



2400 Prior Avenue North
St. Paul, MN 55113
(651) 639-0644
(651) 639-1828 (fax)
800-494-4085
www.roofspec.com

Roof Spec Inc.

PROJECT: Itasca Community College
Media Center Area (I3)

DATE: May 3, 2016

FILE NO.: 16-9779-07-ICC

UPDATE PRE-DESIGN REPORT

GENERAL

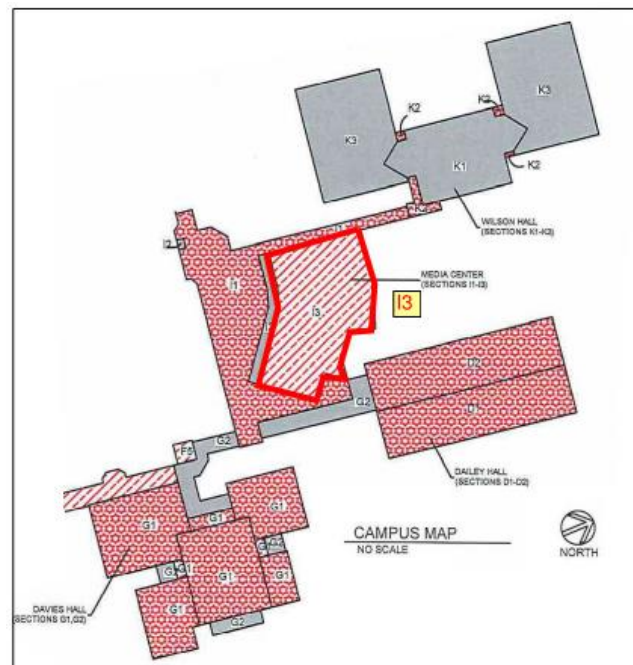
This report is an update of the 2011 Initial Predesign Report. The purpose of this report is to update the previously evaluated Roof Area I3, categorized to be re-roofed. This report revises and updates the design issues, new roofing system approach and project costs associated with reroofing construction to MnSCU standards.

REPLACEMENT DESIGN ISSUES

Media Center (I3)

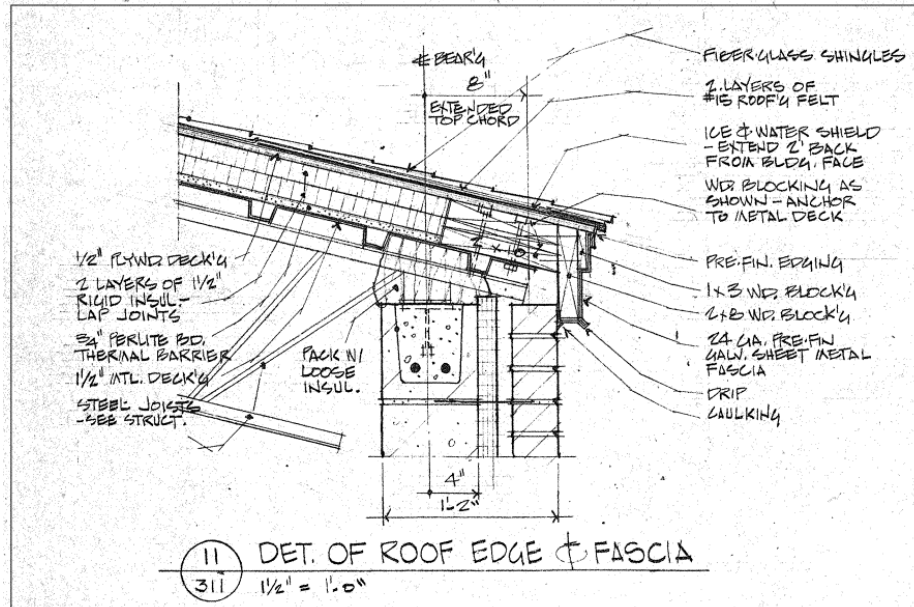
The subject roof consists of a sloped compact roof system covered with shingles. The roof is at the end of its service life and requires immediate replacement.

Moisture has infiltrated through the shingles and saturated the plywood sheathing. This moisture infiltration has saturated the roof insulation, damaged interior finishes, windows and caused distress to the north exterior wall.



I3-Media Center Roof

1. The existing roof framing is structurally sloped, approximately 3” per foot. The roof is considered a compact (non-vented) shingle roof.



Excerpt from original drawings

Extensive ice damming occurs during the winter months. The ice damming has resulted in moisture infiltration into the roof system, interior, and within the exterior masonry cavity walls. Moreover, the moisture infiltration has saturated the roof insulation, deteriorated the wood sheathing and created masonry staining and masonry distress below the subject roof.



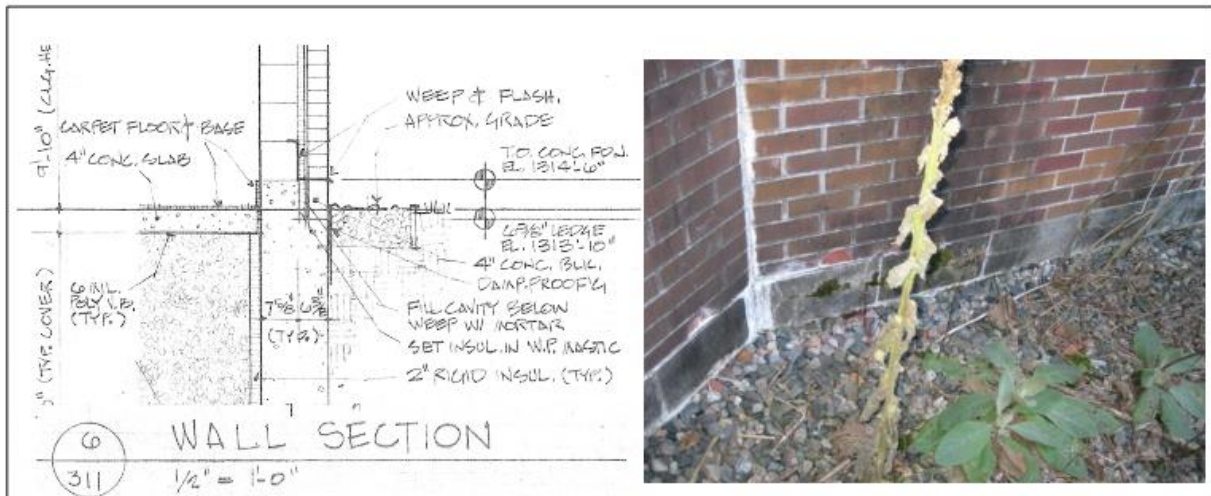
2. A roof system other than the typical MnSCU built-up roof system will be required due to the slope of the roof.
 - a. The existing shingles, underlayment, roof sheathing/blocking and insulation should be removed down to the existing sloped metal roof deck.
 - b. Metal deck repair/replacement is expected near the eave.
 - c. New mechanically fastened thermal barrier, roof vapor retarder, insulation and sheathing shall be installed.
 - d. The amount/thickness of insulation will require to be increased to meet building code and to mitigate ice damming. In addition, various venting design strategies (possibly venting above the insulation) should also be reviewed during the design phase to further mitigate the ice damming.
 - e. The preferred roof system is a metal standing seam roof similar to other roof on campus.
3. Due to the increase in roof insulation, regardless of the type of roof covering, the new roof will be heavier than the existing roof system. Therefore, a structural evaluation will need to be completed for the proposed roof system. (It should be noted that existing structural drawings were not available at the time of this pre-design report. Therefore, we assume that field verification of structural capacity of the roof will be required.)
4. The current roof eave is approximately flush with the masonry cavity wall below. Since the original construction, undersized gutter and downspouts have been installed in an attempt to mitigate run-off down the face of the building with little success.
 - a. To minimize future runoff and to minimize maintenance requirements related to gutter and downspouts, the roof eave should be extended.
 - b. The framing for the overhang will require partial removal and modifications to the face brick at the eave to anchorage the supports back to the structural masonry back-up wall.
5. A small area of the roof drains onto a MnSCU built-up roof system. The perimeter edge at this location shall include a gutter, downspout, and splash pans.
6. Due to the amount of suspect moisture infiltration within the top of the brick cavity wall, we recommend that the design include destructive roof/masonry exploratory openings, as required, to assist in determining the extent (if any) of additional moisture damage to the metal roof deck, structural framing connections and the CMU back-up wall.
7. Snow guards shall be considered as part of the design to increase safety and to reduce the amount of potential snow/ice falling at the eave. A structural evaluation will also be required for this work.
8. Depending on the roof design (venting vs. non-venting), heat tape may be required to further mitigate ice damming. This should be analyzed and included as needed as part of the design phase.

9. According to the existing drawings, a 2-hour spray applied fire-protection is adhered to the underside of the metal deck just above the fire wall. The fire-proofing should be tested for ACM and also repaired/preplaced as required to install the new roof system.

I3-Media Center Walls

Not specifically related to the re-roofing, these conditions should be considered at the same time as re-roofing:

1. According to the existing document, the base of wall flashing is located approximately 6-inches above grade. Concrete masonry units (CMU) were used in lieu of face brick at the brick shelf just below the through-wall flashing. The CMU and surrounding masonry is showing signs of distress.
 - a. New waterproofing, through wall flashing and associated masonry replacement shall be included.
 - b. The elevation of the new through wall flashing shall be coordinated with the alternations at grade.



2. Various masonry repairs to this wall should also be considered to include: tuck-pointing, spot brick replacement, sealant joint replacement and masonry cleaning.
3. The existing windows on the related north wall are 25+ years old and at the end of their service life. These window, sill and flashings are also showing signs of distress due to the moisture infiltration. We recommend the windows, sills and flashing be replaced as part of the wall work.

NEW ROOF SYSTEM

The following is a general sense of the reroofing construction. Further development will take place when this roof is approved for design.

The performance characteristics and suitability of several roof systems were examined for this project. A color-coated standing seam metal roofs offers the best long-term performance for these areas when combined with proper underlayments. This roof system type has an intended design life of 30+ years.

OPINION OF PROBABLE CONSTRUCTION COSTS

The following scale of magnitude costs are based on roof systems meeting the requirements of Minnesota State Colleges and Universities. An additional 5% per year inflation factor should be added to the costs when submitted for HEAPR funding beyond 2016.

Roof Area I3	96 squares @ \$7,000/square	\$672,000
	Snow guards/heat tape	\$35,000
	Extend eave (140 linear feet)	\$80,000
	Re-sloping grade	\$25,000
	Structural repairs/modifications	\$50,000
	Fireproofing Repairs	<u>\$10,000</u>
	Sub-Total	\$872,000
	Contingency (10%)	<u>\$88,000</u>
	Construction Total	\$960,000
	Design	\$68,000
	Exploratory Probe	\$5,000
	State of MN Plan Review Fees	\$4,000
	Construction Observation	<u>\$80,000</u>
	Design & Construction Total	\$1,117,000

If funding is available, the walls below the roof should also be addressed at the same time. The following scale of magnitude costs would be considered “add-on” estimates to the above referenced roof project.

Masonry Wall	Base of wall flashings (150 LF)	\$40,000
	Window replacement (10 windows) & associated interior and masonry repairs	\$30,000
	General masonry repairs, cleaning & sealant replacement	<u>\$60,000</u>
	Sub-Total	\$130,000
	Contingency (20%)	<u>\$26,000</u>
	Construction Total	\$156,000
	Design	\$12,000
	Plan Review	\$1,000
	Construction Observation	\$10,000
	Window Testing	<u>\$5,000</u>
	Design & Construction Total	\$184,000

REMARKS

Roof design shall be completed by a professional engineering or registered architectural firm currently listed as a Roofing Specialty Consultant on MnSCU’s Master Roster (Prime Consultant). The Prime Consultant shall include all fees and reimbursable for other sub-consultants required to complete the design. Examples of possible sub-consultants may include: structural, mechanical and electrical engineering.

This report is a supplement to our Roof Management Inspection Reporting of the roof system at Itasca Community College, Media Center located in Grand Rapids, MN. Additional copies of the field notes and photographs will be retained in our files for future reference. Please feel free to call our office if you have any questions.

ROOF SPEC, INC.

By: 
Joel Baresh

Attachments: Overview Photos

APPENDIX - PHOTOGRAPHS



Photo #1: Overview of Roof Area I3 and subject wall.

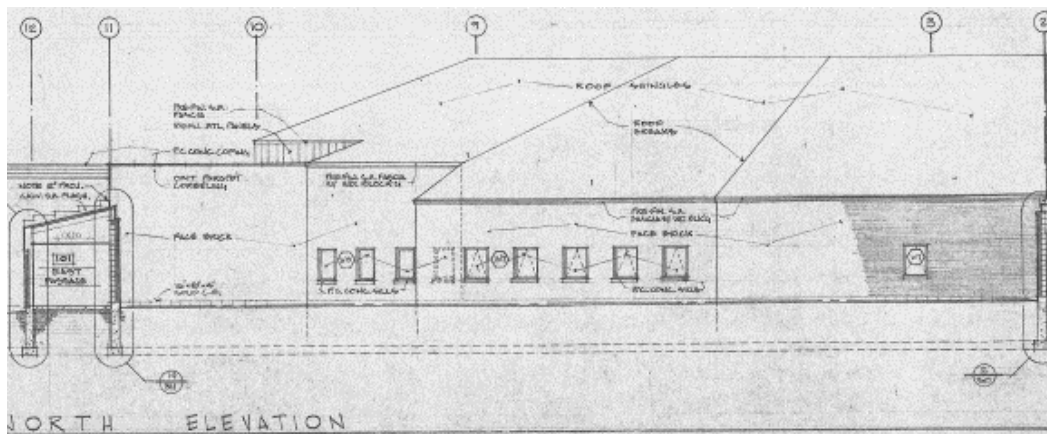


Photo #2: Partial elevation of north elevation showing subject roof and wall.

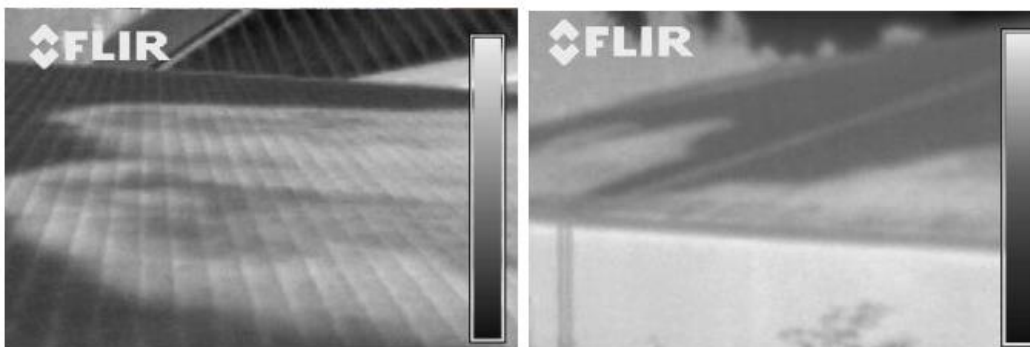


Photo #3: View of IR of compact shingle roof.



Photo #4: Overview of north elevation and windows.



Photo #5: Overview of north elevation.



Photo #6: Enlarged view of damaged CMU at base of building.