

MARGARET A. NEARY ELEMENTARY SCHOOL

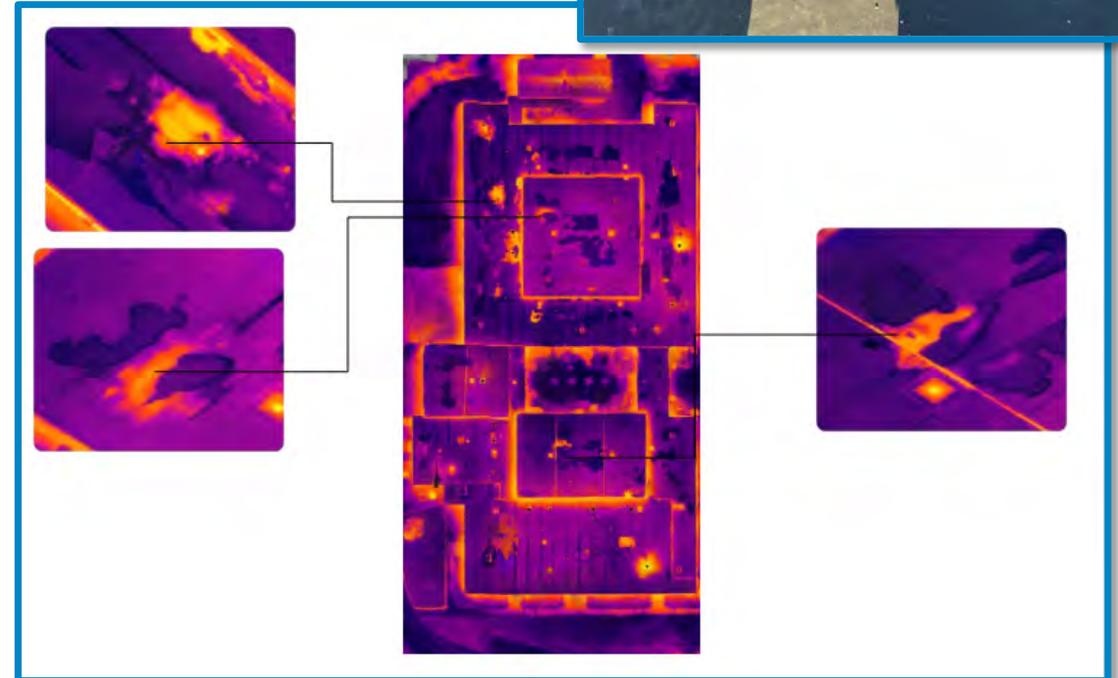
ROOF INVESTIGATION REPORT SUMMARY PRESENTATION



INVESTIGATION AT NEARY ELEMENTARY

What We Did:

- On-Site Investigation & Observations
 - Roof Test-Cuts
 - Infrared Moisture Survey
 - Interior Observations
 - Preliminary Accessibility Survey



OBSERVATIONS AT NEARY ELEMENTARY

What we saw:

- large amounts of deformed insulation
- significant areas of ponding water
- numerous points of punctured roofing membrane
- Seam failure and flashing detachment



ANALYSIS WITHIN THE OFFICE

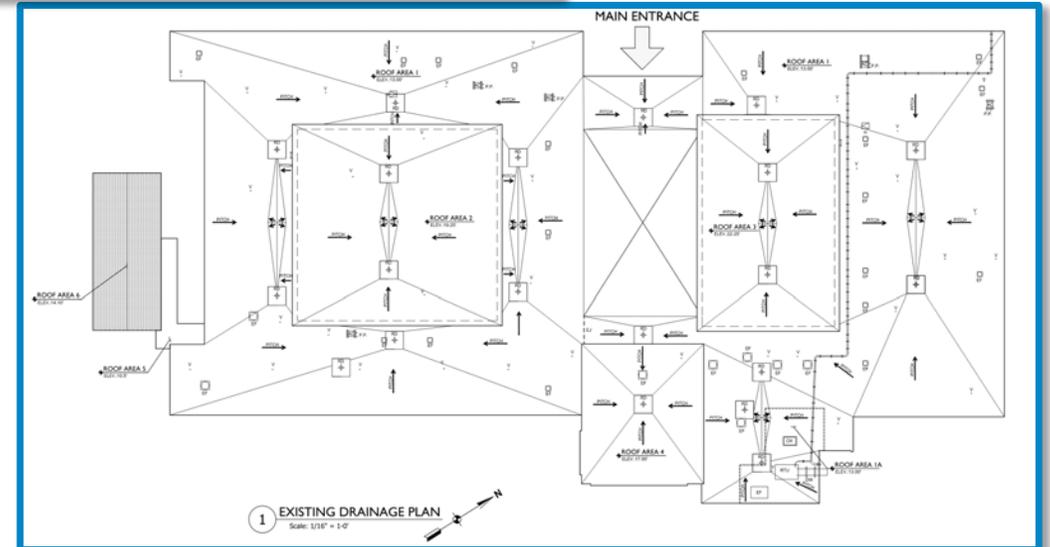
What We Did:

- Assessed the current drainage plan through code compliant strategies to mitigate water ponding
- Calculated proper drain sizing to minimize roof water exposure
- Analyzed future roof assemblies to ensure the current structure can support its weight and possible photovoltaics
- Calculated wind uplift pressures present on all edges of the building to prevent future flashing detachment
- Analyzed & calculated the repair alternatives to consider all available options
- Prepared cost estimates for construction alternatives

Roof Area Properties		Site Properties	
Dimensions:	170 x 350 ft (51.82 x 106.68 m)	Surface Roughness:	B
Height:	13 ft (3.96 m)	Wind Speed:	130
Slope:	0.125 in 12 (0.6°)	In a Tropical Cyclone Prone Region:	N
Internal Fire Rating:	None Selected	Enclosure Classification:	Enclosed
Exterior Fire Rating:	None Selected	Hail Zone:	None Selected
Min 3ft (9m) Continuous Parapet:	N		

Zone	Wind Pressure (psf)	Roof	Fascia (psf)	parapet (psf)	Gable (psf)
Zone 1 Prime	26 psf (1.2 kPa)	1-50			
Zone 1	49 psf (2.1 kPa)	1-105			
Zone 2 (Vertical Resistance)	59 psf (2.6 kPa)	1-120		118	118
Zone 3 (Vertical Resistance)	81 psf (3.9 kPa)	1-163		162	162
Perimeter (Horizontal Resistance)	28 psf (1.3 kPa)		58	58	58
Corner (Horizontal Resistance)	34 psf (1.6 kPa)		68	68	68

Permits, Bonds & Insurance	5%		\$129,927
General Conditions	8%		\$207,863
Mobilization	2%		\$51,971
Overhead & Profit	15%		\$389,780
Division 01 Sub Total			\$779,561
Removal Of Exist. Adhered EPDM Roof System Down To Existing Gypsum Deck	63,000 SF	\$2.50	\$157,500
Removal Of Asbestos Containing Insulation From Drain Piping	63,000 SF	\$1.00	\$63,000
Removal Of Asbestos Containing Transite Panels Below Roof Area No. 2	1,050 SF	\$10.00	\$10,500
Division 02 Sub Total			\$220,500
Removal & Replacement Of Det. Gypsum Decking & Fiberglass Form Board	2,000 SF	\$25.00	\$50,000
Division 03 Sub Total			\$50,000
Repointing of Chimney	300 SF	\$50.00	\$15,000
Remove & Replace Cracked And Deteriorated Brick	30 EA	\$65.00	\$1,950
Division 04 Sub Total			\$16,950
Roof Carpentry	63,000 SF	\$2.00	\$126,000
Grated Wood Blocking Replacement	3,000 BF	\$5.00	\$15,000
Division 06 Sub Total			\$141,000
Self-Adhered Air Barrier & Primer	63,000 SF	\$4.00	\$252,000
High Density Cover Board Set In Insulation Adhesive	63,000 SF	\$3.00	\$189,000
0" Tapered Poly. Insul. Set In Insul Adhesive (Thickness: 4.7"-12")	63,000 SF	\$12.00	\$756,000
Adhered Single Ply Roof Membrane With 20-Year Systems Warranty	63,000 SF	\$8.00	\$504,000
Sleepers Mini ACCU Units	5 SF	\$700.00	\$3,500
& Flash Pipe Enclosure Boxes	5 SF	\$3,500.00	\$17,500
Premolded Rubber Sleepers Under Gas Line At 8'-0" O.C.	50 EA	\$75.00	\$3,750
Roof To Wall Expansion Joint	35 LF	\$75.00	\$2,625
Roof To Roof Expansion Joint	15 LF	\$50.00	\$750
Roof Drain & Install Drain Markers	15 EA	\$1,500.00	\$22,500
Vent Pipe Penetrations	28 EA	\$200.00	\$5,600
Exhaust Fan Curbs	24 EA	\$400.00	\$9,600
Roofing Unit	1 EA	\$1,500.00	\$1,500
& Install Roof Hatch	2 EA	\$5,500.00	\$11,000
Perimeter Edge Roof Area Nos. 1, 2, & 3 (2-Piece - 16" Face)	2,027 LF	\$65.00	\$131,765
Perimeter Edge Roof Area No. 4	23 LF	\$45.00	\$1,035
Base Wall & Install Alum. Reglet Counterflashing (Below Roof Area No. 3)	354 LF	\$70.00	\$24,780
Base Wall & Install Aluminum Counterflashing (Below Roof Area No. 2)	870 SF	\$60.00	\$52,200
Walkway Pad	1,272 LF	\$20.00	\$25,440
& Install Safety Railing & Ladder Up Safety Post	2 EA	\$4,000.00	\$8,000
& Install Roof Guards	700 LF	\$60.00	\$42,000
& Install New Roof Access Ladders	2 EA	\$3,500.00	\$7,000
Division 07 Sub Total			\$2,071,535
Ext. Stucco Walls At Roof Area Nos. 2 & 3 & Apply Text. Elasto. Coating	3,550 SF	\$7.00	\$24,850
Division 09 Sub Total			\$24,850
Vent Replacement & Sealing Ladder Bases	16 EA	\$2,000.00	\$32,000



CONCLUSION

What We Recommend:

- Complete removal and replacement of the existing roof assembly down to the structural deck
 - Replacement with a thermally efficient 90-mil EPDM roof system with 30-year full system warranty
 - Replacement of all drains and tapered insulation to enhance drainage
 - Accessibility modifications as required by cost of roof replacement
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- Roof Replacement Cost - \$4.5M
 - Accessibility Upgrade Cost - \$2.1M

ACCESSIBILITY CONSIDERATIONS

MA 521 CMR Requirements

Project Work	Project Cost	Required Accessibility Upgrades
Roof repair or replacement ONLY	<\$500,000	No upgrades are triggered by this work
Roof repair or replacement ONLY	$\$500,000 < X < \$3.7M$	Upgrades will only be required for an accessible public entrance and an accessible toilet room, telephone, drinking fountain (if toilets, telephones and drinking fountains are provided).
Roof repair or replacement ONLY	>\$3.7M	The entire building will need to comply with current accessibility code

Neary Elementary School = \$11,183,900 + Modular Classrooms = \$609,900 = \$11,793,800

Assessment Ratio Adjustment = \$11,793,800 / 0.95 = \$12,414,526.32

*Combined Full & Fair Cash Value = \$12,414,526.32 * 30% = \$3,724,357.89*

Alterations Required

Accessible Route – sidewalks, play areas, courtyards, ramps & entrances

Bathrooms – Adults/Staff & Children

Classroom – Doorways of all classrooms

Accessibility Upgrade Cost - \$2.1M