

ROOF ASSESSMENT REPORT

**THE COLLE BUILDING
85 AVENUE A
TURNER FALLS, MA 01376**

Prepared For:

Mr. Steven Ellis
Town Administrator
Town of Montague, Massachusetts



Prepared By:

**Northeast Roof Consultants, LLC
2 Peggy Drive
Southborough, MA 01772
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Date: January 18, 2022
NRC Project No. 22-001

January 18 2022

Mr. Steven Ellis
Town Administrator
Town of Montague
One Avenue A
Turners Falls, MA 01376
(Email: townadmin@montague-ma.gov)

RE: Roofing Consulting Services
Roof Assessment and Report
The Colle Building
Turners Falls, MA

I. INTRODUCTION

On Thursday, January 6, 2022, Northeast Roof Consultants was on site to perform a visual assessment of the existing single-ply roofing systems over the Colle Building. Access to the roof was made through an internal roof hatch on the main upper low-slope roof, with the assistance of Highway Maintenance personnel. The weather on the day of the inspection was mostly clear with temperatures in the 30's. Following are the results of our assessment. As exploratory test cuts were not taken as part of this assessment, the thickness and type of underlying components on the side and rear roof areas could not be verified. The roof components on the main upper roof area were visible at the roof hatch location. The report includes a general overview of the facility, verified roof sizes and areas, general roof observations, existing issues, conclusions and recommendations with cost estimates for the recommended scope of work. Photo documentation of the assessment and a roof sketch showing the locations of the problem areas is also included.

II. GENERAL DESCRIPTION

The Colle Building is a multi-story brick and wood framed facility built around 1928. The roof consists of a main upper roof area with steeper roof sections to the side and rear of the building. The rear steep roof drains on to a low-slope roof section in the far back of the building. The roof areas are covered with a combination of mechanically attached and adhered reinforced EPDM rubber roofing systems. The roofing system manufacturer is Genflex Roofing Systems, a subsidiary of Firestone Building Products Company. The perimeters of the roof consist parapets at the front and rear side of the roof and flat edges around the majority of the other areas. The roof pitches to the Shea Theater side and also to the rear of the roof where perimeter gutters and down spouts are located. The roof has positive slope in all areas resulting in no standing water issues on the surface of the roof. The parapet walls have been completely covered with EPDM membrane and terminates at a bronze aluminum gravel stop at all non-gutter roof edges.

Roof top equipment and penetrations include ten A/C units mounted on wood sleepers, two separate roof hatches, pourable sealer pockets for the A/C conduit and condenser lines, numerous plumbing vents, six wind driven turbine vents, two exhaust fan curbs, one J-Vent and a brick chimney.

Roof Measurements

- Roof Height - 30'-40' estimated.
- Main Upper Roof: 35' x 77' = 2,695 sq. ft.
- Steep-Slope Roof Areas (two) – 1,905 sq. ft.
- Roof Flat Area – 50' x 12' = 600 sq. ft.
- Total all areas: **5,200 sq. ft.**

Existing Roof Components and Thickness

The existing roofing assembly at the rear roof and steep-slope areas was not verified with exploratory test cuts, although the visible roof deck and framing were found to be wood. The existing roofing assembly at the main upper roof was visible from the roof hatch and consists of the visible EPDM membrane, ½" thick high density fiberboard mechanically attached to a nominal one inch thick tongue and groove wood deck with wood joists and rafters. A thin layer of foam insulation has been sprayed to the bottom of the wood decking where visible from the underside. The estimated roof age is 15+ years minimum.

III. ROOFING/FLASHING ISSUES

Our inspection of the Colle roof revealed the following issues and concerns:

- The EPDM perimeter flashing is showing signs of typical aging and deterioration at the gravel stop flange.
- Laps in the field fabricated seams are showing signs of delamination. Several seams have been overlaid with a second layer of compatible EPDM flashing membrane.
- The sealant at the pourable sealer pockets is aged, dried and shrinking. Voids in the sealant may allow water to enter the building interior.
- One of the PVC vent stacks has been flashed with an incompatible pipe boot (Typically used for metal roof systems).
- A second PVC vent stock has no EPDM flashing or pipe boot present.
- Holes and open laps in the roof flashing were observed in several areas.
- The metal termination bar at the base of the brick chimney is loose and open to the weather.

IV. CONCLUSIONS/RECOMMENDATIONS

Although the roofing system appears to be near the end of its' useful service life, the positive roof slope is quickly removing water off the roof surface and most likely limiting the number of leaks in the building. Additional useful service life could be reached with targeted short term repairs to the field seams, aged roof flashings, vent stack flashing, and pourable sealant pockets. In addition, the metal termination bar at the base of the brick

chimney should be replaced with a metal counter flashing set in one of the brick joints. This could possibly delay the need for replacement for another three to five years.

There are two long term recommendations that should be considered when the Town appropriates funds for more extensive roof work. Option 1 is a recover of the existing one layer of roofing with a second layer of single-ply roofing membrane and insulation board (thickness to be determined). Chapter 15 of the Massachusetts Building Code allows for a second layer of roofing (Recover) to be applied when there is only a single layer of existing roofing in place. When there are two or more existing layers, Code dictates total removal of all roofing down to the structural deck and installation of new insulation meeting an R-value of 30.0 completely above deck. This would be followed by a new membrane roof system with new flashings and edge metal. A recover scenario does not require meeting the energy code requirement and is a less costly option.

Before the roof replacement option is considered, a design professional should review the need for the existing wind driven turbine vents for the attic space. Heat buildup could be controlled with temperature sensitive vents and allow the roof to be fully insulated. A self-adhering vapor barrier membrane could be installed over a substrate board and prevent warm moist air from condensing within the roofing system. This would also prevent heat loss through a poorly insulated roofing system and reduce the heating and cooling load on the building.

(Short Term Recommendations – Roof Repairs)- 2022- 2023)

(Proposed Scope of Work)

- Remove and replace, or overlay the old field fabricated flashings on curbs, chimney bases and other pertinent penetrations and equipment with new compatible EPDM flashing membrane.
- Cut in a new reglet joint at the base of brick masonry chimney and install metal counterflashing over the EPDM flashing membrane.
- Reflash all perimeter edges with new compatible 5” wide EPDM edge flashing. (Approximately 220 linear feet)
- Remove and replace the pourable sealer pocket filler and redo all six pockets with new material.
- Install new seam cover tape over field fabricated seams, as necessary, after proper cleaning and priming of lap areas. (Approximately 535 linear feet)
- Install proper pre-fabricated pipe boot at two PVC vent stacks.
- **Cost Estimate - \$18,000 - \$20,000 (Based on 2022 Costs).**

(Long Term Recommendations – Option 1 Recover System 2022-2023)

- Carefully lift A/C units to allow for installation of new roof materials. Resize wood sleepers for the increased insulation height and reinstall units after completion of new roofing system.

- Slice existing EPDM membrane at ten foot intervals to avoid creating a double vapor barrier in the recover roof system.
- Remove existing gutters only as required to install new roof materials and metal edging.
- Install a minimum layer of 1.5" thick polyisocyanurate or ½" thick high density polyiso cover board over existing roofing and mechanically attach to the structural wood deck. (Thickness to be determined after discussions with the Town.)
- Add a layer of 2x6 pressure treated wood blocking or ½" thick plywood sheathing at roof perimeters to match height of new insulation board.
- Install minimum 60 mil thick single ply membrane over new insulation board. (Type and attachment of new system to be determined during the design phase.)
- Install matching membrane flashings at all curbs, penetrations, projections and roof perimeters as required.
- Cut in new reglet joint at base of brick masonry chimney and install metal counterflashing.
- Install new ES-1 compliant metal edging at all outside perimeters.
- Reinstall aluminum gutters and reattach down spouts.
- Install walkway pads or buffer sheets under all unit or duct supports per the roof membrane manufacturer's written requirements. Walkway pads should extend from roof hatch to rear set of A/C units.
- Provide 20 year roof manufacturer's warranty and two year Contractor's guarantee.
- **Cost Estimate - \$12 to \$15 per square foot, \$62,400 - \$78,000 (Based on 2022 Costs).**

(Long Term Recommendations – Option 2 Replacement System 2022-2023)

- Carefully lift A/C units to allow for installation of new roof materials. Resize wood sleepers for the increased insulation height and reinstall units after completion of new roofing system.
- Remove all existing materials including roof membrane, flashing membrane, insulation board, one way relief vents, metal flashings, fasteners, plates and perimeter metal down to the existing structural metal deck.
- Remove existing aluminum gutters as required to allow for installation of new perimeter blocking, roofing system and perimeter metal.
- Repair/replace deteriorated wood decking on a unit price basis as needed.
- Replace deteriorated parapet blocking on a unit price basis.
- Raise fan curbs and roof hatch as required for the new insulation height.
- Install and secure thermal barrier board over wood decking.
- Install self-adhering vapor barrier membrane over thermal barrier board. The self-adhering membrane will act as a secondary/emergency water barrier during the roof replacement operation.
- Mechanically attach two layers of 2.6 polyisocyanurate insulation to the structural deck to meet the current energy code requirements.

- Install minimum 60 mil thick adhered single-ply membrane (thermoplastic or thermoset) over new tapered insulation.
- Install minimum ½" thick plywood sheathing over all parapets and exterior walls to be flashed.
- Reflash all curbs, penetrations, parapets, pourable sealer pockets and roof projections.
- Cut in new reglet joint at base of brick masonry chimney and install metal counterflashing.
- Install new ES-1 compliant metal edging at all outside perimeters.
- Reinstall aluminum gutters and reattach down spouts.
- Install walkway pads or buffer sheets under all unit or duct supports per the roof membrane manufacturer's written requirements. Walkway pads should extend from roof hatch to rear set of A/C units.
- Provide 20 year roof manufacturer's warranty and two year Contractor's guarantee.
- (Repair/replacement of deteriorated metal deck not included in this estimate as it is an unknown quantity, if any.)
- **Cost Estimate - \$22 to \$25 per square foot, \$114,400 - \$130,000 (Based on 2022 Costs).**

These above referenced cost estimates do not include the cost for design fees, permitting, hazardous material testing, roof, disconnection of A/C units if required, structural deck renovation (if required), plumbing requirements or hidden conditions. We hope this provides you with the information you require. After your review of this report, feel free to call with any questions, comments or concerns. Please see the following photo pages to view the existing conditions and areas of concern at each location.

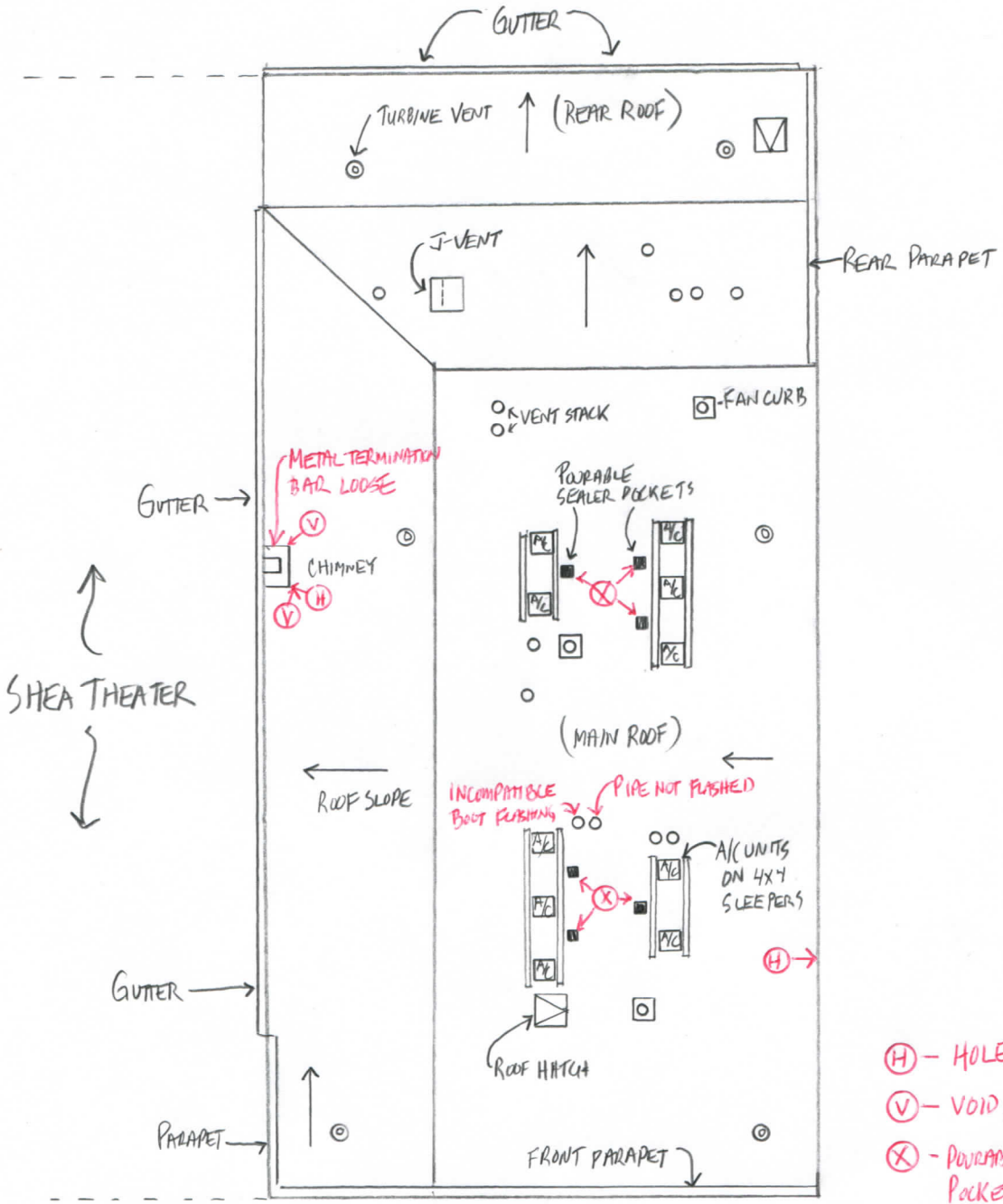
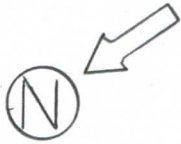
Sincerely,



John R. Skyepeck, RRC
President
Northeast Roof Consultants, LLC

Reliance:

This report is for exclusive use and may be relied upon by the Town of Montague officials. No parties or persons other than those identified as authorized users may use or rely on the information or opinions in this report without the express written consent of Town of Montague officials and Northeast Roof Consultants, LLC.



- (H) - HOLE
- (V) - VOID IN LAP
- (X) - DAMAGED SEALER POCKET OPEN IN AREAS

1/16" = 1'-0"

(FRONT OF BUILDING)

ROOF PLAN

NORTHEAST ROOF CONSULTANTS, LLC 2 PEGGY DRIVE SOUTHBOROUGH, MA 01772 508-277-0284	2022 ROOF ASSESSMENT SHEA THEATER 85 AVENUE A TURNERS FALLS, MA 01376 MAIN ROOF	DRAWN BY:	SCALE:	DRAWING NUMBER:
		JRS	NTS	
		DATE:	REV. DATE:	
		1/6/2022		
		DESCRIPTION:		
		ROOF AREA PLAN		SK-1

ROOF ASSESSMENT REPORT
THE COLLE BUILDING, 85 AVENUE A, TURNERS FALLS, MA
(Photo Documentation)



Photo R1
01/06/22

Photo Location:
Rear Roofs

Description:
View of rear flat
roof and steep-
slope roof systems.



Photo R2
01/06/22

Photo Location:
Rear Roofs

Description:
View of existing
rear steep-slope
roof and main
upper flat roof
areas

ROOF ASSESSMENT REPORT
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(Photo Documentation)



Photo R3
01/06/22

Photo Location:
Upper Main Roof

Description:
View of existing
A/C units on 4x4
wooden timbers.



Photo R4
01/06/22

Photo Location:
Upper Main Roof

Description:
View of mechanical
equipment and
PVC vent stacks in
the rear of the
upper main roof.

ROOF ASSESSMENT REPORT
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(Photo Documentation)



Photo R5
01/06/22

Photo Location:
Main Upper Roof

Description:
View of front low parapet on the Avenue A side and high parapet on the steep-sloped side roof area.



Photo R6
01/06/22

Photo Location:
Steep-Sloped Side Roof

Description:
View of steep side roof with turbine vent, brick chimney and gutter edge.

ROOF ASSESSMENT REPORT
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(Photo Documentation)



Photo R7
01/06/22

Photo Location:
Main Upper Roof

Description:
View of damaged EPDM edge flashing.



Photo R8
01/06/22

Photo Location:
Steep-Slope Side Roof

Description:
View of delaminated corner of EPDM flashing at the outside corner of the chimney.

ROOF ASSESSMENT REPORT
THE COLLE BUILDING, 85 AVENUE A, TURNERS FALLS, MA
(Photo Documentation)



Photo R9
01/06/22

Photo Location:
Steep-Slope Side
Roof

Description:
Hole in chimney
base flashing an
unadhered outside
edge of flashing
marked on roof with
yellow keel.

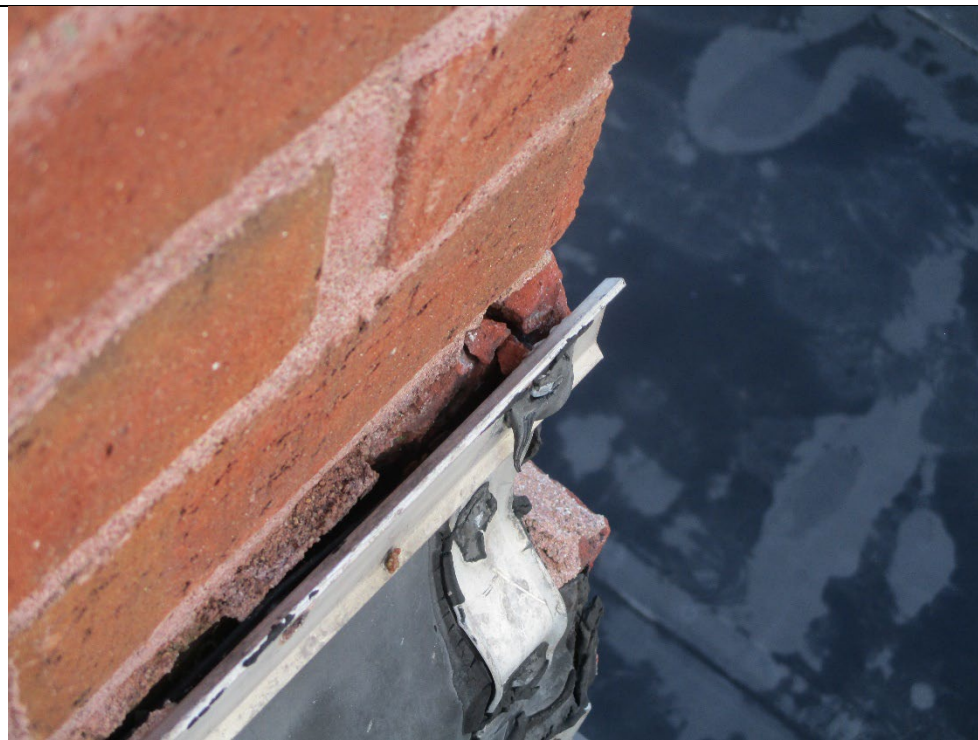


Photo R10
01/06/22

Photo Location:
Steep-Slope Side
Roof

Description:
Loose metal
termination bar on
brick masonry
chimney will allow
moisture behind
bar and base
flashing and under
roof system.

ROOF ASSESSMENT REPORT
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(Photo Documentation)



Photo R11
01/06/22

Photo Location:
Upper Main Roof

Description:
Two PVC vent stacks on roof. The left vent has an improper pipe boot with no hose clamp, typically used on metal roofs. The right vent has no boot and is relying on clear silicone to seal the base of the pipe.



Photo R12
01/06/22

Photo Location:
Upper Main Roof

Description:
View of pourable sealer pocket used for A/C lines. Note: sealant has aged and shrunk and pulled away from the side of the pocket allowing an avenue for water infiltration.