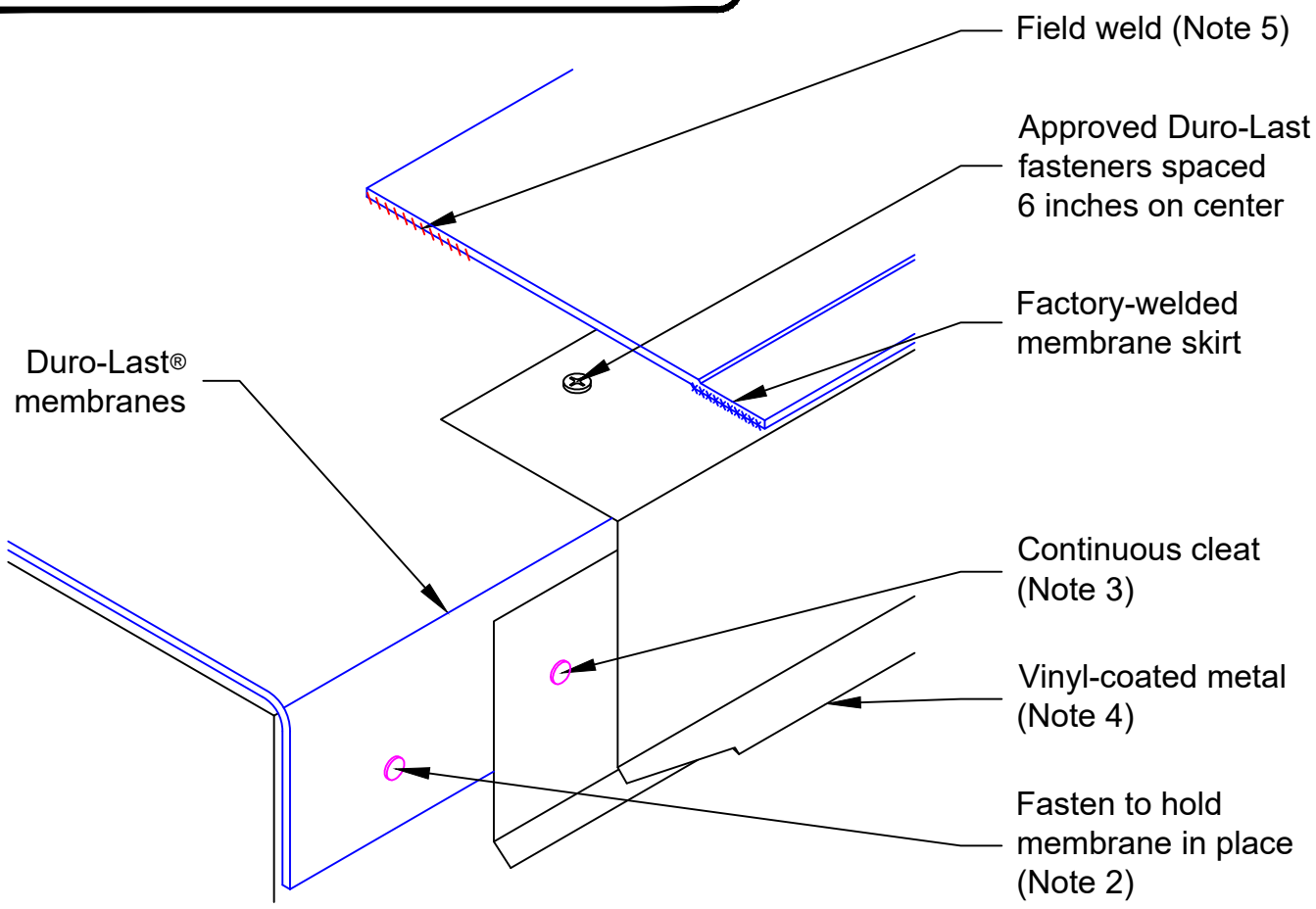
DETAIL 3120



Note 1: This detail may also be used on parapet walls.

Note 2: If used in a gutter, back-seal membrane with an approved Duro-Last sealant and fasten 6 inches on center with approved Duro-Last fasteners. Refer to Detail Drawing 3050.

Note 3: Vinyl-Coated Metal Drip Edge with a 4-inch face or greater requires a continuous cleat fastened 6 inches on center. Use roofing nails that penetrate substrate by a minimum of 1-1/2 inches.

Note 4: Each section must overlap by 1-1/2 inches.

Note 5: All field welds shall be a minimum of 1-1/2 inches wide.

Note 6: Wood nailers must withstand a minimum force of 180 pounds per lineal foot (per building code). Any pull values greater than 270 pounds will allow for a fastener spacing of 18 inches on center. Pull values less than 270 pounds will require additional fasteners. **The installing contractor is responsible for meeting building codes.**

Note 7: Refer to specifications for vapor barrier, insulation and cover board requirements.

REVISED: 09/07/2017	EDGE DETAIL FOR MECHANICALLY FASTENED SYSTEMS
PREVIOUS: 01/01/2009	VINYL-COATED METAL DRIP EDGE
SCALE: NONE	NEW CONSTRUCTION OR RE-ROOF

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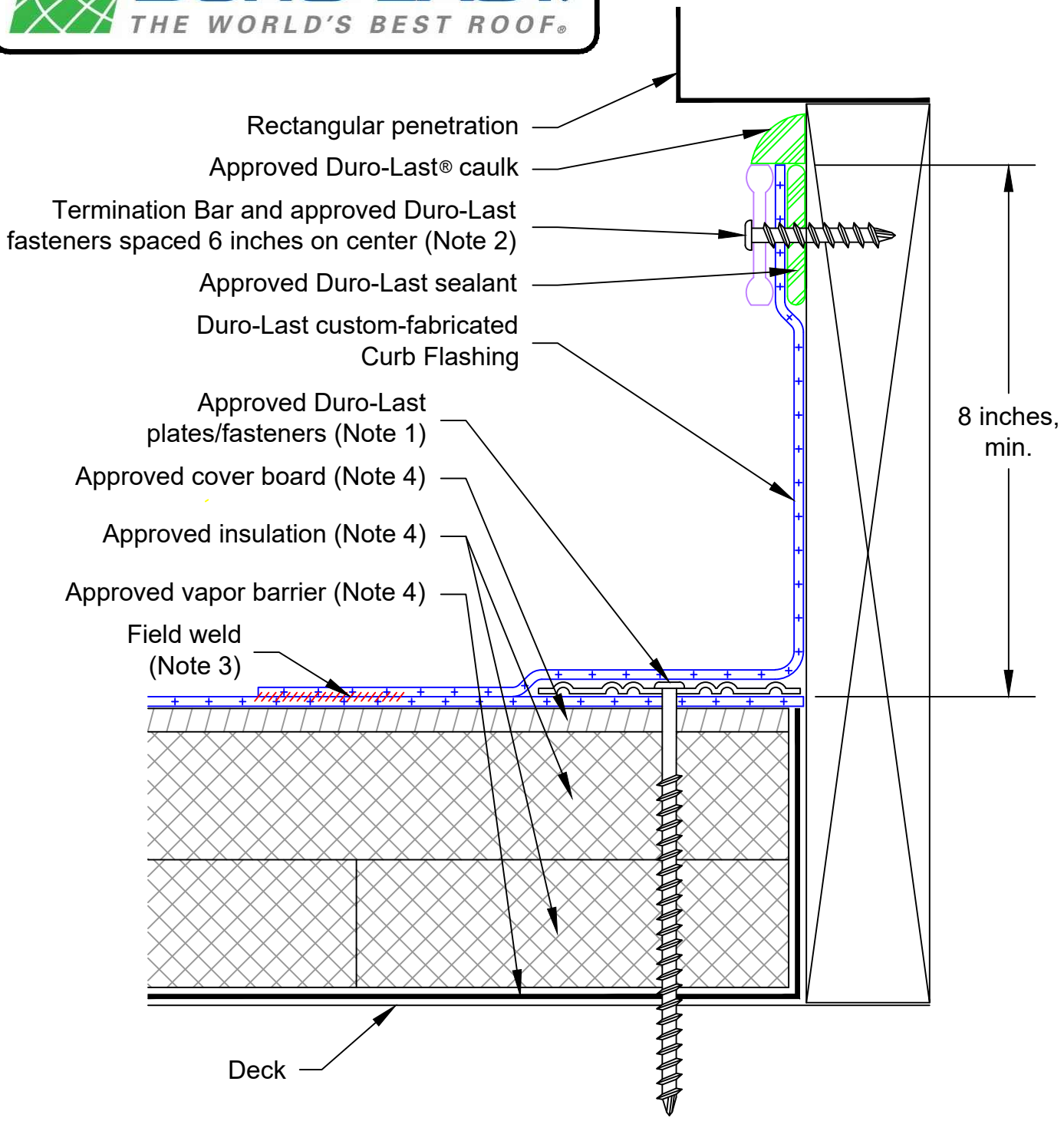
DETAIL 4010



Note 1: Deck membrane shall be fastened around perimeter of roof penetration as per respective □one the roof access hatch is located within (field, perimeter, corner).

Note 2: Termination Bar shall have an approved Duro-Last fastener within 1 inch of each corner.

Note 3: All field welds shall be a minimum of 1-1/2 inches wide.

Note 4: Refer to specifications for vapor barrier, insulation and cover board requirements.

REVISED: 02/23/2017	ROOF PENETRATION DETAIL FOR MECHANICALLY FASTENED SYSTEMS
PREVIOUS: 01/01/2009	RECTANGULAR PENETRATION
SCALE: NONE	NEW CONSTRUCTION OR RE-ROOF

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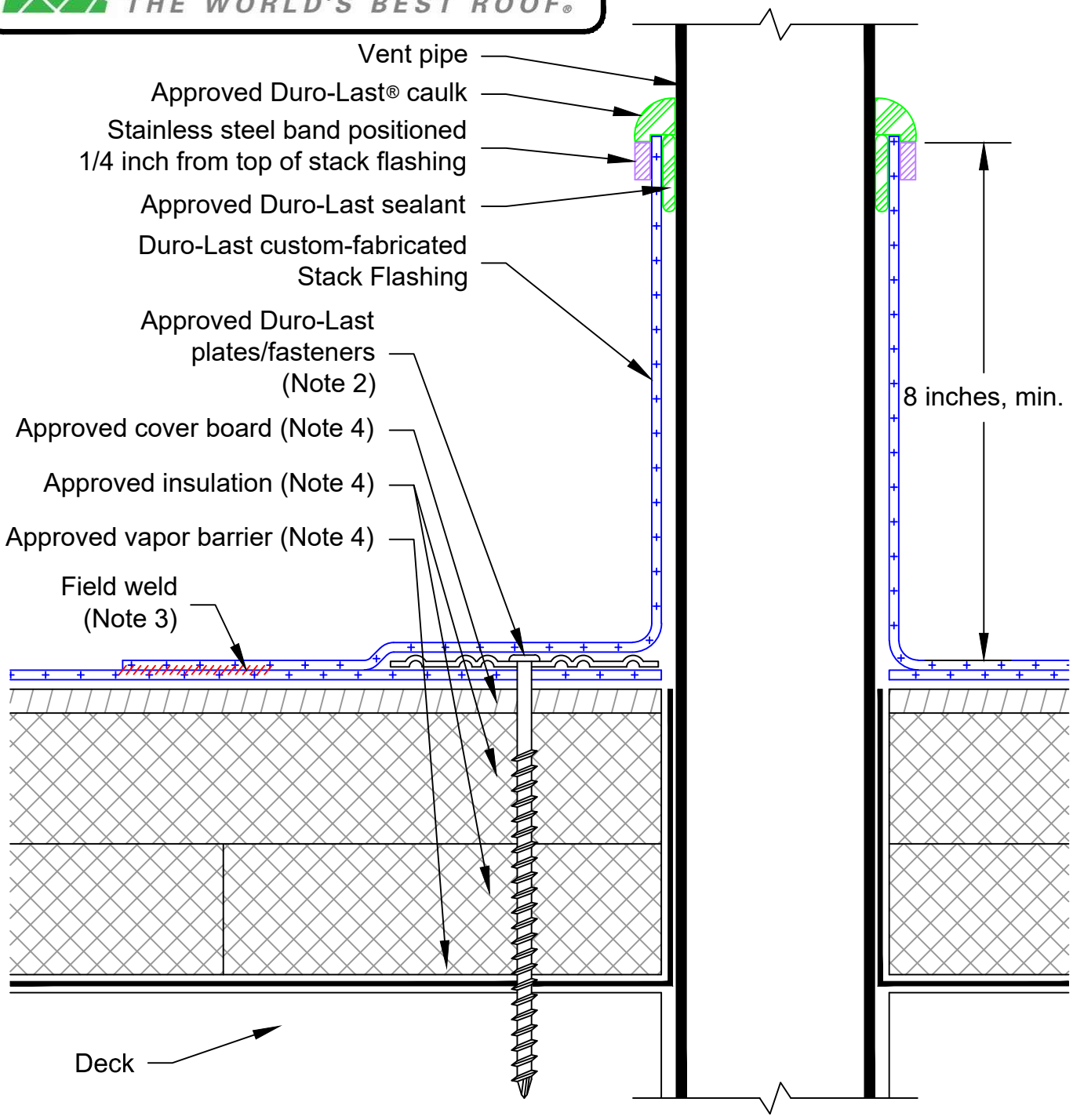
DETAIL 4070



Note 1: Lead flashings must be removed prior to installing Duro-Last Stack Flashings.

Note 2: Deck membrane shall be fastened around the perimeter of the Duro-Last Stack Flashing as per the respective □one the Duro-Last Stack Flashing is located within (field, perimeter, corner), no less than one fastener per flashing.

Note 3: All field welds shall be a minimum of 1-1/2 inches wide.

Note 4: Refer to specifications for vapor barrier, insulation and cover board requirements.

REVISED: 02/02/2017	ROOF PENETRATION DETAIL FOR MECHANICALLY FASTENED SYSTEMS
PREVIOUS: 01/01/2009	ROUND PENETRATION
SCALE: NONE	NEW CONSTRUCTION OR RE-ROOF

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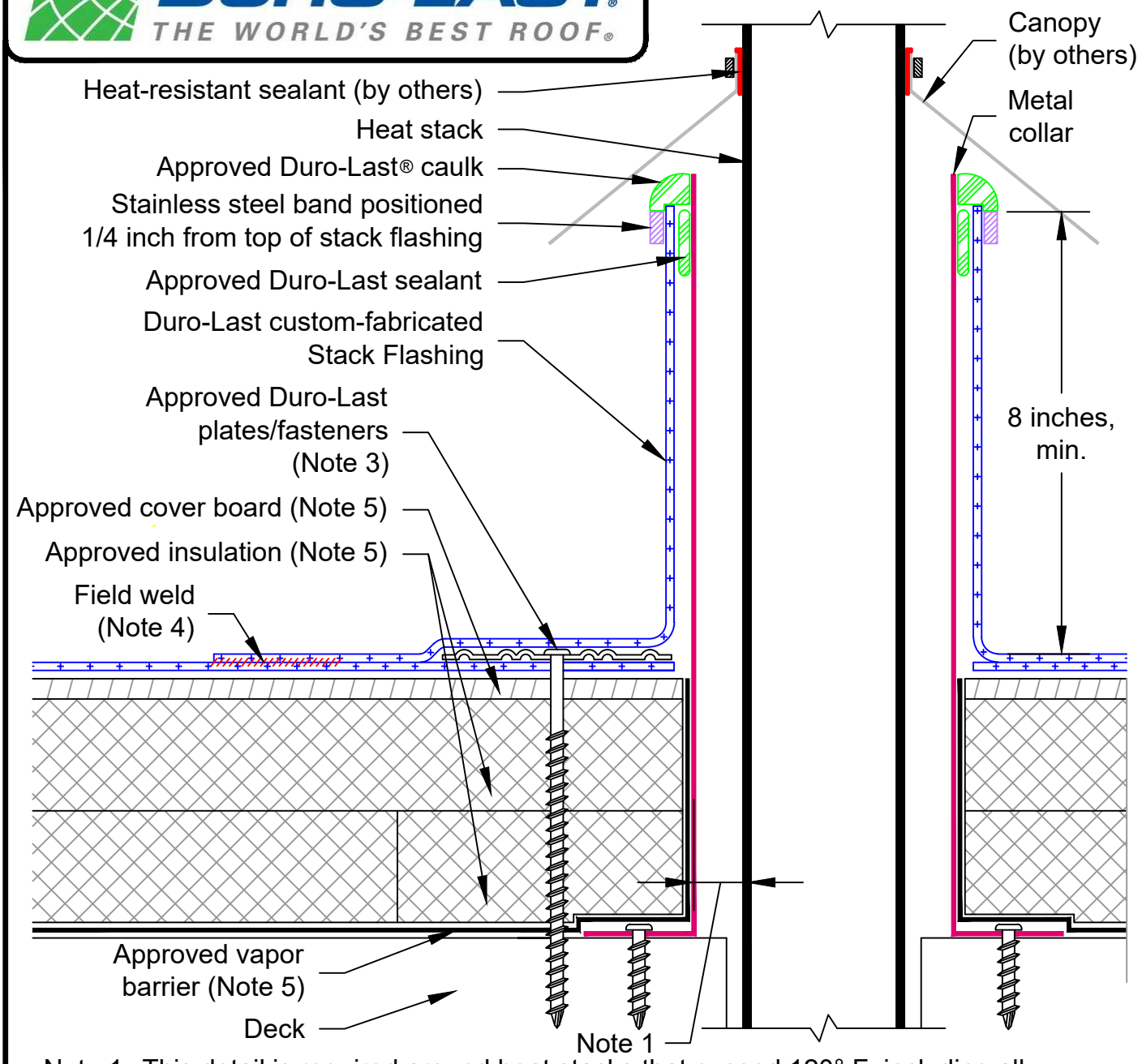
DETAIL 4080



Note 1: This detail is required around heat stacks that exceed 120° F, including all insulated chimney stacks. A minimum of 1-inch air space is required between the metal collar and heat stack. The canopy must be positioned to allow adequate air flow above the termination.

Note 2: Lead flashings must be removed prior to installing Duro-Last Stack Flashings.

Note 3: Deck membrane shall be fastened around the perimeter of the Duro-Last Stack Flashing as per the respective □one the Duro-Last Stack Flashing is located within (field, perimeter, corner), no less than one fastener per flashing.

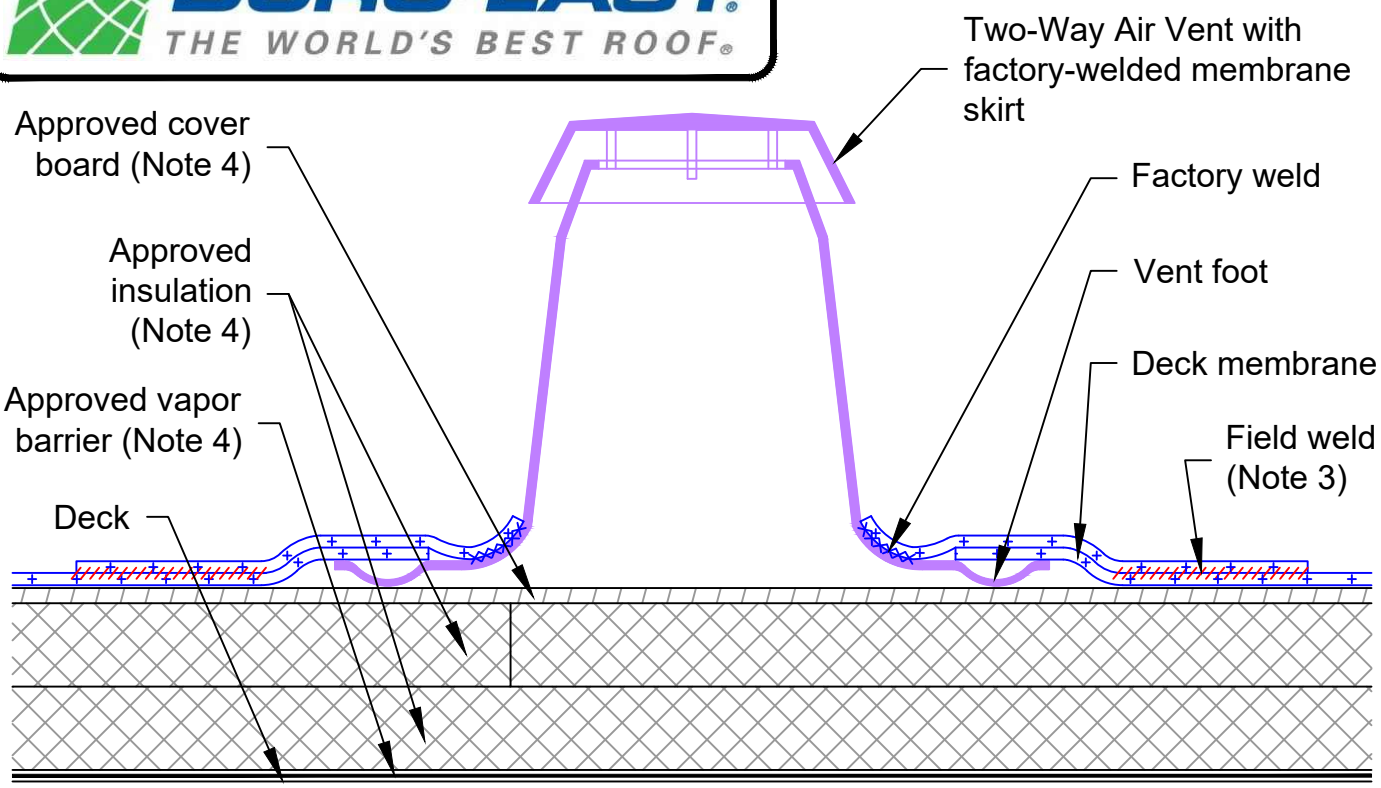
Note 4: All field welds shall be a minimum of 1-1/2 inches wide.

Note 5: Refer to specifications for vapor barrier, insulation and cover board requirements.

REVISED:	02/02/2017	ROOF PENETRATION DETAIL FOR MECHANICALLY FASTENED SYSTEMS
PREVIOUS:	01/01/2009	HEAT STACK
SCALE:	NONE	NEW CONSTRUCTION OR RE-ROOF

DURO-LAST
THE WORLD'S BEST ROOF

DETAIL 5020



INSTRUCTIONS

1. Install Two-Way Air Vents (vents) between fastener rows and at high points of roof area. Vents must not be installed within 7 feet of the building edge. Never install vents in low, or drainage areas.
   a. A minimum of one vent must be installed for every 1,000 square feet of roof area, or portion thereof, but with a minimum of two vents per roof area.
   b. Vent Placement
      i. Corners - Vents must first be installed within 8 to 10 feet of the outer corners. Install vents at opposite corners whenever possible.
      ii. Remaining Roof Area - Starting at 8 to 10 feet from the building edge, evenly distribute the remaining vents throughout the remaining roof area. (Smaller roof areas may not have additional vents.)
2. Cut a 7-inch diameter hole and a 2-inch slit in deck membrane. Rotate vent to allow feet to slide underneath deck membrane at slit (see drawing above). Do not fasten vent to roof deck.

Note 1: **Vents must NOT be used on refrigerated buildings, freezer buildings or adhered roofing systems.**

Note 2: Vents are not required on open-air structures (e.g. carports) or roofing systems with overburden (e.g. ballast, paver, vegetation, etc.).

Note 3: All field welds shall be a minimum of 1-1/2 inches wide.

Note 4: Refer to specifications for vapor barrier, insulation and cover board requirements.

REVISED: 01/16/2019	VENT DETAIL FOR MECHANICALLY FASTENED SYSTEMS
PREVIOUS: 02/02/2017	TWO-WAY AIR VENT
SCALE: NONE	NEW CONSTRUCTION OR RE-ROOF

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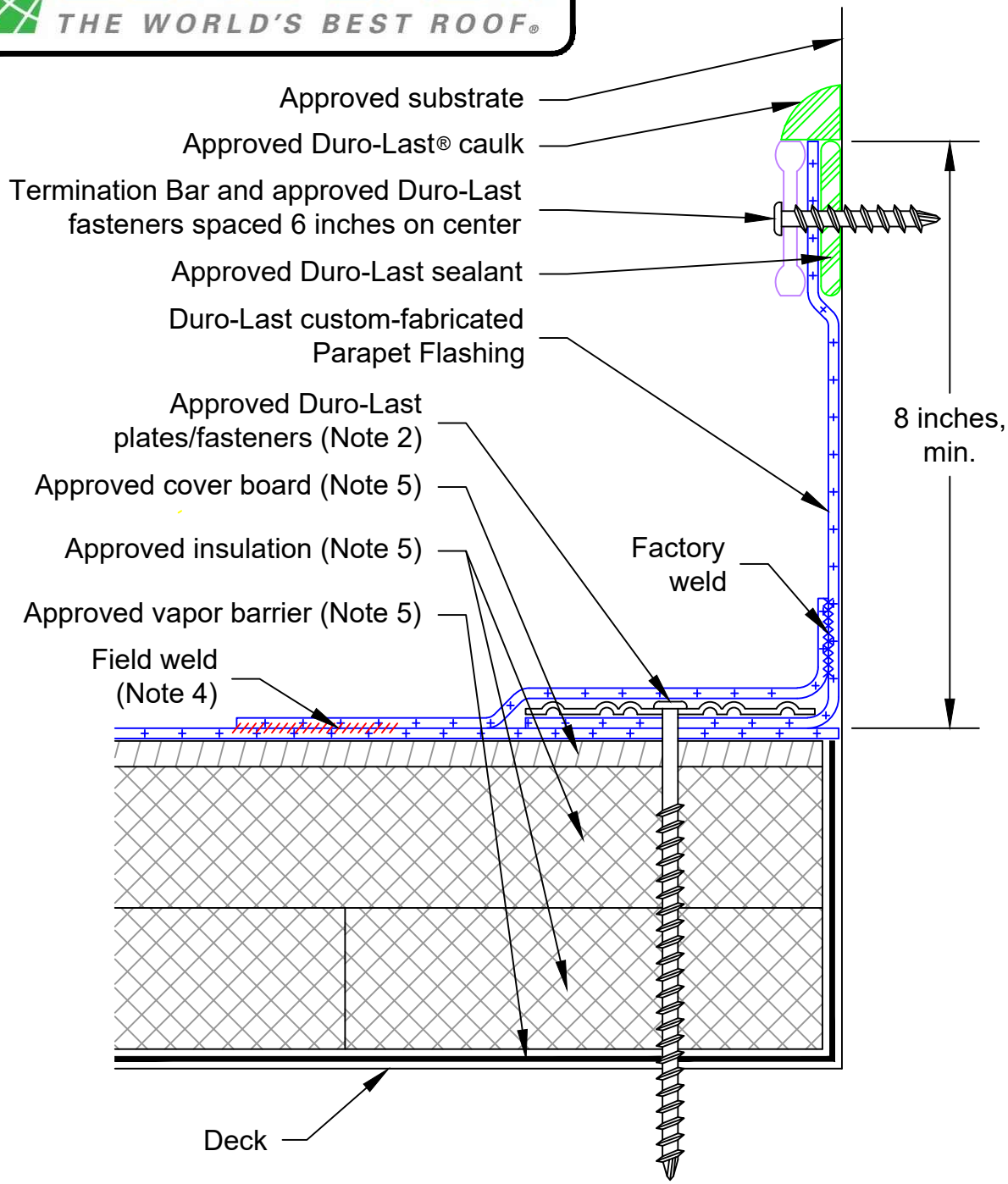
DETAIL 6020



Note 1: 1-3/4 or 4-inch Fascia Bar and Cover (cover optional) may be used in place of Termination Bar.

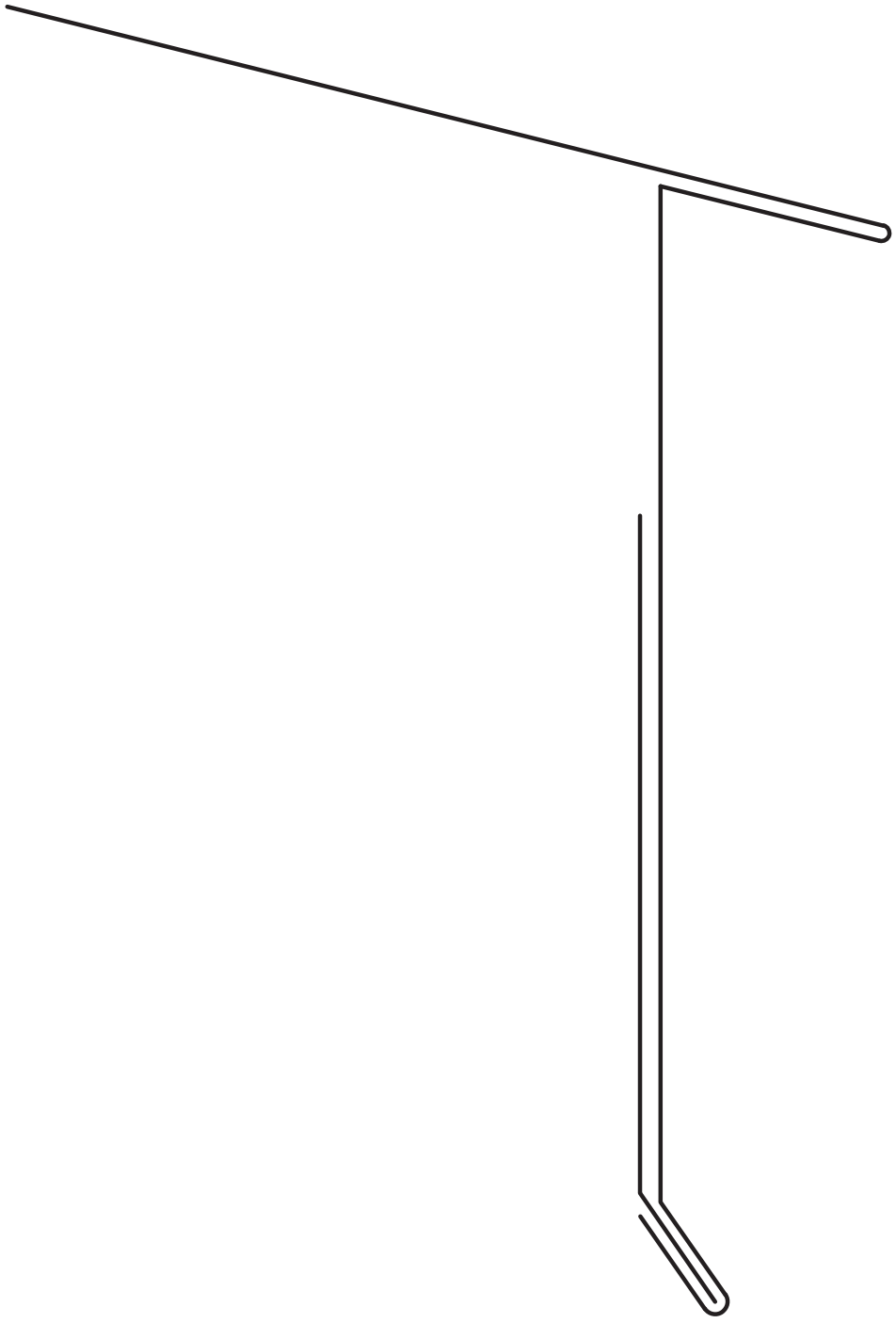
Note 2: Membrane fastening at deck-to-wall transitions and walls shall be same as per respective □ones that area is located within (field, perimeter, corner).

Note 3: Refer to Detail Drawing 6010 for tab spacing.

Note 4: All field welds shall be a minimum of 1-1/2 inches wide.

Note 5: Refer to specifications for vapor barrier, insulation and cover board requirements.

REVISED:	02/02/2017	PARAPET WALL DETAIL FOR MECHANICALLY FASTENED SYSTEMS
PREVIOUS:	01/01/2009	INSIDE WALL TERMINATION
SCALE:	NONE	NEW CONSTRUCTION OR RE-ROOF



SHINGLE ROOF
EDGE DETAIL

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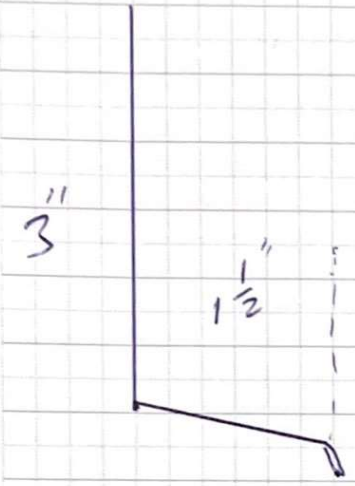
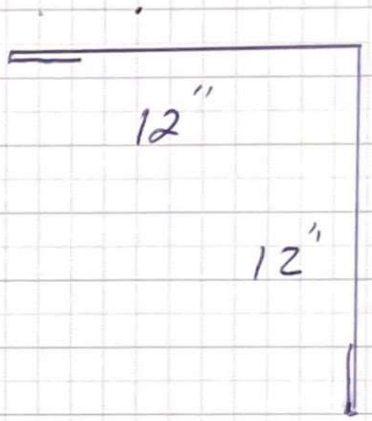
SILL FLASHING DETAIL



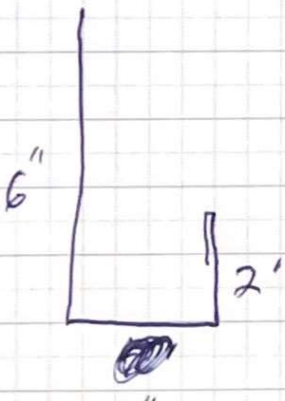
130 LN FT

CORNER TRIM DETAIL



100 LN FT

CUSTOM "J" CHANNEL TRIM DETAIL



100 LN FT

Sig 200 Finish

Company:	Project:	Notes:
Contact:	Pellston HS	APPROX. 1,400 SF OF METAL SIDING

Uplift Pressure & Assembly Report

Customer & Building Details

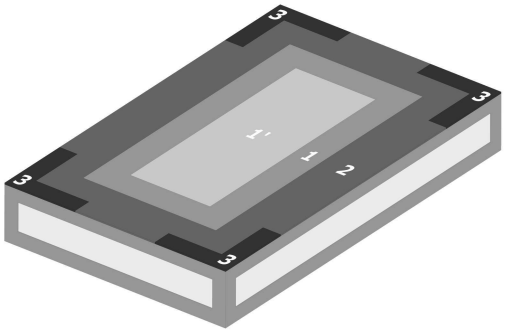
Customer Details	
Customer Name	Stephen Seelye
Company Name	Pellston Schools
Project Name	Pellston Schools
Project Area	Elementary Gym
Email Address	twagester@yahoo.com
Project Sq. Footage	10600

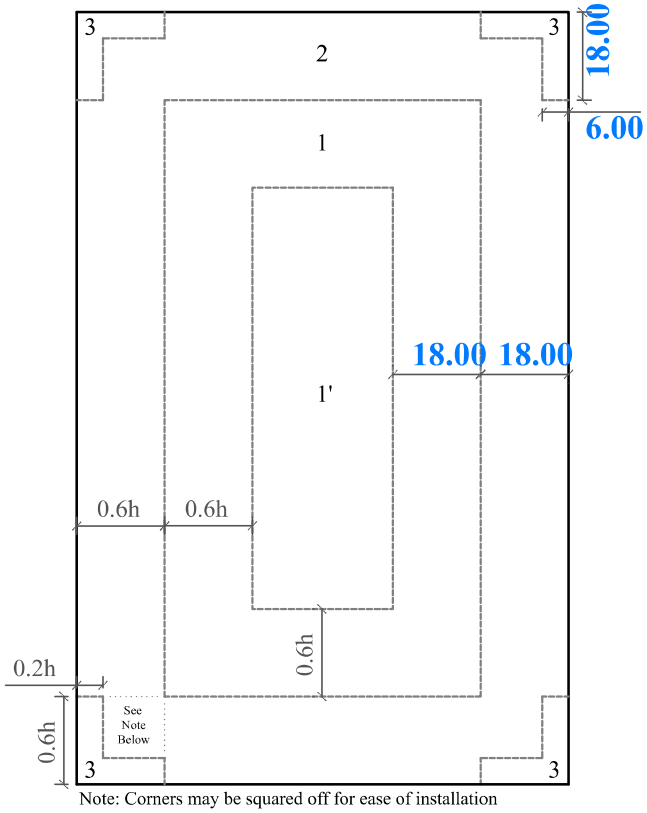
Location Details	
Address/Intersection	114 Zipf
City	Pellston
State	MI
Postal Code	49769

ASCE Design Details & Pressures

Building Dimensions	
L × W × H (ft)	102 x 102 x 30
Parapet Height (in)	0-24

ASCE Specifications	
ASCE Version	ASCE 7-16
Risk Category	Risk Category III
Enclosure Classification	Enclosed Building
Exposure Category	Exposure C
Wind Speed (MPH)	113
Elevation (ASCE 7-16 only)	700





Note: Corners may be squared off for ease of installation

h = eave height of roof

Roof Zones
1' (field of roof–interior)
1 (field of roof–exterior)
2 (perimeter)
3 (corner)

ASCE 7-16: Scenario 1

DESIGN WIND PRESSURE	Zone 1'	Zone 1	Zone 2	Zone 3
Ultimate Design Uplift Pressure:	-28.74	-50.03	-65.99	-89.94
Nominal (ASD) Design Uplift Pressure:	**-17.24**	**-30.02**	**-39.59**	**-53.96**
Safety Design Pressure (Factor of 2):	60.00	60.04	79.18	107.92

Use Safety Design Pressure for Factory Mutual (FM) Assemblies

System Design

Construction Details	
Construction Type	Re-Cover
System Type	Mechanically Fastened
Deck Type	OSB Deck (1/2 in.)
Fastener Type	Duro-Last® EHD Screw (#15)
Pullout Resistance is	Estimated
Pullout Resistance (lbs)	375

MATERIAL TYPES	Zone 1'	Zone 1	Zone 2	Zone 3
Duro-Last Prefab 3" Tabs	60" laps/15" o.c.	60" laps/12" o.c.	60" laps/9" o.c.	60" laps/6" o.c.
Duro-Last Prefab 6" Tabs	120" laps/6" o.c.	120" laps/6" o.c.	57" laps/9" o.c.	57" laps/6" o.c.
Duro-Last Roll Goods	60" laps/15" o.c.	60" laps/12" o.c.	60" laps/9" o.c.	60" laps/6" o.c.
Duro-Tuff/Duro-Last X (5 ft Roll System)	54" laps/15" o.c.	54" laps/15" o.c.	54" laps/12" o.c.	54" laps/9" o.c.
Duro-Tuff/Duro-Last X (10 ft Roll System)	114" laps/6" o.c.	114" laps/6" o.c.	54" laps/12" o.c.	54" laps/9" o.c.

Follow Duro-Last Specifications for required perimeter enhancements.

Based on Chapter 30 (Sections 1 & 3) of the American Society of Civil Engineers (ASCE) Standard ASCE 7-16, Minimum Design Loads and Associated Criteria for Buildings and other Structures.

Uplift Pressure & Assembly Report

Customer & Building Details

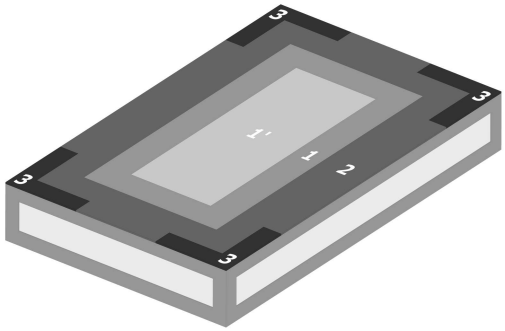
Customer Details	
Customer Name	Stephen Seelye
Company Name	Pellston Schools
Project Name	Pellston Schools
Project Area	High School
Email Address	twagester@yahoo.com
Project Sq. Footage	53250

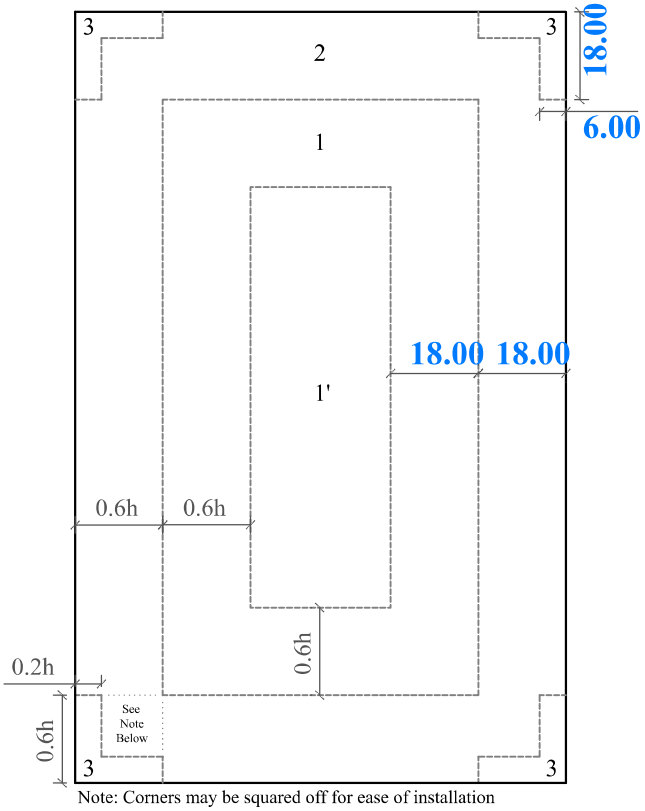
Location Details	
Address/Intersection	172 Park Street
City	Pellston
State	MI
Postal Code	49769

ASCE Design Details & Pressures

Building Dimensions	
L × W × H (ft)	463 x 137 x 30
Parapet Height (in)	0-24

ASCE Specifications	
ASCE Version	ASCE 7-16
Risk Category	Risk Category III
Enclosure Classification	Enclosed Building
Exposure Category	Exposure C
Wind Speed (MPH)	113
Elevation (ASCE 7-16 only)	700





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1' (field of roof–interior)
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Nominal (ASD) Design Uplift Pressure:	**-17.24**	**-30.02**	**-39.59**	**-53.96**
Safety Design Pressure (Factor of 2):	60.00	60.04	79.18	107.92

Use Safety Design Pressure for Factory Mutual (FM) Assemblies

System Design

Construction Details	
Construction Type	Re-Cover
System Type	Mechanically Fastened
Deck Type	Steel Deck (undefined ga)
Fastener Type	Duro-Last® HD Screw (#14)
Pullout Resistance is	Estimated
Pullout Resistance (lbs)	350

MATERIAL TYPES	Zone 1'	Zone 1	Zone 2	Zone 3
Duro-Last Prefab 3" Tabs	60" laps/12" o.c.	60" laps/12" o.c.	60" laps/9" o.c.	60" laps/6" o.c.
Duro-Last Prefab 6" Tabs	120" laps/6" o.c.	120" laps/6" o.c.	57" laps/9" o.c.	57" laps/6" o.c.
Duro-Last Roll Goods	60" laps/12" o.c.	60" laps/12" o.c.	60" laps/9" o.c.	60" laps/6" o.c.
Duro-Tuff/Duro-Last X (5 ft Roll System)	54" laps/15" o.c.	54" laps/15" o.c.	54" laps/9" o.c.	54" laps/6" o.c.
Duro-Tuff/Duro-Last X (10 ft Roll System)	114" laps/6" o.c.	114" laps/6" o.c.	54" laps/9" o.c.	54" laps/6" o.c.

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