

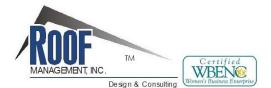
P.O. Box 265 Design & Consulting Goshen, KY 40026 (502) 228-7298 Operations@roofmgmt.net

ROOF EVALUATION REPORT

FRANKLIN TOWNSHIP COMM. SCHOOL CORPORATION THOMPSON CROSSING ELEMENTARY SCHOOL 7525 EAST THOMPSON ROAD INDIANAPOLIS, INDIANA

MARCH 17, 2021





R.M.I. # 021-193 MARCH 17, 2021

ROOF EVALUATION

SUMMARY PAGE

A Roof Evaluation was completed on the **Thompson Crossing Elementary School** located at **7525 East Thompson Road** in **Indianapolis, Indiana** on **March 17, 2021**. The roof area on the facility is approximately **120,619 square feet** and has been divided into **ten (10)** sections referred to as **A thru J.** Observations on each section and a breakdown of areas of wet insulation are provided below. Additional information provided for each section includes color photographs detailing the locations of all notable conditions observed during the inspection, recommended actions to correct the defects, thermograms showing selected wet areas detected in the Non Destructive Infrared Roof Moisture Survey (N.D.I.M.S.), a spreadsheet with five year capital and expense budget estimates and specific information on each section, core analysis and a CAD drawing showing the location of all noted conditions and all areas of wet insulation detected during our N.D.I.M.S.

A NON-DESTRUCTIVE INFRARED ROOF MOISTURE SURVEY was completed on Sections A, B, C & D on Wednesday, March 10, 2021. The total square footage of the roof areas surveyed is approximately 20,316 square feet. In the course of the survey three (3) areas of wet insulation were detected, totaling 1,084 square feet or approximately 5.34% of the roof area surveyed. The wet areas were marked on the surface of the roof in blue paint and have been plotted on the drawing, which is included in this report.

OBSERVATIONS

ROOF SECTIONS A, C & D

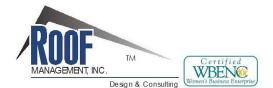
The Mechanically Attached Thermoplastic Roof System on these sections appears to be in **Poor Condition.** The noted defects in need of attention include areas of wet substrate identified during the Infrared Roof Moisture Survey, deteriorated field membrane, voids in the base flashings, racking of wall flashings and other miscellaneous items. In addition, fall hazards were identified at the roof hatches on Sections A and D. Non-penetrating roof hatch guard rails with self-closing gates should be added at the roof hatches.

Based on the conditions noted in the photo section of this report, we recommend replacement of these roof systems in 2022.

ROOF SECTION B

The Mechanically Attached Thermoplastic Roof System on this section appears to be in Good Condition. There were no noted defects in need of attention at the time of our visit.

With proper continued preventive maintenance, this roof system should remain serviceable for several years.



ROOF EVALUATION

R.M.I. # 021-193 MARCH 17, 2021

ROOF SECTIONS E, F, G, H, I & J

The **Metal Roof System** on these sections appear to be in **Fair Condition.** There were no noted defects in need of attention at the time of our visit.

With proper continued preventive maintenance, these roof systems should remain serviceable for several years.

BREAKDOWN OF WET INSULATION

<u>Roof Section</u> A	<u>Sq. Ft. Surveyed</u> 11,091	<u>Wet Area #</u> 1 2	<u>Sq. Ft. Wet</u> 584 <u>200</u>	<u>% Wet</u>
		Total Wet Section A	784 sq ft wet	7.07%
В	4,740	No Wet Detected		
С	2,292	No Wet Detected		
D	2,193	3 Total Wet Section D	300 300 sq ft wet	13.68%
Total Scanned	20,316 sq. ft		1,084 sq ft wet	5.34%

INSPECTION DATE: MARCH 17, 2021			RMI #: 021-19	21-193 OWNER: FTCSC			PROJECT MANAGER: FRED MCWHORTER II						
BUILDING NAME: THOMPSON CROSSING ELEM. SCHOOL			BUILDING ADDRESS: 7525 EAST THOMPSON ROAD, INDIANAPOLIS, INDIANA										
тота	L SQ/F	T: 120,619	ROOF CORE SAM	PLES WERE N	OT TESTE	D FOR AC	M						
SECTION	OF SECTIO N	TYPE OF ROOF SYSTEM	MANUFACTURER	WARRANTY	CONDITION OF ROOF	OR SERVICE ROOF	YEAR TO REPLACE ROOF	ESTIMATED REPLACEMENT COST	2021 BUDGET	2022 BUDGET	2023 BUDGET	2024 BUDGET	2025 BUDGET
А	11,091	MECHANICALLY ATTACHED THERMOPLASTIC	REPUBLIC	135019 EXP 12/15/21	POOR	REPLACE	2022	\$140,000.00	\$12,000.00	\$140,000.00	\$300.00	\$300.00	\$300.00
в	4,740	MECHANICALLY ATTACHED THERMOPLASTIC	FIRESTONE	3265682 EXP 12/2/38	GOOD	SERVICE	2040	\$84,000.00	\$300.00	\$300.00	\$300.00	\$300.00	\$300.00
с	2,292	MECHANICALLY ATTACHED THERMOPLASTIC	REPUBLIC	135019 EXP 12/15/21	POOR	REPLACE	2022	\$44,000.00	\$6,000.00	\$44,000.00	\$200.00	\$200.00	\$200.00
D	2,193	MECHANICALLY ATTACHED THERMOPLASTIC	REPUBLIC	135019 EXP 12/15/21	POOR	REPLACE	2022	\$42,000.00	\$6,000.00	\$42,000.00	\$200.00	\$200.00	\$200.00
Е	8,698	METAL	UNKNOWN	UNKNOWN	GOOD	SERVICE	2030	\$215,000.00	\$300.00	\$300.00	\$500.00	\$500.00	\$800.00
F	21,074	METAL	UNKNOWN	UNKNOWN	GOOD	SERVICE	2030	\$120,000.00	\$400.00	\$400.00	\$600.00	\$800.00	\$1,000.00
G	21,071	METAL	UNKNOWN	UNKNOWN	GOOD	SERVICE	2030	\$420,000.00	\$400.00	\$400.00	\$600.00	\$8,000.00	\$1,000.00
Н	8,682	METAL	UNKNOWN	UNKNOWN	GOOD	SERVICE	2030	\$215,000.00	\$300.00	\$300.00	\$500.00	\$500.00	\$800.00
I	3,283	METAL	UNKNOWN	UNKNOWN	GOOD	SERVICE	2030	\$90,000.00	\$300.00	\$300.00	\$300.00	\$500.00	\$500.00
J	37,495	METAL	UNKNOWN	UNKNOWN	GOOD	SERVICE	2030	\$740,000.00	\$1,000.00	\$1,000.00	\$1,500.00	\$1,500.00	\$1,500.00
						*CAPI	TAL COS	ST ESTIMATE	\$0.00	\$226,000.00	\$0.00	\$0.00	\$0.00

***TOTAL ESTIMATE**

Fall Protection- Evaluation of the safety measures for all personnel accessing roofs and while on the roof is wholly the responsibility of the property owner/management. Certain roof locations and conditions may require fall protection, which is further identified by OSHA (Occupational Safety and Health Act) standards and model building codes. Determining the need for fall protection or other safety measures required is not within RMI's scope of work nor included in the estimates provided herein.

*These estimates do not include any design, contract administration, travel, nonscheduled expenses such as deck/insulation allowance, interior protection, and asbestos abatement allowance. All estimates are subject to change based on future market conditions and are based on current market pricing.

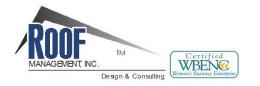
2022 TOTAL CAPITAL REQUIREMENT - SECTIONS A. C & D

\$27,000.00

\$3,000.00

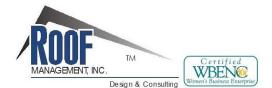
*EXPENSE COST ESTIMATE \$27,000.00

ECELIOTAL GAITTAL REGOMENTENT OLOTIONO A,	
Roof Replacement Cost Estimate	\$226,000.00
Non-Scheduled Anticipated Deck/Insulation Replacement Allow.	\$12,000.00
RMI Bid Pkg., Contract Administration & Travel	\$26,400.00
TOTAL CAPITAL REQUIREMENT	\$264,400.00



\$5,000.00 \$12,800.00 \$6,600.00

\$229,000.00 \$5,000.00 \$12,800.00 \$6,600.00



ROOF EVALUATION

R.M.I. # 021-193 MARCH 17, 2021

CORE ANALYSIS

CORE SAMPLE #: One, Field Membrane, Roof Section A NUMBER OF PLIES: Two (1 Thermoplastic, 1 EPDM) INSULATION TYPE & THICKNESS: Wood Fiber 0.5" / Polyisocyanurate 2.5" / Gypsum 0.5"

BITUMEN TYPE: N/A

VAPOR RETARDER: N/A DECK TYPE: Steel DRAINAGE: Interior Drains with Overflow Interior Drains REMARKS: The core consists of a Mechanically Attached Thermoplastic Roof System, over Wood Fiber insulation, over Polyisocyanurate insulation, over EPDM membrane, over Gypsum board, over the decking.

CORE SAMPLE #: Two, Field Membrane, Roof Section B RMI #18-302 NUMBER OF PLIES: One (Thermoplastic)) INSULATION TYPE & THICKNESS: Isogard HD 0.5" / Two Polyisocyanurate 1.75"

(3.5" Total)

BITUMEN TYPE: *N/A*

VAPOR RETARDER: *N/A*

DECK TYPE: Steel

DRAINAGE: Interior Drains with Overflow Interior Drains

REMARKS: The core consists of a Mechanically Attached Thermoplastic Roof System, over one (1) layer of Isogard HD, over two (2) layers of Polyisocyanurate insulation, over the decking.

CORE SAMPLE #: Three, Field Membrane, Roof Section C

NUMBER OF PLIES: *Two (1 Thermoplastic, 1 EPDM)*

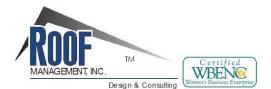
INSULATION TYPE & THICKNESS: *Gypsum 0.5" / Polyisocyanurate 4.5"* **BITUMEN TYPE:** *N/A*

VAPOR RETARDER: N/A

DECK TYPE: Steel

DRAINAGE: Interior Drains with Overflow Interior Drains

REMARKS: The core consists of a Mechanically Attached Thermoplastic Roof System, over Gypsum board, over EPDM membrane, over Polyisocyanurate insulation, over the decking.



ROOF EVALUATION

R.M.I. # 021-193 MARCH 17, 2021

CORE ANALYSIS

CORE SAMPLE #: Four, Field Membrane, Roof Section D NUMBER OF PLIES: Two (Thermoplastic) INSULATION TYPE & THICKNESS: Wood Fiber 0.5" / Polyisocyanurate 6.5" (Tapered)

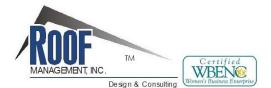
BITUMEN TYPE: N/A VAPOR RETARDER:

DECK TYPE: Steel

DRAINAGE: Interior Drains with Overflow Interior Drains

N/A

REMARKS: The core consists of a Mechanically Attached Thermoplastic Roof system, over Thermoplastic membrane, over Wood Fiber board, over Tapered Polyisocyanurate, over the decking.



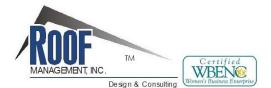
R.M.I. # 021-193 MARCH 17, 2021

ROOF EVALUATION

PHOTO ONE



CONDITION: An overview of the Mechanically Attached Thermoplastic Roof System on Section A.



R.M.I. # 021-193 MARCH 17, 2021

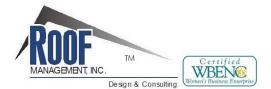
ROOF EVALUATION

PHOTO TWO



CONDITION: A view of wet substrate (*in the distance*) identified in the Infrared Roof Moisture Survey; one surface anomaly was identified in this area.

RECOMMENDED ACTION: All affected material should be removed and replaced with matching materials.



R.M.I. # 021-193 MARCH 17, 2021

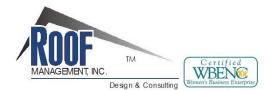
ROOF EVALUATION

PHOTO THREE



CONDITION: There is a void in the field seam at this location.

RECOMMENDED ACTION: The void should be repaired with Thermoplastic membrane.



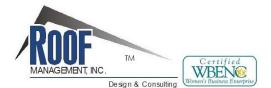
ROOF EVALUATION

R.M.I. # 021-193 MARCH 17, 2021

PHOTO FOUR



CONDITION: Previous repairs were noted in random locations.



R.M.I. # 021-193 MARCH 17, 2021

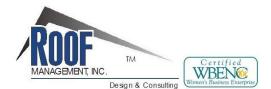
ROOF EVALUATION

PHOTO FIVE



CONDITION: A view of wet substrate identified in the Infrared Roof Moisture Survey; several surface anomalies were identified in this area.

RECOMMENDED ACTION: All affected material should be removed and replaced with matching materials.



ROOF EVALUATION

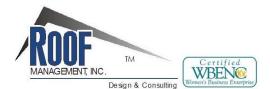
R.M.I. # 021-193 MARCH 17, 2021

PHOTO SIX



CONDITION: There is a void in the corner flashing at this location.

RECOMMENDED ACTION: The void should be repaired with matching Thermoplastic membrane.



ROOF EVALUATION

R.M.I. # 021-193 MARCH 17, 2021

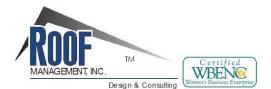
PHOTO SEVEN



CONDITION: The pipe boot is disfigured at this location.

RECOMMENDED ACTION:

The pipe boot should be removed and replaced with a prefabricated Thermoplastic pipe boot.



ROOF EVALUATION

R.M.I. # 021-193 MARCH 17, 2021

PHOTO EIGHT

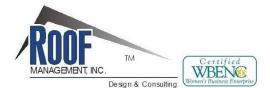


CONDITION: The field membrane is cracking at this location.

RECOMMENDED ACTION:

The affected membrane should be covered with a Thermoplastic "target patch".

ROOF EVALUATION

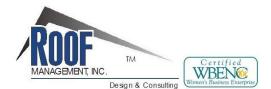


R.M.I. # 021-193 MARCH 17, 2021

PHOTO NINE



CONDITION: Another view of view of an uninstalled roof hatch safety surround. Nutec Roofing will be on site the week of April 12, 2021 to reinstall the gate as it was part of the roof repair scope of work they completed in 2020.



ROOF EVALUATION

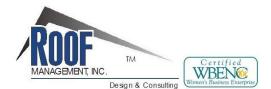
R.M.I. # 021-193 MARCH 17, 2021

PHOTO TEN



CONDITION: Roof traffic around the roof hatch presents a fall hazard. A safety rail system should be installed along this perimeter.

RECOMMENDED ACTION: Correction of this condition should be considered in the design phase of the roof replacement.



ROOF EVALUATION

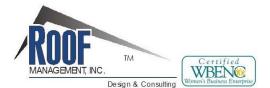
R.M.I. # 021-193 MARCH 17, 2021

PHOTO ELEVEN



CONDITION: The membrane flashings are deteriorating at random locations.

RECOMMENDED ACTION: This condition should be monitored until roof replacement in 2022.



ROOF EVALUATION

R.M.I. # 021-193 MARCH 17, 2021

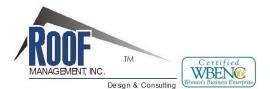
PHOTO TWELVE



CONDITION: There is a void in the previous repair attempt at this location.

RECOMMENDED ACTION:

The void should be repaired with matching Thermoplastic membrane.



ROOF EVALUATION

R.M.I. # 021-193 MARCH 17, 2021

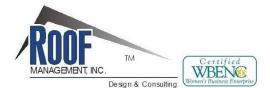
PHOTO THIRTEEN



CONDITION: There is a void in the corner flashing at this location.

RECOMMENDED ACTION:

The void should be repaired with matching Thermoplastic membrane.



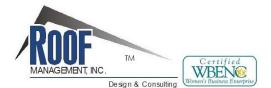
ROOF EVALUATION

R.M.I. # 021-193 MARCH 17, 2021

PHOTO FOURTEEN



CONDITION: An overview of the Mechanically Attached Thermoplastic Roof System on Section B.



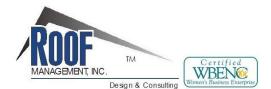
R.M.I. # 021-193 MARCH 17, 2021

ROOF EVALUATION

PHOTO FIFTEEN



CONDITION: An overview of the Mechanically Attached Thermoplastic Roof System on Section B.



ROOF EVALUATION

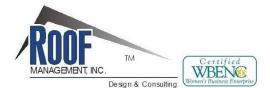
R.M.I. # 021-193 MARCH 17, 2021

PHOTO SIXTEEN



CONDITION: An overview of the Mechanically Attached Thermoplastic Roof System on Section B.

ROOF EVALUATION



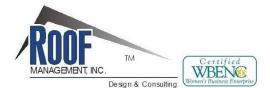
R.M.I. # 021-193

MARCH 17, 2021

PHOTO SEVENTEEN



An overview of the Mechanically Attached Thermoplastic Roof **CONDITION:** System on Section C.



R.M.I. # 021-193 MARCH 17, 2021

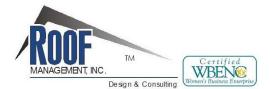
ROOF EVALUATION

PHOTO EIGHTEEN



CONDITION: The membrane base flashing is racking in random locations.

RECOMMENDED ACTION: This condition should be monitored until roof replacement in 2022.



ROOF EVALUATION

R.M.I. # 021-193 MARCH 17, 2021

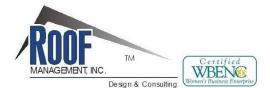
PHOTO NINETEEN



CONDITION: The sheet metal cap is rusted at this location.

RECOMMENDED ACTION:

All rusted material should be painted with a rust inhibitor paint.



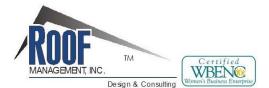
R.M.I. # 021-193 MARCH 17, 2021

ROOF EVALUATION

PHOTO TWENTY



CONDITION: An overview of the Mechanically Attached Thermoplastic Roof System on Section D.



ROOF EVALUATION

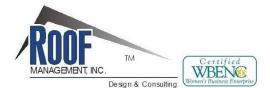
R.M.I. # 021-193 MARCH 17, 2021

PHOTO TWENTY-ONE



CONDITION: Use of the roof hatch presents a fall hazard. A safety operable rail system should be installed around this roof hatch.

RECOMMENDED ACTION: Correction of this condition should be considered in the design phase of the roof replacement.



ROOF EVALUATION

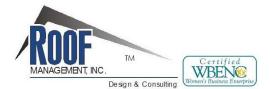
R.M.I. # 021-193 MARCH 17, 2021

PHOTO TWENTY-TWO



CONDITION: A view of wet substrate identified in the Infrared Roof Moisture Survey; no surface anomalies were identified in this area.

RECOMMENDED ACTION: All affected material should be removed and replaced with matching materials.



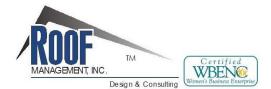
ROOF EVALUATION

R.M.I. # 021-193 MARCH 17, 2021

PHOTO TWENTY-THREE



CONDITION: An overview of the Metal Roof System on Section E.



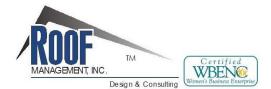
ROOF EVALUATION

R.M.I. # 021-193 MARCH 17, 2021

PHOTO TWENTY-FOUR



CONDITION: An overview of the Metal Roof System on Section F.



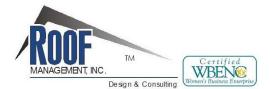
ROOF EVALUATION

R.M.I. # 021-193 MARCH 17, 2021

PHOTO TWENTY-FIVE



CONDITION: An overview of the Metal Roof System on Section F.



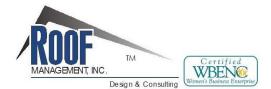
ROOF EVALUATION

R.M.I. # 021-193 MARCH 17, 2021

PHOTO TWENTY-SIX



CONDITION: An overview of the Metal Roof System on Section G and H.



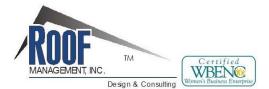
ROOF EVALUATION

R.M.I. # 021-193 MARCH 17, 2021

PHOTO TWENTY-SEVEN



CONDITION: An overview of the Metal Roof System on Section J.



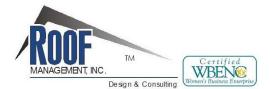
ROOF EVALUATION

R.M.I. # 021-193 MARCH 17, 2021

PHOTO TWENTY-EIGHT



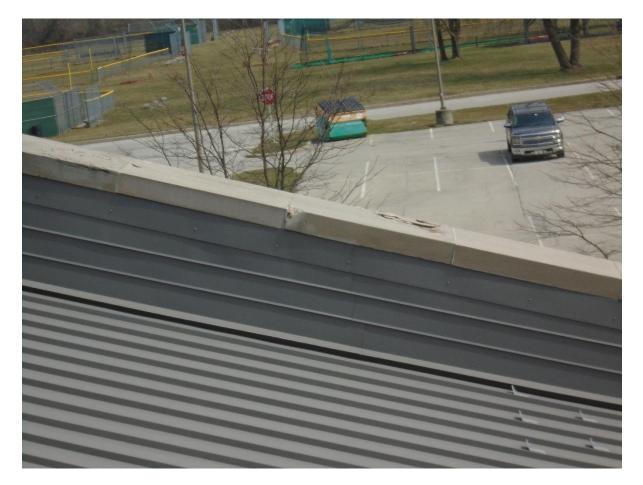
CONDITION: An overview of the Metal Roof System on Section J.



ROOF EVALUATION

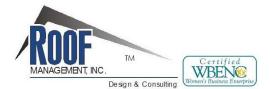
R.M.I. # 021-193 MARCH 17, 2021

PHOTO TWENTY-NINE



CONDITION: The masonry coping stones are deteriorating at this location.

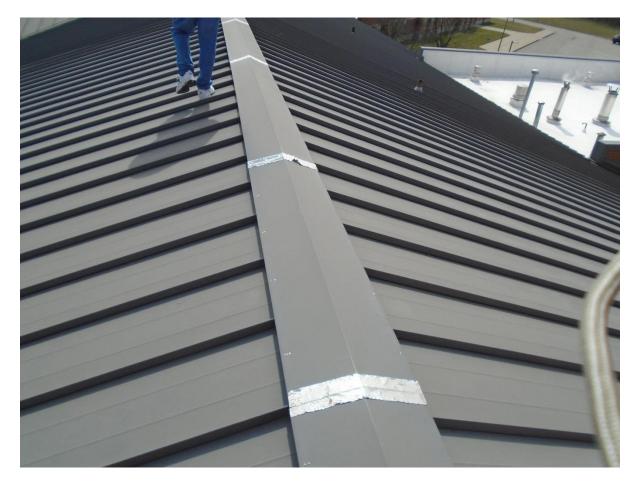
RECOMMENDED ACTION: A masonry professional should evaluate.



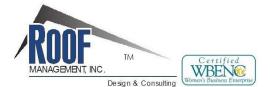
ROOF EVALUATION

R.M.I. # 021-193 MARCH 17, 2021

PHOTO THIRTY



CONDITION: A view of previous repairs on Section J.



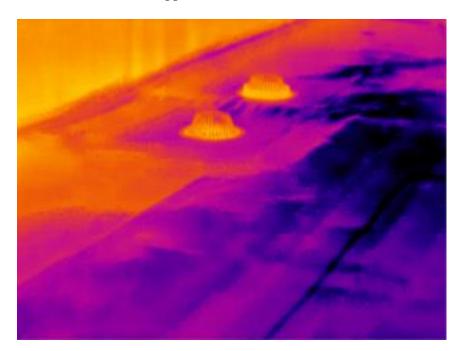
R.M.I. # 021-193 MARCH 17, 2021

ROOF EVALUATION

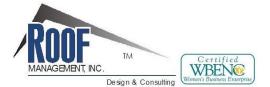
THERMOGRAM ONE

LOCATION: Roof Section A, Wet Area #1

REMARKS: The brighter areas appearing on the surface of the roof depict moisture laden insulation. This wet area, located in the north drain valley, was one of two wet areas detected on this upper-level roof section.







ROOF EVALUATION

R.M.I. # 021-193 MARCH 17, 2021

THERMOGRAM TWO

LOCATION: Roof Section D, Wet Area #2

REMARKS: Sub-surface moisture is migrating down the slope of the roof in this area.

