Berlin-Boylston Regional School District

Aaron Osborne, MBA, MCPPO, Director of Finance & Operations
215 Main Street, Boylston, MA 01505
508-869-2837 aosborne@bbrsd.org

Date: November 10, 2025
From: Aaron Osborne, Director of Finance & Operations
To: The Berlin-Boylston Regional School Committee
Re: Boylston Elementary Roof Project

At its October 14, 2025 meeting, the Town of Boylston Select Board voted to move forward with the Boylston Elementary School roof project in the full estimated amount of $4,113,068. Roughly half of that amount would be covered by the Massachusetts School Building Authority (MSBA) through it's Accelerated Repair Program (ARP) with the remaining amount to be financed through a debt exclusion override.

At that meeting, the Select Board expressed interest in the School Committee voting to support this project cost as well; I agreed to bring this to the next available meeting. The current options (Alternates) are as follows:

Boylston Elementary School Roof Alternates

Base Scope: Roofs A,D,E,F,G,H, I & J Construction Cost:	**$1,440,310**
Alternate #1: Add Roof B	**$1,225,217**
Total Construction Cost w/Alternate #1:	**$2,665,527**
Add Alternate #1 and Base Scope:	**$2,582,908**
Alternate #2: Add Roof C	**$768,867**
Total Construction Cost w/Alternate #1&2:	**$3,351,774**
Alternate #1, 2 and Base Scope:	**$3,351,774**
Alternate #3: Add Roofs K, L, M, N, O	**$761,294**
Total Construction Cost w/Alternate #1,2&3:	**$4,113,068**

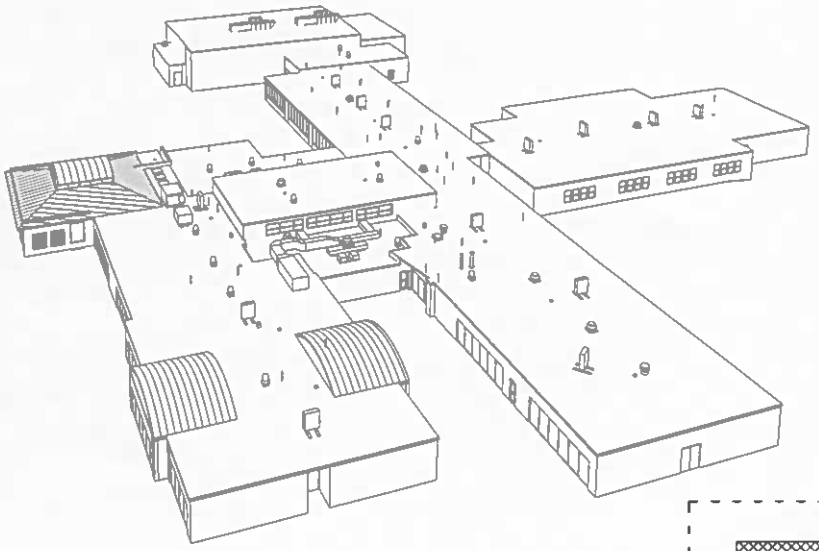
Attached, you will find multiple documents, including the schematic of each of the Alternates above, the Estimate on which the Alternates are based, and the Design submission Report from the Architects.

Recommendation: That the Berlin-Boylston Regional School Committee votes to confirm its intent to pursue the proposed full Boylston Elementary School roof project through MSBA in a total estimated cost of $4,113,068 in conjunction with the October 14, 2025 affirmative vote of the Town of Boylston Select Board.

The Berlin-Boylston Regional Public Schools do not discriminate on the basis of age, race, color, national origin, ancestry, sex, sexual orientation, gender identity, religion, creed, disability, veteran status, genetic information, homelessness or any other class protected by state or federal law.

BOYLSTON ELEMENTARY SCHOOL ROOF RENOVATION

200 SEWALL STREET, BOYLSTON, MA 01505



PROJECT TEAM

OWNERS PROJECT MANAGER

WATERMARK
285 BILLERICA ROAD
CHELMSFORD, MA 01824

ARCHITECT

MATZ COLLABORATIVE ARCHITECTS INC.
50 SPEEN STREET, SUITE 300
FRAMINGHAM, MA 01701

DRAWING LIST

ARCHITECTURAL

G100 - COVER SHEET
G101 - EXISTING PLAN, AREAS & CODE INFO
G102 - ROOF TYPES AND ABBREVIATIONS
D100 - ROOF DEMOLITION PLAN
A100 - FIRST ROOF PLAN ACCESSIBILITY UPGRADES
A101 - ROOF PARTIAL PLAN PART 1
A102 - ROOF PARTIAL PLAN PART 2 & 3
A103 - PARTIAL ELEVATIONS
A500 - TYPICAL ROOF DETAILS
A501 - ROOF DETAILS

GENERAL NOTES:

BASE WORK SCOPE:
AT ROOF AREAS A, D, E, F, G, H, J REMOVE EXISTING EPDM ROOF & INSULATION SYSTEMS DOWN TO STRUCTURAL DECK AND INSTALL NEW 60 MIL (ACTUAL) PVC ROOF MEMBRANE ON POLYISO COVERBOARD AND INSULATION OVER SELF ADHERED VAPOR BARRIER. NEW EXPOSED ROOF METAL FLASHING TO BE PVC CLAD GALVANIZED STEEL. REMOVE AND REPLACE ALL METAL STANDING SEAM ROOFING AND EDGE FLASHING WITH NEW 60 MIL (ACTUAL) PVC FLEECE BACK MEMBRANE ROOFING SYSTEM. COLOR: PATINA GREEN WITH FAUX STANDING SEAMS (SIMILAR APPEARANCE TO EXISTING METAL). ALL EXISTING THROUGH-WALL MASONRY FLASHING TO REMAIN
REMOVE EXISTING CAFETERIA EXTERIOR WALL FINISHES AND REPLACE WITH NEW PATINA GREEN PVC FLEECE BACK MEMBRANE ROOFING SYSTEM, MECHANICALLY FASTENED OVER 2" POLYISO INSULATION
ALL ROOF SYSTEMS TO BE INSTALLED WITH NEW 20 YEAR WARRANTY AND RATED FOR RISK CATEGORY III

ALTERNATES

ALTERNATE #1:

IN ADDITION TO THE ABOVE BASE SCOPE WORK, REMOVE EXISTING EPDM ROOF & INSULATION SYSTEMS DOWN TO STRUCTURAL DECK AND INSTALL NEW 60 MIL PVC ROOF MEMBRANE SYSTEM (TYPICAL) AT ROOF AREA B

ALTERNATE #2:

IN ADDITION TO THE ABOVE BASE SCOPE WORK AND ALTERNATE #1 REMOVE EXISTING EPDM ROOF & INSULATION SYSTEMS DOWN TO STRUCTURAL DECK AND INSTALL NEW 60 MIL PVC ROOF MEMBRANE SYSTEM (TYPICAL) AT ROOF AREA C

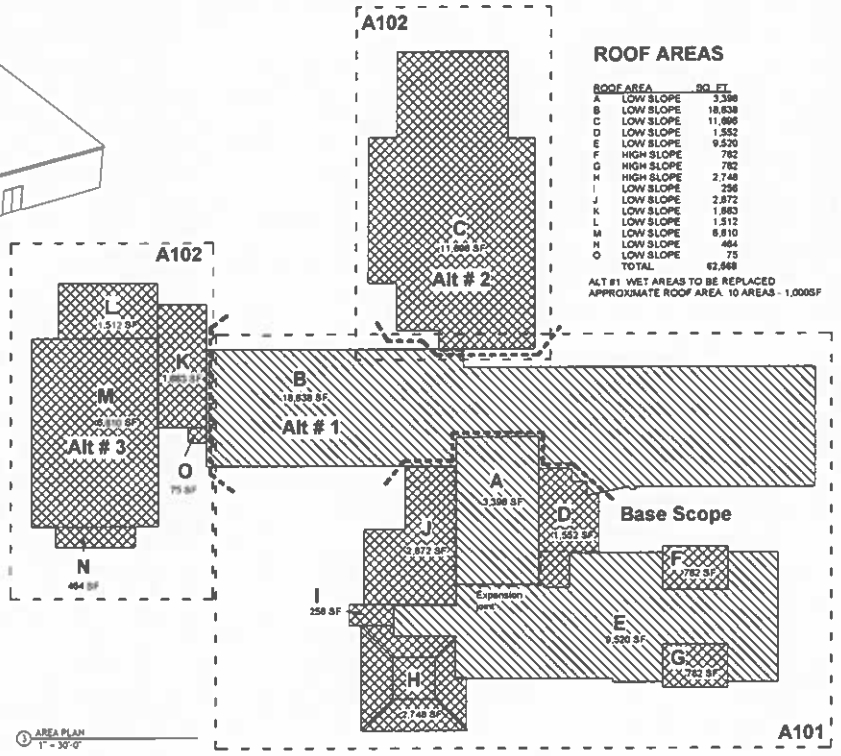
ALTERNATE #3:

IN ADDITION TO THE ABOVE BASE SCOPE WORK, ALTERNATE #1 AND ALTERNATE #2, REMOVE EXISTING EPDM ROOF & INSULATION SYSTEMS DOWN TO STRUCTURAL DECK AND INSTALL NEW 60 MIL PVC ROOF MEMBRANE SYSTEM (TYPICAL) AT ROOF AREA K, L, M, N AND O. ALL ROOFS TO BE REPLACED

ROOF AREAS

ROOF AREA		SQ. FT.
A	LOW SLOPE	3,398
B	LOW SLOPE	18,638
C	LOW SLOPE	11,606
D	LOW SLOPE	1,552
E	LOW SLOPE	9,520
F	HIGH SLOPE	782
G	HIGH SLOPE	782
H	HIGH SLOPE	2,748
I	LOW SLOPE	256
J	LOW SLOPE	2,872
K	LOW SLOPE	1,663
L	LOW SLOPE	1,512
M	LOW SLOPE	6,810
N	LOW SLOPE	464
O	LOW SLOPE	75
	TOTAL	62,648

ALT #1 WET AREAS TO BE REPLACED
APPROXIMATE ROOF AREA: 10 AREAS - 1,000SF



1 AREA PLAN
1" = 30'-0"

SCHEMATIC DESIGN

Plotted on: 9/4/2025 1:35:53 PM

MATZ
COLLABORATIVE ARCHITECTS
50 SPEEN STREET, SUITE 300
FRAMINGHAM, MA 01701

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Client
Massachusetts School Building Authority

Consultant

Project
Boylston Elementary School Roof Renovation

Location:
200 Sewall Street, Boylston, MA 01505

MCA Project #:
Project Number

Stamp

Document shall not be used for construction or to obtain building permits without stamp and signature.

Revisions

No.	Date	Reason

Drawing
Cover Sheet

Scale: As indicated
Date: 9/4/25
Sheet
G100

TROPHY POINT

a YA GROUP company

SCHEMATIC DESIGN ESTIMATE

BOYLSTON ELEMENTARY SCHOOL ROOF RENO
MASSACHUSETTS BUILDING AUTHORITY

BOYLSTON, MASSACHUSETTS

PREPARED FOR:
MATZ COLLABORATIVE ARCHITECTS

PROJECT NO: TR-20250322

MATZ PROJECT NO: MSBA 2024 ARP

August 26, 2025
(Revision 1.2)

R. L. Young, LLC dba Trophy Point
Construction Services & Consulting

WWW.TROPHYPOINT.COM

PROJECT SUMMARY			TOTAL COST
RENOVATION		$	4,113,068
TOTAL PROJECT CONSTRUCTION COST		$	4,113,068
ALTERNATES			
ALT #1 - NEW MEMBRANE ROOF OVER EXISTING INSULATION	**DEDUCT**	$	(572,427)
ALT #2 - METAL ROOF REPLACEMENT IN LIEU OF PVC	**ADD**	$	77,090
TOTAL PROJECT CONSTRUCTION COST WITH ALTERNATES		$	3,617,731

ESTIMATE NOTES / ASSUMPTIONS / CLARIFICATIONS

- BASED ON DESIGN TEAM PACKAGE DATED 07/16/2025, RECEIVED ON 07/28/2025.
- MASSACHUSETTS STATE PREVAILING WAGE RATES FOR WORCESTER COUNTY.
- CONSTRUCTION START MAY 2026; COMPLETION SEPTEMBER 2026; MID-POINT JULY 2026.
- NORMAL WORKING HOURS AND CONDITIONS; EXCLUDES ANY PREMIUMS FOR A CONDENSED CONSTRUCTION SCHEDULE.
- SINGLE PRIME CONTRACT (COMPETITIVELY BID).
- PREMISES TO BE OCCUPIED DURING CONSTRUCTION.
- ENTIRE PROJECT BID AT ONE TIME.

EXCLUSIONS:

- SOFT COSTS (DESIGN FEES, ETC.)
- CONSTRUCTION CONTINGENCY (OWNER CHANGE ORDER RESERVE)
- CONSTRUCTION MANAGER FEES, MARKUPS OR GENERAL CONDITIONS
- PROJECT LABOR AGREEMENTS
- ASBESTOS AND HAZARDOUS MATERIALS ABATEMENT (IF APPLICABLE)
- PLUMBING, FIRE PROTECTION, HVAC AND ELECTRICAL COSTS

Note: This estimate represents a reasonable opinion of cost based on several public and proprietary sources of information. It is not a prediction of the successful bid from a contractor as bids will vary due to fluctuating market conditions, errors and omissions, proprietary specifications, lack of surplus bidders, perception of risk, and so on. Consequently, this estimate is expected to fall within the range of bids from multiple competitive contractors or subcontractors. However, we do not warrant that bids or negotiated prices will not vary from the final construction cost estimate.

RENOVATION SUMMARY

SUMMARY		TOTAL MATERIAL	TOTAL LABOR	TOTAL COST	% OF TOTAL	BLDG $ / GSF
DIVISION 2 - DEMOLITION		$73,957	$140,744	$214,701	5.22%	$3.33
DIVISION 5 - METALS		$3,800	$2,005	$5,805	0.14%	$0.09
DIVISION 6 - WOOD AND PLASTICS		$4,976	$8,744	$13,719	0.33%	$0.21
DIVISION 7 - THERMAL & MOISTURE PROTECTION		$1,124,771	$1,249,122	$2,373,893	57.72%	$36.79
DIVISION 8 - OPENINGS		$16,800	$10,146	$26,946	0.66%	$0.42
DIVISION 23 - HVAC		$11,430	$21,976	$33,406	0.81%	$0.52
DIVISION 26 - ELECTRICAL		$5,820	$16,592	$22,412	0.54%	$0.35
SUB-TOTAL		$1,241,554	$1,449,328	$2,690,882	65.42%	$41.70
GENERAL CONDITIONS	10.0%			$269,088	6.54%	$4.17
OVERHEAD AND PROFIT	10.0%			$295,997	7.20%	$4.59
DESIGN CONTINGENCY	10.0%			$325,597	7.92%	$5.05
BID CONTINGENCY	10.0%			$358,156	8.71%	$5.55
ESCALATION (TO MID-POINT JUL-2026)	4.4%			$173,348	4.21%	$2.69
TOTAL - RENOVATION SUMMARY	**64,527 GSF**			**$4,113,068**	**100.00%**	**$63.74**

RENOVATION DETAIL

DESCRIPTION	QUANTITY	MATERIAL UNIT PRICE	MATERIAL TOTAL	LABOR UNIT PRICE	LABOR TOTAL	TOTAL
DIVISION 2 - DEMOLITION						
WALLS						
Remove siding	1,722 SF	$0.25	$431	$3.11	$5,355	$5,786
ROOFING						
Remove EPDM roofing membrane including flashings, copings and dispose	58,256 SF	$1.14	$66,412	$2.11	$122,920	$189,332
Remove metal roofing, underlayment and insulation to steel deck	4312 SF	$1.65	$7,115	$2.68	$11,556	$18,671
Remove scupper	3 EA	$0.00	$0	$114.00	$342	$342
Remove skylight, curb and flashing	3 EA	$0.00	$0	$114.00	$342	$342
Salvage roof hatch	1 EA	$0.00	$0	$228.00	$228	$228
TOTAL DIVISION 2 - DEMOLITION			**$73,957**		**$140,744**	**$214,701**
DIVISION 5 - METALS						
METAL FABRICATIONS						
Painted wall mounted ladder to roof hatch	14 VLF	$95.00	$1,330	$85.50	$1,197	$2,527
Wall mounted galvanized ladder - 3'	1 EA	$570.00	$570	$186.57	$187	$757
Wall mounted galvanized ladder - 5'	2 EA	$950.00	$1,900	$310.95	$622	$2,522
TOTAL DIVISION 5 - METALS			**$3,800**		**$2,005**	**$5,805**
DIVISION 6 - WOOD AND PLASTICS						
ROUGH CARPENTRY						
New mechanical support sleepers - 4' x 4'	105 LF	$2.16	$227	$4.56	$479	$706
2" x 6" pressure treated roof edge blocking	3,625 LF	$1.31	$4,749	$2.28	$8,265	$13,014
TOTAL DIVISION 6 - WOOD AND PLASTICS			**$4,976**		**$8,744**	**$13,719**

RENOVATION DETAIL

DESCRIPTION	QUANTITY	MATERIAL UNIT PRICE	MATERIAL TOTAL	LABOR UNIT PRICE	LABOR TOTAL	TOTAL
DIVISION 7 - THERMAL & MOISTURE PROTECTION						
ROOFING						
Tapered rigid insulation and single ply adhered PVC roofing (entire system with flashings, drains and sumps)	58,256 SF	$17.00	$990,352	$19.08	$1,111,524	$2,101,876
New felt backed PVC membrane roof with faux stand seams over coverboard on 5.5" polyiso insulation and vapor barrier	4312 SF	$18.50	$79,772	$19.08	$82,273	$162,045
Flash and membrane wrap mechanical sleepers	105 LF	$34.00	$3,570	$38.16	$4,007	$7,577
New roof scuppers	2 EA	$180.00	$360	$112.96	$226	$586
Roof expansion joint	182 LF	$65.00	$11,830	$15.79	$2,874	$14,704
Install salvaged roof hatch	1 EA	$25.00	$25	$228.00	$228	$253
New downspouts	68 LF	$5.50	$374	$4.23	$288	$662
EXTERIOR WALL SYSTEMS						
Single ply adhered PVC membrane, recovery board, 2.5" polyiso insultion and vapor barrier over existing sheathing - vertical application	1,959 SF	$18.00	$35,262	$19.08	$37,378	$72,640
WATERPROOFING						
Caulking and sealants	64,527 SF	$0.05	$3,226	$0.16	$10,324	$13,551
TOTAL DIVISION 7 - THERMAL & MOISTURE PROTECTION			**$1,124,771**		**$1,249,122**	**$2,373,893**
DIVISION 8 - OPENINGS						
EXTERIOR DOORS AND WINDOWS						
New skylight - 36" x 36" curb mount low-e glazed	3 EA	$1,200.00	$3,600	$342.00	$1,026	$4,626
INTERIOR DOORS AND WINDOWS						
Renovate openings for new power door openers	4 EA	$3,300.00	$13,200	$2,280.00	$9,120	$22,320
TOTAL DIVISION 8 - OPENINGS			**$16,800**		**$10,146**	**$26,946**

RENOVATION DETAIL

DESCRIPTION	QUANTITY	MATERIAL UNIT PRICE	MATERIAL TOTAL	LABOR UNIT PRICE	LABOR TOTAL	TOTAL
DIVISION 23 - HVAC						
DEMOLITION						
Remove duct insulation and waterproofing	1,524 SF	$0.00	$0	$0.86	$1,311	$1,311
INSULATION						
Exterior duct insulation and weatherproofing	1,524 SF	$7.50	$11,430	$13.56	$20,665	$32,095
TOTAL DIVISION 23 - HVAC			**$11,430**		**$21,976**	**$33,406**
DIVISION 26 - ELECTRICAL						
DEMOLITION						
Disconnect and remove existing light fixture - salvage for re-use	2 EA	$10.00	$20	$241.50	$483	$503
LIGHTING						
Clean and reinstall salvaged exterior light fixture - provide mc whip and connection to existing circuit	2 EA	$25.00	$50	$201.25	$403	$453
EQUIPMENT CONNECTIONS						
Automatic door operator and controls connection including means of disconnect, conduit, and circuiting back to source power panel	4 EA	$1,250.00	$5,000	$3,864.00	$15,456	$20,456
MISCELLANEOUS						
Cutting, patching and firestopping	1 LS	$250.00	$250	$250.00	$250	$500
Lift Rental	1 LS	$500.00	$500	$0.00	$0	$500
TOTAL DIVISION 26 - ELECTRICAL			**$5,820**		**$16,592**	**$22,412**

ALTERNATE #1

DESCRIPTION	QUANTITY	MATERIAL UNIT PRICE	MATERIAL TOTAL	LABOR UNIT PRICE	LABOR TOTAL	TOTAL
ALT #1 - NEW MEMBRANE ROOF OVER EXISTING INSULATION						
GENERAL CONSTRUCTION						
DEDUCT						
Remove roof insulation to deck and dispose	-62,568 SF	$0.41	($25,653)	$0.57	($35,664)	($61,317)
New roof insulation - 6"	-62,568 SF	$3.74	($234,004)	$1.25	($78,210)	($312,214)
2" x 6" pressure treated roof edge blocking	-2,084 LF	$1.31	($2,730)	$2.28	($4,752)	($7,482)
ADD						
Remove select areas of roof insulation to deck and dispose	1,000 SF	$0.61	$610	$0.77	$770	$1,380
Remove 4' x 4' insulation at sump locations	176 SF	$0.61	$107	$0.77	$136	$243
Replace select areas with new roof insulation - 4"	1,176 SF	$2.36	$2,775	$1.80	$2,117	$4,892
(roof membrane and coverboard are in base bid)						
SUB-TOTAL			($258,895)		($115,603)	($374,497)
GENERAL CONDITIONS	10.0%					($37,450)
OVERHEAD AND PROFIT	10.0%					($41,195)
DESIGN CONTINGENCY	10.0%					($45,314)
BID CONTINGENCY	10.0%					($49,846)
ESCALATION (TO MID-POINT JUL-2026)	4.4%					($24,125)
TOTAL ALT #1 - NEW MEMBRANE ROOF OVER EXISTING INSULATION						**($572,427)**

ALTERNATE #2

DESCRIPTION	QUANTITY	MATERIAL UNIT PRICE	MATERIAL TOTAL	LABOR UNIT PRICE	LABOR TOTAL	TOTAL
ALT #2 - METAL ROOF REPLACEMENT IN LIEU OF PVC						
GENERAL CONSTRUCTION						
DEDUCT						
New felt backed PVC membrane roof with faux stand seams over coverboard on 5.5" polyiso insulation and vapor barrier	-4312 SF	$17.00	($73,304)	$19.08	($82,273)	($155,577)
ADD						
ROOFING						
Curved prefinished aluminum standing seam roofing system over coverboard on 5.5" polyiso insulation and vapor barrier	4312 SF	$22.80	$98,314	$19.50	$84,084	$182,398
Aluminum trims, flashing and counter flashing	463 LF	$21.00	$9,723	$16.91	$7,829	$17,552
New Aluminum Gutter	354 LF	$6.56	$2,322	$9.27	$3,282	$5,604
Remove and re-attach existing downspouts to new gutter	15 EA	$2.00	$30	$28.50	$428	$458
SUB-TOTAL			$37,085		$13,349	$50,434
GENERAL CONDITIONS	10.0%					$5,043
OVERHEAD AND PROFIT	10.0%					$5,548
DESIGN CONTINGENCY	10.0%					$6,103
BID CONTINGENCY	10.0%					$6,713
ESCALATION (TO MID-POINT JUL-2026)	4.4%					$3,249
TOTAL ALT #2 - METAL ROOF REPLACEMENT IN LIEU OF PVC						**$77,090**

7/31/2025

Boylston Elementary School Schematic Design Submission Report - DRAFT

Boylston Elementary School 200 Sewall Street, Boylston, MA 01505
Massachusetts School Building Authority
Project #: ----

Prepared For:
Berlin-Boylston Regional School District
Watermark
Massachusetts School Building Authority

Prepared By:
Matz Collaborative Architects
50 Speen St,
Framingham, MA 01701

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Section 1 – Summary

The Need

As part of MSBA's Accelerated Repair Program, Berlin-Boylston Regional School District requested that Matz Collaborative Architects, and our consultants investigate and evaluate the existing aged roofs of the Boylston Elementary School. MCA and our consultants reviewed documents provided by Watermark, visited the building and investigated these elements to address concerns and determine the need and proper scope for repairs or replacement of the existing roofing. The school has been concerned about possible roof failure and due to the age of the roofing, and the appearance peeling paint on the metal roof systems. Berlin-Boylston Regional School District requested that the team make assessments and propose a long term, weather tight roofing solution. MCA and our consultant team were asked to provide an evaluation of the existing roofing systems, flashings, roof penetrations, connections, and flashing details at the differing roofing material intersections.

The Findings

Matz Collaborative Architects, and our consultants, met with the Berlin-Boylston Regional School District facilities staff and visited the site to review existing conditions, code implications, and scope of work to be included in this study. The following is a summary of our findings:

- The existing roofing materials vary but were all installed over 20 years ago and exhibit visible signs of age and wear and appear to be at the end of their useful life expectancy, presenting a risk of failure.
- The age and deterioration of the roof membranes and insulation has begun to create ponding in small areas. Further deterioration of the roof membrane will create more ponding which will compound over time.
- The metal standing seam roofing system paint finish has begun to fail, exposing bare steel which will continue to rust over time.
- There is leaking reported at the cafeteria exterior West wall near the North window jamb. The wall between the main roof and cafeteria roof is about six feet high with metal panel siding and problematic metal and membrane flashing details that include exposed fasteners and gaps relying on failed sealant joints.
- Many mechanical components like condenser units and ductwork rest on wood sleepers directly bearing on the EPDM roof

The Recommendation

The team has reviewed options for addressing the existing Boylston Elementary School roof conditions. Each option provides for the continuation of use of the Building during the work, see Appendix E, and cost estimates. The consensus solution, Option One, replaces the existing roof mainly with a fully adhered 60 mil white PVC roof membrane system mechanically fastened to the existing structural deck and that PVC walk pads be installed at paths to mechanical access points.

A benefit to replacing the roof is that new insulation can be installed to meet the current energy code requirements and a new white roof will significantly reduce the building's air conditioning load.

Section 2 – Existing Conditions Investigation

Matz Collaborative Architects investigated the existing conditions of the Boylston Elementary School roof at 200 Sewall Street, Boylston, MA. The team performed an investigation of the problem on April 23, 2025, and again on June 13, 2025, including observing, measuring, and photographing the existing conditions. Matz Collaborative Architects has compiled and analyzed the results of this investigation to determine possible options and a recommendation for remediation.

Boylston Elementary School Basic data

Year of original construction	1955
Year(s) of recent renovations	1999
Building occupancy type	E
Building square footage	62,568 SF
Building use/occupancy	Use Group E: Educational and Assembly Spaces:
Current Building Value	$ 10,478,900.00

Investigation Findings

Boylston Elementary School was originally constructed in 1955 and was renovated and enlarged in 1999. It contains mostly classrooms, gymnasium, faculty offices and common spaces on one level. The roof has multiple levels, penthouses and both EPDM membrane and standing seam metal roofing systems with mostly internal roof drainage system. The membrane roof assembly consists of single ply EPDM (rubber) membrane adhered to mechanically fastened polyisocyanurate insulation over a steel deck at the 1999 areas and a wood deck at the 1955 areas. The structure typically pitches to the roof interior so the insulation is flat with various tapered insulation crickets water diverting to the roof drains. The gymnasium buildings have gutters and scuppers to perimeter downspouts and the Media Center metal roof also has gutters to downspouts. Site surveys, exploratory openings, field verifications and a review of existing documents provided by Berlin-Boylston Regional School District have informed the existing conditions assessments contained herein. Hazardous material inspections, exploratory openings, and testing were also conducted; see report in Appendix C. MCA had Universal Environmental Consultants and a roofing contractor perform the hazardous materials evaluation during this study. Based on test cuts, the roof insulation thickness varies from 5" to 4" with no coverboard.

This report contains photos of existing conditions see attached in Appendix A, original construction drawings from 1999 and Matz Collaborative Architects schematic design drawings dated July 16, 2025 for summary of existing conditions.

The overall goal for this study is to provide Berlin-Boylston Regional School District with a plan for addressing a long term, weather tight solution to the Boylston Elementary School roof.

The following outlines the methodology of this study:

- Survey of the roofs, doors, skylights and rooftop mechanical & electrical equipment.
- Architectural Roof Plans and demolition plans with notes suitable for cost estimating.
- Options for metal roofs: replacement with new metal or PVC with decorative ribs

- Review the opportunities to reduce fossil fuel use by increasing insulation R values and the reflectiveness of roof to reduce air conditioning loads.
- Options for roofing materials to address the above concerns and meeting the schools budget requirements while providing a durable solution.

The following issues, due to the age and condition of the various roof areas, form the basis of our conclusions:

- Deterioration of the roof membrane and insulation which will create more ponding which will compound over time.
- Many wall/ roof flashing connections have deterioration which will further increase the risk of the roof systems failure and Building Damage.
- Mechanical equipment units are only accessible from the roof requiring that staff walk on the roof regularly to perform equipment maintenance. Therefore, a durable roofing system is necessary to withstand foot traffic.
- Wood sleepers directly bearing on the EPDM roof for condenser units and ductwork supports will eventually puncture the soft EPDM membrane and require a more durable detail

Our recommendation is basically that the entire roof should be replaced with a fully adhered PVC roof membrane system mechanically fastened to the existing structural slab, and that PVC walkpads be installed at paths to mechanical access points.

Section 3 – Code and Regulations Summary

The following is a summary of the essential requirements of the code review conducted for this project, describing the evaluation of the existing building in accordance with 780 CMR 34.00 (2021 International Existing Building Code with amendments) and the code compliance approach associated with the proposed work:

Introduction and Project Description

The proposed project entails roof replacement work and must conform to the requirements of the Tenth edition of the Massachusetts State Building Code CMR 780. As an existing building, 780 CMR references the 2021 IECC and the 2021 IECC energy code. It is understood that this project will not constitute a change of occupancy. All roof replacement work will take place on the exterior of the building and can be considered repairs, as defined in Chapter 2 IEBC 2021. Minimal amounts of work will take place inside the building – with the few exceptions of interior work being the installation of a new ladder to the roof, and possibly access for roof drain work and remedial repairs to damaged interior ceilings due to leaks.

Applicable Codes

Building Code 780 CMR 34.00 (2021)	☒ Applicable	☐ Not Applicable
Fire Protection	☐ Applicable	☒ Not Applicable
Plumbing	☒ Applicable	☐ Not Applicable
Electrical	☐ Applicable	☒ Not Applicable
Mechanical	☐ Applicable	☒ Not Applicable
Elevator	☐ Applicable	☐ Not Applicable
Hazardous Materials	☐ Applicable	☒ Not Applicable
Energy	☒ Applicable	☐ Not Applicable
Accessibility	☐ Applicable	☒ Not Applicable

Code Analysis

See below code analysis by MCA:

MA Building Code 780 CMR Chapter 34 (2021 International Existing Building Code with amendments)

IEBC DESIGN METHODOLOGY

As permitted under the 9th Edition MSBC, the proposed work must comply with the 2021 Edition of the International Existing Building Code (IEBC). The IEBC includes three (3) separate methods for compliance as defined in §301.1. The compliance methods include:

- Prescriptive Method
- Performance Method
- Work Area Method

Based on the proposed scope of work the compliance method will be the Work Area Method, in accordance with IEBC §301.1.2; projects following the Work Area method must comply with the applicable requirements of IEBC Chapters 5 through 13.

Work Area Method
Chapter 5 of the IEBC classifies the type and level of proposed work and must be used in conjunction with Chapters 6 through 13. The proposed scope of work is classified as a Repair in accordance with IEBC 502-502.3:
Repairs, as defined in Chapter 2, include the patching or restoration or replacement of damaged materials, elements, equipment or fixtures for the purpose of maintaining such components in good or sound condition with respect to existing loads or performance requirements.

IEBC Chapter 6 provides the provisions for Repair.
Work on nondamaged components that is necessary for the required repair of damaged components shall be considered part of the repair and shall not be subject to the provisions of Chapter 7, 8, 9, 10 or 11.

Summary of Classification of Work:
The proposed project entails the removal of the existing and the replacement of the entire Boylston Elementary School roof. All roof replacement work will take place on the exterior of the building and can be considered repairs, as defined in Chapter 2 IEBC 2021. Minimal amounts of work will take place inside the building – with the exceptions of interior work being routing of roof drains and any new mechanical or electrical work and possible remedial repairs to damaged interior ceilings due to leaks, and interior access needed to conduct associated roof work.
Given that the new membrane roof system will weigh 5 psf less than the existing roof system, additional structural reinforcing will not be required as per IEBC Chapter 6.
Per IEBC 2015, 706.1 Exception: Reroofing shall not be required to meet the minimum design slope requirement of one-quarter unit vertical in 12 units horizontal (2-percent slope) in Section 1507 of the International Building Code for roofs that provide positive roof drainage. The project required minimum slope is 1/8" per foot.

Fire Protection 780 CMR Chapter 9 (2021 International Existing Building Code with amendments; NFPA 72, 2017 Edition) No Fire Protection systems are affected by the scope of this project.

Plumbing 248 CMR
Roof Drains

Electrical 527 CMR 12.00
No electrical except two lights will be removed and reinstalled

Mechanical 780 CMR Chapter 28 (2021 International Existing Building Code with amendments)
All Mechanical equipment is to remain

Elevator 524 CMR
No elevator systems are affected by the scope of this project.

Hazardous Materials 310 CMR 30.000
No hazmat found, See attached OEC Hazmat Survey Report in Appendix

Energy 780 CMR Chapter 13 (2021 International Energy Conservation Code with amendments)
See below

Accessibility 521 CMR, 2010 ADA Standards, 28 CFR Part 35.151, See Below

Architectural Access Board (AAB) and ADA Title II Summary

Boylston Elementary School at Berlin-Boylston Regional School District is required to meet the accessibility requirements of both the Architectural Access Board (AAB), Section 3.00 of 521CMR, 2006 Edition; Title II of the Americans with Disabilities Act (ADA), 28 CFR Part 35 as amended; and the 2010 ADA Standards for Accessible Design. When the state and federal regulations differ, the regulation that provides the greater level of accessibility must be followed.

The ADA is a civil rights law, not a building code. Title II requires more accessibility than the AAB when a project includes alterations to a program space, sometimes including an accessible path of travel (including access to toilets) from site arrival to the program space.

The Rules and Regulations of the Architectural Access Board 521CMR are enforced by local and state building inspectors, but interpretations are made, and variances granted, only by the Architectural Access Board.

Accessibility Scope of Work according to AAB

This project has the following scope of accessibility work that must be included in the cost estimate:

A. The estimated construction cost for this project (plus work performed over the last three years) exceeds $100,000 and is less than 30% of this year's CAMIS value, as documented in the MAAB Scoping Form. The building must have at least one fully accessible entrance, one fully accessible single user toilet room or fully accessible multi-user toilet rooms for men and women, and an accessible drinking fountain or one high and one low. If public telephones exist, one must be fully accessible.

1. All four of these elements are in full compliance at the time of this except for the doors to the public toilets do not meet the maneuvering clearances. The repair to this is shown on sheet A100 in Appendix F.

The project scope does NOT include specific elements that are required to be compliant with MAAB or the ADA.

MAAB Variances None required

Accessibility Scope of work according to ADA Title II Compliance

1. The project scope does NOT include alterations to any primary function areas in the building so does not trigger accessibility upgrades greater than those required by the MAAB analysis above.

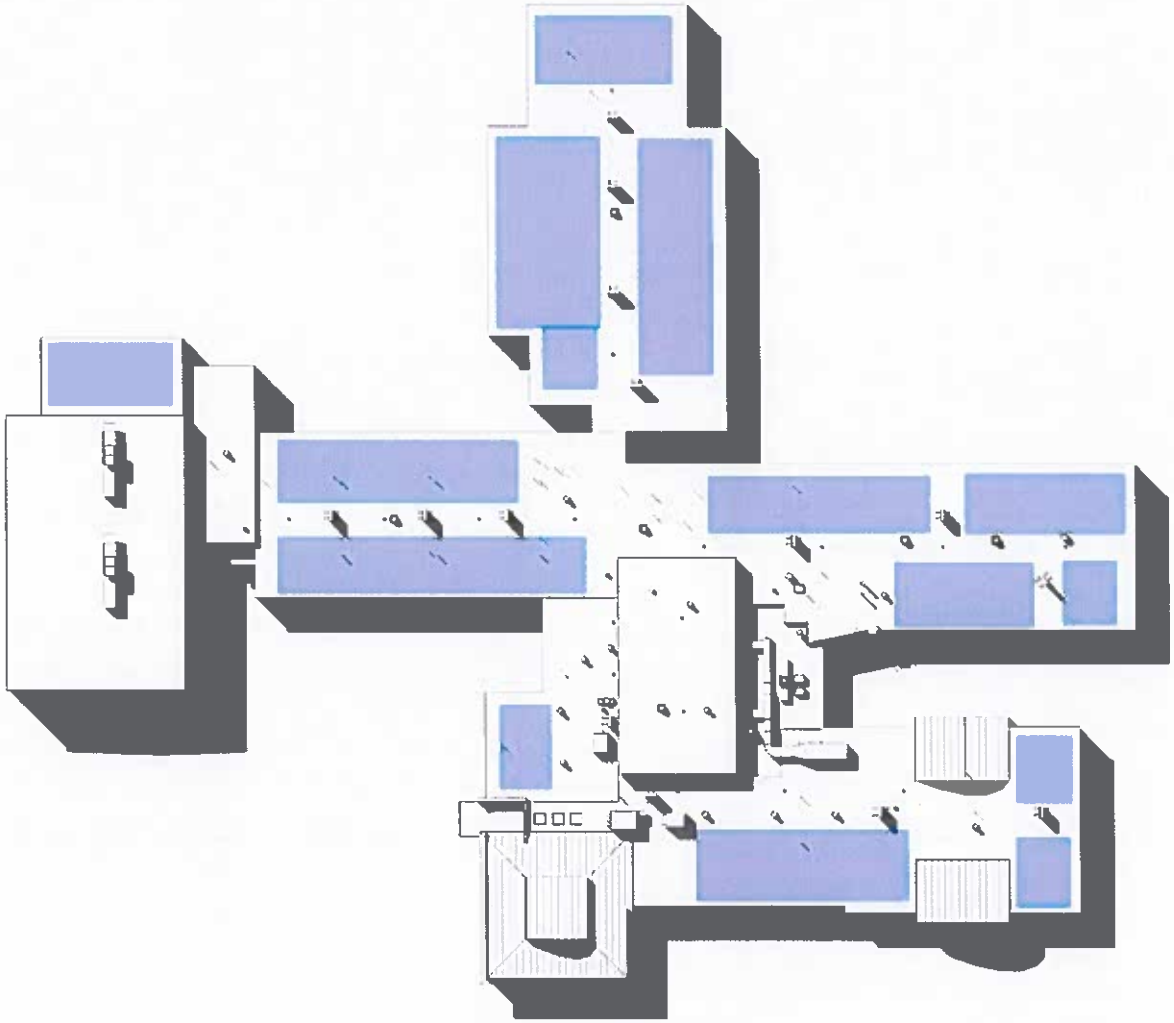
Sustainability and Energy Efficiency Evaluation:

Our review of this project per Sustainability and Energy Efficiency are as follows:

- Roofing materials will be chosen to best address the energy efficiency of the school including adding additional insulation.
- A heat reflecting white PVC membrane was chosen to reduce air conditioning loads and to lower electricity usage.
- The proposed roof will be more durable and airtight which will reduce vapor transmission and lower the risk of degradation to the building envelope to provide a more comfortable interior and more energy efficient building.
- HVAC equipment is existing to remain and is not within the scope of this project
- The option of adding solar panels was reviewed, see below:

Evaluation of Roof Mounted Solar Options:
See the Solar Panel Options Diagram below, where the preferred areas are shown in blue. The best areas are the 1999 roofs which have a metal deck construction on steel framing. A solar support frame system could be fastened through the deck and bolted to the steel column structure. It is possible that framing for solar panels could also be located over the bearing walls of the 1955 structure. The solar panel framing would span over the roof ad would need to resist lateral loads and wind uplift. A thorough structural analysis to determine what will be required to make the roof "solar ready" would be needed. Modifications would also be required to the building's existing electrical system, which would require an electrical panel and a conduit run to the main electrical room. There a reversing breaker would be installed that can feed excess power back to the electric company. Vent stack pipes also would need to be moved depending on where panels are located. The PVC roofing system can easily accept future penetrations with flashing boots at vertical posts and pre-molded membrane flashing that can be fused to the as-built membrane roof. The modifications to the roof would cost roughly approximately $10 to $20 per square foot depending on the amount and location of penetrations.

Solar Panel Options Diagram



Section 4 – Options and Proposed Solution

Analysis of Potential Solutions

Below are the options considered to address the conditions described above and include continuing to repair and service the existing roofing, replacement of roofing with 60 mil white PVC membrane and replacement of roofing with EPDM membrane.

REPAIR OPTION

The major benefits of the repair option are the following:

- Cheapest short-term solution
- Less facility disruption (at one time) from construction during many continuous repairs.

The major problems with the repair option are the following:

- Risk of damage to building from leakage
- Risk health of users due to mold from building leakage
- Lack of user comfort
- Less facility efficiency during mechanical outages
- Lack of available parts due to discontinued mechanical units
- Higher maintenance costs
- Higher energy costs
- Replacement may be needed during major failure of roofing or mechanical system.
- Higher total cost if done piecemeal over time

ROOFING OPTIONS

The project team studied three options, with two roof replacement options in this report:
Option #1 - New fully-adhered 60 millimeter (mil)-thick polyvinyl chloride, (PVC) Roof Membrane with a 20-year warranty, color: white
Option #2 - New fully-adhered 60 millimeter (mil)-thick ethylene propylene diene monomer (EPDM) Roof Membrane with a 20-year warranty, color: black
Option #3 – Repairing and maintaining the existing EPDM roofing system.

The following selection criteria have been identified during the evaluation of the most appropriate option:
1. Cost – Per the cost estimate included in this report, PVC will be the more expensive option. Flashings and accessories for a gray or white PVC system are typically more expensive than those of a black EPDM system. Given the foot traffic anticipated the cost increase is a small percentage of the total and the cost/benefit favors PVC. EPDM roofing costs $2-$2.50/sf less than PVC roofing. Repairing the existing roofing is difficult to accurately estimate as much of the seaming and flashing will need to be replaced and the extent of the replacement won't be fully known until the work has begun and may require complete replacement in sections. The large savings for the repair option will be offset by the costs of onward maintenance, damage to the building and energy efficiency.
2. Warranties – The warranties for both 60 mil. EPDM and 60 mil. PVC are both 20-year standard warranties. The existing roof is past it's warranty period.

3. Durability – EPDM is softer and less durable than PVC roofs. Walk pads can be added to protect certain areas but there will be areas left vulnerable to puncture.
4. Lead times – Lead times for both EPDM and PVC are identical and negligible. Both products can be available within two weeks of the Contractor ordering the materials – either large or small quantities.
5. Life Cycle Costs and Energy Efficiencies - EPDM systems are typically available in both white and black, although the white color is a layer that degrades over time. PVC systems are solid in color and typically offered in white, gray, or tan. Either new roofing systems will include added additional insulation to increase energy efficiency and a heat reflecting white membrane was chosen to reduce air conditioning loads and to lower electricity usage. The existing roofs life cycle costs will be the highest for both the building HVAC systems and the constant upkeep of aging roof materials.
6. Maintenance – A black EPDM system typically allows any ice build-up on a roof to melt quicker than a white or gray PVC roof, which reduces the likelihood of puncturing the roof system to break up ice during winter months. Roof repairs during winter months are also easier if extensive ice build-up needs to be removed.
7. Installation and disturbance to facility operations – PVC is typically installed with hot-air welded seams, while EPDM roofs are attached with self-adhered splice tapes and adhesives. Both roofing products and their respective installation methods are considered have low volatile organic compound (VOC) emissions. The weight of both materials are also similar and do not have significant differences relative to installation times or costs.

Additional options reviewed:

Another roof covering consideration is modified bitumen roofing which involves the application of several layers of asphaltic roofing applied to a substrate. While modified bitumen is a robust system that performs very well in cold weather climates, the installation is labor intensive and costly. Given the planned capital funding for this project, modified bitumen is not a viable alternative.

Proposed Insulation Thickness

The Mass Building Code 780 CMR energy requirements, Chapter 13 (2021 International Energy Conservation Code with amendments) for a roof with Insulation entirely above the structural deck is R-31.25 of continuous insulation. This would mean polyisocyanurate insulation with a thickness of 5.5" or an average tapered polyisocyanurate insulation with a varying thickness of 2" to 7.5"

Preferred Solution and Scope of Work

In consideration of all the options, and evaluation criteria, a PVC roof membrane, with thickness of 60 mil., is the recommended consensus solution. This is mainly due to durability, longevity and appearance along with its flexibility in addressing all conditions including replacement of metal roofing with the same watertight system with matching appearance. Another advantage of the PVC is that the sloped (metal) portions can be replaced with a color similar to the light green standing seam metal patina with matching sanding seams. See Proposed schematic design drawings in Appendix F.

Bidding alternates

During the design phase, more detailed documents and cost estimates will be prepared. Should the project budget allow (or market conditions change), an alternate roofing color, roof membrane thickness and/ or longer roof warranty may explored during this time. If deemed necessary, bidding alternates for these various options could also be prepared as part of construction documents.

Section 5 – Appendices

Appendix A: Existing Condition Photographs
Appendix B: Outline Specification of Scope of Work
Appendix C: Full Cost Estimate
Appendix D: Code Reports and Testing Reports
Appendix E: Existing Conditions and Proposed Solution Drawings

Appendix A: Existing Condition Photographs

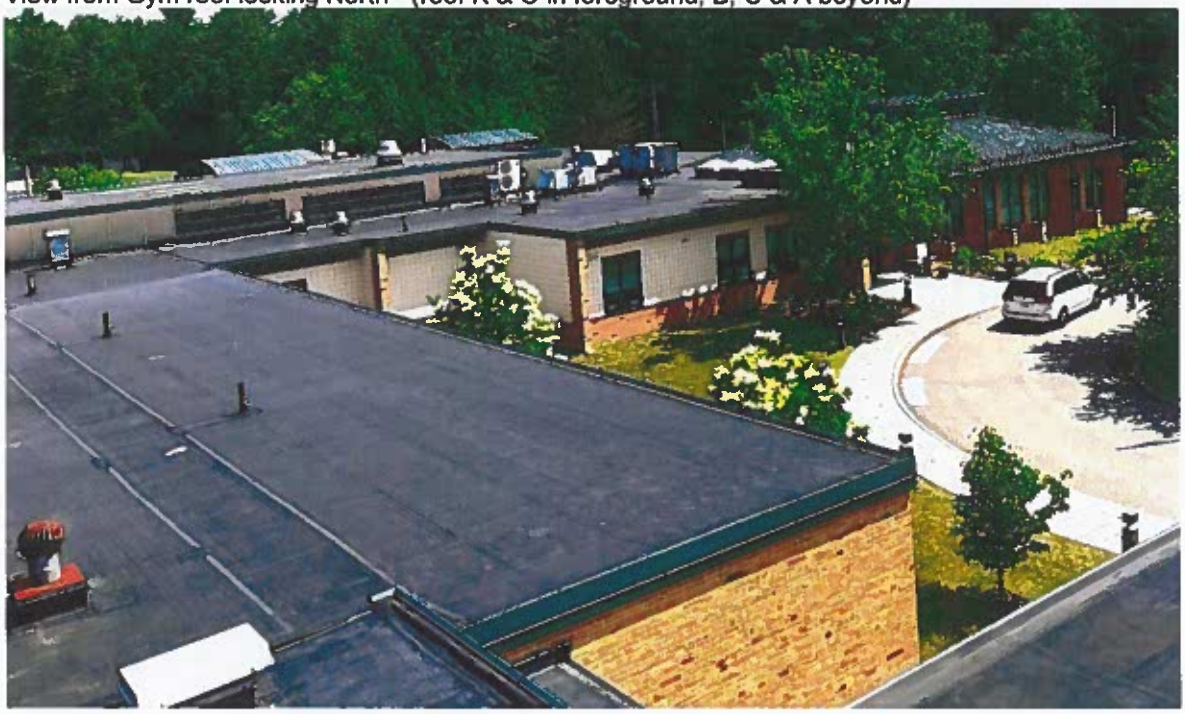
- **Matz Collaborative Architects, Inc (MCA) Existing Conditions Photographs dated -April 23, 2025 and June 13, 2025**

Appendix A: Existing Condition Photographs

Matz Collaborative Architects Existing Conditions Photographs dated April 23 and June 13, 2025



View from Gym roof looking North - (roof K & O in foreground; B, C & A beyond)



View from gym roof looking North East (roof B in foreground; J, A, I & H beyond)



View from Cafeteria roof looking South towards Gym (roof J in foreground; B, K, L & M beyond)



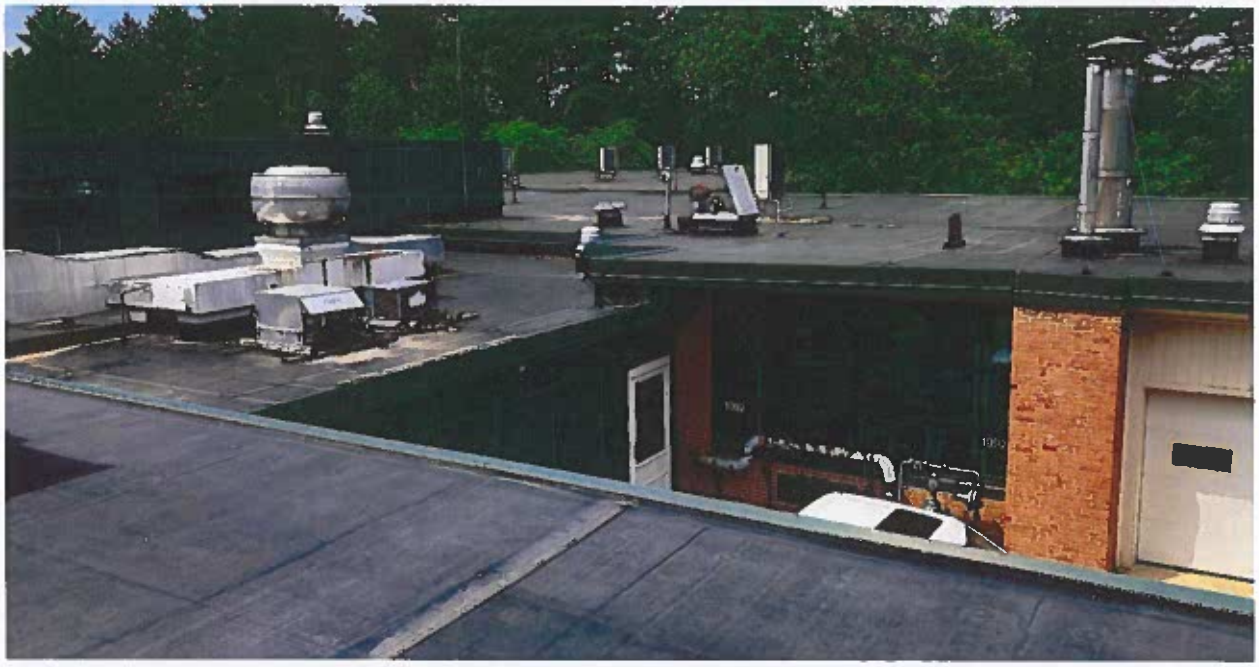
View from Cafeteria roof looking East towards Media Center metal roof, skylights (roof J)



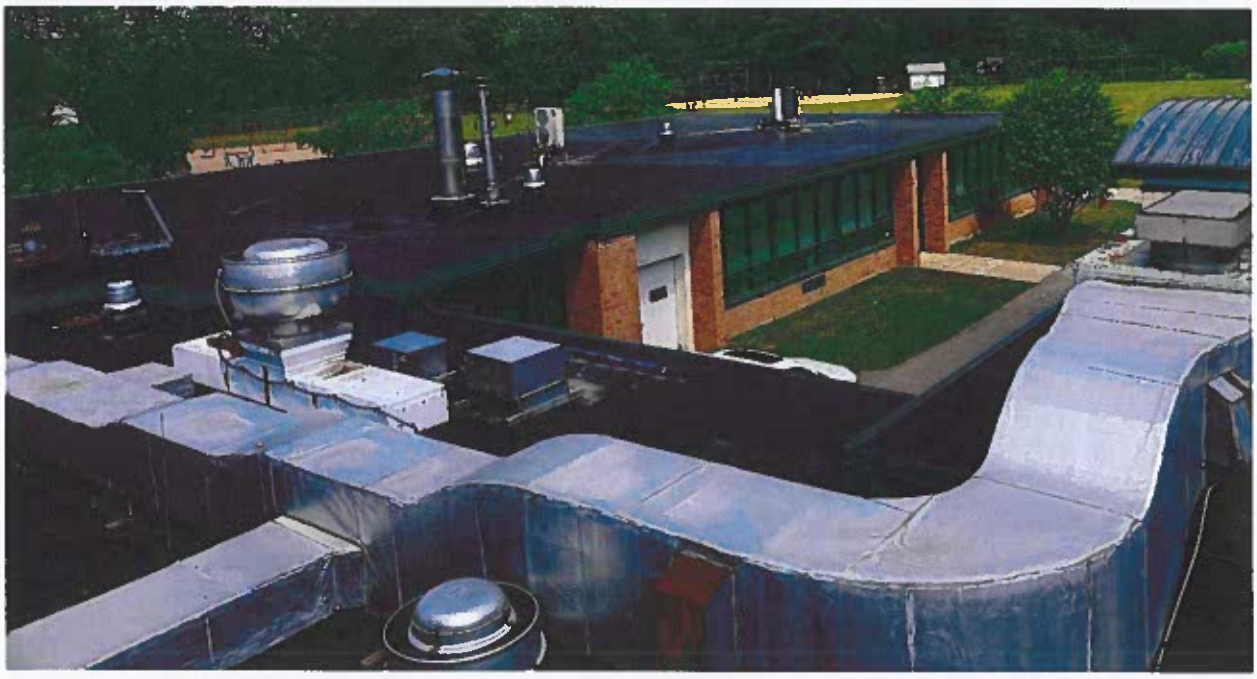
Cafeteria South wall looking towards Media Center metal roof, skylights (roof J)



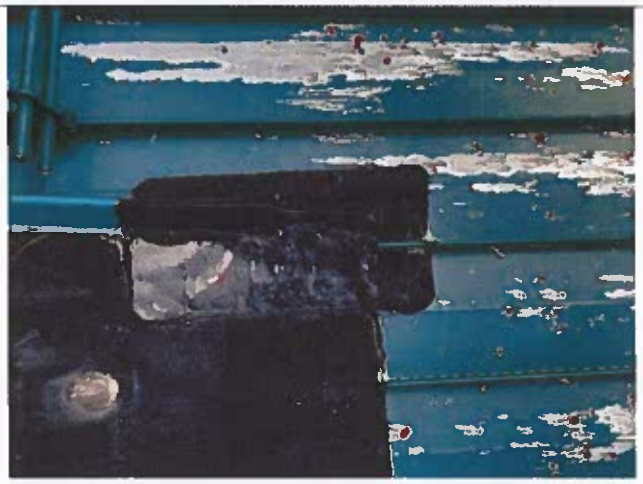
Cafeteria North wall looking East, (roofs B &D)

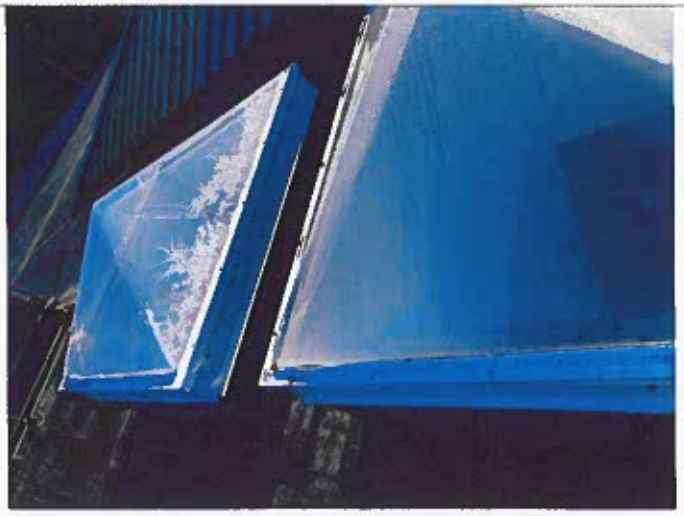


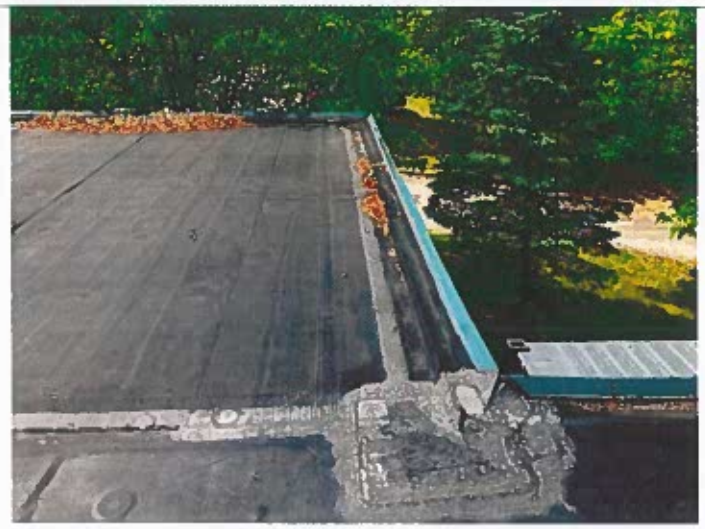
Looking towards Cafeteria North wall at multiple levels (roofs E, B &D) and RTUs



From Cafeteria roof looking North - multiple roof levels, (roofs B &D) RTUs, ductwork and roof hatch at left

	Media Center metal roof with failing metal finish - exposed steel is rusting (roof H)
	Media Center metal roof with EPDM flashing, failing metal finish (roof H)
	Kindergarten metal roof with failing metal finish where exposed steel is rusting

	Skylights with damaged, cracked glazing
	Typical condenser support on wood sleepers bearing directly on EPDM roof membrane
	Typical pitch pocket in EPDM with membrane flashing bubbling and delaminating

	Lower West roof (L) with ponding at scupper location
	Various patching at Cafeteria (roof A)
	Membrane patching at roof edge of West classroom wing (roof C)

	Cafeteria South wall with various metal flashings at metal panel siding
	Looking up at metal flashings of Cafeteria South wall with openings, failed sealant and exposed fasteners
	Inside Cafeteria looking at South wall with water damage from leak

Appendix B: -------- Outline Specification for the Scope of Work

DIVISION 02 — EXISTING CONDITIONS
Section 02 41 19 Selective Demolition

DIVISION 05 - METALS
Section 053000 Metal Decking
Section 053150 Steel Deck Repairs
Section 055000 Metal Fabrications

DIVISION 06 - WOOD, PLASTICS AND COMPOSITES
Section 061000 Rough Carpentry

DIVISION 07 — THERMAL AND MOISTURE PROTECTION
Section 07 59 00 Cutting and Patching Membrane Roofing
(* Filed Sub-Bid Required as part of Section 07 00 00)
Section 07 72 00 Roof Accessories
(* Filed Sub-Bid Required as part of Section 07 00 00)
Section 07 50 00 Roofing and Flashing (Filed Sub-bid)
(* Filed Sub-Bid Required as part of Section 07 00 00)
Section 07 50 19 Preparation For Re-Roofing
(* Filed Sub-Bid Required as part of Section 07 00 00)
Section 07 54 00 Thermoplastic Membrane Roofing
(* Filed Sub-Bid Required as part of Section 07 00 00)
Section 07 62 00 Sheet Metal Flashing and Trim
(* Filed Sub-Bid Required as part of Section 07 00 00)
Section 07 84 10 Penetration Firestopping
Section 07 84 40 Fire-Resistive Joint Systems
Section 07 92 00 Joint Sealants

DIVISION 22 - PLUMBING
Section 22 00 00 Plumbing
(* Filed Sub-Bid Required as part of Section 22 00 00)
Section 22 00 01 Plumbing Work
(* Filed Sub-Bid Required as part of Section 22 00 00)

DIVISION 23 — HEATING, VENTILATING AND AIR CONDITIONING
Section 23 00 01 * Mechanical
(* Filed Sub-Bid Required)
Section 23 01 00 * Basic Mechanical Requirements
(* Filed Sub-Bid Required as part of Section 23 00 01)
DIVISION 26 — ELECTRICAL
Section 26 00 01 Electrical
(* Filed Sub-Bid Required)
Section 26 01 00 * Basic Electrical Requirements
(* Filed Sub-Bid Required as part of Section 26 00 01)

Appendix C: Full Cost Estimate

COST ESTIMATE SUMMARY

Construction Cost Estimate (To Follow)

Appendix D: Code Reports and Testing Reports

- **DRAFT Universal Environmental Consultants Hazmat Report dated July 26, 2025**

UEC universal environmental consultants

July 26, 2025

Mr. John Matz
Architect | Managing Principal
MATZ Collaborative Architects
50 Speen Street, Suite 300
Framingham, MA 01701

Reference: **Asbestos Roofing Sampling Services**
Berlin-Boylston Elementary School

Dear Mr. Matz:

Thank you for the opportunity for Universal Environmental Consultants (UEC) to provide professional services.

UEC was contracted to perform roofing sampling at the Berlin-Boylston Elementary School. Sampling was performed on Friday, June 13, 2025. UEC retained the services of Aulson roofing to cut and patch the roof for sampling. No destructive testing was performed.

Bulk samples analysis for asbestos were performed using the standard Polarized Light Microscopy (PLM) in accordance with Environmental Protection Agency (EPA) standard. Bulk samples were collected by a Massachusetts licensed asbestos inspector Mr. Ivan Lituma and analyzed by a Massachusetts licensed laboratory EMSL, Woburn, MA. Per Massachusetts guidelines, bulk sample is determined to be ACM if any sample from the same homogenous area was found to contain 1-% or more asbestos. Per the Department of Environmental Protection (DEP) any amount of asbestos would trigger proper disposal.

Samples results are attached.

Thirteen (13) bulk samples were collected and analyzed for asbestos from various roofing materials suspected to contain asbestos. Sampling of windows or expansion joint caulking was not performed.

Samples results indicate that ACM was not found in any of the samples collected.

Please do not hesitate to call should you have any questions.

Very truly yours,

Universal Environmental Consultants

Ammar M. Dieb
President

UEC:\225 517.00\Report.DOC

Enclosure

OrderID: 132503351

132503351

CHAIN OF CUSTODY

Universal Environmental Consultants
12 Brewster Road
Framingham, MA 01702
Tel: (508) 628-5486 - Fax: (508) 628-5488
adieb@uec-env.com

TAT Next Day -ACM Bulk samples

Town/City: 200 Sewall St. Boylston Ma Building Name Berlin-Boylston Elementary School

Sample #	Description of Material	Sample Location
1	Glue	Under the rubber, in roof sector#1 on a wood decking. North side
2	Glue	Under rubber, in middle of sector#1 of the roof on wood decking.
3	Glue	Under the rubber, in roof sector#1 on a wood decking. South side
4	Tar paper	Between foam & plywood, in roof sector#1 on a wood decking. North side
5	Tar paper	Between foam & plywood, in middle of sector#1 of the roof on wood decking.
6	Tar paper	Between foam & plywood, in roof sector#1 on a wood decking. South side
7	Caulking	Located in the vent, in roof sector#1 on a wood decking. North side
8	Caulking	Located in the vent, in middle of sector#1 of the roof on wood decking.
9	Glue	Under the rubber, at the edge of sector#2 of the steel decking. West side.
10	Glue	Under rubber, in middle of sector#2 of the roof on steel decking. West side.
11	Glue	Under the rubber, at sector#2 of the steel decking. West side.
12	Caulking	Located in the vent, at the edge of sector#2 of the steel decking. West side.
13	Caulking	Located in the vent, in middle of sector#2 of the roof on steel decking. West side.

Reported By: Ivan Lituma Date: 6/13/25 Due Date: ———

RECD JUN 13 2025 5:30 pm EMSL-BOSTON

Received By: ——— Date: ———

UNIVERSAL ENVIRONMENTAL CONSULTANTS

EMSL Analytical, Inc.
5 Constitution Way, Unit A Woburn, MA 01801
Tel/Fax: (781) 933-8411 / (781) 933-8412
http://www.EMSL.com / bostonlab@emsl.com

EMSL Order: 132503351
Customer ID: UEC63
Customer PO:
Project ID:

Attention: Ammar Dieb
Universal Environmental Consultants
12 Brewster Road
Framingham, MA 01702

Project: Berlin - Boylston Elementary School

Phone: (617) 984-9772
Fax: (508) 628-5488
Received Date: 06/13/2025 5:30 PM
Analysis Date: 06/16/2025
Collected Date: 06/13/2025

Test Report: Asbestos Analysis of Bulk Materials via AHERA Method 40CFR 763 Subpart E Appendix E supplemented with EPA 600/R-93/116 using Polarized Light Microscopy

			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
1 *132503351-0001*	Under Rubber Roof Section #1 on Wood Decking North Side - Glue	Brown/Black Non-Fibrous Homogeneous	25% Cellulose 5% Glass	70% Non-fibrous (Other)	None Detected
2 *132503351-0002*	Under Rubber in Middle of Section #1 on Wood Decking - Glue	Brown/Black Non-Fibrous Homogeneous	25% Cellulose 5% Glass	70% Non-fibrous (Other)	None Detected
3 *132503351-0003*	Under Rubber Roof Section #1 on Wood Decking South Side - Glue	Brown/Black Non-Fibrous Homogeneous	2% Glass	98% Non-fibrous (Other)	None Detected
4 *132503351-0004*	Between Foam and Plywood Roof Section #1 on Wood Decking North Side - Tar Paper	Tan/White/Black Non-Fibrous Homogeneous	75% Cellulose 5% Glass	20% Non-fibrous (Other)	None Detected
5 *132503351-0005*	Between Foam and Plywood in Middle of Section #1on Wood Decking - Tar Paper	Tan/White/Black Non-Fibrous Homogeneous	75% Cellulose 5% Glass	20% Non-fibrous (Other)	None Detected
6 *132503351-0006*	Between Foam and Plywood Roof Section #1 on Wood Decking South Side - Tar Paper	Tan/White/Black Non-Fibrous Homogeneous	75% Cellulose 5% Glass	20% Non-fibrous (Other)	None Detected
7 *132503351-0007*	In Vent Roof Section #1 on Wood Decking North Side - Caulking	Brown/Gray/Various Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
8 *132503351-0008*	In Vent Roof Section #1 on Wood Decking North Side - Caulking	Brown/Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
9 *132503351-0009*	Under Rubber at Edge of Section #2 on Steel Decking North Side - Glue	Black Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
10 *132503351-0010*	Under Rubber in Middle of Section #2 on Steel Decking West Side - Glue	Black Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
11 *132503351-0011*	Under Rubber at Section #2 on Steel Decking West Side - Glue	Black Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
12 *132503351-0012*	In Vent at Edge of Section #2 on Steel Decking West Side - Caulking	Brown/Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected

Initial report from: 06/16/2025 13:39:51

EMSL Analytical, Inc.
5 Constitution Way, Unit A Woburn, MA 01801
Tel/Fax: (781) 933-8411 / (781) 933-8412
http://www.EMSL.com / bostonlab@emsl.com

EMSL Order:	132503351
Customer ID:	UEC63
Customer PO:	
Project ID:	

Test Report: Asbestos Analysis of Bulk Materials via AHERA Method 40CFR 763 Subpart E Appendix E supplemented with EPA 600/R-93/116 using Polarized Light Microscopy

			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
13	In Vent in Middle of Section #2 on Steel Decking West Side - Caulking	Brown/Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
132503351-0013					

Analyst(s)
Ava Kopelias (13)

Steve Grise, Laboratory Manager
or Other Approved Signatory

EMSL maintains liability limited to cost of analysis. Interpretation and use of test results are the responsibility of the client. This report relates only to the samples reported above, and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. The report reflects the samples as received. Results are generated from the field sampling data (sampling volumes and areas, locations, etc.) provided by the client on the Chain of Custody. Samples are within quality control criteria and met method specifications unless otherwise noted. The above analyses were performed in general compliance with Appendix E to Subpart E of 40 CFR (previously EPA 600/M4-82-020 "Interim Method") but augmented with procedures outlined in the 1993 ("final") version of the method. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST or any agency of the federal government. Non-friable organically bound materials present a problem matrix and therefore EMSL recommends gravimetric reduction prior to analysis. Unless requested by the client, building materials manufactured with multiple layers (i.e. linoleum, wallboard, etc.) are reported as a single sample. Estimation of uncertainty is available on request.

Samples analyzed by EMSL Analytical, Inc. Woburn, MA NVLAP Lab Code 101147-0, CT PH-0315, MA AA000188, RI PLM00139, VT AL998919, ME LB-0039

Initial report from: 06/16/2025 13:39:51

The Aulson Company, Inc

Jun 18, 2025 | 8 Photos

Universal Environmental Consultants

200 Sewall St, Universal • Boylston, MA 01505

1



N1 1 2in iso and 3in iso wood deck epdm

Project: J25102
Date: Jun 13, 2025, 10:15 AM
Creator: Devon Brown

2



Project: J25102
Date: Jun 13, 2025, 10:16 AM
Creator: Devon Brown

3



N1 after

Project: J25102
Date: Jun 13, 2025, 10:22 AM
Creator: Devon Brown

4



N2 same as n1

Project: J25102
Date: Jun 13, 2025, 10:24 AM
Creator: Devon Brown

5



N2 after

Project: J25102
Date: Jun 13, 2025, 10:27 AM
Creator: Devon Brown

6



N3 same as n1&n2

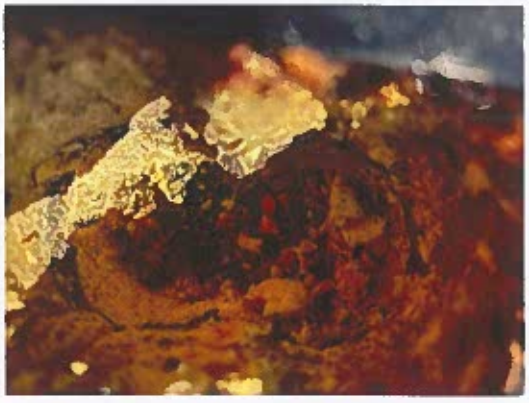
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Date: Jun 13, 2025, 10:33 AM
Creator: Devon Brown

7



Project: J25102
Date: Jun 13, 2025, 10:37 AM
Creator: Devon Brown

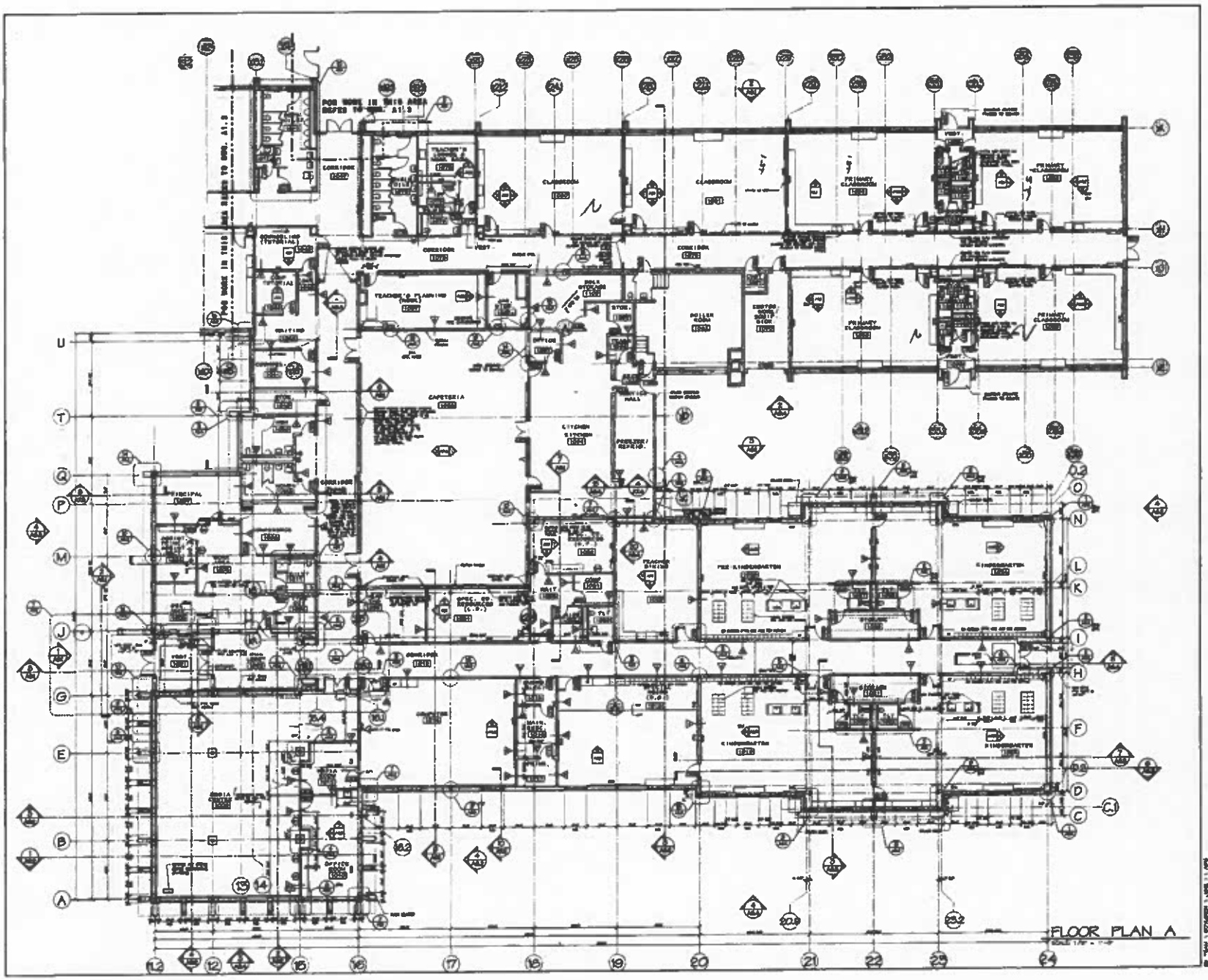
8



Project: J25102
Date: Jun 13, 2025, 10:38 AM
Creator: Devon Brown

Appendix E: Existing Conditions and Proposed Solution Drawings

- **Original Building Construction Drawings dated 1/4/1999**
- **Matz Collaborative Architects, Inc (MCA) Existing, Demolition and Proposed Schematic Design Drawings dated July 12, 2025**



D·R·A

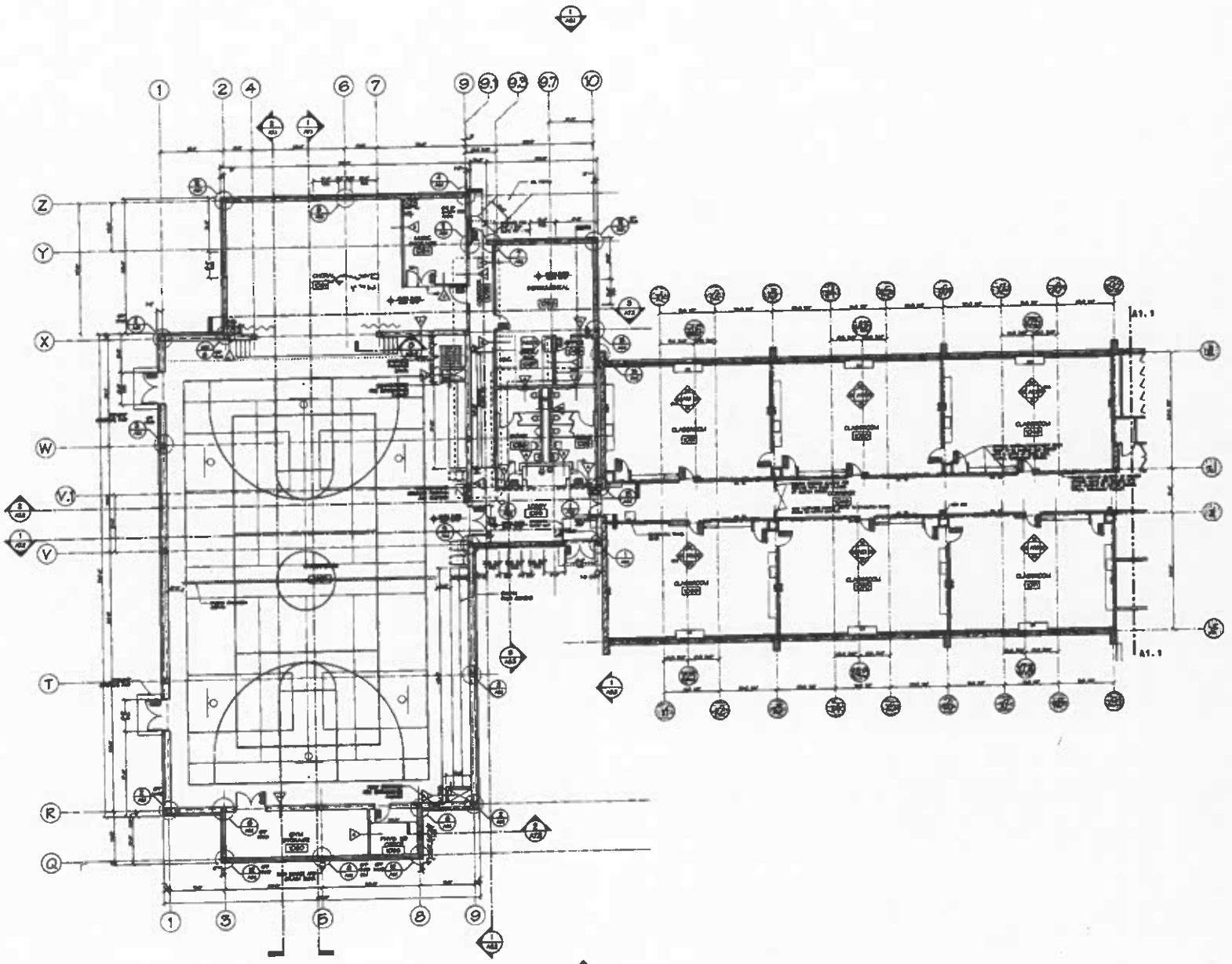
BOYLSTON ELEMENTARY SCHOOL

BOYLSTON
MASSACHUSETTS

KEY PLAN

FLOOR PLAN A

A1.1



FLOOR PLAN B

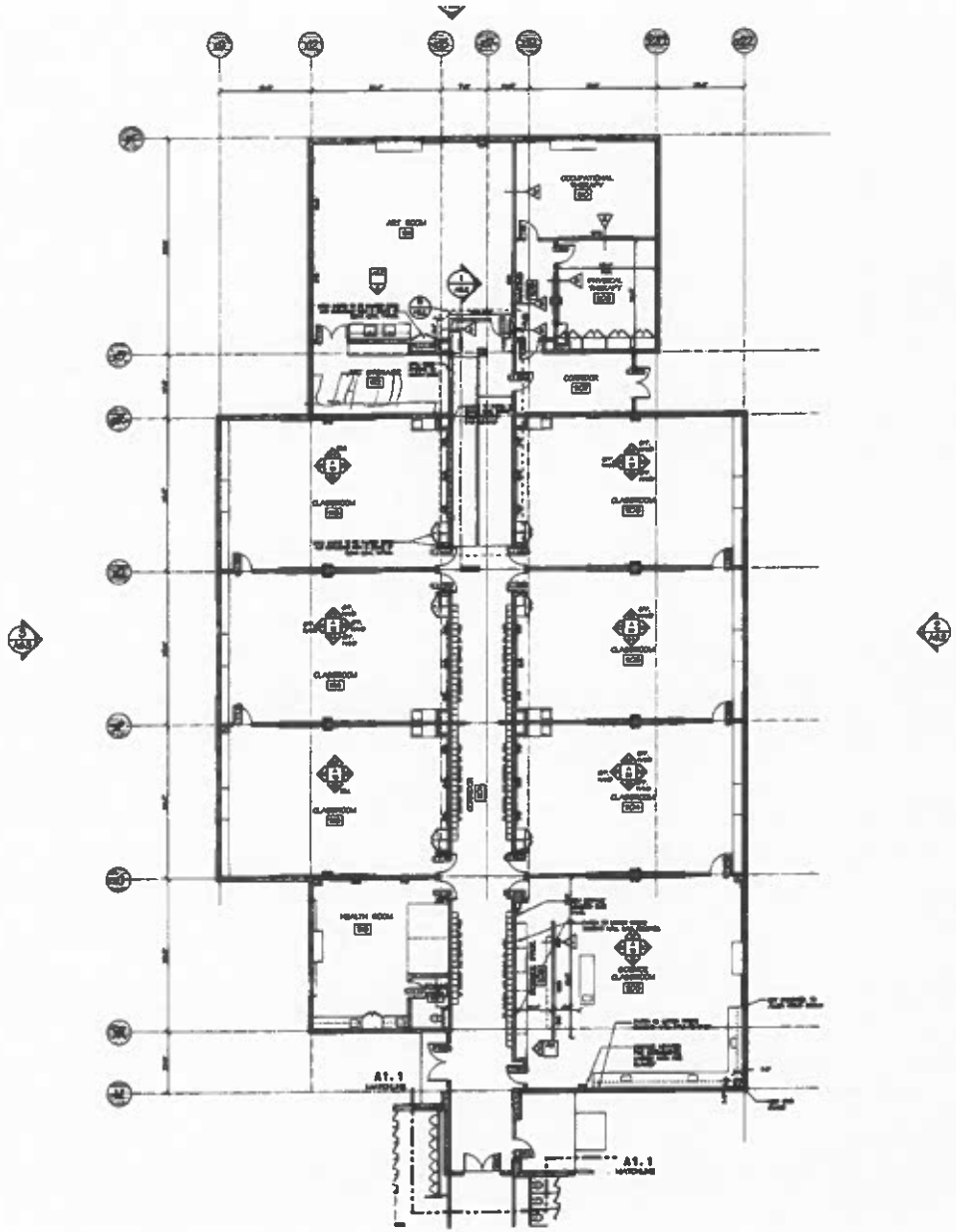
BOYLSTON ELEMENTARY SCHOOL

BOYLSTON
MASSACHUSETTS

KEY PLAN

FLOOR PLAN B

A1.2



FLOOR PLAN C

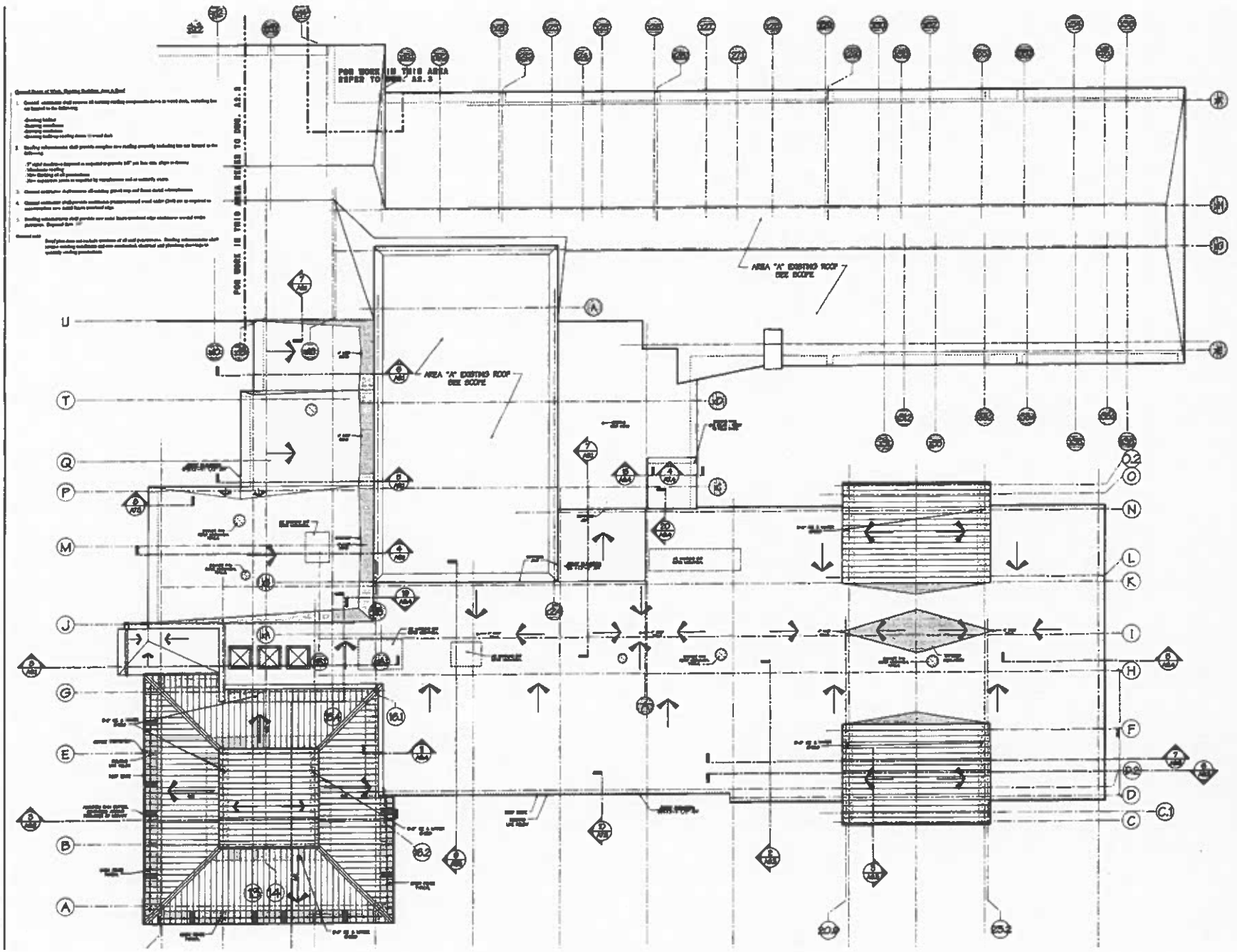
D'K'A

BOYLSTON ELEMENTARY SCHOOL

BOYLSTON
MASSACHUSETTS

FLOOR PLAN C

A1.3



D·R·A

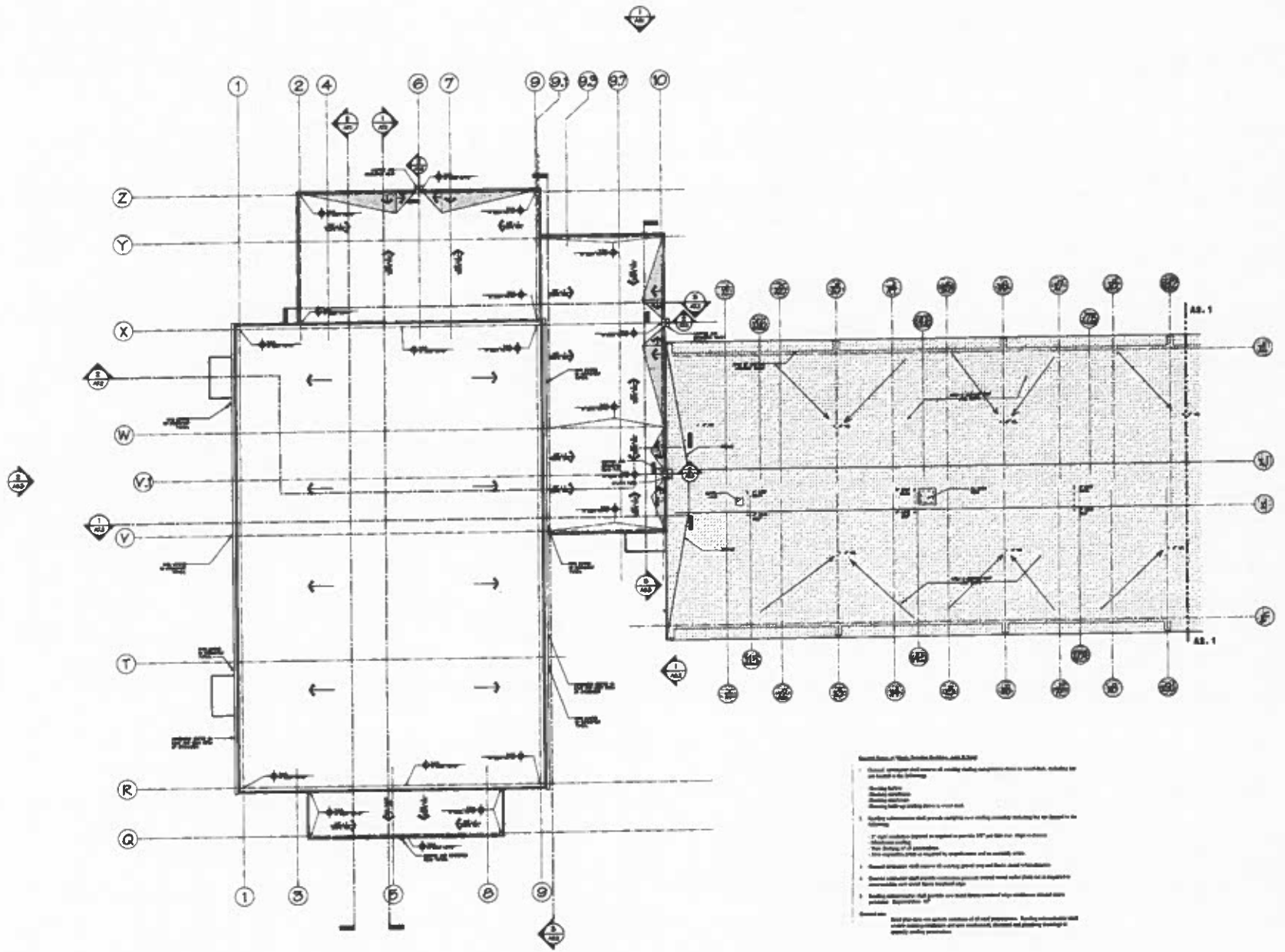
BOYLSTON ELEMENTARY SCHOOL

BOYLSTON
MASSACHUSETTS

KEY PLAN

ROOF PLAN A

A21

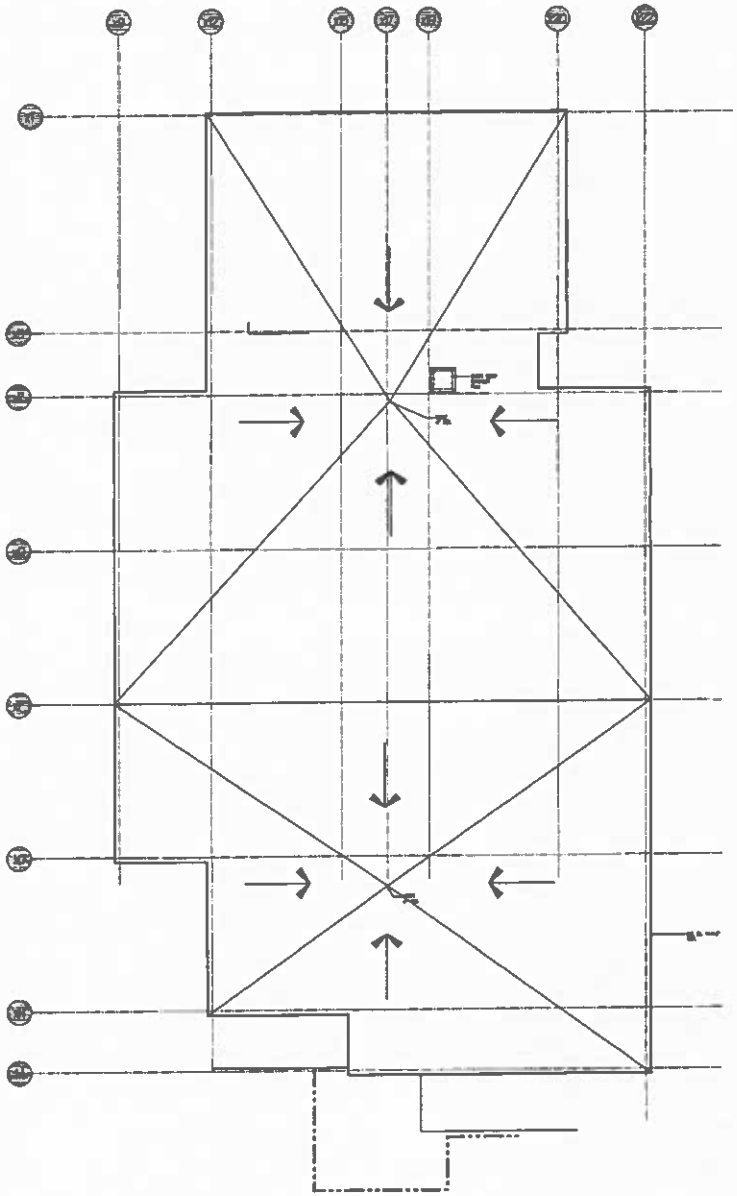


BOYLSTON ELEMENTARY SCHOOL

BOYLSTON MASSACHUSETTS

ROOF PLAN B

A2.2



ROOF PLAN C

D'K'A

BOYLSTON ELEMENTARY SCHOOL

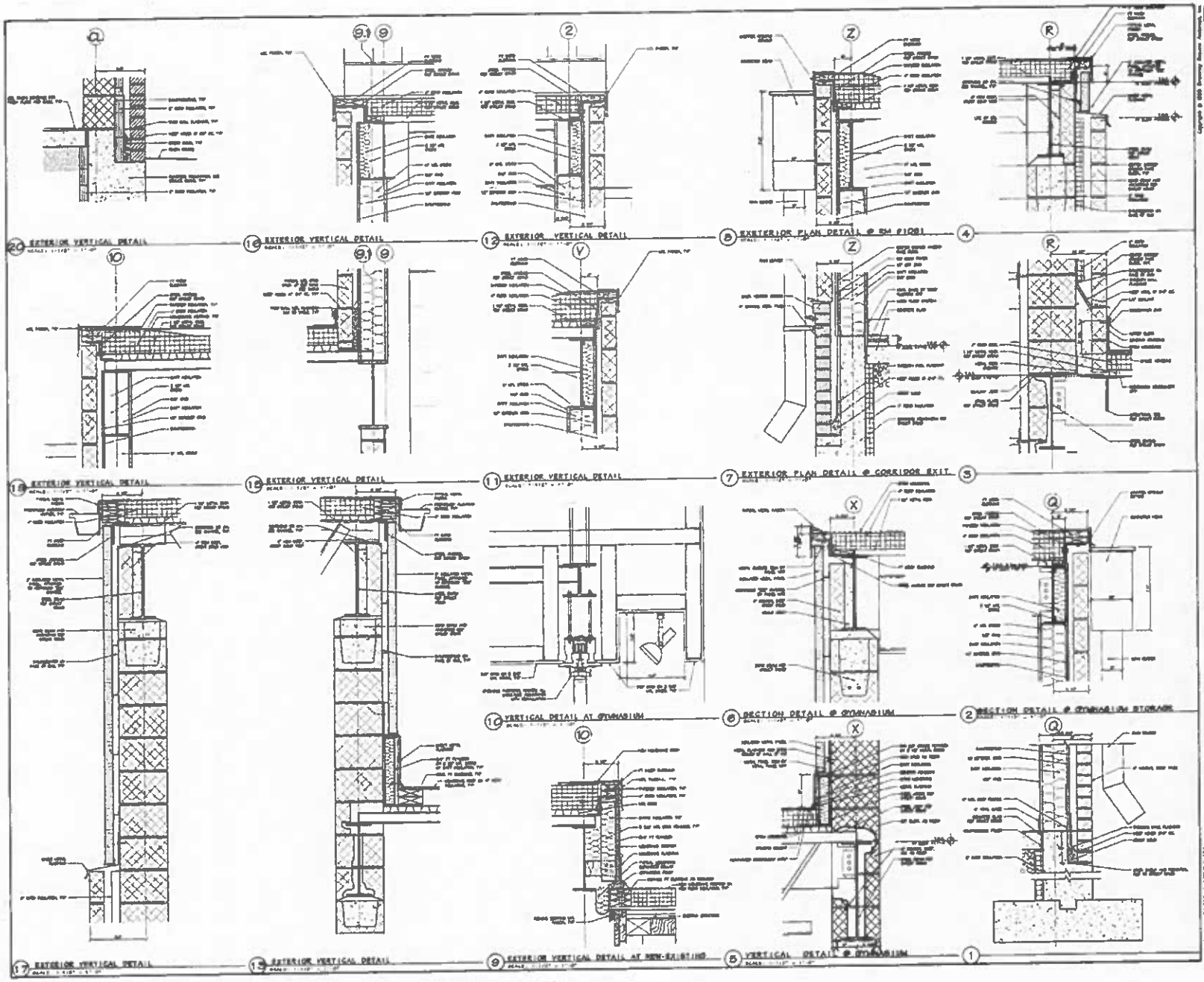
BOYLSTON MASSACHUSETTS

KEY PLAN

EXISTING BUILDING
NEW ADDITION

ROOF PLAN C

A23



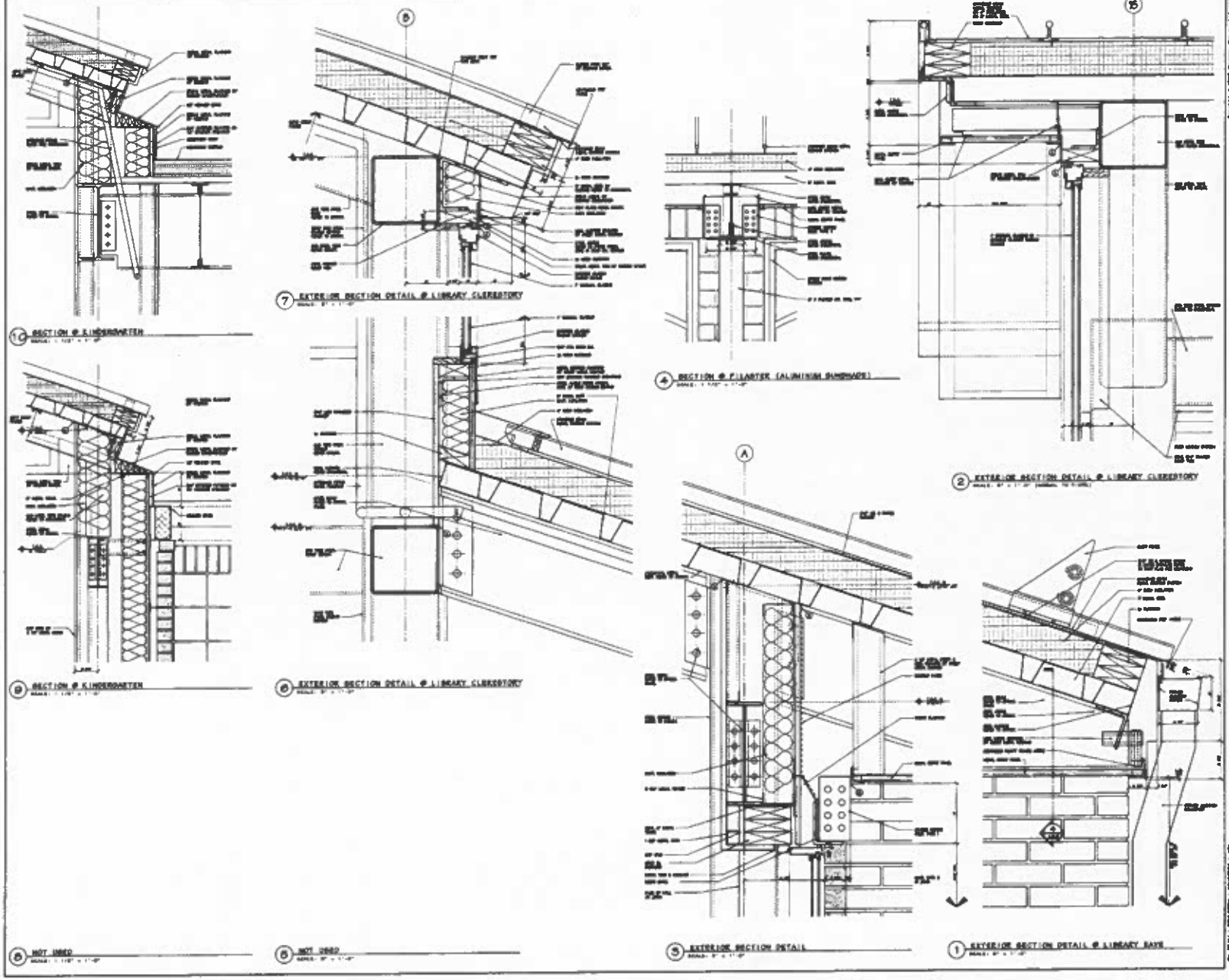
D·R·A

BOYLSTON ELEMENTARY SCHOOL

BOYLSTON MASSACHUSETTS

SECTION DETAILS

A7.6



10 SECTION @ KINDERGARTEN

9 SECTION @ KINDERGARTEN

8 NOT USED

7 EXTERIOR SECTION DETAIL @ LIBRARY CLERESTORY

6 EXTERIOR SECTION DETAIL @ LIBRARY CLERESTORY

5 NOT USED

4 SECTION @ PILASTER (ALUMINUM SUNSHADE)

3 EXTERIOR SECTION DETAIL

2 EXTERIOR SECTION DETAIL @ LIBRARY CLERESTORY

1 EXTERIOR SECTION DETAIL @ LIBRARY EAVE

D·R·A

BOYLSTON ELEMENTARY SCHOOL

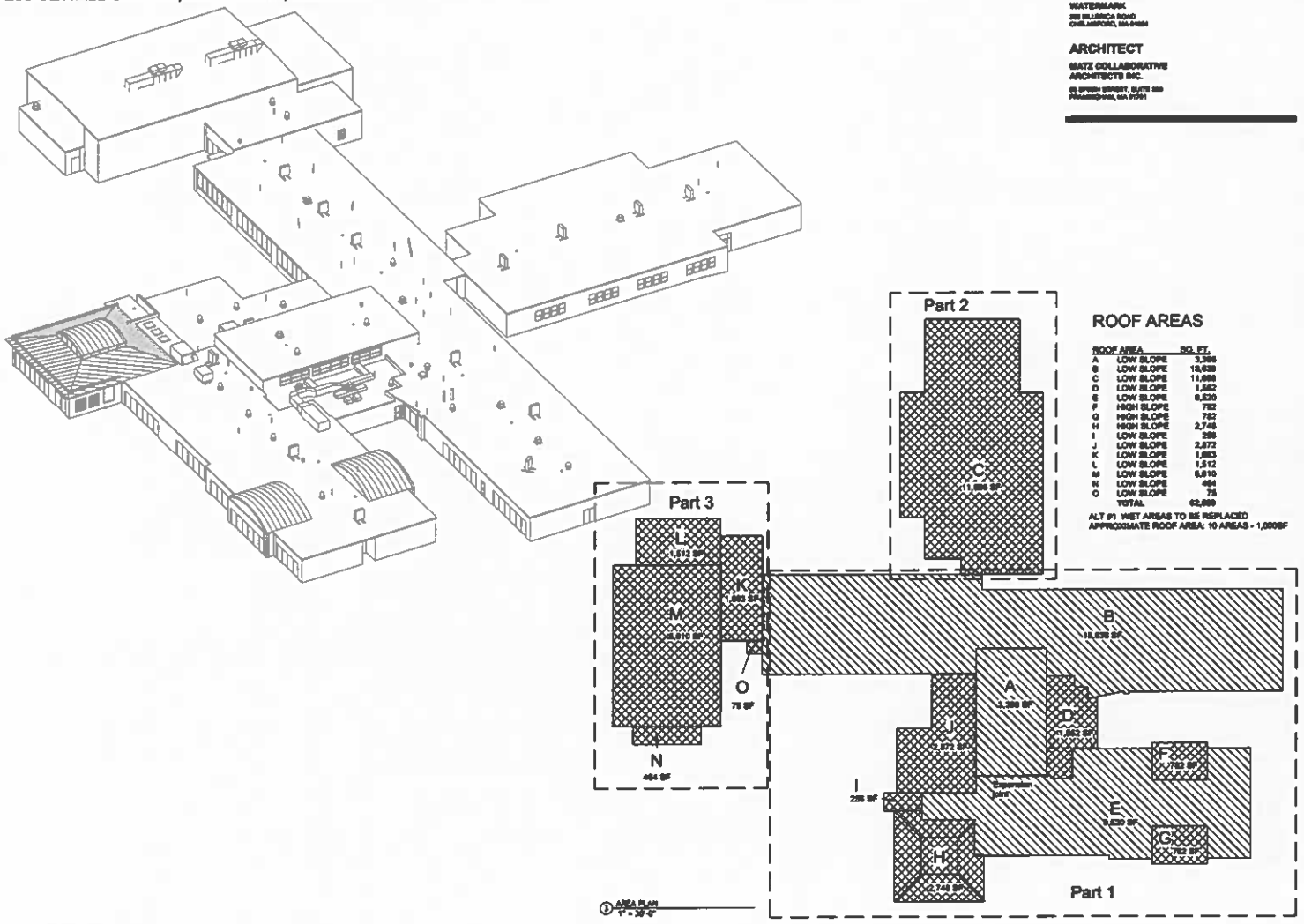
BOYLSTON MASSACHUSETTS

EXTERIOR SECTION DETAILS

A8.5

BOYLSTON ELEMENTARY SCHOOL ROOF RENOVATION

200 SEWALL STREET, BOYLSTON, MA 01505



PROJECT TEAM

OWNERS PM

WATERMARK
200 BILLERICA ROAD
CHELMSFORD, MA 01824

ARCHITECT

MATZ COLLABORATIVE ARCHITECTS INC.
60 OPEN STREET, SUITE 300
FRAMINGHAM, MA 01701

ROOF AREAS

ROOF AREA		SQ. FT.
A	LOW SLOPE	3,356
B	LOW SLOPE	18,639
C	LOW SLOPE	11,666
D	LOW SLOPE	1,562
E	LOW SLOPE	6,520
F	HIGH SLOPE	782
G	HIGH SLOPE	782
H	HIGH SLOPE	2,748
I	LOW SLOPE	286
J	LOW SLOPE	2,672
K	LOW SLOPE	1,883
L	LOW SLOPE	1,512
M	LOW SLOPE	6,810
N	LOW SLOPE	484
O	LOW SLOPE	75
	TOTAL	62,689

ALT #1 WET AREAS TO BE REPLACED
APPROXIMATE ROOF AREA: 10 AREAS - 1,000SF

DRAWING LIST

ARCHITECTURAL

G100 - TITLE SHEET
G101 - EXISTING PLAN, PHOTOS & CODE INFO
D100 - DEMOLITION ROOF PLAN
A100 - FIRST ROOF PLAN ACCESSIBILITY UPGRADES
A101 - ROOF PARTIAL PLAN PART 1
A102 - ROOF PARTIAL PLAN PART 2 & 3
A103 - PARTIAL ELEVATIONS
A800 - ROOF DETAILS
A801 - ROOF DETAILS

GENERAL NOTES:

BASE WORK SCOPE:
REMOVE EXISTING EPDM ROOF & INSULATION SYSTEMS DOWN TO STRUCTURAL DECK AND INSTALL NEW 60 MIL (ACTUAL) PVC ROOF MEMBRANE ON POLYISO COVERBOARD AND INSULATION OVER SELF ADHERED VAPOR BARRIER. NEW EXPOSED ROOF METAL FLASHING TO BE PVC CLAD GALVANIZED STEEL.
REMOVE AND REPLACE ALL METAL STANDING SEAM ROOFING AND EDGE FLASHING WITH NEW 60 MIL (ACTUAL) PVC FLEECE BACK MEMBRANE ROOFING SYSTEM, COLOR: PATINA GREEN WITH FAUX STANDING SEAMS (SIMILAR APPEARANCE TO EXISTING METAL). ALL EXISTING THROUGH-WALL MASONRY FLASHING TO REMAIN
REMOVE EXISTING CAFETERIA EXTERIOR WALL FINISHES AND REPLACE WITH NEW PATINA GREEN PVC FLEECE BACK MEMBRANE ROOFING SYSTEM, MECHANICALLY FASTENED OVER 2" POLYISO INSULATION.
ALL ROOF SYSTEMS TO BE INSTALLED WITH NEW 20 YEAR WARRANTY AND RATED FOR RISK CATEGORY III

ALTERNATES

ALTERNATE #1:

CUT OR REMOVE EXISTING EPDM ROOFING MEMBRANE AND REMOVE ALL CRICKETS, DRAINS, FLASHING, SKYLIGHTS & ACCESSORIES AS INDICATED. PROVIDE NEW 60 MIL (ACTUAL) PVC ROOF MEMBRANE ON HIGH DENSITY POLYISO COVERBOARD OVER EXISTING INSULATION.
-REPLACE EXIST ROOF DRAINS (RD), AND CUT OUT 4' X 4' OF EXISTING RIGID INSULATION, AND INSTALL NEW SUMP AT ALL DRAINS.
-REPLACE 1,000 SQUARE FEET (TOTAL IN 10 SEPARATE AREAS) OF WET, SATURATED PORTIONS OF EXISTING 4" THICK POLYISOCYANURATE RIGID INSULATION.
-PROVIDE A ROOFING SYSTEMS MANUFACTURER'S WARRANTY OF 20 YEARS

ALTERNATE #2:

REMOVE AND REPLACE EXISTING STANDING SEAM METAL ROOFING WITH NEW PREFINISHED ALUMINUM SYSTEM TO MATCH EXISTING COLOR WITH A ROOFING SYSTEMS MANUFACTURER'S WARRANTY OF 20 YEARS

SCHEMATIC DESIGN

Plotted on 7/28/2025 4:46:36 PM

MATZ COLLABORATIVE ARCHITECTS
60 OPEN STREET, SUITE 300
FRAMINGHAM, MA 01701

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Client
Massachusetts School Building Authority

Consultant

Project
Boylston Elementary School Roof Renovation

Location
200 Sewall Street, Boylston, MA 01505

MCA Project #:
Project Number

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Revisions

No.	Date	Revision

Drawing
Cover Sheet

Scale: As Indicated
Date: 7/18/25
Sheet
G100



EXISTING SKYLIGHTS & METAL ROOF



INSULATED DUCTWORK AT MECH. UNITS - WALL AT HIGH/LOW ROOFS



VIEW FROM CAFETERIA ROOF 'J' TOWARDS GYM



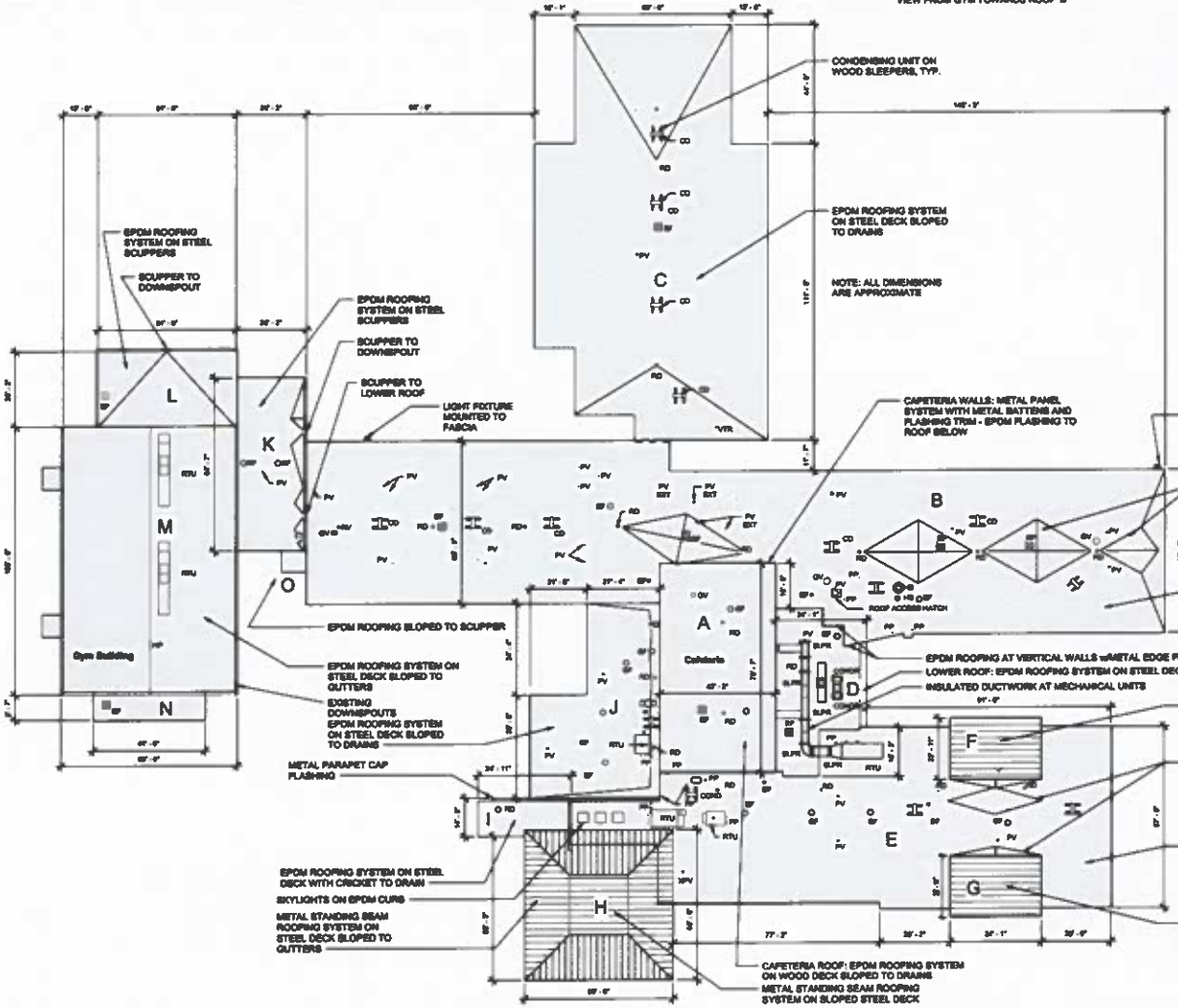
VIEW FROM GYM TOWARDS ROOF 'B'



VIEW FROM GYM OVER ROOF 'B' TOWARDS 'J', 'H' & CAF. WALL



ROOF 'G' FROM ROOF 'E'



ROOF SYSTEMS

CONDR = CONDENSER UNIT
GBV = GOOSENECK VENT
PP = PITCH POCKET
GV = GRAVITY VENT
EF = EXHAUST FAN
PV EXT = PLUMBING VENT/W EXTENSION
PV = PLUMBING VENT
RD = ROOF DRAIN
RTU = ROOF TOP UNIT

ROOF AREAS

ROOF AREA		SQ. FT.
A	LOW SLOPE	8,280
B	LOW SLOPE	16,450
C	LOW SLOPE	11,260
D	LOW SLOPE	1,200
E	LOW SLOPE	9,550
F	HIGH SLOPE	700
G	HIGH SLOPE	780
H	HIGH SLOPE	2,740
I	LOW SLOPE	200
J	LOW SLOPE	2,370
K	LOW SLOPE	1,000
L	LOW SLOPE	1,210
M	LOW SLOPE	6,010
N	LOW SLOPE	450
O	LOW SLOPE	70
	TOTAL	65,000

ALT.01: 10 SEPARATE AREAS OF WET INSULATION TO BE REPLACED, APPROXIMATE ROOF AREA: 1,000SF

CODE INFO

APPLICABLE CODES:
10th Edition of the 9th State Building Code (780 CMR) and related code publications, as modified by 9th amendments) Chapter 16 snow roof design and deflection loading.

Chapter 34: International Existing Building Code (2021 IEBC with MA Amendments). Remodeling work is categorized as a "Level 1 Alteration," per Sections 705, 706, and 708.

Existing Building Construction type: Closest to Type IB & 3C

Building Risk Category: II

Ultimate wind speed = Ground exposure category C

Per Mass Amendments 1604.11 = 120 mph V ult

ENERGY CODE

Stretch Energy Code (26 CMR 22.00 and 225 CMR 22.00), adopted 2014 with 2020 update

TABLE C402.1.4

OPAQUE THERMAL ENVELOPE ASSEMBLY MINIMUM REQUIREMENTS, U-FACTOR METHOD, 5 AND MARINE 4

Insulation entirely above roof deck: U-0.032, R-Value 31.25 (WHERE ROOF REPLACED WITH NEW)

Skylights: U-factor: 0.55 (WHERE REPLACED WITH NEW)

MATZ COLLABORATIVE ARCHITECTS
50 SPEEN STREET SUITE 300
FRAMINGHAM, MA 01701

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Massachusetts School Building Authority

Consultant

Project
Boylston Elementary School Roof Renovation

Location
200 Sewell Street, Boylston, MA 01505

MCA Project #
Project Number

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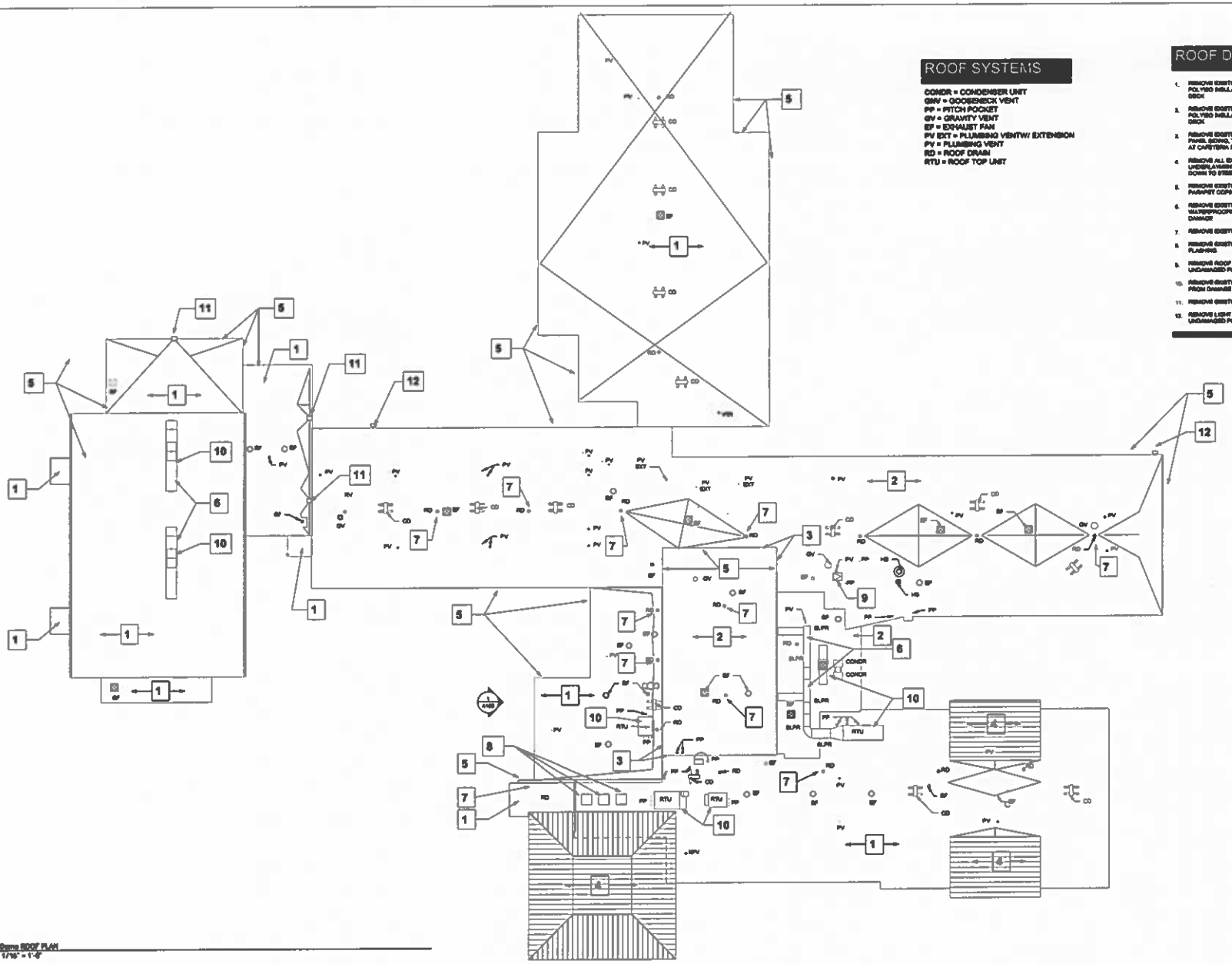
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Revisions

No.	Date	Revision

Drawing
EXISTING PLAN, AREAS & CODE INFO

Scale: As indicated
Date: 07/16/25
Sheet
G101



ROOF SYSTEMS

CONDR = CONDENSER UNIT
GWV = GOOSENECK VENT
PP = PITCH POCKET
GV = GRAVITY VENT
EF = EXHAUST FAN
PV EXT = PLUMBING VENTW/ EXTENSION
PV = PLUMBING VENT
RD = ROOF DRAIN
RTU = ROOF TOP UNIT

ROOF DEMO NOTES

1. REMOVE EXISTING EPDM ROOF SYSTEM & POLYISO INSULATION DOWN TO EXISTING STEEL DECK
2. REMOVE EXISTING EPDM ROOF SYSTEM & POLYISO INSULATION DOWN TO EXISTING WOOD DECK
3. REMOVE EXISTING INSULATED METAL WALL PANEL, SIDING, TRIM AND ROOFWALL FLASHING AT CANTERRA EXTERIOR
4. REMOVE ALL EXISTING METAL ROOFING, UNDERLAYMENT AND INSULATION SYSTEMS DOWN TO STEEL DECKING TYPICAL, SEE ALT. #2
5. REMOVE EXISTING METAL ROOF EDGE & PARAPET COPING TRIM AND FLASHING
6. REMOVE EXISTING ELECTRICAL INSULATION AND WATERPROOFING PROTECT ELECTRICAL FROM DAMAGE
7. REMOVE EXISTING ROOF DRAIN, SEE ALT. #1
8. REMOVE EXISTING SKYLIGHT, CURB AND FLASHING
9. REMOVE ROOF HATCH AND PROTECT UNDAMAGED FOR REINSTALLATION
10. REMOVE EXISTING RTU FLASHING PROTECT RTU FROM DAMAGE
11. REMOVE EXISTING SCUPPER
12. REMOVE LIGHT FIXTURE AND PROTECT UNDAMAGED FOR REINSTALLATION

1 Demo ROOF PLAN
1/16" = 1'-0"

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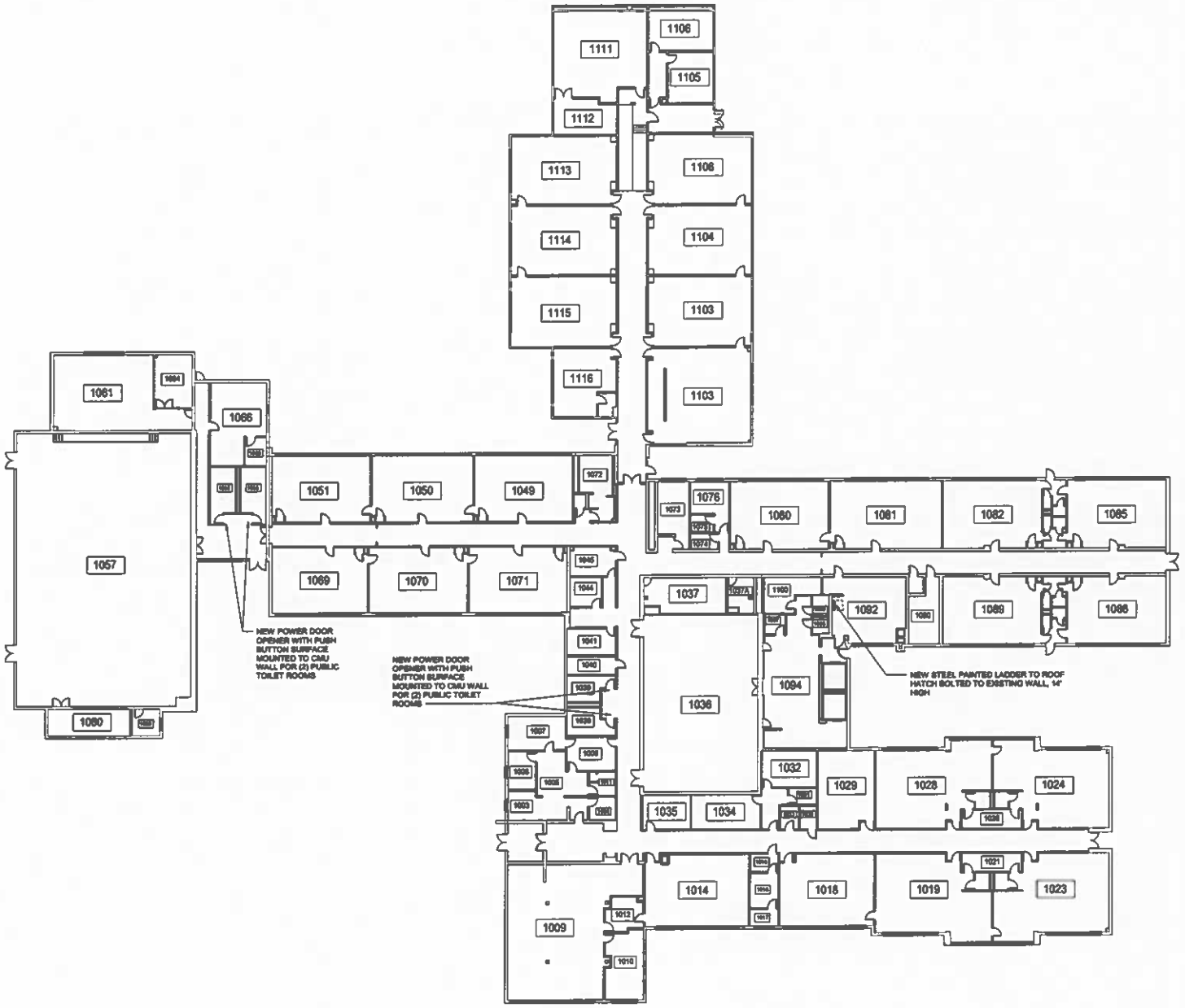
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Revisions

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Drawing
Roof Demo Plan

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D103



1 FIRST FLOOR PLAN
1/16" = 1'-0"

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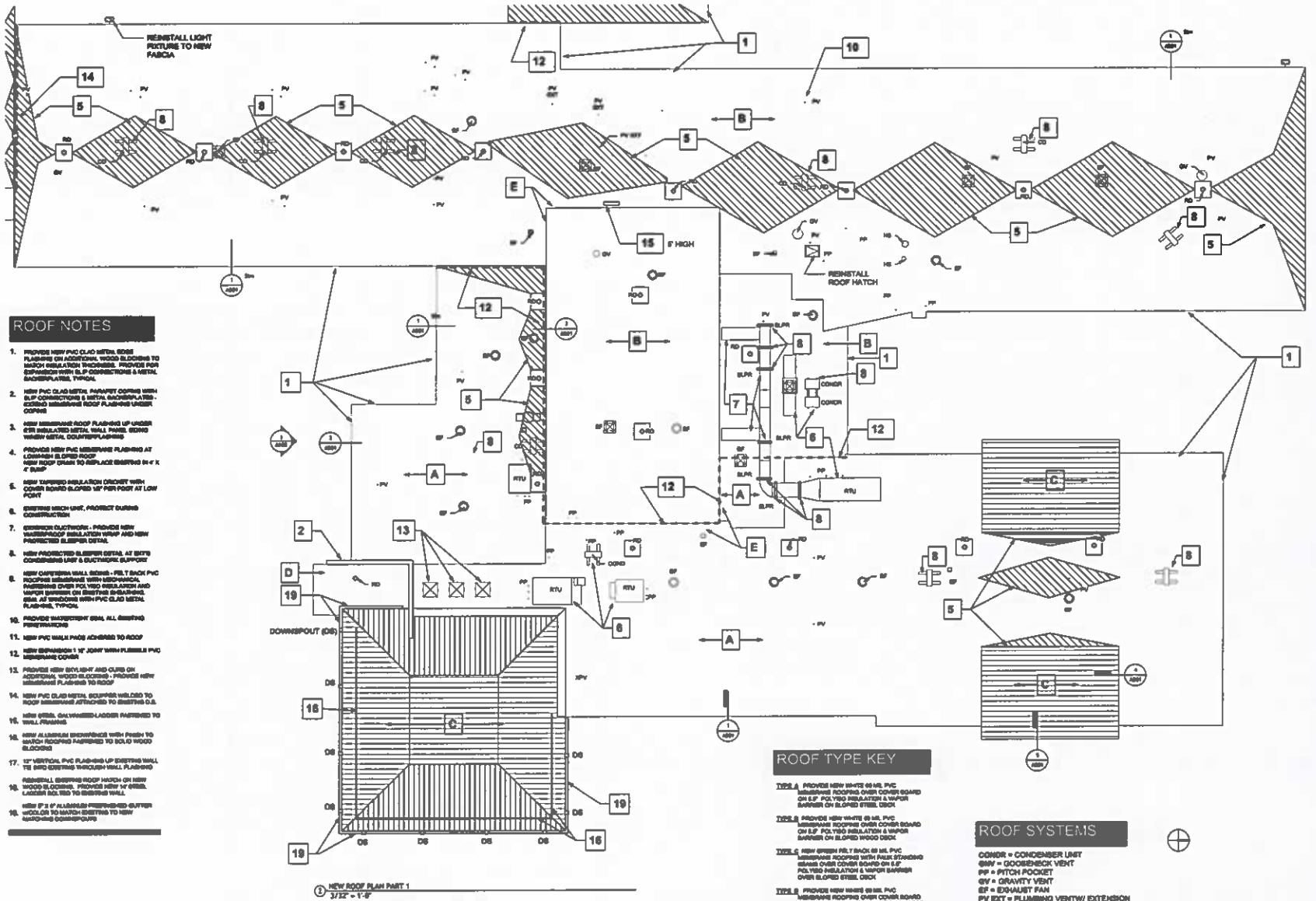
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Revisions

No.	Date	Revision

Drawing
First Floor Plan Accessibility Upgrades

Scale 1/16" = 1'-0"
Date 07/16/25
Sheet
A100



ROOF NOTES

1. PROVIDE NEW PVC CLAD METAL EDGE FLASHING ON ADDITIONAL WOOD BLOCKING TO MATCH INSULATION THICKNESS. PROVIDE PCR SUPPORTS WITH SLIP CONNECTIONS & METAL BACKERPLATES, TYPICAL
2. NEW PVC CLAD METAL PARAPET COPING WITH SLIP CONNECTIONS & METAL BACKERPLATES - CORING MEMBRANE ROOF FLASHING UNDER COPING
3. NEW MEMBRANE ROOF FLASHING UP UNDER EIFS INSULATED METAL WALL PANEL SIDING UNDER METAL COUNTERFLASHING
4. PROVIDE NEW PVC MEMBRANE FLASHING AT LOWRIGH SLOPED ROOF NEW ROOF DRAIN TO REPLACE EXISTING 24 x 4' X 4' SUMP
5. NEW TAPERED INSULATION CRICKET WITH COVER BOARD SLOPED 1/8" PER FOOT AT LOW POINT
6. EXISTING MECH UNIT, PROTECT DURING CONSTRUCTION
7. CONDENSER ELECTRICITY - PROVIDE NEW WATERPROOF INSULATION WRAP AND NEW PROTECTED SLEEPER DETAIL
8. NEW PROTECTED SLEEPER DETAIL AT EXITS CONDENSING UNIT & ELECTRONIC SUPPORT
9. NEW CAFETERIA WALL SIDING - FELT BACK PVC ROOFING MEMBRANE WITH MECHANICAL FASTENING OVER POLYISO INSULATION AND VAPOR BARRIER ON EXISTING SHEATHING. SEAL AT WINDOWS WITH PVC CLAD METAL FLASHING, TYPICAL
10. PROVIDE WATERTIGHT SEAL ALL EXISTING PENETRATIONS
11. NEW PVC WALK PADS ADHERED TO ROOF
12. NEW EXPANSION 1 1/2" JOINT WITH FLEXIBLE PVC MEMBRANE COVER
13. PROVIDE NEW SKYLIGHT AND CURB ON ADDITIONAL WOOD BLOCKING - PROVIDE NEW MEMBRANE FLASHING TO ROOF
14. NEW PVC CLAD METAL SCUPPER WELDED TO ROOF MEMBRANE ATTACHED TO EXISTING D.S.
15. NEW STEEL CAT WHISKER LADDER FASTENED TO WALL FRAMING
16. NEW ALUMINUM SNOWFENCE WITH FINISH TO MATCH ROOFING FASTENED TO SOLID WOOD BLOCKING
17. 12" VERTICAL PVC FLASHING UP EXISTING WALL TIE INTO EXISTING THROUGH WALL FLASHING
18. REINSTALL EXISTING ROOF HATCH ON NEW WOOD BLOCKING. PROVIDE NEW 14" STEEL LADDER SOLTED TO EXISTING WALL
19. NEW 6" X 6" ALUMINUM PREFINISHED GUTTER w/COLOR TO MATCH EXISTING TO NEW MATCHING DOWNSPOUTS

ROOF TYPE KEY

TYPE A PROVIDE NEW WHITE 60 MIL PVC MEMBRANE ROOFING OVER COVER BOARD ON 5.5" POLYISO INSULATION & VAPOR BARRIER ON SLOPED STEEL DECK

TYPE B PROVIDE NEW WHITE 60 MIL PVC MEMBRANE ROOFING OVER COVER BOARD ON 5.5" POLYISO INSULATION & VAPOR BARRIER ON SLOPED WOOD DECK

TYPE C NEW GREEN FELT BACK 60 MIL PVC MEMBRANE ROOFING WITH PAVE STANDING SEAMS OVER COVER BOARD ON 5.5" POLYISO INSULATION & VAPOR BARRIER OVER SLOPED STEEL DECK

TYPE D PROVIDE NEW WHITE 60 MIL PVC MEMBRANE ROOFING OVER COVER BOARD ON TAPERED POLYISO INSULATION & VAPOR BARRIER ON EXISTING FLAT STRUCTURAL DECK

TYPE E AT CAFETERIA EXTERIOR VERTICAL WALL PROVIDE FELT BACK 60 MIL PVC ROOFING MEMBRANE OVER RECOVERY BOARD ON 2.5" POLYISOCYANURATE INSULATION & VAPOR BARRIER ON EXISTING SHEATHING. SEAL AT WINDOWS AND EDGES WITH PVC CLAD METAL FLASHING WITH NO EXPOSED FASTENERS

ROOF SYSTEMS

CONDR = CONDENSER UNIT
GBV = GOOSENECK VENT
PP = PITCH POCKET
GV = GRAVITY VENT
EF = EXHAUST FAN
PV EXT = PLUMBING VENTW/ EXTENSION
PV = PLUMBING VENT
RD = ROOF DRAIN
RTU = ROOF TOP UNIT

Plotdate: 7/25/2025 4:48:44 PM

MATZ COLLABORATIVE ARCHITECTS
[illegible] STREET, SUITE 308
FRAMINGHAM, MA, 01701

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Client
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Consultant

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Boylston Elementary School Roof Renovation

Location
200 Sewall Street, Boylston, MA 01505

MCA Project #
Project Number

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Revisions

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Drawing
Roof Partial Plan - Part 1

Scale: As indicated
Date: 07/18/25
Sheet
A101

ROOF NOTES

1. PROVIDE NEW PVC CLAD METAL EDGE FLASHING ON ADDITIONAL WOOD BLOCKING TO MATCH INSULATION THICKNESS. PROVIDE FOR EXPANSION WITH SLIP CONNECTIONS & METAL BACKERPLATES, TYPICAL
2. NEW PVC CLAD METAL PARAPET COPING WITH SLIP CONNECTIONS & METAL BACKERPLATES - EXTEND MEMBRANE ROOF FLASHING UNDER COPING
3. NEW MEMBRANE ROOF FLASHING UP UNDER ETR INSULATED METAL WALL PANEL SIDING WHERE METAL COUNTERFLASHING
4. PROVIDE NEW PVC MEMBRANE FLASHING AT LOWEREDGE SLOPED ROOF NEW ROOF DRAIN TO REPLACE EXISTING IN 4' X 4' SUMP
5. NEW TAPERED INSULATION CRICKET WITH COVER BOARD SLOPED 1/8" PER FOOT AT LOW POINT
6. EXISTING MECH UNIT, PROTECT DURING CONSTRUCTION
7. EXTERIOR DUCTWORK - PROVIDE NEW WATERPROOF INSULATION WRAP AND NEW PROTECTED SLEEPER DETAIL
8. NEW PROTECTED SLEEPER DETAIL AT EXTG CONDENSING UNIT & DUCTWORK SUPPORT
9. NEW CAFETERIA WALL ABOVE - FIN STRIPE PVC ROOFING MEMBRANE WITH MECHANICAL FASTENING OVER POLYISO INSULATION AND VAPOR BARRIER ON EXISTING SHEATHING, SEAL AT WINDOWS WITH PVC CLAD METAL FLASHING, TYPICAL
10. PROVIDE WATERTIGHT SEAL ALL EXISTING PENETRATIONS
11. NEW PVC WALK PADS ADHERED TO ROOF
12. NEW EXPANSION 1 1/2" JOINT WITH FLEXIBLE PVC MEMBRANE COVER
13. PROVIDE NEW SKYLIGHT AND CURB ON ADDITIONAL WOOD BLOCKING - PROVIDE NEW MEMBRANE FLASHING TO ROOF
14. NEW PVC CLAD METAL SCUPPER WELDED TO ROOF MEMBRANE ATTACHED TO EXISTING D.S.
15. NEW STEEL GALVANEED LADDER FASTENED TO WALL FRAMING
16. NEW ALUMINUM SNOWFENCE WITH FINISH TO MATCH ROOFING FASTENED TO GOLD WOOD BLOCKING
17. 12" VERTICAL PVC FLASHING UP EXISTING WALL TIE INTO EXISTING THROUGH WALL FLASHING
18. REINSTALL EXISTING ROOF HATCH ON NEW WOOD BLOCKING. PROVIDE NEW 14" STEEL LADDER BOLTED TO EXISTING WALL
19. NEW 5" X 5" ALUMINUM PREFINISHED GUTTER w/COLOR TO MATCH EXISTING TO NEW MATCHING DOWNSPOUTS

ROOF TYPE KEY

TYPE A PROVIDE NEW WHITE 60 MIL PVC MEMBRANE ROOFING OVER COVER BOARD ON 5.0" POLYISO INSULATION & VAPOR BARRIER ON SLOPED STEEL DECK

TYPE B PROVIDE NEW WHITE 60 MIL PVC MEMBRANE ROOFING OVER COVER BOARD ON 5.0" POLYISO INSULATION & VAPOR BARRIER ON SLOPED WOOD DECK

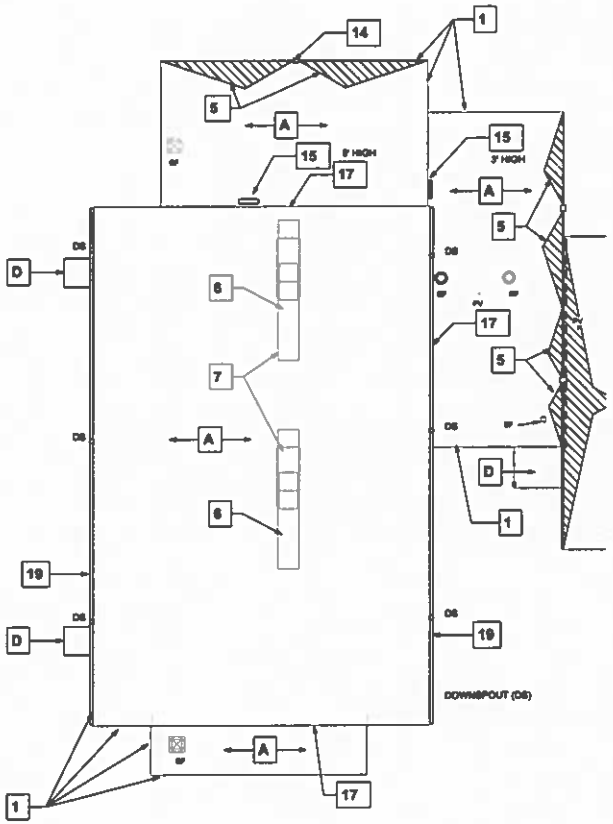
TYPE E NEW GREEN FELT BACK 60 MIL PVC adhesive ROOFING WITH FAUX STANDING SEAMS OVER COVER BOARD ON 5.0" POLYISO INSULATION & VAPOR BARRIER OVER SLOPED STEEL DECK

TYPE D PROVIDE NEW WHITE 60 MIL PVC MEMBRANE ROOFING OVER COVER BOARD ON TAPERED POLYISO INSULATION & VAPOR BARRIER ON EXISTING FLAT STRUCTURAL DECK

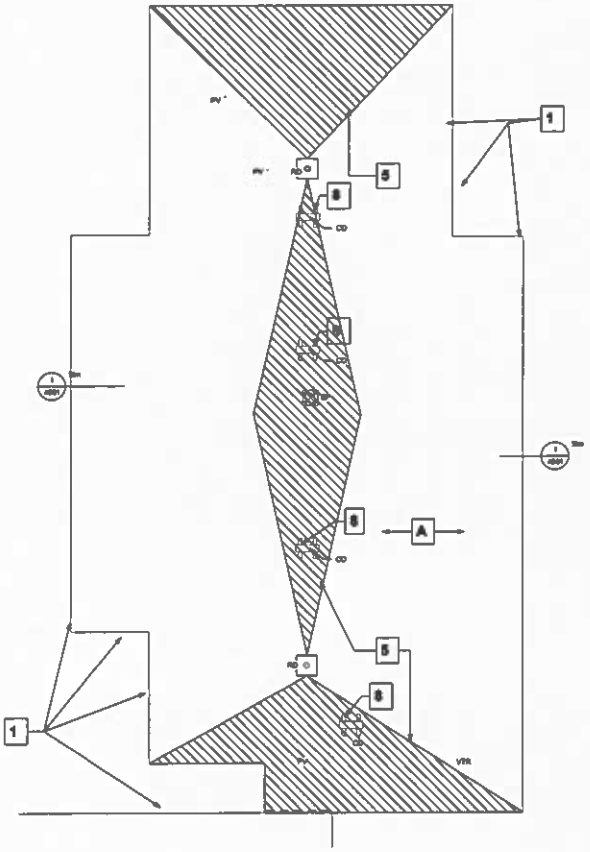
TYPE E AT CAFETERIA EXTERIOR VERTICAL WALL PROVIDE FELT BACK 60 MIL PVC ROOFING MEMBRANE OVER RECOVERY BOARD ON 2.0" POLYISOCYANURATE INSULATION & VAPOR BARRIER ON EXISTING SHEATHING SEAL AT WINDOWS AND EDGES WITH PVC CLAD METAL FLASHING WITH NO EXPOSED FASTENERS

ROOF SYSTEMS

CONDR = CONDENSER UNIT
GNV = GOOSENECK VENT
PP = PITCH POCKET
GV = GRAVITY VENT
EF = EXHAUST FAN
PV EXT = PLUMBING VENTW/ EXTENSION
PV = PLUMBING VENT
RD = ROOF DRAIN
RTU = ROOF TOP UNIT



② NEW ROOF PLAN PART 3
3/32" = 1'-0"



① NEW ROOF PLAN PART 2
3/32" = 1'-0"

Plotdate: 7/28/2025 4:48:52 PM

MATZ COLLABORATIVE ARCHITECTS
50 TREETH STREET, SUITE 300
FRAMINGHAM, MA 01701

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Client
Massachusetts School Building Authority

Consultant

Project
Boylston Elementary School Roof Renovation

Location
200 Sewall Street, Boylston, MA 01505

MCA Project #
Project Number

Stamp

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Revisions

No.	Date	Revisions

Drawing
Roof Partial Plan - Part 2 & 3

Scale: As indicated
Date: 07/18/25
Sheet
A102



CAFETERIA WEST WALL AT ROOF 'B'



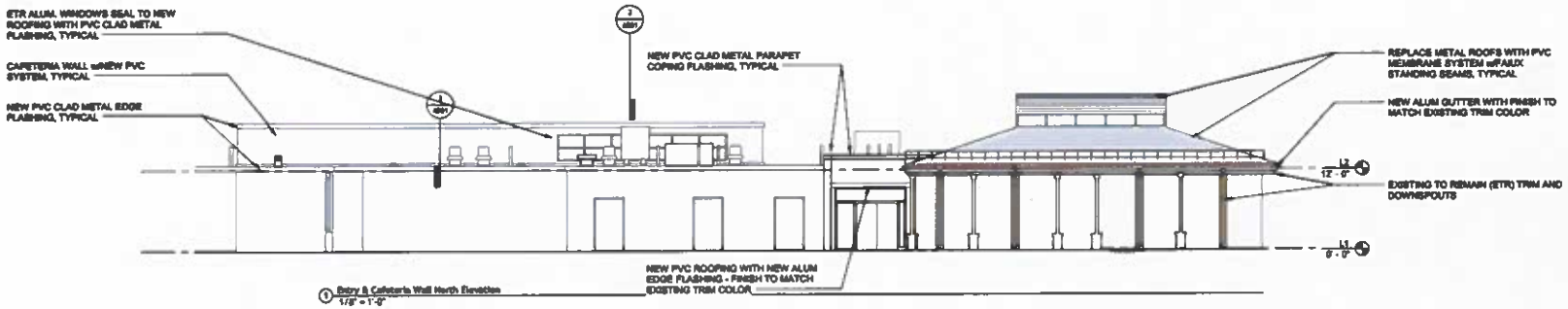
CAFETERIA SOUTH WALL AT ROOF 'J'



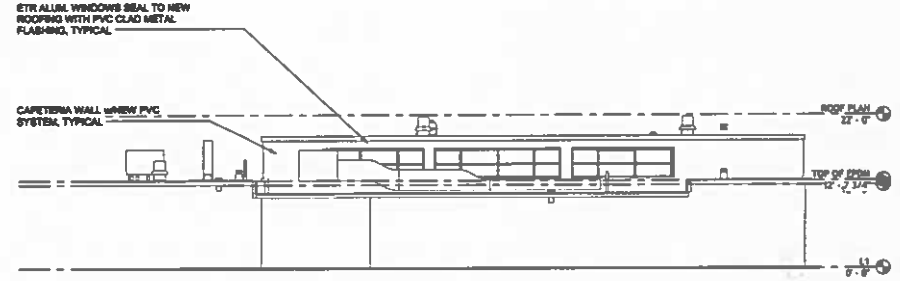
CAFETERIA NORTH WALL AT ROOF 'B' & 'D'



ENTRANCE WITH METAL ROOF 'H'



1 Entry & Cafeteria Wall North Elevation
1/8" = 1'-0"



3 Cafeteria Wall North Elevation
1/8" = 1'-0"

Plotted: 7/25/2025 4:47:01 PM

MATZ COLLABORATIVE ARCHITECTS
10 SPEEN STREET, SUITE 200
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Project Number

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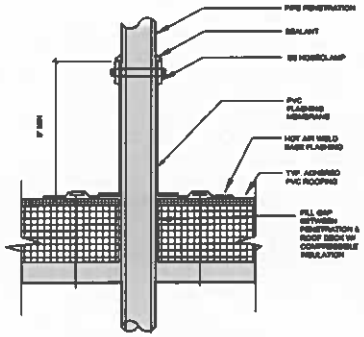
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Revisions

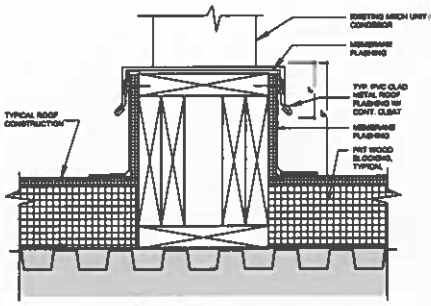
No.	Date	Remarks

Drawing
Partial Elevations

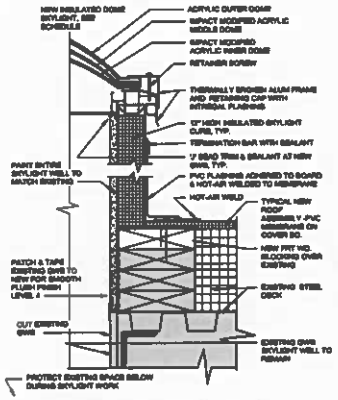
Scale 1/8" = 1'-0"
Date 07/16/25
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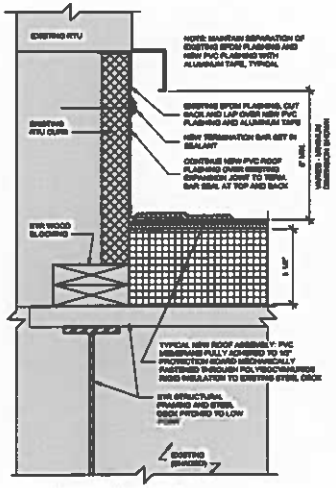
TYP. ROOF PENETRATION DETAIL



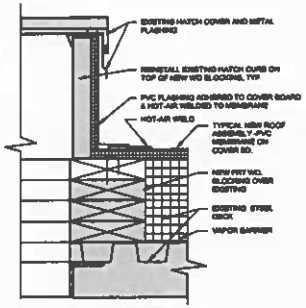
TYP MECH. EQUIPT. CURB DETAIL



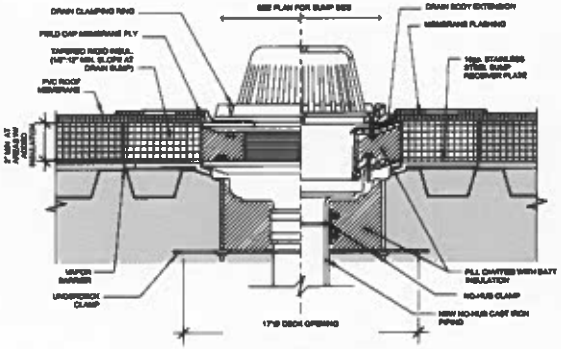
TYP. SKYLIGHT CURB DETAIL



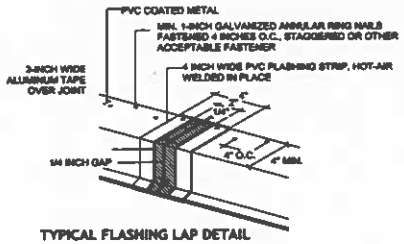
TYP. RTU CURB DETAIL



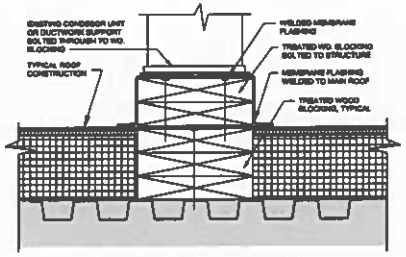
ROOF HATCH DETAIL



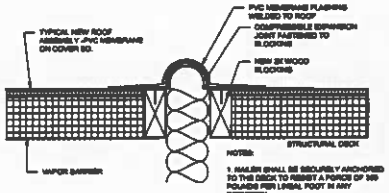
TYP. ROOF DRAIN DETAIL



TYPICAL FLASHING LAP DETAIL



PROTECTED SLEEPER DETAIL



TYPICAL EXPANSION JOINT DETAIL

Plotdate 7/25/2025 4:47:26 PM

MATZ COLLABORATIVE ARCHITECTS

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Client

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Consultant

Project

Boylston Elementary School Roof Renovation

Location

200 Sewall Street, Boylston, MA 01505

MCA Project #

Project Number

Drawings

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Revisions

No.	Date	Revision

Drawing

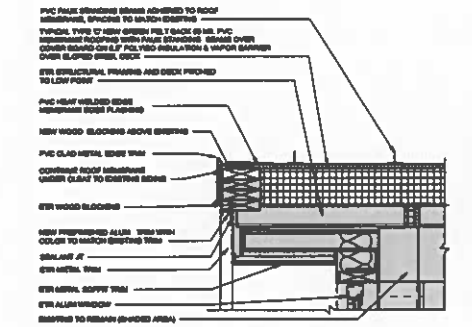
Typical Roof Details

Scale 3" = 1'-0"

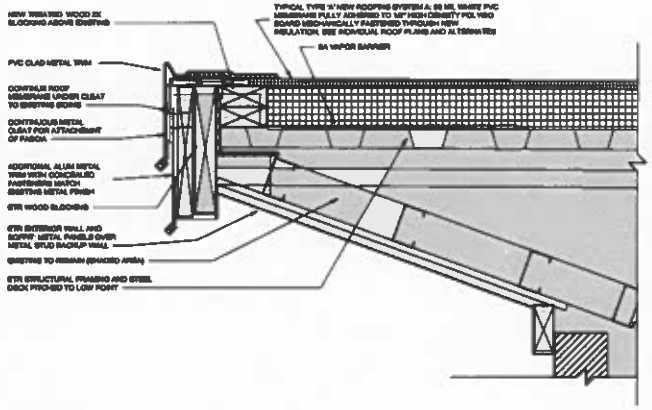
Date 07/19/25

Sheet

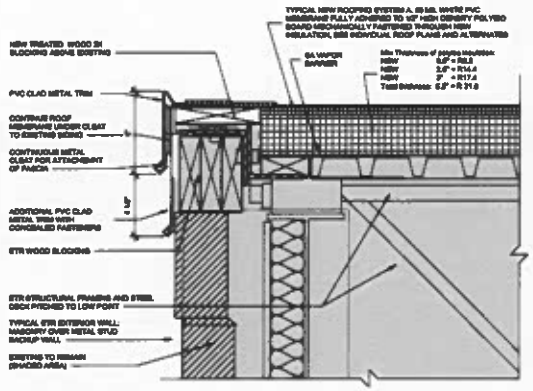
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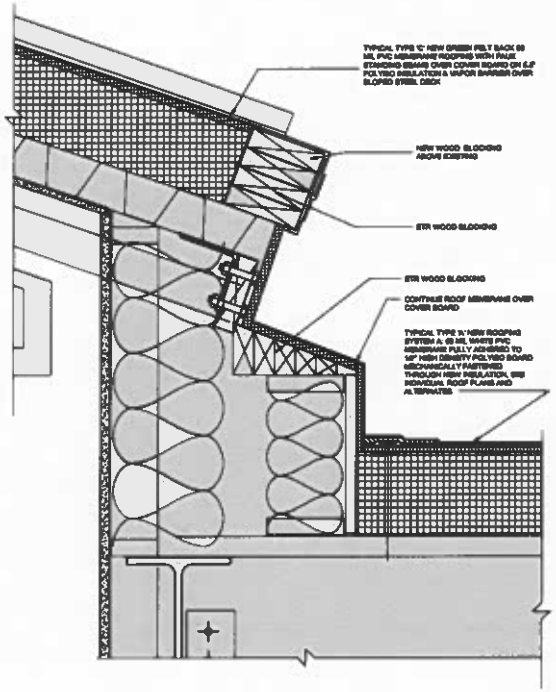
5 TYP METAL ROOF REPLACEMENT DET
1 1/2" = 1'-0"



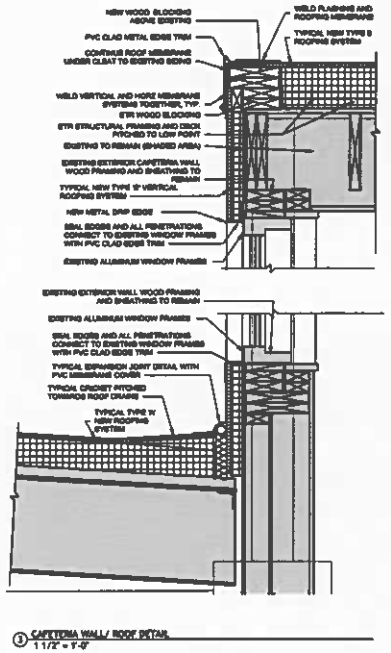
2 TYP ROOF EDGE DETAIL 2
3" = 1'-0"



1 TYP ROOF EDGE DETAIL 1
3" = 1'-0"



4 TYP ROOF EDGE CURVED
3" = 1'-0"



3 CAFETERIA WALL/ ROOF DETAIL
1 1/2" = 1'-0"

Revision: 7/25/2025 4:47:34 PM

MATZ COLLABORATIVE ARCHITECTS
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Revisions

No.	Date	Description

Drawing
Roof Details

Scale: As indicated
Date: 07/16/25
Sheet
A501