

ROOF ASSESSMENT REPORT

TURNERS FALLS MUNICIPAL AIRPORT
HANGAR BUILDING
42 INDUSTRIAL BOULEVARD
TURNERS FALLS, MA 01376

Prepared For:

Mr. Steven Ellis
Town Administrator
Town of Montague, Massachusetts



Prepared By:

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(508) 277-0284

Date: March 29, 2022
NRC Project No. 22-001

March 29, 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
Airport Hangar (Pioneer Aviation)
Turners Falls, MA

I. INTRODUCTION

On Tuesday, March 8, 2022, Northeast Roof Consultants was on site to perform a visual assessment of the existing metal panel roofing system at the Pioneer Aviation Airport Hangar located at 42 Industrial Boulevard in Turners Falls, Massachusetts. We met with Mr. Bryan Camden, Airport Manager, who provided background information on the hangar as well as access to the hangar interior. According to Mr. Camden, the hangar is a 1970's (1973-74) era facility that has had few upgrades since it was built. At the time of our inspection, there is one minor leak near the center of the hangar, that appears to originate from a roof repair that was made after a penetration was removed. Water stains were evident in the floor while NRC was on site.

No roof access was available due to the steep configuration of the roof as well as the existing construction of the roofing and framing. The assessment was done from ground level utilizing binoculars, as well as from photos taken during a comprehensive drone survey. The weather on the day of the inspection was partly cloudy with temperatures in the 40's. Following are the results of our assessment. The report includes a general overview of the facility, verified roof dimensions 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 Hangar Building has a typical dome shaped structure with a multi sloped metal panel roofing system. The hangar is steel framed with steel purlins supporting the existing roof structure. The walls are also steel framed with batt insulation exposed on the interior. The ceilings are insulated with fiberglass insulation held in place by a vinyl sheet covering. It appears that 2x10 framing lumber was secured to the steel roof purlins to provide a fastening surface for the metal roof panels. A newer sloped addition to the hangar is

present in the rear of the building and appears to be used as a loading dock. The loading dock roof is in good condition with no issues evident at this time.

The metal panel roof has a central high ridge line in the center of the building which slopes to the east and west side elevations. Drainage occurs directly over the eaves and onto the ground on both sides of the hangar. The eaves and gable ends of the hangar have wood fascia boards and wooden soffits. The hangar has a total of four roof penetrations with three located at or near the ridge line with one located center span on the lower section of the west elevation (Reference Roof Sketch for locations.) The loading dock roof has one way slope and drains to the rear of the loading dock. No gutters are present.

Roof Measurements and Pitches

- Roof Height – Approximately 28 feet at the ridge and 8 feet at the side eaves.
- Panel Width – Approximately 39”.
- Building Foot Print – 125’ front to back, 119’ side to side.
- Roof Pitch – Upper two sections 2.5:12, lower two section 6:12.
- Roof Area Main Hangar – 15,872 sq. ft.
- Rear Loading Dock Foot Print – 16’x 22’, Roof area - 370 sq. ft.
- Total Roof Area: **16,242 sq. ft.**

III. ROOFING/FLASHING ISSUES

Our inspection of the Airport Hangar Building roof revealed the following issues and concerns:

- The existing metal roof panels are damaged in several locations including the northeast corner of the building, the front overhang and the end of the upper ridge line in the back of the building.
- The wood fascia and soffit boards are split, rotted, missing, haphazardly repaired, weathered and in need of maintenance.
- The metal panels are lifting at overlaps along the eave line in numerous areas. Roof edges are susceptible to the highest wind uplift pressures, which is causing the grommeted nails to pull out of the nailing substrates.
- Panel fasteners were noted as loose in numerous locations throughout the roof. Failure of the fasteners can result in panel damage or blowoff.
- Repairs to panels where roof penetrations were previously removed does not appear to be watertight.
- The foam closure piece at the bottom end of the roof panels is missing in areas. The foam closure piece keeps out moisture, insects and debris.
- A vent pipe penetration on the lower west elevation has been repaired with plastic roof cement. Plastic roof cement will dry and split due to thermal movement of the metal panels and is not a proper repair method.

- The surface of the roof panels is rusted in random areas, with the worst rust occurring adjacent to the rear ridge line. Half of one upper section of the roof is slightly to moderately rusted.
- Gutters over the west elevation side entrances are no longer in place allowing water to drip over the door locations.
- The existing wall panels are badly deteriorated along the east side of the hangar.

IV. CONCLUSIONS/RECOMMENDATIONS

The existing hangar building roof is approximately 50 years old and in need of upgrades and repair to keep the facility watertight. Our assessment revealed three specific areas in need of short term maintenance or repair. Those areas include the following: (1) replacement of loose or missing panel fasteners with screw type grommeted fasteners at least on size larger than the existing fastener diameters, this should also be performed at panel overlaps, where lifting or loose metal panels are found, (2) installation of foam closure pieces at panel ends where foam closures are missing or deteriorated and (3) provide watertight repairs at penetrations or where previous roof penetrations were removed and covered over. Issues to be considered for future maintenance include cleaning and coating of rusted metal roof panels, replacement of badly damaged metal roof panels and installation of new wood soffit and fascia boards where rotted or missing. Badly rusted roof panels or ridge covers should be removed and replaced with like panels.

(Short Term Recommendations – Roof Repairs)- 2022)

(Proposed Scope of Work)

- Replace loose or missing panel fasteners where required.
- Install foam closure piece under end panels where damaged or missing.
- Provide proper, watertight repair in accordance with the metal roofing industry manufacturer's requirements where previous roof penetration were removed.
- **Cost Estimate - \$5,350 (Includes cost for labor, materials and lift rental.)**

(Long Term Recommendations – Roof Repairs)- 2023+)

(Proposed Scope of Work)

- Replace badly damaged or badly rusted panels with materials of exact size, profile and thickness.
- Clean (power wash) rusted panels and apply two coats of elastomeric acrylic coating to the panels. (Approximately 1,980 sq. ft.)
- Replace deteriorated or missing fascia and soffit boards as required. (Approximately 200 linear feet)
- **Cost Estimate - \$15,980 (Includes cost for labor, materials and lift rental.)**

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,

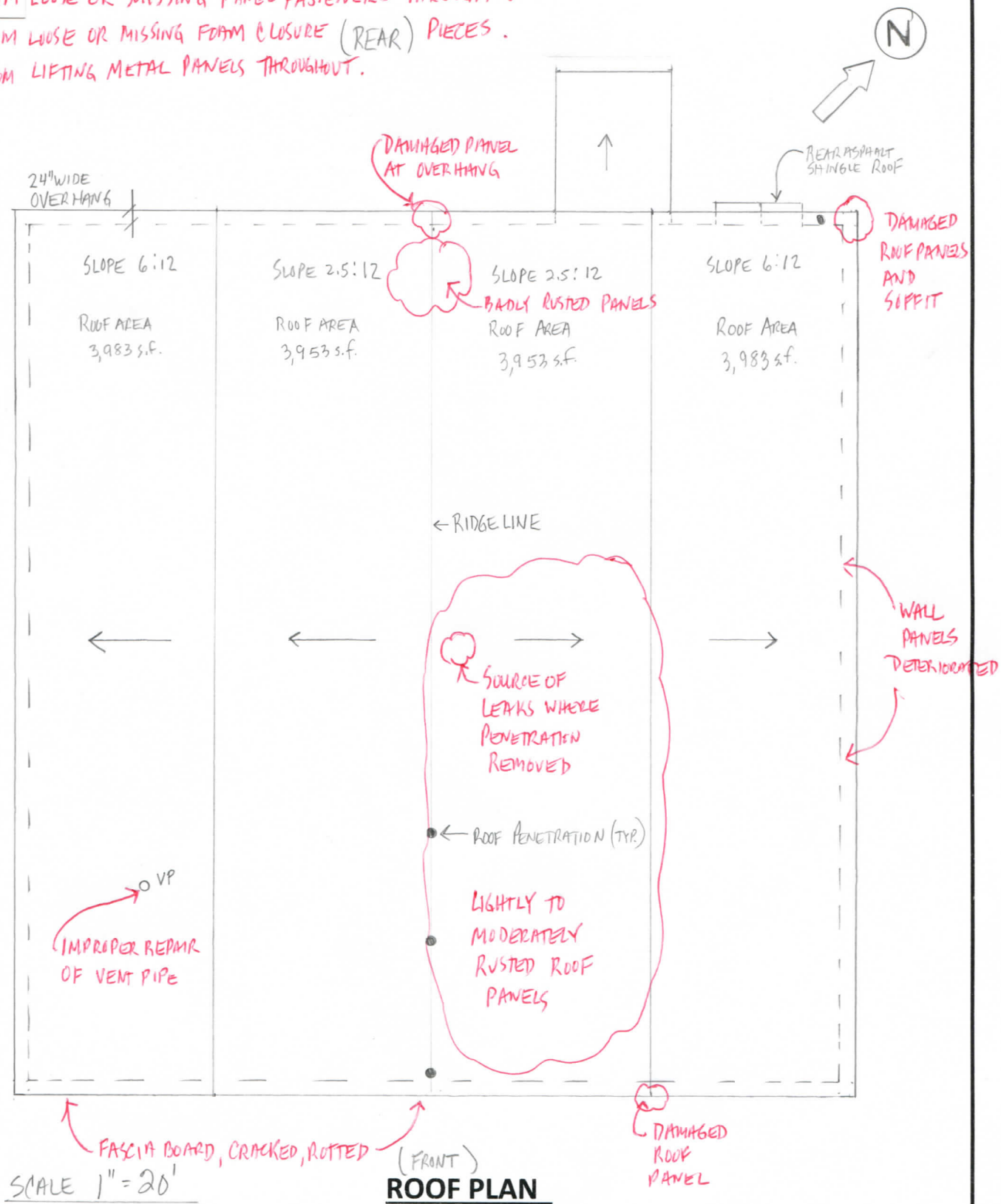


John R. Skypeck, RRC
President
Northeast Roof Consultants, LLC

Reliance:

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- RANDOM LOOSE OR MISSING PANEL FASTENERS THROUGHOUT.
- RANDOM LOOSE OR MISSING FORM CLOSURE (REAR) PIECES.
- RANDOM LIFTING METAL PANELS THROUGHOUT.



ROOF PLAN

NORTHEAST ROOF CONSULTANTS, LLC 2 PEGGY DRIVE SOUTHBOROUGH, MA 01772 508-277-0284	2022 ROOF ASSESSMENT AIRPORT HANGAR 42 INDUSTRIAL BOULEVARD TURNERS FALLS, MA 01376 MAIN ROOF	DRAWN BY:	SCALE:	DRAWING NUMBER: SK-1
		JRS	NTS	
		DATE:	REV. DATE:	
		1/6/2022		
		DESCRIPTION:		
		ROOF AREA PLAN		

ROOF ASSESSMENT REPORT
AIRPORT HANGAR, 42 INDUSTRIAL BLVD., TURNERS FALLS, MA
(Photo Documentation)



Photo R1
03/08/22

Photo Location:
Overview looking
Front to Back.

Description:
View of overlapping
metal panel roofing
system on the
airport hangar.



Photo R2
03/08/22

Photo Location:
View of Hangar
Roof looking
southeast to
northwest.

Description:
View of side
elevation and
separate sections
of roof panels with
different pitches.

ROOF ASSESSMENT REPORT
AIRPORT HANGAR, 42 INDUSTRIAL BLVD., TURNERS FALLS, MA
(Photo Documentation)



Photo R3
03/08/22

Photo Location:
Rear of Hangar.

Description:
View of small shed
roof covering
delivery bay in the
rear of the Hangar.



Photo R4
03/08/22

Photo Location:
View of Hangar
ceiling from the
interior.

Description:
View of abandoned
opening through
the roof panels.
Water stains were
observed on the
floor of the hangar
under this area.

ROOF ASSESSMENT REPORT
AIRPORT HANGAR, 42 INDUSTRIAL BLVD., TURNERS FALLS, MA
(Photo Documentation)



Photo R5
03/08/22

Photo Location:
View of Rear Ridge Line from above.

Description:
View of damaged ridge closure piece. Adjacent panels were found to be the most rusted areas of the roof.



Photo R6
03/08/22

Photo Location:
View of lower section of west elevation at vent pipe penetration.

Description:
Temporary repairs to vent pipe penetration made with plastic roof cement.

ROOF ASSESSMENT REPORT
AIRPORT HANGAR, 42 INDUSTRIAL BLVD., TURNERS FALLS, MA
(Photo Documentation)



Photo R7
03/08/22

Photo Location:
Rear of Hangar.

Description:
View of rear entrance overhang covered with asphalt roof shingles in fair condition.



Photo R8
03/08/22

Photo Location:
Northeast Corner of Hangar.

Description:
Existing damage to metal roof panels and wood soffit and trim board at NE corner.

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AIRPORT HANGAR, 42 INDUSTRIAL BLVD., TURNERS FALLS, MA
(Photo Documentation)



Photo R9
03/08/22

Photo Location:
Northeast Elevation
at edge of roof.
Vertical overlap of
metal panels.

Description:
Wind uplift
pressures have
resulted in the top
panel to pull away
leaving gap for
wind driven rain.

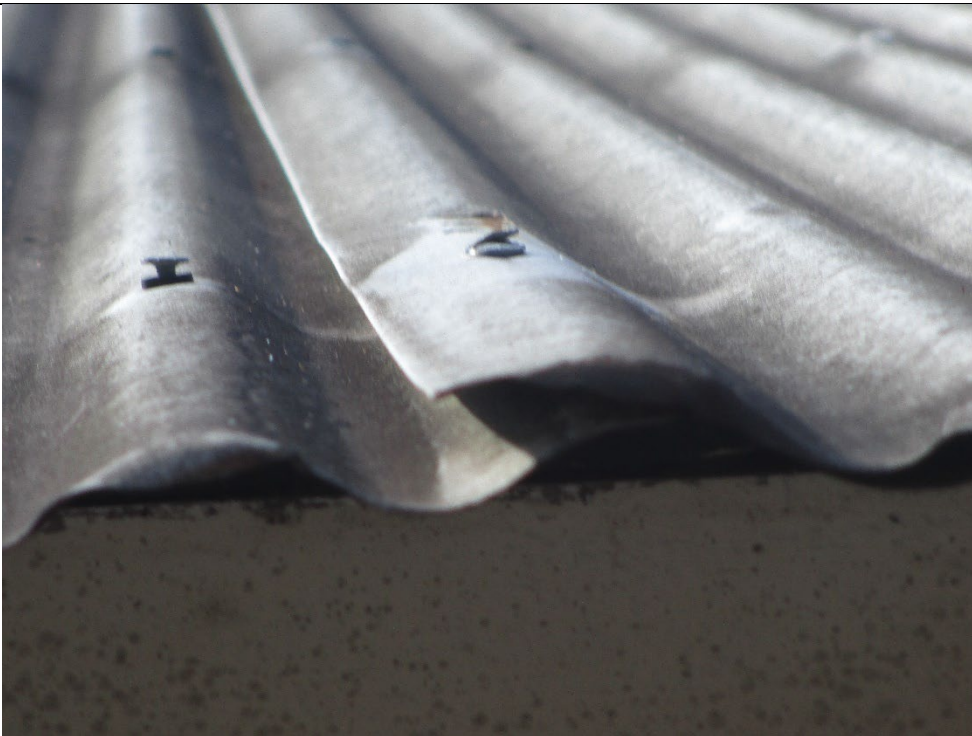


Photo R10
03/08/22

Photo Location:
Northeast Elevation
at edge of roof.
Vertical overlap of
metal panels.

Description:
Fasteners (nails) in
both the top and
bottom panels are
pulling out of the
substrate, leaving
the panels
susceptible to blow
off.

ROOF ASSESSMENT REPORT
AIRPORT HANGAR, 42 INDUSTRIAL BLVD., TURNERS FALLS, MA
(Photo Documentation)



Photo R11
03/08/22

Photo Location:
Front edge of
Hangar over large
doors.

Description:
Previous repairs to
repair hole(s) in
wood fascia at
ridge area.



Photo R12
03/08/22

Photo Location:
West Elevation,
bottom edge of
metal panels.

Description:
The foam closure
piece which keeps
moisture, debris
and insects out of
the roof are falling
out or missing in
several areas.

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(Photo Documentation)



Photo R13
03/08/22

Photo Location:
Overhang at west elevation.

Description:
Missing foam closure piece under edge of metal panels.



Photo R14
03/08/22

Photo Location:
West Elevation.

Description:
Missing gutters over side entrance to the hangar.