

INVITATION TO BID

NKU-17-18



Science Building Roof Rehabilitation

September 28, 2017

Specifications / Drawings pertaining to this bid are attached and also available for download at:

<https://www.dropbox.com/sh/uzpiw3wf3zler8i/AAAzD37UCzF4CRtYiKhrZU1ya?dl=0>

Proposal NO: NKU-17-18
Issue Date: September 28, 2017
Title: Science Building Roof Rehabilitation
Purchasing Officer: Blaine Gilmore
Phone: 859.572.6449

RETURN ORIGINAL COPY OF PROPOSAL TO:

**Northern Kentucky University
 Procurement Services
 1 Nunn Drive
 617 Lucas Administrative Center
 Highland Heights, KY 41099**

IMPORTANT: BIDS MUST BE RECEIVED BY: 10/16/2017 BEFORE 2:00 P.M. HIGHLAND HEIGHTS, KY time.

NOTICE OF REQUIREMENTS

1. The University's General Terms and Conditions and Instructions to Bidders, viewable at <http://procurement.nku.edu/policies/terms-and-conditions.html>, apply to this Request for Proposal.
2. Contracts resulting from this RFP must be governed by and in accordance with the laws of the Commonwealth of Kentucky.
3. Any agreement or collusion among Offerors or prospective Offerors, which restrains, tends to restrain, or is reasonably calculated to restrain competition by agreement to bid at a fixed price or to refrain from offering, or otherwise, is prohibited.
4. Any person who violates any provisions of KRS 45A.325 shall be guilty of a felony and shall be punished by a fine of not less than five thousand dollars nor more than ten thousand dollars, or be imprisoned not less than one year nor more than five years, or both such fine and imprisonment. Any firm, corporation, or association who violates any of the provisions of KRS 45A.325 shall, upon conviction, may be fined not less than ten thousand dollars or more than twenty thousand dollars.

AUTHENTICATION OF BID AND STATEMENT OF NON-COLLUSION AND NON-CONFLICT OF INTEREST

I hereby swear (or affirm) under the penalty for false swearing as provided by KRS 523.040:

1. That I am the offeror (if the offeror is an individual), a partner, (if the offeror is a partnership), or an officer or employee of the bidding corporation having authority to sign on its behalf (if the offeror is a corporation);
2. That the attached proposal has been arrived at by the offeror independently and has been submitted without collusion with, and without any agreement, understanding or planned common course of action with, any other Contractor of materials, supplies, equipment or services described in the Request for Proposal, designed to limit independent bidding or competition;
3. That the contents of the proposal have not been communicated by the offeror or its employees or agents to any person not an employee or agent of the offeror or its surety on any bond furnished with the proposal and will not be communicated to any such person prior to the official closing of the RFP;
4. That the offeror is legally entitled to enter into contracts with the Northern Kentucky University and is not in violation of any prohibited conflict of interest, including those prohibited by the provisions of KRS 45A.330 to .340, 164.390, and
5. That the Offeror, and its affiliates, are duly registered with the Kentucky Department of Revenue to collect and remit the sale and use tax imposed by Chapter 139 to the extent required by Kentucky law and will remain registered for the duration of any contract award
6. That I have fully informed myself regarding the accuracy of the statement made above.

SWORN STATEMENT OF COMPLIANCE WITH FINANCE LAWS

In accordance with KRS 45A.110 (2), the undersigned hereby swears under penalty of perjury that he/she has not knowingly violated any provision of the campaign finance laws of the Commonwealth of Kentucky and that the award of a contract to a bidder will not violate any provision of the campaign finance laws of the Commonwealth of Kentucky.

CONTRACTOR REPORT OF PRIOR VIOLATIONS OF KRS CHAPTERS 136, 139, 141, 337, 338, 341 & 342

The Contractor by signing and submitting a proposal agrees as required by 45A.485 to submit final determinations of any violations of the provisions of KRS Chapters 136, 139, 141, 337, 338, 341 and 342 that have occurred in the previous five (5) years prior to the award of a contract and agrees to remain in continuous compliance with the provisions of the statutes during the duration of any contract that may be established. Final determinations of violations of these statutes must be provided to the University by the successful Contractor prior to the award of a contract.

CERTIFICATION OF NON-SEGREGATED FACILITIES

The Contractor, by submitting a proposal, certifies that he/she is in compliance with the Code of Federal Regulations, No. 41 CFR 60-1.8(b) that prohibits the maintaining of segregated facilities.

RECIPROCAL PREFERENCE

- (1) Prior to a contract being awarded to the lowest responsible and responsive bidder on a contract by a public agency, a resident bidder of the Commonwealth shall be given a preference against a nonresident bidder registered in any state that gives or requires a preference to bidders from that state. The preference shall be equal to the preference given or required by the state of the nonresident bidder.
- (2) A resident bidder is an individual, partnership, association, corporation, or other business entity that, on the date the contract is first advertised or announced as available for bidding:
 - (a) Is authorized to transact business in the Commonwealth; and
 - (b) Has for one (1) year prior to and through the date of the advertisement, filed Kentucky corporate income taxes, made payments to the Kentucky unemployment insurance fund established in KRS 341.490, and maintained a Kentucky workers' compensation policy in effect.
- (3) A nonresident bidder is an individual, partnership, association, corporation, or other business entity that does not meet the requirements of subsection (2) of this section.
- (4) If a procurement determination results in a tie between a resident bidder and a nonresident bidder, preference shall be given to the resident bidder.
- (5) This section shall apply to all contracts funded or controlled in whole or in part by a public agency.
- (6) The Finance and Administration Cabinet shall maintain a list of states that give to or require a preference for their own resident bidders, including details of the preference given to such bidders, to be used by public agencies in determining resident bidder preferences. The cabinet shall also promulgate administrative regulations in accordance with KRS Chapter 13A establishing the procedure by which the preferences required by this section shall be given.
- (7) The preference for resident bidders shall not be given if the preference conflicts with federal law.
- (8) Any public agency soliciting or advertising for bids for contracts shall make KRS 45A.490 to 45A.494 part of the solicitation or advertisement for bids

DEFINITIONS

As used in KRS 45A.490 to 45A.494: (1) "Contract" means any agreement of a public agency, including grants and orders, for the purchase or disposal of supplies, services, construction, or any other item; and

(2) "Public agency" has the same meaning as in KRS 61.805.

SIGNATURE REQUIRED: This proposal cannot be considered valid unless signed and dated by an authorized agent of the offeror. Type or print the signatory's name, title, address, phone number and fax number in the spaces provided. Offers signed by an agent are to be accompanied by evidence of his/her authority unless such evidence has been previously furnished to the issuing office. Your signature is acceptance to the Terms and conditions above.

DELIVERY TIME:	NAME OF COMPANY:	DUNS #
PROPOSAL FIRM THROUGH:	ADDRESS:	Phone/Fax:
PAYMENT TERMS:	CITY, STATE & ZIP CODE:	E-MAIL:
SHIPPING TERMS: F.O.B. DESTINATION - PREPAID AND ALLOWED	TYPED OR PRINTED NAME:	WEB ADDRESS:
FEDERAL EMPLOYER ID NO.:	SIGNATURE:	DATE:

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General Terms and Conditions and Instructions to Proposers:

<http://procurement.nku.edu/policies/terms-and-conditions.html>

NOTICE OF ADVERTISEMENT**BRIEF SCOPE OF WORK:**

Northern Kentucky University is seeking a Contractor to provide all labor, tools, supervision, and equipment required to rehabilitate and replace the roof of the Dorothy Westerman Hermann Natural Science Building located on the NKU, Highland Heights Campus. NKU will be purchasing materials to be delivered to the project site. Please see the brief description below:

MATERIALS SUPPLIED BY OWNER

The following is a list of materials to be delivered to the project at the start of work – The contractor is responsible for scheduling, unloading and hoisting materials to roof.

Tremco - Trisotech Taper Kit	1 Kit (20.50 sqs.)
Tremco - Burmastic Composite Ply HT	(40) rolls
Tremco - Burmastic SF Adhesive	(25) 5 gal pails
Tremco – Fas N Free Adhesive	(20) 5 gal pails
Tremco - Alphaguard MT Base Coat	(300) 5 gallon pails
Tremco - Alphaguard MT Top Coat	(197) 5 gallon pails
Tremco - 40" x 32' Permafab	(40) rolls
Tremco – Alphaguard M-Prime	(14) 1 gallon cans
Tremco – Geogard Primer	(2) 5 gal pails

****All other materials required for this project are to be provided by the contractor.***

****Contractors must be Licensed Tremco Contractors – Proof of License is required.***

Roof Area A - The replacement roof work consists of the following:

1. Remove the existing designated modified bitumen membrane and underlying tapered insulation to concrete deck substrate. Remove all related base flashings and sheet metal flashings to substrate. Remove walkway for reuse.
2. Install new vapor retarder to prepped concrete deck.
3. Adhere new tapered polyisocyanurate insulation.
4. Adhere gypsum recovery board.
5. Install new multi-ply cold process built up roofing base plies with reinforced fluid applied membrane system surfacing to roof area and flashings.
6. Install new drain inserts with accessories.
7. Provide new stainless steel bib flashings.
8. Re-install elevated walkway.
9. Install certified lightning protection.
10. Provide 20-year warranty.
11. Provide daily site construction monitoring and inspection as specified.
12. Comply with all Division 1 requirements such as bid and performance bond security, insurance, completion time frames, etc. as specified.

Roofs B thru K, South PH, North PH, Stair wells A&B - The rehabilitation roof work consists of the following:

1. Repair blisters and membrane deficiencies. Reuse existing coping and fascia metal.
2. Remove existing walk pads and lightning protection.
3. Power clean existing modified bitumen membrane following all local, state and federal requirements.
4. Install new drain inserts with accessories at identified locations.
5. Adhere new reinforced fluid applied membrane and flashing system to the existing prepped membrane, projections and flashings.
6. Install color contrasting fluid applied walkway with non-skid surfacing per roof plan.
7. Install certified lightning protection.
8. Provide 20-year warranty.
9. Provide daily site construction monitoring and inspection as specified.
10. Comply with all Division 1 requirements such as bid and performance bond security, insurance, completion time frames, etc. as specified.

Please see the attached documents for the full scope of work. These documents may be downloaded individually at:

<https://www.dropbox.com/sh/uzpiw3wf3zler8i/AAAzD37UCzF4CRtYiKhrZU1ya?dl=0>

PROJECT TIMETABLE:

Invitation for Bid Issued	September 28, 2017
Pre-Bid Meeting	October 6, 2017 at 10:30 am EST
Last Day for Questions	October 9, 2017 at 12:00 pm EST
BIDS DUE	October 16, 2017 @ 2:00 PM

Pre Bid Conference:

There will be a pre-bid meeting held on October 6, 2017 @ 10:30 AM EST to address any questions or concerns. We will be meeting at the doorway to the science building facing Kenton Drive. Please email Ryan Straus, Bid Specialist, strausr2@nku.edu with any questions.

SUBMITTAL OF BID:

The bidder shall submit, by the time and date specified via US Postal Service, courier or other delivery service, its bid response in a **sealed package** addressed to:

**Blaine Gilmore
Interim Director, Procurement Services
Lucas Administrative Center, Suite 617
1 Nunn Drive
Northern Kentucky University
Highland Heights, KY 41099**

Both inner and outer envelopes/packages should bear respondent's name and address, and clearly marked on package(s) as follows:

**ITB NKU-17-18
Science Building Roof Rehabilitation**

Special Conditions to Proposers**QUESTIONS AND REQUESTS FOR INFORMATION**

Information relative to this project obtained from other sources, including other university administration, faculty or staff may not be accurate, will not be considered binding and could adversely affect the potential for selection of your bid. All requests for information, questions or comments relative to this project should be directed, in writing to:

Ryan Straus
Bid Specialist, Procurement Services
Lucas Administrative Center, Suite 617
Northern Kentucky University
Highland Heights, KY 41099
Strausr2@nku.edu

GENERAL TERMS AND CONDITIONS TO PROPOSERS:

The general terms and conditions linked below shall be applicable to this Bid and take precedence over any Contractor terms and conditions:

<http://procurement.nku.edu/policies/terms-and-conditions.html>

PARKING PERMITS:

Contractor must obtain parking permits for all vehicles that will be parked on campus. Permits can be obtained at the welcome center for \$28.75/month.

<http://parking.nku.edu/rules/guidelines.html>

GOVERNING LAW:

Proposers shall conform to and observe all laws, ordinances, rules and regulations of the United States of America, Commonwealth of Kentucky, and all other local governments, public authorities, boards or offices relating to the Project Site or the improvements upon same, or the use thereof, and will not permit the same to be used for any illegal or immoral purposes, business or occupation. The resulting Contract shall be governed by Kentucky Law and any claim relating to this Contract shall only be brought in the Franklin Circuit Court in Accordance with KRS 45A-245.

TOBACCO FREE CAMPUS

Effective January 1st, 2014, NKU will be a tobacco free campus. The use of all tobacco products shall be prohibited in all campus buildings and outside areas on campus.

STATUTORY AUTHORITY

Selection of firms to provide professional services to Northern Kentucky University are governed by the provisions of the Kentucky Revised Statutes, KRS 45A.085, <http://www.lrc.ky.gov/KRS/045A00/085.PDF>

FOREIGN CORPORATIONS

Foreign corporations are defined as corporations that are organized under laws other than the laws of the commonwealth of Kentucky. Foreign corporations doing business within the commonwealth of Kentucky are required to be registered with the Secretary of State, New Capitol Building, Frankfort, Kentucky and must be in good standing.

The Foreign Corporate Proposer, if not registered with the Secretary of State at the time of the bid submittal, shall be required to become registered and be declared in good standing prior to the issuance or receipt of a contract.

DOMESTIC CORPORATIONS

Domestic corporations are required to be in good standing

OCCUPATIONAL LICENCSE

Northern Kentucky University was annexed by the city of Highland Heights in 2008. All contractors performing work for NKU must possess a Campbell County Occupational License and a city of Highland Heights Occupational License (administered by Campbell County) and must also pay applicable payroll taxes. For further information, call 859-572-6605.

PERMITS

The Contractor shall obtain all permits necessary for any or all parts of the work from the authorities governing such work. The Contractor shall procure building permits, when required but no fee shall be applicable on projects for the Commonwealth. Evidence that such permits have been issued shall be furnished to the Owner before beginning work.

BID BONDS:

A 5% bid bond is required with submission of this ITB.

COMPLETION DATES

It is understood and agreed that time is of the essence. The Contractor will efficiently, diligently, and expeditiously conduct the work in a manner that will satisfy compliance with approved project schedules and completion by the completion date appearing in the body of this bid.

COORDINATION OF WORK

The Vendor shall be responsible for coordinating all work with the **NKU Project Manager**. The Contractor shall cooperate completely with the Owner's security forces and measures.

DAMAGE AND REPAIRS

The Contractor shall exercise particular care to avoid damage to his own work, the Owner's property, and adjacent property of every description. He shall make good any damage resulting from or caused by the work under this contract at his sole expense in a manner satisfactory and without extra cost to the Owner including, but not limited to, finishes, furnishings, and landscaping.

HAZARDOUS MATERIALS

No asbestos containing materials, lead based paints, or other hazardous materials shall be furnished or installed in this work.

PAYMENT AND PERFORMANCE BONDS: 100% Payment and Performance Bonds will be required for work arising from this ITB.

EXAMINATION OF SITE

Each vendor shall fully acquaint and familiarize themselves with the conditions as they exist and the character of the operation to be carried on under the proposed contract and has made such investigation as may be reasonably necessary so that the vendor shall fully understand the facilities, physical conditions and restrictions attending to the work under the contract. The specifications furnished represent a fair approximation of the material needed but all quotations submitted should take into account knowledge gained as a result of the above referenced visual inspection.

EXAMINATION OF CONTRACT

Each vendor shall also thoroughly examine and become familiar with the specifications and associated contract documents. By submitting a bid, the vendor agrees that they have carefully examined the specifications and have thereupon decided that from their own investigation Contractor has satisfied themselves as to the nature and location of work, the general and local conditions and all matters which may in any way affect the work or its

performance and that as a result of such examination and investigation, vendor fully understands the intent and purpose of the documents and conditions of the bidding. Claims for additional compensation and/or extension of time because of the vendor's failure to follow the foregoing procedure and to familiarize themselves with the Contract Documents and all conditions which might affect work will not be allowed.

FIELD VERIFICATION

It is the Vendor's responsibility to verify all measurements.

HOURS OF WORK

Working days at Northern Kentucky University are Monday through Friday, 8:00am to 4:30pm. Deviation from these working hours must be approved by said project manager.

WARRANTY

Please see the attached scope of work for detailed warranty information.

CANCELLATION

The resulting contract from this ITB may be cancelled by the University for non-compliance with the terms and conditions of any part of the agreement.

TERMINATION FOR CONVENIENCE

Northern Kentucky University reserves the right to terminate the resulting contract without cause with a 30-day written notice. Upon receipt by the Contractor of "notice of termination" the Contractor shall discontinue all services with respect to the applicable contract. The cost of any agreed upon services provided by the Contractor will be calculated at the agreed upon rate prior to "notice of termination" and a fixed fee contract will be pro-rated (as appropriate).

INSURANCE

If awarded, bidder / proposer must provide NKU with an insurance certificate listing NKU as a certificate holder and additionally insured.

**Northern Kentucky University
617 Lucas Administrative Center
1 Nunn Drive
Highland Heights, KY 41099**

The Contractor shall furnish the University the Certificates of Insurance and guarantee the maintenance of such coverage during the term of the contract. The Contractor shall provide an original policy endorsement of its CGL insurance naming Northern Kentucky University and the directors, officers, trustees, and employees of the University as additional insured on a primary and non-contributory basis as their interest appears. Additionally, the Contractor shall provide an original policy endorsement for Waiver of subrogation in favor of the Northern Kentucky University its directors, officers, trustees, and employees as additional insured.

Our basic insurance requirements are:

Workers' Compensation insurance with Kentucky's statutory limits and Employers' Liability insurance with at least \$100,000 limits of liability.

Comprehensive General Liability (CGL) Insurance the limits of liability shall not be less than \$500,000 each occurrence for bodily injury and \$250,000 property damage.

Comprehensive Automobile Liability Insurance: To cover all owned, hired, leased or non-owned vehicles used on the Project. Coverage shall be for all vehicles including off the road tractors, cranes and rigging equipment and include pollution liability from vehicle upset or overturn. Policy limits shall not be less than \$500,000 for bodily injury and \$100,000 for property damage.

Excess liability insurance in an umbrella form for excess coverages shall have a minimum of \$1,000,000 combined single limits for bodily injury and property damage for each.

REFERENCES

Bidder Qualifications: The bidder is required to submit a list of completed projects where he has performed similar work to that specified herein.

Organization: _____

Contact Name: _____

Phone Number: _____

Date Work Completed: _____ **Value of Contract:** _____

Project Manager assigned to this project: _____

Brief Project Description: _____

Organization: _____

Contact Name: _____

Phone Number: _____

Date Work Completed: _____ **Value of Contract:** _____

Project Manager assigned to this project: _____

Brief Project Description: _____

Organization: _____

Contact Name: _____

Phone Number: _____

Date Work Completed: _____ **Value of Contract:** _____

Project Manager assigned to this project: _____

Brief Project Description: _____

SUBCONTRACTORS

SUBCONTRACTORS: The following is a list of subcontractors proposed by the bidder to be used to complete the project. All subcontractors are subject to approval by Northern Kentucky University. Failure to submit this list completely filled out may invalidate bid. **SUBCONTRACTORS MAY NOT BE CHANGED AFTER CONTRACT AWARD WITHOUT APPROVAL BY NKU.**

[illegible]

List of Materials and Equipment
(Must be submitted within 24 hours after bid opening)

Every item listed under the different phases of this project must be clearly identified so that Northern Kentucky University will definitely know what the bidder proposes to furnish. Bidders be hereby advised that this list shall be required to be filled out completely by the apparent low bidder within twenty-four (24) hours from the close of the official reading of the bids.

The above requirement does not preclude any bidder from submitting this list, fully executed, at the time the bids are submitted.

The use of the manufacturers' dealer's name only, or stating "as per plans and specifications", will not be considered as sufficient identification. Where more than one "Make or Brand" is listed for any one item, the Owner has the right to select the one to be used.

Failure to submit a proper list may result in rejection of the Bidder's Proposal.

Material And / Or Equipment	Manufacturer and Brand Name

NKU GENERAL SAFETY & COORDINATION REQUIREMENTS

1. The University strives to continuously maintain both a safe and secure work environment for its students, employees, and the employees of all Contractors assigned to our campus. Therefore, it is essential the following criteria be met by all Contractors (and all their subcontractors) working at NKU.
2. **BACKGROUND CHECKS:** The Contractor shall furnish the University upon request with written documentation that verifies each of their employees working on the property of the University has cleared a background check, has no felony convictions, is not a sex offender, and has the legal right to work in the United States.
3. **DRUG-FREE WORKPLACE:** Northern Kentucky University is a drug-free and alcohol-free workplace, and all employees of Contractors and subcontractors are subject to this policy while working on University property. If there is verifiable suspicion or probable cause that an employee of the contractor or subcontractor is under the influence of drugs or alcohol, the University reserves the right to require the Contractor to have the employee tested immediately at no expense to the University. If the test results are positive the employee will be prohibited from working on University property for a period of one (1) year from the positive test, or the duration of the project, whichever is longer. The banned employee of the Contractor must pass a drug and alcohol test before working again on university property. Effective January 1st, 2014, NKU will be a tobacco free campus. The use of all tobacco products shall be prohibited in all campus buildings and outside areas on campus.
4. **CONTRACTOR PRESENCE ON CAMPUS:** All persons working for (or on behalf of) the Contractor whose duties bring them on campus shall obey the rules and regulations that are established by the University and shall comply with the reasonable directions of the University representatives. Contractor's employees shall never enter or use existing areas of campus where they are not required to be performing work. Contractors and subcontractors are always responsible for providing and maintaining portable restroom facilities for all their workers working on the project. Contractor shall be responsible for the acts of his employees and agents while on campus. Accordingly, Contractor agrees to take all necessary measures to prevent injury and loss to persons or property located on campus. Contractor shall be responsible for all damages to persons or property caused by Contractor or any of his agents or employees. Contractor shall promptly repair any damage that he, or his employees or agent may cause to the campus or to the University equipment. Contractor agrees that in event of an accident of any kind on university property, Contractor will immediately notify the University's Department of Public Safety (859) 572-5770 and furnish a full written report of the accident. All Contractor employees and subcontractors shall present a neat and clean appearance while on University property, and be able to present proper identification upon request.
5. **PROJECT WORK SITE SAFETY & SECURITY:** The University does not, and will not, assume any responsibility for any tools, materials, equipment, or property belonging to the Contractor, his employees or agents, which may be lost or stolen from University property. All contractors and subcontractors are solely responsible for properly securing and protecting their tools and equipment. When working within or on top of an existing building, the Contractor shall work with the assigned University project manager in developing a strategy for securing the project work site and protecting the campus staff and community from the project work site. When working in an open area on campus, the Contractor shall provide securable barricades/fencing around the project site to protect the campus community from the dangers within the project work site. The Contractor shall maintain this project work site 24 hour a day, 7 days a week for the duration of the project.
6. **PARKING:** All Contractors and their subcontractors are required purchase a monthly parking pass from NKU at the rate of \$28.75/month, or at a daily rate of \$5.00/day. Weekly passes are also available. This will entitle workers to park at all NKU campus lots and garages, EXCEPT for faculty and staff lots which are noted accordingly. This pass also allows for parking in any of the garages if your vehicles will fit. Parking within the jobsite WILL NOT BE PERMITTED. Workers who do so will be subject to immediate towing, without warning, and at their cost. Vehicles may be parked near a worksite for reasonable times for loading and unloading, providing normal access and egress to buildings is not hindered. All workers shall park their personal vehicles in the Welcome Center parking garage, which is located just north of the Power Plant across from the Bank of Kentucky Center.
7. **GENERAL PROJECT COORDINATION:** All work and information requests by the Contractor shall be coordinated through the assigned NKU Project Manager. Any direction provided by the campus Operations & Maintenance Staff and/or the project user group shall NOT be considered official direction from the University unless authorized in writing from the assigned NKU Project Manager. Contractor will NOT be compensated for work performed without written authorization from the assigned NKU Project Manager.

8. **TEMPORARY USE OF CAMPUS UTILITIES:** As a general rule, utilities required by the Contractor to perform their work can be obtained from the University. However, the University reserves the right to require the Contractor to furnish a meter to record the usage of each provided utility for the duration of the project. For projects requiring utility metering, a deduct change order will be issued at the end of the Project to reimburse the University for the Contractor utility usage. The Contractor is responsible for determining and coordinating the procurement of any utility where the University cannot reasonably provide.
9. **CAMPUS UTILITY SHUTDOWNS:** Unless noted otherwise for a specific project, at least seven (7) calendar days notice is required for any campus utility shutdowns and/or any road/parking lot closures necessary for the Contractor to perform their work. All utility shutdowns and closures shall be coordinated with the assigned NKU Project Manager, and the University reserves the right to schedule these shutdowns and closures at night and/or on weekends to minimize disruptions to the campus community. All requests for assistance from NKU's Operations & Maintenance staff in locating existing utilities shall also be submitted to the assigned NKU project manager at least (7) calendar days in advance.

Bid Bond
5% of Contract Price

KNOW ALL MEN BY THESE PRESENTS, that we (here insert full name and address or legal title of Contractor)

as Principal, hereinafter called the Principal, and (here insert full name and address or legal title of Surety)

a corporation duly organized under the laws of the State of Kentucky as Surety, hereinafter called Surety, are held and firmly bound unto **Northern Kentucky University** as Obligee, hereinafter called Obligee, in the sum of :

_____ Dollars (\$_____),

representing 5% of the Principal's total bid price and for the payment of which sum well and truly to be made, the said Principal and the said Surety, bind ourselves, our heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal has submitted a bid for (Here insert full name, address and description of project)

NOW THEREFORE, if the Obligee shall accept the bid of the Principal within the period specified, or if no period is specified, within 45 days after its opening, and the Principal shall enter into a Contract with the Obligee in accordance with the terms of such bid, and give such bid or bonds as may be specified in the bidding or Contract Documents with good and sufficient surety for the faithful performance of such Contract and for the prompt payment of labor and material furnished in the prosecution thereof, or in the event of the failure of the Principal to enter such Contract and give such bonds or bonds, if the Principal shall pay to the Obligee the difference not to exceed the penalty hereof between the amount specified in said bid and such larger amount for which the Obligee may in good faith contract with another party to perform the Work covered by said bid, then this obligation shall be null and void, otherwise to remain in full force and effect.

Signed and sealed this day of

2017

(Principal)	(Seal)
-------------	--------

(Witness)

(Title)	(Seal)
---------	--------

(Witness)

(Title)

THIS DOCUMENT MUST BE NOTORIZED
This is only an example. Other forms may be used.

FORM OF PROPOSAL**LUMP SUM BASE BID**

The Bidder agrees to furnish all labor, materials, supplies, supervision and services required to perform this contract in a workmanlike manner. These services to be provided in accordance with Specifications and Contract Documents, and any duly issued Addenda for the **LUMP SUM BASE BID** set forth below:

_____ Dollars _____ Cents
(USE WORDS) (USE WORDS)
\$ _____
(USE NUMBERS)

This offer is for, at minimum, _____ calendar days from the date this offer is opened. In submitting the above it is expressly agreed that upon proper acceptance by Northern Kentucky University of any or all items offered, a contract shall thereby be created with respect to the items accepted.

THIS BID SUBMITTED BY:

(Name and Address of Bidder)

DATE: _____ AUTHORIZED SIGNATURE: _____

NOTE: *The Authentication of Bid and Statement of Non-Collusion and Non-Conflict of Interest must be properly executed for this Bid to be valid.*

This Bidder, in compliance with this Request for Bid, and having carefully examined the complete contract documents, as well as the specifications for the work as prepared by Northern Kentucky University, hereby proposes to furnish all labor, supervision, materials, supplies and services required to perform the specifics of the Contract Documents, within the time set forth herein and for the final negotiated price.

The Bidder, hereby acknowledges receipt of the following Addenda:

ADDENDUM NO. _____ DATED _____ ADDENDUM NO. _____ DATE _____

ADDENDUM NO. _____ DATED _____ ADDENDUM NO. _____ DATE _____

SECTION 01H - SPECIAL CONDITIONS

1. MATERIALS SUPPLIED BY OWNER

- A. The following is a list of materials to be delivered to the project at the start of work – The contractor is responsible for scheduling, unloading and hoisting materials to roof.

Tremco - Trisotech Taper Kit	1 Kit (20.50 sqs.)
Tremco - Burmastic Composite Ply HT	(40) rolls
Tremco - Burmastic SF Adhesive	(25) 5 gal pails
Tremco - Fas N Free Adhesive	(20) 5 gal pails
Tremco - Alphaguard MT Base Coat	(300) 5 gallon pails
Tremco - Alphaguard MT Top Coat	(197) 5 gallon pails
Tremco - 40" x 32' Permafab	(40) rolls
Tremco - Alphaguard M-Prime	(14) 1 gallon cans
Tremco - Geogard Primer	(2) 5 gal pails

All other materials required for this project are to be provided by the contractor.

Contractors must be Licensed Tremco Contractors – Proof of License is required.

2. INSPECTION OF THE SITE:

- A. All contractors shall visit the site to check and verify existing conditions before submitting a bid. Any discrepancies discovered between existing conditions and those shown on drawings or noted in the specifications shall be reported immediately to the Architect, in writing, so that all bidders can be given proper information as to existing conditions.
- B. Failure to make this required inspection before submitting a bid will be taken as acceptance by the contractor of the conditions as they exist in the field, whether shown on the drawings or noted in the specifications, and as shown on the Owner's drawings and noted in the specifications, and no subsequent claims for extra compensation arising from existence of discrepancies between actual conditions and those shown on drawings and/or noted in specifications will be considered.

3. DELIVERY AND RECEIPT OF EQUIPMENT:

- A. The owner will accept no responsibility for the delivery and receipt of any items of equipment or materials.
- B. Those contractors supplying equipment or materials for this project shall make arrangements to have men available at the site to receive this equipment or materials when delivered.
- C. Use of any portion of the site for storage of such material and equipment may be done only with the consent of the Owner. Satisfactory protection against fire and theft for stored material and equipment shall be maintained by the contractors concerned. Contractors shall also include contingent liability insurance for any damage caused due to handling of this

equipment.

4. TEMPORARY POWER, LIGHTING, HEAT, WATER AND SANITARY FACILITIES:

Tool and material storage areas shall be located on the grounds where established in pre-construction meeting and agreed to by Owner.

Water shall be obtained from the existing system where directed by the Owner.

Demolition and removal work must be planned, scheduled, and executed in an orderly manner to prevent undue disturbance to owner.

Contractor shall be solely responsible for insuring, and executing any work necessary to ensure that all existing work and materials are protected. This shall include but is not limited to covering, weatherproofing partitions or barriers.

5. LABOR:

All labor shall be performed in the best and most workmanlike manner by mechanics skilled in their respective trades. The standard of work required shall be of such grade as will bring first class results.

6. TIMES FOR COMPLETION:

Substantial Completion: Subject to the conditions of General Conditions - COMPLETION, the total work to be done under this construction contract shall be commenced at the time stipulated in the Work Order to the Contractor and shall be substantially completed within 60 calendar days.

Final Completion: Subject to the conditions of General Conditions - COMPLETION, the total work to be done under this construction contract shall be fully completed within thirty (30) consecutive calendar days after the Date of Substantial Completion.

The date of Final Completion shall be 90 calendar days until the work is complete and all Contract requirements have been fulfilled by the Contractor.

7. LIQUIDATED DAMAGES:

As actual damages for any delay in completion are impossible to determine, the Contractors and their sureties shall be liable for and shall pay to the Owner the sum of \$200.00 as fixed, agreed, liquidated damages for each calendar day of delay until the contract work is substantially completed. After Substantial Completion is then reached and certified, the Contractor will be given thirty (30) consecutive calendar days for Final Completion.

END OF SECTION 01H

SECTION 01 10 00 – SUMMARY

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Work covered by the Contract Documents.
 - 2. Type of the Contract.
 - 3. Work phases.
 - 4. Work under other contracts.
 - 5. Products ordered in advance.
 - 6. Owner-furnished products.
 - 7. Use of premises.
 - 8. Owner's occupancy requirements.
 - 9. Work restrictions.
 - 10. Specification formats and conventions.

1.3 WORK COVERED BY CONTRACT DOCUMENTS

- A. Project Identification: Northern Kentucky University, Dorothy Westerman Hermann Natural Science Building Roof Rehabilitation & Replacement Project.
 - 1. Project Location: Northern Kentucky University, Kenton Co. Drive, Highland Heights, KY 41099.
- B. Roof Area A - The replacement roof work consists of the following:
 - 1. Remove the existing designated modified bitumen membrane and underlying tapered insulation to concrete deck substrate. Remove all related base flashings and sheet metal flashings to substrate. Remove walkway for reuse.
 - 2. Install new vapor retarder to prepped concrete deck.
 - 3. Adhere new tapered polyisocyanurate insulation.
 - 4. Adhere gypsum recovery board.
 - 5. Install new multi-ply cold process built up roofing base plies with reinforced fluid applied membrane system surfacing to roof area and flashings.
 - 6. Install new drain inserts with accessories.
 - 7. Provide new stainless steel bib flashings.
 - 8. Re-install elevated walkway.
 - 9. Install certified lightning protection.
 - 10. Provide 20-year warranty.

11. Provide daily site construction monitoring and inspection as specified.
 12. Comply with all Division 1 requirements such as bid and performance bond security, insurance, completion time frames, etc. as specified.
- C. Roofs B thru K, South PH, North PH, Stairwells A&B - The rehabilitation roof work consists of the following:
1. Repair blisters and membrane deficiencies. Reuse existing coping and fascia metal.
 2. Remove existing walk pads and lightning protection.
 3. Power clean existing modified bitumen membrane following all local, state and federal requirements.
 4. Install new drain inserts with accessories at identified locations.
 5. Adhere new reinforced fluid applied membrane and flashing system to the existing prepped membrane, projections and flashings.
 6. Install color contrasting fluid applied walkway with non-skid surfacing per roof plan.
 7. Install certified lightning protection.
 8. Provide 20-year warranty.
 9. Provide daily site construction monitoring and inspection as specified.
 10. Comply with all Division 1 requirements such as bid and performance bond security, insurance, completion time frames, etc. as specified.

1.4 TYPE OF CONTRACT

- A. The award will be will be carried out under a single prime contract.

1.5 USE OF PREMISES

- A. General: Contractor shall have limited use of premises for construction operations as indicated on Drawings by the Contract limits.
- B. Use of Site: Limit use of premises to work in areas indicated. Do not disturb portions of Project site beyond areas in which the Work is indicated.
1. Limits: Confine constructions operations to rooftop and setup areas.
 - a. Do not use Owner's toilet rooms.
 2. Owner Occupancy: Allow for Owner occupancy of Project site and use by the public.
 3. Driveways and Entrances: Keep driveways, parking areas, loading areas and entrances serving premises clear and available to Owner, Owner's employees, and emergency vehicles at all times. Do not use these areas for parking or storage of materials.
 - a. Schedule deliveries to minimize use of driveways and entrances.
 - b. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on-site.
- C. Deliveries: Provide representative to receive all materials and offload at the job site. The Owner will refuse all deliveries to other locations.
- D. Safety and Security: Comply with Owner's requirements related to security and fire drills and alerts.

- E. Use of Existing Building: Maintain existing building in a weathertight condition throughout construction period. Repair damage caused by construction operations. Protect building and its occupants during construction period.

1.6 OWNER'S OCCUPANCY REQUIREMENTS

- A. Full Owner Occupancy: Owner will occupy site and existing building during entire construction period. Cooperate with Owner during construction operations to minimize conflicts and facilitate Owner usage. Perform the Work so as not to interfere with Owner's day-to-day operations. Maintain existing exits, unless otherwise indicated.
 - 1. Maintain access to existing walkways, corridors, and other adjacent occupied or used facilities. Do not close or obstruct walkways, corridors, or other occupied or used facilities without written permission from Owner and authorities having jurisdiction.
 - 2. Provide not less than 72-hour notice to Owner of activities that will affect Owner's operations.

1.7 WORK RESTRICTIONS

- A. On-Site Work Hours: Work shall be generally performed inside the existing building during normal business working hours of 6:00 a.m. to 8:00 p.m., Monday through Sunday, except otherwise indicated.
 - 1. Existing Utility Interruptions: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary utility services according to requirements indicated.

1.8 SPECIFICATION FORMATS AND CONVENTIONS

- A. Specification Format: The Specifications are organized into Divisions and Sections using the 16-division format and CSI/CSC's "MasterFormat" numbering system.
- B. Specification Content: The Specifications use certain conventions for the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations. These conventions are as follows:
 - 1. Abbreviated Language: Language used in the Specifications and other Contract Documents is abbreviated. Words and meanings shall be interpreted as appropriate. Words implied, but not stated, shall be inferred as the sense requires. Singular words shall be interpreted as plural, and plural words shall be interpreted as singular where applicable as the context of the Contract Documents indicates.
 - 2. Imperative mood and streamlined language are generally used in the Specifications. Requirements expressed in the imperative mood are to be performed by Contractor. Occasionally, the indicative or subjunctive mood may be used in the Section Text for clarity to describe responsibilities that must be fulfilled indirectly by Contractor or by others when so noted.

- a. The words "shall," "shall be," or "shall comply with," depending on the context, are implied where a colon (:) is used within a sentence or phrase.

END OF SECTION 01 10 00

SECTION 02 41 19 – SELECTIVE STRUCTURE DEMOLITION

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Demolition and removal of selected equipment, roofing and related materials as indicated on the Drawings and Specifications.
2. Remove elevated walkway on Roof Section A.
3. Remove existing walkway and lightning pads.
4. Remove existing lightning protection cabling.

B. Related Requirements:

1. Section 01 10 00 "Summary".
2. Section 07 01 50.19 Membrane Reroofing Preparation.

1.2 DEFINITIONS

- A. Remove: Detach items from existing construction and legally dispose of them off-site unless indicated to be removed and salvaged or removed and reinstalled.
- B. Remove and Reinstall: Detach items from existing construction, prepare for reuse, and reinstall where indicated.
- C. Existing to Remain: Existing items of construction that are not to be permanently removed and that are not otherwise indicated to be removed, removed and salvaged, or removed and reinstalled.

1.3 FIELD CONDITIONS

- A. Owner will occupy portions of building immediately adjacent to selective demolition area. Conduct selective demolition so Owner's operations will not be disrupted.
- B. Conditions existing at time of inspection for bidding purpose will be maintained by Owner as far as practical.
- C. Notify Architect of discrepancies between existing conditions and Drawings before proceeding with selective demolition.
- D. Hazardous Materials: It is not expected that hazardous materials will be encountered in the Work.
1. Hazardous materials will be removed by Owner before start of the Work.

2. If suspected hazardous materials are encountered, do not disturb; immediately notify Architect and Owner. Hazardous materials will be removed by Owner under a separate contract.
 3. Hazardous Materials: Hazardous materials are present in buildings and structures to be selectively demolished. A report on the presence of hazardous materials is on file for review and use. Examine report to become aware of locations where hazardous materials are present.
- E. Storage or sale of removed items or materials on-site is not permitted.
- F. Utility Service: Maintain existing utilities indicated to remain in service and protect them against damage during selective demolition operations.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Regulatory Requirements: Comply with governing EPA notification regulations before beginning selective demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.
- B. Standards: Comply with ANSI/ASSE A10.6 and NFPA 241.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify that utilities have been disconnected and capped before starting selective demolition operations.
- B. When unanticipated mechanical, electrical, or structural elements that conflict with intended function or design are encountered, investigate and measure the nature and extent of conflict. Promptly submit a written report to Architect.
- C. Survey of Existing Conditions: Record existing conditions by use of preconstruction photographs and preconstruction videotapes.
 1. Comply with requirements specified in Section 013233 "Photographic Documentation."
 2. Photograph or videotape of all areas of the landscape, sidewalks and drives adjacent to the construction area to verify existing conditions for comparison with restoration work on landscape areas, sidewalks and driveways matching the existing conditions.

3.2 UTILITY SERVICES AND MECHANICAL/ELECTRICAL SYSTEMS

- A. Existing Services/Systems to Remain: Maintain services/systems indicated to remain and protect them against damage.

3.3 PREPARATION

- A. Site Access and Temporary Controls: Conduct selective demolition and debris-removal operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.
 - 1. Provide fencing around entire perimeter of the building as indicated on the Drawings.
 - 2. Provide scaffold and wood plank tunnels extending at least 25'0" from the face of the building at all entrances to and exits from the building. Refer the Drawings for location of fence and tunnels.
- B. Temporary Facilities: Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent buildings and facilities to remain.

3.4 SELECTIVE DEMOLITION, GENERAL

- A. General: Demolish and remove existing construction only to the extent required by new construction and as indicated. Use methods required to complete the Work within limitations of governing regulations and as follows:
 - 1. Neatly cut openings and holes plumb, square, and true to dimensions required. Use cutting methods least likely to damage construction to remain or adjoining construction. Use hand tools or small power tools designed for sawing or grinding, not hammering and chopping, to minimize disturbance of adjacent surfaces. Temporarily cover openings to remain.
 - 2. Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.
 - 3. Do not use cutting torches unless specifically approved by the University "Hot Work Permit." At concealed spaces, such as duct and pipe interiors, verify condition and contents of hidden space before starting flame-cutting operations. Fulfill all requirements of the University Safety Special Conditions as required during flame-cutting operations.
 - 4. Locate selective demolition equipment and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.
 - 5. Dispose of demolished items and materials promptly.
- B. Existing Items to Remain: Protect construction indicated to remain against damage and soiling during selective demolition. When permitted by Architect, items may be removed to a suitable, protected storage location during selective demolition and reinstalled in their original locations after selective demolition operations are complete.
- C. Cover all air intake louvers during construction operations as necessary to avoid infiltration of dust and odors from construction into the building.
 - 1. Coordinate with University Personnel to arrange for shutting down mechanical equipment when covering the air intake louvers is not possible.

3.5 DISPOSAL OF DEMOLISHED MATERIALS

- A. General: Remove demolished materials from Project site and legally dispose of them in an approved landfill.
 - 1. Do not allow demolished materials to accumulate on-site.
 - 2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
 - 3. Remove debris from elevated portions of building by chute, hoist, or other device that will convey debris to grade level in a controlled descent.
- B. Burning: Do not burn demolished materials.
- C. Disposal: Transport demolished materials off Owner's property and legally disposes of them.

3.6 CLEANING

- A. Clean adjacent structures and improvements of dust, dirt, and debris caused by selective demolition operations. Return adjacent areas to condition existing before selective demolition operations began.

3.7 SITE RESTORATION

- A. Remove all temporary facilities including fencing and scaffold tunnels and restore all landscape areas, sidewalks and drives to the condition they were in at the start of construction operations.

END OF SECTION 02 41 19

SECTION 07 01 50.19 - MEMBRANE REHABILITATION & REROOFING PREPARATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Replacement roof areas/section – Tear off and remove the designated modified bitumen membrane, flashings and coping/accessories to deck substrate.
 - 2. Remove elevated walkway and set aside for reuse.
 - 3. The existing designated modified bitumen roof membrane specified for rehabilitation to remain.

1.3 MATERIALS OWNERSHIP

- A. Except for items or materials indicated to be reused, reinstalled, or otherwise indicated to remain Owner's property, demolished materials shall become Contractor's property and shall be removed from Project site and disposed of legally.

1.4 DEFINITIONS

- A. Roofing Terminology: Refer to ASTM D 1079 and glossary in NRCA's "The NRCA Roofing and Waterproofing Manual" for definition of terms related to roofing work in this Section.
- B. Existing Membrane Roofing System: Existing roofing membrane (single ply, BUR, MB, SSMR)), surfacing, and components and accessories between deck and roofing membrane.
- C. Substrate Board: Rigid board or panel products placed over the roof deck that serve as thermal barriers, provide a smooth substrate, or serve as a component of a fire-resistance-rated roofing system.
- D. Roof Tear-Off: Removal of existing membrane roofing system from deck.
- E. Remove: Detach items from existing construction and legally dispose of them off-site unless indicated to be removed and reinstalled.
- F. Existing to Remain: Existing items of construction that are not indicated to be removed.

1.5 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Fastener pull-out test reports as requested.
- C. Photographs or Videotape: Show existing conditions of adjoining construction and site improvements, including exterior and interior finish surfaces, which might be misconstrued as having been damaged by reroofing operations. Submit before Work begins.
- D. Qualification Data: For Installer including certificate indicating Installer is approved by warrantor of new roofing system.

1.6 QUALITY ASSURANCE

- A. Installer Qualifications: Installer of new membrane roofing system.
- B. Reroofing Conference: Conduct conference at Project site to comply with requirements in Division 1 Section "Project Management and Coordination" Review methods and procedures related to roofing system including, but not limited to, the following:
 - 1. Meet with Owner, Owners representative, Owner's insurer if applicable; testing and inspecting agency representative; roofing system manufacturer's representative; roofing Installer including project manager, superintendent, and foreman; and installers whose work interfaces with or affects reroofing including installers of roof accessories and roof-mounted equipment.
 - 2. Review methods and procedures related to reroofing preparation, including membrane roofing system manufacturer's written instructions.
 - 3. Review roof drainage during each stage of reroofing and review roof drain plugging and plug removal procedures.
 - 4. Review and finalize construction schedule, and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
 - 5. Review existing deck removal procedures and Owner notifications.
 - 6. Review procedures to determine condition and acceptance of existing deck for reuse.
 - 7. Review structural loading limitations of deck during reroofing.
 - 8. Review base flashings, special roofing details, drainage, penetrations, equipment curbs, and condition of other construction that will affect reroofing.
 - 9. Review HVAC shutdown and sealing of air intakes.
 - 10. Review governing regulations and requirements for insurance and certificates if applicable.
 - 11. Review existing conditions that may require notification of Owner before proceeding.

1.7 PROJECT CONDITIONS

- A. Owner will occupy building immediately below reroofing area. Conduct reroofing so Owner's operations will not be disrupted. Provide Owner with not less than 72 hours' notice of activities that may affect Owner's operations.

1. Coordinate work activities daily with Owner so Owner can place protective dust or water leakage covers over sensitive equipment or furnishings, shut down HVAC and fire-alarm or -detection equipment if needed, and evacuate occupants from below the work area if desired.
 2. Before working over structurally impaired areas of deck, notify Owner to evacuate occupants from below the affected area. Verify that occupants below the work area have been evacuated prior to proceeding with work over the impaired deck area.
- B. Protect building to be reroofed, adjacent buildings, walkways, site improvements, exterior plantings, and landscaping from damage or soiling from reroofing operations.
- C. Maintain access to existing walkways, corridors, and other adjacent occupied or used facilities. Do not block required exits or path from required exit to public right-of-way. Coordinate with requirements of authorities having jurisdiction.
- D. Owner assumes no responsibility for condition of areas to be reroofed.
- E. All original construction drawings are available for Contractor's reference via the Owner's Representative.
- F. Weather Limitations: Proceed with reroofing preparation only when existing and forecasted weather conditions permit Work to proceed without water entering into existing roofing system or building.
- G. Hazardous Materials: It is not expected that hazardous materials such as asbestos-containing materials will be encountered in the Work.
1. If materials suspected of containing hazardous materials are encountered, do not disturb; immediately notify Owner. Hazardous materials will be removed by Owner under a separate contract.

PART 2 - PRODUCTS

- A. NOT USED

PART 3 - EXECUTION

3.1 PREPARATION

- A. Coordinate with Owner to shut down air intake equipment in the vicinity of the Work. Cover air intake louvers before proceeding with reroofing work that could affect indoor air quality or activate smoke detectors in the ductwork.
- B. During removal operations, have sufficient and suitable materials on-site to facilitate rapid installation of temporary protection in the event of unexpected rain.
- C. Maintain roof drains in functioning condition to ensure roof drainage at end of each workday. Prevent debris from entering or blocking roof drains and conductors. Use roof-drain plugs

specifically designed for this purpose. Remove roof-drain plugs at end of each workday, when no work is taking place, or when rain is forecast.

1. If roof drains will be temporarily blocked or unserviceable due to roofing system removal or partial installation of new membrane roofing system, provide alternative drainage method to remove water and eliminate ponding. Do not permit water to enter into or under existing membrane roofing system components that are to remain.
- D. Verify that rooftop utilities and service piping have been shut off before commencing Work.

3.2 ROOF TEAR-OFF

- A. General: Notify Owner each day of extent of roof tear-off proposed.
1. Roof Removal: Remove the identified existing roof areas/sections to the appropriate substrate and all related flashing and sheet metal accessories to flashing substrate.

3.3 DECK PREPARATION

- A. Inspect deck after tear-off of membrane roofing system.
- B. If broken or loose fasteners that secure deck panels to one another or to structure are observed, or if deck appears or feels inadequately attached, immediately notify Owner. Do not proceed with installation until directed by Owner.
- C. If deck surface is not suitable for receiving new roofing, or if structural integrity of deck is suspect, immediately notify Owner. Do not proceed with installation until directed by Owner.

3.4 EXISTING BASE FLASHINGS

- A. Remove all existing base flashings and counterflashings around parapets, curbs, walls, and penetrations on all roof replacement areas/sections. The base flashings are to remain on the rehabilitated roof areas.
1. Clean substrates of contaminants such as asphalt, sheet materials, dirt, and debris.

3.5 DISPOSAL

- A. Collect and place demolished materials in containers. Promptly dispose of demolished materials. Do not allow demolished materials to accumulate on-site.
1. Storage or sale of demolished items or materials on-site will not be permitted.
- B. Transport all demolished materials off Owner's property and legally dispose of them.

3.6 ROOF REHABILITATION MEMBRANE SURFACE CLEANING

- A. Remove blisters, ridges, buckles, and other substrate irregularities from existing roofing membrane that would inhibit application of uniform, waterproof coating.
- B. Repair membrane at locations where irregularities have been removed.
- C. Clean substrate of contaminants such as dirt, debris, oil, and grease that can affect adhesion of coating with a self-contained pressure washing and recovery system to prevent cleaning water and any detergents from entering the roof and storm drain system. Allow to dry thoroughly.

END OF SECTION 07 01 50.19

SECTION 07 01 50.74 – REHABILITATION OF MODIFIED BITUMINOUS ROOFING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections apply to this Section.

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Roof rehabilitation preparation including roof patching and cleaning preparation.
 - 2. Rehabilitation of base flashings.
 - 3. Application of fluid-applied roof membrane and flashings over existing modified bituminous membrane roofing.
 - 4. Warranty.
- B. Related Documents:
 - 1. The Contract Documents, as defined in Section 01110 - Summary of Work, apply to the Work of this Section. Additional requirements and information necessary to complete the Work of this Section may be found in other documents.
- C. Related Sections:
 - 1. Division 7 Section "Sheet Metal Flashing and Trim" for roof penetration flashings, counterflashings, and roof edge flashing, covered under the warranties specified in this section.
 - 2. Division 7 Section – "Membrane Rehabilitation & Reroofing Preparation" for removal of existing roof systems and preparation of remaining existing roofs for new fluid applied roof membrane installation.

1.3 DEFINITIONS

- A. Roofing Terminology: Refer to ASTM D 1079 and glossary of NRCA's "The NRCA Roofing and Waterproofing Manual" for definition of terms related to roofing work in this Section.
- B. Existing Roofing System: SBS-modified bituminous roofing, components and accessories between deck and roofing membrane.
- C. Roofing Rehabilitation Preparation: Existing roofing that is to remain and be prepared to accept restorative fluid applied membrane application.
- D. Patching: Removal of a portion of existing membrane roofing system from deck or removal of selected components and accessories from existing membrane roofing system and replacement with similar materials.

- E. Remove: Detach items from existing construction and legally dispose of them off-site unless indicated to be removed and reinstalled.
- F. Existing to Remain: Existing items of construction that are not indicated to be removed.

1.4 PERFORMANCE REQUIREMENTS

- A. General: Provide recoated roofing membrane and base flashings that remain watertight; do not permit the passage of water; and resist specified uplift pressures, thermally induced movement, and exposure to weather without failure.
 - 1. Accelerated Weathering: Roofing system shall withstand 2000 hours of exposure when tested according to ASTM G 152, ASTM G 154, or ASTM G 155.
- B. Material Compatibility: Provide roofing materials that are compatible with one another under conditions of service and application required, as demonstrated by roofing manufacturer based on testing and field experience.
- C. Solar Reflectance Index: Not less than 82 when calculated according to ASTM E 1980, based on testing identical products by a qualified testing agency.
- D. Exterior Fire-Test Exposure: ASTM E 108, Class A; for application and roof slopes indicated, as determined by testing identical membrane roofing materials by a qualified testing agency. Materials shall be identified with appropriate markings of applicable testing agency.

1.5 SUBMITTALS

- A. Product Data:
 - 1. For each type of product specified.
 - 2. LEED Credit Contribution.
 - a. Recycled content
 - b. Regionally manufactured material
 - c. Thermal emittance, reflectance and solar reflectance index calculation
- B. Assurance/Control Submittals:
 - 1. Certificates: Manufacturer certificate that components and products as a system meet or exceed specified standards and complies with referenced standards.
 - 2. Manufacturer's certification letter acknowledging receipt of specifications, intent to issue warranty, and intent to perform specified field inspection and reports.
 - a. Manufacturer's Construction Observation: Submit letter from the manufacturer indicating who the technical inspector will be, experience qualifications, assurance of non-sales related functions or Registered Roof Observer certification along with copies of prior reports.
 - 1) Inspector Requirements & Qualifications: Engage an experienced technical inspector, to perform daily job monitoring for this project. Inspector shall be specialized in inspecting roofing similar to that required for this Project; must have a minimum of five years experience providing roof construction

monitoring and shall have no manufacturer sales responsibilities; must be full time employee of the roofing system manufacturer to inspect the project daily and provide daily written reports to the Owner Representatives. The approved inspector must be certified as a Registered Roof Observer by the Roof Consultants Institute.

- a) Preparatory inspection.
- b) Initial inspection.
- c) Daily inspections.
- d) Final inspection

- C. Installer Certificates: Signed by roofing system manufacturer certifying that Installer is approved, authorized, or licensed by manufacturer to install proposed roofing system with minimum of 5 years documented experience with proposed roof system manufacturer and 10 years documented experience with cold applied built up roofing systems similar to specified system.
- D. Manufacturer Certificates: Signed by roofing manufacturer certifying that roofing system complies with all requirements of this Section and the overall project requirements.
 - 1. Submit evidence of meeting performance requirements.
- E. Qualification Data: For Installer and manufacturer.
- F. Product Test Reports: Based on evaluation of comprehensive tests performed by manufacturer and witnessed by a qualified testing agency, for components of roofing system.
- G. Research/Evaluation Reports: For components of roofing system.
- H. Maintenance Data: For roofing system to include in maintenance manuals.
- I. Warranties: Special warranties specified in this Section.
- J. Inspection Report: Copy of roofing system manufacturer's inspection report of completed roofing installation.

1.6 QUALITY ASSURANCE

- A. Installer Qualifications: A qualified firm that is approved, authorized, or licensed by roofing system manufacturer to install manufacturer's product and that is eligible to receive manufacturer's warranty.
- B. Manufacturer's Field Reports: Submit the following reports directly to the project construction manager, with copy to others as requested.
 - 1. Inspector Requirements & Qualifications: Engage an experienced technical inspector, to perform daily job monitoring for this project. Inspector shall be specialized in inspecting roofing similar to that required for this Project; must have a minimum of five years experience providing roof construction monitoring and shall have no manufacturer sales responsibilities; must be full time employee of the roofing system manufacturer to daily inspect the manufacturer's project and provide daily written reports to the Owner

Representatives. The approved inspector must be certified as a Registered Roof Observer by the Roof Consultants Institute.

- a. Preparatory inspection.
- b. Initial inspection.
- c. Daily inspections.
- d. Final inspection.

C. Construction Progress Videography

1. Aerial videography of major construction work phases and of the final completed project work shall be captured during the project. Provide the Owner with a completed, high quality video file at project completion.
 - a. Drone work shall be filmed in 4k video quality level.
 - b. Drone operation shall be conducted by an FAA licensed commercial drone pilot.
 - c. All FAA clearances shall be made as required.
 - d. Conduct drone operations in conjunction with all Owner clearance and approval requirements.

D. Source Limitations: Obtain all roofing rehabilitation services, patching materials, sheet flashings and restoration system from a single manufacturer issuing the rehabilitation roof system warranty. All components shall be supplied and warranted by the proposed roof system manufacturer.

E. Pre-installation Roofing Rehabilitation Conference: Conduct conference at Project site to comply with requirements in Division 01. Review methods and procedures related to roofing system.

1. Job-site photos.
2. Meet with Owner; roofing re-coating materials manufacturer's representative; roofing re-coating Installer including project manager and foreman; and installers whose work interfaces with or affects re-coating including installers of roof accessories and roof-mounted equipment requiring removal and replacement as part of the Work.
3. Review methods and procedures related to re-coating preparation, including membrane roofing system manufacturer's written instructions.
4. Review temporary protection requirements for existing roofing system that is to remain, during and after installation.
5. Review roof drainage during each stage and review roof drain plugging and plug removal procedures.
6. Review and finalize construction schedule, and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
7. Review base flashings, special roofing details, drainage, penetrations, equipment curbs, and condition of other construction that will affect re-coating.
8. Review HVAC shutdown and sealing of air intakes.
9. Review shutdown of fire-suppression, -protection, and -alarm and -detection systems.
10. Review procedures for asbestos removal or unexpected discovery of asbestos-containing materials.
11. Review governing regulations and requirements for insurance and certificates if applicable.
12. Review existing conditions that may require notification of Owner before proceeding.

- F. Project Closeout Reports: Provide a report upon delivery of the project warranty. This report to include:
1. Project Specifications.
 2. Project Summary.
 3. Progress reports as a result of roof inspections.
 4. Job-site progress photos.
 5. Compiled project video
 6. Executed Contractor Guarantee
 7. Manufacturer warranty document
 8. Owners' manual describing maintenance and emergency repair.

1.7 DELIVERY, STORAGE AND HANDLING

- A. Deliver roofing materials to Project site in original containers with seals unbroken and labeled with manufacturer's name, product brand name and type, date of manufacture, and directions for storage.
- B. Store liquid materials in their original undamaged containers in a clean, dry, protected location and within the temperature range required by roofing system manufacturer. Protect stored liquid material from direct sunlight.
1. Discard and legally dispose of liquid material that cannot be applied within its stated shelf life.
- C. Handle and store roofing materials and place equipment in a manner to avoid permanent deflection of deck.

1.8 PROJECT CONDITIONS

- A. Owner will occupy portions of building immediately below roof work area. Conduct roofing work so that Owner's operations will not be disrupted. Provide Owner with not less than 72 hours' notice of activities that may affect Owner's operations.
- B. Protect building to be rehabilitated, adjacent buildings, walkways, site improvements, exterior plantings, and landscaping from damage or soiling from rehabilitation operations.
- C. Maintain access to existing walkways, corridors, and other adjacent occupied or used facilities.
- D. Weather Limitations: Proceed with rehabilitation work only when existing and forecasted weather conditions permit Work to proceed without water entering into existing roofing system or building.
1. Store all materials prior to application at temperatures between 60 and 90 deg. F.
 2. Apply fluid applied system components within range of ambient and substrate temperatures recommended by manufacturer. Do not apply materials when air temperature is below 50 or above 110 deg. F.
 3. Do not apply roofing in snow, rain, fog, or mist.

- E. Hazardous Materials: It is not expected that hazardous materials such as asbestos-containing materials will be encountered in the Work.
 - 1. If materials suspected of containing hazardous materials are encountered, do not disturb; immediately notify Architect and Owner. Hazardous materials will be removed by Owner under a separate contract.

1.9 WARRANTY

- A. Special Warranty: Submit manufacturer's warranty in which manufacturer agrees to repair or replace components of roofing system that fail in materials or workmanship within specified warranty period and provide performance warranty service visits at years 2, 5, 10 & 15 to inspect roof system and remove accumulated roof debris. This warranty is to be issued by a single manufacturer and is to include all tie-ins or transitions between dissimilar roof system materials and restored roofing systems and shall be warranted against leaks into the building. Warranty shall offer renewable option for an additional ten years. Failure includes roof leaks.
 - 1. Special warranty includes all roofing system components including roof membrane components, base flashings, roofing membrane accessories, roof insulation, insulation adhesives and fasteners, miscellaneous roof system fasteners, sheet metal work, wood nailers and cants and all other components of roofing system.
- B. Warranty Period: 20 years from date of Substantial Completion.
- C. Special Project Warranty: Submit roofing Installer's warranty, on warranty form at end of this Section, covering Work of this Section, including all components of roofing system such as roofing membrane, base flashing, roof insulation, fasteners, cover boards, substrate boards, vapor retarders, sheet metal components and walkway products, for the following warranty period:
 - 1. Warranty Period: 2 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Basis-of-Design Manufacturer/Product: The roof system specified in this Section is based upon products of Tremco, Inc., Beachwood, OH, (800) 562-2728, www.tremcoroofing.com that are named in other Part 2 articles. Subject to compliance with requirements, provide the named product or an approved comparable product by one of the following:

2.2 MATERIALS

- A. General: Rehabilitation materials provided by roofing system manufacturer for intended use and compatible with components of existing membrane roofing system.
- B. Temporary Roofing Materials: Selection of materials and design of temporary roofing is responsibility of Contractor and must be approved by the warranting roof rehabilitation system manufacturer.

- C. Patching Materials: Where required to patch existing roofing, use materials matching existing membrane roofing system materials as provided by the warranting roof rehabilitation system manufacturer unless otherwise indicated.

2.3 FLUID-APPLIED ROOFING MEMBRANE

A. Aliphatic Urethane Base Coat:

- 1. Basis of Design Product: Tremco, AlphaGuard MT Base Coat.
 - a. Asbestos Content, EPA/600/R-93/116: None.
 - b. Volatile Organic Compounds (VOC), ASTM D 3960: Not greater than 40 g/L.
 - c. Percent solids (by weight), ASTM D 1644: Not less than 85 percent

B. Aliphatic Urethane Top Coat: UV-stabilized, chemical-resistant top coat:

- 1. Basis of Design Product: Tremco, AlphaGuard MT Top Coat.
 - a. Asbestos Content, EPA/600/R-93/116: None.
 - b. Volatile Organic Compounds (VOC), ASTM D 3960: Not greater than 45 g/L.
 - c. Elongation at break, ASTM D 7311: Not less than 340 percent
 - d. Tensile Strength, ASTM D 7311: Not less than 1,400 lbf/sq. in.
 - e. Tear Resistance, ASTM D 7311: Not less than 150 lbf/in.
 - f. Accelerated Weathering, 5000 hour, ASTM D 7311: Pass, no cracking or checking.
 - g. Percent solids (by weight), ASTM D 1353: Not less than 85 percent.
 - h. Color: White, with Solar Reflectance Index not less than 100.

C. Polyester Reinforcement: 100% stitch bonded polyester fabric for fluid-applied membrane and flashing.

- 1. Basis of Design Product: Tremco Permafab.
 - a. Asbestos Content, EPA/600/R-93/116: None.
 - b. Water absorption, ASTM D 471: 0.8%
 - c. Permeance, ASTM E 96: .19 perms
 - d. Hardness Shore A, ASTM D 2241: 88
 - e. Volatile Organic Compounds (VOC), ASTM D 3960: 0 g/L.
 - f. Tensile Strength, ASTM D 4112: 1400 psi
 - g. Tear Resistance, ASTM D 624: 40 psi
 - h. Percent solids (by weight), ASTM D 1353: 100 percent.
 - i. Color: White, with Solar Reflectance Index not less than 100

D. Miscellaneous Accessories: Provide miscellaneous accessories recommended by roofing system manufacturer.

2.4 AUXILIARY ROOFING COATING MATERIALS

- A. General: Auxiliary materials recommended by roofing system manufacturer for intended use and compatible with existing roofing system and fluid-applied roofing system.

- B. Metal Surface Primer: Single-component, water based primer to promote adhesion of base coat to metal surfaces.
 - 1. Basis of Design Product: Tremco, AlphaGuard M-Prime.
- C. Urethane Surfaces Primer: Single-component, multi-substrate primer to promote adhesion of top coat to base coat if not coated within proper window or for base coat adhesion to existing surfaces as recommended by manufacturer.
 - 1. Basis of Design Product: Tremco, GeoGuard Primer.
- D. Miscellaneous Accessories: Provide miscellaneous accessories recommended by roofing system manufacturer.

2.5 WALKWAY

- A. Granule Surfacing for Fluid Applied Walkways:
 - 1. Silica sand aggregate, 20 - 40 mesh for finish coat slip resistance.

2.6 ROOF DRAINS

- A. Hercules RetroDrain.
 - 1. Size: 4 inches.
- B. Drain Body:
 - 1. Material: 1-piece, 11-gauge (0.125-inch) spun aluminum.
 - 2. Flange: 17-1/2-inch diameter.
 - 3. Drain Stem Length: 12 inches.
 - 4. Flange Includes: Six 2-1/2-inch-long aluminum studs.
 - 5. Sump Area: Depressed.
- C. Strainer Dome:
 - 1. Material: Cast aluminum.
 - 2. Height: 7.25 inches.
 - 3. Outside Base Diameter: 9.77 inches.
- D. Clamping Ring:
 - 1. Material: Cast aluminum.
 - 2. Gravel Stop Height: 1.2 inches.
 - 3. Drainage Slots: 18 V-shaped.
 - 4. Bosses: 6, to accept studs on flange.
- E. Backflow Seal:
- F. Compression Seal: Watertight, mechanical seal.

- G. Locknuts: 6, stainless steel, for studs.
- H. Screws: 3, stainless steel, to attach strainer to clamping ring.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine existing roofing substrates, with Installer present, for compliance with requirements and for other conditions affecting application and performance of fluid applied roof membrane system.
 - 1. Prepare a written report listing any conditions detrimental to finished system performance.
 - 2. Verify compatibility of system with substrates.
 - 3. Verify that substrates are visibly dry and free of moisture.
 - 4. Verify that roofing membrane surfaces have adequately aged to enable proper bond with rehabilitation system base coat.
 - 5. Verify that existing roofing membrane is free of blisters, splits, open laps, indications of shrinkage, and puncture damage or other indications that will impair finished system performance
 - 6. Application of fluid-applied membrane restoration system indicates acceptance of surfaces and conditions.

3.2 PREPARATION

- A. Protect existing roofing system and adjacent portions of building and building equipment.
 - 1. Mask surfaces to be protected. Seal joints subject to infiltration by coating materials.
 - 2. Limit traffic and material storage to areas of existing roofing membrane that have been protected.
 - 3. Maintain temporary protection and leave in place until replacement roofing has been completed.
- B. Shut down air intake equipment in the vicinity of the Work in coordination with the Owner. Cover air intake louvers before proceeding with work that could affect indoor air quality or activate smoke detectors in the ductwork.
 - 1. Verify that rooftop utilities and service piping affected by the Work have been shut off before commencing Work.
- C. Maintain roof drains in functioning condition to ensure roof drainage at end of each workday. Contractor is responsible for maintaining roof drains in a watertight condition during all roof work. Prevent debris from entering or blocking roof drains and conductors. Use roof-drain plugs specifically designed for this purpose. Remove roof-drain plugs at end of each workday, when no work is taking place, or when rain is forecast.

1. Do not permit water to enter into or under existing membrane roofing system components that are to remain.

3.3 ROOFING REHABILITATION PREPARATION

A. Membrane Surface Preparation:

1. Remove blisters, ridges, buckles, and other substrate irregularities from existing roofing membrane that would inhibit application of uniform, waterproof coating.
2. Repair membrane at locations where irregularities have been removed.
3. Clean substrate of contaminants such as dirt, debris, oil, and grease that can affect adhesion of coating with a self-contained pressure washing and recovery system to prevent cleaning water and any detergents from entering the roof and storm drain system. Allow to dry thoroughly.
4. Verify that existing substrate is dry before proceeding with application of fluid applied membrane system. Spot check substrates with an electrical capacitance moisture-detection meter.
5. Verify adhesion of new products.

B. Roof Patching:

1. Build-up isolated low spots on existing roofing membrane with recoating manufacturer's recommended products to alleviate ponding.

C. Limited Roof Tear-Off: Remove any discovered wet insulation and associated roofing membrane components down to the deck. Fill in the tear-off areas to match existing membrane roofing system construction.

1. Notify Owner each day of extent of roof tear-off proposed and obtain authorization to proceed.
2. During removal operations, have sufficient and suitable materials on-site to facilitate rapid installation of temporary protection in the event of unexpected rain.

D. Roof Drains Repairs:

1. Remove drain strainer and clamping ring.
2. Prime insert drain flange with asphalt primer and allow to dry. Align drain with drain pipe and set flange in bed of asphalt mastic, fasten flange to deck substrate and strip-in flange with two plies of composite felt.

3.4 FLASHING REPAIR

- A. Do not damage metal counterflashings that are to remain. Replace metal counterflashings damaged during project or indicated on drawings with counterflashings of same metal, weight or thickness, and finish.
- B. Repair flashings, gravel stops, copings, and other roof-related sheet metal and trim elements. Reseal joints, storm collar flashings, replace loose or missing fasteners, and replace components where required to leave in existing flashings in a watertight condition.

- C. Prime metal surfaces with manufacturers recommended primer.

3.5 FLUID-APPLIED MEMBRANE APPLICATION

- A. Fluid-Applied Application: Complete base coat and reinforcement at parapets, curbs, penetrations, and drains prior to application of field fluid-applied membrane application.
 - 1. Extend coating up vertical top of exposed flashing surfaces and 4 inches onto horizontal surfaces. Cover existing flashings completely.
 - 2. Roof Drains: Install base coat onto surrounding membrane surface and primed metal drain bowl flange. Install target piece of reinforcement immediately into wet base coat and roll to fully embed and saturate fabric. Reinstall clamping ring and strainer following application of top coat. Replace broken drain ring clamping bolts. Contractor is responsible for keeping drain assembly water tight at all times.
 - 3. Apply material and back roll to achieve wet mil thickness of 64 mils unless otherwise recommended by manufacturer.
 - 4. Work reinforcing membrane into wet coating to ensure complete saturation. Top dress reinforcing membrane as required. Leave finished base coat with fabric free of pin holes, voids, or openings
 - 5. Install reinforcing membrane to entire roof field area per manufacturer instructions.
- B. Top Coat: Apply top coat uniformly in a complete installation to field of roof and flashings.
 - 1. Prime base coat prior to application of top coat if top coat is not applied within 72 hours of the base coat application, using manufacturer's recommended primer.
 - 2. Apply top coat to flashings extending coating up vertical surfaces and out onto horizontal surfaces 4 inches. Install top coat over field base coat and spread coating evenly.
 - 3. Back roll to achieve wet mil thickness of 40 mils unless otherwise recommended by manufacturer.
 - 4. Avoid foot traffic on new fluid-applied membrane for a minimum of 24 hours.

3.6 WALKWAY APPLICATION

- A. Install fluid applied walkway following previous walk tread path.
 - 1. Install walkway in a different color from field top coat. Use only lighter pastel top coat colors only.
- B. Install walkways following application of top coat.
 - 1. If walkway application is not applied within 72 hours of the top coat application the top coat must be primed with urethane primer.
 - 2. Apply additional layer of top coating at a rate of 1.5 gallons per 100 square feet (24 mils wet film thickness) to taped walkway area.
 - 3. Broadcast approximately 20-30 lbs. per 100 square feet of 20-40 mesh silica sand or quartz in the wet top coat material.
 - 4. Immediately back roll sand and top coat, creating an even dispersal of sand. Remove tape outlining walkway immediately.

3.7 FIELD QUALITY CONTROL

- A. Manufacturer's Construction Observation: Provide daily inspections and reporting in accordance with paragraph 1.6 B
- B. Final Roof Inspection: Arrange for roofing system manufacturer's technical personnel to inspect roofing installation on completion and submit report to Owner's representative.
 - 1. Notify Owner's representative 48 hours in advance of date and time of inspection.
- C. Repair or remove and replace components of membrane roofing system where test results or inspections indicate that they do not comply with specified requirements.
- D. Additional testing and inspecting, at Contractor's expense, will be performed if needed, to determine compliance of replaced or additional work with specified requirements.

3.8 PROTECTING AND CLEANING

- A. Protect roofing system from damage and wear during remainder of construction period.
- B. Correct deficiencies in or remove coating that does not comply with requirements, repair substrates, and reapply coating.
- C. Clean overspray and spillage from adjacent construction using cleaning agents and procedures recommended by manufacturer of affected construction.

3.9 ROOFING INSTALLER'S WARRANTY

- A. WHEREAS _____ of _____, herein called the "Roofing Installer," has performed roofing and associated work ("work") on the following project:
 - 1. Owner: _____
 - 2. Address: _____
 - 3. Building Name/Type: _____
 - 4. Address: _____
 - 5. Area of Work: _____
 - 6. Acceptance Date: _____
 - 7. Warranty Period: _____
 - 8. Expiration Date: _____

- B. AND WHEREAS Roofing Installer has contracted (either directly with Owner or indirectly as a subcontractor) to warrant said work against leaks and faulty or defective materials and workmanship for designated Warranty Period,
- C. NOW THEREFORE Roofing Installer hereby warrants, subject to terms and conditions herein set forth, that during Warranty Period he will, at his own cost and expense, make or cause to be made such repairs to or replacements of said work as are necessary to correct faulty and defective work and as are necessary to maintain said work in a watertight condition.
- D. This Warranty is made subject to the following terms and conditions:
1. Specifically excluded from this Warranty are damages to work and other parts of the building, and to building contents, caused by:
 - a. lightning;
 - b. peak gust wind speed exceeding 72 mph;
 - c. fire;
 - d. failure of roofing system substrate, including cracking, settlement, excessive deflection, deterioration, and decomposition;
 - e. faulty construction of parapet walls, copings, chimneys, skylights, vents, equipment supports, and other edge conditions and penetrations of the work;
 - f. vapor condensation on bottom of roofing; and
 - g. Activity on roofing by others, including construction contractors, maintenance personnel, other persons, and animals, whether authorized or unauthorized by Owner.
 2. When work has been damaged by any of foregoing causes, Warranty shall be null and void until such damage has been repaired by Roofing Installer and until cost and expense thereof have been paid by Owner or by another responsible party so designated.
 3. Roofing Installer is responsible for damage to work covered by this Warranty but is not liable for consequential damages to building or building contents resulting from leaks or faults or defects of work.
 4. During Warranty Period, if Owner allows alteration of work by anyone other than Roofing Installer, including cutting, patching, and maintenance in connection with penetrations, attachment of other work, and positioning of anything on roof, this Warranty shall become null and void on date of said alterations, but only to the extent said alterations affect work covered by this Warranty. If Owner engages Roofing Installer to perform said alterations, Warranty shall not become null and void unless Roofing Installer, before starting said work, shall have notified Owner in writing, showing reasonable cause for claim, that said alterations would likely damage or deteriorate work, thereby reasonably justifying a limitation or termination of this Warranty.
 5. During Warranty Period, if original use of roof is changed and it becomes used for, but was not originally specified for, a promenade, work deck, spray-cooled surface, flooded basin, or other use or service more severe than originally specified, this Warranty shall become null and void on date of said change, but only to the extent said change affects work covered by this Warranty.
 6. Owner shall promptly notify Roofing Installer of observed, known, or suspected leaks, defects, or deterioration and shall afford reasonable opportunity for Roofing Installer to inspect work and to examine evidence of such leaks, defects, or deterioration.
 7. This Warranty is recognized to be the only warranty of Roofing Installer on said work and shall not operate to restrict or cut off Owner from other remedies and resources lawfully available to Owner in cases of roofing failure. Specifically, this Warranty shall

not operate to relieve Roofing Installer of responsibility for performance of original work according to requirements of the Contract Documents, regardless of whether Contract was a contract directly with Owner or a subcontract with Owner's General Contractor.

E. IN WITNESS THEREOF, this instrument has been duly executed this ____day of _____, 20__.

1. Authorized Signature: _____

2. Name: _____

END OF SECTION 07 01 50.74

SECTION 07 51 14 - COLD-PROCESS BUILT-UP ASPHALT ROOFING- SMOOTH

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections apply to this Section.

1.2 SUMMARY

- A. Section includes:
 - 1. Tapered insulation and recovery board.
 - 2. Base membrane plies.
 - 3. Application of roof membrane and flashings consisting of multiple coats of fluid-applied, fabric-reinforced, polyurethane coating.
 - 4. Accessories.
 - 5. Warranty.
- B. Related Documents: The Contract Documents, as defined in Section 01110 - Summary of Work, apply to the Work of this Section. Additional requirements and information necessary to complete the Work of this Section may be found in other documents.
- C. Related Sections:
 - 1. Division 7 Section "Sheet Metal Flashing and Trim" for roof penetration flashings, counterflashings, and roof edge flashing, covered under the warranties specified in this section.
 - 2. Division 7 Section "Membrane Reroofing Preparation" for removal of existing roof systems in preparation for new roof installations.

1.3 DEFINITIONS

- A. Roofing Terminology: Refer to ASTM D 1079 and glossary of NRCA's "The NRCA Roofing and Waterproofing Manual" for definition of terms related to roofing work in this Section.

1.4 PERFORMANCE REQUIREMENT

- A. General: Provide installed roofing membrane and base flashings that remain watertight; do not permit the passage of water; and resist specified uplift pressures, thermally induced movement, and exposure to weather without failure.
- B. Windstorm Requirements: Provide roofing membrane, base flashings, and component materials that have been tested and approved for use in approved roofing assemblies. Identify materials with test lab markings. Comply with requirements for the below listed classification

1. Windstorm Classification: 60 psf.

- C. Fire-Test-Response Characteristics: Provide roofing materials with the fire-test-response characteristics indicated as determined by testing identical products per test method below. Materials shall be identified with appropriate markings of applicable testing and inspecting agency.

1. Exterior Fire-Test Exposure: UL 790 Class A, for application and roof slopes indicated.

1.5 SYSTEM DESCRIPTION

- A. Roofing System: A cold applied, two ply built-up roof system applied to new tapered polyisocyanurate insulation and recovery board including all related flashings. Surfaced with a fluid applied waterproofing surfacing system.

1.6 SUBMITTALS

- A. Product Data:

1. Ply sheet and adhesive, base flashing and adhesives, insulation, insulation adhesives.
2. Insulation attachment complying with patterns for specified wind uplift resistance. Indicate number of insulation fasteners required and spacing of fasteners for field, perimeter, and corners for each pattern.
3. LEED Credit Contribution:
 - a. Recycled content
 - b. Regionally manufactured material
 - c. Thermal emittance, reflectance and solar reflectance index calculation

- B. Shop Drawings: For roofing system. Include plans, elevations, sections, details, and attachments to other Work.

1. Base flashings, cants, and membrane terminations.
2. Tapered insulation, including slopes.
3. Crickets, saddles, and tapered edge strips, including slopes.

- C. Assurance/Control Submittals:

1. Certificates: Manufacturer certificate that components and products as a system meet or exceed specified standards and complies with referenced standards.
2. Manufacturer's certification letter acknowledging receipt of specifications, intent to issue warranty, and intent to perform specified field inspection and reports.
 - a. Manufacturer's Construction Observation: Submit letter from the manufacturer indicating who the technical inspector will be, experience qualifications, assurance of non-sales related functions or Registered Roof Observer certification along with copies of prior reports.
 - 1) Inspector Requirements & Qualifications: Engage an experienced technical inspector, to perform daily job monitoring for this project. Inspector shall be specialized in inspecting roofing similar to that required for this Project; must have a minimum of five years of experience providing roof

construction monitoring and shall have no manufacturer sales responsibilities; must be full time employee of the roofing system manufacturer to inspect the project daily and provide daily written reports to the Owner Representatives. The approved inspector must be certified as a Registered Roof Observer by the Roof Consultants Institute.

- a) Preparatory inspection.
- b) Initial inspection.
- c) Daily inspections.
- d) Final inspection

- D. Installer Certificates: Signed by roofing system manufacturer certifying that Installer is approved, authorized, or licensed by manufacturer to install proposed roofing system with minimum of 5 years documented experience with proposed roof system manufacturer and 10 years documented experience with cold applied built up roofing systems similar to specified system.
- E. Manufacturer Certificates: Signed by roofing manufacturer certifying that roofing system complies with all requirements of this Section and the overall project requirements.
 - 1. Submit evidence of meeting performance requirements.
- F. Qualification Data: For Installer and manufacturer.
- G. Product Test Reports: Based on evaluation of comprehensive tests performed by manufacturer and witnessed by a qualified testing agency, for components of roofing system.
- H. Research/Evaluation Reports: For components of roofing system.
- I. Maintenance Data: For roofing system to include in maintenance manuals.
- J. Warranties: Special warranties specified in this Section.
- K. Inspection Report: Copy of roofing system manufacturer's inspection report of completed roofing installation.

1.7 QUALITY ASSURANCE

- A. Installer Qualifications: A qualified firm that is approved, authorized, or licensed by roofing system manufacturer to install manufacturer's product and that is eligible to receive manufacturer's warranty.
- B. Manufacturer's Field Reports: Submit the following reports directly to the project construction manager, with copy to others as requested.
 - 1. Inspector Requirements & Qualifications: Engage an experienced technical inspector, to perform daily job monitoring for this project. Inspector shall be specialized in inspecting roofing similar to that required for this Project; must have a minimum of five years experience providing roof construction monitoring and shall have no manufacturer sales responsibilities; must be full time employee of the roofing system manufacturer to daily inspect the manufacturer's project and provide daily written reports to the Owner

Representatives. The approved inspector must be certified as a Registered Roof Observer by the Roof Consultants Institute.

- a. Preparatory inspection.
- b. Initial inspection.
- c. Daily inspections.
- d. Final inspection.

C. Construction Progress Videography

1. Aerial videography of major construction work phases and of the final completed project work shall be captured during the project. Provide the Owner with a completed, high quality video file at project completion.
 - a. Drone work shall be filmed in 4k video quality level.
 - b. Drone operation shall be conducted by an FAA licensed commercial drone pilot.
 - c. All FAA clearances shall be made as required.
 - d. Conduct drone operations in conjunction with all Owner clearance and approval requirements.

D. Source Limitations: Obtain all roofing system components including but not limited to insulation fasteners and adhesives, felts and adhesives, base flashing, adhesives, coatings, surfacing and all miscellaneous adhesives from a single proposed roofing system manufacturer. All components shall be supplied and warranted by the proposed roof system manufacturer.

E. Preinstallation Conference: Conduct conference at Project site. Comply with all specified project requirements. Review methods and procedures related to roofing system including, but not limited to, the following:

1. Meet with Owner, Architect, Owner's Representatives, Owner's insurer if applicable, testing and inspecting agency representative, roofing installer, roofing system manufacturer's representative, all subcontractors and installers whose work interfaces with or affects roofing including installers of roof accessories and roof-mounted equipment.
2. Review methods and procedures related to roofing installation, including manufacturer's written instructions.
3. Review and finalize construction schedule and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
4. Examine deck substrate conditions and finishes for compliance with requirements, including flatness and fastening.
5. Review structural loading limitations of roof deck during and after roofing.
6. Review base flashings, special roofing details, roof drainage, roof penetrations, equipment curbs, and condition of other construction that will affect roofing system.
7. Review governing regulations and requirements for insurance and certificates if applicable.
8. Review temporary protection requirements for roofing system during and after installation.
9. Review roof observation and repair procedures after roofing installation.

F. Project Closeout Reports: Provide a report upon delivery of the project warranty. This report to include:

1. Project Specifications.
2. Project Summary.
3. Progress reports as a result of roof inspections.
4. Job-site progress photos.
5. Compiled project video
6. Executed Contractor Guarantee
7. Manufacturer warranty document
8. Owners' manual describing maintenance and emergency repair.

1.8 DELIVERY, STORAGE, AND HANDLING

- A. Deliver roofing materials to Project site in original containers with seals unbroken and labeled with manufacturer's name, product brand name and type, date of manufacture, and directions for storage.
- B. Store liquid materials in their original undamaged containers in a clean, dry, protected location and within the temperature range required by roofing system manufacturer. Protect stored liquid material from direct sunlight.
 1. Discard and legally dispose of liquid material that cannot be applied within its stated shelf life.
- C. Protect roof insulation materials from physical damage and from deterioration by sunlight, moisture, soiling, and other sources. Store in a dry location. Comply with insulation manufacturer's written instructions for handling, storing, and protecting during installation.
- D. Handle and store roofing materials and place equipment in a manner to avoid permanent deflection of deck.

1.9 PROJECT CONDITIONS

- A. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit roofing system to be installed according to manufacturer's written instructions and warranty requirements.

1.10 WARRANTY

- A. Special Warranty: Submit manufacturer's warranty in which manufacturer agrees to repair or replace components of roofing system that fail in materials or workmanship within specified warranty period and provide performance warranty service visits at years 2, 5, 10 & 15 to inspect roof system and remove accumulated roof debris. This warranty is to be issued by a single manufacturer and is to include all tie-ins or transitions between dissimilar roof system materials and restored roofing systems and shall be warranted against leaks into the building. Warranty shall offer renewable option for an additional ten years. Failure includes roof leaks.
 1. Special warranty includes all roofing system components including roof membrane components, base flashings, roofing membrane accessories, roof insulation, insulation

adhesives and fasteners, miscellaneous roof system fasteners, sheet metal work, wood nailers and cants and all other components of roofing system.

- B. Warranty Period: 20 years from date of Project Completion.
- C. Special Project Warranty: Submit roofing Installer's warranty, on warranty form at end of this Section, signed by Installer, covering Work of this Section, including all components of roofing system such as roofing membrane, base flashing, roof insulation, fasteners, cover boards, substrate boards, vapor retarders, all sheet metal components and walkway products, for the following warranty period:
 - 1. Warranty Period: 2 years from date of Project Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. The intent of this specification package is to establish minimum acceptable quality and performance standards for the finished roof replacement project. The roof system specified in this section is based upon Tremco, Inc. products. Subject to compliance with all specification requirements, provide the named product or an Owner approved equivalent.
 - 1. Cold-Process Built-up Asphalt Roofing:
 - a. Tremco, Inc. (Basis of Design)

2.2 COLD PROCESS BUILT-UP ASPHALT-SHEET MATERIALS

- A. Base Membrane Plies and flashing backer sheet: Asphalt-coated polyester/glass scrim/glass mat trilaminate ply sheet, with the below minimum properties. ASTM D 6162 or ASTM D 6163 Type III, Grade S ply sheets are also acceptable:
 - 1. Tear Strength @ 77 deg F, ASTM D 5147: machine direction 220 lbf/in., cross machine direction 185 lb/in minimum.
 - 2. Breaking Strength @ 77 deg F, ASTM D 5147: machine direction 145 lb/in; cross direction 135 lb/in, minimum.
- B. Flashing Adhesive: Roofing system manufacturer's standard flashing adhesive specially formulated for compatibility and use with roofing membrane and base flashings.

2.3 AUXILIARY ROOFING MEMBRANE MATERIALS

- A. General: Auxiliary materials recommended by roofing system manufacturer for intended use and compatible with roofing membrane.
- B. Cold-Applied Built Up Adhesive: Roofing system manufacturer's, one- or two-part, asbestos-free, solvent free, cold-applied adhesive specially formulated for compatibility and use with roofing membrane.

- C. Mastic Sealant: Polyisobutylene, plain or modified bitumen, nonhardening, nonmigrating, nonskinning, and nondrying.
- D. Metal Flashing Sheet: Metal flashing sheet is specified in Division 7 Section "Sheet Metal Flashing and Trim."
- E. Surfacing System: Polyurethane Elastomeric Fluid-Applied System: Elastomeric, two-component, two-coat, fabric reinforced, moisture triggered polyurethane fluid-applied roofing formulated for application to built-up roofing base plies, with the following minimum physical properties:
 - 1. Aliphatic Urethane Base Coat:
 - a. Basis of Design Product: Tremco, AlphaGuard MT Base Coat.
 - b. Asbestos Content, EPA/600/R-93/116: None.
 - c. Volatile Organic Compounds (VOC), ASTM D 3960: Not greater than 40 g/L.
 - d. Percent solids (by weight), ASTM D 1644: Not less than 85 percent
 - 2. Aliphatic Urethane Top Coat: UV-stabilized, chemical-resistant top coat:
 - a. Basis of Design Product: Tremco, AlphaGuard MT Top Coat.
 - b. Asbestos Content, EPA/600/R-93/116: None.
 - c. Volatile Organic Compounds (VOC), ASTM D 3960: Not greater than 45 g/L.
 - d. Elongation at break, ASTM D 7311: Not less than 340 percent
 - e. Tensile Strength, ASTM D 7311: Not less than 1,400 lbf/sq. in.
 - f. Tear Resistance, ASTM D 7311: Not less than 150 lbf/in.
 - g. Accelerated Weathering, 5000 hour, ASTM D 7311: Pass, no cracking or checking.
 - h. Percent solids (by weight), ASTM D 1353: Not less than 85 percent.
 - i. Color: White, with Solar Reflectance Index not less than 100.
 - 3. Polyester Reinforcement: 100% stitch bonded polyester fabric for fluid-applied membrane and flashing.
 - a. Basis of Design Product: Tremco Permafab.
 - b. Asbestos Content, EPA/600/R-93/116: None.
 - c. Water absorption, ASTM D 471: 0.8%
 - d. Permeance, ASTM E 96: .19 perms
 - e. Hardness Shore A, ASTM D 2241: 88
 - f. Volatile Organic Compounds (VOC), ASTM D 3960: 0 g/L.
 - g. Tensile Strength, ASTM D 4112: 1400 psi
 - h. Tear Resistance, ASTM D 624: 40 psi
 - i. Percent solids (by weight), ASTM D 1353: 100 percent.
 - j. Color: White, with Solar Reflectance Index not less than 100.
- F. Miscellaneous Accessories: Provide miscellaneous accessories recommended by roofing system manufacturer.

2.4 ROOF INSULATION

- A. General: Provide preformed roof insulation and recovery boards by the proposed primary roof system manufacturer that comply with requirements and referenced standards.
- B. Tapered Polyisocyanurate Board Insulation: Provide factory-tapered insulation boards fabricated to slope of 1/4 inch per 12 inches unless otherwise indicated. ASTM C 1289, faced with insulation board on one major surface, as indicated below by type, and felt or glass-fiber mat facer on the other. Minimum starting thickness shall be 1½" at drain with recycled content minimum 25% by weight.
- C. Recovery Board: ASTM C 1177/C 1177M, glass-mat, water-resistant gypsum substrate, 1/4 inch thick.
- D. Provide preformed 1/2" per foot tapered saddles. Provide crickets, tapered edge strips, and other insulation shapes where indicated for sloping to drain. Fabricate to the slopes as required to prevent ponding water. Provide as necessary additional sloped insulation to make smooth transitions to wood blocking.

2.5 INSULATION ACCESSORIES

- A. General: Roof insulation accessories recommended by insulation manufacturer for intended use and compatible with membrane roofing.
- B. Cold Fluid-Applied Insulation Adhesive: Manufacturer's standard solvent free, low VOC compliant, cold fluid-applied adhesive formulated to adhere to insulation boards to substrate.
- C. Insulation: Cant Strips: ASTM C 728, perlite or ASTM C 208, Type II, Grade 1, cellulosic-fiber insulation board.

2.6 ROOF DRAINS

Hercules RetroDrain.

- 1. Size: 4 inches.
- B. Drain Body:
 - 1. Material: 1-piece, 11-gauge (0.125-inch) spun aluminum.
 - 2. Flange: 17-1/2-inch diameter.
 - 3. Drain Stem Length: 12 inches with backflow seal.
 - 4. Flange Includes: Six 2-1/2-inch-long aluminum studs.
 - 5. Sump Area: Depressed.
- C. Strainer Dome:
 - 1. Material: Cast aluminum.
 - 2. Height: 7.25 inches.
 - 3. Outside Base Diameter: 9.77 inches.
- D. Clamping Ring:

1. Material: Cast aluminum.
 2. Gravel Stop Height: 1.2 inches.
 3. Drainage Slots: 18 V-shaped.
 4. Bosses: 6, to accept studs on flange.
- E. Compression Seal: Watertight, mechanical seal.
- F. Locknuts: 6, stainless steel, for studs.
- G. Screws: 3, stainless steel, to attach strainer to clamping ring.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with the following requirements and other conditions affecting performance of roofing system:
1. Verify that roof openings and penetrations are in place and set and braced and that roof drains are securely clamped in place.
 2. Verify that wood blocking and nailers are securely anchored to roof deck at penetrations and terminations and that nailers match thicknesses of insulation.
 3. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Clean substrate of dust, debris, moisture, and other substances detrimental to roofing installation according to roofing system manufacturer's written instructions. Remove sharp projections.
- B. Prevent materials from entering and clogging roof drains and conductors and from spilling or migrating onto surfaces of other construction. Remove roof-drain plugs when no work is taking place or when rain is forecast.
- C. Remove existing membrane roofing to deck substrate as specified and verify that roof drain assembly is lower than the new roof assembly.
- D. Complete terminations and provide temporary seals to prevent water from entering completed sections of roofing system at the end of the workday or when rain is forecast. Remove and discard temporary seals before beginning work on adjoining roofing.

3.3 VAPOR RETARDER INSTALLATION TO CONCRETE DECK

- A. Deck surface shall be dry and clean of all debris.
- B. Prime existing concrete deck as directed by the roof system manufacturer.
- C. Install felt ply lapping each sheet 4 inches onto the preceding sheet. Embed each sheet in an application of cold applied adhesive.

- D. Completely seal vapor retarder at terminations, obstructions, and penetrations to prevent air movement into roofing system

3.4 INSULATION INSTALLATION

- A. Coordinate installing roofing system components so insulation is not exposed to precipitation or left exposed at the end of the workday.
- B. Comply with roofing system manufacturer's written instructions for installing roof insulation.
- C. Deck surface shall be dry and clean of all debris.
- D. Cant Strips: Install and secure preformed 45-degree insulation cant strips at junctures of built-up roofing membrane system with vertical surfaces or angle changes greater than 45 degrees.
- E. Mechanically attach tapered insulation long joints of insulation in a continuous straight line abutting edges and ends between boards. Fill gaps exceeding 1/4 inch with insulation.
 - 1. Cut and fit insulation within 1/4 inch of nailers, projections, and penetrations.
- F. Sump insulation at drains so completed surface is flush and does not restrict flow of water.
- G. Adhere cover board with long joints in continuous straight lines with end joints staggered between rows. Stagger joints from joints in insulation below a minimum of 6 inches in each direction
 - 1. Apply adhesive to adhere insulation layers at rate of 1.5 gals/sq/layer and immediately bond insulation and cover board to substrate.

3.5 ROOFING MEMBRANE INSTALLATION, GENERAL

- A. Install roofing membrane base plies according to roofing system manufacturer's written instructions and applicable recommendations.
- B. Start installation of roofing membrane in presence of roofing system manufacturer's technical personnel.
- C. Coordinate installing roofing system so insulation and other components of the roofing membrane system not permanently exposed are not subjected to precipitation or left uncovered at the end of the workday or when rain is forecast.
 - 1. Provide tie-offs at end of each day's work to cover exposed roofing membrane sheets and insulation with a course of coated felt set in roofing cement or hot roofing asphalt with joints and edges sealed.
 - 2. Complete terminations and base flashings and provide temporary seals to prevent water from entering completed sections of roofing system.
 - 3. Remove and discard temporary seals before beginning work on adjoining roofing.

- D. Substrate-Joint Penetrations: Prevent roofing adhesives from penetrating substrate joints, entering building, or damaging roofing system components or adjacent building construction.

3.6 BASE PLY MEMBRANE INSTALLATION

- A. Install two base plies according to roofing manufacturer's written instructions, starting at low point of roofing system. Extend roofing membrane sheets over and terminate beyond eaves, installing as follows:
 - 1. Adhere to substrate in cold-applied adhesive.
 - 2. If recommended by manufacturer, unroll roofing membrane sheets and allow them to relax for minimum time period required by manufacturer.
- B. Laps: Accurately align roofing membrane sheets, without stretching, and maintain uniform side and end laps. Stagger end laps. Completely bond and seal laps, leaving no voids.
 - 1. Repair tears and voids in laps and lapped seams not completely sealed.
 - 2. Broom felts immediately into wet adhesive to ensure complete bond to adhesive.
- C. Install roofing membrane sheets so side and end laps shed water.
- D. Roof Drains Repairs:
 - 1. Prime insert drain flange with asphalt primer and allow to dry. Align drain pipe and set flange in bed of adhesive, fasten flange to deck substrate and strip-in flange with two target plies of composite membrane.

3.7 FLUID-APPLIED MEMBRANE APPLICATION

- A. Fluid-Applied Application: Complete base coat and reinforcement at parapets, curbs, penetrations, and drains prior to application of field fluid-applied membrane application.
 - 1. Extend coating up vertical top of exposed flashing surfaces and 4 inches onto horizontal surfaces. Cover existing flashings completely.
 - 2. Roof Drains: Install base coat onto surrounding membrane surface and primed metal drain bowl flange. Install target piece of reinforcement immediately into wet base coat and roll to fully embed and saturate fabric. Reinstall clamping ring and strainer following application of top coat. Replace broken drain ring clamping bolts. Contractor is responsible for keeping drain assembly water tight at all times.
 - 3. Apply material and back roll to achieve wet mil thickness of 48 mils unless otherwise recommended by manufacturer.
 - 4. Work reinforcing membrane into wet coating to ensure complete saturation. Top dress reinforcing membrane as required. Leave finished base coat with fabric free of pin holes, voids, or openings
 - 5. Install reinforcing membrane to entire roof field area per manufacturer instructions.
- B. Top Coat: Apply top coat uniformly in a complete installation to field of roof and flashings.
 - 1. Prime base coat prior to application of top coat if top coat is not applied within 72 hours of the base coat application, using manufacturer's recommended primer.

2. Apply top coat to flashings extending coating up vertical surfaces and out onto horizontal surfaces 4 inches. Install top coat over field base coat and spread coating evenly.
3. Back roll to achieve wet mil thickness of 40 mils unless otherwise recommended by manufacturer.
4. Avoid foot traffic on new fluid-applied membrane for a minimum of 24 hours.

3.8 FIELD QUALITY CONTROL

- A. Manufacturer's Construction Observation: Provide daily inspections and reporting in accordance with paragraph 1.7. B
- B. Final Roof Inspection: Arrange for roofing system manufacturer's technical personnel to inspect roofing installation on completion and submit report to Owner's representative.
 1. Notify Owner's representative 48 hours in advance of date and time of inspection.
- C. Repair or remove and replace components of membrane roofing system where test results or inspections indicate that they do not comply with specified requirements.
- D. Additional testing and inspecting, at Contractor's expense, will be performed if needed, to determine compliance of replaced or additional work with specified requirements.

3.9 PROTECTING AND CLEANING

- A. Protect roofing system from damage and wear during remainder of construction period. When remaining construction will not affect or endanger roofing, inspect roofing for deterioration and damage, describing its nature and extent in a written report, with copies to Architect and Owner.
- B. Correct deficiencies in or remove roofing system that does not comply with requirements, repair substrates, and repair or reinstall roofing system to a condition free of damage and deterioration at time of Substantial Completion and according to warranty requirements.

3.10 ROOFING INSTALLER'S WARRANTY

- A. WHEREAS _____ of _____, herein called the "Roofing Installer," has performed roofing and associated work ("work") on the following project:
 1. Owner: _____
 2. Address: _____
 3. Building Name/Type: _____
 4. Address: _____
 5. Area of Work: _____
 6. Acceptance Date: _____
 7. Warranty Period: _____

8. Expiration Date: _____

- B. AND WHEREAS Roofing Installer has contracted (either directly with Owner or indirectly as a subcontractor) to warrant said work against leaks and faulty or defective materials and workmanship for designated Warranty Period,
- C. NOW THEREFORE Roofing Installer hereby warrants, subject to terms and conditions herein set forth, that during Warranty Period he will, at his own cost and expense, make or cause to be made such repairs to or replacements of said work as are necessary to correct faulty and defective work and as are necessary to maintain said work in a watertight condition.
- D. This Warranty is made subject to the following terms and conditions:
1. Specifically excluded from this Warranty are damages to work and other parts of the building, and to building contents, caused by:
 - a. lightning;
 - b. peak gust wind speed exceeding 72 mph;
 - c. fire;
 - d. failure of roofing system substrate, including cracking, settlement, excessive deflection, deterioration, and decomposition;
 - e. faulty construction of parapet walls, copings, chimneys, skylights, vents, equipment supports, and other edge conditions and penetrations of the work;
 - f. vapor condensation on bottom of roofing; and
 - g. Activity on roofing by others, including construction contractors, maintenance personnel, other persons, and animals, whether authorized or unauthorized by Owner.
 2. When work has been damaged by any of foregoing causes, Warranty shall be null and void until such damage has been repaired by Roofing Installer and until cost and expense thereof have been paid by Owner or by another responsible party so designated.
 3. Roofing Installer is responsible for damage to work covered by this Warranty but is not liable for consequential damages to building or building contents resulting from leaks or faults or defects of work.
 4. During Warranty Period, if Owner allows alteration of work by anyone other than Roofing Installer, including cutting, patching, and maintenance in connection with penetrations, attachment of other work, and positioning of anything on roof, this Warranty shall become null and void on date of said alterations, but only to the extent said alterations affect work covered by this Warranty. If Owner engages Roofing Installer to perform said alterations, Warranty shall not become null and void unless Roofing Installer, before starting said work, shall have notified Owner in writing, showing reasonable cause for claim, that said alterations would likely damage or deteriorate work, thereby reasonably justifying a limitation or termination of this Warranty.
 5. During Warranty Period, if original use of roof is changed and it becomes used for, but was not originally specified for, a promenade, work deck, spray-cooled surface, flooded basin, or other use or service more severe than originally specified, this Warranty shall become null and void on date of said change, but only to the extent said change affects work covered by this Warranty.
 6. Owner shall promptly notify Roofing Installer of observed, known, or suspected leaks, defects, or deterioration and shall afford reasonable opportunity for Roofing Installer to inspect work and to examine evidence of such leaks, defects, or deterioration.

7. This Warranty is recognized to be the only warranty of Roofing Installer on said work and shall not operate to restrict or cut off Owner from other remedies and resources lawfully available to Owner in cases of roofing failure. Specifically, this Warranty shall not operate to relieve Roofing Installer of responsibility for performance of original work according to requirements of the Contract Documents, regardless of whether Contract was a contract directly with Owner or a subcontract with Owner's General Contractor.

E. IN WITNESS THEREOF, this instrument has been duly executed this ____day of _____, 20__.

1. Authorized Signature: _____
2. Name: _____

END OF SECTION 07 51 14

SECTION 07 62 00 - SHEET METAL FLASHING AND TRIM

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes sheet metal flashing and trim in the following categories:
 - 1. Bib counterflashings.
- B. Related Sections: The following Sections contain requirements that relate to this Section:
 - 1. Division 7 Section "Cold Process Built-up Asphalt Roofing" for low slope roofing system.
 - 2. Division 7 Section "Rehabilitation of Modified Bituminous Roofing" for modified bitumen roofing system.

1.3 PERFORMANCE REQUIREMENTS

- A. General: Install sheet metal flashing and trim to withstand wind loads, structural movement, thermally induced movement, and exposure to weather without failing.

1.4 SUBMITTALS

- A. Product Data including manufacturer's material and finish data, installation instructions, and general recommendations for each specified flashing material and fabricated product.
- B. Shop Drawings of each item specified showing layout, profiles, methods of joining, and anchorage details.
- C. Samples of sheet metal flashing, trim, and accessory items, in the specified finish. Where finish involves normal color and texture variations, include Sample sets composed of 2 or more units showing the full range of variations expected.
- D. Qualification data for firms and persons specified in the "Quality Assurance" Article to demonstrate their capabilities and experience. Include lists of completed projects with project names and addresses, names and addresses of architects and owners, and other information specified.

1.5 QUALITY ASSURANCE

- A. Installer Qualifications: Engage an experience Installer who has completed sheet metal flashing and trim work similar in material, design, and extent to that indicated for this Project and with a record of successful in-service performance.

1.6 PROJECT CONDITIONS

- A. Coordinate Work of this Section with interfacing and adjoining Work for proper sequencing of each installation. Ensure best possible weather resistance, durability of Work, and protection of materials and finishes.

PART 2 - PRODUCTS

2.1 METALS

- A. Stainless Steel Sheet: 24 gage, ASTM A 240/A 240M, Type 304: Finish: No. 2D (dull, cold rolled), unless otherwise indicated.

2.2 MISCELLANEOUS MATERIALS AND ACCESSORIES

- A. Solder for Stainless Steel: ASTM B 32, Grade Sn60, with acid flux of type recommended by stainless-steel sheet manufacturer.
- B. Fasteners: Same metal as sheet metal flashing or other noncorrosive metal as recommended by sheet metal manufacturer. Match finish of exposed heads with material being fastened.
- C. Asphalt Mastic: SSPC-Paint 12, solvent-type asphalt mastic, nominally free of sulfur and containing no asbestos fibers, compounded for 15-mil (0.4-mm) dry film thickness per coat.
- D. Mastic Sealant: Polyisobutylene; nonhardening, nonskinning, nondrying, nonmigrating sealant.
- E. Elastomeric Sealant: Generic type recommended by sheet metal manufacturer and fabricator of components being sealed and complying with requirements for joint sealants as specified in Division 7 Section "Joint Sealants."
- F. Adhesives: Type recommended by flashing sheet metal manufacturer for waterproof and weather-resistant seaming and adhesive application of flashing sheet metal.
- G. Metal Accessories: Provide sheet metal clips, straps, anchoring devices, and similar accessory units as required for installation of Work, matching or compatible with material being installed; noncorrosive; size and thickness required for performance.

2.3 FABRICATION, GENERAL

- A. Sheet Metal Fabrication Standard: Fabricate sheet metal flashing and trim to comply with

recommendations of SMACNA's "Architectural Sheet Metal Manual" that apply to the design, dimensions, metal, and other characteristics of the item indicated.

- B. Comply with details shown to fabricate sheet metal flashing and trim that fit substrates and result in waterproof and weather-resistant performance once installed. Verify shapes and dimensions of surfaces to be covered before fabricating sheet metal.
- C. Form exposed sheet metal Work that is without excessive oil canning, buckling, and tool marks and that is true to line and levels indicated, with exposed edges folded back to form hems.
- D. Seams: Tin edges to be seamed, form seams, and solder.
- E. Expansion Provisions: Space movement joints at maximum of 10 feet (3 m) with no joints allowed within 24 inches (610 mm) of corner or intersection. Where lapped or bayonet-type expansion provisions in Work cannot be used or would not be sufficiently weatherproof and waterproof, form expansion joints of intermeshing hooked flanges, not less than 1 inch (25 mm) deep, filled with mastic sealant (concealed within joints).
- F. Sealed Joints: Form nonexpansion, but movable, joints in metal to accommodate elastomeric sealant to comply with SMACNA standards.
- G. Separate metal from noncompatible metal or corrosive substrates by coating concealed surfaces at locations of contact with asphalt mastic or other permanent separation as recommended by manufacturer.
- H. Conceal fasteners and expansion provisions where possible. Exposed fasteners are not allowed on faces of sheet metal exposed to public view.
- I. Fabricate cleats and attachment devices from same material as sheet metal component being anchored or from compatible, noncorrosive metal recommended by sheet metal manufacturer.
 - 1. Size: As recommended by SMACNA manual or sheet metal manufacturer for application but never less than thickness of metal being secured.

2.4 SHEET METAL FABRICATIONS

- A. General: Fabricate sheet metal items in thickness or weight needed to comply with performance requirements but not less than that listed below for each application and metal.
- B. Fabricate from the following material: pitch pocket, covers, bib flashings, storm collars:
 - 1. Stainless Steel: 24 gage.

3.1 EXAMINATION

- A. Examine substrates and conditions under which sheet metal flashing and trim are to be installed and verify that Work may properly commence. Do not proceed with installation until unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. General: Unless otherwise indicated, install sheet metal flashing and trim to comply with performance requirements, manufacturer's installation instructions, and SMACNA's "Architectural Sheet Metal Manual." Anchor units of Work securely in place by methods indicated, providing for thermal expansion of metal units; conceal fasteners where possible, and set units true to line and level as indicated. Install Work with laps, joints, and seams that will be permanently watertight and weatherproof.
- B. Install exposed sheet metal Work that is without excessive oil canning, buckling, and tool marks and that is true to line and levels indicated, with exposed edges folded back to form hems. Install sheet metal flashing and trim to fit substrates and to result in waterproof and weather-resistant performance. Verify shapes and dimensions of surfaces to be covered before fabricating sheet metal.
- D. Expansion Provisions: Provide for thermal expansion of exposed sheet metal Work. Space movement joints at maximum of 10 feet (3 m) with no joints allowed within 24 inches (610 mm) of corner or intersection. Where lapped or bayonet-type expansion provisions in Work cannot be used or would not be sufficiently weatherproof and waterproof, form expansion joints of intermeshing hooked flanges, not less than 1 inch (25 mm) deep, filled with mastic sealant (concealed within joints).
- E. Soldered Joints: Clean surfaces to be soldered, removing oils and foreign matter. Prein sheets to be soldered to a width of 1-1/2 inches (38 mm), except where pretinned surface would show in finished Work.
 - 1. Do not use torches for soldering. Heat surfaces to receive solder and flow solder into joint. Fill joint completely. Completely remove flux and spatter from exposed surfaces.
- F. Separations: Separate metal from noncompatible metal or corrosive substrates by coating concealed surfaces, at locations of contact, with asphalt mastic or other permanent separation as recommended by manufacturer.
- G. Counterflashings: Coordinate installation of counterflashings with installation of assemblies to be protected by counterflashing. Install counterflashings in reglets or receivers. Secure in a waterproof manner by means of snap-in installation and sealant, lead wedges and sealant, interlocking folded seam, or blind rivets and sealant. Lap counterflashing joints a minimum of 2 inches (50 mm) and bed with sealant.

3.3 CLEANING AND PROTECTION

- A. Clean exposed metal surfaces, removing substances that might cause corrosion of metal or deterioration of finishes.
- B. Provide final protection and maintain conditions that ensure sheet metal flashing and trim Work during construction is without damage or deterioration other than natural weathering at the time of Substantial Completion.

END OF SECTION 07 62 00

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26

NOTES:

- 1 Install vapor retarder, 1/4" per ft. taper with min. 1.5" Iso & 1/4" gypsum recovery board , 2 base plies surfaced
- 2 with reinforced fluid applied membrane and flashing system. Replace all identified wet insulation in existing membrane prior to rehabilitating prepped membrane fluid applied base coat.
- 3 Properly clean existing mod. bitumen membrane & flashing system and apply a new reinforced fluid applied membrane and flashing system.
- 4 Install and flash new aluminum drain inserts at each identified drain location on the roof plan.
- 5 Existing aluminum coping to remain. Counterflash with blb flashing after flashing.
- 6 Re-certify lightning protection system .
- 7 Provide a fluid applied walkway with non-skid aggregate surfacing using a contrasting color per roof plan.
- 8 Remove composite greenhouse walkway and set aside for reuse.

APPROXIMATE ROOF SIZE
33,600 SQUARE FEET

LEGEND:

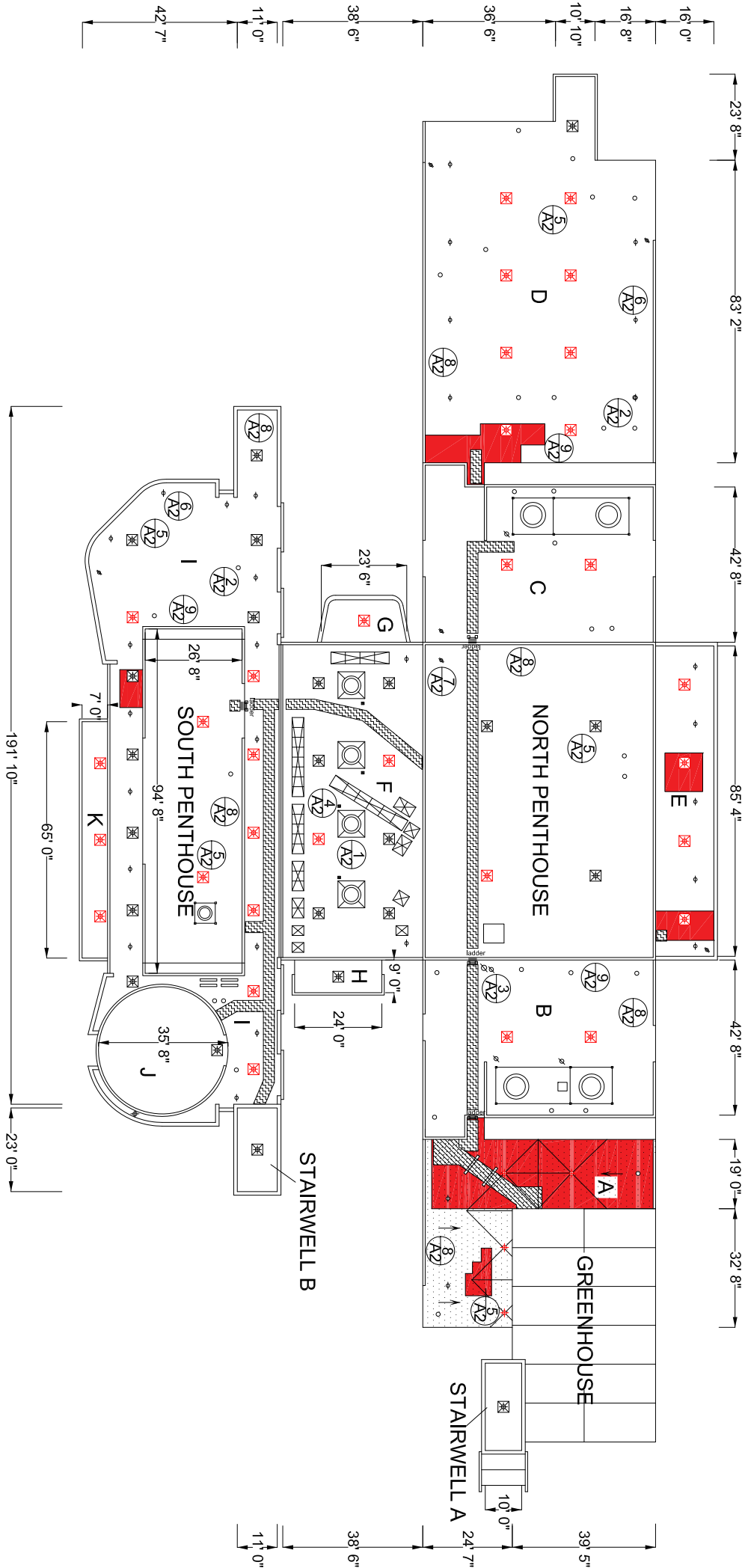
- EXPANSION JOINT
- NEW OVERFLOW SCUPPER
- SOIL STACK
- WASHER DAVIT
- LIGHTNING CABLE PENE.
- EXISTING ROOF DRAIN
- NEW INSERT DRAIN
- SKYLIGHT
- FLUID APPLIED WALKWAY
- CURB HVAC/VENT
- SKYLIGHT
- ELEVATED WALKWAY
- IDENTIFIED WET INSULATION



PROJECT
DOROTHY WESTERMAN HERMANN
NATURAL SCIENCE BUILDING
ROOF REHABILITATION

LOCATION: KENTON DRIVE
HIGHLAND HEIGHTS, KY 41099

DRAWN BY DATE DRAWN DRAWING NO.
DMQ 08/08/17 A1



EXISTING CONSTRUCTION

STEEL DECK
1/4" PER FT TAPERED ISO
1/2" WOODFIBER
2 PLY MOD. BITUMEN



REPLACEMENT AREA

2 4 5 6 7 8

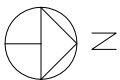
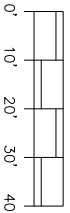


REHABILITATION AREA

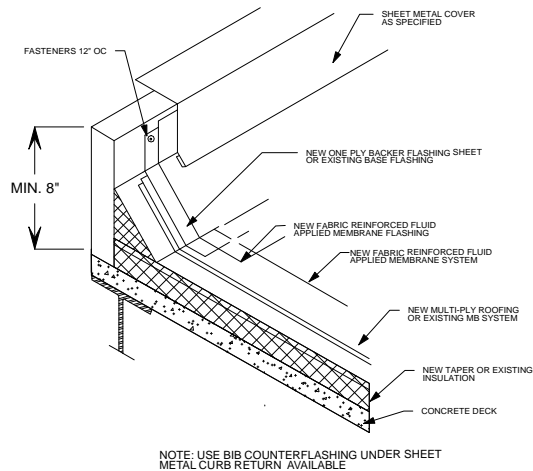
2 3 4 5 6 7

ROOF PLAN

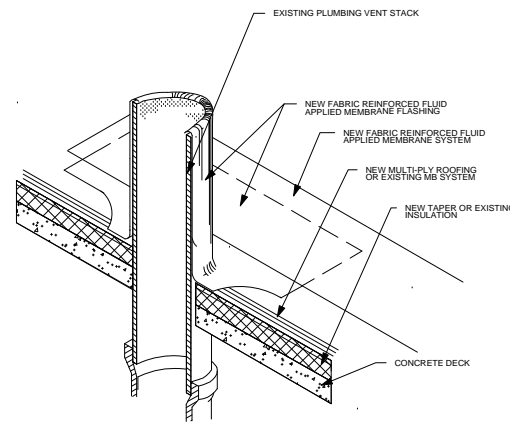
SCALE 1" = 20'



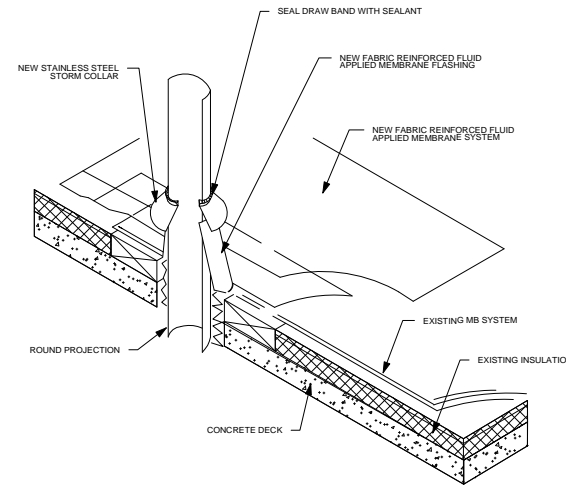
ALL DIMENSIONS TO BE VERIFIED
BY THE CONTRACTOR



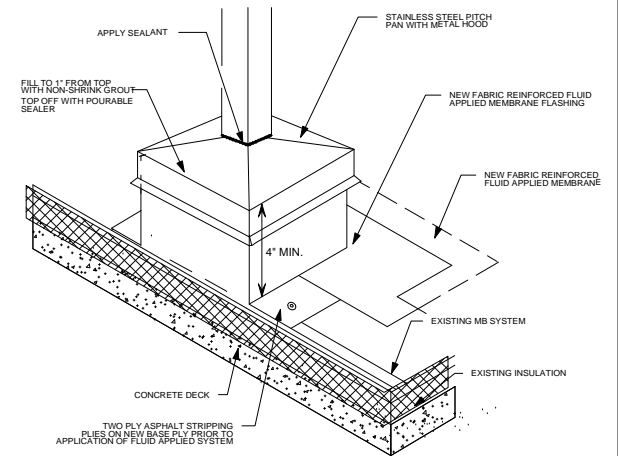
① CURB UNITS - TYPICAL



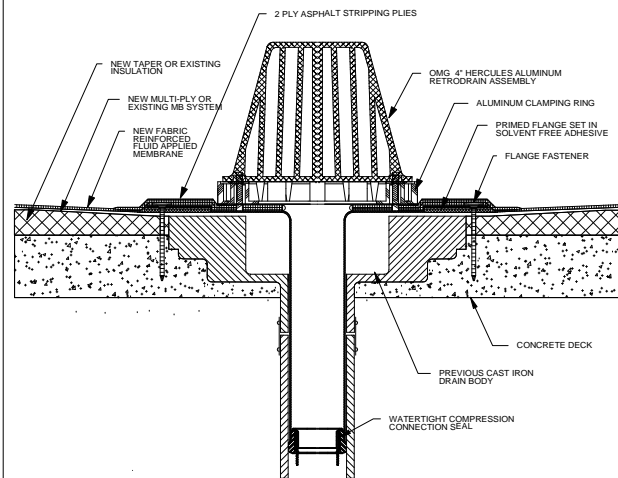
② PLUMBING VENT FLASHING - TYPICAL



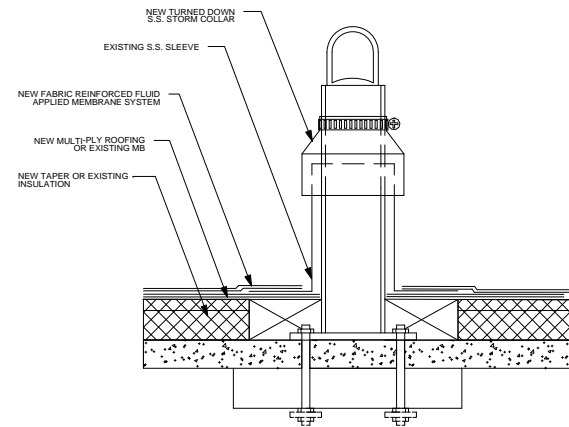
③ ROUND PENETRATION FLASHING - TYPICAL



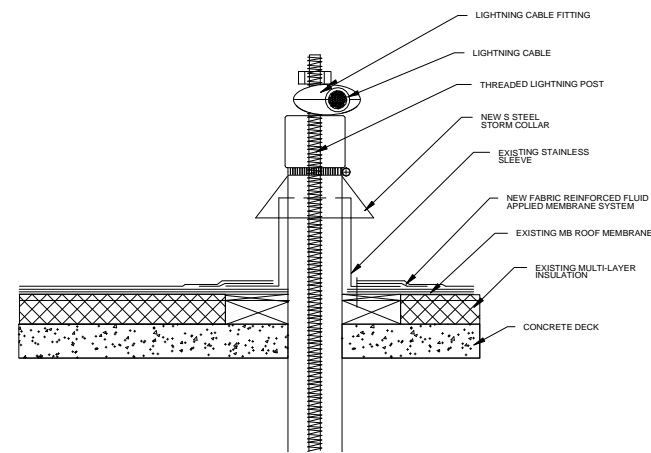
④ PITCH POCKET W/COVER - TYPICAL



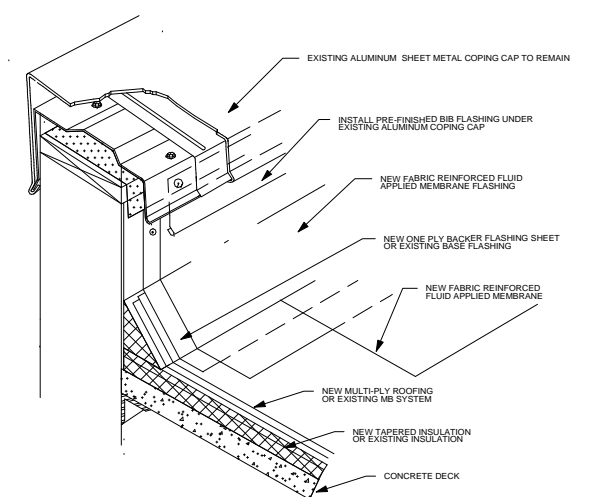
⑤ NEW ROOF DRAIN INSERT - TYPICAL



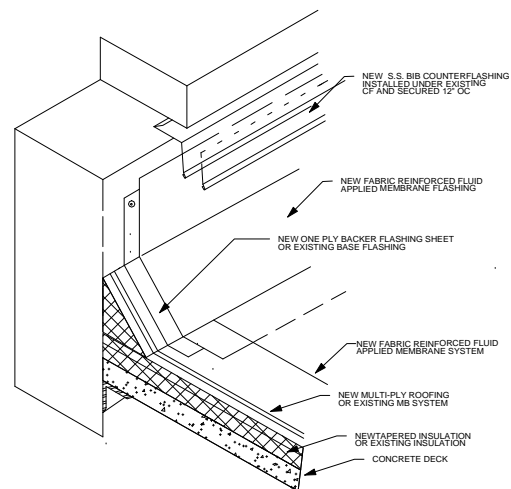
⑥ FALL PROTECTION TIE-OFF - TYPICAL



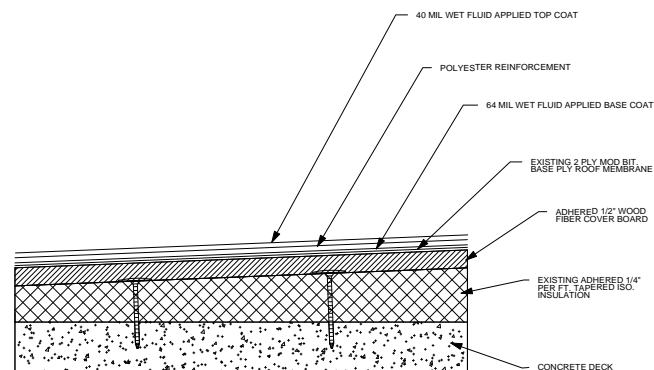
⑦ LIGHTNING CABLE DECK PENETRATION - TYPICAL



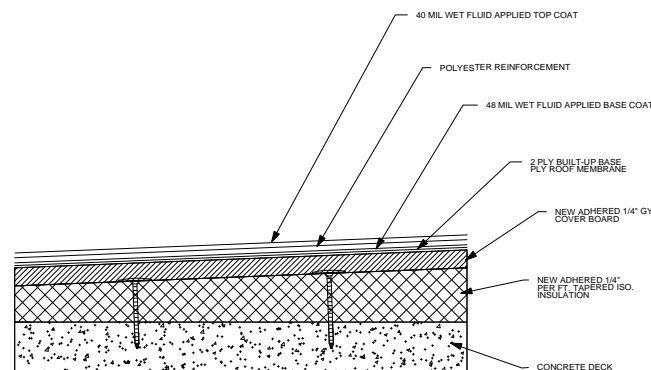
⑧ COPING CAP W/BIB COUNTERFLASHING - TYPICAL



⑨ WALL FLASHING - TYPICAL



⑩ REHABILITATED ROOF PROFILE



⑪ REPLACEMENT ROOF PROFILE

NORTHERN KENTUCKY UNIVERSITY

PROJECT:
**DOROTHY WESTERMAN HERMANN
NATURAL SCIENCE BUILDING
ROOF REHABILITATION**

LOCATION:
**KENTON DRIVE
HIGHLAND HEIGHTS, KY 41099**

DATE DRAWN

08/08/17

DRAWN BY

DMQ

DRAWING NO.

A2