

ROOF ASSESSMENT REPORT
MONTAGUE CENTER LIBRARY
17 CENTER STREET
MONTAGUE, MA 01351

Prepared For:

Mr. Steven Ellis
Town Administrator
Town of Montague, Massachusetts



Prepared By:

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Date: March 31, 2022
NRC Project No. 22-001

March 31, 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
Montague Center Library Roof
Montague, MA

I. INTRODUCTION

Due to access and safety issues for this location, the roof assessment was conducted utilizing an aerial drone to photograph all areas of the roof. Following are the results of our review of the drone survey plus information provided by Town personnel. The report includes a general overview of the building construction, 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

According to information gathered on the library, the building was originally built in 1858 to house the Town Hall. In 1869, a portion of the Town Hall was dedicated for a collection of books, which later became the Montague Center Library. The library is a two-story, brick and wood framed building with a simple gable style roof. A smaller gable style roof is located over the first floor, east elevation side entrance. The upper main roof is covered with a standard natural slate roofing system, which includes a three foot wide, metal panel "Ice belt" or "Slip Surface". The original slate appears to be an Unfading Gray natural slate. This slate has been quarried in Vermont for almost 150 years. Unfading slate typically holds its basic color after many years of sun exposure and exterior use. Unfading Gray slate quarried in Vermont is an ASTM Grade A material. The metal panels enable ice and snow to slide off the roof before ice dams can form. The ridge is capped with a galvanized steel or aluminum ridge cap. Drainage occurs at the two eaves of the building and down to the ground below. No gutters are present. The rear exit overhang roof also drains directly to the ground below. Although we were unable to access the attic space, we suspect that the structural roof deck is wood plank, possibly tongue and groove boards, which was typical for buildings of this type and age.

It is unlikely that the existing unfading gray slate are original to the building construction, although natural slate roofs can have a useful service life of up to 150 years (if properly maintained). Numerous previous repairs have been made to the roof, using slate of different color and width. Most repairs appear to have been done using metal “babies”, as opposed to hooks. The metal eave panels appear to be aluminum. The west elevation appears to be bronze aluminum, while the east elevation eave is covered with a mill finish aluminum panel. The first story rear entrance overhang is covered with three tab asphalt shingles. The roof also has a wood framed platform over the shingles, although the purpose of the wood frame is unknown. The steep-slope slate roof has a pitch of 7:12. The lower shingle roof has a pitch of 6:12. There is one existing penetration through the slate roof, which appears to be an exhaust type vent.

Roof Measurements/Areas

- Roof Height – 25’ - 30’ (approximate).
- Roof Area – Main Upper Steep-Slope Slate Roof: 3,930 sq. ft.
- Roof Area – Rear First Floor Overhang: 124 sq. ft.
- Total all areas: **4,054 sq. ft.**

III. ROOFING/FLASHING ISSUES

Our observations of the drone photos revealed the following categories of slate issues:

- Broken or damaged slate: 83 Slate
- Cracked slate: 30 Slate
- Loose slate: 35 Slate
- Missing slate: 5 Slate
- Total number of slate issues - 153

In addition, we noted that the existing exhaust fan curb is badly rusted and discoloring the slate adjacent or down slope of the curb. The ridge line appears wavy, which may be a structural issue with the underlying framing.

IV. CONCLUSIONS/RECOMMENDATIONS

Typically, replacement of a slate roof is recommended when the number of slate in need of repair or replacement exceeds 25-30% of the gross area. The number of slate needing attention at this time falls well below the 30% level, and is closer to 1%. Our estimate at this time, is that approximately 153 slate require immediate replacement. Since slate may be cracked or broken under overlying slate and are not visible during a typical visual inspection, it is likely that additional damaged slate replacement will be equal to the amount of visibly damaged slate (an additional 150+ slate). The client should also expect the roofing contractor to break additional slate during the set-up, repair and break down phases, as the slate may be brittle and easily broken. An experienced Contractor will typically carry a cost associated with replacement of these slate broken during the repair process, in his bid. These repairs should provide some additional short term useful service

life to the slate roof, but future replacement of the entire roof should be budgeted in the next 5-10 Years.

PRELIMINARY COST ESTIMATES: ROOF REPAIRS ONLY

1. (Slate Repair/Replacement) - Since the slate that require repair/replacement are located randomly throughout the various roof areas, and not clustered in one or several large areas, estimating the repair costs is difficult. The cost not only depends on whether replacement slate of matching color can be found, but also on the type of access that is required for the roofing contractor to reach the various areas. Typically, large concentrated areas can be repaired for \$30-\$75 per square foot. Individual slate replacement can range from \$40 to \$200 or more per slate depending on the access, pitch of the roof and size and type of slate used. As most of the slate in need of replacement are isolated from one another the roofing contractor will have to continually move his staging areas to access all slate.

For budgetary purposes, we recommend budgeting for replacement of up to 400 slate for visibly defective slate, hidden or underlying damaged slate and slate damaged during the repair process. The below referenced costs covers materials, installation, shipping, and insurance. We have not covered the Contractor's cost for access to the roof at this time, as there are different methods of staging and accessing the work areas.

***Estimated Construction Cost – Slate Repair/ Replacement
(All Areas) - 400 slate @ \$50-\$75/slate = \$20,000 - \$30,000***

Note: If repairs are delayed, the number of estimated slate in need of replacement may increase, due to future damage from ice and snow accumulation.

ALTERNATES

- A. Remove the existing slate roofing system and install a new natural slate roof with a service life of 75+ years and associated metal flashings and ridge cap. This option is the most expensive, but has the longest useful service life. Qualified slate roofing contractors are at a premium. Preliminary Cost - \$152,000 - \$164,000
- B. Remove the existing slate roofing system and install a Slate Imitation Asphalt Shingle Roof with a service life of 30-50 years with associated flashings. This option is aesthetically pleasing and much less costly than replacing the roof with a new slate roofing system. Shingle roofing contractors are numerous. Preliminary Cost - \$88,400
- C. Remove the existing slate roofing system and install a synthetic (rubber, molded plastic) Slate Imitation Shingle Roof with a service life of 40+ years with associated flashings and gutter system. This option is aesthetically pleasing and but more

costly than a new asphalt shingle roofing system. The number of manufacturer's is somewhat limited. Not extensively installed in the Northeast. Preliminary Cost - \$96,800

D. Remove the existing slate roofing system and install a Standing Seam Metal Panel Roof with a service life of 40-50 years.

- Although more costly than asphalt shingles or synthetic slate, a metal panel roof, if properly designed and installed will provide the second longest service life of the systems mentioned. Although there are a variety of metal roof system types, a standing seam roof conforms with the architecture of New England. There are a variety of metal roof types including Galvalume, aluminum and copper and more, with many color options and costs. As a general rule, the fabrication and installation cost of a metal panel roof averages \$1,000 to \$1,500 per square, with copper being the most expensive. Material costs also vary. I have included the cost range for three types of metal for your review.

Cost (Galvalume) – Demolition: 40 squares x \$475/sq. ave. = \$19,000
Installation including labor and materials: 40 squares x \$2,092/sq. = \$83,680
Total Cost: \$102,680*

Cost (Aluminum) – Demolition: 40 squares x \$475/sq. ave. = \$19,000
Installation including labor and materials: 40 squares x \$2,160/sq. = \$86,400
Total Cost: \$105,400*

Cost (Red Copper) – Demolition: 40 squares x \$475/sq. ave. = \$19,000
Installation including labor and materials: 40 squares x \$3,240/sq. = \$129,600
Total Cost: \$148,600*

***Does not include delivery, profit and overhead costs.**

These above referenced cost estimates do not include the cost for design, review of existing underlying conditions, permitting, insurance, 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. Skypeck, 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.

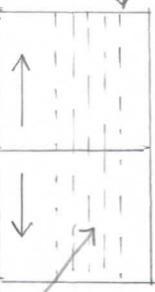


MISSING SLATE

ICE BELT

REAR ENTRANCE ROOF

SLOPE DIRECTION



WOOD PLATFORM ON ROOF

RIDGE LINE

RANDOM BROKEN, LOOSE, MISSING AND CRACKED SLATE THROUGHOUT.

ROOF VENT

ICE BELT

CENTER STREET

SCALE 1" = 10'

ROOF PLAN

NORTHEAST ROOF CONSULTANTS, LLC 2 PEGGY DRIVE SOUTHBOROUGH, MA 01772 508-277-0284	2022 ROOF ASSESSMENT MONTAGUE CENTER LIBRARY 17 CENTER STREET MONTAGUE, MA 01376 MAIN ROOF	DRAWN BY: JRS	SCALE: NTS	DRAWING NUMBER: SK-1
		DATE: 1/6/2022	REV. DATE:	
		DESCRIPTION: ROOF AREA PLAN		

ROOF ASSESSMENT REPORT
MONTAGUE CENTER LIBRARY, 17 CENTER STREET, MONTAGUE, MA
(Photo Documentation)



Photo R1
03/08/22

Photo Location:
Overview of Library
Roof from above.

Description:
View of the steep-
sloped slate roof
looking west to
east.



Photo R2
03/08/22

Photo Location:
Overview of Library
Roof from above.

Description:
View of the steep-
sloped slate roof
looking east to
west.

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(Photo Documentation)



Photo R3
03/08/22

Photo Location:
Front of Gable roof.

Description:
View of natural slate roof and numerous previous repairs with off colored slate. Note: waves in ridge line.



Photo R4
03/08/22

Photo Location:
View of rear entrance overhang roof from above.

Description:
Step-slope gable roof covered with three tab shingles and wood frame (possibly for structural stability).

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(Photo Documentation)



Photo R5
03/08/22

Photo Location:
Right rear corner of the roof.

Description:
View of multiple missing slate covered with self-adhering bitumen membrane.



Photo R6
03/08/22

Photo Location:
Front of east roof elevation.

Description:
View of wave along ridge line. Note: Numerous broken slate along bottom two rows at ice belt.

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Photo R7
03/08/22

Photo Location:
View of rear half of the slate roof on the west elevation of the library.

Description:
A majority of the original unfading gray slate are still present.



Photo R8
03/08/22

Photo Location:
Close-up photo of roof vent.

Description:
View of roof vent with severe rust at top and bottom flange. Rust is running down slate roof and discoloring slate. Ridge cap is face nailed with no washers or sealant visible.

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Photo R9
03/08/22

Photo Location:
Roof eave along east elevation.

Description:
Metal ice belt appears to be in good condition and functioning as intended.



Photo R10
03/08/22

Photo Location:
Overview of east elevation of the upper slate roof.

Description:
Evidence of broken, missing and undersized replacement slate throughout the roof.