



Plan Review

Webster University
470 & 475 East Lockwood Avenue
Saint Louis, MO 63119-3194

Index-Rec No: 69237.03-02
Account No: 1-17708
Date of Review: January 4, 2017
Review No: 241980

Plans Submitted By: Mr. Devin Gates, PARIC, ddgates@paric.com
Subject: Roofing Submittal – New Interdisciplinary Science Building

Executive Summary:

This submittal details a new roof project for the Webster University Interdisciplinary Science Building located in Saint Louis, Missouri. The roof has been divided into two sections. Section one utilizes a 22 ga. steel deck and spans an area of 26,400 sq. ft. at a height of 40 ft. Section two utilizes a concrete deck with an area spanning 1,890 sq. ft. also at a height of 40 ft. Subject to the review comments below, this submittal is in accordance with FM Global standards.

Scope of Review:

This letter confirms the receipt and review of:

- Webster ISB Revised Submittal Package

The above mentioned facility is located in a 90 mph wind zone and has a Surface Roughness Exposure B. The steel deck area has wind uplift ratings of 60/60/90 psf with the concrete deck area having wind uplift ratings of 60/75/105 psf in the corresponding field/perimeter/corner areas of the roof. Both RoofNav assembly numbers submitted for this project use materials manufactured by Johns Manville Corp.

RoofNav Assembly Number 353837-0-0 was submitted for the steel deck portion of the roof. It is approved for new roof applications and provides a wind uplift rating of 90 psf, a severe (SH) hail rating, and a Class 1/A interior/exterior fire rating. The maximum allowable slope for this assembly is 1 in. per ft.

This portion of the project consists of mechanically fastening a $\frac{5}{8}$ inch layer (4 x 4 ft. boards) of United States Gypsum Co. SECUROCK Gypsum-Fiber Roof Board (to be used as a thermal barrier) and two 2.5 in. layers (4 x 8 ft. boards) of Johns Manville ENRGY 3 polyisocyanurate insulation to the 22 gauge steel deck. All layers will be fastened to the steel deck using JM UltraFast Insulation Plates and All Purpose Fasteners at a rate of 8/16/32 fasteners per 4 x 8 ft. board. A $\frac{1}{2}$ in. layer of SECUROCK Gypsum-Fiber Roof Board will also be used as a cover board for the assembly. The cover board will be adhered to the insulation using JM Two Part Urethane Insulation Foam Adhesive applied in $\frac{3}{4}$ in. ribbons spaced 12/6/4 in. on center in the corresponding roof field/perimeter/corner areas. A 90 mil JM EPDM NR membrane will be fully adhered to the cover board using JM EPDM Membrane Low VOC Adhesive applied at a rate of 0.55 gal/square. The membrane will be laid using 10 ft. sheets with laps primed and sealed using JM EPDM Tape Primer and JM EPDM Seam Tape Plus per manufacturer's specifications. The roof will slope from $\frac{1}{4}$ in. to 2 in. per foot.

RoofNav Assembly Number 374588-0-0 was submitted for the concrete roof deck portion of the project. It provides a 270 psf wind uplift rating, a severe (SH) hail rating and a Class NC/A interior/exterior fire rating. The maximum allowable slope for this assembly is 1 in. per ft. The assembly consists of priming the concrete deck using JM SA Low VOC Primer applied at a rate of 0.50 gal/square. A self-adhered JM Vapor Barrier SA Vapor Retarder will be secured to the primed concrete deck. Two layers of 2 $\frac{1}{2}$ in. JM ENRGY 3 polyisocyanurate insulation will be adhered to the vapor retarder using JM Two Part Urethane Insulation Foam Adhesive applied using $\frac{3}{4}$ in. thick ribbons spaced 12/6/4 in. on center in the corresponding roof field/perimeter/corner areas. The insulation boards will be 4 x 4 ft. A $\frac{1}{2}$ in. layer of SECUROCK Gypsum-Fiber Roof Board will be adhered to the insulation using the previously mentioned adhesive applied at the same rate. These boards will also be 4 x 4 ft. A 90 mil JM EPDM NR membrane will be fully adhered to the cover board using JM EPDM Membrane Low VOC Adhesive applied at a rate of 0.55 gal/square. The membrane will be laid using 10 ft.

This report has been developed for insurance underwriting purposes. It is provided to you for informational purposes only to reduce the possibility of loss to insured property by bringing to your attention certain potential hazards or conditions. Life, safety, or health issues are not addressed. You must make the decision whether to take any action. The company undertakes no duty to you or any other party by providing this report or the activities on which it is based. The liability of the company is limited to that contained in its insurance policies.

sheets with laps primed and sealed using JM EPDM Tape Primer and JM EPDM Seam Tape Plus per manufacturer's specifications. The roof will slope at ¼ in. per ft.

Curb base flashing, wall flashing and coping, and surface mounted counter flashing will be installed per manufacturer's requirements.

Review Comments:

1. Although RoofNav Assembly No. 353837-0-0 is not approved for roofs sloped greater than 1 in. per ft., the specified slope will be accepted for use in this project only.
2. The material submitted did not discuss or define the width of the perimeter areas or dimension of the roof corners. The roof perimeter should be the smaller of the 0.1 times the building lesser plan dimension or 0.4 times the roof height, but never less than 3 ft. The roof corner is a square using the calculated roof perimeter width.
3. The proposed roof covering assemblies should be installed in accordance with the specific FM Approved RoofNav Assembly number listing. Substitution of individually FM Approved components, not currently listed as part of the specific FM Approved RoofNav Assembly number, should not be allowed.
4. Roof edge flashing should be FM Approved and installed in accordance with FM Global Property Loss Prevention Data Sheet 1-49, *Perimeter Flashing*. Specifically, ensure the use of a continuous hook strip to secure the flashing to the building.

Recommendations to Reduce Hazards during Installation:

5. Hot work of any kind should be avoided. If there is a practical and safer way to do the job without hot work, the alternative method should be used. If hot work is unavoidable, precautions such as those outlined on the FM Global Hot Work Permit System should be taken during any such work.
6. Thorough supervision by the building owner's qualified representative should be provided during construction/installation to ensure adherence to specifications and quality of workmanship.

This review is for property insurance purposes only in accordance with FM Global standards and guidelines. Nothing should be inferred from this review regarding compliance with any rules, regulations or requirements of government agencies, state or local codes or any other jurisdictional authority. We are retaining the copy of your submitted plans for our files.

Sincerely,

Nick Jordan

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NEJ/kmk/6.0

Loss Prevention Resources:

FM Global Property Loss Prevention Data Sheets (<http://www.fmglobaldatasheets.com>)

FM Global Loss Prevention Training (<https://fmglobaltraining.skillport.com>)

Approval Guide (<http://www.approvalguide.com>)

RoofNav (<http://roofnav.fmglobal.com>)

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