PROJECT: Century College
Area B Roof Replacement

DATE: April 30, 2020

RSI PROJECT #: 20-13167-02

REPORTED TO: Century College
3300 Century Ave N
White Bear Lake, MN 55110

Attn: Mr. Mike Houfer, Century College
Ms. Terry Olsen, MN State System Office

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SCHEMATIC DESIGN REPORT

Table of Contents: Page
Title Page 1
Project Scope 2
Design Considerations 2 - 4
Opinion of Probable Construction Costs 4
Estimated Construction Schedule 4
Comments 4
Schematic Design Review Documents Attached
Project Scope

General:

The project scope consists of the roof replacement of approximately 37,775 sq. ft. of existing built up roof for Areas B2 – B6 at Century College. Work will also include the replacement of the existing drain bowls, installation of new roof drains to facilitate drainage and upgrade of the existing rainwater leaders to meet current code. Any obsolete equipment will be removed from the roof and the existing roof top equipment modified/raised as necessary to accomplish roof replacement. Structural upgrades will be performed as necessary to ensure the existing structure is capable of supporting the new roof system and meets current building code. The existing metal wall panels will be replaced with new prefinished metal wall panels.

Existing Roof System:

The existing roof system for Areas B2 – B6 consists of an aggregate surfaced built up roof, over 1’ perlite insulation, 4” polyisocyanurate and an acoustical metal roof deck. All layers of insulation were secured in ribbon moppings of asphalt. The existing roof system has an R value of approximately 27. Drainage is accomplished via a structural slope to primary roof drains and overflow scuppers along the northern perimeter. Roof Access is provided via an access stair from the upper roof area. The existing roof is approximately 31 years old, in poor condition and in need of replacement.

New Roof System:

The new roof system for area B will consist of completely removing the existing roof and insulation to the surface of the acoustical metal deck. A 5/8” gypsum board, ½” perlite insulation and a 2 ply asphalt vapor retarder will be installed. Two layers of polyisocyanurate insulation will be installed prior to installing a 1” perlite insulation cover board and 4 ply gravel surface built-up roof system, all in hot asphalt. The existing roof drains will be replaced with new cast iron drains and strainers. The roof system will have a minimum R value of 35 throughout the entire roof area.

Design Considerations

1. The proposed roof system will weigh more than the existing. In addition, the existing structural slope is less than ¼” per foot, requiring a structural evaluation for any ponding deflection. Similar to the adjacent Area B1 roof replacement, it will likely be necessary to upgrade the existing roof structure to meet current code.

2. Acoustical deck is present throughout the majority of the roof sections. With this type of deck, there is the potential for debris to enter the building during demolition. There is also the potential for asphalt to enter when installing the two ply vapor retarder. Interior protection will be required during construction. This will consist of polyethylene sheathing secured to the underside of the bar joists and/or relocating or
covering of equipment on the interior. It is also necessary that the interior be unoccupied when work is performed above.

3. Portions of the building may be occupied during construction. The primary disruption for building occupants will be noise from the new roof system installation and fumes from the asphalt. Asphalt fumes will be controlled during the project by using a fume recovery system at the tanker. Additionally, shutting down of air intakes will be closely coordinated with the campus during construction.

4. Drainage for the roof system is currently accomplished via a structural slope to primary roof drains located along the northern perimeter of the building. In order to meet Minnesota States requirement for four way unobstructed slope to drain, it will be necessary to install additional roof drains. This will make it necessary to upgrade the existing rainwater leaders to meet current plumbing code.

5. Roof access is currently accomplished via an access stair from the upper roof area. This stair is in poor condition and will be replaced. A new access ladder will also be provided at Area B6.

6. Metal wall panels have been installed over the masonry at the roof to wall transition to the upper roof sections. In addition to being in poor condition, the bottom edge of these panels is too low to allow for the installation of the new roof system. These panels will be replaced with new prefinished metal panels of a vapor permeable air/moisture barrier. The type and color of these panels will match Area B1 once completed.

7. The sill at the existing windows is too low to allow for the installation of the new roof system. These windows are scheduled to be replaced as part of a separate curtain wall replacement project, intended to be completed before the roof replacement project. Coordination will be required to ensure compatible materials continuity in detailing.

8. The majority of the roof top equipment and air handling units sit on curbs that will be too low to meet Minnesota State requirements once the new roof system is installed. It will be necessary to install new curbs and raise/modify/extend the existing roof top equipment.

9. Multiple samples of the existing roof membrane and flashings were tested for the presence of asbestos and none was detected. It will be need to be verified that there are no hazardous materials present in the existing drain bowl insulation.

10. The masonry around the new curtain wall will be clad in new metal wall panels similar to the adjacent areas. At the eastern perimeter of Area B5 the masonry adjacent to the new curtain wall will intersect the masonry at the entrance at it may not be desirable to cover with metal. Further review is necessary with campus personnel.
Opinion of Probable Construction Costs

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<tr>
<th>Service</th>
<th>Cost</th>
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<tbody>
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<tr>
<td>Metal Panels</td>
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<tr>
<td>Mechanical &amp; Electrical Plumbing</td>
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<tr>
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Estimated Schedule

- December, 2020 – Construction Documents Complete
- January, 2021 – Pre-Bid Meeting
- January, 2021 – Bid Opening
- May - July 2021 – Roof Construction
- August 7, 2021 – Substantial Completion
- September 7, 2021 – Final Completion

Comments

The above schedule and budget are based on work being completed in 2021 and can adjusted as necessary based on actual schedule. Attached please find the Schematic Design Drawings. Please review and provide comments at your earliest convenience. If you should have any questions or require further information, please contact our office. Thank you.

Respectfully,

ROOF SPEC, INC.

Tim Pekron, RRC
Senior Consultant

TP/jrn