PROJECT MANUAL

PROJECT:

WYLIE ELEMENTARY SCHOOL ROOF UPGRADES
ANCHOR ELEMENTARY SCHOOL ROOF UPGRADES
JENKINS EARLY CHILDHOOD CENTER ROOF UPGRADES

OWNER:

DEXTER COMMUNITY SCHOOLS
2704 Baker Road
Dexter, MI 48130

TMP PROJECT NO.: 22072H, 22075H, 22076H

DATE: July 32, 2023

ISSUED FOR: CONSTRUCTION DOCUMENTS

ARCHITECT

TMP ARCHITECTURE, INC.
1191 West Square Lake Road
Bloomfield Hills, Michigan 48302-0374

PH 248-338-4561
Email info@tmp-architecture.com

WYLIE ELEMENTARY SCHOOL ROOF UPGRADES, ANCHOR ELEMENTARY SCHOOL ROOF UPGRADES, JENKINS EARLY CHILDHOOD CENTER ROOF UPGRADES

22072H, 22075H, 22076H

This Document has been prepared under the supervision of the Architect and/or Professional Engineer as indicated by their individual License Seals affixed hereon.

Professional License Seals

Seal	*Seal*	*Seal*

TMP Architecture, Inc.
Architect

Seal	*Seal*	*Seal*

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APPENDIXES

APPENDIX 1

CD

2023 Roof Evaluation Prepared by Roofing Technology Associates. Ltd Dated April 7, 2023

END OF SECTION

SECTION 00 0115 - LIST OF DRAWINGS

LIST OF DRAWINGS

1.01 GENERAL

A. Drawings: Drawings consist of the Contract Drawings including drawings listed on the TITLE SHEET page of the separately bound drawing sets titled Wylie Elementary School Roof Upgrades- 22072H, Anchor Elementary School Roof Upgrades - 22075H, Jenkins Early Childhood Center Roof Upgrades - 22076H for Dexter Community Schools and all dated July 31, 2023, and any subsequent Addenda and Contract modifications which may occur.

END OF SECTION

SECTION 00 3100 - AVAILABLE PROJECT INFORMATION

PART 1 GENERAL

1.01 EXISTING CONDITIONS

A. Certain information relating to existing surface and subsurface conditions and structures is available to bidders but will not be part of Contract Documents, as follows:

B. Existing Conditions Survey: 2023 Roof Elevation prepared by Roofing Technology Associates Limited - Dated April 7, 2023

1. Original copy is available for inspection at Owner's offices during normal business hours.
2. This survey identifies conditions of existing construction prepared primarily for the use of Architect in establishing the extent of the new versus existing work.
3. This survey includes a photographic record of existing conditions visible.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

SECTION 00 8200.01 - TMP ELECTRONIC FILE RELEASE FORM

.

RE: AUTHORIZATION FORM FOR CAD FILE TRANSFERS
PROJECT NAME: _____
TMP PROJECT NO. : _____ BID PACK NO._____

DEAR SIR/MADAM:

A. Per your request, TMP Architecture, Inc. will electronically transmit requested CAD files upon receipt of an original signed copy of this form which states the conditions of agreement and the receipt of the required compensation fee.
B. By acceptance it is understood and agreed that the data and medium being supplied is to be used only for the project referenced.
C. It is further understood and agreed that the undersigned will hold TMP Architecture, Inc. and its Consultants harmless and indemnify TMP Architecture, Inc. and its Consultants from all claims, liabilities, losses, and so forth, including attorney's fees arising out of the use or misuse of the transferred files.
D. It is understood and agreed that the items transmitted are prepared from CAD files current at the time of preparation. All files are [AutoCAD version 2014 dwg files].
E. This information does not waive the need to verify and review current field conditions and the status of Addenda and/or Bulletin documentation.
F. As a record of information to be transmitted, TMP Architecture, Inc. will prepare a duplicate electronic back-up for its record.

REQUESTED DRAWINGS: _____
_____
_____

FIRM REQUESTING FILES:

Company: _____
Address: _____
Signed:_____Date: _____
Printed Name / Title: _____
Email: _____

TO BE COMPLETED BY TMP ARCHITECTURE, INC.

Released(signed by): _____TMP Architecture, Inc.
Printed Name/Title:_____ Date: _____

END OF SECTION

SECTION 00 8200 - AVAILABILITY OF ELECTRONIC FILES

AVAILABILITY OF ELECTRONIC FILES

1.01 POLICY

A. As a service to Contractor, subcontractors, vendors, material suppliers and others needing electronic copies of Drawings, the Architect will provide CAD files electronically in accordance with the following policy:

1. By acceptance it is understood and agreed that the data and medium being supplied is to be used only for the project referenced.
2. It is further understood and agreed that the undersigned will hold TMP Architecture, Inc. and its Consultants harmless and indemnify TMP Architecture, Inc. and its Consultants from all claims, liabilities, losses, and so forth, including attorney's fees arising out of the use or misuse of the transferred files.
3. It is understood and agreed that the files transmitted are prepared from CAD files current at the time of preparation. All files are AutoCAD version 2014 dwg files.
4. This information does not waive the need to verify and review current field conditions and the status of Addenda and/or Bulletin documentation.
5. As a record of information to be transmitted, TMP Architecture, Inc. will prepare a duplicate electronic back-up for its record.
6. A signed copy of the Release Form must be provided before files will be released.

1.02 REQUEST PROCEDURE

A. To receive Drawing CAD files the Release Form must be completed in full and submitted to the Construction Manager to be forwarded to the Project Manager at TMP Architecture, Inc.

1. A signed copy of the Release Form must be submitted.
   a. Faxed or emailed copies will be accepted.
2. Upon remittance of the signed Release Form and Fee, allow five working days for processing.
3. Transmission of Drawings will be provided electronically after the receipt of Fee.

1.03 RELEASE FORM

A. Release Form is located immediately after this Section. Refer to Section 00 8200.01 Electronic Files Release Form.

END OF SECTION

SECTION 01 2300 - ALTERNATES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Description of Alternates.

1.02 ACCEPTANCE OF ALTERNATES

A. Alternates quoted on Bid Forms will be reviewed and accepted or rejected at Owner's option. Accepted Alternates will be identified in the Owner-Contractor Agreement.

B. Coordinate related work and modify surrounding work to integrate the Work of each Alternate.

1.03 SCHEDULE OF ALTERNATES

A. Alternate No. 1 - To add Roof Replacement at Wylie Elementary School for area identified :

1. Base Bid Item: To retain existing roof assembly including flashings and copings to area identified as "Alternate No. 1" on Drawing AC.2 Project No. 22072H
2. Alternate Item: To prepare the existing roof membrane to accept a new EPDM roof assembly as detailed including new flashings and copings.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION

SECTION 01 2500.01 - TMP SUBSTITUTION REQUEST FORM

SUBSTITUTION REQUEST NUMBER: _____ DATE SUBMITTED: _____
TMP PROJECT NUMBER _____PROJECT NAME: _____

SPECIFIED ITEM

SPECIFICATION TITLE:_____
SPECIFICATION SECTION_____SPECIFICATION ARTICLE/PARAGRAPH: _____
SPECIFIED PRODUCT / DESCRIPTION: _____
SPECIFIED MANUFACTURER: _____
SPECIFIED PRODUCT / MODEL: _____
REASON SPECIFIED ITEM CANNOT BE PROVIDED: _____
_____
_____

PROPOSED SUBSTITUTION

DESCRIPTION OF PROPOSED SUBSTITUTION: _____
_____
PROPOSED MANUFACTURER: _____
ADDRESS: _____
WEBSITE: _____
PRODUCT / MODEL: _____
YEARS PRODUCT/MODEL HAS BEEN MANUFACTURED: _____
DIFFERENCES BETWEEN PROPOSED SUBSTITUTION AND SPECIFIED ITEM: _____
_____
_____
_____
_____
WILL PROPOSED SUBSTITUTION AFFECT OTHER PARTS OF WORK? ☐ NO ☐ YES
IF YES, EXPLAIN HOW: _____
_____
_____
_____
HOW WILL SUBSTITUTION BENEFIT THE OWNER: ☐ COST SAVINGS ☐ TIME SAVINGS ☐ OTHER
PROVIDE SPECIFIC DETAILS: _____
_____
_____
_____

THE FOLLOWING INFORMATION IS REQUIRED; CHECK TO INDICATE INFORMATION IS ATTACHED. (REQUEST WILL BE REJECTED WITHOUT REQUIRED DATA)
32.01

A. ☐ List of references where proposed product has been installed; include address, owner, architect, and date installed.
B. ☐ Product data sheets.
C. ☐ Applicable certificates and test reports.

D. ☐ Comparative Data: Provide point-by-point, side-by-side comparison of specified product and proposed substitution addressing essential attributes specified.

INDICATE WHICH OF THE FOLLOWING VOLUNTARY INFORMATION IS ATTACHED, IF ANY:
☐ DRAWINGS.
☐ SAMPLES.
☐ OTHER ITEMS: _____

SIGNATURE

THE UNDERSIGNED CERTIFIES:

The proposed substitution meets or exceeds the quality level of the specified product, equipment, assembly, or system.
To provide the same warranty for the substitution as for the specified product.
Agrees to provide same or equivalent maintenance service and source of replacement parts, as applicable.
Agrees to coordinate installation and make changes to other work that may be required for the work to be complete, with no additional cost to Owner.
The proposed substitution will have no adverse effects on other work.
The proposed substitution will not affect project schedule.
Waives claims for additional costs or time extension that may subsequently become apparent.

CONTRACTOR / COMPANY: _____
SIGNED BY: _____PRINTED NAME: _____
TITLE: _____
ADDRESS: _____
EMAIL: _____ PHONE: _____

ARCHITECT'S RESPONSE

A. During bidding, Architect will approve substitution requests by issuing an Addendum. Substitutions not approved by addendum are rejected.
B. During construction, Architect will notify Contractor in writing (see below) of decision to accept or reject request, and incorporate the substitution into the project by Change Order, Construction Change Directive, Architectural Supplementary Instructions, or similar instruments as provided for in the Conditions of the Contract.

☐ SUBSTITUTION APPROVED - PROVIDE SUBMITTALS PER SECTION 01 3000 AND RESPECTIVE SECTION FOR WHICH SUBSTITUTION WAS MADE.
☐ SUBSTITUTION REJECTED - PROVIDE SPECIFIED MATERIALS.

SIGNED BY: _____PRINTED NAME: _____
ARCHITECT'S COMMENTS: _____
_____
_____

END OF SECTION

SECTION 01 2500 - SUBSTITUTION PROCEDURES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Procedural requirements for proposed substitutions.

1.02 RELATED REQUIREMENTS

A. Section 01 2500.01 - TMP Substitution Request Form.

1.03 DEFINITIONS

A. Substitutions: Changes from Contract Documents requirements proposed by Contractor to materials, products, assemblies, and equipment.
   1. Substitutions for Cause: Proposed due to changed Project circumstances beyond Contractor's control.
   2. Substitutions for Convenience: Proposed due to possibility of offering substantial advantage to the Project.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 GENERAL REQUIREMENTS

A. A Substitution Request for products, assemblies, materials, and equipment constitutes a representation that the submitter:
   1. Has investigated proposed product and determined that it meets or exceeds the quality level of the specified product, equipment, assembly, or system.
   2. Agrees to provide the same warranty for the substitution as for the specified product.
   3. Agrees to provide same or equivalent maintenance service and source of replacement parts, as applicable.
   4. Agrees to coordinate installation and make changes to other work that may be required for the work to be complete, with no additional cost to Owner.
   5. Waives claims for additional costs or time extension that may subsequently become apparent.

B. Document each request with complete data substantiating compliance of proposed substitution with Contract Documents. Burden of proof is on proposer.
   1. Note explicitly any non-compliant characteristics.

C. Content: Include information necessary for tracking the status of each Substitution Request, and information necessary to provide an actionable response.
   1. Forms included in the Project Manual are adequate for this purpose, and must be used.

D. Limit each request to a single proposed substitution item.
   1. Submit an electronic document, combining the request form with supporting data into single document.

3.02 SUBSTITUTION PROCEDURES DURING PROCUREMENT

A. Substitution Request Form: TMP Substitution Request Form must be completed and provided at the beginning of each substitution request.
   1. Refer to Section 01 2500.01 - TMP Substitution Request Form.
   2. Submittals without a completed TMP Substitution Request Form will not be acknowledged, reviewed, or returned. Use only this form; other forms of submission are unacceptable.

B. Instructions to Bidders specifies time restrictions for submitting requests for substitutions during the bidding period.

3.03 SUBSTITUTION PROCEDURES DURING CONSTRUCTION

A. Substitution Request Form: TMP Substitution Request Form must be completed and provided at the beginning of each substitution request.
   1. Refer to Section 01 2500.01 - TMP Substitution Request Form.

2. Submittals without a completed TMP Substitution Request Form will not be acknowledged, reviewed, or returned. Use only this form; other forms of submission are unacceptable.

B. Submit request for Substitution for Cause immediately upon discovery of need for substitution, but not later than 14 days prior to time required for review and approval by Architect, in order to stay on approved project schedule.

C. Submit request for Substitution for Convenience immediately upon discovery of its potential advantage to the project, but not later than 14 days prior to time required for review and approval by Architect, in order to stay on approved project schedule.

1. In addition to meeting general documentation requirements, document how the requested substitution benefits the Owner through cost savings, time savings, greater energy conservation, or in other specific ways.
2. Document means of coordinating of substitution item with other portions of the work, including work by affected subcontractors.
3. Bear the costs engendered by proposed substitution of:
   a. Owner's compensation to the Architect for any required redesign, time spent processing and evaluating the request.
   b. Other unanticipated project considerations.

D. Substitutions will not be considered under one or more of the following circumstances:

1. When they are indicated or implied on shop drawing or product data submittals, without having received prior approval.
2. Without a separate written request.

3.04 RESOLUTION

A. Architect may request additional information and documentation prior to rendering a decision. Provide this data in an expeditious manner.

B. Architect will notify Contractor in writing of decision to accept or reject request.

1. During construction, Architect's decision following review of proposed substitution will be noted on the submitted form.
2. During bidding, Architect will approve substitution requests by issuing an Addendum. Substitutions not approved by addendum are rejected.

3.05 ACCEPTANCE

A. Accepted substitutions change the work of the Project. They will be documented and incorporated into work of the project by Change Order, Construction Change Directive, Architectural Supplementary Instructions, or similar instruments provided for in the Conditions of the Contract.

3.06 CLOSEOUT ACTIVITIES

A. See Section 01 7800 - Closeout Submittals, for closeout submittals.

END OF SECTION

SUBMITTAL AND SAMPLE TRANSMITTAL FORM

01 3000.01

CONST. MANAGER / CONTRACTOR	PROJECT	TMP PROJECT NO.	DATE SUBMITTED	SUBMITTAL NO.
Name and Address:	Title:			

* ACTION CODES	
R	Reviewed – No Exceptions Taken
RN	Reviewed with Corrections Noted
RR	Revise and Resubmit
X	Not Approved – Resubmit
NA	No Action Taken – Not Reviewed

Initial Submittal ☐

Resubmittal ☐

Email:	Location:
Phone:	

REVIEWED BY	
TMP	☐
Consultant	☐
Reviewer:	

SPECIFICATION SECTION NO.	SUBCONTRACTOR / MANUFACTURER	ITEM DESCRIPTION	NO. OF SAMPLES	NO. OF SAMPLES RETURNED	ACTION CODE *	DATE REVIEWED	DATE RETURNED
Transmittal shall be for one specification section only; do not submit items from multiple sections under the same transmittal. Multi-section submittals will be returned; stamped "X - Not Approved - Resubmit"							

Submittal Stamps may be placed on subsequent blank page.

CONTRACTOR COMMENTS	ARCHITECT COMMENTS

The undersigned certifies that the above submitted items have been reviewed in detail and are correct and in strict conformance with the Contract Documents except as otherwise noted. NOTE: Approval of items submitted does not relieve Contractor from complying with all requirements of the Contract Documents.

CONTRACTOR NAME

SIGNATURE

This page intentionally left blank for Submittal Stamps

SECTION 01 3000 - ADMINISTRATIVE REQUIREMENTS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Submittals for review, information, and project closeout.
B. Number of copies of submittals.
C. Requests for Interpretation (RFI) procedures.
D. Submittal procedures.

1.02 RELATED REQUIREMENTS

A. Section 01 3000.01 - TMP Submittal and Sample Transmittal Form.

1.03 REFERENCE STANDARDS

A. AIA G716 - Request for Information 2004.
B. CSI/CSC Form 13.2A - Request for Information Current Edition.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 REQUESTS FOR INTERPRETATION (RFI)

A. Definition: A request seeking one of the following:
   1. An interpretation, amplification, or clarification of some requirement of Contract Documents arising from inability to determine from them the exact material, process, or system to be installed; or when the elements of construction are required to occupy the same space (interference); or when an item of work is described differently at more than one place in Contract Documents.
   2. A resolution to an issue which has arisen due to field conditions and affects design intent.
B. Preparation: Prepare an RFI immediately upon discovery of a need for interpretation of Contract Documents. Failure to submit a RFI in a timely manner is not a legitimate cause for claiming additional costs or delays in execution of the work.
   1. Prepare a separate RFI for each specific item.
      a. Review, coordinate, and comment on requests originating with subcontractors and/or materials suppliers.
      b. Do not forward requests which solely require internal coordination between subcontractors.
   2. Prepare in a format and with content acceptable to Architect. Use one of the following:
      a. Use AIA G716 - Request for Information .
      b. Use CSI/CSC Form 13.2A - Request for Interpretation.
      c. Other format acceptable to Architect.
   3. Combine RFI and its attachments into a single electronic file. PDF format is preferred.
C. Reason for the RFI: Prior to initiation of an RFI, carefully study all Contract Documents to confirm that information sufficient for their interpretation is definitely not included.
   1. Include in each request Contractor's signature attesting to good faith effort to determine from Contract Documents information requiring interpretation.
   2. Improper RFIs: Requests not prepared in conformance to requirements of this section, and/or missing key information required to render an actionable response. They will be returned without a response and may include an explanatory notation.
   3. Frivolous RFIs: Requests regarding information that is clearly indicated on, or reasonably inferable from, the Contract Documents, with no additional input required to clarify the question. They will be returned without a response and may include an explanatory notation.
      a. The Owner reserves the right to assess the Contractor for the costs (on time-and-materials basis) incurred by the Architect, and any of its consultants, due to processing of such RFIs.
D. Content: Include identifiers necessary for tracking the status of each RFI, and information necessary to provide an actionable response.

1. Official Project name and number, and any additional required identifiers established in Contract Documents.
2. Discrete and consecutive RFI number, and descriptive subject/title.
3. Issue date, and requested reply date.
4. Reference to particular Contract Document(s) requiring additional information/interpretation. Identify pertinent drawing and detail number and/or specification section number, title, and paragraph(s).
5. Annotations: Field dimensions and/or description of conditions which have engendered the request.
6. Contractor's suggested resolution: A written and/or a graphic solution, to scale, is required in cases where clarification of coordination issues is involved, for example; routing, clearances, and/or specific locations of work shown diagrammatically in Contract Documents. If applicable, state the likely impact of the suggested resolution on Contract Time or the Contract Sum.

E. Attachments: Include sketches, coordination drawings, descriptions, photos, submittals, and other information necessary to substantiate the reason for the request.

F. RFI Log: Prepare and maintain a tabular log of RFIs for the duration of the project.
1. Indicate current status of every RFI. Update log promptly and on a regular basis.
2. Note dates of when each request is made, and when a response is received.
3. Identify and include improper or frivolous RFIs.

G. Review Time: Architect will respond and return RFIs to Contractor within seven calendar days of receipt. For the purpose of establishing the start of the mandated response period, RFIs received after 3:00 PM will be considered as having been received on the following regular working day.
1. Response period may be shortened or lengthened for specific items, subject to mutual agreement, and recorded in a timely manner in progress meeting minutes.

H. Responses: Content of answered RFIs will not constitute in any manner a directive or authorization to perform extra work or delay the project. If in Contractor's belief it is likely to lead to a change to Contract Sum or Contract Time, promptly issue a notice to this effect, and follow up with an appropriate Change Order request to Owner.
1. Response may include a request for additional information, in which case the original RFI will be deemed as having been answered, and an amended one is to be issued forthwith. Identify the amended RFI with an R suffix to the original number.
2. Do not extend applicability of a response to specific item to encompass other similar conditions, unless specifically so noted in the response.
3. Upon receipt of a response, promptly review and distribute it to all affected parties, and update the RFI Log.
4. Notify Architect within seven calendar days if an additional or corrected response is required by submitting an amended version of the original RFI, identified as specified above.

3.02 SUBMITTAL SCHEDULE

A. Submit to Architect for review a schedule for submittals in tabular format.
1. Submit at the same time as the preliminary schedule.
2. Coordinate with Contractor's construction schedule and schedule of values.
3. Format schedule to allow tracking of status of submittals throughout duration of construction.
4. Arrange information to include scheduled date for initial submittal, specification number and title, description of item of work covered, and role and name of subcontractor.
5. Account for time required for preparation, review, manufacturing, fabrication and delivery when establishing submittal delivery and review deadline dates.

a. For assemblies, equipment, systems comprised of multiple components and/or requiring detailed coordination with other work, allow for additional time to make corrections or revisions to initial submittals, and time for their review.

3.03 SUBMITTALS FOR REVIEW

A. When the following are specified in individual sections, submit them for review:
   1. Product data.
   2. Shop drawings.
   3. Samples for selection.
   4. Samples for verification.

B. Submit to Architect for review for the limited purpose of checking for compliance with information given and the design concept expressed in Contract Documents.

C. Samples will be reviewed for aesthetic, color, or finish selection.

D. After review, provide copies and distribute in accordance with SUBMITTAL PROCEDURES article below and for record documents purposes described in Section 01 7800 - Closeout Submittals.

3.04 SUBMITTALS FOR INFORMATION

A. When the following are specified in individual sections, submit them for information:
   1. Design data.
   2. Certificates.
   3. Test reports.
   4. Inspection reports.
   5. Manufacturer's instructions.
   6. Manufacturer's field reports.
   7. Other types indicated.

B. Submit for Architect's knowledge as contract administrator or for Owner.

3.05 SUBMITTALS FOR PROJECT CLOSEOUT

A. Submit Correction Punch List for Substantial Completion.

B. Submit Final Correction Punch List for Substantial Completion.

C. When the following are specified in individual sections, submit them at project closeout in compliance with requirements of Section 01 7800 - Closeout Submittals:
   1. Project record documents.
   2. Operation and maintenance data.
   3. Warranties.
   4. Other types as indicated.

D. Submit for Owner's benefit during and after project completion.

3.06 NUMBER OF COPIES OF SUBMITTALS

A. Electronic Documents: Submit one electronic copy.

B. Samples: Submit the number specified in individual specification sections, but not less than 3; one (minimum) of which will be retained by Architect.
   1. After review, produce duplicates.
   2. Retained samples will not be returned to Contractor unless specifically so stated.

3.07 SUBMITTAL PROCEDURES

A. Transmittal Form: TMP Submittal and Sample Transmittal Form must be completed and provided at the beginning of each submittal.
   1. Refer to Section 01 3000.01 - TMP Submittal and Sample Transmittal Form.
   2. Submittals without a completed TMP Submittal and Sample Transmittal Form will not be acknowledged, reviewed, or returned.

B. Submittals shall be submitted in electronic form.
   1. Exceptions: Physical samples.

a. Physical Samples must be accompanied by an electronic copy and a hard/physical copy of the completed TMP Submittal and Sample Transmittal Form.

C. Electronic Submittals: Comply with the following:
1. Submittal process shall be through a data management system (i.e. Submittal Exchange) or other approved method agreed to by the Architect and Owner.
2. File Format: Portable Document Format (PDF).
3. File Naming: File naming shall be in the following format:
a. Specification section number, followed by a hyphen, and a consecutive number indicating sequential submittals for that section; followed by a general description of the submittal contents.
1) Examples:
(a) Section 07 9200; first submittal:
(1) 07 9200-01 Joint Sealants
(b) Section 07 9200; second submittal:
(1) 07 9200-02 Joint Sealant Color
b. Resubmittals. For revised resubmittals use original number and a sequential combination numerical and alphabetical suffix; hyphen followed by "R" and a two-digit consecutive number indicating sequential resubmittals for that particular submittal.
1) Examples:
(a) Section 07 9200; resubmittal of first submittal of section:
(1) 07 9200-01-R01 Joint Sealants.
(b) Section 07 9200; second resubmittal of first submittal of section:
(1) 07 9200-01-R02 Joint Sealants
(c) Section 07 9200; first resubmittal of second submittal of section:
(1) 07 9200-02-R01 Joint Sealant Color
4. Each Submittal shall be one file, complete with all attachments.
a. Multi-file submittal will not be acknowledged, reviewed, or returned.

D. General Requirements:
1. Use a single transmittal for related items.
a. Each transmittal shall be for one specification section only; do not submit items for multiple sections under the same transmittal.
1) Multi-section submittals will be acknowledged and returned; stamped "X - Not Approved - Resubmit".
2. Submit separate packages of submittals for review and submittals for information, when included in the same specification section.
3. Apply Contractor's stamp, signed or initialed certifying that review, approval, verification of products required, field dimensions, adjacent construction work, and coordination of information is in accordance with the requirements of the work and Contract Documents.
a. Submittals from sources other than the Contractor, or without Contractor's stamp will not be acknowledged, reviewed, or returned.
4. Deliver each submittal on date noted in submittal schedule, unless an earlier date has been agreed to by all affected parties, and is of the benefit to the project.
5. Schedule submittals to expedite the Project, and coordinate submission of related items.
a. For each submittal for review, allow 14 calendar days excluding delivery time to and from the Contractor.
b. For sequential reviews involving Architect's consultants, Owner, or another affected party, allow an additional 7 calendardays.
6. Identify variations from Contract Documents and product or system limitations that may be detrimental to successful performance of the completed work.
7. When revised for resubmission, identify all changes made since previous submission.
8. Distribute reviewed submittals. Instruct parties to promptly report inability to comply with requirements.
9. Incomplete submittals will not be reviewed, unless they are partial submittals for distinct portion(s) of the work, and have received prior approval for their use.

10. Submittals not requested will be recognized and returned; stamped "NA - No Action Taken - Not Reviewed"

E. Product Data Procedures:
1. Submit only information required by individual specification sections.
2. Collect required information into a single submittal.
3. Submit concurrently with related shop drawing submittal.
4. Do not submit (Material) Safety Data Sheets for materials or products unless specifically called for in individual sections.

F. Shop Drawing Procedures:
1. Prepare accurate, drawn-to-scale, original shop drawing documentation by interpreting Contract Documents and coordinating related work.
2. Do not reproduce Contract Documents to create shop drawings.
3. Generic, non-project-specific information submitted as shop drawings do not meet the requirements for shop drawings.
4. Non-complying submittals will be acknowledged and returned; stamped "X - Not Approved - Resubmit".

G. Samples Procedures:
1. Transmit related items together as single package.
2. Identify each item to allow review for applicability in relation to shop drawings showing installation locations.
3. Submit actual physical samples.
4. Electronic submittals will not be accepted unless prior approval is received from the Architect. Electronic samples without prior approval will be acknowledged and returned; stamped "X - Not Approved - Resubmit."

3.08 SUBMITTAL REVIEW

A. General: Submittals that do not conform to the requirements of this section will not be acknowledged, reviewed, or returned.

B. Submittals for Review: Architect will review each submittal, and approve, or take other appropriate action.

C. Submittals for Information: Architect will acknowledge and may review. See below for actions to be taken.

D. Architect's actions will be reflected by marking each returned submittal using virtual stamp on electronic submittals.
1. Where more than one action has been indicated, each shall apply to that portion of the submittal for which the action is indicated.

E. Architect's review shall not indicate approval of dimensions, quantities or fabrication processes unless specific notations are made by the Architect regarding same.

F. Architect's and consultants' actions on items submitted for review:
1. Authorizing purchasing, fabrication, delivery, and installation:
a. "Reviewed - No Exceptions Taken", "Approved", or language with same legal meaning.
b. "Reviewed with Corrections Noted", "Approved as Noted, Resubmission not required", or language with same legal meaning.
1) At Contractor's option, submit corrected item, with review notations acknowledged and incorporated.
2. Not Authorizing fabrication, delivery, and installation:
a. "Revise and Resubmit", "Not Approved - Resubmit", or language with the same legal meaning.
1) Resubmit revised item, with review notations acknowledged and incorporated.
3. Not Authorizing manufacturer:
a. Rejected - Resubmit, or language with the same legal meaning.

G. Architect's and consultants' actions on items submitted for information:

1. Items for which no action was taken:
   a. "No Action Taken - Not Reviewed" or "Received" - to notify the Contractor that the submittal has been received for record only.

END OF SECTION

SECTION 01 4000 - QUALITY REQUIREMENTS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Submittals.
B. Quality assurance.
C. References and standards.
D. Testing and inspection agencies and services.
E. Contractor's design-related professional design services.
F. Control of installation.
G. Mock-ups.
H. Tolerances.
I. Manufacturers' field services.
J. Defect Assessment.

1.02 REFERENCE STANDARDS

A. ASTM E329 - Standard Specification for Agencies Engaged in Construction Inspection, Testing, or Special Inspection 2021.
B. ASTM E543 - Standard Specification for Agencies Performing Nondestructive Testing 2021.
C. ASTM E699 - Standard Specification for Agencies Involved in Testing, Quality Assurance, and Evaluating of Manufactured Building Components 2016.

1.03 DEFINITIONS

A. Contractor's Professional Design Services: Design of some aspect or portion of the project by party other than the design professional of record. Provide these services as part of the Contract for Construction.
    1. Design Services Types Required:
        a. Design-Related: Design services explicitly required to be performed by another design professional due to highly-technical and/or specialized nature of a portion of the project. Services primarily involve engineering analysis, calculations, and design, and are not intended to alter the aesthetic aspects of the design.
B. Design Data: Design-related, signed and sealed drawings, calculations, specifications, certifications, shop drawings and other submittals provided by Contractor, and prepared directly by, or under direct supervision of, appropriately licensed design professional.

1.04 CONTRACTOR'S DESIGN-RELATED PROFESSIONAL DESIGN SERVICES

A. Coordination: Contractor's professional design services are subject to requirements of project's Conditions for Construction Contract.
B. Base design on performance and/or design criteria indicated in individual specification sections.

1.05 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
B. Design Data: Submit for Architect's knowledge as contract administrator for the limited purpose of assessing compliance with information given and the design concept expressed in the Contract Documents, or for Owner's information.
    1. Include a statement or certification attesting that design data complies with criteria indicated, such as building codes, loads, functional, and similar engineering requirements.
    2. Include signature and seal of design professional responsible for allocated design services on calculations and drawings.
C. Test Reports: After each test/inspection, promptly submit 1 copies of report to Architect and to Contractor.
    1. Include:

a. Date issued.
b. Project title and number.
c. Name of inspector.
d. Date and time of sampling or inspection.
e. Identification of product and specifications section.
f. Location in the Project.
g. Type of test/inspection.
h. Date of test/inspection.
i. Results of test/inspection.
j. Compliance with Contract Documents.
k. When requested by Architect, provide interpretation of results.

2. Test report submittals are for Architect's knowledge as contract administrator for the limited purpose of assessing compliance with information given and the design concept expressed in the Contract Documents, or for Owner's information.

D. Certificates: When specified in individual specification sections, submit certification by the manufacturer and Contractor or installation/application subcontractor to Architect, in quantities specified for Product Data.
1. Indicate material or product complies with or exceeds specified requirements. Submit supporting reference data, affidavits, and certifications as appropriate.
2. Certificates may be recent or previous test results on material or product, but must be acceptable to Architect.

E. Manufacturer's Instructions: When specified in individual specification sections, submit printed instructions for delivery, storage, assembly, installation, start-up, adjusting, and finishing, for the Owner's information. Indicate special procedures, perimeter conditions requiring special attention, and special environmental criteria required for application or installation.

F. Manufacturer's Field Reports: Submit reports for Architect's benefit as contract administrator or for Owner.
1. Submit for information for the limited purpose of assessing compliance with information given and the design concept expressed in the Contract Documents.

1.06 QUALITY ASSURANCE

A. Testing Agency Qualifications:
1. Prior to start of Work, submit agency name, address, and telephone number, and names of full time specialist and responsible officer.

B. Designer Qualifications: Where professional engineering design services and design data submittals are specifically required of Contractor by Contract Documents, provide services of a Professional Engineer experienced in design of this type of work and licensed in the State in which the Project is located.

1.07 REFERENCES AND STANDARDS

A. Obtain copies of standards where required by product specification sections.

B. Maintain copy at project site during submittals, planning, and progress of the specific work, until Substantial Completion.

1.08 TESTING AND INSPECTION AGENCIES AND SERVICES

A. As indicated in individual specification sections, Owner or Contractor shall employ and pay for services of an independent testing agency to perform other specified testing.

B. Employment of agency in no way relieves Contractor of obligation to perform Work in accordance with requirements of Contract Documents.

C. Contractor Employed Agency:
1. Testing agency: Comply with requirements of ASTM E329, ASTM E543, and ASTM E699.
2. Inspection agency: Comply with requirements of ASTM E329.

3. Laboratory Staff: Maintain a full time specialist on staff to review services.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 CONTROL OF INSTALLATION

A. Monitor quality control over suppliers, manufacturers, products, services, site conditions, and workmanship, to produce work of specified quality.
B. Comply with manufacturers' instructions, including each step in sequence.
C. Should manufacturers' instructions conflict with Contract Documents, request clarification from Architect before proceeding.
D. Comply with specified standards as minimum quality for the work except where more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.
E. Have work performed by persons qualified to produce required and specified quality.
F. Verify that field measurements are as indicated on shop drawings or as instructed by the manufacturer.
G. Secure products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion, and disfigurement.

3.02 MOCK-UPS

A. Before installing portions of the Work where mock-ups are required, construct mock-ups in location and size indicated for each form of construction and finish required to comply with the following requirements, using materials indicated for the completed Work. The purpose of mock-up is to demonstrate the proposed range of aesthetic effects and workmanship.
B. Accepted mock-ups establish the standard of quality the Architect will use to judge the Work.
C. Integrated Exterior Mock-ups: Construct integrated exterior mock-up as indicated on drawings. Coordinate installation of exterior envelope materials and products as required in individual Specification Sections. Provide adequate supporting structure for mock-up materials as necessary.
D. Notify Architect 5 working days in advance of dates and times when mock-ups will be constructed.
E. Provide supervisory personnel who will oversee mock-up construction. Provide workers that will be employed during the construction at Project.
F. Tests shall be performed under provisions identified in this section and identified in the respective product specification sections.
G. Assemble and erect specified items with specified attachment and anchorage devices, flashings, seals, and finishes.
H. Obtain Architect's approval of mock-ups before starting work, fabrication, or construction.
    1. Make corrections as necessary until Architect's approval is issued.
I. Where mock-up has been accepted by Architect and is specified in product specification sections to be removed, protect mock-up throughout construction, remove mock-up and clear area when directed to do so by Architect.

3.03 TOLERANCES

A. Monitor fabrication and installation tolerance control of products to produce acceptable Work. Do not permit tolerances to accumulate.
B. Comply with manufacturers' tolerances. Should manufacturers' tolerances conflict with Contract Documents, request clarification from Architect before proceeding.
C. Adjust products to appropriate dimensions; position before securing products in place.

3.04 TESTING AND INSPECTION

A. See individual specification sections for testing and inspection required.

B. Testing Agency Duties:

1. Provide qualified personnel at site. Cooperate with Architect and Contractor in performance of services.
2. Perform specified sampling and testing of products in accordance with specified standards.
3. Ascertain compliance of materials and mixes with requirements of Contract Documents.
4. Promptly notify Architect and Contractor of observed irregularities or non-compliance of Work or products.
5. Perform additional tests and inspections required by Architect.
6. Submit reports of all tests/inspections specified.

C. Limits on Testing/Inspection Agency Authority:

1. Agency may not release, revoke, alter, or enlarge on requirements of Contract Documents.
2. Agency may not approve or accept any portion of the Work.
3. Agency may not assume any duties of Contractor.
4. Agency has no authority to stop the Work.

D. Contractor Responsibilities:

1. Deliver to agency at designated location, adequate samples of materials proposed to be used that require testing, along with proposed mix designs.
2. Cooperate with laboratory personnel, and provide access to the Work.
3. Provide incidental labor and facilities:
   a. To provide access to Work to be tested/inspected.
   b. To obtain and handle samples at the site or at source of Products to be tested/inspected.
   c. To facilitate tests/inspections.
   d. To provide storage and curing of test samples.
4. Notify Architect and laboratory 48 hours prior to expected time for operations requiring testing/inspection services.
5. Employ services of an independent qualified testing laboratory and pay for additional samples, tests, and inspections required by Contractor beyond specified requirements.
6. Arrange with Owner's agency and pay for additional samples, tests, and inspections required by Contractor beyond specified requirements.

E. Re-testing required because of non-compliance with specified requirements shall be performed by the same agency on instructions by Architect.

F. Re-testing required because of non-compliance with specified requirements shall be paid for by Contractor.

3.05 MANUFACTURERS' FIELD SERVICES

A. When specified in individual specification sections, require material or product suppliers or manufacturers to provide qualified staff personnel to observe site conditions, conditions of surfaces and installation, quality of workmanship, start-up of equipment, test, adjust, and balance equipment as applicable, and to initiate instructions when necessary.

B. Report observations and site decisions or instructions given to applicators or installers that are supplemental or contrary to manufacturers' written instructions.

3.06 DEFECT ASSESSMENT

A. Replace Work or portions of the Work not complying with specified requirements.

B. If, in the opinion of Architect, it is not practical to remove and replace the work, Architect will direct an appropriate remedy or adjust payment.

END OF SECTION

SECTION 01 4100 - REGULATORY REQUIREMENTS

PART 1 GENERAL

1.01 SUMMARY OF REFERENCE STANDARDS

A. Regulatory requirements applicable to this project are the following:
   1. Barrier Free Code: Comply with the following:
      a. Michigan Building Code; 2015.
      b. ICC A117.1 - Accessible and Usable Buildings and Facilities; 2009.
   2. School Fire Safety Rules: Michigan School Fire Safety Rules; 2016.
      a. Includes NFPA 101-2012 - Life Safety Code; 2012, plus amendments.
   3. Building Code: Michigan Building Code; 2015.
   4. Plumbing Code: Michigan Plumbing Code; 2018.
   5. Mechanical Code: Michigan Mechanical Code; 2015.
   6. Electrical Code: NFPA 70 - National Electric Code; 2017.
      a. Includes 2017 Michigan Construction Code - Part 8 Electrical Code Rules.
   7. Elevator Code: Comply with the following:
      a. ASME A17.1 - Safety Code for Elevators and Escalators; 2010.
      b. ASME A18.1- Safety Standard for Platform Lifts and Stairway Chairlifts; 2011.
      c. Michigan Elevator Safety Board General Rules.
   8. Boiler Code: Michigan Boiler Code.
      a. Includes the following:
         1) ASME Boiler and Pressure Vessel Codes; 2010, plus 2011 addenda.
         2) National Board Inspection Code; 2011.
         3) PA 407 Skilled Trades Regulation Act; 2016.
   9. Energy Code: Michigan Energy Code; 2015.
      a. Includes ASHRAE Std 90.1 I-P-2013- Energy Standard for Buildings Except Low-Rise Residential Buildings; 2013.
   10. Existing Building Code: Michigan Rehabilitation Code; 2015.

B. Where specification sections reference more current standards or codes, comply with the more restrictive requirements unless notified in writing by Architect.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION

SECTION 01 4216 - DEFINITIONS

PART 1 GENERAL

1.01 SUMMARY

A. This section supplements the definitions contained in the General Conditions.

B. Other definitions are included in individual specification sections.

1.02 DEFINITIONS

A. Furnish: To supply, deliver, unload, and inspect for damage.

B. Install: To unpack, assemble, erect, apply, place, finish, cure, protect, clean, start up, and make ready for use.

C. Product: Material, machinery, components, equipment, fixtures, and systems forming the work result. Not materials or equipment used for preparation, fabrication, conveying, or erection and not incorporated into the work result. Products may be new, never before used, or re-used materials or equipment.

D. Project Manual: The book-sized volume that includes the procurement requirements (if any), the contracting requirements, and the specifications.

E. Provide: To furnish and install.

F. Supply: Same as Furnish.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION

SECTION 01 4219 - REFERENCE STANDARDS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Requirements relating to referenced standards.

1.02 QUALITY ASSURANCE

A. For products or workmanship specified by reference to a document or documents not included in the Project Manual, also referred to as reference standards, comply with requirements of the standard, except when more rigid requirements are specified or are required by applicable codes.

B. Comply with the reference standard of date of issue specified in this section, except where a specific date is established by applicable code.

C. Should specified reference standards conflict with Contract Documents, request clarification from the Architect before proceeding.

D. Neither the contractual relationships, duties, or responsibilities of the parties in Contract nor those of the Architect shall be altered by Contract Documents by mention or inference otherwise in any reference document.

PART 2 PRODUCTS -- NOT USED

PART 3 EXECUTION -- NOT USED

END OF SECTION

SECTION 01 4533 - CODE-REQUIRED SPECIAL INSPECTIONS AND PROCEDURES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Code-required special inspections.
B. Submittals.

1.02 ABBREVIATIONS AND ACRONYMS

A. AHJ: Authority having jurisdiction.
B. NIST: National Institute of Standards and Technology.

1.03 DEFINITIONS

A. Code or Building Code: Michigan Building Code; 2015, specifically Chapter 17 - Special Inspections and Tests.
B. Authority Having Jurisdiction (AHJ): Agency or individual officially empowered to enforce the building, fire and life safety code requirements of the permitting jurisdiction in which the Project is located.
C. Special Inspection:
   1. Special inspections are inspections and testing of materials, installation, fabrication, erection or placement of components and connections mandated by the AHJ that also require special expertise to ensure compliance with the approved Contract Documents and the referenced standards.
   2. Special inspections are separate from and independent of tests and inspections conducted by Owner or Contractor for the purposes of quality assurance and contract administration.

1.04 REFERENCE STANDARDS

A. ASTM E329 - Standard Specification for Agencies Engaged in Construction Inspection, Testing, or Special Inspection 2021.

1.05 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
B. Special Inspection Agency Qualifications: Prior to the start of work, the Special Inspection Agency is required to:
   1. Submit agency name, address, and telephone number, names of full time specialist and responsible officer.
   2. Submit copy of report of laboratory facilities inspection made by NIST Construction Materials Reference Laboratory during most recent inspection, with memorandum of remedies of any deficiencies reported by the inspection.
   3. Submit certification that Special Inspection Agency is acceptable to AHJ.
C. Special Inspection Reports: After each special inspection, Special Inspector is required to promptly submit at least two copies of report; one to Architect and one to the AHJ.
   1. Include:
      a. Date issued.
      b. Project title and number.
      c. Name of Special Inspector.
      d. Date and time of special inspection.
      e. Identification of product and specifications section.
      f. Location in the Project.
      g. Type of special inspection.
      h. Date of special inspection.
      i. Results of special inspection.
      j. Compliance with Contract Documents.

2. Final Special Inspection Report: Document special inspections and correction of discrepancies prior to the start of the work.

D. Fabricator Special Inspection Reports: After each special inspection of fabricated items at the Fabricator's facility, Special Inspector is required to promptly submit at least two copies of report; one to Architect and one to AHJ.
   1. Include:
      a. Date issued.
      b. Project title and number.
      c. Name of Special Inspector.
      d. Date and time of special inspection.
      e. Identification of fabricated item and specification section.
      f. Location in the Project.
      g. Results of special inspection.
      h. Verification of fabrication and quality control procedures.
      i. Compliance with Contract Documents.
      j. Compliance with referenced standard(s).

E. Test Reports: After each test or inspection, promptly submit at least two copies of report; one to Architect and one to AHJ.
   1. Include:
      a. Date issued.
      b. Project title and number.
      c. Name of inspector.
      d. Date and time of sampling or inspection.
      e. Identification of product and specifications section.
      f. Location in the Project.
      g. Type of test or inspection.
      h. Date of test or inspection.
      i. Results of test or inspection.
      j. Compliance with Contract Documents.

1.06 SPECIAL INSPECTION AGENCY

A. Owner will employ services of a Special Inspection Agency to perform inspections and associated testing and sampling in accordance with ASTM E329 and required by the building code.

B. Employment of agency in no way relieves Contractor of obligation to perform work in accordance with requirements of Contract Documents.

1.07 QUALITY ASSURANCE

A. Special Inspection Agency Qualifications:
   1. Independent firm specializing in performing testing and inspections of the type specified in this section.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 SCHEDULE OF SPECIAL INSPECTIONS, GENERAL

A. Frequency of Special Inspections: Special Inspections are indicated as continuous or periodic.
   1. Continuous Special Inspection: Special Inspection Agency is required to be present in the area where the work is being performed and observe the work at all times the work is in progress.
   2. Periodic Special Inspection: Special Inspection Agency is required to be present in the area where work is being performed and observe the work part-time or intermittently and at the completion of the work.

3.02 SPECIAL INSPECTIONS

A. Special inspections and testing shall be for materials, installation, fabrication, erection or placement of components and connections as indicated on Drawings, but not less than that required by the building code.

END OF SECTION

SECTION 01 6000 - PRODUCT REQUIREMENTS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Re-use of existing products.
B. Transportation, handling, storage and protection.
C. Product option requirements.
D. Substitution limitations.
E. Procedures for Owner-supplied products.
F. Maintenance materials, including extra materials, spare parts, tools, and software.

1.02 SUBMITTALS

A. Product Data Submittals: Submit manufacturer's standard published data. Mark each copy to identify applicable products, models, options, and other data. Supplement manufacturers' standard data to provide information specific to this Project.
B. Shop Drawing Submittals: Prepared specifically for this Project; indicate utility and electrical characteristics, utility connection requirements, and location of utility outlets for service for functional equipment and appliances.
C. Sample Submittals: Illustrate functional and aesthetic characteristics of the product, with integral parts and attachment devices. Coordinate sample submittals for interfacing work.
    1. For selection from standard finishes, submit samples of the full range of the manufacturer's standard colors, textures, and patterns.

PART 2 PRODUCTS

2.01 EXISTING PRODUCTS

A. Do not use materials and equipment removed from existing premises unless specifically required or permitted by Contract Documents.
B. Unforeseen historic items encountered remain the property of the Owner; notify Owner promptly upon discovery; protect, remove, handle, and store as directed by Owner.
C. Existing materials and equipment indicated to be removed, but not to be re-used, relocated, reinstalled, delivered to the Owner, or otherwise indicated as to remain the property of the Owner, become the property of the Contractor; remove from site.
D. Specific Products to be Reused: The reuse of certain materials and equipment already existing on the project site is required.
    1. Refer to Drawings and Section 02 4100 - Demolition.

2.02 NEW PRODUCTS

A. Provide new products unless specifically required or permitted by Contract Documents.

2.03 PRODUCT OPTIONS

A. Products Specified by Reference Standards or by Description Only: Use any product meeting those standards or description.
B. Products Specified by Naming One or More Manufacturers: Use a product of one of the manufacturers named and meeting specifications, no options or substitutions allowed.
C. Products Specified by Naming One or More Manufacturers with a Provision for Substitutions: Submit a request for substitution for any manufacturer not named.
D. Available Products: Products specified by naming one or more Manufacturers as an Available Product indicates that these Manufacturers' products may be provided but other comparable products and Manufacturers not named may also be provided without submitting a request for substitution.

2.04 MAINTENANCE MATERIALS

A. Furnish extra materials, spare parts, tools, and software of types and in quantities specified in individual specification sections.

B. Deliver and place in location as directed; obtain receipt prior to final payment.

PART 3 EXECUTION

3.01 SUBSTITUTION LIMITATIONS

A. See Section 01 2500 - Substitution Procedures.

3.02 OWNER-SUPPLIED PRODUCTS

A. Owner's Responsibilities:
   1. Arrange for and deliver Owner reviewed shop drawings, product data, and samples, to Contractor.
   2. Arrange and pay for product delivery to site.
   3. On delivery, inspect products jointly with Contractor.
   4. Submit claims for transportation damage and replace damaged, defective, or deficient items.
   5. Arrange for manufacturers' warranties, inspections, and service.

B. Contractor's Responsibilities:
   1. Review Owner reviewed shop drawings, product data, and samples.
   2. Receive and unload products at site; inspect for completeness or damage jointly with Owner.
   3. Handle, store, install and finish products.
   4. Repair or replace items damaged after receipt.

3.03 TRANSPORTATION AND HANDLING

A. Package products for shipment in manner to prevent damage; for equipment, package to avoid loss of factory calibration.

B. If special precautions are required, attach instructions prominently and legibly on outside of packaging.

C. Coordinate schedule of product delivery to designated prepared areas in order to minimize site storage time and potential damage to stored materials.

D. Transport and handle products in accordance with manufacturer's instructions.

E. Promptly inspect shipments to ensure that products comply with requirements, quantities are correct, and products are undamaged.

F. Provide equipment and personnel to handle products by methods to prevent soiling, disfigurement, or damage, and to minimize handling.

G. Arrange for the return of packing materials, such as wood pallets, where economically feasible.

3.04 STORAGE AND PROTECTION

A. Designate receiving/storage areas for incoming products so that they are delivered according to installation schedule and placed convenient to work area in order to minimize waste due to excessive materials handling and misapplication.

B. Store and protect products in accordance with manufacturers' instructions.

C. Store with seals and labels intact and legible.

D. Store sensitive products in weathertight, climate-controlled enclosures in an environment favorable to product.

E. For exterior storage of fabricated products, place on sloped supports above ground.

F. Provide off-site storage and protection when site does not permit on-site storage or protection.

G. Protect products from damage or deterioration due to construction operations, weather, precipitation, humidity, temperature, sunlight and ultraviolet light, dirt, dust, and other contaminants.

H. Comply with manufacturer's warranty conditions, if any.

I. Do not store products directly on the ground.
J. Cover products subject to deterioration with impervious sheet covering. Provide ventilation to prevent condensation and degradation of products.
K. Store loose granular materials on solid flat surfaces in a well-drained area. Prevent mixing with foreign matter.
L. Prevent contact with material that may cause corrosion, discoloration, or staining.
M. Provide equipment and personnel to store products by methods to prevent soiling, disfigurement, or damage.
N. Arrange storage of products to permit access for inspection. Periodically inspect to verify products are undamaged and are maintained in acceptable condition.

END OF SECTION

SECTION 01 7000 - EXECUTION AND CLOSEOUT REQUIREMENTS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Examination, preparation, and general installation procedures.
B. Requirements for alterations work, including selective demolition.
C. Pre-installation meetings.
D. Cutting and patching.
E. Surveying for laying out the work.
F. Cleaning and protection.
G. Starting of systems and equipment.
H. Demonstration and instruction of Owner personnel.
I. Closeout procedures, including Contractor's Correction Punch List, except payment procedures.
J. General requirements for maintenance service.

1.02 REFERENCE STANDARDS

A. NFPA 241 - Standard for Safeguarding Construction, Alteration, and Demolition Operations 2019.

1.03 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
B. Cutting and Patching: Submit written request in advance of cutting or alteration that affects:
    1. Structural integrity of any element of Project.
    2. Integrity of weather exposed or moisture resistant element.
    3. Efficiency, maintenance, or safety of any operational element.
    4. Visual qualities of sight exposed elements.
    5. Work of Owner or separate Contractor.
    6. Include in request:
        a. Identification of Project.
        b. Location and description of affected work.
        c. Necessity for cutting or alteration.
        d. Description of proposed work and products to be used.
        e. Effect on work of Owner or separate Contractor.
C. Project Record Documents: Accurately record actual locations of capped and active utilities.
D. Warranties: For each affected material under warranty, submit written verification, signed by manufacturer of existing materials, stating that the Owner's full warranty will remain in effect after cutting and patching operations have been completed

1.04 QUALIFICATIONS

A. For surveying work, employ a land surveyor registered in the State in which the Project is located and acceptable to Architect. Submit evidence of surveyor's Errors and Omissions insurance coverage in the form of an Insurance Certificate. Employ only individual(s) trained and experienced in collecting and recording accurate data relevant to ongoing construction activities,

1.05 PROJECT CONDITIONS

A. Use of explosives is not permitted.
B. Grade site to drain. Maintain excavations free of water. Provide, operate, and maintain pumping equipment.
C. Protect site from puddling or running water. Provide water barriers as required to protect site from soil erosion.
D. Perform dewatering activities, as required, for the duration of the project.

E. Ventilate enclosed areas to assist cure of materials, to dissipate humidity, and to prevent accumulation of dust, fumes, vapors, or gases.
F. Dust Control: Execute work by methods to minimize raising dust from construction operations. Provide positive means to prevent air-borne dust from dispersing into atmosphere and over adjacent property.
   1. Provide dust-proof enclosures to prevent entry of dust generated outdoors.
   2. Provide dust-proof barriers between construction areas and areas continuing to be occupied by Owner.
G. Erosion and Sediment Control: Plan and execute work by methods to control surface drainage from cuts and fills, from borrow and waste disposal areas. Prevent erosion and sedimentation.
   1. Periodically inspect earthwork to detect evidence of erosion and sedimentation; promptly apply corrective measures.
H. Noise Control: Provide methods, means, and facilities to minimize noise produced by construction operations.
   1. Outdoors: Limit conduct of especially noisy exterior work to the hours of 8 am to 5 pm.
   2. Indoors: Limit conduct of especially noisy interior work to the hours of 6 pm to 7 am.
I. Pest and Rodent Control: Provide methods, means, and facilities to prevent pests and insects from damaging the work.
J. Pollution Control: Provide methods, means, and facilities to prevent contamination of soil, water, and atmosphere from discharge of noxious, toxic substances, and pollutants produced by construction operations. Comply with federal, state, and local regulations.

1.06 COORDINATION

A. Coordinate scheduling, submittals, and work of the various sections of the Project Manual to ensure efficient and orderly sequence of installation of interdependent construction elements, with provisions for accommodating items installed later.
B. Notify affected utility companies and comply with their requirements.
C. Verify that utility requirements and characteristics of new operating equipment are compatible with building utilities. Coordinate work of various sections having interdependent responsibilities for installing, connecting to, and placing in service, such equipment.
D. Coordinate space requirements, supports, and installation of mechanical and electrical work that are indicated diagrammatically on drawings. Follow routing indicated for pipes, ducts, and conduit, as closely as practicable; place runs parallel with lines of building. Utilize spaces efficiently to maximize accessibility for other installations, for maintenance, and for repairs.
E. In finished areas except as otherwise indicated, conceal pipes, ducts, and wiring within the construction. Coordinate locations of fixtures and outlets with finish elements.
F. Coordinate completion and clean-up of work of separate sections.
G. After Owner occupancy of premises, coordinate access to site for correction of defective work and work not in accordance with Contract Documents, to minimize disruption of Owner's activities.

1.07 WARRANTIES

A. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during cutting and patching operations, by methods and with materials so as not to void existing warranties.

PART 2 PRODUCTS

2.01 PATCHING MATERIALS

A. New Materials: As specified in product sections; match existing products and work for patching and extending work.

B. Type and Quality of Existing Products: Determine by inspecting and testing products where necessary, referring to existing work as a standard.
C. Product Substitution: For any proposed change in materials, submit request for substitution described in Section 01 6000 - Product Requirements.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that existing site conditions and substrate surfaces are acceptable for subsequent work. Start of work means acceptance of existing conditions.
B. Verify that existing substrate is capable of structural support or attachment of new work being applied or attached.
C. Examine and verify specific conditions described in individual specification sections.
D. Take field measurements before confirming product orders or beginning fabrication, to minimize waste due to over-ordering or misfabrication.
E. Verify that utility services are available, of the correct characteristics, and in the correct locations.
F. Prior to Cutting: Examine existing conditions prior to commencing work, including elements subject to damage or movement during cutting and patching. After uncovering existing work, assess conditions affecting performance of work. Beginning of cutting or patching means acceptance of existing conditions.

3.02 PREPARATION

A. Clean substrate surfaces prior to applying next material or substance.
B. Seal cracks or openings of substrate prior to applying next material or substance.
C. Apply manufacturer required or recommended substrate primer, sealer, or conditioner prior to applying any new material or substance in contact or bond.

3.03 PREINSTALLATION MEETINGS

A. When required in individual specification sections, convene a preinstallation meeting at the site prior to commencing work of the section.
B. Require attendance of parties directly affecting, or affected by, work of the specific section.
C. Notify Architect 5 calendar days in advance of meeting date.
D. Prepare agenda and preside at meeting:
    1. Review conditions of examination, preparation and installation procedures.
    2. Review coordination with related work.
E. Record minutes and distribute copies within two days after meeting to participants, with 1 copies to Architect, Owner, participants, and those affected by decisions made.

3.04 LAYING OUT THE WORK

A. Verify locations of survey control points prior to starting work.
B. Promptly notify Architect of any discrepancies discovered.
C. Contractor shall locate and protect survey control and reference points.
D. Protect survey control points prior to starting site work; preserve permanent reference points during construction.
E. Promptly report to Architect the loss or destruction of any reference point or relocation required because of changes in grades or other reasons.
F. Replace dislocated survey control points based on original survey control. Make no changes without prior written notice to Architect.
G. Utilize recognized engineering survey practices.
H. Establish elevations, lines and levels. Locate and lay out by instrumentation and similar appropriate means:

1. Site improvements including pavements; stakes for grading, fill and topsoil placement; utility locations, slopes, and invert elevations.
2. Grid or axis for structures.
3. Building foundation, column locations, ground floor elevations.
4. Controlling lines and levels required for mechanical and electrical trades.

I. Periodically verify layouts by same means.

J. Maintain a complete and accurate log of control and survey work as it progresses.

3.05 GENERAL INSTALLATION REQUIREMENTS

A. In addition to compliance with regulatory requirements, conduct construction operations in compliance with NFPA 241, including applicable recommendations in Appendix A.

B. Install products as specified in individual sections, in accordance with manufacturer's instructions and recommendations, and so as to avoid waste due to necessity for replacement.

C. Make vertical elements plumb and horizontal elements level, unless otherwise indicated.

D. Install equipment and fittings plumb and level, neatly aligned with adjacent vertical and horizontal lines, unless otherwise indicated.

E. Make consistent texture on surfaces, with seamless transitions, unless otherwise indicated.

F. Make neat transitions between different surfaces, maintaining texture and appearance.

3.06 ALTERATIONS

A. Drawings showing existing construction and utilities are based on casual field observation only.
1. Verify that construction and utility arrangements are as indicated.
2. Report discrepancies to Architect before disturbing existing installation.
3. Beginning of alterations work constitutes acceptance of existing conditions.

B. Keep areas in which alterations are being conducted separated from other areas that are still occupied.
1. Provide, erect, and maintain temporary dustproof partitions.

C. Maintain weatherproof exterior building enclosure except for interruptions required for replacement or modifications; take care to prevent water and humidity damage.
1. Where openings in exterior enclosure exist, provide construction to make exterior enclosure weatherproof.
2. Insulate existing ducts or pipes that are exposed to outdoor ambient temperatures by alterations work.

D. Remove existing work as indicated and as required to accomplish new work.
1. Remove items indicated on drawings.
2. Relocate items indicated on drawings.
3. Where new surface finishes are to be applied to existing work, perform removals, patch, and prepare existing surfaces as required to receive new finish; remove existing finish if necessary for successful application of new finish.
4. Where new surface finishes are not specified or indicated, patch holes and damaged surfaces to match adjacent finished surfaces as closely as possible.

E. Services (Including but not limited to HVAC, Plumbing, Fire Protection, Electrical, and Telecommunications): Remove, relocate, and extend existing systems to accommodate new construction.
1. Maintain existing active systems that are to remain in operation; maintain access to equipment and operational components; if necessary, modify installation to allow access or provide access panel.
2. Where existing systems or equipment are not active and Contract Documents require reactivation, put back into operational condition; repair supply, distribution, and equipment as required.
3. Where existing active systems serve occupied facilities but are to be replaced with new services, maintain existing systems in service until new systems are complete and ready for service.

a. Disable existing systems only to make switchovers and connections; minimize duration of outages.
b. Provide temporary connections as required to maintain existing systems in service.

4. Verify that abandoned services serve only abandoned facilities.
5. Remove abandoned pipe, ducts, conduits, and equipment , including those above accessible ceilings; remove back to source of supply where possible, otherwise cap stub and tag with identification; patch holes left by removal using materials specified for new construction.

F. Protect existing work to remain.
1. Prevent movement of structure; provide shoring and bracing if necessary.
2. Perform cutting to accomplish removals neatly and as specified for cutting new work.
3. Repair adjacent construction and finishes damaged during removal work.

G. Adapt existing work to fit new work: Make as neat and smooth transition as possible.
1. Where removal of partitions or walls results in adjacent spaces becoming one, rework floors, walls, and ceilings to a smooth plane without breaks, steps, or bulkheads.

H. Patching: Where the existing surface is not indicated to be refinished, patch to match the surface finish that existed prior to cutting. Where the surface is indicated to be refinished, patch so that the substrate is ready for the new finish.

I. Refinish existing surfaces as indicated:
1. Where rooms or spaces are indicated to be refinished, refinish all visible existing surfaces to remain to the specified condition for each material, with a neat transition to adjacent finishes.
2. If mechanical or electrical work is exposed accidentally during the work, re-cover and refinish to match.

J. Clean existing systems and equipment.

K. Remove demolition debris and abandoned items from alterations areas and dispose of off-site; do not burn or bury.

L. Do not begin new construction in alterations areas before demolition is complete.

M. Comply with all other applicable requirements of this section.

3.07 CUTTING AND PATCHING

A. Whenever possible, execute the work by methods that avoid cutting or patching.

B. See Alterations article above for additional requirements.

C. Perform whatever cutting and patching is necessary to:
1. Complete the work.
2. Fit products together to integrate with other work.
3. Provide openings for penetration of mechanical, electrical, and other services.
4. Match work that has been cut to adjacent work.
5. Repair areas adjacent to cuts to required condition.
6. Repair new work damaged by subsequent work.
7. Remove samples of installed work for testing when requested.
8. Remove and replace defective and non-complying work.

D. Execute work by methods that avoid damage to other work and that will provide appropriate surfaces to receive patching and finishing. In existing work, minimize damage and restore to original condition.

E. Employ skilled and experienced installer to perform cutting for weather exposed and moisture resistant elements, and sight exposed surfaces.

F. Cut rigid materials using masonry saw or core drill. Pneumatic tools not allowed without prior approval.

G. Restore work with new products in accordance with requirements of Contract Documents.

H. Fit work air tight to pipes, sleeves, ducts, conduit, and other penetrations through surfaces.

I. At penetrations of fire rated walls, partitions, ceiling, or floor construction, completely seal voids with fire rated material in accordance with Section 07 8400, to full thickness of the penetrated element.

J. Patching:
   1. Finish patched surfaces to match finish that existed prior to patching. On continuous surfaces, refinish to nearest intersection or natural break. For an assembly, refinish entire unit.
      a. This includes painted surfaces.
      b. Where the surface is indicated to be refinished, patch so that the substrate is ready for the new finish.
   2. Match color, texture, and appearance.
   3. Repair patched surfaces that are damaged, lifted, discolored, or showing other imperfections due to patching work. If defects are due to condition of substrate, repair substrate prior to repairing finish.

3.08 PROGRESS CLEANING

A. Maintain areas free of waste materials, debris, and rubbish. Maintain site in a clean and orderly condition.

B. Remove debris and rubbish from pipe chases, plenums, attics, crawl spaces, and other closed or remote spaces, prior to enclosing the space.

C. Broom and vacuum clean interior areas prior to start of surface finishing, and continue cleaning to eliminate dust.

D. Collect and remove waste materials, debris, and trash/rubbish from site periodically and dispose off-site; do not burn or bury.

3.09 PROTECTION OF INSTALLED WORK

A. Protect installed work from damage by construction operations.

B. Provide special protection where specified in individual specification sections.

C. Provide temporary and removable protection for installed products. Control activity in immediate work area to prevent damage.

D. Provide protective coverings at walls, projections, jambs, sills, and soffits of openings.

E. Protect finished floors, stairs, and other surfaces from traffic, dirt, wear, damage, or movement of heavy objects, by protecting with durable sheet materials.

F. Prohibit traffic or storage upon waterproofed or roofed surfaces. If traffic or activity is necessary, obtain recommendations for protection from waterproofing or roofing material manufacturer.

G. Remove protective coverings when no longer needed; reuse or recycle coverings if possible.

3.10 SYSTEM STARTUP

A. Coordinate schedule for start-up of various equipment and systems.

B. Notify Architectand Owner 7 calendar days prior to start-up of each item.

C. Verify that each piece of equipment or system has been checked for proper lubrication, drive rotation, belt tension, control sequence, and for conditions that may cause damage.

D. Verify tests, meter readings, and specified electrical characteristics agree with those required by the equipment or system manufacturer.

E. Verify that wiring and support components for equipment are complete and tested.

F. Execute start-up under supervision of applicable Contractor personnel and manufacturer's representative in accordance with manufacturers' instructions.

G. When specified in individual specification Sections, require manufacturer to provide authorized representative to be present at site to inspect, check, and approve equipment or system installation prior to start-up, and to supervise placing equipment or system in operation.

H. Submit a written report that equipment or system has been properly installed and is functioning correctly.

3.11 DEMONSTRATION AND INSTRUCTION

A. Demonstrate operation and maintenance of products to Owner's personnel two weeks prior to date of Substantial Completion.
B. Demonstrate start-up, operation, control, adjustment, trouble-shooting, servicing, maintenance, and shutdown of each item of equipment at agreed time, at equipment location.
C. For equipment or systems requiring seasonal operation, perform demonstration for other season within six months.
D. Provide a qualified person who is knowledgeable about the Project to perform demonstration and instruction of Owner's personnel.
E. Utilize operation and maintenance manuals as basis for instruction. Review contents of manual with Owner's personnel in detail to explain all aspects of operation and maintenance.
F. Prepare and insert additional data in operations and maintenance manuals when need for additional data becomes apparent during instruction.

3.12 ADJUSTING

A. Adjust operating products and equipment to ensure smooth and unhindered operation.

3.13 FINAL CLEANING

A. Use cleaning materials that are nonhazardous.
B. Clean interior and exterior glass, surfaces exposed to view; remove temporary labels, stains and foreign substances, polish transparent and glossy surfaces, vacuum carpeted and soft surfaces.
C. Remove all labels that are not permanent. Do not paint or otherwise cover fire test labels or nameplates on mechanical and electrical equipment.
D. Clean equipment and fixtures to a sanitary condition with cleaning materials appropriate to the surface and material being cleaned.
E. Clean filters of operating equipment.
F. Clean debris from roofs, gutters, downspouts, scuppers, overflow drains, area drains, and drainage systems.
G. Clean site; sweep paved areas, rake clean landscaped surfaces.
H. Remove waste, surplus materials, trash/rubbish, and construction facilities from the site; dispose of in legal manner; do not burn or bury.

3.14 CLOSEOUT PROCEDURES

A. Make submittals that are required by governing or other authorities.
B. Accompany Contractor on preliminary inspection to determine items to be listed for completion or correction in the Contractor's Correction Punch List for Contractor's Notice of Substantial Completion.
C. Notify Architect when work is considered ready for Architect's Substantial Completion inspection.
D. Submit written certification containing Contractor's Correction Punch List, that Contract Documents have been reviewed, work has been inspected, and that work is complete in accordance with Contract Documents and ready for Architect's Substantial Completion inspection.
E. Conduct Substantial Completion inspection and create Final Correction Punch List containing Architect's and Contractor's comprehensive list of items identified to be completed or corrected and submit to Architect.

F. Correct items of work listed in Final Correction Punch List and comply with requirements for access to Owner-occupied areas.
G. Notify Architect when work is considered finally complete and ready for Architect's Substantial Completion final inspection.
H. Complete items of work determined by Architect listed in executed Certificate of Substantial Completion.

3.15 MAINTENANCE

A. Provide service and maintenance of components indicated in specification sections.
B. Maintenance Period: As indicated in specification sections or, if not indicated, not less than one year from the Date of Substantial Completion or the length of the specified warranty, whichever is longer.
C. Examine system components at a frequency consistent with reliable operation. Clean, adjust, and lubricate as required.
D. Include systematic examination, adjustment, and lubrication of components. Repair or replace parts whenever required. Use parts produced by the manufacturer of the original component.
E. Maintenance service shall not be assigned or transferred to any agent or subcontractor without prior written consent of the Owner.

END OF SECTION

SECTION 01 7327 - CUTTING AND PATCHING OF SINGLE PLY ROOFING

PART 1 - GENERAL

1.01 SUMMARY

A. This Section includes procedural requirements for cutting and patching.
   1. Related Sections include the following:
      a. Divisions 2 through 28 Sections for specific requirements and limitations applicable to cutting and patching individual parts of the Work.

1.02 DEFINITIONS

A. Cutting: Removal of existing construction necessary to permit installation or performance of other Work.

B. Patching: Fitting and repair work required to restore surfaces to original conditions after installation of other Work.

1.03 SUBMITTALS

A. Cutting and Patching Proposal: Submit a proposal describing procedures at least 10 days before the time cutting and patching will be performed, requesting approval to proceed. Include the following information:
   1. Extent: Describe cutting and patching, show how they will be performed, and indicate why they cannot be avoided.
   2. Changes to Existing Construction: Describe anticipated results. Include changes to structural elements and operating components as well as changes in building's appearance and other significant visual elements.
   3. Products: List products to be used and firms or entities that will perform the Work.
   4. Dates: Indicate when cutting and patching will be performed.
   5. Structural Elements: Where cutting and patching involve adding reinforcement to structural elements, submit details and engineering calculations showing integration of reinforcement with original structure.
   6. Architect's Approval: Obtain approval of cutting and patching proposal before cutting and patching. Approval does not waive right to later require removal and replacement of unsatisfactory work.

B. Visual Requirements: Do not cut and patch construction in a manner that results in visual evidence of cutting and patching. Do not cut and patch construction exposed on the exterior or in occupied spaces in a manner that would, in Architect's opinion, reduce the building's aesthetic qualities. Remove and replace construction that has been cut and patched in a visually unsatisfactory manner.
   1. If possible, retain original Installer to cut and patch exposed Work listed below:
      a. EPDM Single Ply Membrane Roofing
      b. TPO Single Ply Membrane Roofing

C. Cutting and Patching Conference: Before proceeding, meet at Project site with parties involved in cutting and patching. Review areas of potential interference and conflict. Coordinate procedures and resolve potential conflicts before proceeding.

1.04 WARRANTY

A. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during cutting and patching operations, by methods and with materials so as not to void existing warranties.
   1. Existing Roof: The existing roof is a roof system which is still under warranty. Comply with the following requirements when modifying the existing roof and adding new penetrations:
      a. Notify original roof manufacturer prior to beginning any work and comply with all manufacturer guidelines and requirements.

b. Provide original roof manufacturer with a brief description of the proposed work, including any required submittals.
c. Work shall not begin until written approval is received from original roof manufacturer.
d. Work must be done by an approved manufacturer's contractor.
e. Original roof manufacturer shall inspect all modifications to the original roof system.

PART 2 - PRODUCTS

2.01 MATERIALS

A. General: Comply with requirements specified in other Sections of these Specifications.
B. Existing Materials: Use materials identical to existing materials. For exposed surfaces, use materials that visually match existing adjacent surfaces to the fullest extent possible.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Examine surfaces to be cut and patched and conditions under which cutting and patching are to be performed.
   1. Compatibility: Before patching, verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.
   2. Proceed with installation only after unsafe or unsatisfactory conditions have been corrected.

3.02 PREPARATION

A. Temporary Support: Provide temporary support of Work to be cut.
B. Protection: Protect existing construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of Project that might be exposed during cutting and patching operations.

3.03 PERFORMANCE

A. General: Employ skilled workers to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time, and complete without delay.
   1. Cut existing construction to provide for installation of other components or performance of other construction, and subsequently patch as required to restore surfaces to their original condition.
B. Cutting: Cut existing construction by sawing, drilling, breaking, chipping, grinding, and similar operations, including excavation, using methods least likely to damage elements retained or adjoining construction. Review proposed procedures with original Roof Installer; comply with original Installer's written recommendations.
   1. In general, use hand or small power tools designed for sawing and grinding, not hammering and chopping. Cut holes and slots as small as possible, neatly to size required, and with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.
   2. Proceed with patching after construction operations requiring cutting are complete.

3.04 ROOF FLASHING INSTALLATION AROUND NEW PENETRATIONS

A. Install sheet flashings and preformed flashing accessories and adhere to substrates according to roofing system manufacturer's written instructions.
B. Apply bonding adhesive to substrate and underside of flashing sheet at required rate and allow to partially dry. Do not apply bonding adhesive to seam area of flashing.
C. Flash penetrations and field-formed inside and outside corners with cured or uncured sheet flashing as recommended by manufacturer.
D. Clean splice areas, apply splicing cement, and firmly roll side and end laps of overlapping sheets according to manufacturer's written instructions to ensure a watertight seam installation. Apply lap sealant and seal exposed edges of sheet flashing terminations.

E. Terminate and seal top of sheet flashings.
F. Patching: Patch construction by filling, repairing, refinishing, closing up, and similar operations following performance of other Work. Patch with durable seams that are as invisible as possible. Provide materials and comply with installation requirements specified in other Sections of these Specifications.
    1. Inspection: Where feasible, test and inspect patched areas after completion to demonstrate integrity of installation.
    2. Exposed Finishes: Restore exposed finishes of patched areas and extend finish restoration into adjoining construction in a manner that will eliminate evidence of patching and refinishing.

END OF SECTION

SECTION 01 7329 - CUTTING AND PATCHING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Cutting and patching.

1.02 REFERENCE STANDARDS

A. NFPA 241 - Standard for Safeguarding Construction, Alteration, and Demolition Operations; 2013.

1.03 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Cutting and Patching: Submit written request in advance of cutting or alteration that affects:

1. Structural integrity of any element of Project.
2. Integrity of weather exposed or moisture resistant element.
3. Efficiency, maintenance, or safety of any operational element.
4. Visual qualities of sight exposed elements.
5. Work of Owner or separate Contractor.
6. Include in request:
   a. Location and description of affected work.
   b. Necessity for cutting or alteration.
   c. Description of proposed work and products to be used.
   d. Effect on work of Owner or separate Contractor.

C. Warranties: For each affected material under warranty, submit written verification, signed by manufacturer of existing materials, stating that the Owner's full warranty will remain in effect after cutting and patching operations have been completed.

1.04 WARRANTIES

A. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during cutting and patching operations, by methods and with materials so as not to void existing warranties.

PART 2 PRODUCTS

2.01 PATCHING MATERIALS

A. New Materials: As specified in product sections; match existing products and work for patching and extending work.

B. Type and Quality of Existing Products: Determine by inspecting and testing products where necessary, referring to existing work as a standard.

C. Product Substitution: For any proposed change in materials, submit request for substitution described in Section 01 6000 - Product Requirements.

PART 3 EXECUTION

3.01 EXAMINATION

A. Prior to Cutting: Examine existing conditions prior to commencing work, including elements subject to damage or movement during cutting and patching. After uncovering existing work, assess conditions affecting performance of work. Beginning of cutting or patching means acceptance of existing conditions.

B. Prior to Patching: Before patching, verify compatibility and suitability of substrates, including compatibility with existing finishes or primers. Beginning of patching means acceptance of existing conditions.

3.02 PREPARATION

A. Clean substrate surfaces prior to applying next material or substance.

B. Seal cracks or openings of substrate prior to applying next material or substance.

C. Apply manufacturer required or recommended substrate primer, sealer, or conditioner prior to applying any new material or substance in contact or bond.
D. Protect existing work to remain.
   1. Prevent movement of structure; provide shoring and bracing if necessary.
   2. Perform cutting to accomplish removals neatly and as specified for cutting new work.
E. Existing Services: Where existing services are required to be removed, relocated, or abandoned, bypass such services before cutting to avoid interruption of services to occupied areas.

3.03 CUTTING AND PATCHING

A. Whenever possible, execute the work by methods that avoid cutting or patching.
B. Perform whatever cutting and patching is necessary to:
   1. Complete the work.
   2. Fit products together to integrate with other work.
   3. Provide openings for penetration of mechanical, electrical, and other services.
   4. Match work that has been cut to adjacent work.
   5. Repair areas adjacent to cuts to required condition.
   6. Repair new work damaged by subsequent work.
   7. Remove samples of installed work for testing when requested.
   8. Remove and replace defective and non-conforming work.
C. Execute work by methods that avoid damage to other work and that will provide appropriate surfaces to receive patching and finishing. In existing work, minimize damage and restore to original condition.
D. Employ skilled and experienced installer to perform cutting for weather exposed and moisture resistant elements, and sight exposed surfaces.
E. Cutting:
   1. In general, use hand or small power tools designed for sawing and grinding, not hammering and chopping. Cut holes and slots as small as possible, neatly to size required, and with minimum disturbance of adjacent surfaces.
   2. Cut rigid materials using masonry saw or core drill. Pneumatic tools not allowed without prior approval.
   3. Mechanical and Electrical Services: Cut off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal remaining portion of pipe or conduit to prevent entrance of moisture or other foreign matter after cutting.
F. Restore work with new products in accordance with requirements of Contract Documents.
G. Fit work air tight to pipes, sleeves, ducts, conduit, and other penetrations through surfaces.
H. At penetrations of fire rated walls, partitions, ceiling, or floor construction, completely seal voids with fire rated material in accordance with Section 07 8400 - Firestopping, to full thickness of the penetrated element.
I. Patching:
   1. Repair adjacent construction and finishes damaged during removal work and cutting work.
   2. Finish patched surfaces to match finish that existed prior to patching. On continuous surfaces, refinish to nearest intersection or natural break. For an assembly, refinish entire unit.
      a. This includes painted surfaces.
      b. Where the surface is indicated to be refinished, patch so that the substrate is ready for the new finish.
   3. Match color, texture, and appearance.
   4. Repair patched surfaces that are damaged, lifted, discolored, or showing other imperfections due to patching work. If defects are due to condition of substrate, repair substrate prior to repairing finish.

END OF SECTION

SECTION 01 7800 - CLOSEOUT SUBMITTALS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Project record documents.
B. Operation and maintenance data.
C. Warranties and bonds.

1.02 SUBMITTALS

A. Project Record Documents: Submit documents to Architect with claim for final Application for Payment.
B. Operation and Maintenance Data:
   1. For equipment, or component parts of equipment put into service during construction and operated by Owner, submit completed documents within ten days after acceptance.
   2. Submit one copy of completed documents 15 days prior to final inspection. This copy will be reviewed and returned after final inspection, with Architect comments. Revise content of all document sets as required prior to final submission.
   3. Submit two sets of revised final documents in final form within 10 days after final inspection.
C. Warranties and Bonds:
   1. For equipment or component parts of equipment put into service during construction with Owner's permission, submit documents within 10 days after acceptance.
   2. Make other submittals within 10 days after Date of Substantial Completion, prior to final Application for Payment.
   3. For items of Work for which acceptance is delayed beyond Date of Substantial Completion, submit within 10 days after acceptance, listing the date of acceptance as the beginning of the warranty period.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 PROJECT RECORD DOCUMENTS

A. Maintain on site one set of the following record documents; record actual revisions to the Work:
   1. Drawings.
   2. Addenda.
   3. Change Orders and other modifications to the Contract.
B. Ensure entries are complete and accurate, enabling future reference by Owner.
C. Store record documents separate from documents used for construction.
D. Record information concurrent with construction progress.
E. Record Drawings: Legibly mark each item to record actual construction including:
   1. Field changes of dimension and detail.
   2. Details not on original Contract drawings.

3.02 OPERATION AND MAINTENANCE DATA

A. Product Data: Mark each sheet to clearly identify specific products and component parts, and data applicable to installation. Delete inapplicable information.
B. Drawings: Supplement product data to illustrate relations of component parts of equipment and systems, to show control and flow diagrams. Do not use Project Record Documents as maintenance drawings.
C. Typed Text: As required to supplement product data. Provide logical sequence of instructions for each procedure, incorporating manufacturer's instructions.

3.03 WARRANTIES AND BONDS

A. Obtain warranties and bonds, executed in duplicate by responsible Subcontractors, suppliers, and manufacturers, within 10 days after completion of the applicable item of work. Except for items put into use with Owner's permission, leave date of beginning of time of warranty until Date of Substantial completion is determined.

B. Verify that documents are in proper form, contain full information, and are notarized.

C. Co-execute submittals when required.

D. Retain warranties and bonds until time specified for submittal.

END OF SECTION

SECTION 02 4100 - DEMOLITION

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Selective demolition of building elements for alteration purposes.
B. Salvaged items.
C. Removed and reinstalled items.

1.02 REFERENCE STANDARDS

A. NFPA 241 - Standard for Safeguarding Construction, Alteration, and Demolition Operations 2019.

1.03 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
B. Project Record Documents: Accurately record actual locations of capped and active utilities and subsurface construction.

1.04 QUALITY ASSURANCE

A. Demolition Firm Qualifications: Company specializing in the type of work required.
    1. Minimum of 5 years of documented experience.

PART 2 PRODUCTS - NOT USED

2.01 MATERIALS

A. Fill Material: As specified in Division 31.

PART 3 EXECUTION

3.01 SCOPE

A. Remove portions of existing building as indicated on Drawings including, but not limited to, the following:
    1. Remove portions of roof construction and/or trim as noted within drawings..
    2. Remove other items indicated, for salvage and relocation.
    3. Unless otherwise indicated, fill excavations, open pits, and holes in ground areas generated as result of removals, using specified fill; compact fill as specified in Division 31.

3.02 GENERAL PROCEDURES AND PROJECT CONDITIONS

A. Comply with other requirements specified in Section 01 7000.
B. Comply with applicable codes and regulations for demolition operations and safety of adjacent structures and the public.
    1. Obtain required permits.
    2. Comply with applicable requirements of NFPA 241.
    3. Prior to start of demolition operations, perform an engineering survey of building condition to determine whether removing any element might result in structural deficiency or unplanned collapse of any portion of structure or adjacent structures.
    4. Use of explosives is not permitted.
    5. Take precautions to prevent catastrophic or uncontrolled collapse of structures to be removed; do not allow worker or public access within range of potential collapse of unstable structures.
    6. Provide, erect, and maintain temporary barriers and security devices.
    7. Conduct operations to minimize effects on and interference with adjacent structures and occupants.
    8. Do not close or obstruct roadways or sidewalks without permit.
    9. Conduct operations to minimize obstruction of public and private entrances and exits; do not obstruct required exits at any time; protect persons using entrances and exits from removal operations.
    10. Obtain written permission from owners of adjacent properties when demolition equipment will traverse, infringe upon or limit access to their property.

C. Do not begin removal until receipt of notification to proceed from Owner.
D. Do not begin removal until built elements to be salvaged or relocated have been removed.
E. Protect existing structures and other elements that are not to be removed.
    1. Provide bracing and shoring.
    2. Prevent movement or settlement of adjacent structures.
    3. Stop work immediately if adjacent structures appear to be in danger.
F. Minimize production of dust due to demolition operations; do not use water if that will result in ice, flooding, sedimentation of public waterways or storm sewers, or other pollution.
G. If hazardous materials are discovered during removal operations, stop work and notify Architect and Owner; hazardous materials include regulated asbestos containing materials, PCB's, and mercury.
H. Partial Removal of Paving and Curbs: Neatly saw cut at right angle to surface.

3.03 EXISTING UTILITIES

A. Coordinate work with utility companies; notify before starting work and comply with their requirements; obtain required permits.
B. Protect existing utilities to remain from damage.
C. Do not disrupt public utilities without permit from authority having jurisdiction.
D. Do not close, shut off, or disrupt existing life safety systems that are in use without at least 7 days prior written notification to Owner.
E. Do not close, shut off, or disrupt existing utility branches or take-offs that are in use without at least 3 days prior written notification to Owner.
F. Locate and mark utilities to remain; mark using highly visible tags or flags, with identification of utility type; protect from damage due to subsequent construction, using substantial barricades if necessary.
G. Remove exposed piping, valves, meters, equipment, supports, and foundations of disconnected and abandoned utilities.
H. Prepare building demolition areas by disconnecting and capping utilities outside the demolition zone; identify and mark utilities to be subsequently reconnected, in same manner as other utilities to remain.

3.04 SELECTIVE DEMOLITION FOR ALTERATIONS

A. Drawings showing existing construction and utilities are based on casual field observation and existing record documents only.
    1. Verify that construction and utility arrangements are as indicated.
    2. Report discrepancies to Architect before disturbing existing installation.
    3. Beginning of demolition work constitutes acceptance of existing conditions that would be apparent upon examination prior to starting demolition.
B. Separate areas in which demolition is being conducted from other areas that are still occupied.
    1. Provide, erect, and maintain temporary dustproof partitions of construction as specified and/or indicated on Drawings .
C. Maintain weatherproof exterior building enclosure except for interruptions required for replacement or modifications; take care to prevent water and humidity damage.
D. Remove existing work as indicated and as required to accomplish new work.
    1. Remove items indicated on Drawings.
E. Services (Including but not limited to HVAC, Plumbing, Fire Protection, Electrical, and Telecommunications): Remove existing systems and equipment as indicated.
    1. Maintain existing active systems that are to remain in operation; maintain access to equipment and operational components.

2. Where existing active systems serve occupied facilities but are to be replaced with new services, maintain existing systems in service until new systems are complete and ready for service.
3. Verify that abandoned services serve only abandoned facilities before removal.
4. Remove abandoned pipe, ducts, conduits, and equipment, including those above accessible ceilings; remove back to source of supply where possible, otherwise cap stub and tag with identification.

F. Protect existing work to remain.
1. Prevent movement of structure; provide shoring and bracing if necessary.
2. Perform cutting to accomplish removals neatly and as specified for cutting new work.
3. Repair adjacent construction and finishes damaged during removal work.
4. Patch as specified for patching new work.

3.05 SALVAGED ITEMS

A. Clean salvaged items.
B. Pack or crate items after cleaning. Identify contents of containers.
C. Store items in a secure area until delivery to Owner.
D. Transport items to Owner's storage area on-site.
E. Protect items from damage during transport and storage.

3.06 REMOVED AND REINSTALLED ITEMS

A. Clean and repair items to functional condition adequate for intended reuse.
B. Pack or crate items after cleaning and repairing. Identify contents of containers.
C. Protect items from damage during transport and storage.
D. Reinstall items in locations indicated. Comply with installation requirements for new materials and equipment. Provide connections, supports, and miscellaneous materials necessary to make item functional for use indicated.

3.07 EXISTING ITEMS TO REMAIN

A. Protect construction indicated to remain against damage and soiling during selective demolition. When permitted by Architect, items may be removed to a suitable, protected storage location during selective demolition and cleaned and reinstalled in their original locations after selective demolition operations are complete

3.08 DEBRIS AND WASTE REMOVAL

A. Remove debris, junk, and trash from site.
B. Leave site in clean condition, ready for subsequent work.
C. Clean up spillage and wind-blown debris from public and private lands.

END OF SECTION

SECTION 06 1000 - ROUGH CARPENTRY

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Preservative treated wood materials.
B. Fire retardant treated wood materials.
C. Miscellaneous wood nailers, furring, and grounds.

1.02 REFERENCE STANDARDS

A. ASTM C557 - Standard Specification for Adhesives for Fastening Gypsum Wallboard to Wood Framing 2003 (Reapproved 2017).
B. ASTM D2898 - Standard Test Methods for Accelerated Weathering of Fire-Retardant-Treated Wood for Fire Testing 2010 (Reapproved 2017).
C. ASTM D3498 - Standard Specification for Adhesives for Field-Gluing Wood Structural Panels (Plywood or Oriented Strand Board) to Wood Based Floor System Framing 2018a.
D. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials 2017.
E. AWPA U1 - Use Category System: User Specification for Treated Wood 2017.
F. PS 20 - American Softwood Lumber Standard 2015.

1.03 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements for submittal procedures.
B. Product Data: Provide technical data on insulated sheathing, wood preservative materials, and application instructions.
C. Manufacturer's Certificate: Certify that wood products supplied for rough carpentry meet or exceed specified requirements.

1.04 DELIVERY, STORAGE, AND HANDLING

A. General: Cover wood products to protect against moisture. Support stacked products to prevent deformation and to allow air circulation.

PART 2 PRODUCTS

2.01 GENERAL REQUIREMENTS

A. Dimension Lumber: Comply with PS 20 and requirements of specified grading agencies.
    1. Species: Unless otherwise indicated, provide any species graded by the agency specified; if no grading agency is specified, provide lumber graded by any grading agency meeting the specified requirements.
    2. Grading Agency: Grading agency whose rules are approved by the Board of Review, American Lumber Standard Committee at www.alsc.org, and who provides grading service for the species and grade specified; provide lumber stamped with grade mark unless otherwise indicated.

2.02 DIMENSION LUMBER

A. Sizes: Nominal sizes as indicated on drawings, S4S.
B. Moisture Content: Kiln-dry or MC15.
C. Miscellaneous Framing, Blocking, Nailers, Grounds, and Furring:
    1. Lumber: S4S, No. 2 or Standard Grade.
    2. Boards: Grade No. 2.

2.03 PARAPET CAP FRAMING

A. As detailed on drawings with wood blocking or Treated LSL engineered parapet cap framing System.
    1. Manufacturer: PreBuck; www.prebuckproducts.com
B. Designed for direct contact with concrete.
    1. Will not cup, twist or warp.
    2. Insect and Fungus resistant.

C. 1.5 inch thick treated with zinc borate LSL engineered lumber
D. Pitched up to 3/8 inch per foot
E. Counter sunk anchor openings

2.04 ACCESSORIES

A. Fasteners and Anchors:
   1. Metal and Finish: Stainless steel for high humidity and preservative-treated wood locations, unfinished steel elsewhere.
   2. Anchors:
      a. Toggle bolt type for anchorage to hollow masonry.
      b. Expansion shield and lag bolt type for anchorage to solid masonry or concrete.
      c. Bolt or ballistic fastener for anchorages to steel
B. Construction Adhesives: Adhesives complying with ASTM C557 or ASTM D3498.
   1. Manufacturers:
      a. Franklin International, Inc; Titebond GREENchoice Heavy Duty Construction Adhesive: www.titebond.com.
      b. Liquid Nails, a brand of PPG Industries, Inc.; LN-903 Heavy Duty Construction Adhesive (Low VOC): www.liquidnails.com.
      c. Substitutions: See Section 01 6000 - Product Requirements.

2.05 FACTORY WOOD TREATMENT

A. Treated Lumber and Plywood: Comply with requirements of AWPA U1 - Use Category System for wood treatments determined by use categories, expected service conditions, and specific applications.
   1. Fire-Retardant Treated Wood: Mark each piece of wood with producer's stamp indicating compliance with specified requirements.
   2. Preservative-Treated Wood: Provide lumber and plywood marked or stamped by an ALSC-accredited testing agency, certifying level and type of treatment in accordance with AWPA standards.
B. Fire Retardant Treatment:
   1. Manufacturers:
      a. Lonza Group: www.wolmanizedwood.com.
      b. Hoover Treated Wood Products, Inc: www.frtw.com.
      c. Koppers, Inc: www.koppersperformancechemicals.com.
      d. Viance, LLC: www.treatedwood.com.
      e. Substitutions: See Section 01 6000 - Product Requirements.
   2. Exterior Type: AWPA U1, Category UCFB, Commodity Specification H, chemically treated and pressure impregnated; capable of providing a maximum flame spread index of 25 when tested in accordance with ASTM E84, with no evidence of significant combustion when test is extended for an additional 20 minutes both before and after accelerated weathering test performed in accordance with ASTM D2898.
      a. Kiln dry wood after treatment to a maximum moisture content of 19 percent for lumber and 15 percent for plywood.
      b. Treat lumber in locations as indicated
C. Preservative Treatment:
   1. Manufacturers:
      a. Lonza Group: www.wolmanizedwood.com.
      b. Hoover Treated Wood Products, Inc: www.frtw.com.
      c. Koppers Performance Chemicals, Inc: www.koppersperformancechemicals.com.
      d. Viance, LLC: www.treatedwood.com.
      e. Substitutions: See Section 01 6000 - Product Requirements.
   2. Preservative Pressure Treatment of Lumber Above Grade: AWPA U1, Use Category UC3B, Commodity Specification A using waterborne preservative.
      a. Kiln dry lumber after treatment to maximum moisture content of 19 percent.

b. Treat lumber exposed to weather.
c. Treat lumber in contact with roofing, flashing, or waterproofing.
1) At Contractor's option, roof nailers may be non-preservative treated.
d. Treat lumber in contact with masonry or concrete.
e. Treat lumber less than 18 inches above grade.
f. Treat lumber in other locations as indicated.
3. Preservative for Field Application to Cut Surfaces: As recommended by manufacturer of factory treatment chemicals for brush-application in the field.

PART 3 EXECUTION

3.01 PREPARATION

A. Install sill gasket under sill plate of framed walls bearing on foundations; puncture gasket cleanly to fit tightly around protruding anchor bolts.

3.02 INSTALLATION - GENERAL

A. Select material sizes to minimize waste.
B. Reuse scrap to the greatest extent possible; clearly separate scrap for use on site as accessory components, including: shims, bracing, and blocking.
C. Where treated wood is used on interior, provide temporary ventilation during and immediately after installation sufficient to remove indoor air contaminants.

3.03 BLOCKING, NAILERS, AND SUPPORTS

A. Provide framing and blocking members as indicated or as required to support finishes, fixtures, specialty items, and trim.
B. In walls, provide blocking attached to studs as backing and support for wall-mounted items, unless item can be securely fastened to two or more studs or other method of support is explicitly indicated.
C. Provide the following specific nonstructural framing and blocking:
1. Cabinets and shelf supports.
2. Wall brackets.
3. Handrails.
4. Grab bars.
5. Towel and bath accessories.
6. Other locations as indicated.

3.04 ROOF-RELATED CARPENTRY

A. Coordinate installation of roofing carpentry with deck construction, framing of roof openings, and roofing assembly installation.

3.05 SITE APPLIED WOOD TREATMENT

A. Apply preservative treatment compatible with factory applied treatment at site-sawn cuts, complying with manufacturer's instructions.
B. Allow preservative to dry prior to erecting members.

3.06 TOLERANCES

A. Framing Members: 1/4 inch from true position, maximum.
B. Variation from Plane, Other than Floors: 1/4 inch in 10 feet maximum, and 1/4 inch in 30 feet maximum.

3.07 CLEANING

A. Do not leave wood, shavings, sawdust, etc. on the ground or buried in fill.
B. Prevent sawdust and wood shavings from entering the storm drainage system.

END OF SECTION

SECTION 07 3113 - ASPHALT SHINGLES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Asphalt shingle roofing.
B. Underlayment.
C. Ridge vents.

1.02 RELATED REQUIREMENTS

A. Section 07 6200 - Sheet Metal Flashing and Trim: Metal flashings and drip edges.

1.03 REFERENCE STANDARDS

A. ASTM D226/D226M - Standard Specification for Asphalt-Saturated Organic Felt Used in Roofing and Waterproofing 2017 (Reapproved 2023).
B. ASTM D1970/D1970M - Standard Specification for Self-Adhering Polymer Modified Bituminous Sheet Materials Used as Steep Roofing Underlayment for Ice Dam Protection 2021.
C. ASTM D3161/D3161M - Standard Test Method for Wind-Resistance of Steep Slope Roofing Products (Fan-Induced Method) 2020.
D. ASTM D3462/D3462M - Standard Specification for Asphalt Shingles Made from Glass Felt and Surfaced with Mineral Granules 2023.
E. ASTM D4586/D4586M - Standard Specification for Asphalt Roof Cement, Asbestos-Free 2007 (Reapproved 2018).
F. ASTM D4869/D4869M - Standard Specification for Asphalt-Saturated Organic Felt Underlayment Used in Steep Slope Roofing 2016a (Reapproved 2021).
G. ASTM E96/E96M - Standard Test Methods for Water Vapor Transmission of Materials 2016.
H. ASTM E108 - Standard Test Methods for Fire Tests of Roof Coverings 2020a.
I. ASTM F1667 - Standard Specification for Driven Fasteners: Nails, Spikes, and Staples 2018a.
J. NRCA (RM) - The NRCA Roofing Manual 2019.

1.04 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
B. Product Data: Provide data indicating material characteristics.
C. Shop Drawings: For metal flashings, indicate specially configured metal flashings.
D. Samples:
    1. Ridge Vent: Submit three 12 inch long samples.
    2. Underlayment: Submit three 4 inch by 4 inch samples of each type.
    3. Shingles: Submit three samples of each shingle color indicating color range and finish texture/pattern.
E. Manufacturer's Installation Instructions: Indicate installation criteria and procedures.
F. Warranty Documentation: Submit manufacturer warranty and ensure that forms have been completed in Owner's name and registered with manufacturer.
G. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
    1. See Section 01 6000 - Product Requirements, for additional provisions.
    2. Extra Shingles: 100 sq ft of each type and color.

1.05 MOCK-UP

A. Provide mock-up of 100 sq ft, including underlayment, shingles, associated flashings, and ridge vent.
B. Locate where directed.
C. Mock-up may remain as part of the Work.

1.06 FIELD CONDITIONS

A. Do not install shingles or underlayment when surface or ambient air temperatures are below 45 degrees F.

1.07 WARRANTY

A. See Section 01 7800 - Closeout Submittals for additional warranty requirements.
B. Material Warranty: Provide 40 year shingle material warranty, from date of Substantial Completion, prorated, with first five years nonprorated.
C. Wind-Speed Warranty: Provide five warranty, from date of Substantial Completion, against shingle blow-off or damage caused by wind speeds up to Warranted Wind Speed specified.

PART 2 PRODUCTS

2.01 ASPHALT SHINGLES

A. Asphalt Shingles: Asphalt-coated glass felt, mineral granule surfaced, complying with ASTM D3462/D3462M.
   1. Fire Resistance: Class A, complying with ASTM E108.
   2. Wind Resistance: Class F, when tested in accordance with ASTM D3161/D3161M.
   3. Warranted Wind Speed: Not greater than 110 mph.
   4. Self-sealing type.
   5. Style: Laminated overlay.
   6. Color: As selected by Architect.
B. Specialty Shingles: Provide starter shingles and hip and ridge shingles.
C. Products:
   1. CertainTeed Corp., Saint-Gobain: Landmark PRO: www.certainteed.com.
   2. GAF; Timberline Prestique HD: www.gaf.com.
   3. Owens Corning; Duration: www.owenscorning.com.
   4. TAMKO Building Products, Inc.; Heritage Premium: www.tamko.com.
   5. Substitutions: See Section 01 6000 - Product Requirements.

2.02 SHEET MATERIALS

A. Underlayment: Self-adhering rubber-modified asphalt sheet conforming to ASTM D1970/D1970M; 40 mil total thickness; with strippable release film and granular top surface.
   1. Self Sealability: Passing nail sealability test specified in ASTM D1970/D1970M.
   2. Low Temperature Flexibility: Passing test specified in ASTM D1970/D1970M.
   3. Water Vapor Permeance: 0.1 perms, when tested in accordance with ASTM E96/E96M, Procedure A (desiccant method).
   4. Liquid Water Transmission: Passes ASTM D4869/D4869M.
   5. Products:
      a. CertainTeed Corp., Saint-Gobain: WinterGuard Granular: www.certainteed.com.
      b. GAF; WeatherWatch Mineral-Surfaced Leak Barrier: www.gaf.com.
      c. Owens Corning; WeatherLock G: www.owenscorning.com.
      d. TAMKO Building Products, Inc.; Moisture Guard: www.tamko.com.
      e. Substitutions: See Section 01 6000 - Product Requirements.
B. Underlayment: Asphalt-saturated organic roofing felt, unperforated, complying with ASTM D226/D226M, Type II ("No.30").

2.03 ACCESSORIES

A. Roofing Nails: Standard round wire shingle type, galvanized steel or stainless steel, minimum 3/8 inch head diameter, 12 gage, 0.109 inch nail shank diameter, 1-1/2 inch long and conforming to ASTM F1667.
B. Plastic Cement: ASTM D4586/D4586M, asphalt roof cement.
C. Plastic Ridge Vents: Extruded plastic with filtered vent openings that do not permit direct water or weather entry; flanged to receive shingles.
   1. Section Lengths: 4 feet.
   2. Height: 1 inch, maximum.
   3. Ventilation: 18 inches, minimum, net free area per linear foot.
   4. Roof Pitch: 3:12 to 16:12.

5. Color: Black.
6. Products:
   a. CertainTeed Corp., Saint-Gobain: Ridge Vent - 12" Filtered; www.certainteed.com.
   b. GAF; Cobra Snow Country Exhaust Vent for Roof Ridge: www.gaf.com.
   c. Owens Corning; VentSure 4-Foot Strip Ridge Vent: www.owenscorning.com.
   d. TAMKO Building Products, Inc.; Coolridge Sectional Ridge Vent: www.tamko.com.
   e. Substitutions: See Section 01 6000 - Product Requirements.

2.04 METAL FLASHINGS

A. Refer to Section 07 6200 - Sheet Metal Flashing and Trim.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify existing conditions prior to beginning work.
B. Verify deck surfaces are dry, free of ridges, warps, or voids.

3.02 PREPARATION

A. Broom clean deck surfaces before installing underlayment or eave protection.

3.03 INSTALLATION - UNDERLAYMENT

A. General: Install underlayment according to manufacturer's instructions and as specified.
   1. Underlayments shall weather lap metal drip edges.
B. Install self-adhering sheet underlayment with ends and edges weather lapped minimum 4 inches, stagger end laps of each consecutive layer.
   1. Install without wrinkles; overlapping edges shall be sealed tightly without gaps.
   2. Locations:
      a. Eaves: Extend from edges of eaves, 24 inches beyond interior face of exterior wall.
      b. Rakes: Extend from edges of rakes, 24 inches beyond interior face of exterior wall.
      c. Valleys: Extend from lowest to highest point 18 inches on each side.
      d. Hips: Extend 18 inches on each side.
      e. Ridges: Extend 36 inches on each side without obstructing continuous ridge vent opening.
      f. Openings and Penetrations: Extend beyond penetrating element 18 inches, and return vertically against penetrating element not less than 4 inches.
      g. Sidewalls: Extend beyond penetrating element 18 inches, and return vertically against sidewall not less than 4 inches.
      h. Roof Slope Transitions: Extend 18 inches on each roof slope.
C. Install roofing felt underlayment parallel to roof deck with ends and edges weather lapped minimum 4 inches, stagger end laps of each consecutive layer. Secure with roofing nails.
   1. Lap sides of felt underlayment over self-adhering sheet underlayment not less than 4 inches in direction that sheds water. Lap ends of felt not less than 6 inches over self-adhering sheet underlayment.
   2. Install without wrinkles.
   3. Locations:
      a. All areas not covered by self-adhering sheet underlayment.

3.04 INSTALLATION - METAL FLASHING AND ACCESSORIES

A. Refer to Section 07 6200 - Sheet Metal Flashing and Trim.

3.05 INSTALLATION - SHINGLES

A. Install shingles in accordance with manufacturer's instructions and NRCA (RM) applicable requirements.
   1. Fasten individual shingles using two nails per shingle, or as required by manufacturer and local building code, whichever is greater.
   2. Fasten strip shingles using four nails per strip, or as required by manufacturer and local building code, whichever is greater.

B. Place shingles in straight coursing pattern with 5 inch weather exposure to produce double thickness over full roof area, and provide double course of shingles at eaves.
C. At eaves, project first course of shingles 3/4 inch beyond edge of roof sheathing and metal drip edges..
D. At rakes, extend shingles 1/2 inch beyond edge of roof sheathing and metal drip edges
E. Extend shingles on one slope across valley and fasten, trim shingles from other slope 2 inches from valley center line to achieve closed cut valley, and concealing valley protection.
    1. Set trimmed asphalt shingles in a 3 inch wide bed of plastic cement.
F. Ridge Vents: Install continuous ridge vents over asphalt shingles according to manufacturer's written instructions. Fasten with roofing nails of sufficient length to penetrate sheathing
G. Cap hips and ridges with individual shingles, maintaining 5 inch weather exposure, and place to avoid exposed nails.
    1. Fasten ridge cap asphalt shingles to cover ridge vent without obstructing airflow.
H. Coordinate installation of roof mounted components or work projecting through roof with weather tight placement of counterflashings.
I. Complete installation to provide weather tight service.

3.06 PROTECTION

A. Do not permit traffic over finished roof surface.

END OF SECTION

SECTION 07 5323 - EPDM MEMBRANE ROOFING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Ethylene-propylene-diene-terpolymer (EPDM) roofing assembly; fully adhered. Including, but not limited to, the following:
   1. Cover board.
   2. Insulation, flat and tapered.
   3. Vapor barrier.
   4. Substrate board.
   5. Walkway pads.

1.02 ABBREVIATIONS

A. EPDM: Ethylene-propylene-diene-terpolymer.

1.03 REFERENCE STANDARDS

A. ASTM C1289 - Standard Specification for Faced Rigid Cellular Polyisocyanurate Thermal Insulation Board 2017.
B. ASTM D4637/D4637M - Standard Specification for EPDM Sheet Used in Single-Ply Roof Membrane 2015, with Editorial Revision (2022).
C. FM (AG) - FM Approval Guide Current Edition.
D. FM 4470 - Single-Ply, Polymer-Modified Bitumen Sheet, Built-Up Roof (BUR) and Liquid Applied Roof Assemblies for Use in Class 1 and Noncombustible Roof Deck Construction 2016.
E. FM DS 1-28 - Wind Design 2015, with Editorial Revision (2022).
F. FM DS 1-29 - Roof Deck Securement and Above-Deck Roof Components 2016, with Editorial Revision (2022).
G. FM DS 1-49 - Perimeter Flashing; 2016.
H. NRCA (RM) - The NRCA Roofing Manual 2019.
I. NRCA (WM) - The NRCA Waterproofing Manual 2021.

1.04 ADMINISTRATIVE REQUIREMENTS

A. Coordinate with installation of associated counterflashings installed under other sections.
B. Preinstallation Meeting: Convene a preinstallation meeting one week before starting work of this section; require attendance by all affected installers; review preparation and installation procedures and coordination and scheduling necessary for related work.

1.05 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
B. Product Data: Provide data indicating membrane materials, flashing materials, cover boards, insulation, vapor barrier, substrate board, adhesives, and fasteners.
C. Shop Drawings: Indicate joint or termination detail conditions, conditions of interface with other materials, setting plan for tapered insulation, walkway pad locations, and sacrificial membrane locations.
D. Samples for Verification: Submit three samples 4 by 4 inches in size illustrating roofing membrane, cover board, insulation, vapor barrier, substrate board, and walkway pads.
E. Manufacturer's Field Reports: Indicate procedures followed, ambient temperatures, humidity, wind velocity during application, and supplementary instructions given.
F. Manufacturer's Qualification Statement.
G. Installer's Qualification Statement.
H. Warranty: Submit manufacturer warranty and ensure forms have been completed in Owner's name and registered with manufacturer.
I. Field Quality Control Reports.

1.06 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum 5 years of documented experience.

B. Installer Qualifications: Company specializing in performing the work of this section with minimum 5 years documented experience, and approved by manufacturer.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Deliver products in manufacturer's original containers, dry, undamaged, with seals and labels intact.

B. Store products in weather protected environment, clear of ground and moisture.

C. Ensure storage and staging of materials does not exceed static and dynamic load-bearing capacities of roof decking.

D. Schedule applications so that no partially completed sections of roof are left exposed at end of workday.

1.08 FIELD CONDITIONS

A. Do not install roofing assembly during unsuitable weather and temperatures as defined by roofing membrane manufacturer.

B. Do not apply roofing membrane to damp or frozen deck surface or when precipitation is expected or occurring.

C. Do not expose materials vulnerable to water or sun damage in quantities greater than can be weatherproofed the same day.

1.09 WARRANTY

A. See Section 01 7800 - Closeout Submittals, for additional warranty requirements.

B. Manufacturer Warranty: Provide 20 year manufacturer's system warranty where manufacturer shall repair or replace roofing system components that fail in materials or workmanship; includes failure to prevent penetration of water to include rood edge metals.

C. Installer Warranty: Provide installation warranty where Installer agrees to correct defective Work within a 2 year period after Date of Substantial Completion; includes failure to prevent penetration of water.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Roof Assembly shall be provided by by one of the following:

1. Carlisle SynTec Systems; www.carlislesyntec.com.
2. Holcim Elevate (formerly Firestone Building Products); www.holcimelevate.com.
3. Johns Manville; www.jm.com.
4. Substitutions: Not permitted.

B. Source Limitations: Obtain roof membrane from one of the named Roof Assembly manufacturers and provide related roofing assembly components from either the roof membrane manufacturer or one of the listed product manufacturers; subject to approval of roof membrane manufacturer.

2.02 ROOFING ASSEMBLY

A. Single-ply membrane roofing assembly consisting of the following:

1. EPDM single-ply roof membrane; fully adhered.
2. Cover board; fully adhered.
3. Walkway pads.

B. Performance Requirements:

1. Comply with Factory Mutual (FM) Global and FM Approvals' RoofNav Listing requirements as follows:

a. Roof membrane, base flashings, and component materials shall comply with requirements in FM Approvals FM 4450 or FM Approvals FM 4470 as part of a roofing system, and shall be listed in FM Approvals' RoofNav for Class 1 or noncombustible construction, as applicable. Identify materials with FM Approvals Certification markings.
   1) Fire/Windstorm Classification: Class 1A-90.
   2) Hail-Resistance Rating: SH.
b. Comply with the following Property Loss Prevention Data Sheets:
   1) Data Sheet FM DS 1-28: Wind Design.
   2) Data Sheet FM DS 1-29: Roof Deck Securement and Above-Deck Roof Components.
   3) Data Sheet FM DS 1-49: Perimeter Flashing.

2. Minimum Insulation Requirements: Excluding tapered insulation.
   a. Minimum Layers of Insulation: Two.
   b. Minimum Overall Thickness: 6 inches.
   c. Minimum R-value: 30.
3. Material Compatibility: Roofing materials shall be compatible with one another and adjacent materials as demonstrated by roof membrane manufacturer based on testing and field experience.

2.03 ROOF MEMBRANE

A. Membrane: Ethylene-propylene-diene-terpolymer (EPDM); internally reinforced with fabric or scrim; complying with minimum properties of ASTM D4637/D4637M.
   1. Thickness: 0.060 inch (60 mil), nominal.
   2. Color: Black.

2.04 COVER BOARD

A. Faced Polyisocyanurate Cover Board: High compressive strength board, conforming to ASTM C1289, Type II, Class 4 - Faced with coated or uncoated polymer-bonded glass fiber mat facers on both major surfaces of the core foam.
   1. Grade and Compressive Strength: Grade 1, 80 psi.
   2. Board Size: 4 by 4, or 4 by 8 feet.
   3. Board Thickness: 1/2 inch.
   4. Insulation Thermal Resistance, R-value: 2.5, nominal.
   5. Products:
      a. Carlisle SynTec Systems; SecurShield HD Plus: www.carlislesyntec.com.
      b. Holcim Elevate (formerly Firestone Building Products); ISOGARD HD Cover Board: www.holcimelevate.com.
      c. Johns Manville; ProtectoR HD: www.jm.com.
      d. Substitutions: See Section 01 6000 - Product Requirements.

2.05 WALKWAYS

A. Flexible Walkways: Factory-formed, nonporous, heavy-duty, slip-resisting, surface-textured walkway pads.
   1. Size: 30 by 30 inches.
   2. Thickness: 0.30 inch, minimum.
   3. Color: Black.
   4. Products:
      a. Carlisle SynTec Systems; Sure-Seal EPDM Pressure-Sensitive Molded Walkway Pads: www.carlislesyntec.com.
      b. Holcim Elevate (formerly Firestone Building Products); QuickSeam Walkway Pad: www.holcimelevate.com.
      c. Johns Manville; JM EPDM Peel & Stick Walkpads: www.jm.com.
      d. Substitutions: See Section 01 6000 - Product Requirements.

2.06 ACCESSORIES

A. Auxiliary Materials: Provide all materials recommended by roofing assembly manufacturer for a complete and weathertight assembly.

B. Flexible Flashing Material: Same material as roofing membrane.
   1. Thickness: Same as roofing membrane unless otherwise recommended by roof membrane manufacturer.
   2. Uncured, unless otherwise recommended by roof membrane manufacturer.

C. Factory Fabricated Flashings: Same material as roofing membrane
   1. Provide manufacturer's standard preformed flashings including, but not limited to, cone and vent sheet flashings, molded pipe boot flashings, and pourable sealer penetration pockets.

D. Metal Termination Bars: Manufacturer's standard, predrilled stainless steel bars, approximately 1 by 1/8 inch thick; with anchors.

E. Membrane and Flashing Adhesive: As recommended by membrane manufacturer.

F. Seaming Materials: Manufacturer's standard splice tape with release film.

G. Insulation Adhesive: As recommended by insulation manufacturer and as follows:
   1. Full-spread, spray-applied, low-rise, two-component urethane adhesive.

H. Fasteners: Factory-coated steel fasteners and metal or plastic plates complying with corrosion-resistance provisions in FM Approvals FM 4470, designed for fastening components to substrate, and acceptable to roofing system manufacturer

I. Sealants and Pourable Sealers: As recommended by membrane manufacturer.

J. Surface Conditioner for Adhesives: Compatible with membrane and adhesives.

K. Vapor Barrier Primer: As recommended by vapor barrier manufacturer.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that surfaces and site conditions are ready to receive work.

B. Verify that roof openings, curbs, and penetrations through roof are solidly set, and nailing strips are in place.

3.02 INSTALLATION - GENERAL

A. Perform work in accordance with manufacturer's instructions, NRCA (RM), and NRCA (WM) applicable requirements.

B. Do not apply roofing membrane during unsuitable weather.

C. Do not apply roofing membrane when ambient temperature is outside the temperature range recommended by manufacturer.

D. Do not apply roofing membrane to damp or frozen deck surface or when precipitation is expected or occurring.

E. Do not expose materials vulnerable to water or sun damage in quantities greater than can be weatherproofed the same day.

3.03 INSULATION INSTALLATION

A. Cover Boards:
   1. Adhere cover board to insulation using adhesive according to roof assembly manufacturer's instructions and FM (AG) Factory Mutual requirements.

B. Do not apply more insulation than can be covered with membrane in same day.

3.04 MEMBRANE INSTALLATION

A. Fully adhere membrane roofing system in accordance with manufacturer's recommendations and NRCA (RM) applicable requirements.

B. Roll out membrane, free from wrinkles or tears. Place sheet into place without stretching.

C. Shingle joints on sloped substrate in direction of drainage.

D. Accurately align roof membrane, and maintain uniform side and end laps of minimum dimensions required by manufacturer. Stagger end laps.
   1. Overlap edges and ends and seal seams by splice tape. Seal permanently waterproof.
E. At intersections with vertical surfaces:
   1. Fully adhere flexible flashing over membrane and up to nailing strips.
   2. Secure flashing to nailing strips at 4 inches on center.
F. At gravel stops, extend membrane under gravel stop and down face of wall behind gravel stop fascia. Secure with fasteners to nailing strips.
G. At copings, unless otherwise indicated, extend membrane under coping and down face of wall behind front of coping. Secure with fasteners to nailing strips.
H. Around roof penetrations, seal flanges and flashings with flexible flashing.
I. Install roofing expansion joints where indicated. Make joints watertight.
   1. Install prefabricated joint components in accordance with manufacturer's instructions.
J. Coordinate installation of roof drains and sumps and related flashings.
K. Coordinate installation of associated counterflashings installed under other sections.

3.05 SACRIFICIAL MEMBRANE INSTALLATION

A. At roof exhausts which expel vegetable oils, animal fats, and other kitchen wastes, or expel other chemicals detrimental to the roof membrane, install a sacrificial membrane over the roof membrane in an 8 foot radius, minimum, around the roof exhaust.
   1. Sacrificial membrane shall be the same material and thickness as the roof membrane.

3.06 WALKWAY PAD INSTALLATION

A. Walkway Pads: Install walkway products according to manufacturer's instructions.
B. Install walkway pads at the following locations:
   1. Perimeter of each rooftop unit.
   2. Between each rooftop unit location, creating a continuous path connecting rooftop unit locations.
   3. Between each roof hatch and each rooftop unit location or path connecting rooftop unit locations.
   4. Top and bottom of each roof access ladder.
   5. Between each roof access ladder and each rooftop unit location or path connecting rooftop unit locations.
   6. At downspout discharges onto roof assembly.
   7. Other locations as indicated on Drawings.
   8. As required by roof membrane manufacturer's warranty requirements.
C. Provide 6 inch clearance between adjoining pads.
D. Adhere walkway products to substrate with compatible adhesive according to walkway pad manufacturer's instructions.

3.07 FIELD QUALITY CONTROL

A. See Section 01 4000 - Quality Requirements, for general requirements for field quality control and inspection.
B. Require site attendance of roof assembly manufacturer daily during installation of the Work.
C. Final Roof Inspection: Arrange for roof assembly manufacturer's technical personnel to inspect roofing installation on completion, in presence of Architect, and to prepare inspection report.
D. Repair or remove and replace components of roofing system where inspections indicate that they do not comply with specified requirements.
E. Additional testing and inspecting, at Contractor's expense, will be performed to determine if replaced or additional work complies with specified requirements

3.08 CLEANING

A. Clean all dirt, footprints, overspray, spillage, debris, and other construction waste materials from the roof assembly.

B. In areas where finished surfaces are soiled by work of this section, consult manufacturer of surfaces for cleaning advice and conform to their documented instructions.

C. Repair or replace defaced or damaged finishes caused by work of this section.

3.09 PROTECTION

A. Protect installed roofing and flashings from construction operations.

END OF SECTION

SECTION 07 6200 - SHEET METAL FLASHING AND TRIM

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Formed sheet metal items, including, but not limited to, the following:
   1. Flashings.
   2. Counterflashings.
   3. Drip edges.
   4. Gutters and downspouts.
   5. Other items as indicated on Drawings.

B. Manufactured reglets.

1.02 REFERENCE STANDARDS

A. AAMA 2605 - Voluntary Specification, Performance Requirements and Test Procedures for Superior Performing Organic Coatings on Aluminum Extrusions and Panels (with Coil Coating Appendix) 2017a.

B. ASTM A666 - Standard Specification for Annealed or Cold-Worked Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar 2015.

C. ASTM B32 - Standard Specification for Solder Metal 2020.

D. ASTM B209 - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate 2014.

E. ASTM B209M - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate (Metric) 2014.

F. ASTM C920 - Standard Specification for Elastomeric Joint Sealants 2018.

G. FM DS 1-49 - FM Global Property Loss Prevention Data Sheet - Perimeter Flashing; 2016.

H. NRCA (RM) - The NRCA Roofing Manual 2019.

I. SMACNA (ASMM) - Architectural Sheet Metal Manual 2012.

1.03 ADMINISTRATIVE REQUIREMENTS

A. Preinstallation Meeting: Convene one week before starting work of this section.

1.04 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements for submittal procedures.

B. Shop Drawings: Indicate material profile, jointing pattern, jointing details, fastening methods, flashings, terminations, and installation details.

C. Samples:
   1. For each material and finish, submit three samples 4 by 4 inch in size illustrating metal finish color.
   2. Reglets: Submit three samples, 4 inches long, full size, of each type and finish.

1.05 QUALITY ASSURANCE

A. Perform work in accordance with SMACNA (ASMM) requirements, except as otherwise indicated.

B. Fabricator and Installer Qualifications: Company specializing in sheet metal work with 5 years of documented experience.

1.06 MOCK-UP

A. Mockups: Build mockups to verify selections made under Sample submittals, to demonstrate aesthetic effects, and to set quality standards for materials and execution.
   1. Build mockup of typical wall flashing with counterflashing, approximately 10 feet long, including supporting construction cleats, seams, attachments and accessories.
   2. Locate where directed.
   3. Mock-up may remain as part of the Work.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Stack material to prevent twisting, bending, and abrasion, and to provide ventilation. Slope metal sheets to ensure drainage.

B. Prevent contact with materials that could cause discoloration or staining.

PART 2 PRODUCTS

2.01 PERFORMANCE REQUIREMENTS

A. Perform work in accordance with SMACNA (ASMM) and NRCA (RM) requirements, unless more stringent requirements are indicated.
B. Sheet metal flashing and trim shall withstand wind loads, structural movement, thermally induced movement, and exposure to weather without failure due to defective manufacture, fabrication, installation, or other defects in construction.
C. Sheet metal flashing and trim shall not rattle, leak, or loosen, and shall remain watertight.
D. Fabricate cleats and attachment devices of sizes as recommended by cited sheet metal standards, and by Data Sheet FM DS 1-49: Perimeter Flashing, for application, but not less than thickness of metal being secured.
E. Coordination:
   1. Coordinate sheet metal flashing and trim layout and seams with sizes and locations of penetrations to be flashed, and joints and seams in adjacent materials.
   2. Coordinate sheet metal flashing and trim installation with adjoining roofing and wall materials, joints, and seams to provide leakproof, secure, and noncorrosive installation.

2.02 SHEET MATERIALS

A. Pre-Finished Aluminum: ASTM B209 (ASTM B209M); 20 gage, (0.032 inch) thick, minimum; plain finish shop pre-coated with fluoropolymer coating.
   1. Fluoropolymer Coating: High Performance Organic Finish, AAMA 2605; multiple coat, thermally cured fluoropolymer finish system.
   2. Color: Two or three-coat custom color to match Architect's sample.
B. Stainless Steel: ASTM A666, Type 304 alloy, soft temper, 24 gage, 0.025 inch thick, minimum; smooth 2D (dull, cold rolled) finish.

2.03 FABRICATION

A. Form sections true to shape, accurate in size, square, and free from distortion or defects.
B. Form sheet metal flashing and trim to fit substrates without excessive oil canning, buckling, and tool marks; true to line, levels, and slopes.
C. Fabricate cleats of same material as sheet, interlocking with sheet.
D. Form pieces in longest possible lengths.
E. Hem exposed edges on underside 1/2 inch; miter and seam corners.
F. Form material with flat lock seams, except where otherwise indicated; at moving joints, use sealed lapped, bayonet-type or interlocking hooked seams.
G. Fabricate corners from one piece with minimum 18 inch long legs; seam for rigidity, seal with sealant.
H. Fabricate vertical faces with bottom edge formed outward 1/4 inch and hemmed to form drip.

2.04 GUTTER AND DOWNSPOUT FABRICATION

A. Material: Pre-finished aluminum.
B. Gutters: SMACNA (ASMM) Rectangular profile; matching Style D.
   1. Expansion Joints: Lap type.
C. Downspouts: Rectangular profile.
D. Gutters and Downspouts: Size for rainfall intensity determined by a storm occurrence of 1 in 10 years in accordance with SMACNA (ASMM), unless otherwise indicated.
E. Anchorage Accessories: Profiled to suit gutters and downspouts.
   1. Anchorage Devices: In accordance with SMACNA (ASMM) requirements.
   2. Gutter Supports: Continuous cleat and straps.
   3. Downspout Supports: Straps.
F. Downspout Boots: Plastic, unless otherwise indicated.

G. Seal metal joints.
H. Accessories:
   1. Continuous, removable leaf screen; sheet metal frame and hardware cloth screen.
   2. Valley baffles.

2.05 ACCESSORIES

A. General: Provide all related materials, fasteners, hardware and accessories for a complete installation.
B. Fasteners: Same material and finish as flashing metal, with soft neoprene washers.
   1. Blind Fasteners: High-strength aluminum or stainless-steel rivets suitable for metal being fastened.
   2. Exposed Fasteners: Heads matching color of sheet metal using factory-applied coating.
C. Protective Backing Paint: Zinc molybdate alkyd.
D. Concealed Sealants: Non-curing butyl sealant.
E. Exposed Sealants: ASTM C920; elastomeric silicone sealant, with minimum movement capability as recommended by manufacturer for substrates to be sealed; color to match adjacent material.
F. Solder: ASTM B32; Sn96 type for stainless steel.

2.06 DRIP EDGES

A. Material: Pre-finished aluminum.
B. Provide L-shaped drip edges; extend horizontal leg 4 inches onto roof with vertical leg terminated with a 45 degree bent drip edge.
C. At Contractor's option, provide manufactured drip edges of type and profile required.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify roof openings, curbs, pipes, sleeves, ducts, and vents through roof are solidly set, reglets in place, and nailing strips located.
B. Verify roofing termination and base flashings are in place, sealed, and secure.

3.02 PREPARATION

A. Install starter and edge strips, and cleats before starting installation.
B. Install surface mounted reglets true to lines and levels, and seal top of reglets with sealant.
C. To prevent galvanic action or corrosion, back paint concealed metal surfaces with protective backing paint, minimum dry film thickness of 3 mil, where dissimilar metals contact each other, or where metal contacts pressure-treated wood or other corrosive substrates.

3.03 INSTALLATION - GENERAL

A. Install flashings and trim in accordance with SMACNA (ASMM) and NRCA (RM) requirements, unless more stringent methods are indicated.
B. Unless otherwise indicated, provide pre-finished aluminum flashings and trim in areas exposed to public view; at all other areas provide stainless steel flashings.
C. Insert flashings into reglets to form tight fit; secure in place with plastic wedges; seal flashings into reglets with sealant.
   1. Counterflashings shall lap base flashing 4 inches, minimum.
D. Secure flashings in place using concealed fasteners, and use exposed fasteners only where permitted.
E. Fit flashings tight in place; make corners square, surfaces true and straight in planes, and lines accurate to profiles.
F. Seal metal joints watertight.
G. For stainless steel, solder metal joints for full metal surface contact, and after soldering wash metal clean with neutralizing solution and rinse with water.

1. Do not solder aluminum.

3.04 GUTTERS AND DOWNSPOUTS

A. Secure gutters and downspouts in place with concealed fasteners.
   1. Gutter Supports: Space 30 inches on center, maximum.
   2. Downspout Supports: Locate at top and bottom of downspout and 60 inches on center, maximum.

B. Slope gutters 1/4 inch per 10 feet, minimum, unless otherwise indicated.

C. Where indicated, connect downspouts to downspout boots, and seal connection watertight.

D. Where gutters spill on grade, provide precast concrete splash block at each downspout discharge.

3.05 DRIP EDGES

A. Install at bottom edges of roof slopes, roof rakes, and elsewhere as indicated.

B. Fasteners: Space 18 inches on center, maximum.

3.06 TOLERANCES

A. Sheet Metal Flashing and Trim Tolerances:
   1. Install to tolerance of 1/4 inch in 20 feet on slope and location lines indicated on Drawings.
   2. Install with 1/8 inch maximum offset of adjoining faces and of alignment of matching profiles.

3.07 CLEANING

A. On completion of sheet metal flashing and trim installation, remove unused materials and clean finished surfaces as recommended by sheet metal manufacturer. Maintain sheet metal flashing and trim in clean condition.

B. Replace sheet metal flashing and trim damaged or deteriorated beyond successful repair by finish touchup or similar minor repair procedures.

END OF SECTION

SECTION 07 7100 - ROOF SPECIALTIES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Manufactured roof specialties, including:
   1. Copings.
   2. Fascia/gravel stops.
   3. Roof expansion joint cover assemblies.
   4. Gutters and downspouts.

B. Roof membrane vents.

1.02 REFERENCE STANDARDS

A. AAMA 2605 - Voluntary Specification, Performance Requirements and Test Procedures for Superior Performing Organic Coatings on Aluminum Extrusions and Panels (with Coil Coating Appendix) 2017a.

B. ANSI/SPRI/FM 4435/ES-1 - Test Standard for Edge Systems Used with Low Slope Roofing Systems 2017.

C. ASTM D4586/D4586M - Standard Specification for Asphalt Roof Cement, Asbestos-Free 2007 (Reapproved 2018).

D. NRCA (RM) - The NRCA Roofing Manual 2019.

E. SMACNA (ASMM) - Architectural Sheet Metal Manual 2012.

1.03 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide data on shape of components, materials and finishes, anchor types and locations.

C. Shop Drawings: Indicate configuration and dimension of components, adjacent construction, required clearances and tolerances, and other affected work.

D. Samples:
   1. For each material and finish, submit three samples 4 by 4 inch inch in size illustrating metal finish color.
   2. Provide a full size sample, 12 inches long, for each of the following:
      a. Copings.
      b. Roof edges/gravel stops.
      c. Roof expansion joint cover assemblies.
      d. Gutters and downspouts.

1.04 DELIVERY, STORAGE, AND HANDLING

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

B. Store products under cover and elevated above grade.

PART 2 PRODUCTS

2.01 COMPONENTS

A. Fascia/Gravel Stop: Factory fabricated to sizes required; mitered, welded corners; concealed fasteners.
   1. Configuration: Fascia, cant, and edge securement for roof membrane.
   2. Accessories:
      a. Fascia extenders with continuous hold-down cleats.
         1) Depth: As indicated on Drawings.
   3. Pull-Off Resistance: Tested in accordance with ANSI/SPRI/FM 4435/ES-1 using test methods RE-1 and RE-2 to positive and negative design wind pressure as defined by applicable local building code.
   4. Material: Formed aluminum sheet, 0.050 inch thick, minimum.
   5. Finish: PVDF coating; 70 percent polyvinylidene fluoride.
   6. Color: Two or three coat custom color to match Architect's sample.

7. Products:
   a. Architectural Products Co.; AP Snap-On Fascia: www.archprod.com.
   b. ATAS International, Inc.; Edge-Lok 2: www.atas.com.
   c. Carlisle SynTec Systems; SecureEdge 200 Fascia: www.carlislesyntec.com.
   d. Firestone Building Products; Firestone EdgeGard - Snap-On: www.firestonebpco.com.
   e. Johns Manville; Presto-Tite Edge One Fascia System: www.jm.com.
   f. Metal-Era; Perma-Tite System 200 Fascia: www.metalera.com.
   g. OMG Roofing Products; EconoSnap Fascia System: www.omgroofing.com.
   h. Petersen Aluminum Corp.; PAC Snap Edge Fascia: www.pac-clad.com.
   i. Sika Sarnafil; Edge Grip Fascia: usa.sarnafil.sika.com.
   j. Substitutions: See Section 01 6000 - Product Requirements.

B. Roof Penetration Sealing Systems: Premanufactured components and accessories as required to preserve integrity of roofing system and maintain roof warranty; suitable for conduits and roofing system to be installed; designed to accommodate existing penetrations where applicable.

C. Engineered Roof Ventilation:
   1. Ridge Vent System: Factory fabricated, formed panels with integral attachment flanges and snap-on cover.
      a. Perforated Screen: 0.050 inch thick aluminum.
      b. Brackets: Manufacturer's standard 20 gauge, 0.0359 inch

D. Gutters and Downspouts: Factory fabricated gutters and downspouts.
   1. Gutters: SMACNA rectangular style profile.
   2. Downspouts: SMACNA Rectangular profile.
   3. Material: Formed aluminum sheet, 0.063 inch thick, minimum.
   4. Gutters and Downspouts: Size for rainfall intensity determined by a storm occurrence of 1 in 10 years in accordance with SMACNA (ASMM), unless otherwise indicated.
   5. Anchors and Supports: Profiled to suit gutters and downspouts.
      a. Anchoring Devices: Type recommended by fabricator, but not less than SMACNA requirements.
      b. Gutter Supports: Brackets.
      c. Downspout Supports: Brackets.
   6. Downspout Boots: Plastic, unless otherwise indicated.
   7. Finish: PVDF coating; 70 percent polyvinylidene fluoride.
   8. Color: Two or three coat custom color to match Architect's sample.
   9. Manufacturers:
      a. Architectural Products Co.; www.archprod.com.
      b. ATAS International, Inc.; www.atas.com.
      c. Metal-Era; www.metalera.com.
      d. OMG Roofing Products; www.omgroofing.com.
      e. Southern Aluminum Finishing Co, Inc.(SAF); www.saf.com <http://www.saf.com>.
      f. Substitutions: See Section 01 6000 - Product Requirements.

2.02 FINISHES

A. PVDF (Polyvinylidene Fluoride) Coating: Superior Performance Organic Finish, AAMA 2605; multiple coat, thermally cured fluoropolymer finish system. Two or three-coat system, unless otherwise indicated.

2.03 ACCESSORIES

A. Sealant for Joints in Linear Components: As recommended by component manufacturer.

B. Adhesive for Anchoring to Roof Membrane: Compatible with roof membrane and approved by roof membrane manufacturer.

C. Roof Cement: ASTM D4586/D4586M, Type I.

D. Protective Backing Paint: Zinc molybdate alkyd.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that deck, curbs, roof membrane, base flashing, and other items affecting work of this Section are in place and positioned correctly.

3.02 PREPARATION

A. To prevent galvanic action or corrosion, back paint concealed metal surfaces with protective backing paint, minimum dry film thickness of 3 mil, or provide other permanent separation as recommended by unit manufacturer, where dissimilar metals contact each other, or where metal contacts pressure-treated wood or other corrosive substrates.

3.03 INSTALLATION - GENERAL

A. Install components in accordance with manufacturer's instructions and NRCA (RM) applicable requirements.
B. Seal joints within components when required by component manufacturer.
C. Anchor components securely.
D. Coordinate installation of components of this section with installation of roofing membrane and base flashings.

3.04 GUTTERS AND DOWNSPOUTS

A. Secure gutters and downspouts in place with concealed fasteners.
   1. Gutter Supports: Space 30 inches on center, maximum.
   2. Downspout Supports: Locate at top and bottom of downspout and 60 inches on center, maximum.
B. Seal metal joints.
C. Slope gutters 1/4 inch per 10 feet, minimum, unless otherwise indicated.
D. Where indicated, connect downspouts to downspout boots, and seal connection watertight.

3.05 CLEANING

A. On completion of manufactured roof specialties installations, remove unused materials and clean finished surfaces as recommended by roof specialties manufacturers. Maintain finishes in clean condition.
B. Replace manufactured roof specialties damaged or deteriorated beyond successful repair by finish touchup or similar minor repair procedures.

END OF SECTION

SECTION 07 9200 - JOINT SEALANTS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Nonsag gunnable joint sealants.
B. Self-leveling pourable joint sealants.
C. Joint backings and accessories.

1.02 RELATED REQUIREMENTS

A. Section 07 8400 - Firestopping: Firestopping sealants.
B. Section 07 9100 - Preformed Joint Seals: Precompressed foam, gaskets, and strip seals.
C. Section 08 8000 - Glazing: Glazing sealants and accessories.
D. Section 09 2116 - Gypsum Board Assemblies: Sealing acoustical and sound-rated walls and ceilings.

1.03 REFERENCE STANDARDS

A. ASTM C661 - Standard Test Method for Indentation Hardness of Elastomeric-Type Sealants by Means of a Durometer 2015.
B. ASTM C794 - Standard Test Method for Adhesion-In-Peel of Elastomeric Joint Sealants 2018.
C. ASTM C834 - Standard Specification for Latex Sealants 2017 (Reapproved 2023).
D. ASTM C920 - Standard Specification for Elastomeric Joint Sealants 2018.
E. ASTM C1087 - Standard Test Method for Determining Compatibility of Liquid-Applied Sealants with Accessories Used in Structural Glazing Systems 2016.
F. ASTM C1193 - Standard Guide for Use of Joint Sealants 2016 (Reapproved 2023).
G. ASTM C1248 - Standard Test Method for Staining of Porous Substrate by Joint Sealants 2022.
H. ASTM C1330 - Standard Specification for Cylindrical Sealant Backing for Use with Cold Liquid-Applied Sealants 2023.
I. ASTM C1521 - Standard Practice for Evaluating Adhesion of Installed Weatherproofing Sealant Joints 2019 (Reapproved 2020).
J. ASTM D2240 - Standard Test Method for Rubber Property--Durometer Hardness 2015 (Reapproved 2021).

1.04 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
B. Product Data for Sealants: Submit manufacturer's technical data sheets for each product to be used, that includes the following.
    1. Physical characteristics, including movement capability, VOC content, hardness, cure time, and color availability.
    2. List of backing materials approved for use with the specific product.
    3. Substrates that product is known to satisfactorily adhere to and with which it is compatible.
    4. Substrates the product should not be used on.
    5. Substrates for which use of primer is required.
    6. Sample product warranty.
C. Product Data for Accessory Products: Submit manufacturer's technical data sheet for each product to be used, including physical characteristics, installation instructions, and recommended tools.
D. Color Cards for Selection: Where custom colors are not specified, submit manufacturer's color cards showing standard colors available for selection.
E. Samples for Verification: For each sealant color, submit at least three physical samples for color verification.
    1. Provide 1/2 inch wide joint sealant samples formed between two 4 inch long strips of material matching appearance of exposed surfaces adjacent to joint sealants.

F. Preconstruction Laboratory Test Reports: Submit at least four weeks prior to start of installation.
G. Field Quality Control Plan: Submit at least two weeks prior to start of installation.
H. Field Quality Control Log: Submit filled out log for each length or instance of sealant installed, within 10 days after completion of inspections/tests; include bagged test samples and photographic records, if any.

1.05 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum 5 years documented experience.
B. Installer Qualifications: Company specializing in performing the work of this section and with at least 5 years of documented experience.
C. Preconstruction Laboratory Testing: Arrange for sealant manufacturer(s) to test each combination of sealant, substrate, backing, and accessories.
    1. Adhesion Testing: In accordance with ASTM C794.
    2. Compatibility Testing: In accordance with ASTM C1087.
    3. Stain Testing: In accordance with ASTM C1248; required only for stone substrates.
    4. Allow sufficient time for testing to avoid delaying the work.
    5. Deliver to manufacturer sufficient samples for testing.
    6. Report manufacturer's recommended corrective measures, if any, including primers or techniques not indicated in product data submittals.
    7. Testing is not required if sealant manufacturer provides data showing previous testing, not older than 24 months, that shows satisfactory adhesion, lack of staining, and compatibility.
D. Owner may employ an independent testing agency to perform the field quality control inspection and testing as referenced in PART 3 of this section and as follows, to prepare and submit the field quality control plan and log, and to provide recommendations of remedies in the case of failure.
    1. Contractor shall cooperate with testing agency and repair failures discovered.
    2. Otherwise, if Owner does not employ an independent testing agency, Contractor shall perform its own field quality control measures including the following:
        a. Field Quality Control Plan and Log.
        b. Field Adhesion Test Procedures.
E. Field Quality Control Plan:
    1. Visual inspection of entire length of sealant joints.
    2. Non-destructive field adhesion testing of sealant joints, except interior acrylic latex sealants.
        a. For each different sealant and substrate combination, allow for one test every 12 inches in the first 10 linear feet of joint and one test every 120 inches thereafter.
        b. If any failures occur in the first 10 linear feet, continue testing at 48 inch intervals at no extra cost to Owner.
F. Field Adhesion Test Procedures:
    1. Allow sealants to fully cure as recommended by manufacturer before testing.
    2. Have a copy of the test method document available during tests.
    3. Record the type of failure that occurred, other information required by test method, and the information required on the Field Quality Control Log.
    4. If any combination of sealant type and substrate does not show evidence of minimum adhesion or shows cohesion failure before minimum adhesion, report results to Architect.
    5. Non-Destructive Field Adhesion Test: Test for adhesion in accordance with ASTM C1521, using Nondestructive Spot Method.
        a. Record results on Field Quality Control Log.
        b. Repair failed portions of joints.

1.06 WARRANTY

A. See Section 01 7800 - Closeout Submittals, for additional warranty requirements.
B. Correct defective work within a five year period after Date of Substantial Completion.
C. Warranty: Include coverage for installed sealants and accessories that fail to achieve watertight seal , exhibit loss of adhesion or cohesion, or do not cure.

PART 2 PRODUCTS

2.01 JOINT SEALANT APPLICATIONS

A. Scope:
   1. Exterior Joints: Seal open joints, whether or not the joint is indicated on drawings, unless specifically indicated not to be sealed. Exterior joints to be sealed include, but are not limited to, the following items.
      a. Wall expansion and control joints.
      b. Joints between door, window, and other frames and adjacent construction.
      c. Joints between different exposed materials.
      d. Openings below ledge angles in masonry.
      e. Other joints as indicated.
   2. Interior Joints: Do not seal interior joints unless specifically indicated to be sealed. Interior joints to be sealed include, but are not limited to, the following items.
      a. Joints between door, window, and other frames and adjacent construction.
      b. Other joints as indicated.
   3. Do not seal the following types of joints.
      a. Intentional weepholes in masonry.
      b. Joints indicated to be treated with manufactured expansion joint cover or some other type of sealing device.
      c. Joints where sealant is specified to be provided by manufacturer of product to be sealed.
      d. Joints where installation of sealant is specified in another section.
      e. Joints between suspended panel ceilings/grid and walls.
B. Exterior Joints: Use non-sag non-staining silicone sealant, unless otherwise indicated.
   1. Control and Expansion Joints in Concrete Paving: Self-leveling silicone traffic-grade sealant.
C. Interior Joints: Use non-sag acrylic emulsion latex sealant, unless otherwise indicated.
   1. Interior Sides of Aluminum Framing in Exterior Walls: Use non-sag non-staining silicone sealant, unless otherwise indicated.
      a. Includes, but is not limited to, curtain walls, storefronts, and metal-framed skylights.
   2. Control Joints in Interior Concrete Slabs: Self-leveling silicone "traffic grade" sealant.
   3. Column Isolation Joints in Interior Concrete Slabs: Self-leveling silicone "traffic grade" sealant.
   4. Floor Joints in Wet Areas: Self-leveling silicone "traffic grade" sealant; not for continuous liquid immersion
   5. Joints between Fixtures in Wet Areas and Floors, Walls, and Ceilings: Mildew-resistant silicone sealant; clear, unless otherwise indicated.
   6. Joints between countertops and walls: Mildew-resistant silicone sealant; clear, unless otherwise indicated.
D. Interior Wet Areas: Includes, but is not limited to, toilet rooms, showering areas, locker rooms, kitchens, and food service areas; fixtures in wet areas include plumbing fixtures, food service equipment, countertops, cabinets, and other similar items.

2.02 NONSAG JOINT SEALANTS

A. Non-Staining Silicone Sealant: ASTM C920, Grade NS, Type S, Uses NT, A, G, M and O; not expected to withstand continuous water immersion or traffic.
   1. Movement Capability: Plus and minus 50 percent, minimum.

2. Non-Staining To Porous Stone: Non-staining to light-colored natural stone when tested in accordance with ASTM C1248.
3. Dirt Pick-Up: Reduced dirt pick-up compared to other silicone sealants.
4. Hardness Range: Comply with one of the following:
   a. 15 to 35, Shore A, when tested in accordance with ASTM C661.
   b. 25 to 35, Shore A, when tested in accordance with ASTM D2240.
5. Color: Custom color(s) to match Architect's sample(s).
6. Cure Type: Single-component, neutral moisture curing.
7. Service Temperature Range: Minus 40 to 250 degrees F.
8. Products:
   a. Momentive Performance Materials, Inc./GE; SCS9000 SilPruf NB: www.siliconeforbuilding.com.
   b. Pecora Corporation; 890NST: www.pecora.com.
   c. Sika Corporation; Sikasil WS-295 FPS: www.usa.sika.com.
   d. Tremco, Inc.; Spectrem 3: www.tremcosealants.com.
   e. Dow Chemical Company; DOWSIL 790 Silicone Building Sealant: consumer.dow.com/en-us/industry/ind-building-construction.html/#sle.
   f. Substitutions: See Section 01 6000 - Product Requirements.

B. Traffic Grade Silicone Sealant: ASTM C920, Grade NS, Type S, Uses T, M, and O; not expected to withstand continuous water immersion.
1. Movement Capability: Plus 100 percent, minus 50 percent, minimum
2. Hardness Range: Comply with one of the following:
   a. 5 to 15, Shore A, when tested in accordance with ASTM C661.
   b. 85, Shore 00, when tested in accordance with ASTM C661.
3. Color: To be selected by Architect from manufacturer's full range.
4. Cure Type: Single-component, neutral moisture curing.
5. Service Temperature Range: Minus 40 to 250 degrees F.
6. Products:
   a. Dow Corning; NS Parking Structure Sealant: www.dowcorning.com.
   b. Pecora Corporation; 311NS: www.pecora.com.
   c. Sika Corporation; Sikasil - 728 NS: www.usa.sika.com.
   d. Tremco, Inc.; Spectrem 800: www.tremcosealants.com.
   e. Substitutions: See Section 01 6000 - Product Requirements.

C. Mildew-Resistant Silicone Sealant: ASTM C920, Grade NS, Type S, Uses NT, A, G, and O; mildew resistant; not expected to withstand continuous water immersion or traffic.
1. Movement Capability: Plus and minus 25 percent, minimum.
2. Hardness Range: Comply with one of the following:
   a. 15 to 35, Shore A, when tested in accordance with ASTM C661.
   b. 25 to 35, Shore A, when tested in accordance with ASTM D2240.
3. Color: Clear.
4. Cure Type: Single-component, acetoxy or neutral moisture curing .
5. Service Temperature Range: Minus 40 to 300 degrees F.
6. Products:
   a. Dow Corning; 786 Sealant M: www.dowcorning.com.
   b. Momentive Performance Materials, Inc./GE; SCS1700 Sanitary: www.siliconeforbuilding.com.
   c. Pecora Corporation; 898NST: www.pecora.com.
   d. Sika Corporation; Sikasil - GP: www.usa.sika.com.
   e. Tremco, Inc.; Tremsil 200 with fungicide: www.tremcosealants.com.
   f. Substitutions: See Section 01 6000 - Product Requirements.

D. Acrylic Emulsion Latex: Water-based; ASTM C834, single component, non-staining, non-bleeding, non-sagging; not intended for exterior use. Siliconized.
1. Color: To be selected by Architect from manufacturer's full range.

2. Grade: ASTM C834; Grade Minus 18 Degrees C (0 Degrees F).
3. Products:
   a. Franklin International Inc; Titebond Painter's Plus Caulk: www.titebond.com.
   b. Pecora Corporation; AC-20 +Silicone: www.pecora.com.
   c. Sherwin Williams; 950A Siliconized Acrylic Latex Caulk: www.sherwin-williams.com.
   d. Tremco, Inc.; Tremflex 834: www.tremcosealants.com.
   e. Substitutions: See Section 01 6000 - Product Requirements.

2.03 SELF-LEVELING SEALANTS

A. Self-Leveling Silicone Sealant: ASTM C920, Type S, Grade P, Uses T, M and O; single-component, explicitly approved by manufacturer for traffic exposure when recessed below traffic surface; not expected to withstand continuous water immersion.
   1. Movement Capability: Plus 100 percent, minus 50 percent, minimum.
   2. Hardness Range: Comply with one of the following:
      a. 5 to 20, Shore A, when tested in accordance with ASTM C661.
      b. 40 to 85, Shore 00, when tested in accordance with ASTM D2240.
   3. Color: To be selected by Architect from manufacturer's full range.
   4. Cure Type: Single-component, neutral moisture curing.
   5. Service Temperature Range: Minus 50 to 300 degrees F.
   6. Products:
      a. Dow Corning; SL Parking Structure Sealant: www.siliconeforbuilding.com.
      b. Pecora Corporation; 310SL: www.pecora.com.
      c. Sika Corporation; Sikasil-728 SL: www.usa.sika.com.
      d. Tremco, Inc.; Spectrem 900SL: www.tremcosealants.com.
      e. Substitutions: See Section 01 6000 - Product Requirements.

2.04 ACCESSORIES

A. Backer Rod: Cylindrical cellular foam rod with surface that sealant will not adhere to, compatible with specific sealant used, and recommended by backing and sealant manufacturers for specific application.
   1. Type for Joints Not Subject to Pedestrian or Vehicular Traffic: ASTM C1330; Type B - Bi-Cellular Polyethylene.
   2. Type for Joints Subject to Pedestrian or Vehicular Traffic: ASTM C1330; Type B - Bi-Cellular Polyethylene.
   3. Bi-Cellular: 25 to 33 percent larger in diameter than joint width.

B. Backing Tape: Self-adhesive polyethylene tape with surface that sealant will not adhere to and recommended by tape and sealant manufacturers for specific application.

C. Masking Tape: Self-adhesive, nonabsorbent, non-staining, removable without adhesive residue, and compatible with surfaces adjacent to joints and sealants.

D. Primers: Type recommended by sealant manufacturer to suit application; non-staining.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that joints are ready to receive work.

B. Verify that backing materials are compatible with sealants.

C. Verify that backer rods are of the correct size.

3.02 PREPARATION

A. Remove loose materials and foreign matter that could impair adhesion of sealant.

B. Clean joints, and prime as necessary, in accordance with manufacturer's instructions.

C. Perform preparation in accordance with manufacturer's instructions and ASTM C1193.

D. Mask elements and surfaces adjacent to joints from damage and disfigurement due to sealant work; be aware that sealant drips and smears may not be completely removable.

E. Concrete Floor Joints That Will Be Exposed in Completed Work: Test joint filler in inconspicuous area to verify that it does not stain or discolor slab.

3.03 INSTALLATION

A. Perform work in accordance with sealant manufacturer's requirements for preparation of surfaces and material installation instructions.
B. Perform installation in accordance with ASTM C1193.
C. Measure joint dimensions and size joint backers to achieve width-to-depth ratio, neck dimension, and surface bond area as recommended by manufacturer.
D. Install bond breaker backing tape where backer rod cannot be used.
E. Install sealant free of air pockets, foreign embedded matter, ridges, and sags, and without getting sealant on adjacent surfaces.
F. Do not install sealant when ambient temperature is outside manufacturer's recommended temperature range, or will be outside that range during the entire curing period, unless manufacturer's approval is obtained and instructions are followed.
G. Nonsag Sealants: Tool surface concave, unless otherwise indicated; remove masking tape immediately after tooling sealant surface.
H. Concrete Floor Joint Filler: After full cure, shave joint filler flush with top of concrete slab.
I. Installation of Two-Stage Joints at Precast Architectural Concrete Units:
    1. Joint system consists of two back-to-back sealant joints at each precast architectural concrete unit joint with a weep at the bottom of the unit joint per Precast/Prestressed Concrete Institute (PCI) recommendations and as follows:
        a. Inner (Secondary) Seal: Inner secondary backer rod and sealant joint is installed a minimum of 2 to 2-1/2 inches beyond the exposed face of the precast architectural concrete panels within the panel joint itself.
        b. Exterior (Primary) Seal: Following the installation of the secondary joint, the outer primary backer rod and sealant joint is installed at the face of the precast architectural concrete panels with a weep at the bottom of the joint. Leave open continuous air space between the primary backer rod and inner secondary seal.
        c. Install 3/8 inch minimum weep openings in the exterior seal to allow water penetrating the exterior seal and contained by the inner seal to exit the cavity between joint seals.
            1) Do not install weeps below finish grades.
        d. Near the junction of horizontal and vertical joints, the inner seal must turn out to the plane of the exterior seal at regular intervals to force water out of the joint.

3.04 FIELD QUALITY CONTROL

A. Owner may employ an independent testing agency to perform field quality control inspection and testing as specified in PART 1 under QUALITY ASSURANCE article.
B. Non-Destructive Adhesion Testing: If there are any failures in first 100 linear feet, notify Architect immediately.
C. Remove and replace failed portions of sealants using same materials and procedures as indicated for original installation.

END OF SECTION

DEXTER COMMUNITY SCHOOLS

2023 ROOF EVALUATION

PREPARED BY

Roofing Technology Associates, Ltd.

RTA PROJECT NO. 22-106

APRIL 7, 2023

- DEXTER HIGH SCHOOL
- ANCHOR/BEACON ELEMENTARY
- MILL CREEK MIDDLE SCHOOL
- WYLIE ELEMENTARY SCHOOL
- CREEKSIDE ELEMENTARY SCHOOL
- BATES ELEMENTARY SCHOOL
- JENKINS EARLY CHILDHOOD LEARNING CENTER
- TRANSPORTATION BUILDING
- AL RITT STADIUM BUILDINGS

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TAB 1

NARRATIVE REPORT AND SPREADSHEETS

ROOFING TECHNOLOGY ASSOCIATES, LTD.

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Web site www.rtaltd.com

April 7, 2023

Mr. Craig McCalla
Principal for Operations
Dexter Community Schools
2704 Baker Road Dexter
Dexter, MI 48130
mccallac@dexterschools.org

RE: PROFESSIONAL ROOFING STUDIES
Dexter Community Schools

Dear Mr. McCalla:

In accordance with your request, an evaluation was conducted on nine (9) designated buildings in the Dexter Community School District. The purpose of the roof evaluations is to determine the condition of the existing roofs in order to develop an opinion as to their life expectancies and to develop general recommendations for any necessary remedial roofing work.

SCOPE OF WORK

The scope of work for this project consisted of field investigations of the roof systems covering the designated buildings. Our field investigation work consisted of visual observation of the roof including the membrane, base flashings, penetrations, sheet metal accessories, and roof top equipment and supports.

Nondestructive moisture detection surveys (infrared thermography) were performed at each of the designated buildings. This part of the survey was done after sundown. A DJI Mavic 2 Enterprise drone with infrared thermal scanning and imaging was used to seek out areas of entrapped substrate moisture. Wet insulation retains heat longer and conducts heat more readily than dry insulation which allows the camera to detect the thermal anomalies caused by this and other conditions. The device was used to scan the roof and flashing surfaces for surface temperature variations.

Representative test cuts were made to roofs at each location to determine key as-built information such as the deck type, insulation types and roof system.

A rating system was formulated to establish a format whereby each roof area is rated relative to various factors including existing roof conditions, current maintenance and repair requirements, necessary roof system replacement areas, and general life expectancy. The parameters established to rate each roof are outlined in Table 1 below. Each of these items

were addressed as they pertain to each roof area prior to determining a rating number. Each roof has been rated from 1 to 5 with a 1 rating representing the best condition and a 5 rating representing the worst.

TABLE 1: ROOF CONDITION EVALUATION PARAMETERS

ROOF RATING	PARAMETERS
1 – VERY GOOD	* Good condition * Recently reroofed * May require some maintenance or completion of punch list items * No major repairs required * Life expectancy of 10 years or more
2 – GOOD	* Fairly sound condition * Minor deterioration * May need maintenance and repairs * Life expectancy of 6 to 9 years
3– FAIR	* Below average condition overall * Moderate deterioration * May need maintenance and repair * Roof system replacement required within 3 to 5 years
4 – POOR	* Poor condition overall * Advanced deterioration * Roof system requires replacement within 1 to 2 years
5– FAILED	* Extremely poor condition * Severe deterioration * Requires roof system replacement this year * Has outlived serviceable life

GENERAL CONDITIONS

There are a total of 135 roofs on the designated buildings included in this study which comprise 709,221 square feet. The majority of these roofs (84% of the square footage) are fully adhered, single-ply ethylene propylene diene terpolymerr (EPDM) roof systems. Thermoplastic Polyolefin (TPO) represent 9% of the roof inventory. The rest are comprised of Shingles, Standing Seam Metal roofs and panels or coatings.

There are 21 roofs which received a rating of 1, that is roofs that are in good condition and have a life expectancy of 10 years or more. This represents 15% percent of the inventory in terms of square footage. This also means that the remaining 85% of the inventory will require replacement within the next 10 years.

There are 38 roofs, or 26% of the total square footages, that have a life expectancy of 6 to 9 years, which received a rating of 2.

There are 46 roofs that received a rating of 3, which is fair condition. These roofs have a life expectancy of 3 to 5 years and 35% of the square footage falls into this category.

Twenty-six roofs received a rating of 4, which indicates the roof is in poor condition and has a life expectancy of 1 to 2 years. This represents 19% of the inventory by square footage.

There were 4 roofs in the inventory that received a rating of 5, indicating that they are in extremely poor condition and in need of immediate replacement. This represents 5% of the inventory by square footage. Most of this is represented by the disbanded EPDM roofs at Mill Creek which are in the process of being replaced at the time this report was written.

The pie-chart in Figure 1 below illustrates the distribution of ratings by square footage.

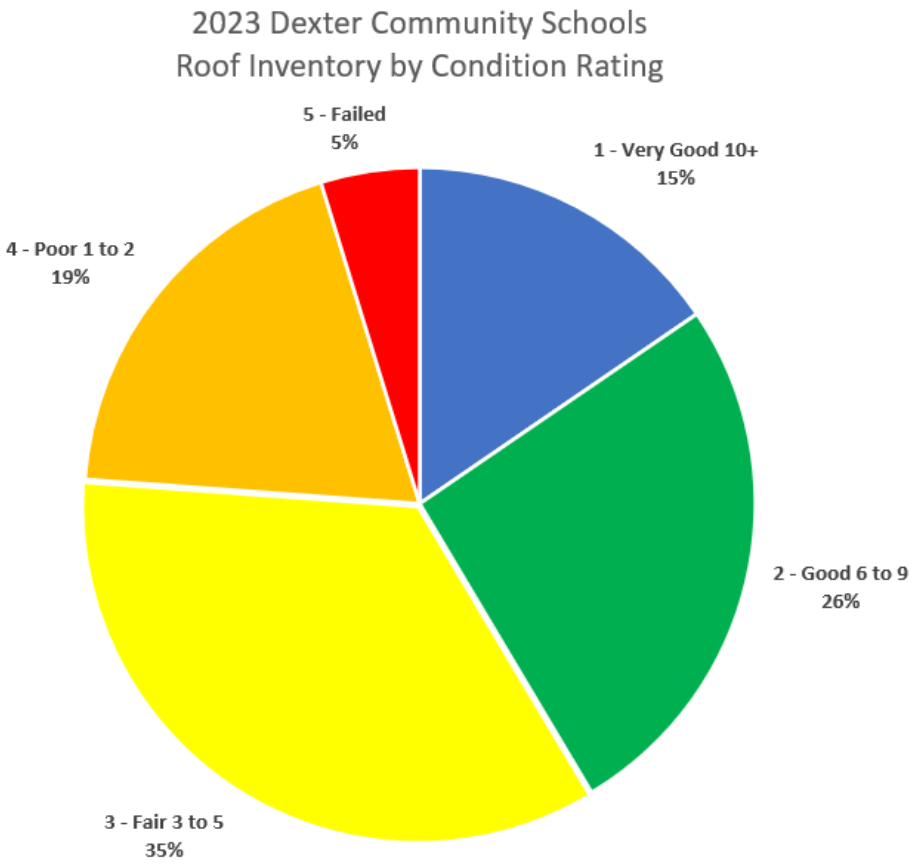

Figure 1: Distribution of Rating by Square Footage

ROOF PLANS

A Roof Area plan for each designated building has been prepared by representatives of RTA. Any areas of wet insulation that were identified during the nondestructive moisture surveys have been plotted on these drawings to show their relative size and location. The drawings also contain Area ID's which have been assigned to the roofs for purposes of this report and correlation to the information found on the spreadsheets.

COLOR CODED ROOF PLANS

Colors have been assigned to correspond to the condition ratings described in Table 1 above and used to provide an "at-a-glance" graphic representation for each roof area. The same colors that appear in the pie chart (Figure 1 above) are used to represent the ratings (1 = blue, 2 = green, 3 = yellow, 4 = orange, 5 = red).

ROOF MANAGEMENT SPREADSHEETS AND GRAPHS

Information from roof inspections conducted in the field was used to populate a spreadsheet for the entire inventory. The Comprehensive Roof Data by Building is a roll-up of the key information such as the Roof System Type, Square Footage, Approximate Year Installed, Deck Type, Insulation, Rating (1-5), Estimated Remaining Life and any pertinent Comments from the survey are included along with recommended maintenance activity.

The Roof Replacement Priority List lays out the recommended sequence of roof replacement. This is an important tool in determining which roofs the District should consider replacing and when. While each roof's rating is a major factor in determining the sequence, other factors such as reported leaks, relative priority or importance of the specific location to the district's overall objectives, proximity to other roofs with similar or worse conditions and logistic strategy should be considered in making these decisions. For example, a roof with a rating of 3 that is surrounded by roofs with a rating of 5, may be recommended for replacement sooner for economies of scale and to limit the number of projects in a given year or on a given building. For the low-slope roofs in the inventory, the assumption was made that fully adhered EPDM roofs would be installed.

Individual spreadsheets for each building were derived from the comprehensive list. An image of the Roof Plan is at the top of each spreadsheet to facilitate finding the location of each roof area ID on the building

PHOTO REPORTS

Photographs of existing conditions were taken during the survey and included in the Photo Report for each designated building.

EVALUATION SUMMARY OF EACH BUILDING

DEXTER HIGH SCHOOL

Dexter High School consists of low-slope roof systems primarily covered with EPDM roof systems, with an assortment of TPO roofs.

These roofs are believed to have been installed in 2002, making them 21 years old. Small areas of wet insulation were observed during the nondestructive moisture survey in isolated locations. Minor defect observations include a few loose strippings on Area C, some debris and vegetation accumulations, displaced insulation boards and permeable fabric on Area H and some missing drain strainers on the high theater roofs (I and J). None of these observations were deemed to be immediate concerns as they are not actively allowing water into the roof system.

Although independent of the roof system and performance, we did observe a few displaced wall panels (Dexter High School Photos number 8 and 19).

We estimate these roofs to all have between 3 to 5 years of remaining service life.

ANCHOR AND BEACON ELEMENTARY SCHOOLS

This building is essentially symmetrical as the addition that occurred in 2019 is a mirror image opposite of the existing building. The roofs on this building are covered with fully adhered EPDM roof systems. We estimate that the original roofs on the building are approximately 25 years old, and the new roofs from the addition are 4 years old. The new roofs, as expected, are in excellent condition. The old roofs (Areas A through F) are in poor condition and should be replaced within the next 1 to 2 years.

Although many repairs are evident around seams and laps on the older side of the building (Anchor and Beacon Photos 6 through 8), there are loose seams where the lap sealant has failed. Otherwise the typical debris and vegetation was observed on many areas of the roof.

MILL CREEK MIDDLE SCHOOL

The roofs on Mill Creek Middle School are low sloped and covered with EPDM roof systems. The vast majority of these roofs are approximately 21 years old. There were a few addditions in 2020 and an emergency replacement in 2019 (Area K). Similar to what occurred on Area K, a large section of Areas I, J and H have disbonded EPDM material which was bellowing up during a wind event (Mill Creek Photos 18 and 19). These areas are marked in this report as failed. However, at the time of the writing of this report, plans are underway to replace the EPDM on those roofs.

The remainder of the roofs are in fair condition and should remain serviceable for the next 3 to 5 years.

WYLIE ELEMENTARY SCHOOL.

The roofs at Wylie Elementary School are primarily covered with fully adhered EPDM roof systems. There were a number of roofs that appear to have been replaced approximately 12 years ago. However there are several roofs that are approximately 24 years old and are approaching the end of their service life. Areas D, E, M and N should be replaced in the next 1 to 2 years.

It appears there has been quite a bit of repair activity on these roofs. Maintenance items would include trimming back some branches that are overhanging a few of the roofs and clearing the roof surfaces of debris, vegetation and foreign objects.

CREEKSIDE ELEMENTARY SCHOOL

The roofs on Creekside Elementary School are primarily fully adhered EPDM roof systems, with the exception of the TPO roof on Area F. Whereas there are roofs on this building between 18 and 21 years old, there were none that appeared to be critical near-term replacements. Areas B and G, we expect, will last another 3 to 5 years. The remainder of the roofs on this building are in good condition and have a life expectancy of 6 to 9 years.

Maintenance items include trimming some branches back from overhanging the roof surfaces, cleaning the roofs of debris and vegetation and clearing the roof drains and gutters.

BATES ELEMENTARY SCHOOL

The roofs on Bates Elementary School are primarily low sloped roofs covered with fully adhered EPDM roof systems. There are two standing seam metal roofs. The ages of the roofs are about 22 to 25 years old.

Area A of Bates Elementary School has a section of roof approximately 20 feet long by 15 feet wide where – similar to what occurred at Mills Creek Middle School – the EPDM has become disbonded from the substrate and is billowing. (See Bates Photos 5, 6 and 7). This area should be replaced within the next 1 to 2 years. Although it is less likely to become as wide spread of an issue as that at Mills Creek, we recommend that batten bars be fastened through this section and stripped in to prevent further damage until the roof can be replaced.

We have also given Areas A1, D, F, G, K and L a rating of 4 indicating that there are only 1 to 2 years of remaining service life. Many of the seams have become loose or the lap sealant has failed and is a good indication that the roofs are showing signs of age.

JENKINS EARLY CHILDHOOD LEARNING CENTER

The Jenkins building is a combination of low slope and steep slope roofs. The low slope roofs are fully adhered EPDM and the steep slope roofs are covered with standing seam metal and shingles.

The roofs are approximately 25 years of age. The standing seam metal roofs are in good shape. The shingle roofs and the EPDM roofs are showing signs of age and near the end of their service life. We recommend that the shingle and EPDM covered roofs be replaced within the next 1 to 2 years.

TRANSPORTATION BUILDING

The standing seam metal roof at the Transportation Building is approximately 25 years old. We estimate it has 6 to 9 years of remaining service life.

The shingle and EPDM covered roofs are approximately 11 years old. We estimate that these roofs will provide another 6 to 9 years of remaining service life also.

AL RITT STADIUM BUILDINGS

We surveyed the press box, the concession stand and the nearby low sloped building we have named “equipment,” though we are unclear as to its usage.

The press box has a coating and appears to receive a lot of foot traffic. We did note a few wires that penetrate the roof and are only flashed with some sort of caulk.

The concession stand has a steep slope roof with shingles. We did note a few exposed fasteners and nail pops.

The roof on the equipment building is in very poor condition. We realize this may have a lesser importance as far as its usage, however the roof should be replaced if the building is to be relied on as a water-tight facility.

CONCLUSION

Recommendations were specifically requested as part of this project for urgent roofing replacements at Wylie and Creekside. As stated above, at Wylie, Areas D, E, M and N should be replaced in the next 1 to 2 years. At Creekside, we found no roofs that appeared to be critical near-term replacements. Areas B and G, we expect, will last another 3 to 5 years and can be considered the priority roofs at that building.

However, there are many roofs at Anchor/Beacon and Bates that we would recommend be considered for replacement in the next 1 to 2 years. Using a current replacement cost estimate of $21/square foot (complete tear-off, with new isocyanurate insulation and a fully adhered 60-mil reinforced EPDM membrane and associated sheet metal) we estimate the following budgets:

- Anchor/Beacon Areas A through F (excluding the metal roof D) = 60,237 square feet @ $21/SF = $1,264,977
- Bates Areas A, A1, D, F, G K and L = 27,025 square feet @ $21/SF = $567,525

We are pleased to have been given the opportunity to provide this roof evaluation project. Following your review of this information, we would be glad to discuss this report with you.

Please do not hesitate to call with any questions you may have.

Sincerely,

ROOFING TECHNOLOGY ASSOCIATES, LTD.

James J. Watson
President

2023 Dexter Community Schools Roof Evaluation

Comprehensive Roof Data by Building

Building	Roof ID	Roof Type	Deck Type	Bottom Insul	Top Insul	Drain Type	Size (SF)	Appr Yr Inst.	Age	Rating (1-5)	Est.Rem Life (Yrs)	Repl Est$	Comments	Maintenance
Dexter High	A	TPO - Fully Adh	Steel	Iso	Iso	Internal	9,300	2002	21	3	3 to 5	$ 195,300	Minor wrinkles	
Dexter High	A1	TPO - Fully Adh	Steel	Iso	Iso	Internal	120	2002	21	3	3 to 5	$ 2,520		
Dexter High	A2	TPO - Fully Adh	Steel	Iso	Iso	Internal	120	2002	21	3	3 to 5	$ 2,520		
Dexter High	A3	TPO - Fully Adh	Steel	Iso	Iso	Internal	800	2002	21	3	3 to 5	$ 16,800	Minor ponding/debris and vegetation. Displaced wall panel	Repair loose wall panel
Dexter High	B	EPDM - Fully Adh	Steel	Iso	Iso	Internal	7,300	2002	21	3	3 to 5	$ 153,300	Small area of wet insulation. Foreign object on roof (cinder block)	Clear roof of debris
Dexter High	C	TPO - Fully Adh	Steel	Iso	Iso	Eave	31,500	2002	21	3	3 to 5	$ 661,500	Loose stripping material on diverters. Evidence of repairs	
Dexter High	D	EPDM - Fully Adh	Steel	Iso	Iso	Internal	13,900	2002	21	3	3 to 5	$ 291,900	Small area of wet insulation. Displaced wall panel	Repair loose wall panel
Dexter High	E	EPDM - Fully Adh	Steel	Iso	Iso	Internal	7,100	2002	21	3	3 to 5	$ 149,100	Vegetation/debris. Foreign objects on roof	Clear roof of debris
Dexter High	F	EPDM - Fully Adh	Steel	Iso	Iso	Internal	800	2002	21	3	3 to 5	$ 16,800		
Dexter High	G	EPDM - Fully Adh	Steel	Iso	Iso	Internal	15,800	2002	21	3	3 to 5	$ 331,800	Repairs evident	
Dexter High	H	EPDM - Fully Adh	Steel	Iso	XPS	Internal	3,300	2002	21	3	3 to 5	$ 69,300	Displaced ballast stone, permeable fabric and insulation board	
Dexter High	I	TPO - Fully Adh	Steel	Iso	Iso	Internal	13,100	2002	21	3	3 to 5	$ 275,100	Missing drain strainer - sediment stains	Replace drain strainers
Dexter High	J	TPO - Fully Adh	Steel	Iso	Iso	Internal	4,700	2002	21	3	3 to 5	$ 98,700	Missing drain strainer - sediment stains	Replace drain strainers
Dexter High	K	Panels	Steel	Iso	Iso	Eave	525	2002	21	3	3 to 5	$ 11,025		
Dexter High	L	EPDM - Fully Adh	Steel	Iso	Iso	Internal	11,000	2002	21	3	3 to 5	$ 231,000		
Dexter High	M	EPDM - Fully Adh	Steel	Iso	Iso	Internal	18,700	2002	21	3	3 to 5	$ 392,700	Two small areas of wet insulation. Debris/vegetation	Clear roof of debris
Dexter High	N	EPDM - Fully Adh	Steel	Iso	Iso	Internal	18,400	2002	21	3	3 to 5	$ 386,400	Small area of wet insulation. Loose patches/failed lap sealant	
Dexter High	N1	EPDM - Fully Adh	Steel	Iso	Iso	Internal	19,700	2002	21	3	3 to 5	$ 413,700	Two small areas of wet insulation. Repairs evident	
Dexter High	N2	EPDM - Fully Adh	Steel	Iso	Iso	Internal	120	2002	21	3	3 to 5	$ 2,520		
Dexter High	O	TPO - Fully Adh	Steel	Iso	Iso	Internal	2,200	2002	21	3	3 to 5	$ 46,200	Incompatible materials used to flash curb	
Dexter High	P	TPO - Fully Adh	Steel	Iso	Iso	Internal	2,200	2002	21	3	3 to 5	$ 46,200		
Dexter High	P1	TPO - Fully Adh	Steel	Iso	Iso	Internal	140	2002	21	3	3 to 5	$ 2,940		
Dexter High	P2	Panels	Steel	Iso	Iso	Eave	175	2002	21	3	3 to 5	$ 3,675		
Anchor/Beacon	A	EPDM - Fully Adh	Steel	Iso	Iso	Internal	45,000	1998	25	4	1 to 2	$ 945,000	Vegetation/debris. Loose seams. Two small areas of wet insulation	Clear roof of debris. Seal loose seams
Anchor/Beacon	A1	EPDM - Fully Adh	Steel	Iso	Iso	Internal	70	1998	25	4	1 to 2	$ 1,470	Foreign objects on roof. Blocked drain	Clear roof of debris
Anchor/Beacon	A2	EPDM - Fully Adh	Steel	Iso	Iso	Internal	36	1998	25	4	1 to 2	$ 756		
Anchor/Beacon	A3	EPDM - Fully Adh	Steel	Iso	Iso	Internal	70	1998	25	4	1 to 2	$ 1,470		
Anchor/Beacon	A4	EPDM - Fully Adh	Steel	Iso	Iso	Internal	125	1998	25	4	1 to 2	$ 2,625		
Anchor/Beacon	A5	EPDM - Fully Adh	Steel	Iso	Iso	Internal	36	1998	25	4	1 to 2	$ 756		
Anchor/Beacon	A6	EPDM - Fully Adh	Steel	Iso	Iso	Internal	100	1998	25	4	1 to 2	$ 2,100		

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Comprehensive Roof Data by Building

Building	Roof ID	Roof Type	Deck Type	Bottom Insul	Top Insul	Drain Type	Size (SF)	Appr Yr Inst.	Age	Rating (1-5)	Est.Rem Life (Yrs)	Repl Est$	Comments	Maintenance
Anchor/Beacon	B	EPDM - Fully Adh	Steel	Iso	Iso	Internal	2,800	1998	25	4	1 to 2	$ 58,800	Blocks on roof membrane without protection pads	Install protection pads beneath blocks
Anchor/Beacon	C	EPDM - Fully Adh	Steel	Iso	Iso	Internal	2,400	1998	25	4	1 to 2	$ 50,400		
Anchor/Beacon	D	Mtl-Stand Seam	N/A	N/A	N/A	Eave	2,500	1998	25	1	10+	$ 52,500		
Anchor/Beacon	E	EPDM - Fully Adh	Steel	Iso	Iso	Internal	8,500	1998	25	4	1 to 2	$ 178,500	Ponding. Loose seams	Seal loose seams
Anchor/Beacon	F	EPDM - Fully Adh	Steel	Iso	Iso	Internal	1,100	1998	25	4	1 to 2	$ 23,100	Foreign objects on roof. Leaves in drain Blocked drain	Clear roof of debris. Clean drain strainer
Anchor/Beacon	G	EPDM - Fully Adh	Steel	Iso	Iso	Internal	2,700	2019	4	1	10+	$ 56,700		
Anchor/Beacon	H	EPDM - Fully Adh	Steel	Iso	Iso	Internal	3,700	2019	4	1	10+	$ 77,700		
Anchor/Beacon	I	EPDM - Fully Adh	Steel	Iso	Iso	Internal	4,200	2019	4	1	10+	$ 88,200		
Anchor/Beacon	J	EPDM - Fully Adh	Steel	Iso	Iso	Internal	4,200	2019	4	1	10+	$ 88,200		
Anchor/Beacon	K	EPDM - Fully Adh	Steel	Iso	Iso	Internal	800	2019	4	1	10+	$ 16,800		
Anchor/Beacon	L	EPDM - Fully Adh	Steel	Iso	Iso	Internal	2,300	2019	4	1	10+	$ 48,300		
Anchor/Beacon	N	EPDM - Fully Adh	Steel	Iso	Iso	Internal	3,000	2019	4	1	10+	$ 63,000		
Anchor/Beacon	M	EPDM - Fully Adh	Steel	Iso	Iso	Internal	52,000	2019	4	1	10+	$ 1,092,000		
Anchor/Beacon	M1	EPDM - Fully Adh	Steel	Iso	Iso	Internal	70	2019	4	1	10+	$ 1,470		
Anchor/Beacon	M2	EPDM - Fully Adh	Steel	Iso	Iso	Internal	36	2019	4	1	10+	$ 756		
Anchor/Beacon	M3	EPDM - Fully Adh	Steel	Iso	Iso	Internal	36	2019	4	1	10+	$ 756		
Anchor/Beacon	M4	EPDM - Fully Adh	Steel	Iso	Iso	Internal	70	2019	4	1	10+	$ 1,470		
Mill Creek	A	EPDM - Fully Adh	Steel	Iso	Iso	Internal	6,800	2002	21	3	3 to 5	$ 142,800	Unsecured ladder. Displaced walkpads. Delaminated base flashing/diagonal wrinkles.	Reset walkpads
Mill Creek	B	EPDM - Fully Adh	Steel	Iso	Iso	Internal	1,050	2002	21	3	3 to 5	$ 22,050		
Mill Creek	C	EPDM - Fully Adh	Steel	Iso	Iso	Internal	6,200	2002	21	3	3 to 5	$ 130,200	Diagonal wrinkles	
Mill Creek	D	EPDM - Fully Adh	Steel	Iso	Iso	Internal	4,600	2002	21	3	3 to 5	$ 96,600	Ponding.	
Mill Creek	E	EPDM - Fully Adh	Steel	Iso	Iso	Internal	2,400	2002	21	3	3 to 5	$ 50,400		
Mill Creek	F	EPDM - Fully Adh	Steel	Iso	Iso	Internal	300	2002	21	3	3 to 5	$ 6,300		
Mill Creek	G	EPDM - Fully Adh	Steel	Iso	Iso	Internal	2,500	2002	21	3	3 to 5	$ 52,500	Diagonal wrinkles	
Mill Creek	H	EPDM - Fully Adh	Steel	Iso	Iso	Internal	11,000	2002	21	5	0	$ 231,000	Disbonded EPDM (Slated for Replace)	Replacement Scheduled
Mill Creek	H1	EPDM - Fully Adh	Steel	Iso	Iso	Internal	72	2002	21	3	3 to 5	$ 1,512		
Mill Creek	H2	EPDM - Fully Adh	Steel	Iso	Iso	Internal	2,400	2020	3	1	10+	$ 50,400		
Mill Creek	H3	EPDM - Fully Adh	Steel	Iso	Iso	Internal	2,500	2020	3	1	10+	$ 52,500		
Mill Creek	I	EPDM - Fully Adh	Steel	Iso	Iso	Internal	350	2002	21	5	0	$ 7,350	Disbonded EPDM (Slated for Replace)	Replacement Scheduled
Mill Creek	J	EPDM - Fully Adh	Steel	Iso	Iso	Internal	21,000	2002	21	5	0	$ 441,000	Disbonded EPDM (Slated for Replace)	Replacement Scheduled
Mill Creek	K	EPDM - Fully Adh	Steel	Iso	Iso	Internal	17,600	2019	4	1	10+	$ 369,600		
Mill Creek	L	EPDM - Fully Adh	Steel	Iso	Iso	Internal	300	2002	21	3	3 to 5	$ 6,300	Small area of wet insulation	
Mill Creek	M	EPDM - Fully Adh	Steel	Iso	Iso	Internal	2,700	2002	21	3	3 to 5	$ 56,700		
Mill Creek	N	EPDM - Fully Adh	Steel	Iso	Iso	Internal	400	2002	21	3	3 to 5	$ 8,400		

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Comprehensive Roof Data by Building

Building	Roof ID	Roof Type	Deck Type	Bottom Insul	Top Insul	Drain Type	Size (SF)	Appr Yr Inst.	Age	Rating (1-5)	Est.Rem Life (Yrs)	Repl Est$	Comments	Maintenance
Mill Creek	O	EPDM - Fully Adh	Steel	Iso	Iso	Internal	300	2002	21	3	3 to 5	$ 6,300		
Mill Creek	P	EPDM - Fully Adh	Steel	Iso	Iso	Internal	2,100	2002	21	3	3 to 5	$ 44,100	Small area of wet insulation	
Wylie	A	EPDM - Fully Adh	Steel	Iso	Iso	Internal	10,700	2006	17	2	6 to 9	$ 224,700	Branches overhanging roof - leaves accumulating. Debris in drain	Trim branches. Clear debris from roof
Wylie	B	EPDM - Fully Adh	Steel	Iso	Iso	Internal	2,500	2011	12	2	6 to 9	$ 52,500		
Wylie	C	EPDM - Fully Adh	Steel	Iso	Iso	Internal	12,000	2011	12	2	6 to 9	$ 252,000	Two small areas of wet insulation	
Wylie	D	EPDM - Fully Adh	Steel	Iso	Iso	Internal	25,800	1999	24	4	1 to 2	$ 541,800	Repairs evident. Ponding	
Wylie	E	EPDM - Fully Adh	Steel	Iso	Iso	Internal	3,200	1999	24	4	1 to 2	$ 67,200	Repairs evident	
Wylie	F	EPDM - Fully Adh	Steel	Iso	Iso	Internal	1,050	2011	12	2	6 to 9	$ 22,050		
Wylie	G	EPDM - Fully Adh	Steel	Iso	Iso	Internal	5,800	2011	12	2	6 to 9	$ 121,800	Repaired seams	
Wylie	H	EPDM - Fully Adh	Steel	Iso	Iso	Internal	8,600	1999	24	3	3 to 5	$ 180,600	Ponding	
Wylie	I	EPDM - Fully Adh	Steel	Iso	Iso	Gutter	1,800	1999	24	3	3 to 5	$ 37,800	Leaves in gutter	Clean gutter
Wylie	J	EPDM - Fully Adh	Steel	Iso	Iso	Internal	3,000	2011	12	2	6 to 9	$ 63,000		
Wylie	K	EPDM - Fully Adh	Steel	Iso	Iso	Internal	10,000	2011	12	2	6 to 9	$ 210,000		
Wylie	L	EPDM - Fully Adh	Steel	Iso	Iso	Internal	2,000	2011	12	2	6 to 9	$ 42,000	Foreign objects on roof. Leaves in drain strainer	Clear roof of debris. Clean drain strainer
Wylie	M	EPDM - Fully Adh	Steel	Iso	Iso	Internal	1,100	1999	24	4	1 to 2	$ 23,100		
Wylie	N	EPDM - Fully Adh	Steel	Iso	Iso	Internal	6,800	1999	24	4	1 to 2	$ 142,800		
Wylie	O	Mtl-Stand Seam	NA	N/A	N/A	Eave	850	1999	24	1	10+	$ 17,850		
Wylie	P	EPDM - Fully Adh	Steel	Iso	Iso	Internal	1,800	2011	12	2	6 to 9	$ 37,800		
Wylie	Q	EPDM - Fully Adh	Steel	Iso	Iso	Internal	500	2011	12	2	6 to 9	$ 10,500		
Wylie	R	EPDM - Fully Adh	Steel	Iso	Iso	Internal	500	2011	12	2	6 to 9	$ 10,500	Foreign objects on roof.	Clear roof of debris. Clean drain strainer
Wylie	S	EPDM - Fully Adh	Steel	Iso	Iso	Internal	15,500	2011	12	2	6 to 9	$ 325,500	Overhanging branches. Leaves in drains	Trim branches. Clear debris from roof
Wylie	T	EPDM - Fully Adh	Steel	Iso	Iso	Internal	400	2011	12	2	6 to 9	$ 8,400		
Creekside	A	EPDM - Fully Adh	Steel	Iso	Iso	Gutter	6,200	2011	12	2	6 to 9	$ 130,200	Overhanging branches.	Trim branches
Creekside	A1	EPDM - Fully Adh	Steel	Iso	Iso	Gutter	120	2011	12	2	6 to 9	$ 2,520		
Creekside	B	EPDM - Fully Adh	Steel	Iso	Iso	Internal/Gut	16,300	2002	21	3	3 to 5	$ 342,300	Two small areas of wet insulation. Loose seams	Seal loose seams
Creekside	C	EPDM - Fully Adh	Steel	Iso	Iso	Internal	1,700	2013	10	2	6 to 9	$ 35,700		
Creekside	D	EPDM - Fully Adh	Steel	Iso	Iso	Internal	5,000	2011	12	2	6 to 9	$ 105,000	Ponding	
Creekside	E	EPDM - Fully Adh	Steel	Iso	Iso	Gutter	14,200	2011	12	2	6 to 9	$ 298,200	Small area of wet insulation	
Creekside	F	TPO - Fully Adh	Steel	Iso	Iso	Gutter	15,000	2005	18	2	6 to 9	$ 315,000		
Creekside	G	EPDM - Fully Adh	Steel	Iso	Iso	Gutter	14,000	2002	21	3	3 to 5	$ 294,000	Small area of wet insulation. Ponding	
Creekside	H	EPDM - Fully Adh	Steel	Iso	Iso	Internal	575	2011	12	2	6 to 9	$ 12,075	Debris/Vegetation in drain	Clear roof of debris. Clean drain strainer
Creekside	I	EPDM - Fully Adh	Steel	Iso	Iso	Internal	3,100	2011	12	2	6 to 9	$ 65,100	Debris/Vegetation in drain	Clear roof of debris. Clean drain strainer
Creekside	J	EPDM - Fully Adh	Steel	Iso	Iso	Internal	325	2011	12	2	6 to 9	$ 6,825		
Creekside	K	EPDM - Fully Adh	Steel	Iso	Iso	Gutter	2,250	2013	10	2	6 to 9	$ 47,250		

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Creekside	L	EPDM - Fully Adh	Steel	Iso	Iso	Gutter	3,900	2007	16	2	6 to 9	$ 81,900	small area of wet insulation	
Creekside	M	EPDM - Fully Adh	Steel	Iso	Iso	Gutter	5,200	2007	16	2	6 to 9	$ 109,200	Ponding. Repairs evident	
Creekside	N	Mtl-Stand Seam	Steel	Iso	Iso	Gutter	11,600	2011	12	2	6 to 9	$ 243,600		
Creekside	O	EPDM - Fully Adh	Steel	Iso	Iso	Scupper	185	2011	12	2	6 to 9	$ 3,885		
Creekside	P	EPDM - Fully Adh	Steel	Iso	Iso	Gutter	7,100	2013	10	2	6 to 9	$ 149,100	Corroding counterflashing	
Creekside	Q	EPDM - Fully Adh	Steel	Iso	Iso	Internal	3,700	2005	18	2	6 to 9	$ 77,700		
Creekside	R	EPDM - Fully Adh	Steel	Iso	Iso	Gutter	1,200	2005	18	2	6 to 9	$ 25,200		
Creekside	S	EPDM - Fully Adh	Steel	Iso	Iso	Internal	4,000	2011	12	2	6 to 9	$ 84,000	Ponding	
Creekside	T	EPDM - Fully Adh	Steel	Iso	Iso	Internal	3,600	2011	12	2	6 to 9	$ 75,600		
Bates	A	EPDM - Fully Adh	Steel	Iso	Iso	Internal	4,900	2001	22	4	1 to 2	$ 102,900	Disbonded EPDM. Failed lap sealant	Seal seams. Install batten bars and strip in to prevent further spreading
Bates	A1	EPDM - Fully Adh	Steel	Iso	Iso	Internal	35	2001	22	4	1 to 2	$ 735		
Bates	B	Mtl-Stand Seam	N/A			Gutter	2,800	1998	25	1	10+	$ 58,800		
Bates	C	Mtl-Stand Seam	N/A			Gutter	5,700	1998	25	1	10+	$ 119,700		
Bates	D	EPDM - Fully Adh	Steel	Iso	Iso	Internal	7,000	2001	22	4	1 to 2	$ 147,000	Debris/Vegetation. Ponding. Failed lap sealant	Seal loose seams
Bates	E	EPDM - Fully Adh	Steel	Iso	Iso	Internal	750	2001	22	3	3 to 5	$ 15,750	Ponding	
Bates	F	EPDM - Fully Adh	Steel	Iso	Iso	Internal	4,200	2001	22	4	1 to 2	$ 88,200	Debris/vegetation/ponding. Failed lap sealant. Damaged stack	Clear roof of debris. Clean drain strainers. Seal open seams. Repair damaged stack
Bates	G	EPDM - Fully Adh	Steel	Iso	Iso	Scupper	90	2001	22	4	1 to 2	$ 1,890	Ponding	
Bates	H	EPDM - Fully Adh	Steel	Iso	Iso	Internal	2,500	2001	22	2	6 to 9	$ 52,500	Loose seam/failed lap sealant	Seal loose seams
Bates	I	EPDM - Fully Adh	Steel	Iso	Iso	Internal	270	2001	22	3	3 to 5	$ 5,670		
Bates	J	EPDM - Fully Adh	Steel	Iso	Iso	Internal	3,500	2001	22	2	6 to 9	$ 73,500		
Bates	K	EPDM - Fully Adh	Steel	Iso	Iso	Internal	300	2001	22	4	1 to 2	$ 6,300		
Bates	L	EPDM - Fully Adh	Steel	Iso	Iso	Internal	10,500	2001	22	4	1 to 2	$ 220,500	Small area of wet insulation. Loose patches/failed lap sealant	Seal loose seams
Jenkins	A	EPDM - Fully Adh	Wood	Iso	Iso	Scupper	450	1998	25	3	3 to 5	$ 9,450		
Jenkins	B	EPDM - Fully Adh	Wood	Iso	Iso	Scupper	560	1998	25	3	3 to 5	$ 11,760	Accumlated leaves impeding drainage	Clear roof of debris
Jenkins	C	EPDM - Fully Adh	Wood	Iso	Iso	Scupper	265	1998	25	4	1 to 2	$ 5,565	Loose seam/failed lap sealant. Debris/leaves impeding drainage. Rusted counterflashing	Seal loose seams. Clear roof of debris
Jenkins	D	Mtl-Stand Seam	N/A	N/A	N/A	Gutter	1,100	1998	25	1	10+	$ 23,100	Leaves in gutter	Clear gutter of leaves
Jenkins	E	Shingle	Wood	N/A	N/A	Gutter	3,500	1998	25	4	1 to 2	$ 73,500		
Jenkins	F	Mtl-Stand Seam	N/A	N/A	N/A	Eave	1,100	1998	25	1	10+	$ 23,100		
Jenkins	G	Shingle	Wood	N/A	N/A	Gutter	4,300	1998	25	4	1 to 2	$ 90,300		

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Jenkins	H	EPDM - Fully Adh	Wood	Iso	Iso	Internal	3,150	1998	25	4	1 to 2	$ 66,150	Leaves/branches on the roof. Repaired laps. Loose seams	Clean roof of debris. Clean drains. Seal loose seams
Jenkins	I	mtl-Corrugated	N/A	N/A	N/A	Eave	475	1998	25	2	6 to 9	$ 9,975		
Transportation	A	Shingle	Wood	N/A	N/A	Gutter	1,600	2012	11	2	6 to 9	$ 33,600		
Transportation	B	EPDM - Fully Adh	Steel	Iso	Iso	Internal	900	2012	11	2	6 to 9	$ 18,900	Vegetation impeding drainage	Clear roof of debris. Clean drains
Transportation	C	Mtl-Stand Seam	N/A	N/A	N/A	Gutter	6,700	1998	25	2	6 to 9	$ 140,700	Rusted fasteners. Deteriorated sealant	Reseal penetration with deteriorated sealant
Al Ritt	Cncsn	Shingle	Wood	N/A	N/A	Gutter	6,000	2011	12	3	3 to 5	$ 126,000	Exposed fasteners. Nail pops	Drive nails flat. Caulk seal exposed fasteners
Al Ritt	Equip	EPDM - Fully Adh	Steel	Iso	Iso	Internal	1,400	1998	25	5	0	$ 29,400	Loose seams. Damaged fascia board	Seal loose seams. Schedule for replacement
Al Ritt	Press	Coating	Steel	N/A	N/A	Eave	600	2011	12	3	3 to 5	$ 12,600	Improperly flashed penetrations	

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Priority Listing

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Al Ritt	Equip	EPDM - Fully Adh	Steel	Iso	Iso	Internal	1,400	1998	25	5	0	$ 29,400	Loose seams. Damaged fascia board	Seal loose seams. Schedule for replacement
Mill Creek	H	EPDM - Fully Adh	Steel	Iso	Iso	Internal	11,000	2002	21	5	0	$ 231,000	Disbonded EPDM (Slated for Replace)	Replacement Scheduled
Mill Creek	I	EPDM - Fully Adh	Steel	Iso	Iso	Internal	350	2002	21	5	0	$ 7,350	Disbonded EPDM (Slated for Replace)	Replacement Scheduled
Mill Creek	J	EPDM - Fully Adh	Steel	Iso	Iso	Internal	21,000	2002	21	5	0	$ 441,000	Disbonded EPDM (Slated for Replace)	Replacement Scheduled
Anchor/Beacon	A	EPDM - Fully Adh	Steel	Iso	Iso	Internal	45,000	1998	25	4	1 to 2	$ 945,000	Vegetation/debris. Loose seams. Two small areas of wet insulation	Clear roof of debris. Seal loose seams
Anchor/Beacon	A1	EPDM - Fully Adh	Steel	Iso	Iso	Internal	70	1998	25	4	1 to 2	$ 1,470	Foreign objects on roof. Blocked drain	Clear roof of debris
Anchor/Beacon	A2	EPDM - Fully Adh	Steel	Iso	Iso	Internal	36	1998	25	4	1 to 2	$ 756		
Anchor/Beacon	A3	EPDM - Fully Adh	Steel	Iso	Iso	Internal	70	1998	25	4	1 to 2	$ 1,470		
Anchor/Beacon	A4	EPDM - Fully Adh	Steel	Iso	Iso	Internal	125	1998	25	4	1 to 2	$ 2,625		
Anchor/Beacon	A5	EPDM - Fully Adh	Steel	Iso	Iso	Internal	36	1998	25	4	1 to 2	$ 756		
Anchor/Beacon	A6	EPDM - Fully Adh	Steel	Iso	Iso	Internal	100	1998	25	4	1 to 2	$ 2,100		
Anchor/Beacon	B	EPDM - Fully Adh	Steel	Iso	Iso	Internal	2,800	1998	25	4	1 to 2	$ 58,800	Blocks on roof membrane without protection pads	Install protection pads beneath blocks
Anchor/Beacon	C	EPDM - Fully Adh	Steel	Iso	Iso	Internal	2,400	1998	25	4	1 to 2	$ 50,400		
Anchor/Beacon	E	EPDM - Fully Adh	Steel	Iso	Iso	Internal	8,500	1998	25	4	1 to 2	$ 178,500	Ponding. Loose seams	Seal loose seams
Anchor/Beacon	F	EPDM - Fully Adh	Steel	Iso	Iso	Internal	1,100	1998	25	4	1 to 2	$ 23,100	Foreign objects on roof. Leaves in drain Blocked drain	Clear roof of debris. Clean drain strainer
Bates	A	EPDM - Fully Adh	Steel	Iso	Iso	Internal	4,900	2001	22	4	1 to 2	$ 102,900	Disbonded EPDM. Failed lap sealant	Seal seams. Install batten bars and strip in to prevent further spreading
Bates	A1	EPDM - Fully Adh	Steel	Iso	Iso	Internal	35	2001	22	4	1 to 2	$ 735		
Bates	D	EPDM - Fully Adh	Steel	Iso	Iso	Internal	7,000	2001	22	4	1 to 2	$ 147,000	Debris/Vegetation. Ponding. Failed lap sealant	Seal loose seams
Bates	F	EPDM - Fully Adh	Steel	Iso	Iso	Internal	4,200	2001	22	4	1 to 2	$ 88,200	Debris/vegetation/ponding. Failed lap sealant. Damaged stack	Clear roof of debris. Clean drain strainers. Seal open seams. Repair damaged stack
Bates	G	EPDM - Fully Adh	Steel	Iso	Iso	Scupper	90	2001	22	4	1 to 2	$ 1,890	Ponding	
Bates	K	EPDM - Fully Adh	Steel	Iso	Iso	Internal	300	2001	22	4	1 to 2	$ 6,300		
Bates	L	EPDM - Fully Adh	Steel	Iso	Iso	Internal	10,500	2001	22	4	1 to 2	$ 220,500	Small area of wet insulation. Loose patches/failed lap sealant	Seal loose seams
Jenkins	C	EPDM - Fully Adh	Wood	Iso	Iso	Scupper	265	1998	25	4	1 to 2	$ 5,565	Loose seam/failed lap sealant. Debris/leaves impeding drainage. Rusted counterflashing	Seal loose seams. Clear roof of debris

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Priority Listing

Building	Roof ID	Roof Type	Deck Type	Bottom Insul	Top Insul	Drain Type	Size (SF)	Appr Yr Inst.	Age	Rating (1-5)	Est.Rem Life (Yrs)	Repl Est$	Comments	Maintenance
Jenkins	E	Shingle	Wood	N/A	N/A	Gutter	3,500	1998	25	4	1 to 2	$ 73,500		
Jenkins	G	Shingle	Wood	N/A	N/A	Gutter	4,300	1998	25	4	1 to 2	$ 90,300		
Jenkins	H	EPDM - Fully Adh	Wood	Iso	Iso	Internal	3,150	1998	25	4	1 to 2	$ 66,150	Leaves/branches on the roof. Repaired laps. Loose seams	Clean roof of debris. Clean drains. Seal loose seams
Wylie	D	EPDM - Fully Adh	Steel	Iso	Iso	Internal	25,800	1999	24	4	1 to 2	$ 541,800	Repairs evident. Ponding	
Wylie	E	EPDM - Fully Adh	Steel	Iso	Iso	Internal	3,200	1999	24	4	1 to 2	$ 67,200	Repairs evident	
Wylie	M	EPDM - Fully Adh	Steel	Iso	Iso	Internal	1,100	1999	24	4	1 to 2	$ 23,100		
Wylie	N	EPDM - Fully Adh	Steel	Iso	Iso	Internal	6,800	1999	24	4	1 to 2	$ 142,800		
Al Ritt	Cncsn	Shingle	Wood	N/A	N/A	Gutter	6,000	2011	12	3	3 to 5	$ 126,000	Exposed fasteners. Nail pops	Drive nails flat. Caulk seal exposed fasteners
Al Ritt	Press	Coating	Steel	N/A	N/A	Eave	600	2011	12	3	3 to 5	$ 12,600	Improperly flashed penetrations	
Bates	E	EPDM - Fully Adh	Steel	Iso	Iso	Internal	750	2001	22	3	3 to 5	$ 15,750	Ponding	
Bates	I	EPDM - Fully Adh	Steel	Iso	Iso	Internal	270	2001	22	3	3 to 5	$ 5,670		
Creekside	B	EPDM - Fully Adh	Steel	Iso	Iso	Internal/Gut	16,300	2004	19	3	3 to 5	$ 342,300	Two small areas of wet insulation. Loose seams	Seal loose seams
Creekside	G	EPDM - Fully Adh	Steel	Iso	Iso	Gutter	14,000	2004	19	3	3 to 5	$ 294,000	Small area of wet insulation. Ponding	
Dexter High	A	TPO - Fully Adh	Steel	Iso	Iso	Internal	9,300	2002	21	3	3 to 5	$ 195,300	Minor wrinkles	
Dexter High	A1	TPO - Fully Adh	Steel	Iso	Iso	Internal	120	2002	21	3	3 to 5	$ 2,520		
Dexter High	A2	TPO - Fully Adh	Steel	Iso	Iso	Internal	120	2002	21	3	3 to 5	$ 2,520		
Dexter High	A3	TPO - Fully Adh	Steel	Iso	Iso	Internal	800	2002	21	3	3 to 5	$ 16,800	Minor ponding/debris and vegetation. Displaced wall panel	Repair loose wall panel
Dexter High	B	EPDM - Fully Adh	Steel	Iso	Iso	Internal	7,300	2002	21	3	3 to 5	$ 153,300	Small area of wet insulation. Foreign object on roof (cinder block)	Clear roof of debris
Dexter High	C	TPO - Fully Adh	Steel	Iso	Iso	Eave	31,500	2002	21	3	3 to 5	$ 661,500	Loose stripping material on diverters. Evidence of repairs	
Dexter High	D	EPDM - Fully Adh	Steel	Iso	Iso	Internal	13,900	2002	21	3	3 to 5	$ 291,900	Small area of wet insulation. Displaced wall panel	Repair loose wall panel
Dexter High	E	EPDM - Fully Adh	Steel	Iso	Iso	Internal	7,100	2002	21	3	3 to 5	$ 149,100	Vegetation/debris. Foreign objects on roof	Clear roof of debris
Dexter High	F	TPO - Fully Adh	Steel	Iso	Iso	Internal	800	2002	21	3	3 to 5	$ 16,800		
Dexter High	G	EPDM - Fully Adh	Steel	Iso	Iso	Internal	15,800	2002	21	3	3 to 5	$ 331,800	Repairs evident	
Dexter High	H	EPDM - Fully Adh	Steel	Iso	XPS	Internal	3,300	2002	21	3	3 to 5	$ 69,300	Displaced ballast stone, permeable fabric and insulation board	
Dexter High	I	TPO - Fully Adh	Steel	Iso	Iso	Internal	13,100	2002	21	3	3 to 5	$ 275,100	Missing drain strainer - sediment stains	Replace drain strainers
Dexter High	J	TPO - Fully Adh	Steel	Iso	Iso	Internal	4,700	2002	21	3	3 to 5	$ 98,700	Missing drain strainer - sediment stains	Replace drain strainers
Dexter High	K	Panels	Steel	Iso	Iso	Eave	525	2002	21	3	3 to 5	$ 11,025		
Dexter High	L	EPDM - Fully Adh	Steel	Iso	Iso	Internal	11,000	2002	21	3	3 to 5	$ 231,000		
Dexter High	M	EPDM - Fully Adh	Steel	Iso	Iso	Internal	18,700	2002	21	3	3 to 5	$ 392,700	Two small areas of wet insulation. Debris/vegetation	Clear roof of debris

2023 Dexter Community Schools Roof Evaluation

Priority Listing

Building	Roof ID	Roof Type	Deck Type	Bottom Insul	Top Insul	Drain Type	Size (SF)	Appr Yr Inst.	Age	Rating (1-5)	Est.Rem Life (Yrs)	Repl Est$	Comments	Maintenance
Dexter High	N	EPDM - Fully Adh	Steel	Iso	Iso	Internal	18,400	2002	21	3	3 to 5	$ 386,400	Small area of wet insulation. Loose patches/failed lap sealant	
Dexter High	N1	EPDM - Fully Adh	Steel	Iso	Iso	Internal	19,700	2002	21	3	3 to 5	$ 413,700	Two small areas of wet insulation. Repairs evident	
Dexter High	N2	EPDM - Fully Adh	Steel	Iso	Iso	Internal	120	2002	21	3	3 to 5	$ 2,520		
Dexter High	O	TPO - Fully Adh	Steel	Iso	Iso	Internal	2,200	2002	21	3	3 to 5	$ 46,200	Incompatible materials used to flash curb	
Dexter High	P	TPO - Fully Adh	Steel	Iso	Iso	Internal	2,200	2002	21	3	3 to 5	$ 46,200		
Dexter High	P1	TPO - Fully Adh	Steel	Iso	Iso	Internal	140	2002	21	3	3 to 5	$ 2,940		
Dexter High	P2	Panels	Steel	Iso	Iso	Eave	175	2002	21	3	3 to 5	$ 3,675		
Jenkins	A	EPDM - Fully Adh	Wood	Iso	Iso	Scupper	450	1998	25	3	3 to 5	$ 9,450		
Jenkins	B	EPDM - Fully Adh	Wood	Iso	Iso	Scupper	560	1998	25	3	3 to 5	$ 11,760	Accumlated leaves impeding drainage	Clear roof of debris
Mill Creek	A	EPDM - Fully Adh	Steel	Iso	Iso	Internal	6,800	2002	21	3	3 to 5	$ 142,800	Unsecured ladder. Displaced walkpads. Delaminated base flashing/diagonal wrinkles.	Reset walkpads
Mill Creek	B	EPDM - Fully Adh	Steel	Iso	Iso	Internal	1,050	2002	21	3	3 to 5	$ 22,050		
Mill Creek	C	EPDM - Fully Adh	Steel	Iso	Iso	Internal	6,200	2002	21	3	3 to 5	$ 130,200	Diagonal wrinkles	
Mill Creek	D	EPDM - Fully Adh	Steel	Iso	Iso	Internal	4,600	2002	21	3	3 to 5	$ 96,600	Ponding.	
Mill Creek	E	EPDM - Fully Adh	Steel	Iso	Iso	Internal	2,400	2002	21	3	3 to 5	$ 50,400		
Mill Creek	F	EPDM - Fully Adh	Steel	Iso	Iso	Internal	300	2002	21	3	3 to 5	$ 6,300		
Mill Creek	G	EPDM - Fully Adh	Steel	Iso	Iso	Internal	2,500	2002	21	3	3 to 5	$ 52,500	Diagonal wrinkles	
Mill Creek	H1	EPDM - Fully Adh	Steel	Iso	Iso	Internal	72	2002	21	3	3 to 5	$ 1,512		
Mill Creek	L	EPDM - Fully Adh	Steel	Iso	Iso	Internal	300	2002	21	3	3 to 5	$ 6,300	Small area of wet insulation	
Mill Creek	M	EPDM - Fully Adh	Steel	Iso	Iso	Internal	2,700	2002	21	3	3 to 5	$ 56,700		
Mill Creek	N	EPDM - Fully Adh	Steel	Iso	Iso	Internal	400	2002	21	3	3 to 5	$ 8,400		
Mill Creek	O	EPDM - Fully Adh	Steel	Iso	Iso	Internal	300	2002	21	3	3 to 5	$ 6,300		
Mill Creek	P	EPDM - Fully Adh	Steel	Iso	Iso	Internal	2,100	2002	21	3	3 to 5	$ 44,100	Small area of wet insulation	
Wylie	H	EPDM - Fully Adh	Steel	Iso	Iso	Internal	8,600	1999	24	3	3 to 5	$ 180,600	Ponding	
Wylie	I	EPDM - Fully Adh	Steel	Iso	Iso	Gutter	1,800	1999	24	3	3 to 5	$ 37,800	Leaves in gutter	Clean gutter
Bates	H	EPDM - Fully Adh	Steel	Iso	Iso	Internal	2,500	2001	22	2	6 to 9	$ 52,500	Loose seam/failed lap sealant	Seal loose seams
Bates	J	EPDM - Fully Adh	Steel	Iso	Iso	Internal	3,500	2001	22	2	6 to 9	$ 73,500		
Creekside	A	EPDM - Fully Adh	Steel	Iso	Iso	Gutter	6,200	2004	19	2	6 to 9	$ 130,200	Overhanging branches.	Trim branches
Creekside	A1	EPDM - Fully Adh	Steel	Iso	Iso	Gutter	120	2004	19	2	6 to 9	$ 2,520		
Creekside	C	EPDM - Fully Adh	Steel	Iso	Iso	Internal	1,700	2004	19	2	6 to 9	$ 35,700		
Creekside	D	EPDM - Fully Adh	Steel	Iso	Iso	Internal	5,000	2004	19	2	6 to 9	$ 105,000	Ponding	
Creekside	E	EPDM - Fully Adh	Steel	Iso	Iso	Gutter	14,200	2004	19	2	6 to 9	$ 298,200	Small area of wet insulation	
Creekside	F	EPDM - Fully Adh	Steel	Iso	Iso	Gutter	15,000	2004	19	2	6 to 9	$ 315,000		
Creekside	H	EPDM - Fully Adh	Steel	Iso	Iso	Internal	575	2004	19	2	6 to 9	$ 12,075	Debris/Vegetation in drain	Clear roof of debris. Clean drain strainer
Creekside	I	EPDM - Fully Adh	Steel	Iso	Iso	Internal	3,100	2004	19	2	6 to 9	$ 65,100	Debris/Vegetation in drain	Clear roof of debris. Clean drain strainer
Creekside	J	EPDM - Fully Adh	Steel	Iso	Iso	Internal	325	2004	19	2	6 to 9	$ 6,825		

2023 Dexter Community Schools Roof Evaluation

Priority Listing

Building	Roof ID	Roof Type	Deck Type	Bottom Insul	Top Insul	Drain Type	Size (SF)	Appr Yr Inst.	Age	Rating (1-5)	Est.Rem Life (Yrs)	Repl Est$	Comments	Maintenance
Creekside	K	EPDM - Fully Adh	Steel	Iso	Iso	Gutter	2,250	2004	19	2	6 to 9	$ 47,250		
Creekside	L	EPDM - Fully Adh	Steel	Iso	Iso	Gutter	3,900	2004	19	2	6 to 9	$ 81,900	small area of wet insulation	
Creekside	M	EPDM - Fully Adh	Steel	Iso	Iso	Gutter	5,200	2004	19	2	6 to 9	$ 109,200	Ponding. Repairs evident	
Creekside	N	Mtl-Stand Seam	Steel	Iso	Iso	Gutter	11,600	2004	19	2	6 to 9	$ 243,600		
Creekside	O	EPDM - Fully Adh	Steel	Iso	Iso	Scupper	185	2004	19	2	6 to 9	$ 3,885		
Creekside	P	EPDM - Fully Adh	Steel	Iso	Iso	Gutter	7,100	2004	19	2	6 to 9	$ 149,100	Corroding counterflashing	
Creekside	Q	EPDM - Fully Adh	Steel	Iso	Iso	Internal	3,700	2004	19	2	6 to 9	$ 77,700		
Creekside	R	EPDM - Fully Adh	Steel	Iso	Iso	Gutter	1,200	2004	19	2	6 to 9	$ 25,200		
Creekside	S	EPDM - Fully Adh	Steel	Iso	Iso	Internal	4,000	2004	19	2	6 to 9	$ 84,000	Ponding	
Creekside	T	EPDM - Fully Adh	Steel	Iso	Iso	Internal	3,600	2004	19	2	6 to 9	$ 75,600		
Jenkins	I	mtl-Corrugated	N/A	N/A	N/A	Eave	475	1998	25	2	6 to 9	$ 9,975		
Transportation	A	Shingle	Wood	N/A	N/A	Gutter	1,600	2012	11	2	6 to 9	$ 33,600		
Transportation	B	EPDM - Fully Adh	Steel	Iso	Iso	Internal	900	2012	11	2	6 to 9	$ 18,900	Vegetation impeding drainage	Clear roof of debris. Clean drains
Transportation	C	Mtl-Stand Seam	N/A	N/A	N/A	Gutter	6,700	1998	25	2	6 to 9	$ 140,700	Rusted fasteners. Deteriorated sealant	Reseal penetration with deteriorated sealant
Wylie	A	EPDM - Fully Adh	Steel	Iso	Iso	Internal	10,700	2006	17	2	6 to 9	$ 224,700	Branches overhanging roof - leaves accumulating. Debris in drain	Trim branches. Clear debris from roof
Wylie	B	EPDM - Fully Adh	Steel	Iso	Iso	Internal	2,500	2011	12	2	6 to 9	$ 52,500		
Wylie	C	EPDM - Fully Adh	Steel	Iso	Iso	Internal	12,000	2011	12	2	6 to 9	$ 252,000	Two small areas of wet insulation	
Wylie	F	EPDM - Fully Adh	Steel	Iso	Iso	Internal	1,050	2011	12	2	6 to 9	$ 22,050		
Wylie	G	EPDM - Fully Adh	Steel	Iso	Iso	Internal	5,800	2011	12	2	6 to 9	$ 121,800	Repaired seams	
Wylie	J	EPDM - Fully Adh	Steel	Iso	Iso	Internal	3,000	2011	12	2	6 to 9	$ 63,000		
Wylie	K	EPDM - Fully Adh	Steel	Iso	Iso	Internal	10,000	2011	12	2	6 to 9	$ 210,000		
Wylie	L	EPDM - Fully Adh	Steel	Iso	Iso	Internal	2,000	2011	12	2	6 to 9	$ 42,000	Foreign objects on roof. Leaves in drain strainer	Clear roof of debris. Clean drain strainer
Wylie	P	EPDM - Fully Adh	Steel	Iso	Iso	Internal	1,800	2011	12	2	6 to 9	$ 37,800		
Wylie	Q	EPDM - Fully Adh	Steel	Iso	Iso	Internal	500	2011	12	2	6 to 9	$ 10,500		
Wylie	R	EPDM - Fully Adh	Steel	Iso	Iso	Internal	500	2011	12	2	6 to 9	$ 10,500	Foreign objects on roof.	Clear roof of debris. Clean drain strainer
Wylie	S	EPDM - Fully Adh	Steel	Iso	Iso	Internal	15,500	2011	12	2	6 to 9	$ 325,500	Overhanging branches. Leaves in drains	Trim branches. Clear debris from roof
Wylie	T	EPDM - Fully Adh	Steel	Iso	Iso	Internal	400	2011	12	2	6 to 9	$ 8,400		
Anchor/Beacon	D	Mtl-Stand Seam	N/A	N/A	N/A	Eave	2,500	1998	25	1	10+	$ 52,500		
Anchor/Beacon	G	EPDM - Fully Adh	Steel	Iso	Iso	Internal	2,700	2019	4	1	10+	$ 56,700		
Anchor/Beacon	H	EPDM - Fully Adh	Steel	Iso	Iso	Internal	3,700	2019	4	1	10+	$ 77,700		
Anchor/Beacon	I	EPDM - Fully Adh	Steel	Iso	Iso	Internal	4,200	2019	4	1	10+	$ 88,200		
Anchor/Beacon	J	EPDM - Fully Adh	Steel	Iso	Iso	Internal	4,200	2019	4	1	10+	$ 88,200		
Anchor/Beacon	K	EPDM - Fully Adh	Steel	Iso	Iso	Internal	800	2019	4	1	10+	$ 16,800		
Anchor/Beacon	L	EPDM - Fully Adh	Steel	Iso	Iso	Internal	2,300	2019	4	1	10+	$ 48,300		
Anchor/Beacon	M	EPDM - Fully Adh	Steel	Iso	Iso	Internal	52,000	2019	4	1	10+	$ 1,092,000		

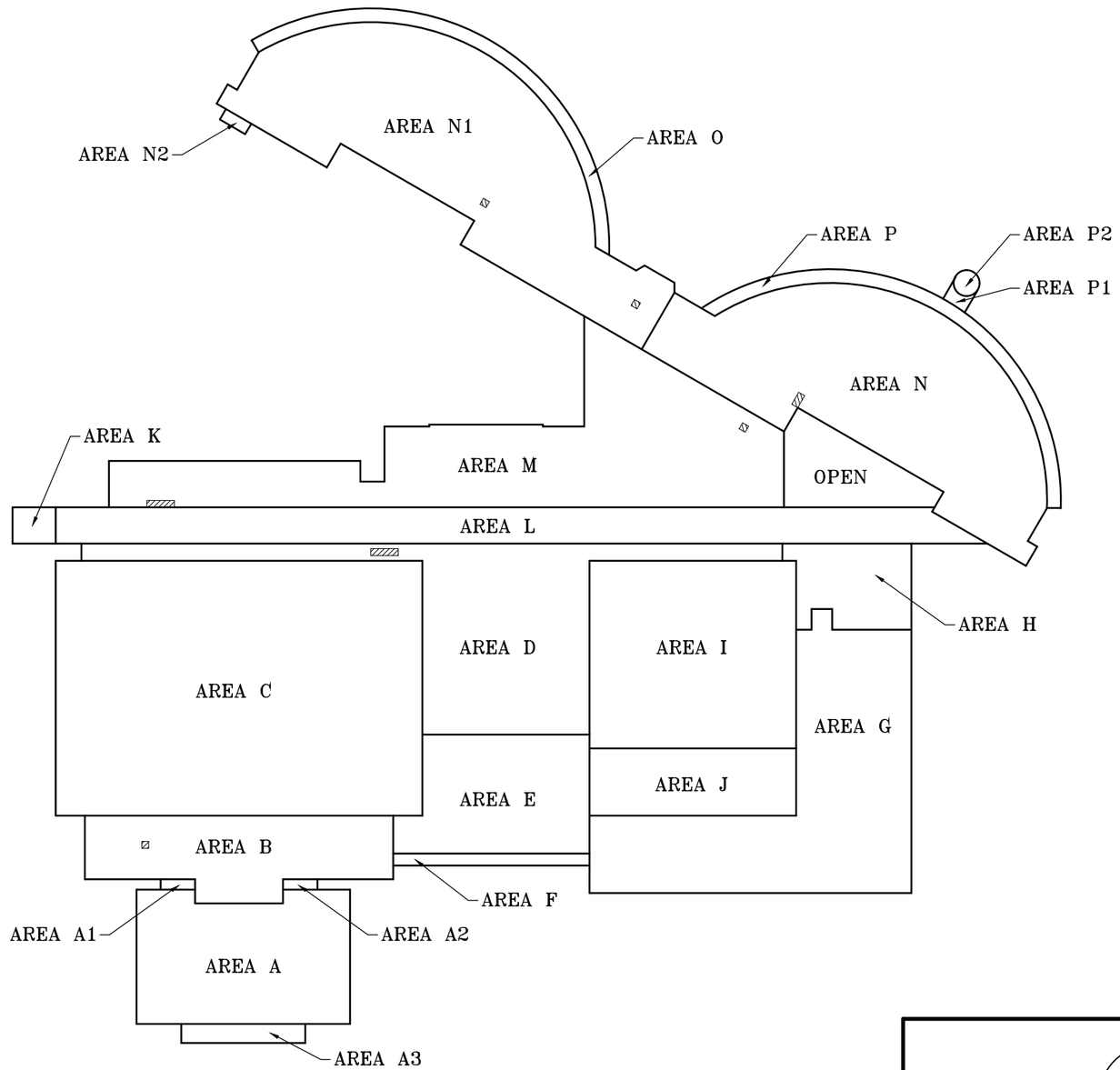
2023 Dexter Community Schools Roof Evaluation

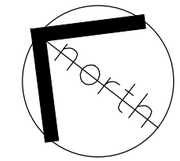
Priority Listing

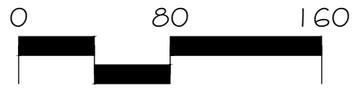
Building	Roof ID	Roof Type	Deck Type	Bottom Insul	Top Insul	Drain Type	Size (SF)	Appr Yr Inst.	Age	Rating (1-5)	Est.Rem Life (Yrs)	Repl Est$	Comments	Maintenance
Anchor/Beacon	M1	EPDM - Fully Adh	Steel	Iso	Iso	Internal	70	2019	4	1	10+	$ 1,470		
Anchor/Beacon	M2	EPDM - Fully Adh	Steel	Iso	Iso	Internal	36	2019	4	1	10+	$ 756		
Anchor/Beacon	M3	EPDM - Fully Adh	Steel	Iso	Iso	Internal	36	2019	4	1	10+	$ 756		
Anchor/Beacon	M4	EPDM - Fully Adh	Steel	Iso	Iso	Internal	70	2019	4	1	10+	$ 1,470		
Anchor/Beacon	N	EPDM - Fully Adh	Steel	Iso	Iso	Internal	3,000	2019	4	1	10+	$ 63,000		
Bates	B	Mtl-Stand Seam	N/A			Gutter	2,800	1998	25	1	10+	$ 58,800		
Bates	C	Mtl-Stand Seam	N/A			Gutter	5,700	1998	25	1	10+	$ 119,700		
Jenkins	D	Mtl-Stand Seam	N/A	N/A	N/A	Gutter	1,100	1998	25	1	10+	$ 23,100	Leaves in gutter	Clear gutter of leaves
Jenkins	F	Mtl-Stand Seam	N/A	N/A	N/A	Eave	1,100	1998	25	1	10+	$ 23,100		
Mill Creek	H2	EPDM - Fully Adh	Steel	Iso	Iso	Internal	2,400	2020	3	1	10+	$ 50,400		
Mill Creek	H3	EPDM - Fully Adh	Steel	Iso	Iso	Internal	2,500	2020	3	1	10+	$ 52,500		
Mill Creek	K	EPDM - Fully Adh	Steel	Iso	Iso	Internal	17,600	2019	4	1	10+	$ 369,600		
Wylie	O	Mtl-Stand Seam	NA	N/A	N/A	Eave	850	1999	24	1	10+	$ 17,850		

TAB 2

DEXTER HIGH SCHOOL







LEGEND

A area designation

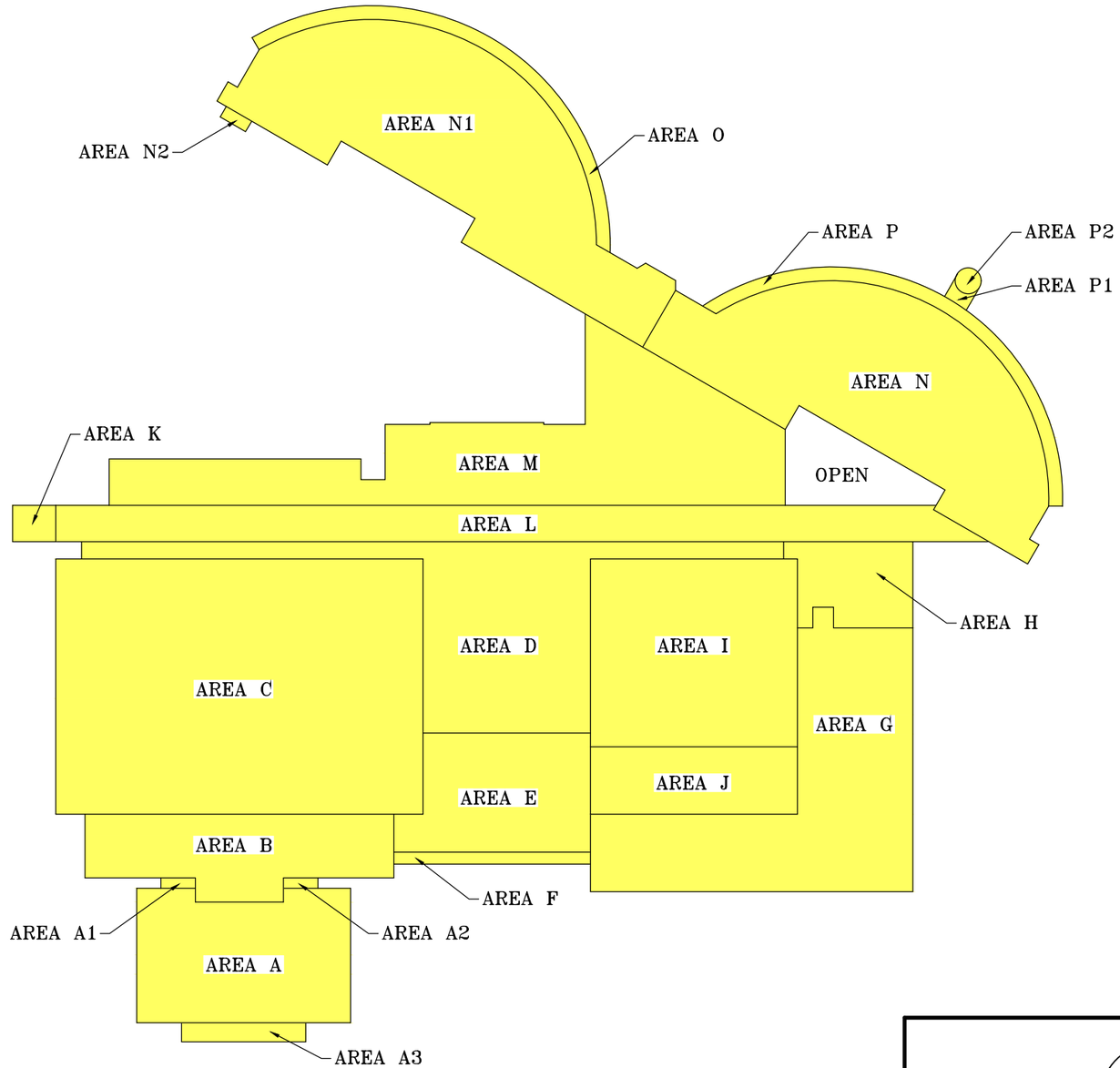
wet insulation areas

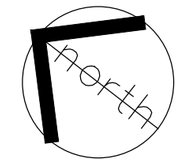
ROOFING TECHNOLOGY ASSOCIATES, LTD.
38031 SCHOOLCRAFT ROAD
LIVONIA, MICHIGAN 48150-1065
(734) 591-4444

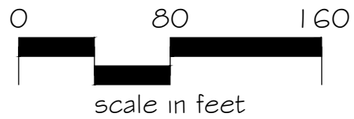
MOISTURE ROOF PLAN

DEXTER COMMUNITY SCHOOLS
DEXTER HIGH SCHOOL
2200 NORTH PARKER ROAD
DEXTER, MICHIGAN

Project No:	Drawn By:	Plate No:
22-106	JPW	1
Date: 12-7-22	Checked By: JJW	







LEGEND

A area designation

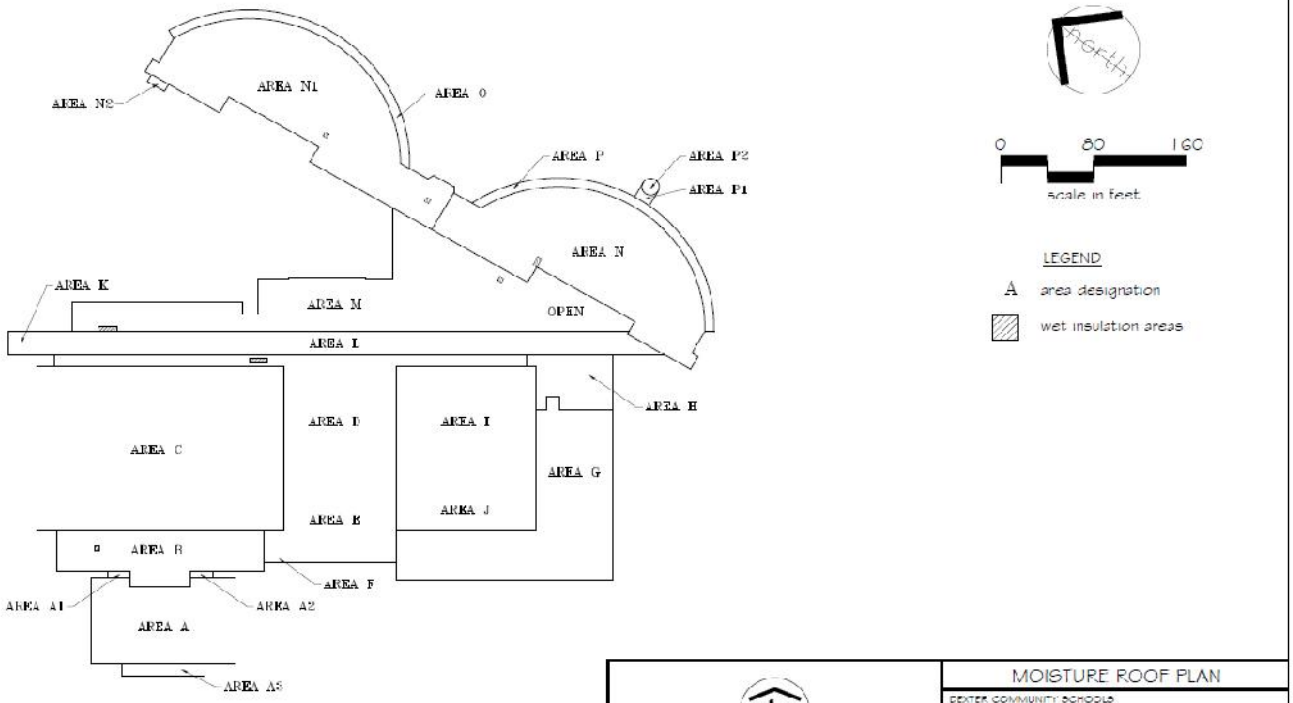
- FAILING (5)
- POOR (4)
- FAIR (3)
- GOOD (2)
- EXCELLENT (1)

ROOFING TECHNOLOGY ASSOCIATES, LTD.
38031 SCHOOLCRAFT ROAD
LIVONIA, MICHIGAN 48150-1065
(734) 591-4444

ROOF AREA PLAN

DEXTER COMMUNITY SCHOOLS
DEXTER HIGH SCHOOL
2200 NORTH PARKER ROAD
DEXTER, MICHIGAN

Project No:	Drawn By:	Plate No:
22-106	JPW	1
Date: 12-7-22	Checked By: JJW	



ROOFING TECHNOLOGY ASSOCIATES, LTD.
38031 SCHOOLCRAFT ROAD
LIVONIA, MICHIGAN 48150 1065
(734) 591-4444

MOISTURE ROOF PLAN

DEXTER COMMUNITY SCHOOLS
DEXTER HIGH SCHOOL
8500 NORTH PARKER ROAD
DEXTER, MICHIGAN

Project No.	Drawn By	Plate No.
22-106	JPW	1
Date: 12-7-22	Checked By: JJW	

Building	Roof ID	Roof Type	Size (SF)	Appr Yr Inst.	Age	Rating (1-5)	Est.Rem Life (Yrs)	Repl Est$	Comments	Maintenance
Dexter High	A	TPO - Fully Adh	9,300	2002	21	3	3 to 5	$ 195,300	Minor wrinkles	
Dexter High	A1	TPO - Fully Adh	120	2002	21	3	3 to 5	$ 2,520		
Dexter High	A2	TPO - Fully Adh	120	2002	21	3	3 to 5	$ 2,520		
Dexter High	A3	TPO - Fully Adh	800	2002	21	3	3 to 5	$ 16,800	Minor ponding/debris and vegetation. Displaced wall panel	Repair loose wall panel
Dexter High	B	EPDM - Fully Adh	7,300	2002	21	3	3 to 5	$ 153,300	Small area of wet insulation. Foreign object on roof (cinder block)	Clear roof of debris
Dexter High	C	TPO - Fully Adh	31,500	2002	21	3	3 to 5	$ 661,500	Loose stripping material on diverters. Evidence of repairs	Reseal (heat weld) stripping material on diverters.
Dexter High	D	EPDM - Fully Adh	13,900	2002	21	3	3 to 5	$ 291,900	Small area of wet insulation. Displaced wall panel	Repair loose wall panel
Dexter High	E	EPDM - Fully Adh	7,100	2002	21	3	3 to 5	$ 149,100	Vegetation/debris. Foreign objects on roof	Clear roof of debris
Dexter High	F	EPDM - Fully Adh	800	2002	21	3	3 to 5	$ 16,800		
Dexter High	G	EPDM - Fully Adh	15,800	2002	21	3	3 to 5	$ 331,800	Repairs evident	
Dexter High	H	EPDM - Fully Adh	3,300	2002	21	3	3 to 5	$ 69,300	Displaced ballast stone, permeable fabric and insulation board	
Dexter High	I	TPO - Fully Adh	13,100	2002	21	3	3 to 5	$ 275,100	Missing drain strainer - sediment stains	Replace drain strainers
Dexter High	J	TPO - Fully Adh	4,700	2002	21	3	3 to 5	$ 98,700	Missing drain strainer - sediment stains	Replace drain strainers
Dexter High	K	Panels	525	2002	21	3	3 to 5	$ 11,025		
Dexter High	L	EPDM - Fully Adh	11,000	2002	21	3	3 to 5	$ 231,000		
Dexter High	M	EPDM - Fully Adh	18,700	2002	21	3	3 to 5	$ 392,700	Two small areas of wet insulation. Debris/vegetation	Clear roof of debris
Dexter High	N	EPDM - Fully Adh	18,400	2002	21	3	3 to 5	$ 386,400	Small area of wet insulation. Loose patches/failed lap sealant	
Dexter High	N1	EPDM - Fully Adh	19,700	2002	21	3	3 to 5	$ 413,700	Two small areas of wet insulation. Repairs evident	
Dexter High	N2	EPDM - Fully Adh	120	2002	21	3	3 to 5	$ 2,520		
Dexter High	O	TPO - Fully Adh	2,200	2002	21	3	3 to 5	$ 46,200	Incompatible materials used to flash curb	
Dexter High	P	TPO - Fully Adh	2,200	2002	21	3	3 to 5	$ 46,200		
Dexter High	P1	TPO - Fully Adh	140	2002	21	3	3 to 5	$ 2,940		
Dexter High	P2	Panels	175	2002	21	3	3 to 5	$ 3,675		

Photo 1
Dexter High School
February 2023

Dexter High School Aerial View

Photo 2
Dexter High School
February 2023

Area A: Overview

Photo 3
Dexter High School
February 2023

Area A: Overview

Photo 4
Dexter High School
February 2023

Area A: Overview

Photo 5
Dexter High School
February 2023

Area A1: Overview

Photo 6
Dexter High School
February 2023

Area A2: Overview

Photo 7
Dexter High School
February 2023

Area A3: Overview

Photo 8
Dexter High School
February 2023

Area A3: Displaced wall panel

Photo 9
Dexter High School
February 2023

Area A3: Ponding and sediment

Photo 10
Dexter High School
February 2023

Area B: Overview

Photo 11
Dexter High School
February 2023

Area B: Foreign object on the roof membrane

Photo 12
Dexter High School
February 2023

Area C: Overview

Photo 13
Dexter High School
February 2023

Area C: Loose stripping material at diverter

Photo 14
Dexter High School
February 2023

Area C: Loose stripping material at diverter

Photo 15
Dexter High School
February 2023

Area C: Loose stripping material at diverter

Photo 16
Dexter High School
February 2023

Area C: Repairs at eave/edge metal stripping

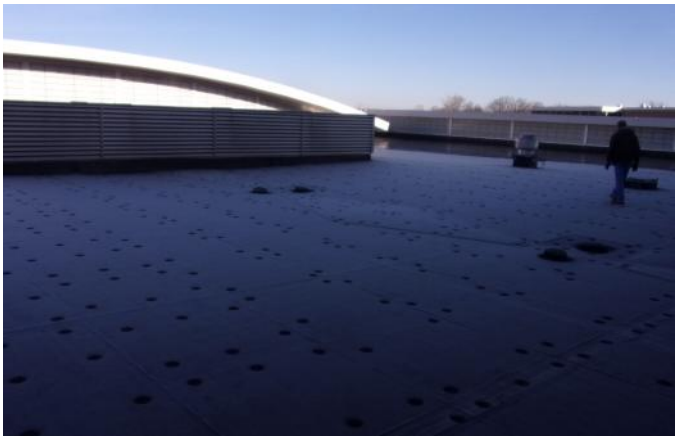


Photo 17
Dexter High School
February 2023

Area D: Overview

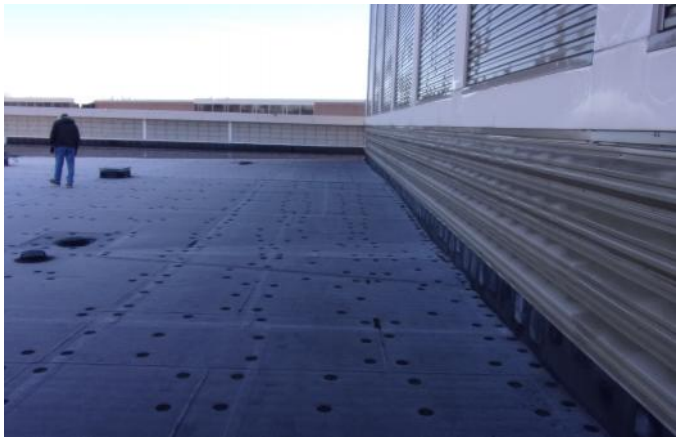


Photo 18
Dexter High School
February 2023

Area D: Overview

Photo 19
Dexter High School
February 2023

Area D: Displaced wall panel

Photo 20
Dexter High School
February 2023

Area D: Vegetation/evidence of long-term ponding

Photo 21
Dexter High School
February 2023

Area D: Vegetation/evidence of long-term ponding

Photo 22
Dexter High School
February 2023

Area E: Overview

Photo 23
Dexter High School
February 2023

Area E: Vegetation/debris - foreign object on the roof membrane

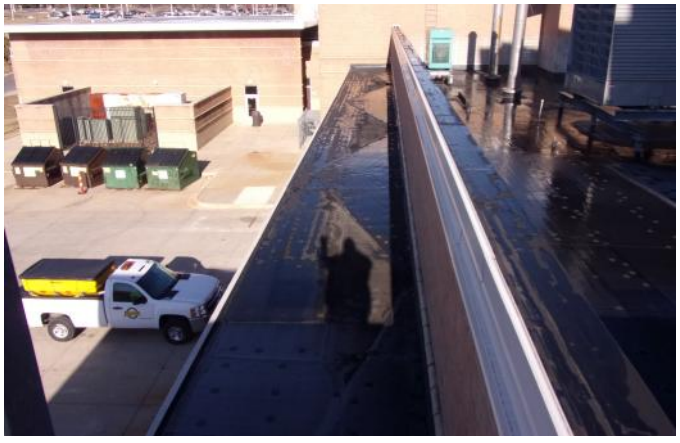


Photo 24
Dexter High School
February 2023

Area F: Overview

Photo 25
Dexter High School
February 2023

Area G: Overview

Photo 26
Dexter High School
February 2023

Area G: Overview

Photo 27
Dexter High School
February 2023

Area G: Overview

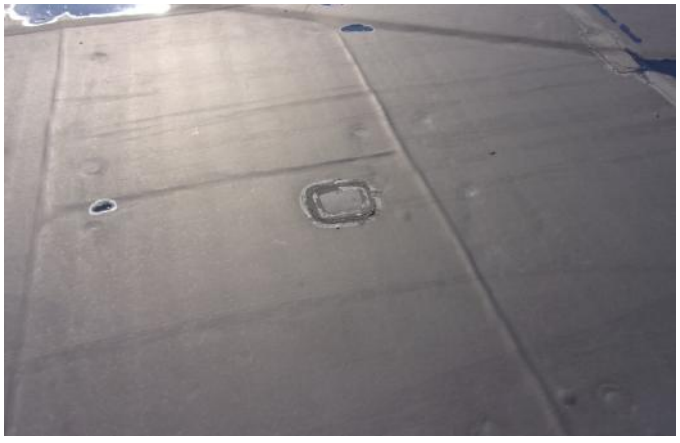


Photo 25
Dexter High School
February 2023

Area G: Repairs

Photo 29
Dexter High School
February 2023

Area G: Repairs

Photo 30
Dexter High School
February 2023

Area H: Overview

Photo 31
Dexter High School
February 2023

Area H: Overview

Photo 32
Dexter High School
February 2023

Area H: Displaced ballast stone, permeable fabric and insulation board

Photo 33
Dexter High School
February 2023

Area H: Displaced ballast stone, permeable fabric and insulation board

Photo 34
Dexter High School
February 2023

Areas I and J: Overview

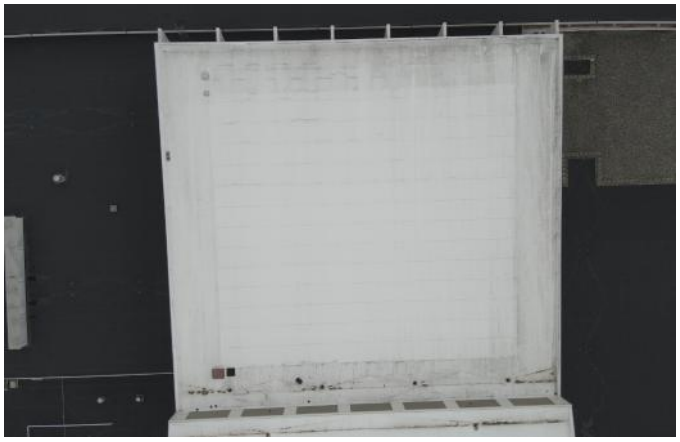


Photo 35
Dexter High School
February 2023

Area I: Overview

Photo 36
Dexter High School
February 2023

Area I: Missing drain strainer - sediment stains

Photo 37
Dexter High School
February 2023

Area I: Missing drain strainer - sediment stains

Photo 38
Dexter High School
February 2023

Area J: Overview

Photo 39
Dexter High School
February 2023

Area J: Missing drain strainer - sediment stains

Photo 40
Dexter High School
February 2023

Area J: Missing drain strainer - sediment stains

Photo 41
Dexter High School
February 2023

Area J: Smoke release hatches are corroding

Photo 42
Dexter High School
February 2023

Area K: Overview

Photo 43
Dexter High School
February 2023

Area L: Overview

Photo 44
Dexter High School
February 2023

Area L: Overview

Photo 45
Dexter High School
February 2023

Area M: Overview

Photo 46
Dexter High School
February 2023

Area M: Overview

Photo 47
Dexter High School
February 2023

Area M: Overview

Photo 48
Dexter High School
February 2023

Area M: Debris/vegetation

Photo 49
Dexter High School
February 2023

Area N: Overview

Photo 50
Dexter High School
February 2023

Area N: Overview

Photo 51
Dexter High School
February 2023

Area N: loose patch seams/failed lap sealant

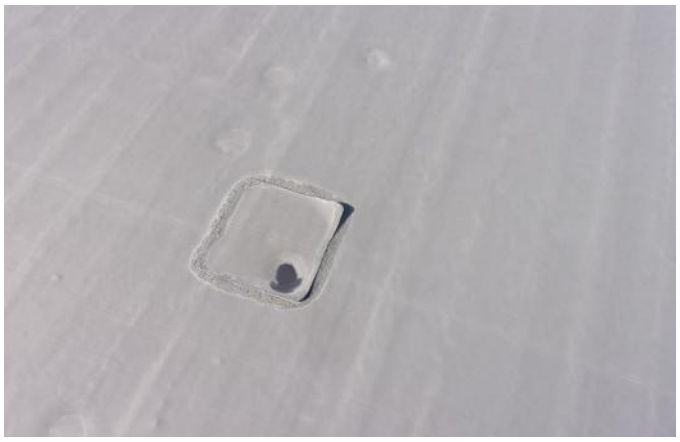


Photo 52
Dexter High School
February 2023

Area N: loose patch seams/failed lap sealant

Photo 53
Dexter High School
February 2023

Area N1: Overview

Photo 54
Dexter High School
February 2023

Area N1: Overview

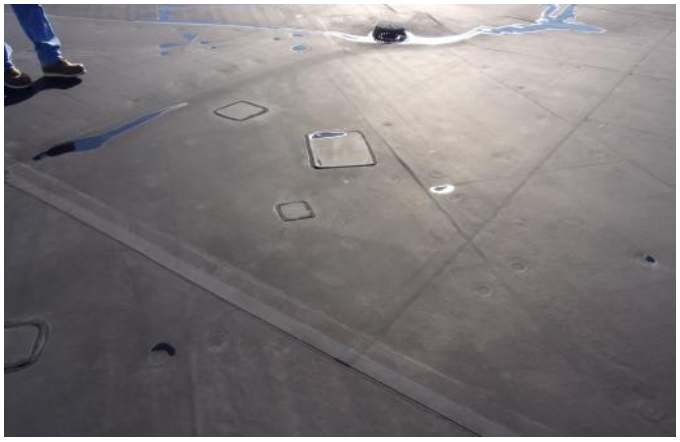


Photo 55
Dexter High School
February 2023

Area N1: Repairs

Photo 56
Dexter High School
February 2023

Area O: Overview

Photo 57
Dexter High School
February 2023

Area O: Overview

Photo 58
Dexter High School
February 2023

Area O: Incompatible materials used to flash curb

Photo 59
Dexter High School
February 2023

Area P: Overview

Photo 60
Dexter High School
February 2023

Area P, P1 and P2: Overview

Photo 61
Dexter High School
February 2023

Area P1: Overview

Photo 62
Dexter High School
February 2023

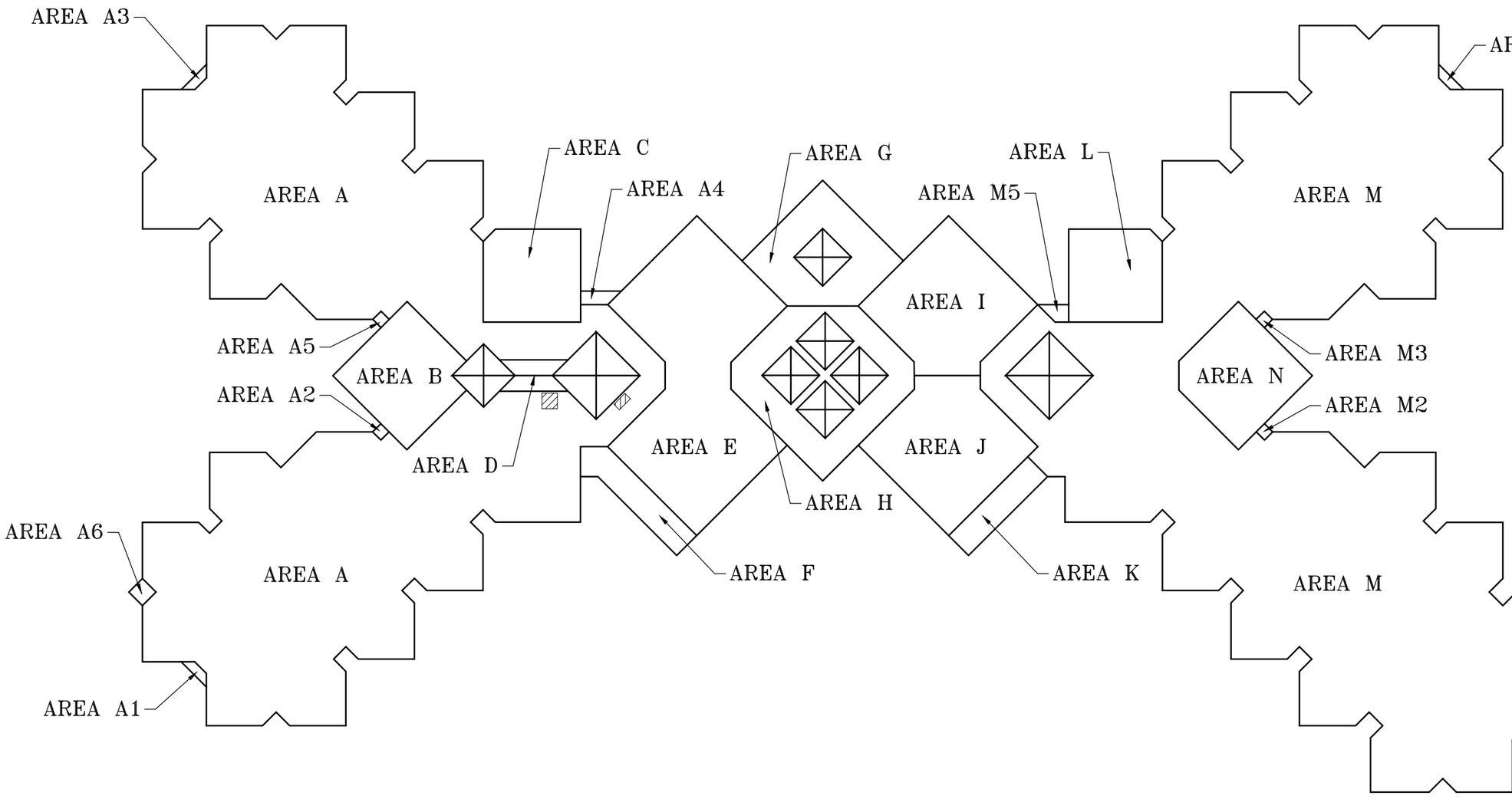
Area P2: Overview

Photo 63
Dexter High School
February 2023

Area P2: Overview

TAB 3

ANCHOR/BEACON ELEMENTARY SCHOOL



LEGEND

A area designation

wet insulation areas

north

0 60 120

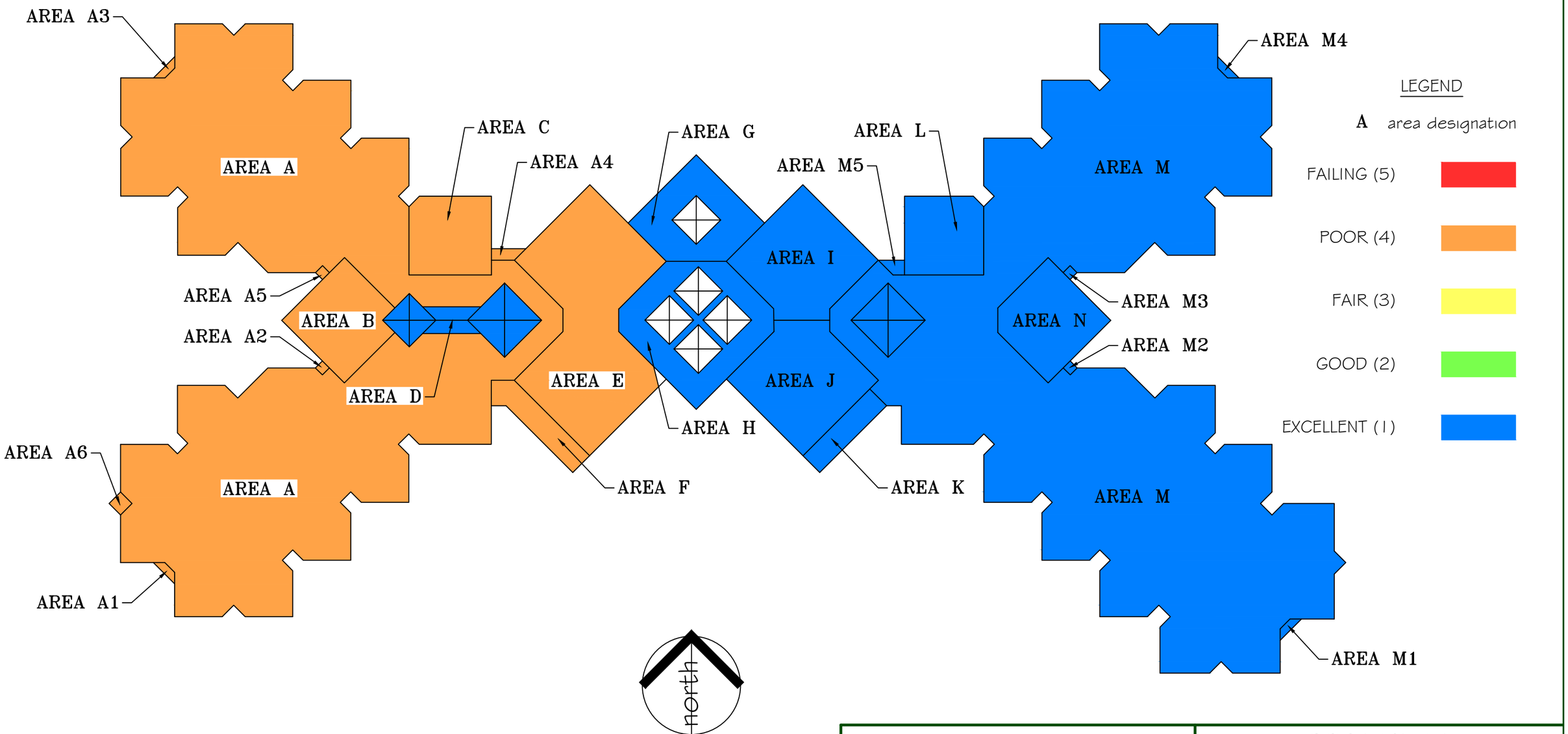
scale in feet

ROOFING TECHNOLOGY ASSOCIATES, LTD.
38031 SCHOOLCRAFT ROAD
LIVONIA, MICHIGAN 48150-1065
(734) 591-4444

MOISTURE ROOF PLAN

DEXTER COMMUNITY SCHOOLS
ANCHOR AND BEACON ELEMENTARY
7480 DAN HOEY ROAD
DEXTER, MICHIGAN

Project No:	Drawn By:	Plate No:
22-106	JPW	2
Date: 12-7-22	Checked By: JJW	

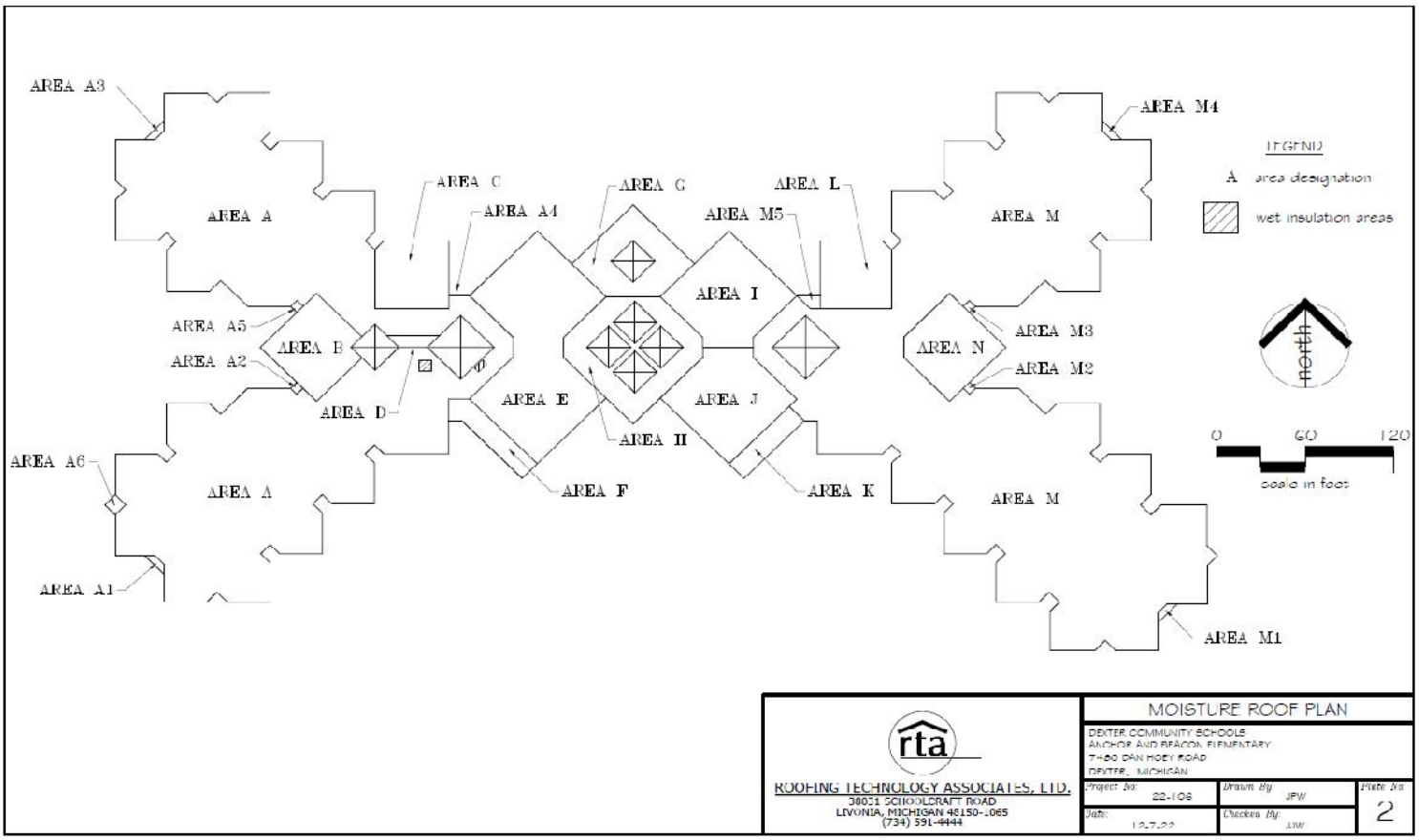


ROOFING TECHNOLOGY ASSOCIATES, LTD.
38031 SCHOOLCRAFT ROAD
LIVONIA, MICHIGAN 48150-1065
(734) 591-4444

ROOF AREA PLAN

DEXTER COMMUNITY SCHOOLS
ANCHOR AND BEACON ELEMENTARY
7480 DAN HOEY ROAD
DEXTER, MICHIGAN

Project No:	Drawn By:	Plate No:
22-106	JPW	2
Date: 12-7-22	Checked By: JJW	



Building	Roof ID	Roof Type	Size (SF)	Appr Yr Inst.	Age	Rating (1-5)	Est.Rem Life (Yrs)	Repl Est$	Comments	Maintenance
Anchor/Beacon	A	EPDM - Fully Adh	45,000	1998	25	4	1 to 2	$ 945,000	Vegetation/debris. Loose seams. Two small areas of wet insulation	Clear roof of debris. Seal loose seams
Anchor/Beacon	A1	EPDM - Fully Adh	70	1998	25	4	1 to 2	$ 1,470	Foreign objects on roof. Blocked drain	Clear roof of debris
Anchor/Beacon	A2	EPDM - Fully Adh	36	1998	25	4	1 to 2	$ 756		
Anchor/Beacon	A3	EPDM - Fully Adh	70	1998	25	4	1 to 2	$ 1,470		
Anchor/Beacon	A4	EPDM - Fully Adh	125	1998	25	4	1 to 2	$ 2,625		
Anchor/Beacon	A5	EPDM - Fully Adh	36	1998	25	4	1 to 2	$ 756		
Anchor/Beacon	A6	EPDM - Fully Adh	100	1998	25	4	1 to 2	$ 2,100		
Anchor/Beacon	B	EPDM - Fully Adh	2,800	1998	25	4	1 to 2	$ 58,800	Blocks on roof membrane without protection pads	Install protection pads beneath blocks
Anchor/Beacon	C	EPDM - Fully Adh	2,400	1998	25	4	1 to 2	$ 50,400		
Anchor/Beacon	D	Mtl-Stand Seam	2,500	1998	25	1	10+	$ 52,500		
Anchor/Beacon	E	EPDM - Fully Adh	8,500	1998	25	4	1 to 2	$ 178,500	Ponding. Loose seams	Seal loose seams
Anchor/Beacon	F	EPDM - Fully Adh	1,100	1998	25	4	1 to 2	$ 23,100	Foreign objects on roof. Leaves in drain Blocked drain	Clear roof of debris. Clean drain strainer
Anchor/Beacon	G	EPDM - Fully Adh	2,700	2019	4	1	10+	$ 56,700		
Anchor/Beacon	H	EPDM - Fully Adh	3,700	2019	4	1	10+	$ 77,700		
Anchor/Beacon	I	EPDM - Fully Adh	4,200	2019	4	1	10+	$ 88,200		
Anchor/Beacon	J	EPDM - Fully Adh	4,200	2019	4	1	10+	$ 88,200		
Anchor/Beacon	K	EPDM - Fully Adh	800	2019	4	1	10+	$ 16,800		
Anchor/Beacon	L	EPDM - Fully Adh	2,300	2019	4	1	10+	$ 48,300		
Anchor/Beacon	N	EPDM - Fully Adh	3,000	2019	4	1	10+	$ 63,000		
Anchor/Beacon	M	EPDM - Fully Adh	52,000	2019	4	1	10+	$ 1,092,000		
Anchor/Beacon	M1	EPDM - Fully Adh	70	2019	4	1	10+	$ 1,470		
Anchor/Beacon	M2	EPDM - Fully Adh	36	2019	4	1	10+	$ 756		
Anchor/Beacon	M3	EPDM - Fully Adh	36	2019	4	1	10+	$ 756		

Photo 1
Anchor and Beacon
February 2023

Anchor and Beacon Aerial View

Photo 2
Anchor and Beacon
February 2023

Area A: Overview

Photo 3
Anchor and Beacon
February 2023

Area A: Overview

Photo 4
Anchor and Beacon
February 2023

Area A: Overview

Photo 5
Anchor and Beacon
February 2023

Area A: Vegetation/open lap seam

Photo 6
Anchor and Beacon
February 2023

Area A: Repaired lap sealant

Photo 7
Anchor and Beacon
February 2023

Area A: Repaired lap sealant

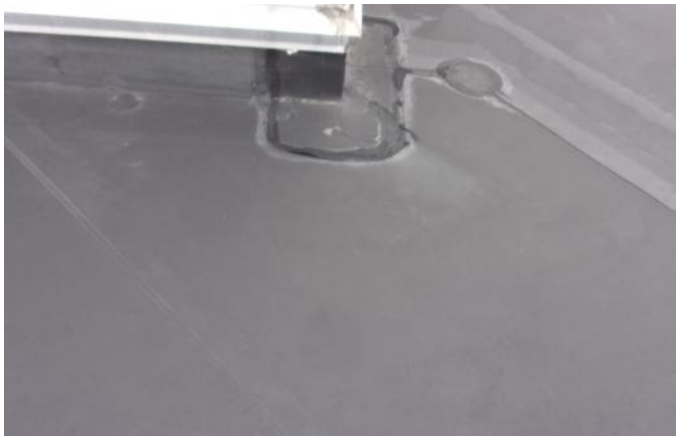


Photo 8
Anchor and Beacon
February 2023

Area A: Repaired lap sealant

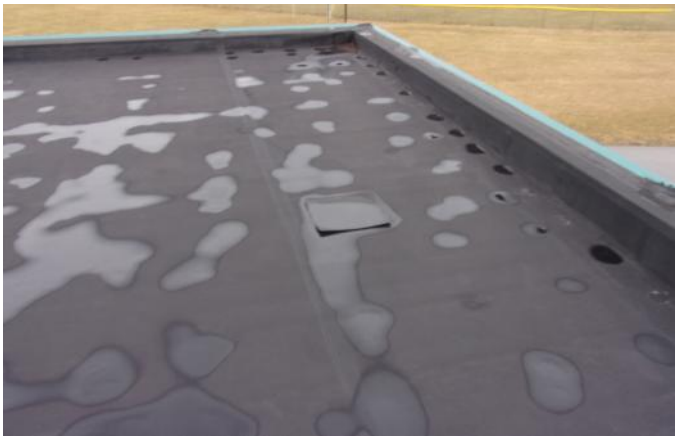


Photo 9
Anchor and Beacon
February 2023

Area A: Loose seams on patch

Photo 10
Anchor and Beacon
February 2023

Area A: Vegetation

Photo 11
Anchor and Beacon
February 2023

Area A: Walk pads are curling up at corners

Photo 12
Anchor and Beacon
February 2023

Area A1: Overview - foreign objects on roof - blocked drain

Photo 13
Anchor and Beacon
February 2023

Area A3: Vegetation

Photo 14
Anchor and Beacon
February 2023

Area A6: Overview

Photo 15
Anchor and Beacon
February 2023

Area B: Overview

Photo 16
Anchor and Beacon
February 2023

Area B: Blocks on roof membrane without protection pads

Photo 17
Anchor and Beacon
February 2023

Area C: Overview

Photo 18
Anchor and Beacon
February 2023

Area C: Overview

Photo 19
Anchor and Beacon
February 2023

Area D: Overview

Photo 20
Anchor and Beacon
February 2023

Area E: Overview

Photo 21
Anchor and Beacon
February 2023

Area E: Loose seams

Photo 22
Anchor and Beacon
February 2023

Area E: Repaired seams

Photo 23
Anchor and Beacon
February 2023

Area E: Ponding

Photo 24
Anchor and Beacon
February 2023

Area E: Loose seams

Photo 25
Anchor and Beacon
February 2023

Area F: Overview

Photo 26
Anchor and Beacon
February 2023

Area F: Foreign materials on roof/leaves in drain/ponding

Photo 27
Anchor and Beacon
February 2023

Area G: Overview

Photo 28
Anchor and Beacon
February 2023

Area G: Overview

Photo 29
Anchor and Beacon
February 2023

Area H: Overview

Photo 30
Anchor and Beacon
February 2023

Area H: Overview

Photo 31
Anchor and Beacon
February 2023

Area I: Overview

Photo 32
Anchor and Beacon
February 2023

Area J: Overview

Photo 33
Anchor and Beacon
February 2023

Area K: Overview

Photo 34
Anchor and Beacon
February 2023

Area L: Overview

Photo 35
Anchor and Beacon
February 2023

Area M: Overview

Photo 36
Anchor and Beacon
February 2023

Area M: Overview

Photo 37
Anchor and Beacon
February 2023

Area M1: Overview

Photo 38
Anchor and Beacon
February 2023

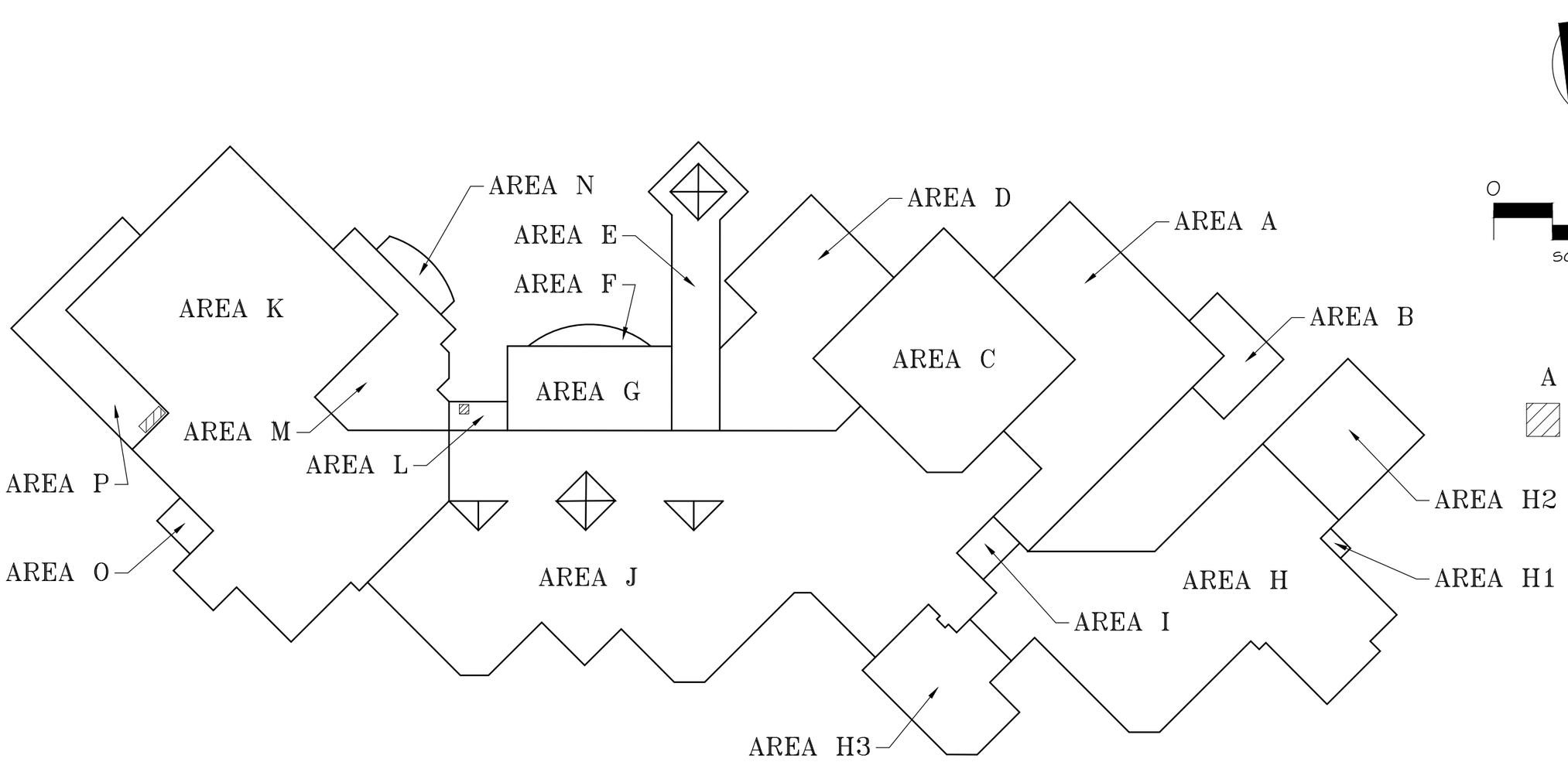
Area M4: Overview

Photo 39
Anchor and Beacon
February 2023

Area N: Overview

TAB 4

MILL CREEK MIDDLE SCHOOL

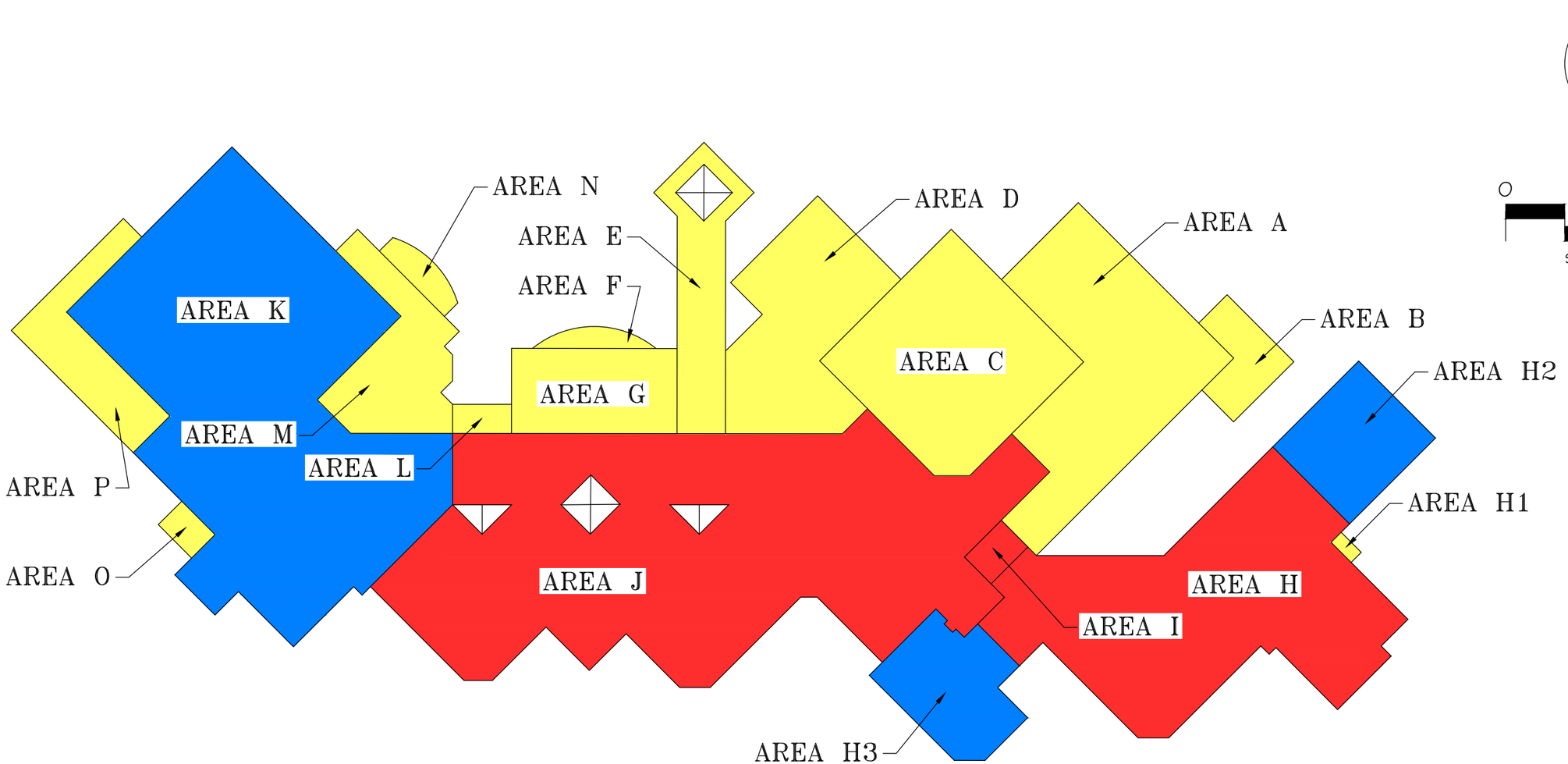


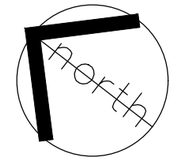
ROOFING TECHNOLOGY ASSOCIATES, LTD.
38031 SCHOOLCRAFT ROAD
LIVONIA, MICHIGAN 48150-1065
(734) 591-4444

MOISTURE ROOF PLAN

DEXTER COMMUNITY SCHOOLS
MILL CREEK MIDDLE SCHOOL
7305 DEXTER ANN ARBOR ROAD
DEXTER, MICHIGAN

Project No:	Drawn By:	Plate No:
22-106	JPW	3
Date: 12-7-22	Checked By: JJW	





0 50 100

scale in feet

LEGEND

A area designation

FAILING (5)

POOR (4)

FAIR (3)

GOOD (2)

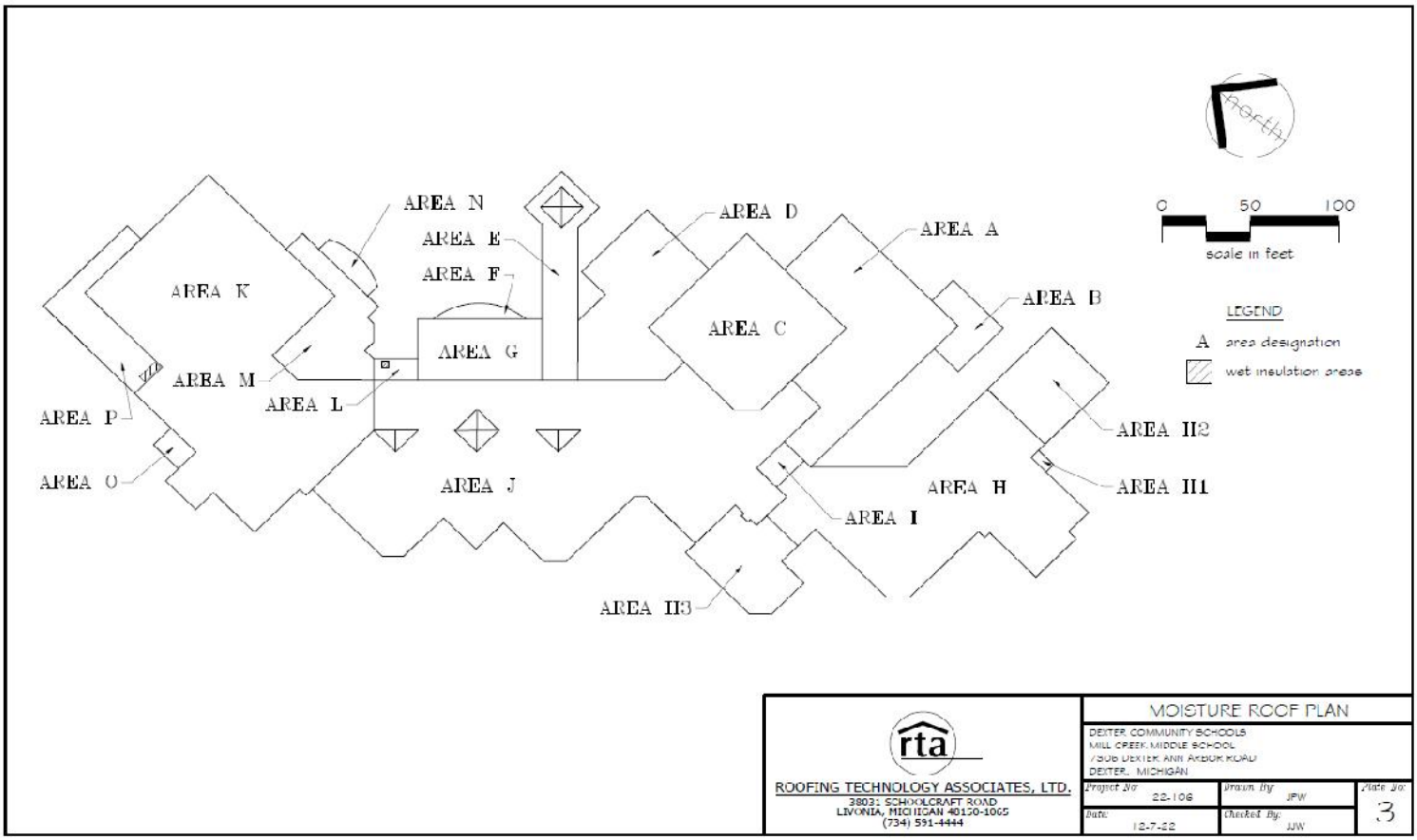
EXCELLENT (1)

ROOFING TECHNOLOGY ASSOCIATES, LTD.
38031 SCHOOLCRAFT ROAD
LIVONIA, MICHIGAN 48150-1065
(734) 591-4444

ROOF AREA PLAN

DEXTER COMMUNITY SCHOOLS
MILL CREEK MIDDLE SCHOOL
7305 DEXTER ANN ARBOR ROAD
DEXTER, MICHIGAN

Project No:	Drawn By:	Plate No:
22-106	JPW	3
Date: 12-7-22	Checked By: JJW	



Building	Roof ID	Roof Type	Size (SF)	Appr Yr Inst.	Age	Rating (1-5)	Est.Rem Life (Yrs)	Repl Est$	Comments	Maintenance
Mill Creek	A	EPDM - Fully Adh	6,800	2002	21	3	3 to 5	$ 142,800	Unsecured ladder. Displaced walkpads. Delaminated base flashing/diagonal wrinkles.	Reset walkpads
Mill Creek	B	EPDM - Fully Adh	1,050	2002	21	3	3 to 5	$ 22,050		
Mill Creek	C	EPDM - Fully Adh	6,200	2002	21	3	3 to 5	$ 130,200	Diagonal wrinkles	
Mill Creek	D	EPDM - Fully Adh	4,600	2002	21	3	3 to 5	$ 96,600	Ponding.	
Mill Creek	E	EPDM - Fully Adh	2,400	2002	21	3	3 to 5	$ 50,400		
Mill Creek	F	EPDM - Fully Adh	300	2002	21	3	3 to 5	$ 6,300		
Mill Creek	G	EPDM - Fully Adh	2,500	2002	21	3	3 to 5	$ 52,500	Diagonal wrinkles	
Mill Creek	H	EPDM - Fully Adh	11,000	2002	21	5	0	$ 231,000	Disbonded EPDM (Slated for Replace)	Replacement Scheduled
Mill Creek	H1	EPDM - Fully Adh	72	2002	21	3	3 to 5	$ 1,512		
Mill Creek	H2	EPDM - Fully Adh	2,400	2020	3	1	10+	$ 50,400		
Mill Creek	H3	EPDM - Fully Adh	2,500	2020	3	1	10+	$ 52,500		
Mill Creek	I	EPDM - Fully Adh	350	2002	21	5	0	$ 7,350	Disbonded EPDM (Slated for Replace)	Replacement Scheduled
Mill Creek	J	EPDM - Fully Adh	21,000	2002	21	5	0	$ 441,000	Disbonded EPDM (Slated for Replace)	Replacement Scheduled
Mill Creek	K	EPDM - Fully Adh	17,600	2019	4	1	10+	$ 369,600		
Mill Creek	L	EPDM - Fully Adh	300	2002	21	3	3 to 5	$ 6,300	Small area of wet insulation	
Mill Creek	M	EPDM - Fully Adh	2,700	2002	21	3	3 to 5	$ 56,700		
Mill Creek	N	EPDM - Fully Adh	400	2002	21	3	3 to 5	$ 8,400		
Mill Creek	O	EPDM - Fully Adh	300	2002	21	3	3 to 5	$ 6,300		
Mill Creek	P	EPDM - Fully Adh	2,100	2002	21	3	3 to 5	$ 44,100	Small area of wet insulation	

Photo 1
Mill Creek MS
February 2023

Mill Creek Middle School Aerial View

Photo 2
Mill Creek MS
February 2023

Area A: Overview

Photo 3
Mill Creek MS
February 2023

Area A: Overview

Photo 4
Mill Creek MS
February 2023

Area A: Unsecured ladder

Photo 5
Mill Creek MS
February 2023

Area A: Displaced walk pads

Photo 6
Mill Creek MS
February 2023

Area A: Delaminated base flashing/diagonal wrinkles

Photo 7
Mill Creek MS
February 2023

Area B: Overview

Photo 8
Mill Creek MS
February 2023

Area C: Overview

Photo 9
Mill Creek MS
February 2023

Area C: Diagonal wrinkles on base flashing

Photo 10
Mill Creek MS
February 2023

Area D: Overview

Photo 11
Mill Creek MS
February 2023

Area D: Overview

Photo 12
Mill Creek MS
February 2023

Area D: Ponding

Photo 13
Mill Creek MS
February 2023

Area E: Overview

Photo 14
Mill Creek MS
February 2023

Area F: Overview

Photo 15
Mill Creek MS
February 2023

Area G: Overview

Photo 16
Mill Creek MS
February 2023

Area G: Diagonal wrinkles on base flashing

Photo 17
Mill Creek MS
February 2023

Area H2: Overview

Photo 18
Mill Creek MS
February 2023

Area J: Overview/disbonded EPDM membrane prior to emergency replacement

Photo 19
Mill Creek MS
February 2023

Area J: Overview/disbonded EPDM membrane prior to emergency replacement

Photo 20
Mill Creek MS
February 2023

Area K: Overview

Photo 21
Mill Creek MS
February 2023

Area L: Foreign materials on roof - blocked drain

Photo 22
Mill Creek MS
February 2023

Area M: Overview

Photo 23
Mill Creek MS
February 2023

Area M: Overview

Photo 24
Mill Creek MS
February 2023

Area N: Overview

Photo 25
Mill Creek MS
February 2023

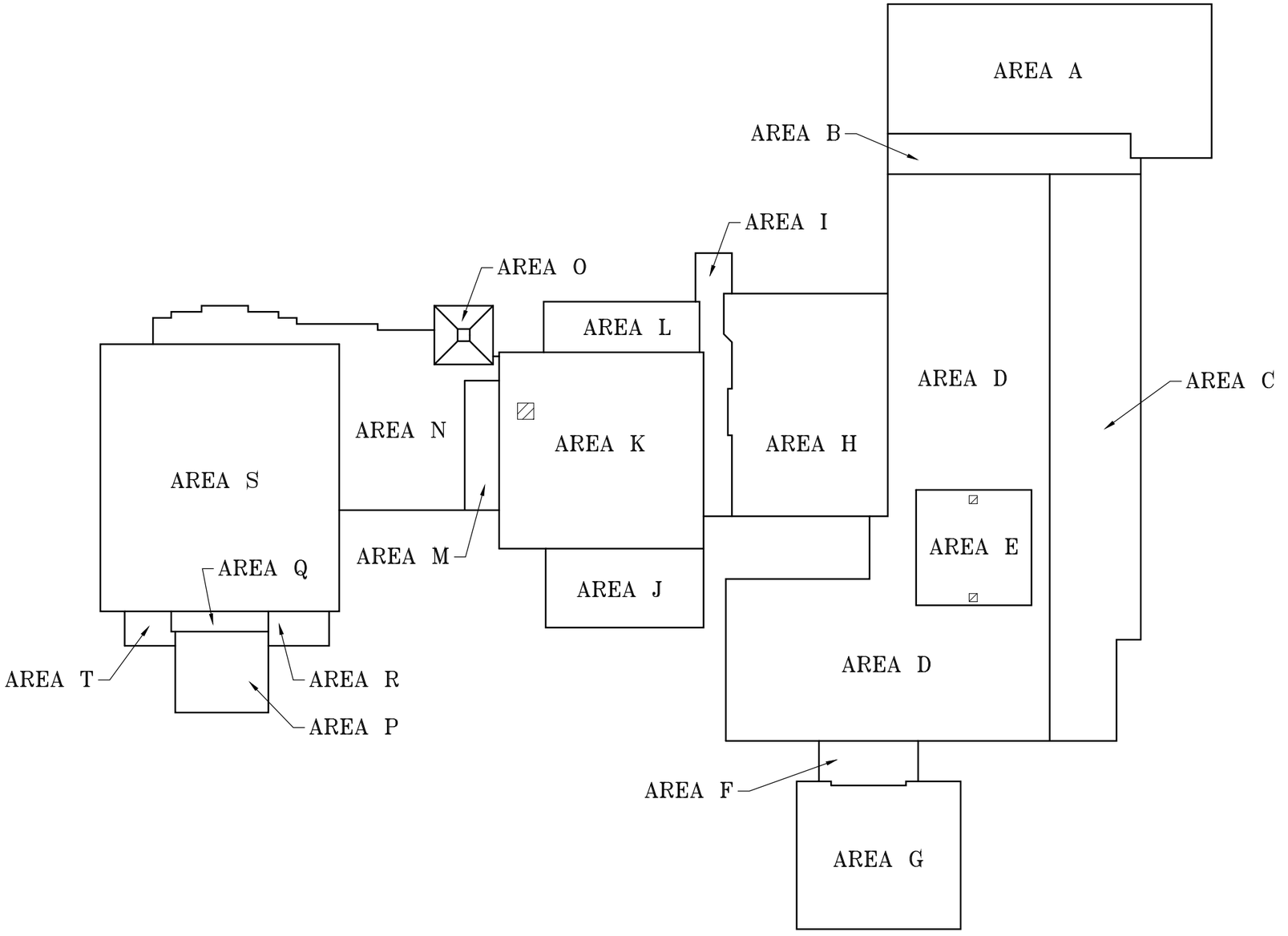
Area P: Overview

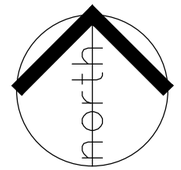
Photo 26
Mill Creek MS
February 2023

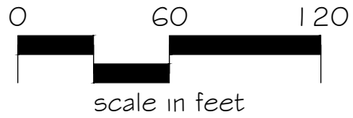
Area P: Overview

TAB 5

WYLIE ELEMENTARY SCHOOL







LEGEND

A area designation

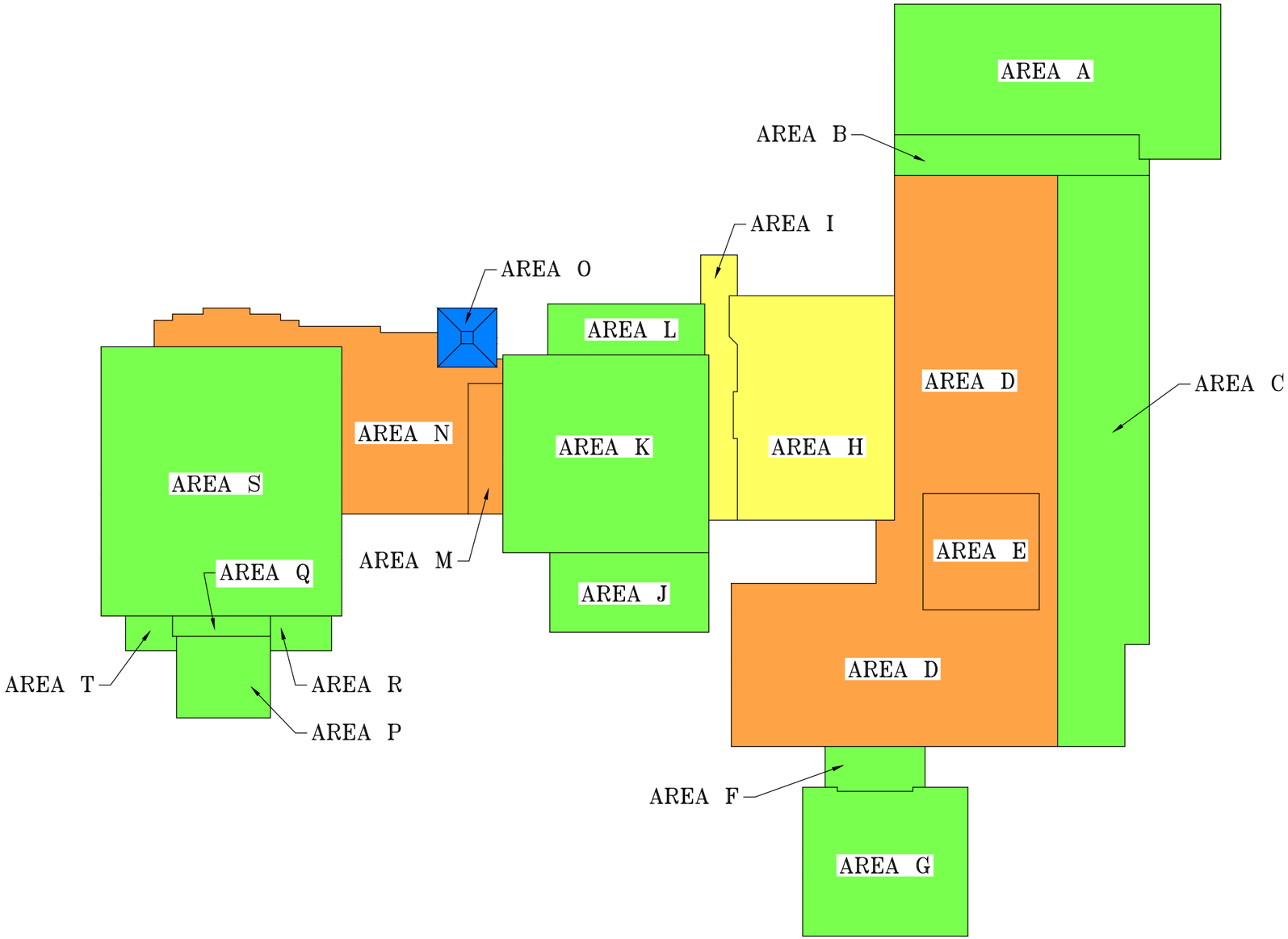
wet insulation areas

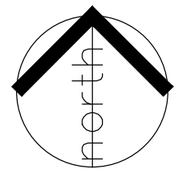
rta
ROOFING TECHNOLOGY ASSOCIATES, LTD.
38031 SCHOOLCRAFT ROAD
LIVONIA, MICHIGAN 48150-1065
(734) 591-4444

MOISTURE ROOF PLAN

DEXTER COMMUNITY SCHOOLS
WYLIE ELEMENTARY
3060 KENSINGTON ROAD
DEXTER, MICHIGAN

Project No:	Drawn By:	Plate No:
22-106	JPW	4
Date: 12-7-22	Checked By: JJW	





0 60 120

scale in feet

LEGEND

A area designation

FAILING (5)

POOR (4)

FAIR (3)

GOOD (2)

EXCELLENT (1)

ROOFING TECHNOLOGY ASSOCIATES, LTD.
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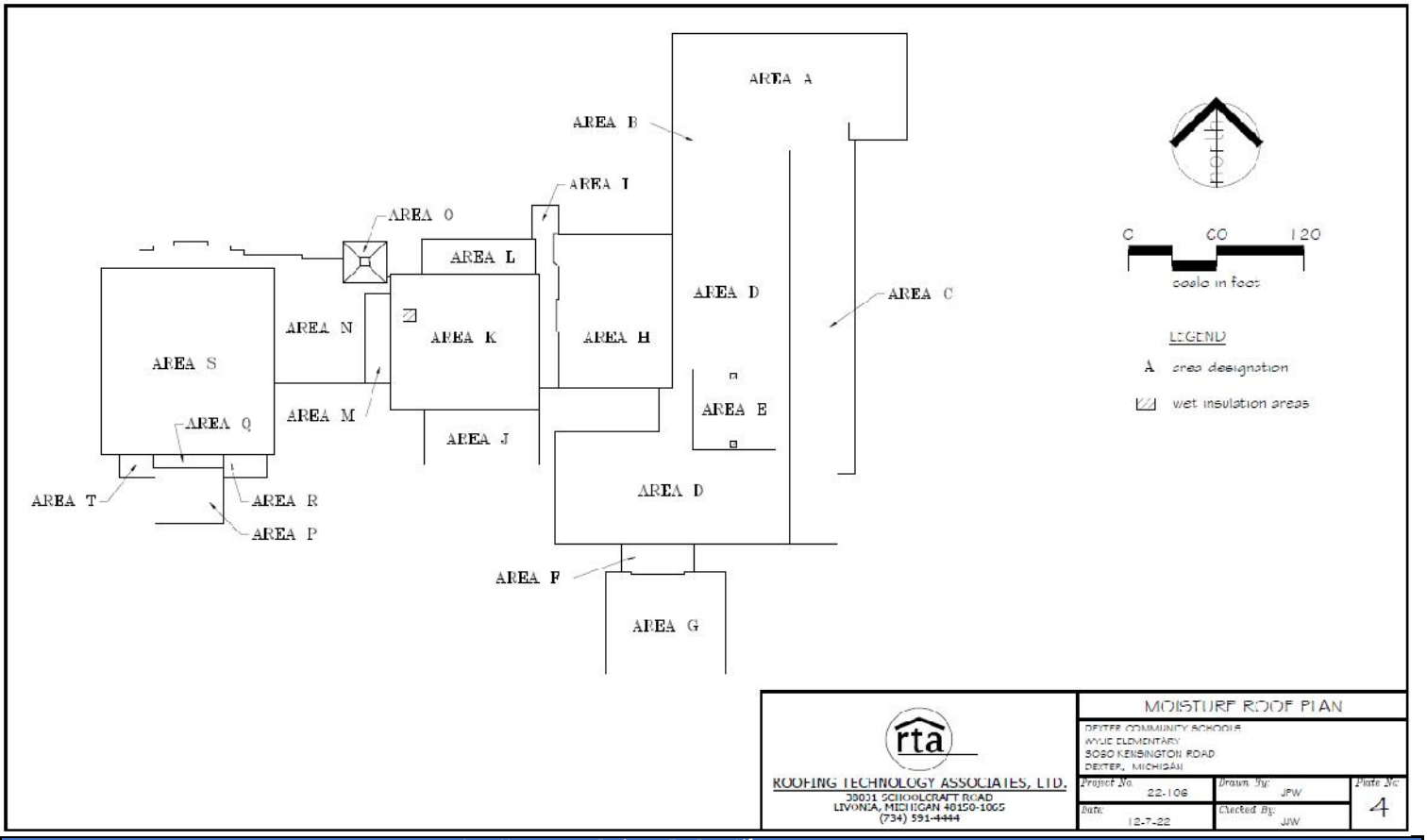
(734) 591-4444

ROOF AREA PLAN

DEXTER COMMUNITY SCHOOLS
WYLIE ELEMENTARY
3060 KENSINGTON ROAD
DEXTER, MICHIGAN

Project No:	Drawn By:	Plate No:
22-106	JPW	4
Date: 12-7-22	Checked By: JJW	



Building	Roof ID	Roof Type	Size (SF)	Appr Yr Inst.	Age	Rating (1-5)	Est.Rem Life (Yrs)	Repl Est$	Comments	Maintenance
Wylie	A	EPDM - Fully Adh	10,700	2006	17	2	6 to 9	$ 224,700	Branches overhanging roof - leaves accumulating. Debris in drain	Trim branches. Clear debris from roof
Wylie	B	EPDM - Fully Adh	2,500	2011	12	2	6 to 9	$ 52,500		
Wylie	C	EPDM - Fully Adh	12,000	2011	12	2	6 to 9	$ 252,000	Two small areas of wet insulation	
Wylie	D	EPDM - Fully Adh	25,800	1999	24	4	1 to 2	$ 541,800	Repairs evident. Ponding	
Wylie	E	EPDM - Fully Adh	3,200	1999	24	4	1 to 2	$ 67,200	Repairs evident	
Wylie	F	EPDM - Fully Adh	1,050	2011	12	2	6 to 9	$ 22,050		
Wylie	G	EPDM - Fully Adh	5,800	2011	12	2	6 to 9	$ 121,800	Repaired seams	
Wylie	H	EPDM - Fully Adh	8,600	1999	24	3	3 to 5	$ 180,600	Ponding	
Wylie	I	EPDM - Fully Adh	1,800	1999	24	3	3 to 5	$ 37,800	Leaves in gutter	Clean gutter
Wylie	J	EPDM - Fully Adh	3,000	2011	12	2	6 to 9	$ 63,000		
Wylie	K	EPDM - Fully Adh	10,000	2011	12	2	6 to 9	$ 210,000		
Wylie	L	EPDM - Fully Adh	2,000	2011	12	2	6 to 9	$ 42,000	Foreign objects on roof. Leaves in drain strainer	Clear roof of debris. Clean drain strainer
Wylie	M	EPDM - Fully Adh	1,100	1999	24	4	1 to 2	$ 23,100		
Wylie	N	EPDM - Fully Adh	6,800	1999	24	4	1 to 2	$ 142,800		
Wylie	O	Mtl-Stand Seam	850	1999	24	1	10+	$ 17,850		
Wylie	P	EPDM - Fully Adh	1,800	2011	12	2	6 to 9	$ 37,800		
Wylie	Q	EPDM - Fully Adh	500	2011	12	2	6 to 9	$ 10,500		
Wylie	R	EPDM - Fully Adh	500	2011	12	2	6 to 9	$ 10,500	Foreign objects on roof.	Clear roof of debris. Clean drain strainer
Wylie	S	EPDM - Fully Adh	15,500	2011	12	2	6 to 9	$ 325,500	Overhanging branches. Leaves in drains	Trim branches. Clear debris from roof

Photo 1
Wylie Elementary School
February 2023

Wylie Elementary School Aerial View

Photo 2
Wylie Elementary School
February 2023

Area A: Overview

Photo 3
Wylie Elementary School
February 2023

Area A: Branches overhanging the roof - leaves accumulating

Photo 4
Wylie Elementary School
February 2023

Area A: Leaves/debris in drain

Photo 5
Wylie Elementary School
February 2023

Area A: Ponding/vegetation

Photo 6
Wylie Elementary School
February 2023

Area B: Overview

Photo 7
Wylie Elementary School
February 2023

Area C: Overview

Photo 8
Wylie Elementary School
February 2023

Area D: Overview

Photo 9
Wylie Elementary School
February 2023

Area D: Repaired seams

Photo 10
Wylie Elementary School
February 2023

Area D: Repaired seams

Photo 11
Wylie Elementary School
February 2023

Area D: Repaired seams/ponding

Photo 12
Wylie Elementary School
February 2023

Area D: Ponding

Photo 13
Wylie Elementary School
February 2023

Area E: Overview

Photo 14
Wylie Elementary School
February 2023

Area E: Repairs to edge metal

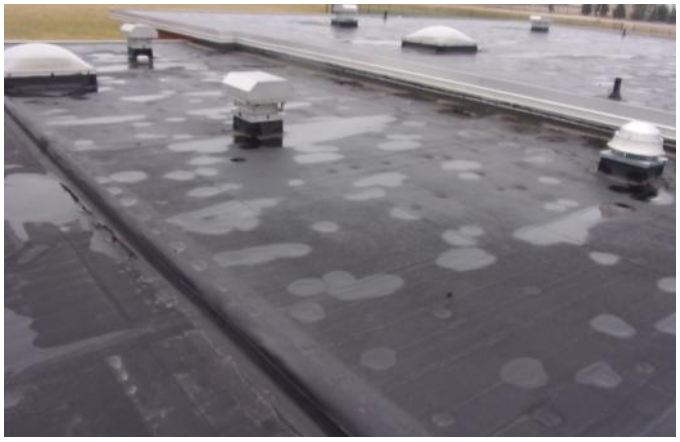


Photo 15
Wylie Elementary School
February 2023

Area F: Overview

Photo 16
Wylie Elementary School
February 2023

Area G: Overview

Photo 17
Wylie Elementary School
February 2023

Area G: Repaired seams

Photo 18
Wylie Elementary School
February 2023

Area H: Overview

Photo 19
Wylie Elementary School
February 2023

Area H: Ponding

Photo 20
Wylie Elementary School
February 2023

Area I: Leaves in gutter

Photo 21
Wylie Elementary School
February 2023

Area J: Overview

Photo 22
Wylie Elementary School
February 2023

Area L: Overview

Photo 23
Wylie Elementary School
February 2023

Area L: Overview

Photo 24
Wylie Elementary School
February 2023

Area L: Foreign object on roof membrane - leaves in drain strainer

Photo 25
Wylie Elementary School
February 2023

Area M: Overview

Photo 26
Wylie Elementary School
February 2023

Area N: Overview

Photo 27
Wylie Elementary School
February 2023

Area N: Leaves/debris

Photo 28
Wylie Elementary School
February 2023

Area O: Overview

Photo 29
Wylie Elementary School
February 2023

Area P: Overview

Photo 30
Wylie Elementary School
February 2023

Area Q: Overview

Photo 31
Wylie Elementary School
February 2023

Area R: Overview

Photo 32
Wylie Elementary School
February 2023

Area S: Overhanging branches - leaves in drains

Photo 33
Wylie Elementary School
February 2023

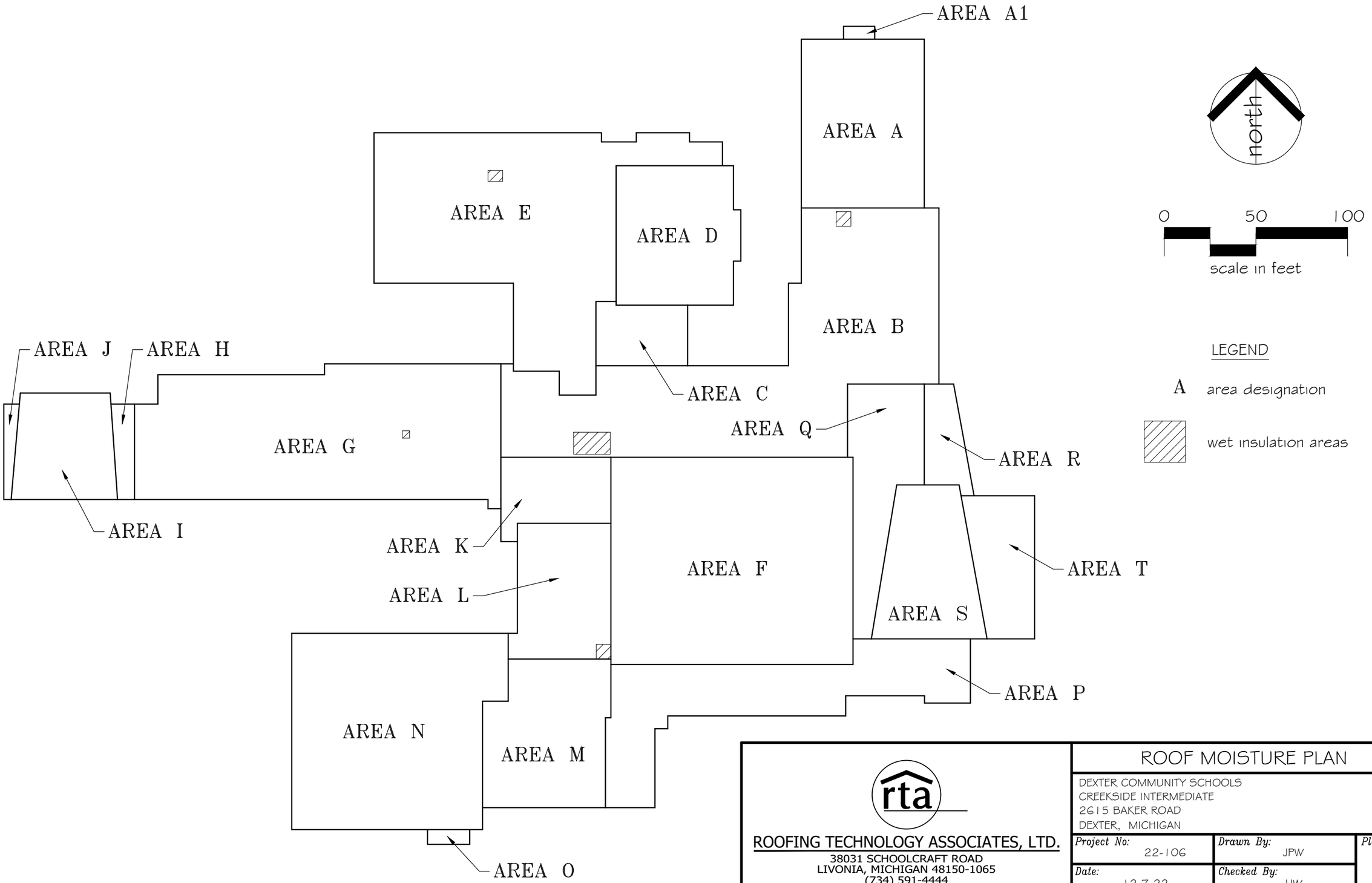
Area S: Overhanging branches - leaves in drains

Photo 34
Wylie Elementary School
February 2023

Area T: Overview

TAB 6

CREEKSIDE ELEMENTARY SCHOOL



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LIVONIA, MICHIGAN 48150-1065
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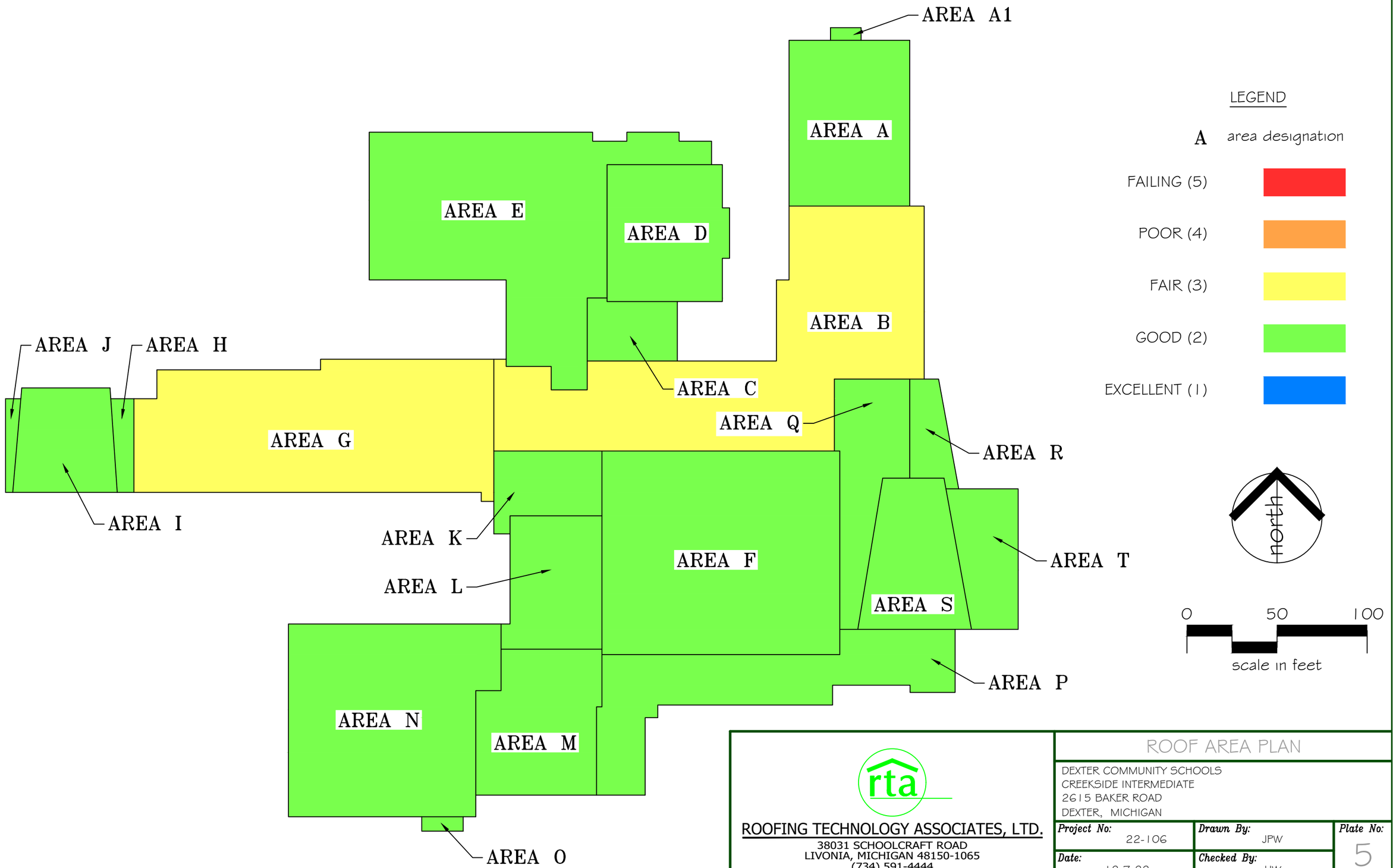
ROOF MOISTURE PLAN

DEXTER COMMUNITY SCHOOLS
CREEKSIDE INTERMEDIATE
2615 BAKER ROAD
DEXTER, MICHIGAN

Project No:	Drawn By:	Plate No:
22-106	JPW	5
Date: 12-7-22	Checked By: JJW	



ROOFING TECHNOLOGY ASSOCIATES, LTD.
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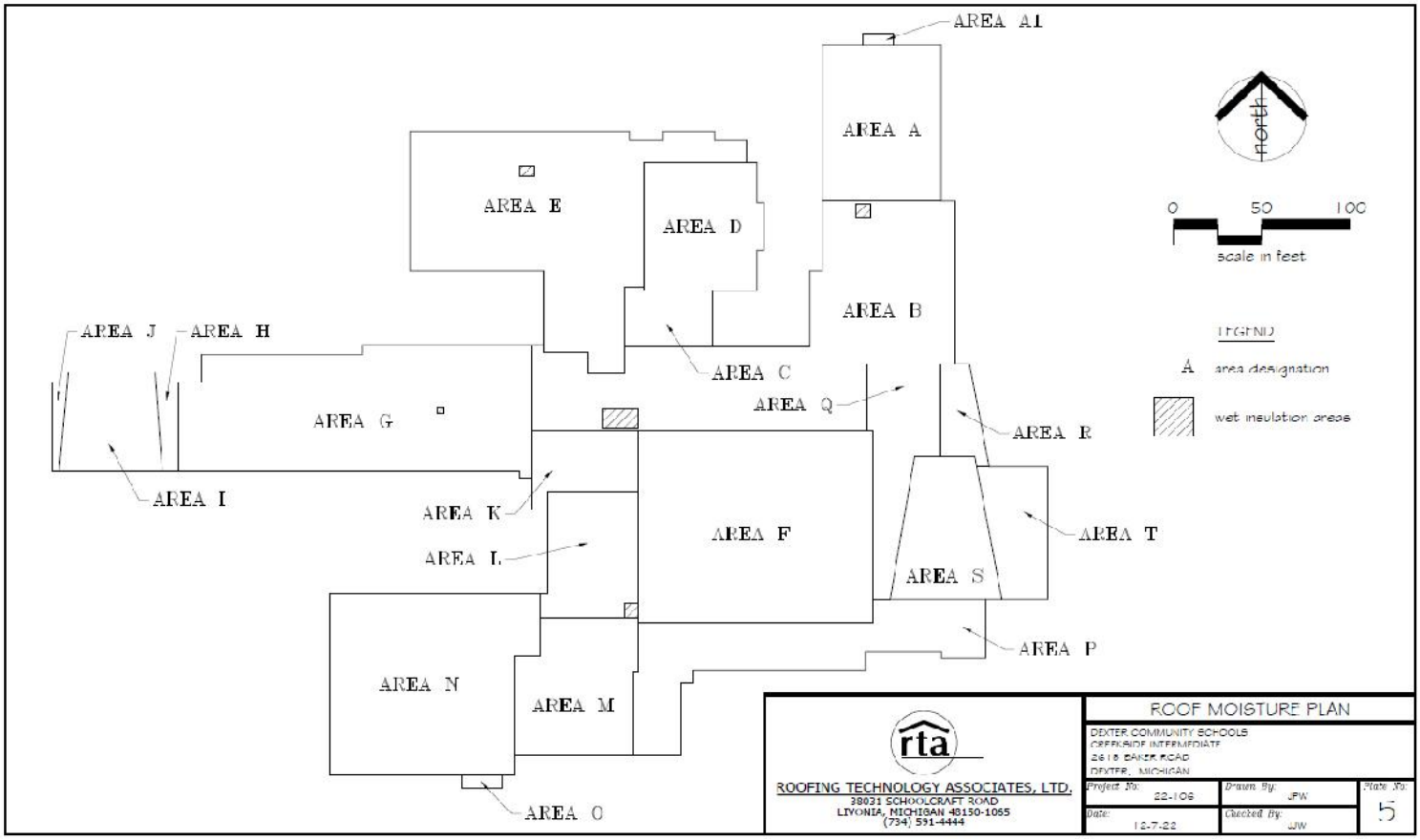
LIVONIA, MICHIGAN 48150-1065
(734) 591-4444

ROOF AREA PLAN

DEXTER COMMUNITY SCHOOLS
CREEKSIDE INTERMEDIATE
2615 BAKER ROAD
DEXTER, MICHIGAN

Project No:	Drawn By:	Plate No:
22-106	JPW	5
Date: 12-7-22	Checked By: JJW	



Building	Roof ID	Roof Type	Size (SF)	Appr Yr Inst.	Age	Rating (1-5)	Est.Rem Life (Yrs)	Repl Est$	Comments	Maintenance
Creekside	A	EPDM - Fully Adh	6,200	2011	12	2	6 to 9	$ 130,200	Overhanging branches.	Trim branches
Creekside	A1	EPDM - Fully Adh	120	2011	12	2	6 to 9	$ 2,520		
Creekside	B	EPDM - Fully Adh	16,300	2002	21	3	3 to 5	$ 342,300	Two small areas of wet insulation. Loose seams	Seal loose seams
Creekside	C	EPDM - Fully Adh	1,700	2013	10	2	6 to 9	$ 35,700		
Creekside	D	EPDM - Fully Adh	5,000	2011	12	2	6 to 9	$ 105,000	Ponding	
Creekside	E	EPDM - Fully Adh	14,200	2011	12	2	6 to 9	$ 298,200	Small area of wet insulation	
Creekside	F	TPO - Fully Adh	15,000	2005	18	2	6 to 9	$ 315,000		
Creekside	G	EPDM - Fully Adh	14,000	2002	21	3	3 to 5	$ 294,000	Small area of wet insulation. Ponding	
Creekside	H	EPDM - Fully Adh	575	2011	12	2	6 to 9	$ 12,075	Debris/Vegetation in drain	Clear roof of debris. Clean drain strainer
Creekside	I	EPDM - Fully Adh	3,100	2011	12	2	6 to 9	$ 65,100	Debris/Vegetation in drain	Clear roof of debris. Clean drain strainer
Creekside	J	EPDM - Fully Adh	325	2011	12	2	6 to 9	$ 6,825		
Creekside	K	EPDM - Fully Adh	2,250	2013	10	2	6 to 9	$ 47,250		
Creekside	L	EPDM - Fully Adh	3,900	2007	16	2	6 to 9	$ 81,900	small area of wet insulation	
Creekside	M	EPDM - Fully Adh	5,200	2007	16	2	6 to 9	$ 109,200	Ponding. Repairs evident	
Creekside	N	Mtl-Stand Seam	11,600	2011	12	2	6 to 9	$ 243,600		
Creekside	O	EPDM - Fully Adh	185	2011	12	2	6 to 9	$ 3,885		
Creekside	P	EPDM - Fully Adh	7,100	2013	10	2	6 to 9	$ 149,100	Corroding counterflashing	
Creekside	Q	EPDM - Fully Adh	3,700	2005	18	2	6 to 9	$ 77,700		
Creekside	R	EPDM - Fully Adh	1,200	2005	18	2	6 to 9	$ 25,200		

Photo 1
Creekside
February 2023

Creekside Elementary School Aerial View

Photo 2
Creekside
February 2023

Area A: Overview

Photo 3
Creekside
February 2023

Area A: Overhanging brances

Photo 4
Creekside
February 2023

Area A1: Overview

Photo 5
Creekside
February 2023

Area B: Overview

Photo 6
Creekside
February 2023

Area B: Overview

Photo 7
Creekside
February 2023

Area B: Loose seams

Photo 8
Creekside
February 2023

Area C: Overview

Photo 9
Creekside
February 2023

Area D: Overview

Photo 10
Creekside
February 2023

Area D: Ponding

Photo 11
Creekside
February 2023

Area D: Ponding

Photo 12
Creekside
February 2023

Area E: Overview

Photo 13
Creekside
February 2023

Area F: Overview

Photo 14
Creekside
February 2023

Area G: Overview

Photo 15
Creekside
February 2023

Area G: Ponding

Photo 16
Creekside
February 2023

Area G: Puncture in membrane (repaired by RTA)

Photo 17
Creekside
February 2023

Area H: Overview

Photo 18
Creekside
February 2023

Area H: Debris/vegetation

Photo 19
Creekside
February 2023

Area I: Overview

Photo 20
Creekside
February 2023

Areas I and H: Debris/tennis balls in drains

Photo 21
Creekside
February 2023

Area J: Overview

Photo 22
Creekside
February 2023

Area K: Overview

Photo 23
Creekside
February 2023

Area L: Overview

Photo 24
Creekside
February 2023

Area M: Overview

Photo 25
Creekside
February 2023

Area M: Ponding

Photo 26
Creekside
February 2023

Area M: Repair

Photo 27
Creekside
February 2023

Area N: Overview

Photo 28
Creekside
February 2023

Area N: Overview

Photo 29
Creekside
February 2023

Area O: Overview

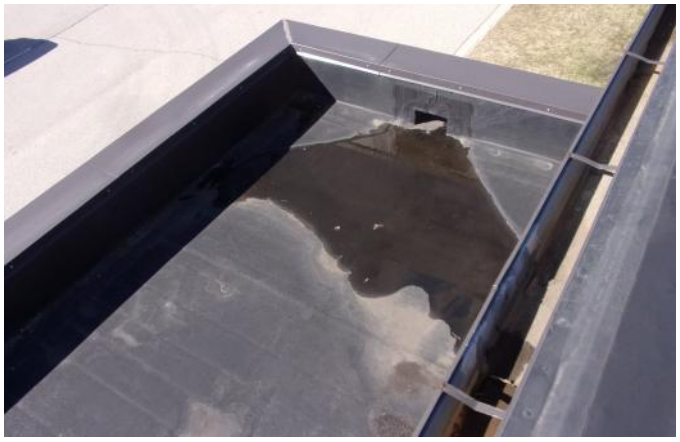


Photo 30
Creekside
February 2023

Area O: Ponding

Photo 31
Creekside
February 2023

Area P: Overview

Photo 32
Creekside
February 2023

Area P: Corroding counterflashing

Photo 33
Creekside
February 2023

Area Q: Overview

Photo 34
Creekside
February 2023

Area O: Overview

Photo 35
Creekside
February 2023

Area R: Overview

Photo 36
Creekside
February 2023

Area S: Overview

Photo 37
Creekside
February 2023

Area S: Ponding

Photo 38
Creekside
February 2023

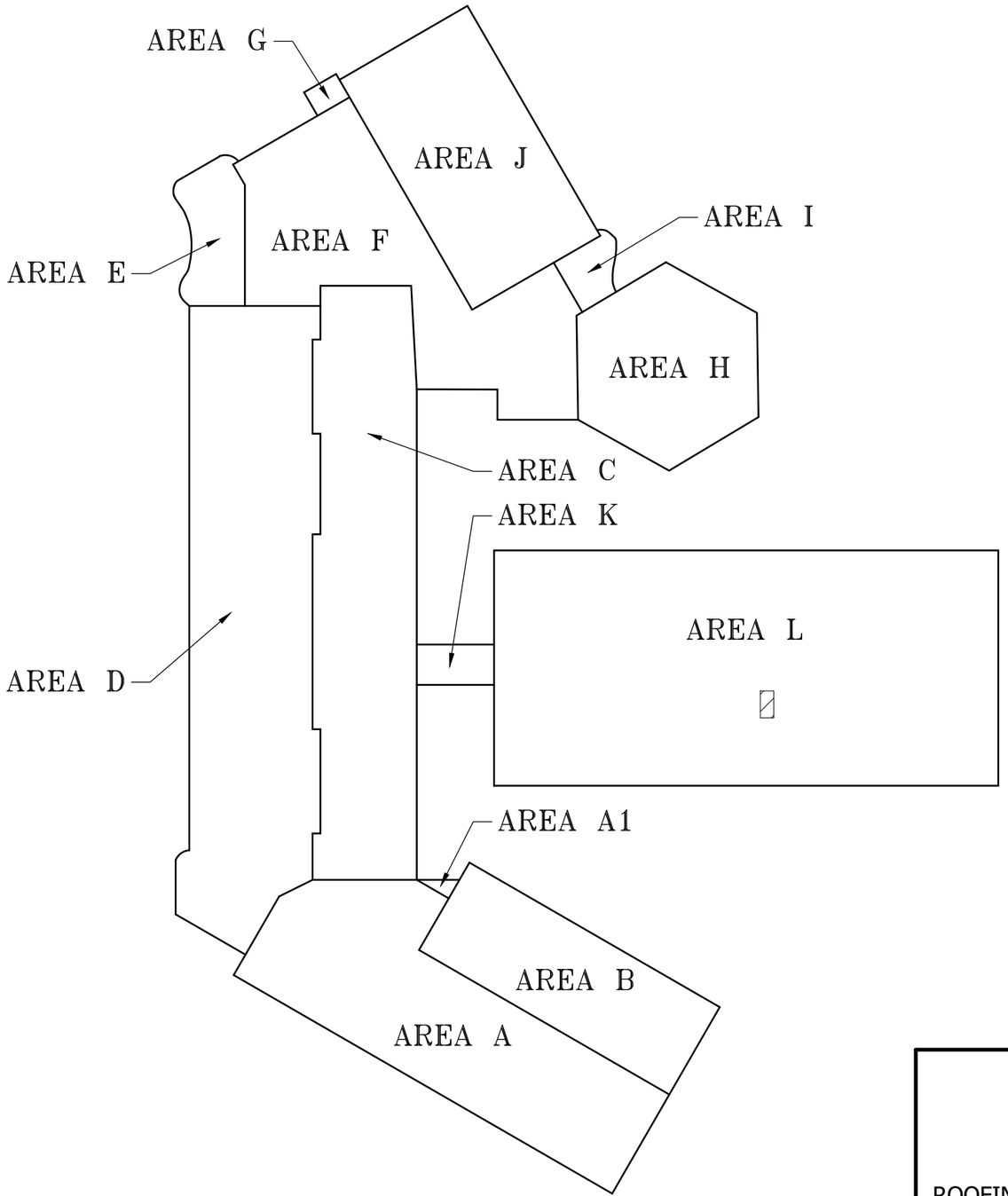
Area T: Overview

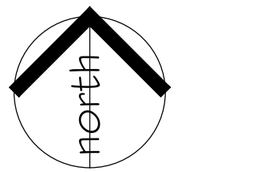
Photo 39
Creekside
February 2023

Area T: Overview

TAB 7

BATES ELEMENTARY SCHOOL





LEGEND

A area designation

wet insulation areas

ROOFING TECHNOLOGY ASSOCIATES, LTD.
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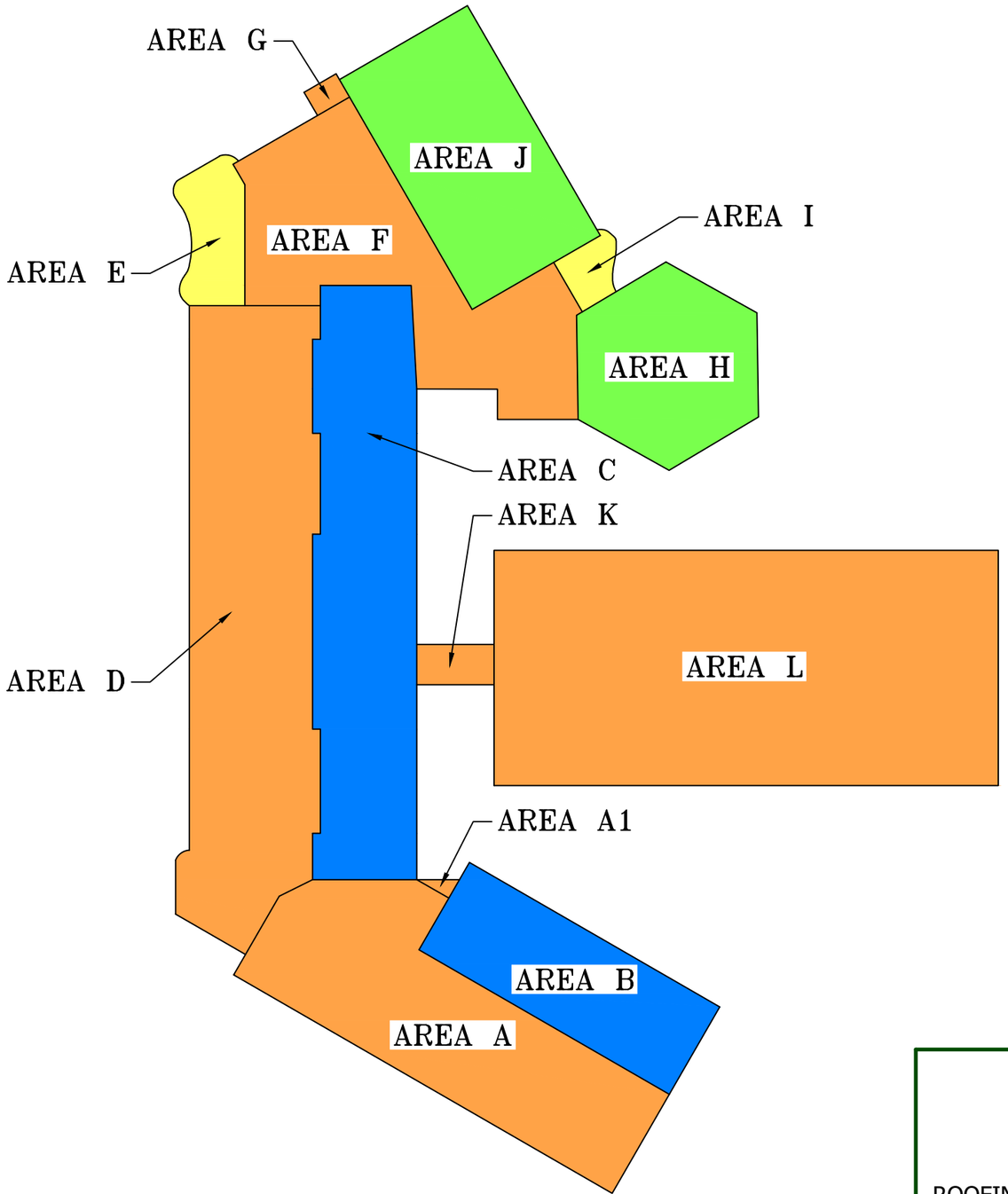
LIVONIA, MICHIGAN 48150-1065
(734) 591-4444

ROOF MOISTURE PLAN

DEXTER COMMUNITY SCHOOLS
BATES ELEMENTARY
2704 BAKER ROAD
DEXTER, MICHIGAN

Project No:	Drawn By:	Plate No:
22-106	JPW	6
Date: 12-7-22	Checked By: JJW	



LEGEND

A area designation

FAILING (5)

POOR (4)

FAIR (3)

GOOD (2)

EXCELLENT (1)

north

0 40 80

scale in feet

ROOFING TECHNOLOGY ASSOCIATES, LTD.
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LIVONIA, MICHIGAN 48150-1065
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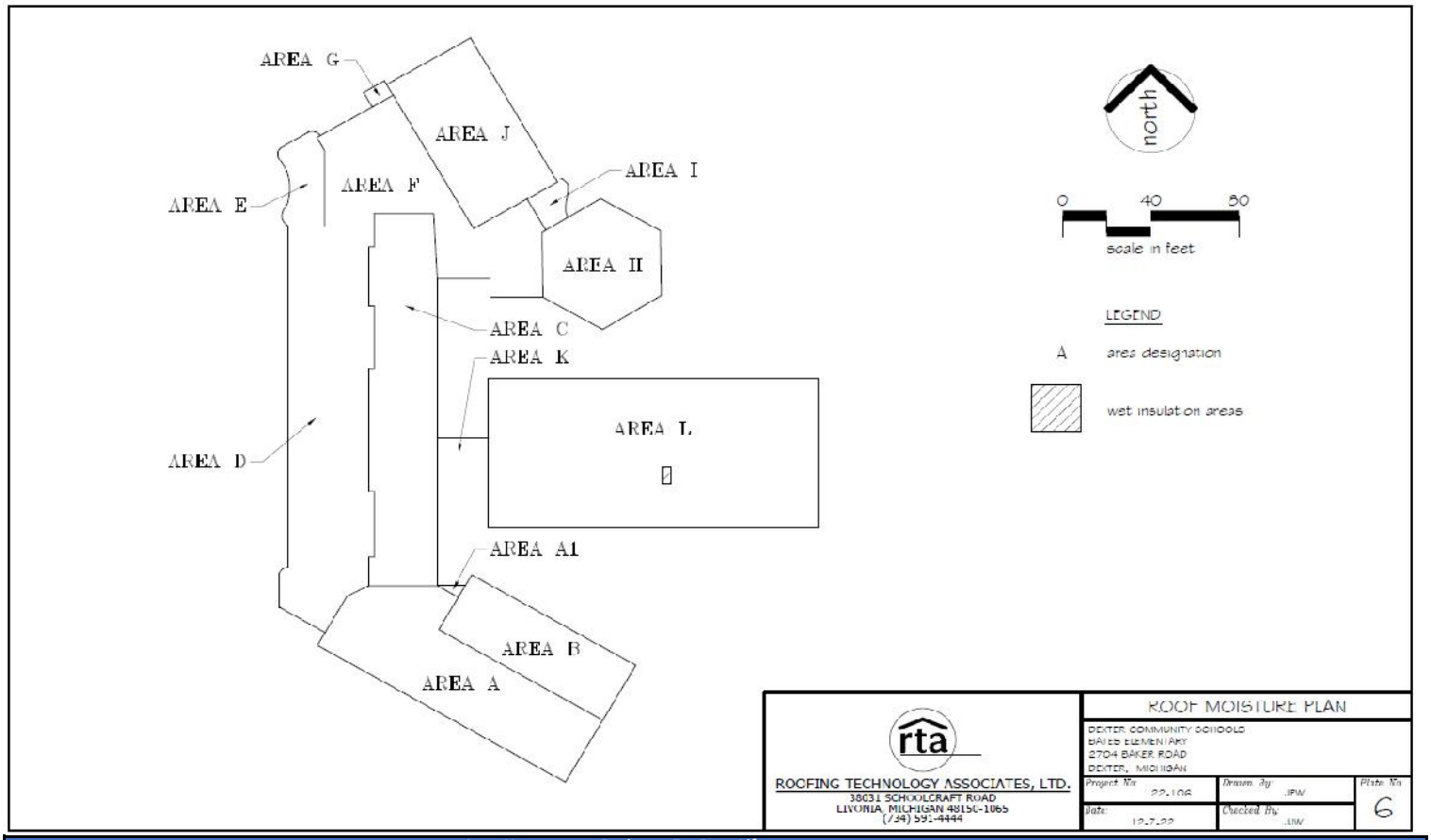
ROOF AREA PLAN

DEXTER COMMUNITY SCHOOLS
BATES ELEMENTARY
2704 BAKER ROAD
DEXTER, MICHIGAN

Project No:	Drawn By:	Plate No:
22-106	JPW	6
Date: 12-7-22	Checked By: JJW	



Building	Roof ID	Roof Type	Size (SF)	Appr Yr Inst.	Age	Rating (1-5)	Est.Rem Life (Yrs)	Repl Est$	Comments	Maintenance
Bates	A	EPDM - Fully Adh	4,900	2001	22	4	1 to 2	$ 102,900	Disbonded EPDM. Failed lap sealant	Seal seams. Install batten bars and strip in to prevent further spreading
Bates	A1	EPDM - Fully Adh	35	2001	22	4	1 to 2	$ 735		
Bates	B	Mtl-Stand Seam	2,800	1998	25	1	10+	$ 58,800		
Bates	C	Mtl-Stand Seam	5,700	1998	25	1	10+	$ 119,700		
Bates	D	EPDM - Fully Adh	7,000	2001	22	4	1 to 2	$ 147,000	Debris/Vegetation. Ponding. Failed lap sealant	Seal loose seams
Bates	E	EPDM - Fully Adh	750	2001	22	3	3 to 5	$ 15,750	Ponding	
Bates	F	EPDM - Fully Adh	4,200	2001	22	4	1 to 2	$ 88,200	Debris/vegetation/ponding. Failed lap sealant. Damaged stack	Clear roof of debris. Clean drain strainers. Seal open seams. Repair damaged stack
Bates	G	EPDM - Fully Adh	90	2001	22	4	1 to 2	$ 1,890	Ponding	
Bates	H	EPDM - Fully Adh	2,500	2001	22	2	6 to 9	$ 52,500	Loose seam/failed lap sealant	Seal loose seams
Bates	I	EPDM - Fully Adh	270	2001	22	3	3 to 5	$ 5,670		
Bates	J	EPDM - Fully Adh	3,500	2001	22	2	6 to 9	$ 73,500		
Bates	K	EPDM - Fully Adh	300	2001	22	4	1 to 2	$ 6,300		
Bates	L	EPDM - Fully Adh	10,500	2001	22	4	1 to 2	$ 220,500	Small area of wet insulation. Loose patches/failed lap sealant	Seal loose seams

Photo 1
Bates
February 2023

Bates Elementary School Aerial View

Photo 2
Bates
February 2023

Area A: Overview

Photo 3
Bates
February 2023

Area A: Failed lap sealant

Photo 4
Bates
February 2023

Area A: Failed lap sealant

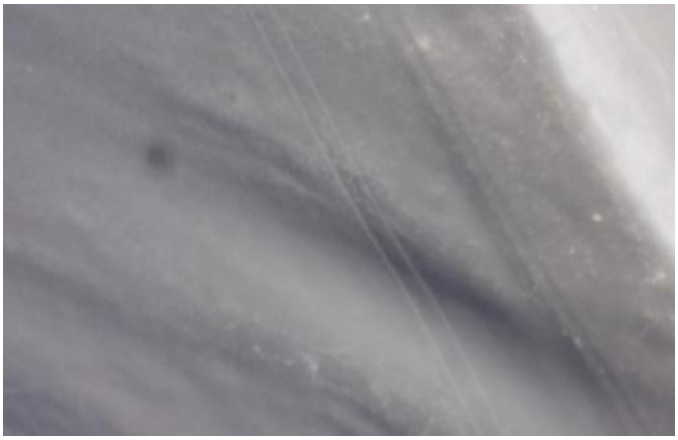


Photo 5
Bates
February 2023

Area A: Disbonded EPDM membrane

Photo 6
Bates
February 2023

Area A: Disbonded EPDM membrane

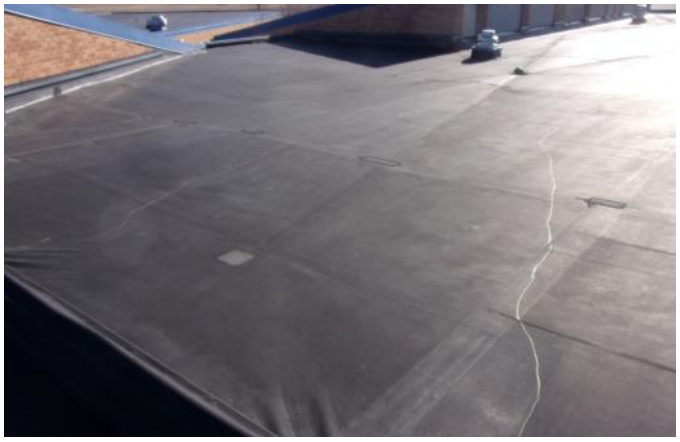


Photo 7
Bates
February 2023

Area A: Disbonded EPDM membrane

Photo 8
Bates
February 2023

Area A1: Overview

Photo 9
Bates
February 2023

Area B: Overview

Photo 10
Bates
February 2023

Area C: Overview

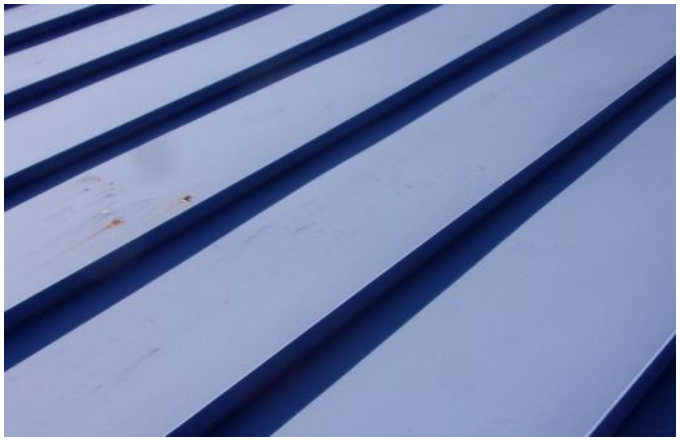


Photo 11
Bates
February 2023

Area C: Minor rust/pitting on sheet metal panels

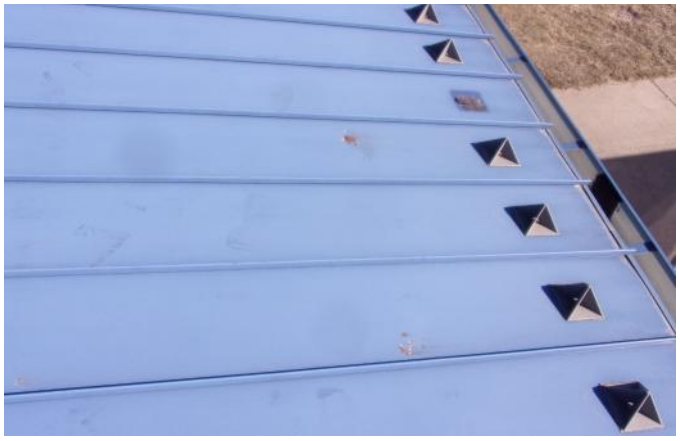


Photo 12
Bates
February 2023

Area C: Minor rust/pitting on sheet metal panels

Photo 13
Bates
February 2023

Area D: Overview

Photo 14
Bates
February 2023

Area D: Overview

Photo 15
Bates
February 2023

Area D: Debris/vegetation - ponding

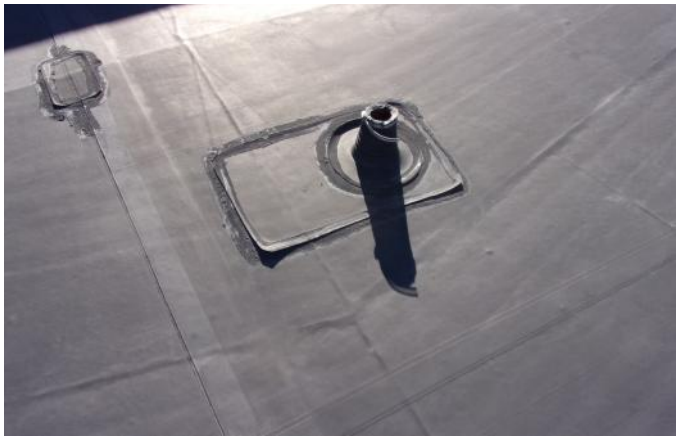


Photo 16
Bates
February 2023

Area D: Failed lap sealant

Photo 17
Bates
February 2023

Area E: Overview

Photo 18
Bates
February 2023

Area E: Ponding

Photo 19
Bates
February 2023

Area F: Overview

Photo 20
Bates
February 2023

Area F: Overview

Photo 21
Bates
February 2023

Area F: Debris/vegetation/ponding

Photo 22
Bates
February 2023

Area F: Failed lap sealant

Photo 23
Bates
February 2023

Area F: Damaged stack

Photo 24
Bates
February 2023

Area G: Overview

Photo 25
Bates
February 2023

Area H: Overview

Photo 26
Bates
February 2023

Area H: Overview

Photo 27
Bates
February 2023

Area H: Loose seam/failed lap sealant

Photo 28
Bates
February 2023

Area I: Overview

Photo 29
Bates
February 2023

Area J: Overview

Photo 30
Bates
February 2023

Area K: Overview

Photo 31
Bates
February 2023

Area L: Overview

Photo 32
Bates
February 2023

Area L: Overview

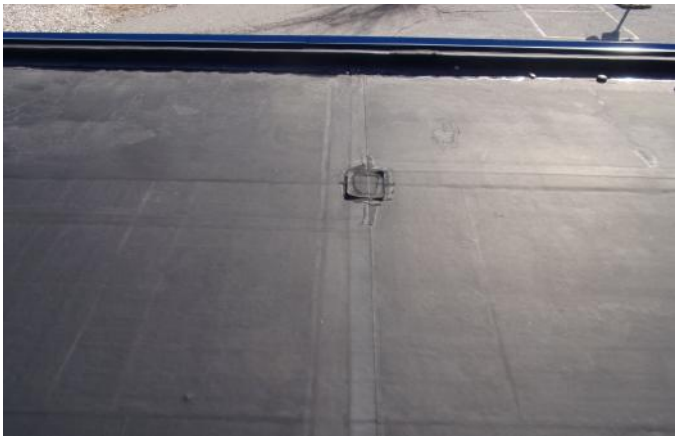


Photo 33
Bates
February 2023

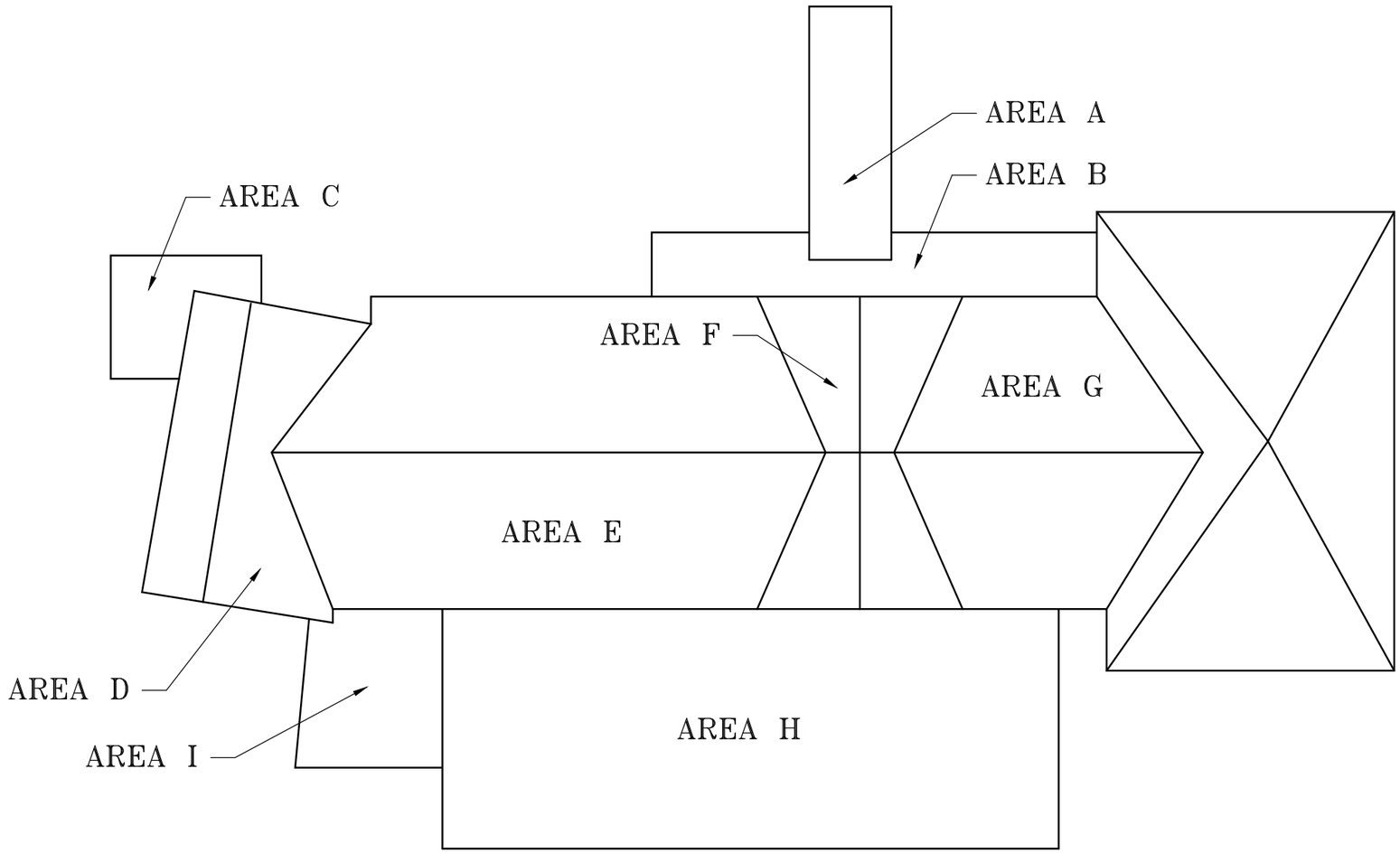
Area L: Loose seam/failed lap sealant

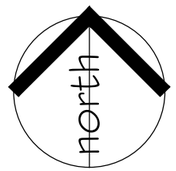
Photo 34
Bates
February 2023

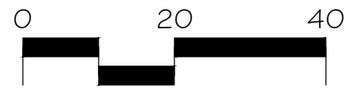
Area L: Loose seam/failed lap sealant

TAB 8

JENKINS EARLY CHILDHOOD LEARNING CENTER







LEGEND

A area designation

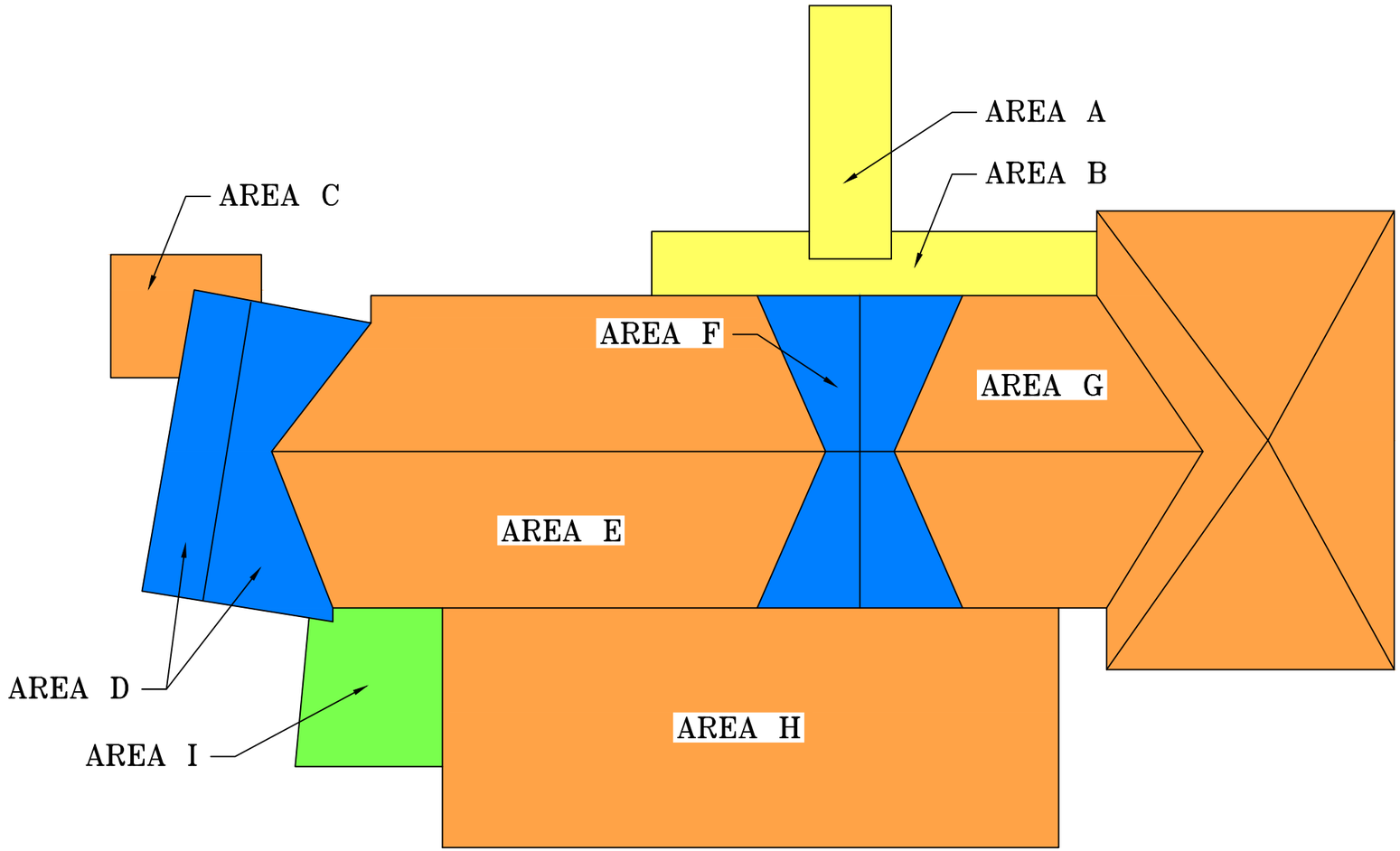
wet insulation areas

ROOFING TECHNOLOGY ASSOCIATES, LTD.
38031 SCHOOLCRAFT ROAD
LIVONIA, MICHIGAN 48150-1065
(734) 591-4444

ROOF MOISTURE PLAN

DEXTER COMMUNITY SCHOOLS
JENKINS EARLY CHILDHOOD LEARNING CENTER
2801 BAKER ROAD
DEXTER, MICHIGAN

Project No:	Drawn By:	Plate No:
22-106	JPW	7
Date: 12-7-22	Checked By: JJW	



north

0 20 40

scale in feet

LEGEND

A area designation

FAILING (5)

POOR (4)

FAIR (3)

GOOD (2)

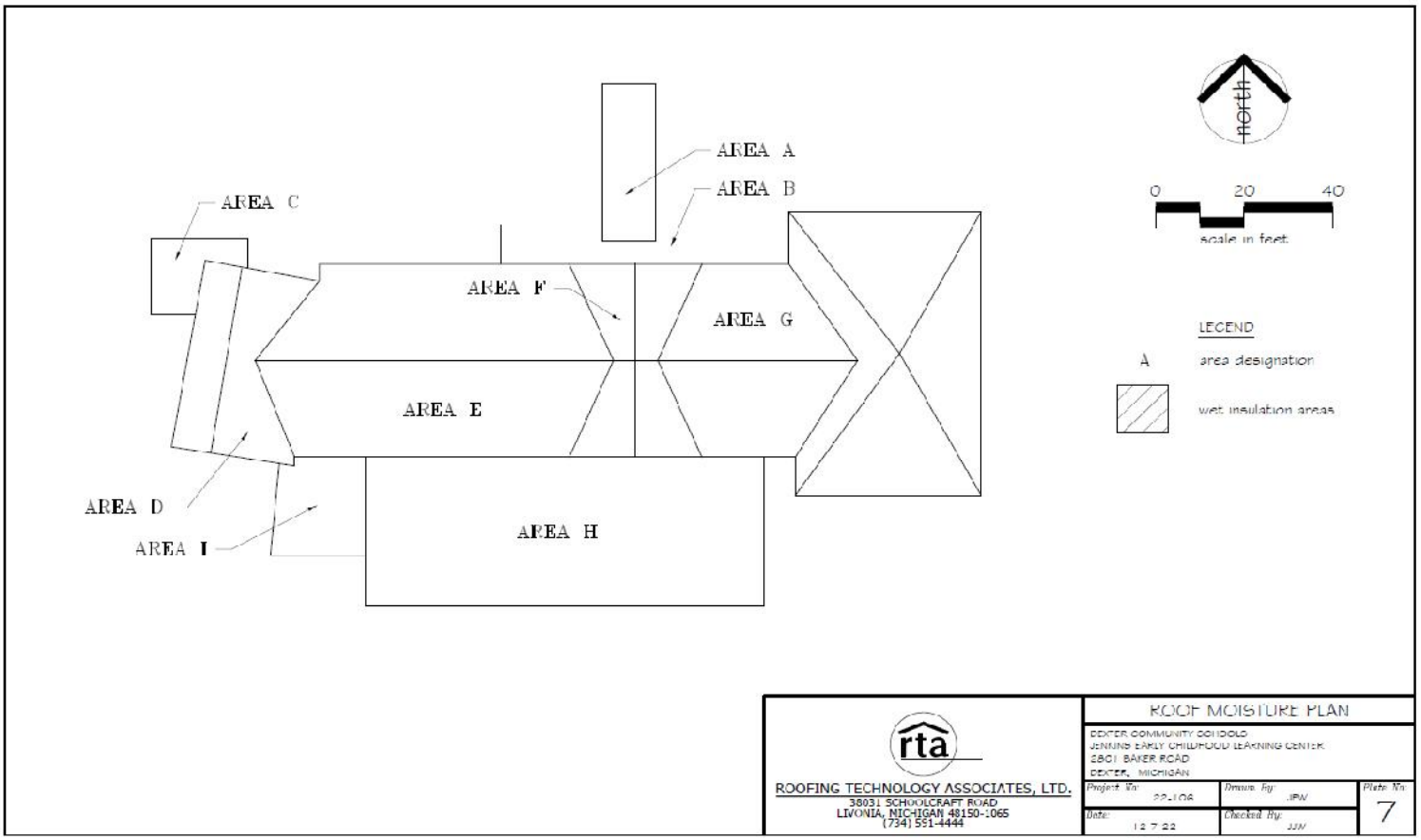
EXCELLENT (1)

ROOFING TECHNOLOGY ASSOCIATES, LTD.
38031 SCHOOLCRAFT ROAD
LIVONIA, MICHIGAN 48150-1065
(734) 591-4444

ROOF AREA PLAN

DEXTER COMMUNITY SCHOOLS
JENKINS EARLY CHILDHOOD LEARNING CENTER
2801 BAKER ROAD
DEXTER, MICHIGAN

Project No:	Drawn By:	Plate No:
22-106	JPW	7
Date: 12-7-22	Checked By: JJW	



Building	Roof ID	Roof Type	Size (SF)	Appr Yr Inst.	Age	Rating (1-5)	Est.Rem Life (Yrs)	Repl Est$	Comments	Maintenance
Jenkins	A	EPDM - Fully Adh	450	1998	25	3	3 to 5	$ 9,450		
Jenkins	B	EPDM - Fully Adh	560	1998	25	3	3 to 5	$ 11,760	Accumlated leaves impeding drainage	Clear roof of debris
Jenkins	C	EPDM - Fully Adh	265	1998	25	4	1 to 2	$ 5,565	Loose seam/failed lap sealant. Debris/leaves impeding drainage. Rusted counterflashing	Seal loose seams. Clear roof of debris
Jenkins	D	Mtl-Stand Seam	1,100	1998	25	1	10+	$ 23,100	Leaves in gutter	Clear gutter of leaves
Jenkins	E	Shingle	3,500	1998	25	4	1 to 2	$ 73,500		
Jenkins	F	Mtl-Stand Seam	1,100	1998	25	1	10+	$ 23,100		
Jenkins	G	Shingle	4,300	1998	25	4	1 to 2	$ 90,300		
Jenkins	H	EPDM - Fully Adh	3,150	1998	25	4	1 to 2	$ 66,150	Leaves/branches on the roof. Repaired laps. Loose seams	Clean roof of debris. Clean drains. Seal loose seams
Jenkins	I	mtl-Corrugated	475	1998	25	2	6 to 9	$ 9,975		

Photo 1
Jenkins
February 2023

Jenkins Early Childhood Learning Center
Aerial View

Photo 2
Jenkins
February 2023

Area A: Overview

Photo 3
Jenkins
February 2023

Area B: Accumulated leaves impeding drainage

Photo 4
Jenkins
February 2023

Area B: Accumulated leaves impeding drainage

Photo 5
Jenkins
February 2023

Area C: Overview

Photo 6
Jenkins
February 2023

Area C: Overview

Photo 7
Jenkins
February 2023

Area C: Loose seams/failed lap sealant

Photo 8
Jenkins
February 2023

Area C: Loose seams

Photo 9
Jenkins
February 2023

Area C: Rust/corrosion on counterflashing

Photo 10
Jenkins
February 2023

Area D: Overview

Photo 11
Jenkins
February 2023

Area D: Damaged sheet metal flashing

Photo 12
Jenkins
February 2023

Area D: Leaves/debris in internal gutter impeding drainage

Photo 13
Jenkins
February 2023

Area E: Overview

Photo 14
Jenkins
February 2023

Area E: Overview

Photo 15
Jenkins
February 2023

Area F: Overview

Photo 16
Jenkins
February 2023

Area G: Overview

Photo 17
Jenkins
February 2023

Area H: Leaves/branches on the membrane

Photo 18
Jenkins
February 2023

Area H: Repaired laps/leaves in drain

Photo 19
Jenkins
February 2023

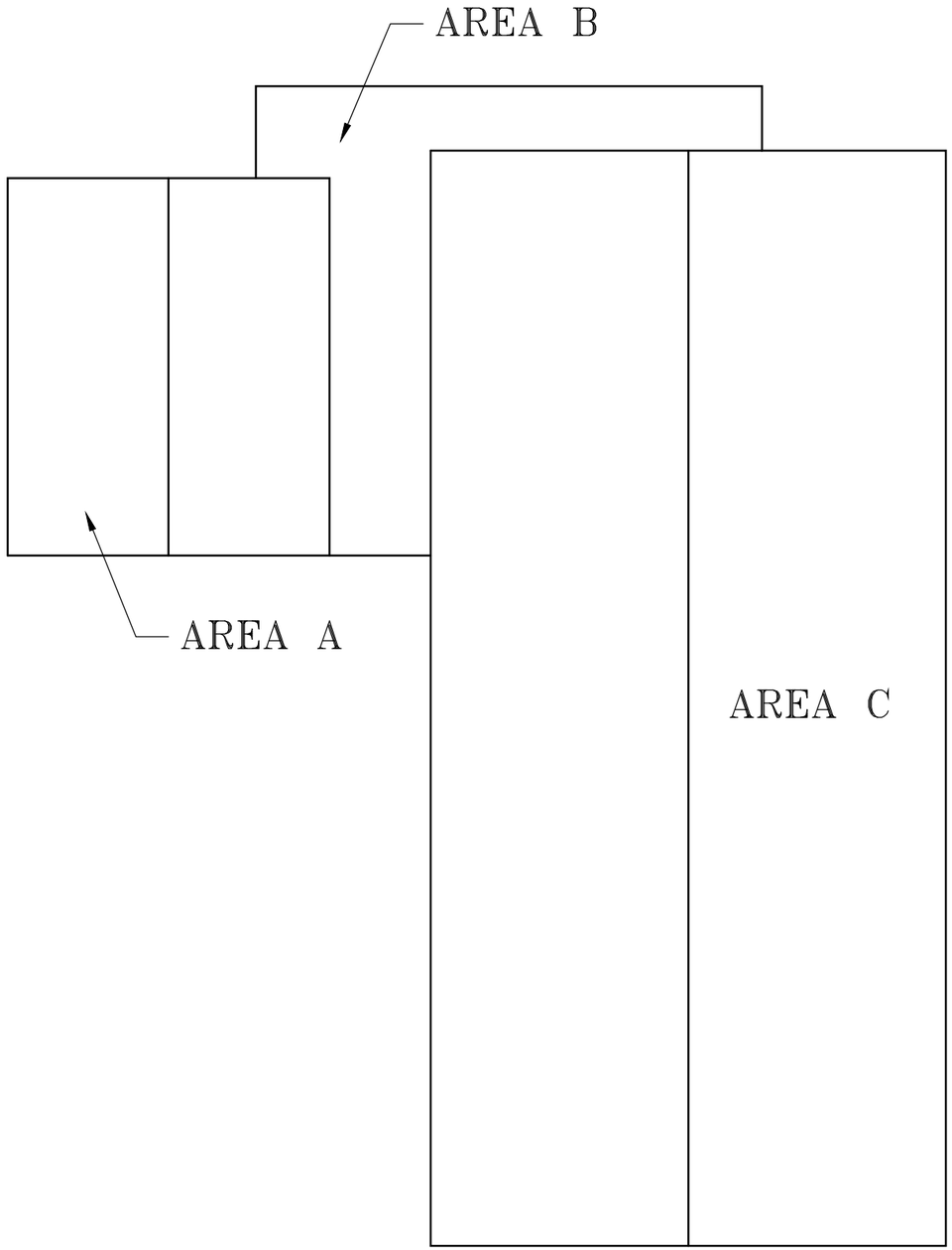
Area H: Loose seams

Photo 20
Jenkins
February 2023

Area H: Repairs

TAB 9

TRANSPORTATION BUILDING



LEGEND

A area designation

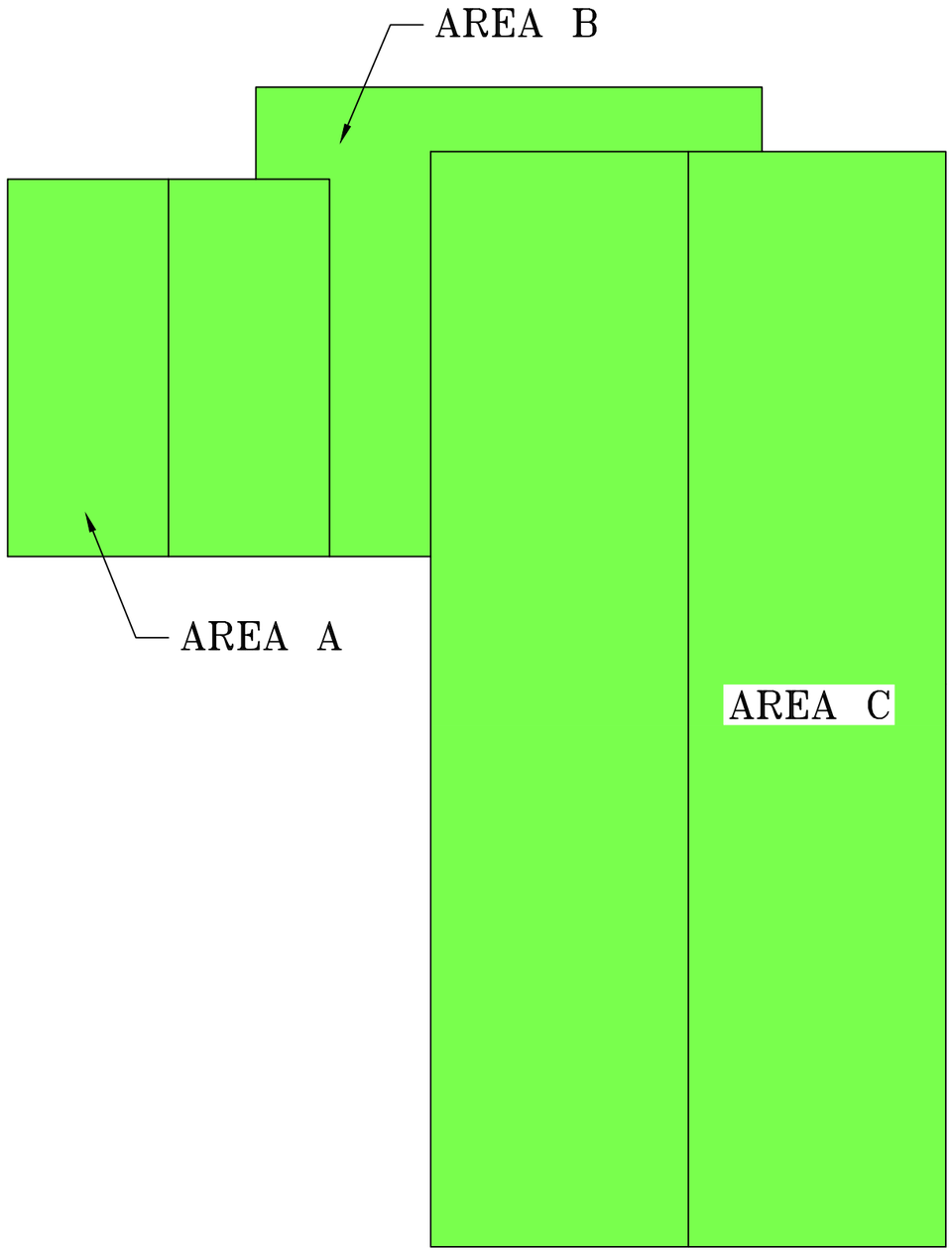
wet insulation areas

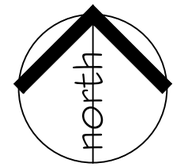
ROOFING TECHNOLOGY ASSOCIATES, LTD.
38031 SCHOOLCRAFT ROAD
LIVONIA, MICHIGAN 48150-1065
(734) 591-4444

ROOF MOISTURE PLAN

DEXTER COMMUNITY SCHOOLS
TRANSPORTATION BUILDING
7229 MARSHALL ROAD
DEXTER, MICHIGAN

Project No:	Drawn By:	Plate No:
22-106	JPW	8
Date: 12-7-22	Checked By: JJW	





LEGEND

A area designation

FAILING (5)

POOR (4)

FAIR (3)

GOOD (2)

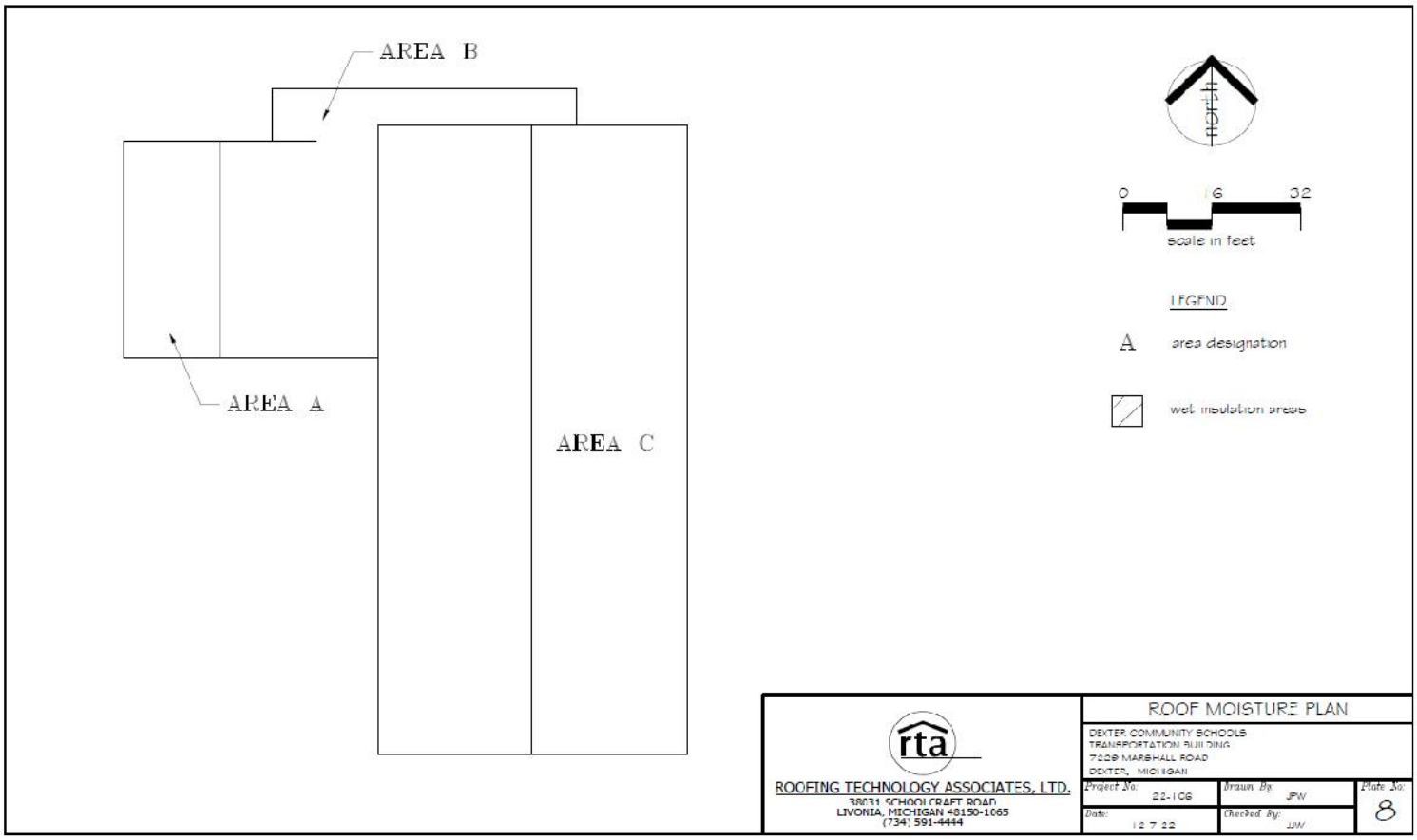
EXCELLENT (1)

ROOFING TECHNOLOGY ASSOCIATES, LTD.
38031 SCHOOLCRAFT ROAD
LIVONIA, MICHIGAN 48150-1065
(734) 591-4444

ROOF AREA PLAN

DEXTER COMMUNITY SCHOOLS
TRANSPORTATION BUILDING
7229 MARSHALL ROAD
DEXTER, MICHIGAN

Project No:	Drawn By:	Plate No:
22-106	JPW	8
Date: 12-7-22	Checked By: JJW	



Building	Roof ID	Roof Type	Size (SF)	Appr Yr Inst.	Age	Rating (1-5)	Est.Rem Life (Yrs)	Repl Est$	Comments	Maintenance
Transportation	A	Shingle	1,600	2012	11	2	6 to 9	$ 33,600		
Transportation	B	EPDM - Fully Adh	900	2012	11	2	6 to 9	$ 18,900	Vegetation impeding drainage	Clear roof of debris. Clean drains
Transportation	C	Mtl-Stand Seam	6,700	1998	25	2	6 to 9	$ 140,700	Rusted fasteners. Deteriorated sealant	Reseal penetration with deteriorated sealant

Photo 1
Transportation
February 2023

Transportation Building Aerial View

Photo 2
Transportation
February 2023

Area A: Overview

Photo 3
Transportation
February 2023

Area A: Overview

Photo 4
Transportation
February 2023

Area A: Overview

Photo 5
Transportation
February 2023

Area B: Overview

Photo 6
Transportation
February 2023

Area B: Vegetation impeding drainage

Photo 7
Transportation
February 2023

Area C: Overview

Photo 8
Transportation
February 2023

Area C: Overview

Photo 9
Transportation
February 2023

Area C: Overview

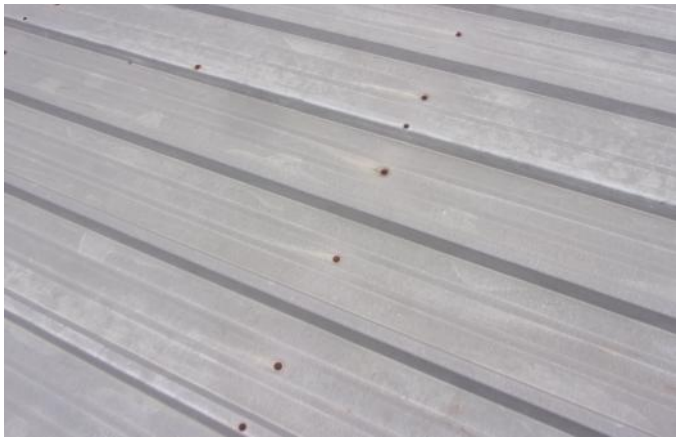


Photo 10
Transportation
February 2023

Area C: Rusted fasteners

Photo 11
Transportation
February 2023

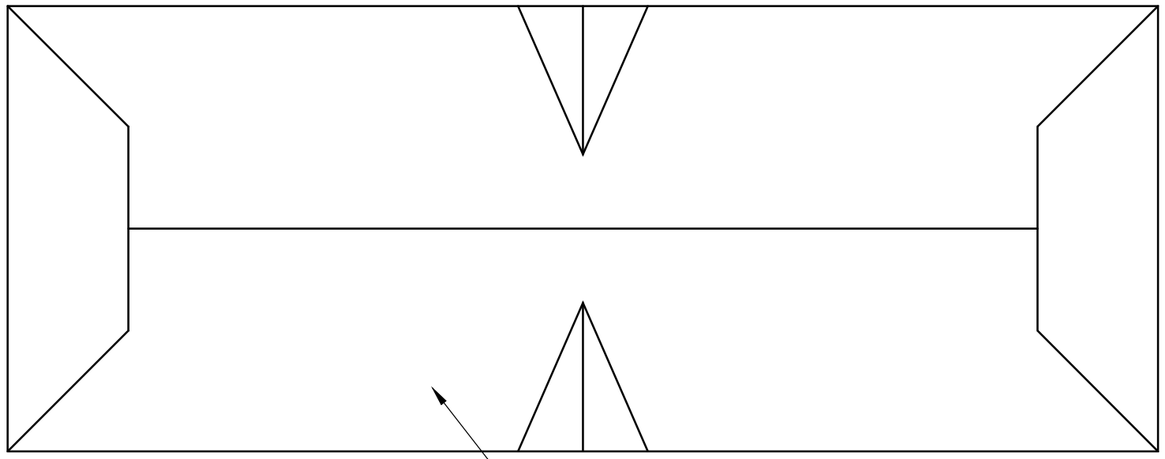
Area C: Deteriorated sealant

Photo 12
Transportation
February 2023

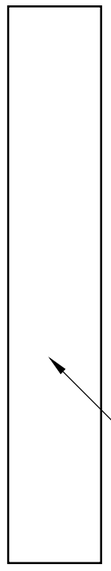
Area C: Rusted fasteners

TAB 10

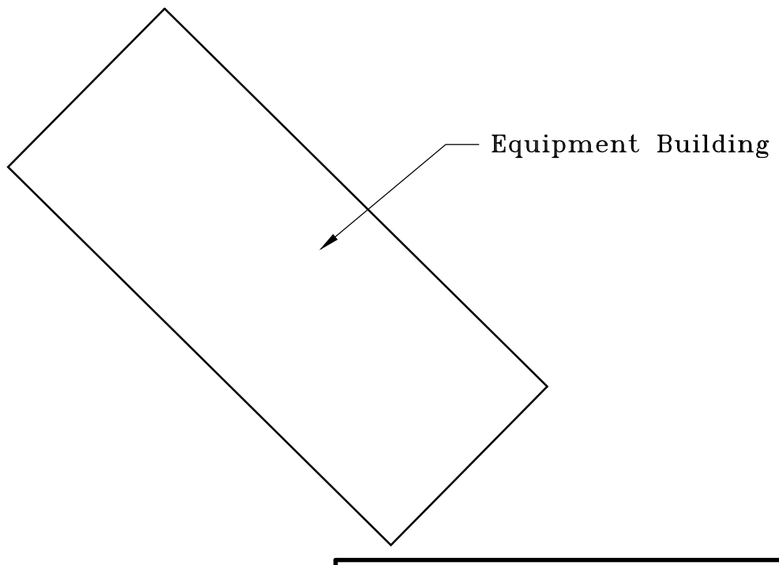
AL RITT STADIUM BUILDINGS



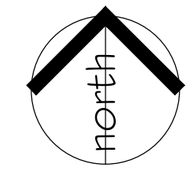
Concession Building

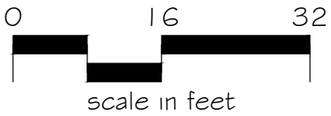


Press Box



Equipment Building

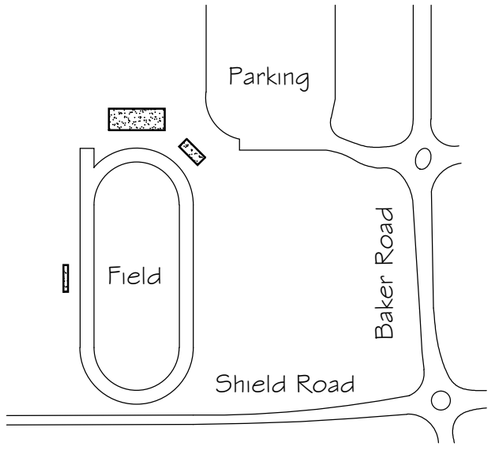




LEGEND

A area designation

wet insulation areas



KEY PLAN

not to scale

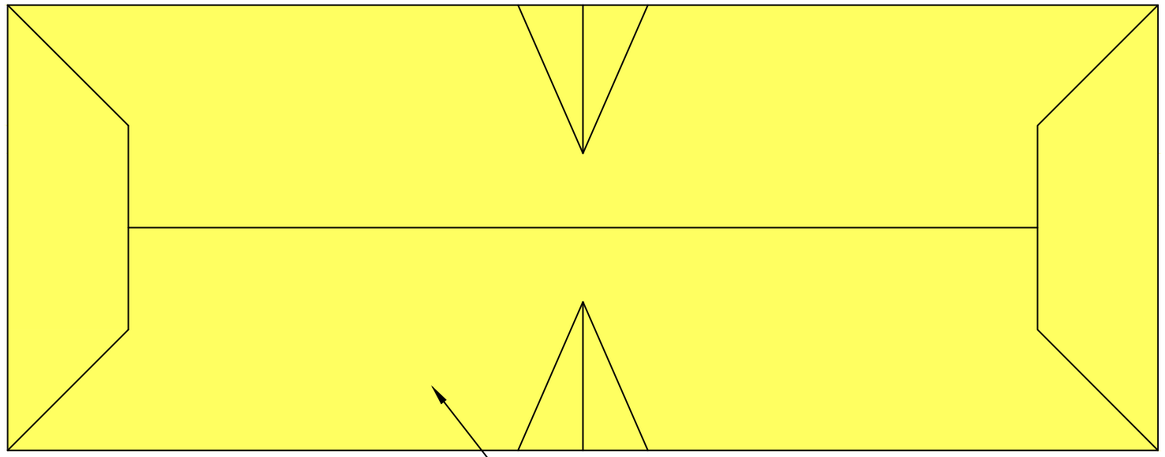
rta

ROOFING TECHNOLOGY ASSOCIATES, LTD.
38031 SCHOOLCRAFT ROAD
LIVONIA, MICHIGAN 48150-1065
(734) 591-4444

ROOF MOISTURE PLAN

DEXTER COMMUNITY SCHOOLS
AL RITT ATHLETIC FIELD
2521 BAKER ROAD
DEXTER, MICHIGAN

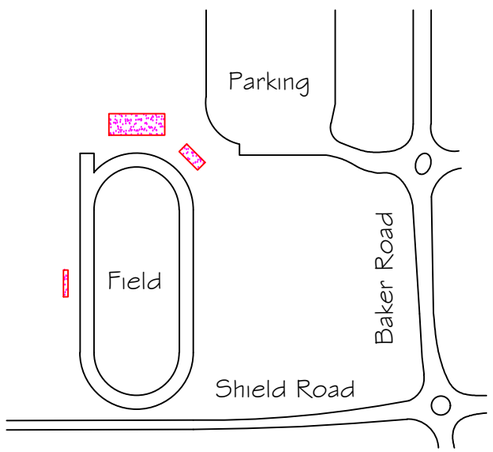
Project No:	Drawn By:	Plate No:
22-106	JDS	9
Date: 3-27-23	Checked By: JJW	



Concession Building

Press Box

Equipment Building



KEY PLAN

not to scale

north

0 16 32

scale in feet

LEGEND

A area designation

FAILING (5)

POOR (4)

FAIR (3)

GOOD (2)

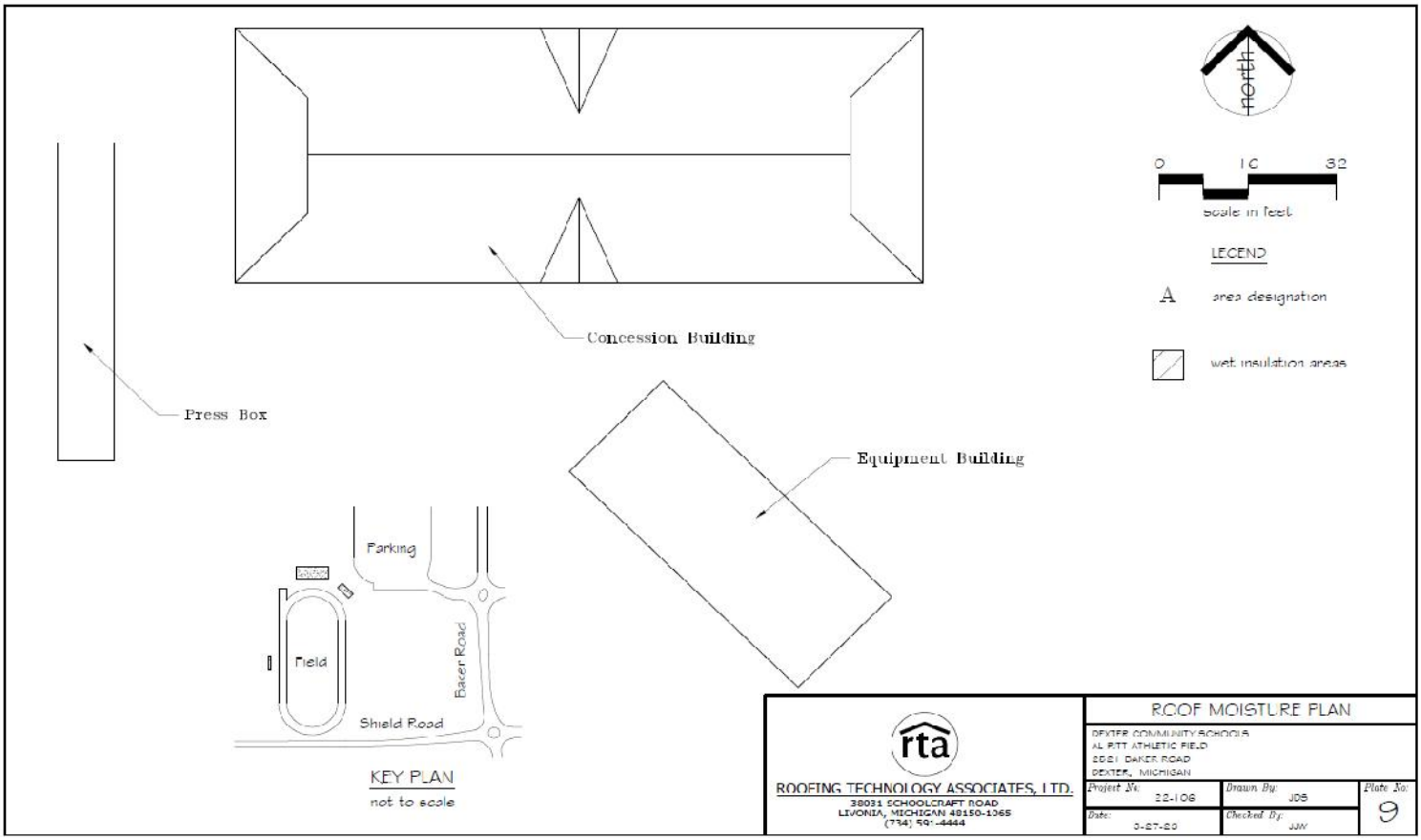
EXCELLENT (1)

ROOFING TECHNOLOGY ASSOCIATES, LTD.
38031 SCHOOLCRAFT ROAD
LIVONIA, MICHIGAN 48150-1065
(734) 591-4444

ROOF AREA PLAN

DEXTER COMMUNITY SCHOOLS
AL RITT ATHLETIC FIELD
2521 BAKER ROAD
DEXTER, MICHIGAN

Project No:	Drawn By:	Plate No:
22-106	JDS	9
Date: 3-27-23	Checked By: JJW	



Building	Roof ID	Roof Type	Size (SF)	Appr Yr Inst.	Age	Rating (1-5)	Est.Rem Life (Yrs)	Repl Est$	Comments	Maintenance
Al Ritt	Cncsn	Shingle	6,000	2011	12	3	3 to 5	$ 126,000	Exposed fasteners. Nail pops	Drive nails flat. Caulk seal exposed fasteners
Al Ritt	Equip	EPDM - Fully Adh	1,400	1998	25	5	0	$ 29,400	Loose seams. Damaged fascia board	Seal loose seams. Schedule for replacement
Al Ritt	Press	Coating	600	2011	12	3	3 to 5	$ 12,600	Improperly flashed penetrations	

Photo 1
Al Ritt Field
February 2023

Al Ritt Field Aerial View

Photo 2
Al Ritt Field
February 2023

Press Box Roof: Overview

Photo 3
Al Ritt Field
February 2023

Press Box Roof: Surface worn coating

Photo 4
Al Ritt Field
February 2023

Press Box Roof: Improperly flashed penetrations

Photo 5
Al Ritt Field
February 2023

Concession Building: Overview

Photo 6
Al Ritt Field
February 2023

Concession Building: Overview

Photo 7
Al Ritt Field
February 2023

Concession Building: Overview

Photo 8
Al Ritt Field
February 2023

Concession Building: Mineral granules in gutter

Photo 9
Al Ritt Field
February 2023

Concession Building: Exposed fastener - nail pop

Photo 10
Al Ritt Field
February 2023

Concession Building: Exposed fastener - nail pop

Photo 11
Al Ritt Field
February 2023

Concession Building: Exposed nails without caulk sealant

Photo 12
Al Ritt Field
February 2023

Equipment Building: Overview

Photo 13
Al Ritt Field
February 2023

Equipment Building: Overview

Photo 14
Al Ritt Field
February 2023

Equipment Building: Loose seams

Photo 15
Al Ritt Field
February 2023

Equipment Building: Loose seams

Photo 16
Al Ritt Field
February 2023

Equipment Building: Damaged fascia board