ADDENDUM NO 1 (Rev 01/2017)
ISSUE DATE: **November 18, 2024**

RE: **Deluca Biochemistry CALS Cryo EM Lab Renovation**
University of Wisconsin – Madison
Madison, Wisconsin
MSN Project No. 0084-2338 / UWSA Project No. A-23-007

BID OPENING: **MEP – 2:00 pm, November 26, 2024**
GPC – 2:00 pm, December 10, 2024

FROM: **Aro Eberle Architects**
433 W. Washington Ave, Suite 400
Madison, WI 53703

TO: Prospective Bidders

This addendum forms a part of the Contract Documents and modifies the original Contract Documents dated **October 9, 2024,** as noted below. Acknowledge receipt of this Addendum by inserting the number and issue date of this addendum in the blank space provided on the Bid Form. Failure to do so may subject the Bidder to disqualification.

This Addendum consists of **1** page and the attached documents:

- GPC Instructions to Bidders, MEP Instructions to Bidders, Specification Sections 07 53 23, 09 51 23, and 09 67 23 and Drawings AD101, M602, T401 and T701.

CHANGES TO BIDDING REQUIREMENTS:

1. GPC Instructions to Bidders; Page B-9, Milestone Schedule:
    a. Changed end date for closeout activities.

2. MEP Instructions to Bidders; Page B-9, Milestone Schedule:
    a. Changed end date for closeout activities.

CHANGES TO SPECIFICATIONS (DIVISIONS 2 THRU 33):

3. Specification Section 07 53 23 Ethylene-Propylene-Diene-Monomer Roofing; Pages 2-3, Line Varies:
    a. Removed references to 5-year roof Guarantee and replaced with 1 year.
    b. Removed references to existing warranty for Firestone roofing.
    c. Add State of Wisconsin 1 year Roof Guarantee PDF to specification Volume 2.

4. Specification Section 09 51 23 Acoustical Tile Ceilings; Pages 2-6, Lines Varies:
    a. Removed references to ACT-3 and ACT-4.
    b. Removed references to fiberglass panels and ceiling grid.
    c. Removed Clean room reference to ACT-1 grid.
    d. Added acceptable manufacturer of Certainteed to both ACT-1 and ACT-2.

5. Specification Section 09 67 23 Resinous Flooring; Page 3, Lines 1 through 6 and 51-52 and page 5; Lines 4 and 5:
    a. Removed references to Waterproofing Membrane.

6. Specification Section 23 09 93 Sequence of Operations For HVAC Control; Page 1, Line 36.
    a. Delete “Water Source Heat Pump (HP-1144C) Control.

CHANGES TO DRAWINGS:

7. Sheet AD101 – Basement Floor Demolition Plan; Revise sheet as noted in this Addendum.
    a. Added general demolition note noting floor to under floor heights for each building level.
    b. Revised keyed note 6 to indicate base cabinetry.

8. Sheet M602 – Mechanical Schedules; Revise sheet as noted in this Addendum.
    c. Remove Heat Pump Schedule from sheet.
    d. Add Fan Coil Unit (FCU) Schedule to sheet.

9. Sheet T401 – Enlarged Elevations & Sections; Revise sheet as noted in this Addendum.
    a. Revised keynote 9.721.

10. Sheet T701 – One-Line Diagrams; Revise sheet as noted in this Addendum.
    a. Revised room number on Detail 2.

END OF ADDENDUM

Aro Eberle Architects
433 W. Washington Ave
Suite 400
Madison, WI 53703

The Board of Regents of the
University of Wisconsin
1220 Linden Drive
Madison, WI 53703

GPC INSTRUCTIONS TO BIDDERS (Rev 4/2024)
UW-Madison Project No. **0084 2338 /** UWSA Project No**. A-23-007**

INDEX

1. DEFINITIONS
In this document, the following terms are defined as:

(a) "Mechanical, electrical, or plumbing subcontractor" ("MEP Subcontractor") is a contractor that performs mechanical (Heating, Ventilating, and Air Conditioning), electrical, plumbing, or fire protection (fire suppression) work for the Project, and enters into a contract with the General Prime Contractor to perform their division of work.

(b) "Qualified bidder" means a contractor that the department certifies under Wis. Stat. s. 16.855(9m)(b)1.

(c) "Qualified responsible bidder" means a contractor who is a Qualified bidder and who is a Responsible bidder.

(d) "Responsible bidder" means a contractor that the department certifies under Wis. Stat. s. 16.855(9m)(b)2.

(e) "Single prime contracting" means bidding and contracting through a process in which only a general prime contractor has a contractual relationship with the owner and all mechanical, electrical, or plumbing subcontractors are identified by the department and are subcontractors to the General Prime Contractor.

(f) "General Prime Contractor" ("GPC") is a contractor that enters into a contract with the owner to perform all work as required by the Contract Documents and enters into contracts with subcontractors including MEP Subcontractors identified by the Owner.

(g) "Non-MEP Subcontractor" is a subcontractor to a General Prime Contractor in divisions of work other than mechanical, electrical, plumbing, and fire protection. This includes suppliers and installers to the General Prime Contractor.

(h) "Subcontractor" is all subcontractors on a project. This includes MEP Subcontractors, subcontractors to the MEP Subcontractors, and Non-MEP Subcontractors.

(i) “Contractor” is all contractors working on a project regardless of contractual relationship. This includes the General Prime Contractor, MEP Subcontractors, Non-MEP Subcontractors, and all Subcontractors, regardless of tier of subcontract.

(j) “DFD Project Manager” shall have the same meaning as the “Owner’s Representative” as defined in the A101 contract, article 8.2.

2. GENERAL

Time for bid opening shall be the prevailing central standard or daylight saving time in force at Madison, Wisconsin, on the date set forth in the Invitation to Bid.

All potential bidders must be certified by DOA prior to submitting bids on state construction projects over $50,000. All bids received from contractors who are not certified will be rejected. Contractor certification applications and instructions for completing the form may be obtained from the DOA Website DFD Contractor Certification page: https://doa.wi.gov/Pages/DoingBusiness/ContractorCertification.aspx or upon request from DFD--email dfdcertification@wisconsin.gov.

The Owner will issue an addendum if a successful MEP bid is withdrawn or rejected after the MEP Subcontractors have been identified but before the General Prime Contractor bid opening, This addendum will include a revised list of successful MEP bids that must be included in General Prime Contractor bids and will move the General Prime Contractor bid opening five (5) days later to allow bidders sufficient time to update their bids based on the revised MEP list.

Before submitting a bid, the Bidder shall examine all of the Bidding and Contract Documents listed in the Table of Contents of these specifications. The successful Bidder will be required to do all work which is shown on the drawings, mentioned in the specifications or reasonably implied as necessary to complete the contract for this project.

Failure to visit the site or failure to examine any and all Bidding and Contract Documents will in no way relieve the successful Bidder from the necessity of furnishing any materials or equipment, or performing any work, that may be required to complete the work in accordance with the Bidding and Contract Documents. Neglect of above requirements will not be accepted as reason for delay in the work or additional compensation.

All bidders shall have established and diligently maintained a satisfactory safety program, and if eligible for Experience Modification Rating (EMR), must have a rating of 1.20 or less as established by the Wisconsin Compensation Rating Bureau (WCRB) or the National Council on Compensation Insurance (NCCI).

3. DRAWINGS AND SPECIFICATIONS

The drawings and specifications that form a part of these Bidding Documents are all the documents (drawings, specifications, etc.) in this invitation to bid.

Complete sets of Contract Documents for all trades will be issued to all Bidders, irrespective of the category of work to be bid on, in order that all Bidders may be familiar with the work of other trades as they affect their bid.

4. INTERPRETATION

No verbal explanation or instructions will be given in regard to the meaning of the drawings or specifications during the bid period. Bidders shall bring inadequacies, omissions or conflicts to the Architect/Engineer's attention at least ten (10) days before the date set for bid opening. Prompt clarification will be supplied to all bidders of record by addendum.

Failure to so request clarification or interpretation of the drawings and specifications will not relieve the successful Bidder of responsibility. Signing of the contract will be considered as implicitly denoting that the Contractor has thorough understanding of the scope of work and comprehension of the contract documents.

Neither the Architect/Engineer nor the Owner will be responsible for verbal instructions.

5. MANDATORY PRE-BID DOA CERTIFICATION

All potential bidders must become certified as qualified and responsible bidders **before** they can bid on state projects over $50,000. The criteria for determining certification of qualified and responsible bidders are itemized in Wis. Stat. s. 16.855(9m). If the Owner determines that more experience is necessary for a particular project, the Owner may include

additional requirements.

6. BID GUARANTEE

A bid bond prepared on the Bid Bond Form bound herein, payable to the Owner in the amount not less than 10% of the maximum bid shall accompany each bid as a guarantee. A bank certified check or a cashier's check may accompany each bid as a guarantee pursuant to Wis. Stat. s. 779.14(1m)(c)2.b. and 779.14(1s). Failure to enter into the contract with the Owner (including failure to obtain certificate of insurance and separate 100% performance and 100% payment bonds) may result in forfeiture of the Bid Bond. The company issuing the Bonds must be licensed to do business in Wisconsin.

Any bid which is not accompanied by a bid guarantee will not be accepted and will not be read at the bid opening.

All checks tendered as bid guarantee, except those of the three lowest bidders, will be returned to their makers within three (3) days after bid opening. All such retained checks will be returned immediately upon execution of the contract between the General Prime Contractor and the Owner.

7. WITHDRAWAL OF BIDS

Prior to the time fixed for bid opening, bids may be withdrawn by written request from the Bidder, without prejudice to the right of the Bidder to file a new bid. Withdrawn bids will be returned unopened.

After the bid has been opened, negligence on the part of the Bidder in preparing their bid confers **no** right for withdrawal of the bid without penalty.

If a bid contains an error, omission, or mistake, the bidder may limit liability to the amount of their bid guarantee by giving the Owner written Notice, within seventy-two (72) hours of the bid opening, of their intent not to execute the contract with the owner. If no such notice is given, the Owner reserves the right to obtain the amount of the difference in bid price between the low bidder and the next low bidder.

8. CONTRACT FORM

These specifications include a copy of the contract the successful Bidder is required to enter into with the owner. Bidders shall read and understand the conditions contained in this contract. The successful Bidder will be offered a contract via email to the contact provided by the bidder on the Bid Form.

9. CONTRACT INTERESTS BY STATE PUBLIC OFFICIALS

In accordance with section 19.45(6) of the Wisconsin Statutes, no state public official, member of a state public official's immediate family, nor any organization with which the state public official or a member of the official's immediate family owns or controls at least 10% of the outstanding equity, voting rights, or outstanding indebtedness may enter into any contract or lease involving a payment or payments of more than $3,000 within a twelve (12) month period, in whole or in part derived from state funds unless the state public official has first made written disclosure of the nature and extent of such relationship or interest to the board and to the department acting for the state in regard to such contract or lease. Any contract or lease entered into in violation of this subsection may be voided by the owner in an action commenced within three (3) years of the date on which the ethics board, or the department or officer acting for the state in regard to the allocation of state funds from which such payment is derived, knew or should have known that a violation of this subsection had occurred. This subsection does not affect the application of s.946.13.

10. DISCLOSURE OF OWNERSHIP

The Bidder shall disclose on the date of submitting a bid for this project, the name of any construction business of which the Bidder has had a 25% or greater interest as a shareholder, officer, partner, or owner at any time during the preceding three (3) years, if said construction business has been found by the Department of Workforce Development to have failed to pay the prevailing wage rate or at least 1.5 times the hourly basic rate of pay for hours worked in excess of the prevailing hours of labor to any employee at any time within the preceding three (3) years.

The "Disclosure of Ownership" form may be obtained at no charge from the Department of Workforce Development, Equal Rights Division, P.O. Box 8928, Madison, Wisconsin 53708.

11. MINORITY BUSINESS ENTERPRISE AND DISABLED VETERAN-OWNED BUSINESS INVOLVEMENT

"Minority Business Enterprise" (MBE) means: a business certified by the Wisconsin Supplier Diversity Program under Wis. Stat. s. 16.287(2).

"Disabled Veteran−Owned Business" (DVB) means: a business certified by the Wisconsin Supplier Diversity Program under Wis. Stat. s. 16.283(3).

In awarding construction contracts, the University of Wisconsin System Administration shall attempt to ensure that 5 percent of the total amount expended in each fiscal year is awarded to contractors which are minority businesses. The General Prime Contractor Bidder shall make every effort to award a minimum of 15% of the work to minority business enterprises (MBE) involvement for all projects within 60 mile radius of Milwaukee and 5% for projects located elsewhere.

In awarding construction contracts, the University of Wisconsin System Administration shall attempt to ensure that at least 1 percent of the total amount expended each fiscal year is awarded to contractors that are disabled veteran-owned businesses.

In order to assist the department in these endeavors we strongly encourage General Prime Contractors to use MBEs and DVBs.

General Prime Contractor Bidders shall submit a "Form A Affidavit of Compliance – Minority Business Enterprise and Disabled Veteran-Owned Business Provision" within seven days of the general prime contractor contract offer. This form should indicate the percentage of MBE/DVB participation commitment. All MEP Subcontractor Bidders shall also make every effort to encourage MBE and DVB involvement.

For assistance in identifying DOA certified MBE and DVB companies, please contact the Department of Administration Supplier Diversity Program at: DOABDMBD@wisconsin.gov, or by telephone at: (608)267-9550, or visit their website at: http://www.doa.wi.gov/Divisions/Enterprise-Operations/Supplier-Diversity-Program.

12. SUBSTANCE ABUSE PREVENTION

Mission/Purpose: The University of Wisconsin System Administration recognizes and supports drug-free workplace programs as an important element in the national strategy to reduce the devastating effects of drug and alcohol abuse in our society. the Owner requires contractors, subcontractors, suppliers and vendors to establish and enforce drug-free workplace policies and programs that conform to Sec 103.503 of the Wisconsin Statutes.

Statement: The possession, use of, distribution or purchase of illegal drugs, or use of alcohol at work by any employee on University of Wisconsin System Administration construction job sites, is strictly prohibited.

The terms of this Substance Abuse Program Statement shall cover all construction personnel who are working on University of Wisconsin System Administration job sites. This includes employees of all Contractors, Subcontractors, contractor suppliers, and their employees working at the job site.

General Prime Contractor's and Subcontractor's Written Program: Each General Prime Contractor and Subcontractor shall have in place a written Substance Abuse Program conforming to Sec 103.503(3) of the Wisconsin Statutes.

In addition, representatives of the Owner who believe that any General Prime Contractor's or Subcontractor's employee may be under the influence of alcohol or drugs shall, where deemed appropriate, contact the General Prime Contractor's or Subcontractor's appropriate management/supervision authority and request that appropriate action be taken. The General Prime Contractor's or Subcontractor's employer shall immediately remove an employee who is suspected of being under the influence of illegal drugs or alcohol shall be immediately removed from the job site.

Procedures for testing and handling of positive drug tests shall be in compliance and consistent with State and Federal laws.

Costs of Substance Abuse Programs and Testing: The cost associated with the development, implementation and enforcement of Substance Abuse Programs and any testing required shall be the responsibility of each individual General Prime Contractor and Subcontractor for their respective employees working on the job site. The Owner will not be responsible for any cost of substance abuse testing, rehabilitation or medical reviews related to substance abuse.

The General Prime Contractor and Subcontractors shall indemnify and hold the Owner harmless from any damages or other costs incurred that are related to the implementation or enforcement of any substance abuse policy or program.

13. METHOD OF AWARD - RESERVATION

General prime contractor bids that do not include the successful MEP bids identified by the Owner will be rejected.

The general prime contract will be awarded based on the following, as long as the cost does not exceed the amount of project funds available:

> The lowest dollar amount is submitted by a qualified, responsible, certified bidder on a SINGLE BASE BID for all work comprising the project.

Should a qualified, responsible, certified minority business enterprise or disabled veteran-owned business submit a bid that is no more than 5% higher than the apparent low bid, the Contract may be awarded to the minority business enterprise or disabled veteran-owned business.

Firms wishing to be considered for the 5% bidding preference must be certified as a minority business enterprise or disabled veteran-owned business by the Wisconsin Supplier Diversity Program should indicate in the space provided on the Bid Form that preference is requested.

The Owner reserves the right to reject any and all bids, or to waive any informality in any bid, or to accept any bid which will serve the best interests of the Owner.

Informational Bids will not be considered in establishing low bidder.

14. SECURITY FOR SEPARATE 100% PERFORMANCE AND SEPARATE 100% PAYMENT

Bidder is required to furnish separate 100 % performance and 100 % payment bonds to the benefit of the Board of Regents of the University of Wisconsin as the sole oblige. These bonds shall be delivered to the Owner with the signed contract. The Surety Company shall be licensed to do business in Wisconsin. The Bond must be dated the same date or subsequent to the date of the Contract.

A certified copy of power of attorney shall be provided by the Surety Company showing that the agent who signs the Bond has the power of attorney to sign for the Surety Company. This power of attorney must be signed by the Secretary or Assistant Secretary of the company and not by an attorney-in-fact. The power of attorney must bear the same or later date as the bond.

If the Bidder is a partnership or a joint venture, a certified list providing the names of individuals constituting the partnership or joint venture must be furnished. The Contract itself may be signed by one partner of the partnership, or one partner of each firm comprising the joint venture, but the separate Performance and Payment Bonds must be signed by all of the partners.

If the Bidder is a corporation, a current certified copy of the resolution or other official act of the directors of the corporation must be submitted showing that the person who signs the contract is authorized to sign contracts for the corporation. The corporate seal must be affixed to the resolution, contract, and separate performance and payment bonds. If the Bidder's corporation has no seal, the above documents must include a statement or notation to the effect that the corporation has no seal.

15. TAXES

The Bidder shall include in the bid all taxes required by law.

In accordance with section 71.80(16)(a), Wis. Stats., SURETY BOND; NONRESIDENT CONTRACTOR. "All nonresident persons, whether incorporated or not, engaging in construction contracting in this state as contractor or subcontractor and not otherwise regularly engaged in business in this state, shall file a surety bond with the department (Wisconsin Department of Revenue MS 5-77 Attn: Non-Resident Surety Bonds, 2135 Rimrock Rd., Madison, WI 53713, telephone (608)266-2776) payable to the department of revenue, to guarantee the payment of income taxes, required unemployment compensation contributions, sales and use taxes and income taxes withheld

from wages of employees, together with any penalties and interest thereon. The amount of the bond shall be 3% of the contract or subcontract price on all contracts of $50,000 or more..."

As the Board of Regents is an exempt entity, building materials purchased for this project are exempt. The University of Wisconsin System CES number: 040706. The Certificate of Exempt Status (CES) will be provided to the awarded Contractor upon request.

16. SUBMISSION OF BIDS

All bids shall be submitted on the standard Bid Forms and only bids that are made on the Bid Forms will be considered. The entire Bid Form including the Addendum Receipt/Signature page, the Bid Bond Form, (if used), and other supporting documents (if any), shall be filled out and submitted in the manner specified hereinafter. SPECIFICATIONS SHALL NOT ACCOMPANY BID.

No bids for any subdivision or any subclassification of this work, except as indicated, will be accepted. Any conditional bid, amendment to the Bid Form or appendant thereto, the inclusion of any correspondence, written or printed matter, unsolicited material or data, or details of any nature other than the information specifically called for, will disqualify the Bid. Telecommunication alterations to the bid will not be accepted.

Space is provided on the Bid Form for General Prime Contractor's single bid. Appropriate insertions are as follows: numerals indicating the cost of the work, $0 if there is no cost for the work, or the words 'No Bid' if the bidder is not intending to bid the work. Blank space(s) will be considered the same as 'No Bid'.

Bidders shall submit a Single Base Bid for all the work.

Spaces are also provided on the Bid Form for General Prime Contractor's to list the successful MEP Subcontractors bids included in the General Prime Contractor's single base bid.

General prime contractor bids that do <u>not</u> include the successful MEP bids identified by the Owner will be rejected.

Any addendum issued during the time of bidding shall become a part of the Contract Documents. Bidders shall acknowledge receipt of such addendum in the appropriate space provided on the Bid Form. Bid will be rejected if receipt of an addendum applicable to the award of contract has not been acknowledged on the Bid Form.

The Owner is not responsible for bids not clearly labeled as required. Bids shall be signed, sealed, and delivered to the place indicated in the Invitation to Bid <u>before</u> the time designated in the Invitation to Bid. All bids shall be identified with the Project Name, Project Number, Project Location, Category of Work being bid on, Bid Date, and the Name and Address of Bidder.

Bidder shall be responsible for the bid being delivered to the place designated for the bid opening before the time specified. Bids received after the time indicated in the Invitation to Bid will be rejected and returned to Bidder unopened.

Bid will be considered invalid and will be rejected if it has not been signed by the Bidder.

Bids will be rejected if the bidder is not certified by DOA in the division(s) of work they bid on and/or if their bid amount exceeds their certification threshold in that division of work.

17. BASE BID

Base Bids shall be received as follows:
SINGLE BASE BID FOR ALL THE WORK.

Base Bid No. 1. All Work, as per specification Divisions 2 thru 28, applicable provisions of Division 1 and related drawings.

18. INFORMATIONAL BIDS

None.

19. UNIT PRICES

Unit prices requested on the Bid Form shall be given and, if included in the General Prime Contract, will be used for additions to or deductions from amount of work required under the Contract. Unit prices shall include all costs of materials, labor, insurance, taxes, overhead and profit.

The Owner reserves the right to reject any unit prices as given in the bid if they are considered excessive or unreasonable, or to accept any or all of the unit prices that may be considered fair and reasonable. If any unit price is rejected, the work governed by such unit price, if required, shall be treated as specified in General Conditions.

The Bidder shall refer to the Bid Form and the applicable technical section to determine the basis of unit measure and the detailed information related to each unit price item requested.

20. STATED ALLOWANCES

None.

21. SUBCONTRACTORS

GENERAL PRIME CONTRACTOR SUBCONTRACT WITH MEP SUBCONTRACTORS:

The successful General Prime Contractor shall offer a subcontract to the successful MEP Subcontractors identified by the Owner and included in the General Prime Contractor's bid. This subcontract between a General Prime Contractor and a MEP Subcontractor must include a scope of work clause identical to the scope of work clause included in the Bid Documents and the contract between the General Prime Contractor and the owner. A General Prime Contractor and an MEP Subcontractor may not enter any agreement in connection with bids submitted that would alter or affect the scope or price of the contracts entered into. This prohibition does not apply to the Owner change orders that result in changes to the plans or specifications, or to back charges allowed by the contract.

The General Prime Contractor must base the Project Schedule on the schedule that the MEP Subcontractors and General Prime Contractors bid on (in the specifications or bid instructions), unless otherwise agreed to by the MEP Subcontractor.

As the work progresses under any MEP subcontract for construction of a project, the General Prime Contractor shall, upon request of a subcontractor, pay to the subcontractor an amount equal to the proportionate value of the subcontractor's work properly completed, less retainage. The retainage shall be an amount equal to not more than 5 percent of the subcontractor's work completed until 50 percent of the subcontractor's work has been completed. At 50 percent completion, no additional amounts may be retained, and partial payments shall be made in full to the subcontractor unless the department certifies that the subcontractor's work is not proceeding satisfactorily. At 50 percent completion or any time thereafter when the progress of the subcontractor's work is not satisfactory, additional amounts may be retained but the total retainage may not be more than 10 percent of the value of the work completed. Upon substantial completion of the subcontractor's work, any amount retained shall be paid to the subcontractor, less the value of any required corrective work or uncompleted work. All payments the General Prime Contractor makes under this paragraph shall be within 7 calendar days after the date on which the General Prime Contractor receives payment from the department.

The contract entered into between the General Prime Contractor and an MEP Subcontractor must contain all of the following clauses:

> **Scope of Work**. The MEP Subcontractor scope of work is identical to the General Prime Contractor scope of work included in these bidding and contract documents. By submitting and signing a bid, all bidders have examined all of the Bidding Documents listed in the Table of Contents of the project specifications. The successful bidders will be required to do all work which is shown on the drawings, mentioned in the specifications, or reasonably implied as necessary to complete the division of work bid for this project.
>
> **Prompt Payment.** (General prime contractor) shall pay (mechanical, electrical, or plumbing subcontractor) in accordance with section 16.855(19)(b), Wisconsin stats, for work that has been satisfactorily completed and properly invoiced by (mechanical, electrical, or plumbing subcontractor). A payment is timely if it is mailed, delivered, or transferred to (mechanical, electrical, or plumbing subcontractor) by the deadline under section 16.855(19)(b), Wisconsin stats.

If (mechanical, electrical, or plumbing subcontractor) is not paid by the deadline in this contract, (general prime contractor) shall pay interest on the balance due from the eighth day after the (general prime contractor) receives payment from the University of Wisconsin System Administration for the work for which payment is due and owing to (mechanical, electrical, or plumbing subcontractor), at the rate specified in section 71.82, Wisconsin stats., compounded monthly.
A (mechanical, electrical, or plumbing subcontractor) that receives payment as provided under this contract and that subcontracts with another entity shall pay those subcontractors, and be liable for interest on late payments to those subcontractors, in the same manner as the (general prime contractor) is required to pay the (mechanical, electrical, or plumbing subcontractor) under this contract.

Insurance and Bonds. (Mechanical, electrical, or plumbing subcontractor) shall not commence work under this contract until it has obtained all necessary insurance required of (mechanical, electrical, or plumbing subcontractor) in the contract between the (general prime contractor) and the Board of Regents of the University of Wisconsin System. (mechanical, electrical, or plumbing subcontractor) shall provide a separate 100 percent performance bond and a separate 100 percent payment bond to the benefit of the (general prime contractor) as the sole named obligee. Original bonds shall be given to the (general prime contractor) and a copy shall be given to the University of Wisconsin System Administration no later than 10 days after execution of this contract.

Indemnification. To the fullest extent permitted by law, (mechanical, electrical, or plumbing subcontractor) shall defend, indemnify, and hold harmless (general prime contractor) and its officers, directors, agents, and any others whom (general prime contractor) is required to indemnify under its contract with the Owner, and the employees of any of them, from and against claims, damages, fines, penalties, losses, and expenses, including but not limited to attorney fees, arising in any way out of or resulting from the performance of the work under this contract, but only to the extent such claim, damage, fine, penalty, loss, or expense: (1) is attributable to bodily injury, sickness, disease, or death, or to injury to or destruction of property, including but not limited to loss of use resulting therefrom and is caused by the negligence, or acts or omissions, of (mechanical, electrical, or plumbing subcontractor), its subcontractors, any of their employees, and anyone directly or indirectly employed by them or anyone for whose acts they may be liable, or (2) as related to such claims, damages, fines, penalties, losses, and expense of or against (general prime contractor), results from or arises out of the negligence of the (general prime contractor) or other fault in providing general supervision or oversight of the work of (mechanical, electrical, or plumbing subcontractor) or (3) as related to claims, damages, fines, penalties, losses, and expense against the Board of Regents of the University of Wisconsin System, arises out of the department's status as owner of the project or project site.

In addition (mechanical, electrical, or plumbing subcontractor) shall defend, indemnify, and hold harmless (general prime contractor) and its officers, directors, agents, and any others (general prime contractor) is required to indemnify under its contract with the department, and the employees of any of them, from any liability, including liability resulting from a violation of any applicable safe place act, that (general prime contractor) or the owner incurs to any employee of (mechanical, electrical, or plumbing subcontractor) or any third party where the liability arises from a derivative claim from said employee, when the liability arises out of the failure of the (general prime contractor) or the owner to properly supervise, inspect, or approve the work or work area of (mechanical, electrical, or plumbing subcontractor), but only to the extent that the liability arises out of the acts or omissions of (mechanical, electrical, or plumbing subcontractor), its employees, or anyone for whom (mechanical, electrical, or plumbing subcontractor) may be liable, or from (mechanical, electrical, or plumbing subcontractor's) breach of its contractual responsibilities or arises out of (general prime contractor's) negligence or other fault in providing general supervision or oversight of (mechanical, electrical, or plumbing subcontractor's) work or arises out of the Board of Regents of the University of Wisconsin System status as owner of the project or project site. In claims against (general prime contractor) or the owner by an employee of (mechanical, electrical, or plumbing subcontractor) or its subcontractors or anyone for whose acts (mechanical, electrical, or plumbing subcontractor) may be liable, the indemnification obligation of this paragraph is not limited by a limitation on amount or type of damage, compensation, or other benefits payable by or for the (mechanical, electrical, or plumbing subcontractor) subcontractors under workers compensation act.

Except as identified above, the obligations of (mechanical, electrical, or plumbing subcontractor) under this indemnification do not extend to the liability of (general prime contractor) and its agents or employees arising

out of (1) preparation or approval of maps, drawings, opinions, reports, surveys, change orders, designs, or specifications; (2) the giving of or failure to give directions or instructions by the (general prime contractor) or the University of Wisconsin System Administration or their agents or employees provided the giving or failure to give is the cause of the injury or damage; or (3) the acts or omissions of other subcontractors.

Retainage. Retainage shall occur and be in amounts and on a schedule equal to that in the contract between (general prime contractor) and the Board of Regents of the University of Wisconsin System.

22. COMMENCEMENT AND COMPLETION

The successful General Prime Contractor Bidder shall commence work upon an executed contract with Owner. The General Prime Contractor shall not Mobilize until the date to be specified in a written "Notice to Proceed" issued by the Owner, and to fully complete all the work for Substantial Completion within **(224)** consecutive calendar days thereafter. Completion time will be converted to a specific date at the time the "Notice to Proceed" is issued. The construction duration and below milestone dates are based on the current bidding schedule, and subject to modification if bidding does not proceed as planned. Refer also to General Conditions for additional information in regards to time for completion.

The General Prime Contractor must base the Project Schedule on the schedule that the MEP Subcontractors and General Prime Contractors bid on (in the specifications or bid instructions), unless otherwise agreed to by the MEP Subcontractor. These milestones will be incorporated into the master project schedule after the Notice to Proceed is issued. The schedule must include, but is not limited to, the following milestone categories as they apply to the project:

Start Date (Month/Year)	End Date (Month/Year)	Schedule Milestones
1/2025	1/2025	Mobilization
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4/2025	5/2025	Mechanical, Electrical, Plumbing & Fire Protection Wall Rough-in
5/2025	5/2025	Pre-Drywall Punchlist
4/2025	5/2025	Mechanical, Electrical, Plumbing & Fire Protection Overhead Rough-in
6/2025	6/2025	Above the Ceiling Punchlist
6/2025	8/2025	Architectural Finishes
6/2025	8/2025	Mechanical, Electrical, Plumbing & Fire Protection Finishes
8/2025	8/2025	Final Punchlist
8/2025	8/2025	Pre-functional Testing and Commissioning
	8/2025	Owner Training
	8/2025	Substantial Completion
	9/2025	100% of Punchlist Work Complete
9/2025	10/2025	Equipment Installation
8/2025	5/2026	100% of Close-Out Activities Complete

23. WORK BY THE OWNER

The following work will be accomplished by the Owner or will be let under separate contracts and will not be included under the General Prime Contract:

- Microscope Chillers – Owner provided for contractor installation.
- Microscope UPSs – Owner provided for contractor installation.
- Microscope Connection Boxes – Owner provided for contractor installation.
- Microscope mounted cameras – Owner provided and installed.
- Microscopes and microscope isolation bases – Owner provided, located and set. Contractor will fill base legs in epoxy.
- Cylinders and cores – Owner provided and contractor installed.
- EMI cancellation system – Owner provided for contractor installation. Final configuration, termination, testing, and commissioning by Owner's Contractor.

- Card Readers – Owner provided for contractor installation. Final configuration, termination, testing and commissioning by Contractor.
- Owner provided Fire extinguishers and installed with contractor provided and installed fire extinguisher cabinet.
- Wireless access points – Owner provided and installed in contractor installed backbox locations.

DDC SYSTEM

Sequence of Operation for HVAC Controls as specified in Section 23 09 93 and Direct Digital Control System for HVAC in Section 23 09 23. Programming, testing, and training for the new system and extension will be by owner.

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MEP INSTRUCTIONS TO BIDDERS (Rev 4/2024)
UW-Madison Project No. **0084 2338 /** UWSA Project No**. A-23-007**

INDEX

1. DEFINITIONS
In this document, the following terms are defined as:

(a) "Mechanical, electrical, or plumbing subcontractor" ("MEP Subcontractor") is a contractor that performs mechanical (Heating, Ventilating, and Air Conditioning, electrical, plumbing, or fire protection (fire suppression) work for the Project, and enters into a contract with the General Prime Contractor to perform their division of work.

(b) "Qualified bidder" means a contractor that the department certifies under Wis. Stat. s. 16.855(9m)(b)1.

(c) "Qualified responsible bidder" means a contractor who is a qualified bidder and who is a responsible bidder.

(d) "Responsible bidder" means a contractor that the department certifies under Wis. Stat. s. 16.855(9m)(b)2.

(e) "Single prime contracting" means bidding and contracting through a process in which only a general prime contractor has a contractual relationship with the owner and all mechanical, electrical, or audio visual subcontractors are identified by the department and are subcontractors to the General Prime Contractor.

(f) "General Prime Contractor" is a contractor that enters into a contract with the owner to perform all work as required by the Contract Documents and enters into contracts with subcontractors including MEP Subcontractors identified by the Owner.

(g) "Non-MEP Subcontractor" is a subcontractor to a General Prime Contractor in divisions of work other than mechanical, electrical, plumbing, and fire protection. This includes suppliers and installers to the General Prime Contractor.

(h) "Subcontractor "is all subcontractors on a project. This includes MEP Subcontractors, subcontractors to the MEP Subcontractors, and Non-MEP Subcontractors.

(i) “Contractor” is all contractors working on a project regardless of contractual relationship. This includes the General Prime Contractor, MEP Subcontractors, Non-MEP Subcontractors, and all Subcontractors, regardless of tier of subcontract.

(j) “DFD Project Manager” shall have the same meaning as the “Owner’s Representative” as defined in the A101 contract, article 8.2.

2. GENERAL

Time for bid opening shall be the prevailing central standard or daylight saving time in force at Madison, Wisconsin, on the date set forth in the Invitation to Bid.

All potential bidders must be certified by DOA prior to submitting bids on state construction projects over $50,000. All bids received from contractors who are not certified will be rejected. Contractor certification applications and instructions for completing the form may be obtained from the DOA Website DFD Contractor Certification page: https://doa.wi.gov/Pages/DoingBusiness/ContractorCertification.aspx or upon request from DFD--email dfdcertification@wisconsin.gov.

The Owner will issue an addendum if a successful MEP bid is withdrawn or rejected after the MEP Subcontractors have been identified but before the General Prime Contractor bid opening, This addendum will include a revised list of successful MEP bids that must be included in General Prime Contractor bids and will move the General Prime Contractor bid opening five days later to allow bidders sufficient time to update their bids based on the revised MEP list.

Before submitting a bid, the Bidder shall examine all of the Bidding Documents listed in the Table of Contents of these specifications. The successful Bidder will be required to do all work which is shown on the drawings, mentioned in the specifications or reasonably implied as necessary to complete the division of work being bid for this project.

Failure to visit the site or failure to examine any and all Bidding Documents will in no way relieve the successful Bidder from the necessity of furnishing any materials or equipment, or performing any work, that may be required to complete the work in accordance with the Bidding Documents. Neglect of above requirements will not be accepted as reason for delay in the work or additional compensation.

All bidders shall have established and diligently maintained a satisfactory safety program, and if eligible for Experience Modification Rating (EMR), must have a rating of 1.20 or less as established by the Wisconsin Compensation Rating Bureau (WCRB) or the National Council on Compensation Insurance (NCCI).

3. DRAWINGS AND SPECIFICATIONS

The drawings and specifications that form a part of these Bidding Documents are all the documents (drawings, specifications, etc) in this invitation to bid.

Complete sets of Bidding Documents for all trades will be issued to all Bidders, irrespective of the category of work to be bid on, in order that all Bidders may be familiar with the work of other trades as they affect their bid.

4. INTERPRETATION

No verbal explanation or instructions will be given in regard to the meaning of the drawings or specifications during the bid period. Bidders shall bring inadequacies, omissions or conflicts to the Architect/Engineer's attention at least ten (10) days before the date set for bid opening. Prompt clarification will be supplied to all bidders of record by addendum.

Failure to so request clarification or interpretation of the drawings and specifications will not relieve the successful Bidder of responsibility. Signing of the subcontract with the General Prime Contractor will be considered as implicitly denoting that the MEP Subcontractor has thorough understanding of the scope of work and comprehension of the Bidding Documents.

Neither the Architect/Engineer nor the Owner will be responsible for verbal instructions.

5. MANDATORY PRE-BID DOA CERTIFICATION

All potential bidders must become certified as qualified and responsible bidders **before** they can bid on state projects

over $50,000. The criteria for determining certification of qualified and responsible bidders are itemized in Wis. Stat. s. 16.855(9m). If the Owner determines that more experience is necessary for a particular project, the Owner may include additional requirements.

6. BID GUARANTEE

A bid bond prepared on the Bid Bond Form bound herein, payable to the Owner in the amount not less than 10% of the maximum bid shall accompany each bid as a guarantee. A bank certified check or a cashier's check may accompany each bid as a guarantee pursuant to Wis. Stat. s. 779.14(1m)(c)2.b. and 779.14(1s). Failure to enter into the contract with the Owner (including failure to obtain certificate of insurance and separate 100% performance and 100% payment bonds) with the General Prime Contractor may result in forfeiture of the Bid Bond. The company issuing the Bonds must be licensed to do business in Wisconsin.

Any bid which is not accompanied by a bid guarantee will not be accepted and will not be read at the bid opening.

All checks tendered as bid guarantee, except those of the three lowest bidders, will be returned to their makers within three (3) days after bid opening. All such retained checks will be returned immediately upon execution of the contract between the General Prime Contractor and the MEP Subcontractor.

7. WITHDRAWAL OF BIDS

Prior to the time fixed for bid opening, bids may be withdrawn by written request from the Bidder, without prejudice to the right of the Bidder to file a new bid. Withdrawn bids will be returned unopened.

After the bid has been opened, negligence on the part of the Bidder in preparing their bid confers **no** right for withdrawal of the bid without penalty.

If a bid contains an error, omission, or mistake, the bidder may limit liability to the amount of their bid guarantee by giving the Owner written Notice, within seventy-two (72) hours of the MEP bid opening, of their intent not to execute the contract with the General Prime Contractor. If no such notice is given, the Owner reserves the right to obtain the amount of the difference in bid price between the low bidder and the next low bidder.

8. MEP BIDDER IDENTIFICATION

Within five (5) days of the MEP bid opening, the Owner will identify a lowest, qualified, responsible, certified MEP Subcontractor in each applicable MEP division of work (as long as the cost does not exceed the amount of project funds available).

> The lowest dollar amounts submitted by qualified, responsible, certified bidders on the SEPARATE BASE BIDS for various specified mechanical, electrical, plumbing, and fire protection divisions of the work; or
>
> The lowest dollar amount submitted by qualified, responsible, certified bidders on the COMBINED BASE BIDS for any combination of the Separate Base Bids for various specified mechanical, electrical, plumbing, and fire protection divisions of the work.

The Owner reserves the right to reject any and all bids, or to waive any informality in any bid, or to accept any bid which will serve the best interest of the Owner.

9. MEP SUBCONTRACT WITH GENERAL PRIME CONTRACTOR

The General Prime Contractor will offer the successful MEP Bidder (s) a subcontract. A contract entered into between a General Prime Contractor and a MEP Subcontractor must include a scope of work clause identical to the scope of work clause included in the MEP Subcontractor bid documents. A General Prime Contractor and an MEP Subcontractor may not enter any agreement in connection with bids submitted that would alter or affect the scope or price of the contracts entered into. This prohibition does not apply to the Owner change orders that result in changes to the plans or specifications, or to back charges allowed by the contract.

The General Prime Contractor must base the Project Schedule on the schedule that the MEP Subcontractors and General Prime Contractors bid on (in the specifications or bid instructions), unless otherwise agreed to by the MEP Subcontractor.

As the work progresses under any MEP subcontract for construction of a project, the General Prime Contractor shall, upon request of a subcontractor, pay to the subcontractor an amount equal to the proportionate value of the subcontractor's work properly completed, less retainage. The retainage shall be an amount equal to not more than 5 percent of the subcontractor's work completed until 50 percent of the subcontractor's work has been completed. At 50 percent completion, no additional amounts may be retained, and partial payments shall be made in full to the subcontractor unless the department certifies that the subcontractor's work is not proceeding satisfactorily. At 50 percent completion or any time thereafter when the progress of the subcontractor's work is not satisfactory, additional amounts may be retained but the total retainage may not be more than 10 percent of the value of the work completed. Upon substantial completion of the subcontractor's work, any amount retained shall be paid to the subcontractor, less the value of any required corrective work or uncompleted work. All payments the General Prime Contractor makes under this paragraph shall be within 7 calendar days after the date on which the General Prime Contractor receives payment from the Owner.

The contract entered into between the General Prime Contractor and an MEP Subcontractor must contain all of the following clauses:

Scope of Work. The MEP Subcontractor scope of work is identical to the General Prime Contractor scope of work included in these bidding and contract documents. By submitting and signing a bid, all bidders have examined all of the Bidding Documents listed in the Table of Contents of the project specifications. The successful bidders will be required to do all work which is shown on the drawings, mentioned in the specifications, or reasonably implied as necessary to complete the division of work bid for this project.

Prompt Payment. (General prime contractor) shall pay (mechanical, electrical, or plumbing subcontractor) in accordance with section 16.855(19)(b), Wisconsin stats, for work that has been satisfactorily completed and properly invoiced by (mechanical, electrical, or plumbing subcontractor). A payment is timely if it is mailed, delivered, or transferred to (mechanical, electrical, or plumbing subcontractor) by the deadline under section 16.855(19)(b), Wisconsin stats.

If (mechanical, electrical, or plumbing subcontractor) is not paid by the deadline in this contract, (general prime contractor) shall pay interest on the balance due from the eighth day after the (general prime contractor) receives payment from the Owner for the work for which payment is due and owing to (mechanical, electrical, or plumbing subcontractor), at the rate specified in section 71.82, Wisconsin stats., compounded monthly.

A (mechanical, electrical, or plumbing subcontractor) that receives payment as provided under this contract and that subcontracts with another entity shall pay those subcontractors, and be liable for interest on late payments to those subcontractors, in the same manner as the (general prime contractor) is required to pay the (mechanical, electrical, or plumbing subcontractor) under this contract.

Insurance and Bonds. (Mechanical, electrical, or plumbing subcontractor) shall not commence work under this contract until it has obtained all necessary insurance required of (mechanical, electrical, or plumbing subcontractor) in the contract between the (general prime contractor) and the Owner. (mechanical, electrical, or plumbing subcontractor) shall provide a separate 100 percent performance bond and a separate 100 percent payment bond to the benefit of the (general prime contractor) as the sole named obligee. Original bonds shall be given to the (general prime contractor) and a copy shall be given to the Ownerno later than 10 days after execution of this contract.

Indemnification. To the fullest extent permitted by law, (mechanical, electrical, or plumbing subcontractor) shall defend, indemnify, and hold harmless (general prime contractor) and its officers, directors, agents, and any others whom (general prime contractor) is required to indemnify under its contract with the department, and the employees of any of them, from and against claims, damages, fines, penalties, losses, and expenses, including but not limited to attorney fees, arising in any way out of or resulting from the performance of the work under this contract, but only to the extent such claim, damage, fine, penalty, loss, or expense: (1) is attributable to bodily injury, sickness, disease, or death, or to injury to or destruction of property, including but not limited to loss of use resulting therefrom and is caused by the negligence, or acts or omissions, of (mechanical, electrical, or plumbing subcontractor), its subcontractors, any of their employees, and anyone directly or indirectly employed by them or anyone for whose acts they may be liable, or (2) as related to such claims, damages, fines, penalties, losses, and expense of or against (general prime contractor), results from

or arises out of the negligence of the (general prime contractor) or other fault in providing general supervision or oversight of the work of (mechanical, electrical, or plumbing subcontractor) or (3) as related to claims, damages, fines, penalties, losses, and expense against the Owner, arises out of the department's status as owner of the project or project site.

In addition (mechanical, electrical, or plumbing subcontractor) shall defend, indemnify, and hold harmless (general prime contractor) and its officers, directors, agents, and any others (general prime contractor) is required to indemnify under its contract with the department, and the employees of any of them, from any liability, including liability resulting from a violation of any applicable safe place act, that (general prime contractor) or the owner incurs to any employee of (mechanical, electrical, or plumbing subcontractor) or any third party where the liability arises from a derivative claim from said employee, when the liability arises out of the failure of the (general prime contractor) or the owner to properly supervise, inspect, or approve the work or work area of (mechanical, electrical, or plumbing subcontractor), but only to the extent that the liability arises out of the acts or omissions of (mechanical, electrical, or plumbing subcontractor), its employees, or anyone for whom (mechanical, electrical, or plumbing subcontractor) may be liable, or from (mechanical, electrical, or plumbing subcontractor's) breach of its contractual responsibilities or arises out of (general prime contractor's) negligence or other fault in providing general supervision or oversight of (mechanical, electrical, or plumbing subcontractor's) work or arises out of the Owner's status as owner of the project or project site. In claims against (general prime contractor) or the owner by an employee of (mechanical, electrical, or plumbing subcontractor) or its subcontractors or anyone for whose acts (mechanical, electrical, or plumbing subcontractor) may be liable, the indemnification obligation of this paragraph is not limited by a limitation on amount or type of damage, compensation, or other benefits payable by or for the (mechanical, electrical, or plumbing subcontractor) subcontractors under workers compensation act.
Except as identified above, the obligations of (mechanical, electrical, or plumbing subcontractor) under this indemnification do not extend to the liability of (general prime contractor) and its agents or employees arising out of (1) preparation or approval of maps, drawings, opinions, reports, surveys, change orders, designs, or specifications; (2) the giving of or failure to give directions or instructions by the (general prime contractor) or the Board of Regents of the University of Wisconsin System or their agents or employees provided the giving or failure to give is the cause of the injury or damage; or (3) the acts or omissions of other subcontractors.

Retainage. Retainage shall occur and be in amounts and on a schedule equal to that in the contract between (general prime contractor) and the Owner.

10. CONTRACT INTERESTS BY STATE PUBLIC OFFICIALS

In accordance with section 19.45(6) of the Wisconsin Statutes, no state public official, member of a state public official's immediate family, nor any organization with which the state public official or a member of the official's immediate family owns or controls at least 10% of the outstanding equity, voting rights, or outstanding indebtedness may enter into any contract or lease involving a payment or payments of more than $3,000 within a twelve (12) month period, in whole or in part derived from state funds unless the state public official has first made written disclosure of the nature and extent of such relationship or interest to the board and to the department acting for the state in regard to such contract or lease. Any contract or lease entered into in violation of this subsection may be voided by the owner in an action commenced within three (3) years of the date on which the ethics board, or the department or officer acting for the state in regard to the allocation of state funds from which such payment is derived, knew or should have known that a violation of this subsection had occurred. This subsection does not affect the application of s.946.13.

11. DISCLOSURE OF OWNERSHIP

The Bidder shall disclose on the date of submitting a bid for this project, the name of any construction business of which the Bidder has had a 25% or greater interest as a shareholder, officer, partner, or owner at any time during the preceding three (3) years, if said construction business has been found by the Department of Workforce Development to have failed to pay the prevailing wage rate or at least 1.5 times the hourly basic rate of pay for hours worked in excess of the prevailing hours of labor to any employee at any time within the preceding three (3) years.

The "Disclosure of Ownership" form may be obtained at no charge from the Department of Workforce Development, Equal Rights Division, P.O. Box 8928, Madison, Wisconsin 53708.

12. MINORITY BUSINESS ENTERPRISE AND DISABLED VETERAN-OWNED BUSINESS INVOLVEMENT

"Minority Business Enterprise" (MBE) means: a business certified by the Wisconsin Supplier Diversity Program under Wis. Stat. s. 16.287(2).

"Disabled Veteran−Owned Business" (DVB) means: a business certified by the Wisconsin Supplier Diversity Program under Wis. Stat. s. 16.283(3).

General Prime Contractors are strongly encouraged to use MBEs and DVBs.

General Prime Contractor Bidders shall submit a "Form A Affidavit of Compliance – Minority Business Enterprise and Disabled Veteran-Owned Business Provision" within seven days of the general prime contractor contract offer. This form should indicate the percentage of MBE/DVB participation commitment. All MEP Subcontractor Bidders shall also make every effort to encourage MBE and DVB involvement.

For assistance in identifying DOA certified MBE and DVB companies, please contact the Department of Administration Supplier Diversity Program at: DOABDMBD@wisconsin.gov, or by telephone at: (608)267-9550, or visit their website at: http://www.doa.wi.gov/Divisions/Enterprise-Operations/Supplier-Diversity-Program.

13. SUBSTANCE ABUSE PREVENTION

Mission/Purpose: The Board of Regents of the University of Wisconsin System recognizes and supports drug-free workplace programs as an important element in the national strategy to reduce the devastating effects of drug and alcohol abuse in our society. The the Owner requires contractors, subcontractors, suppliers and vendors to establish and enforce drug-free workplace policies and programs that conform to Sec 103.503 of the Wisconsin Statutes.

Statement: The possession, use of, distribution or purchase of illegal drugs, or use of alcohol at work by any employee on the Owner's construction job sites, is strictly prohibited.

The terms of this Substance Abuse Program Statement shall cover all construction personnel who are working on the Owner's job sites. This includes employees of all Contractors, Subcontractors, contractor suppliers, and their employees working at the job site.

General Prime Contractor's and Subcontractor's Written Program: Each General Prime Contractor and Subcontractor shall have in place a written Substance Abuse Program conforming to Sec 103.503(3) of the Wisconsin Statutes.

In addition, representatives of the Owner who believe that any General Prime Contractor's or Subcontractor's employee may be under the influence of alcohol or drugs shall, where deemed appropriate, contact the General Prime Contractor's or Subcontractor's appropriate management/supervision authority and request that appropriate action be taken. The General Prime Contractor's or Subcontractor's employer shall immediately remove an employee who is suspected of being under the influence of illegal drugs or alcohol shall be immediately removed from the job site.

Procedures for testing and handling of positive drug tests shall be in compliance and consistent with State and Federal laws.

Costs of Substance Abuse Programs and Testing: The cost associated with the development, implementation and enforcement of Substance Abuse Programs and any testing required shall be the responsibility of each individual General Prime Contractor and Subcontractor for their respective employees working on the job site. the Owner will not be responsible for any cost of substance abuse testing, rehabilitation or medical reviews related to substance abuse.

The General Prime Contractor and Subcontractors shall indemnify and hold the Owner harmless from any damages or other costs incurred that are related to the implementation or enforcement of any substance abuse policy or program.

14. SECURITY FOR SEPARATE 100% PERFORMANCE AND SEPARATE 100% PAYMENT

MEP Subcontractors will be required to deliver to the General Prime Contractor separate 100 % performance and 100 % payment bonds to the benefit of the General Prime Contractor as the sole obligee. Original bonds shall be given to the General Prime Contractor and a copy shall be given to the Owner no later than 10 days after the execution of the

subcontract. Separate 100% performance and separate 100 % payment bond forms are included in Appendix 1 of these instructions.

15. TAXES

The Bidder shall include in the bid, all Sales, Consumer, Use and other similar taxes required by law.

In accordance with section 71.80(16)(a), Wis. Stats., SURETY BOND; NONRESIDENT CONTRACTOR. "All nonresident persons, whether incorporated or not, engaging in construction contracting in this state as contractor or subcontractor and not otherwise regularly engaged in business in this state, shall file a surety bond with the department (Wisconsin Department of Revenue MS 5-77 Attn: Non-Resident Surety Bonds, 2135 Rimrock Rd., Madison, WI 53713, telephone (608)266-2776.) payable to the department of revenue, to guarantee the payment of income taxes, required unemployment compensation contributions, sales and use taxes and income taxes withheld from wages of employees, together with any penalties and interest thereon. The amount of the bond shall be 3% of the contract or subcontract price on all contracts of $50,000 or more..."

As the Board of Regents is an exempt entity, building materials purchased for this project are exempt. The University of Wisconsin System CES number: 040706. The Certificate of Exempt Status (CES) will be provided to the awarded Contractor upon request.

16. SUBMISSION OF BIDS

All bids shall be submitted on the standard Bid Forms and only bids that are made on the Bid Forms will be considered. The entire Bid Form including the Addendum Receipt/Signature page, the Bid Bond Form (if used), and other supporting documents (if any) shall be filled out and submitted in the manner specified hereinafter. SPECIFICATIONS SHALL NOT ACCOMPANY BID.

No bids for any subdivision or any subclassification of this work, except as indicated, will be accepted. Any conditional bid, amendment to the Bid Form or appendant thereto, the inclusion of any correspondence, written or printed matter, unsolicited material or data, or details of any nature other than the information specifically called for, will disqualify the Bid. Telecommunication alterations to the bid will not be accepted.

Space(s) are provided on the Bid Form for each Division of Work. Appropriate insertions are as follows: numerals indicating the cost of the work, $0 if there is no cost for the work, or the words 'No Bid' if the bidder is not intending to bid the work. Blank space(s) will be considered the same as 'No Bid'.

Bidders may submit separate base bids for any divisions of work they are certified to bid on (Fire Suppression, Plumbing, Heating, Ventilating and Air Conditioning, and Electrical).

Bidders may submit combined base bids for any combination of base bid categories if they are certified in each division of work included in their combined base bid.

Any addendum issued during the time of bidding shall become a part of the Bidding Documents. Bidders shall acknowledge receipt of such addendum in the appropriate space provided on the Bid Form. Bid will be rejected if receipt of an addendum applicable to the award of contract has not been acknowledged on the Bid Form.

The Owner is not responsible for bids not clearly labeled as required. Bids shall be signed, sealed, and delivered to the place indicated in the Invitation to Bid before the time designated in the Invitation to Bid. All bids shall be identified with the Project Name, Project Number, Project Location, Category of Work being bid on, Bid Date, and the Name and Address of Bidder.

Bidder shall be responsible for the sealed bid being delivered to the place designated for bid opening before the time specified. Bids received after the time indicated in the Invitation to Bid will be rejected and returned to Bidder unopened.

Bid will be considered invalid and will be rejected if it has not been signed by the Bidder.

Bids will be rejected if the bidder is not certified by DOA in the division(s) of work they bid on and/or if their bid amount exceeds their certification threshold in that division of work.

17. BASE BIDS

Fire Protection (Fire Suppression), Plumbing, Mechanical (Heating, Ventilating and Air Conditioning), and Electrical Base Bids shall be received utilizing one or all methods of bidding as follows:

SEPARATE BASE BIDS FOR THE VARIOUS DIVISIONS OF THE WORK.

Base Bid No. 2 Fire Suppression Work as per specification Division 21, applicable provisions of Division 1 and related drawings.

Base Bid No. 3 Plumbing Work as per specification Division 22, applicable provisions of Division 1 and related drawings.

Base Bid No. 4 Heating, Ventilating and Air Conditioning Work as per specification Division 23, applicable provisions of Division 1 and related drawings.

Base Bid No. 5 Electrical Work as per specification Division 26, 27, 28 applicable provisions of Division 1 and related drawings.

COMBINED BASE BIDS FOR ANY COMBINATION OF SEPARATE BASE BIDS FOR VARIOUS DIVISIONS OF THE WORK.

Base Bid No.____for_____, Base Bid No.____for_____ and Base Bid No.____for_____as per specifications, applicable provisions of Division 1 and related drawings.

18. INFORMATIONAL BIDS

None.

19. UNIT PRICES

Unit prices requested on the Bid Form shall be given and, if included in the General Prime Contract, will be used for additions to or deductions from amount of work required under the Contract. Unit prices shall include all costs of materials, labor, insurance, taxes, overhead and profit.

The Owner reserves the right to reject any unit prices as given in the bid if they are considered excessive or unreasonable, or to accept any or all of the unit prices that may be considered fair and reasonable. If any unit price is rejected, the work governed by such unit price, if required, shall be treated as specified in General Conditions.

The Bidder shall refer to the Bid Form and the applicable technical section to determine the basis of unit measure and the detailed information related to each unit price item requested.

20. STATED ALLOWANCES

None.

21. COMMENCEMENT AND COMPLETION

The successful mechanical, electrical, plumbing, or fire protection Bidder must agree to commence the work on or before a date to be specified in a written "Notice to Proceed" issued by the General Prime Contractor and to fully complete all the work within **(224)** consecutive calendar days thereafter. Completion time will be converted to a specific date at the time the "Notice to Proceed" is issued. The construction duration and below milestone dates are based on the current bidding schedule, and subject to modification if bidding does not proceed as planned. Refer also to General Conditions for additional information in regards to time for completion.

The General Prime Contractor must base the Project Schedule on the schedule that the MEP Subcontractors and General Prime Contractors bid on (in the specifications or bid instructions), unless otherwise agreed to by the MEP Subcontractor. These milestones will be incorporated into the master project schedule after the Notice to

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SECTION 07 53 23
ETHYLENE-PROPYLENE-DIENE-MONOMER ROOFING
BASED ON DFD MASTER SPECIFICATION DATED (02/06/17)

PART 1 - GENERAL

SCOPE

The work under this section includes all labor, material, equipment and related services necessary to install fully-adhered black EPDM membrane associated system components including metal flashing, all roof related construction and insulation.

RELATED WORK

Applicable provisions of Division 01 shall govern work under this Section. The Contractor shall consult these provisions in detail prior to proceeding with work.

07 63 00 –Sheet Metal Roofing Specialties

In the event that the Contractor wishes to make improvements in materials and/or techniques, or is required to make improvements by the membrane supplier in order to obtain guarantees/warranties, he shall make written request stating in full the nature of the proposed changes and stating that the changes, if approved, will be accomplished at no additional cost to contract.

REFERENCE STANDARDS

ANSI/SPRI – American National Standards Institute/Single Ply Roofing Institute.

ASTM B209 - Aluminum and Aluminum-Alloy Sheet and Plate

ASTM C1289-13e1 – Faced Rigid Cellular Polyisocyanurate Thermal Insulation Board.

ASTM D4637 - Vulcanized Rubber Sheet used in Single Ply Roof Membrane.

NRCA - Roofing and Waterproofing Manual.

UL - Fire Hazard Classifications.

GUARANTEE AND WARRANTIES

State of Wisconsin Roof System Guarantee: Provide written **One (1) year** guarantee warranting all roofing and flashing required under contract, to be watertight and free from defects in materials or workmanship for period of time, as stipulated in guarantee form.

Contractor shall perform a minimum of one(1) roof system inspection during the term of this guarantee. Submit written inspection report, e-mailed to Owner (UW-Madison Project Representative) and Agency Contact immediately after inspection is performed and prior to guarantee expiration.

It is recommended that the Contractor take digital photos of the finished work for their files and future reference.

A copy of the required State of Wisconsin Roof System 1-yr Guarantee form shall be bound herein located at the end of this Section and may be acquired at the following State website; doa.wi.gov/DFD

Contractor and all sub-contractors shall review the guarantee and requirements of this Section prior to providing a quote for the Work required by this Section.

The Contractors Performance-Payment Bond is only required to apply to this trade section during the construction period and the first year of the guarantee period. Said Bond shall not apply to any extended guarantee period beyond the first year. Such extended guarantees are limited to the applicable Contractor and manufacturer as herein specified.

Elastic Sheet Membrane Supplier Warranty: Provide the membrane suppliers NDL ("No-Dollar-Limit")/"Total System" warranty covering defects in workmanship, membrane and all associated roof system components supplied by the membrane supplier for a period of **twenty (20) years** from the date of installation

Roofing Contractor shall send application request for warranty(s) required herein to membrane supplier prior to start of Work.

The following information shall be included on all guarantee and warranty documents:
State of Wisconsin (Owner), Agency, city or township, street address where work was performed, building name, MSN and UWSA Project number, Owner (DOA) building number, all roof areas involved and total sq. ft. area of all roof areas.

Membrane supplier material and installation requirements may vary concerning issuance of the NDL ("No-Dollar-Limit")/"Total System" warranty.

Include and provide all product(s), labor and installation methods necessary and as specified herein, including membrane supplier requirements not found specified herein, as required by the approved membrane supplier to obtain the specified warranty requested herein.

New membrane, insulation, shop fabricated and/or manufacturer fabricated metal flashing, pre-molded and/or factory supplied associated roof system products, their fasteners and/or all products used for adhesive and/or adherence purposes and sealants shall be covered by the membrane supplier NDL ("No-Dollar-Limit")/"Total System" warranty specified herein and the State Guarantee.
Existing re-installed metal flashing and new wood blocking securement shall be covered in the State guarantee but not the membrane supplier NDL ("No-Dollar-Limit")/"Total System" warranty specified herein.

Shop fabricated metal flashing materials as specified in section 07 63 00 and herein or as required for a complete watertight system may be provided in lieu of manufacturer fabricated metal flashing and shall be covered in the membrane supplier total system warranty specified.

EXISTING ROOFING GUARANTEE AND WARRANTIES

The existing membrane roofing is not currently covered a roof system guarantee.

ALL NEW PENETRATIONS, MODIFICATIONS, AND REROOFED AREAS OF THE EXISTING ROOF ARE REQUIRED TO BE PERFORMED BY A ROOFING CONTRACTOR QUALIFIED TO INSTALL EPDM ROOFING AND MUST BE WARRANTED WATERTIGHT WHEN MODIFICATIONS ARE COMPLETE WITH A MANUFACTURER'S WARRANTY.

QUALITY ASSURANCE

Refer to "Submittals - Technical and Other Documents" for number of submittal required.

A pre-construction meeting will be held at the site prior to the start of the work. See submittals required. All required submittals shall be delivered to the UW-Madison Project Representative at the meeting for review, in the amount specified.

Prior to the start of construction, it is required that the Contractor's foreman shall be in attendance at preconstruction/pre-installation meeting(s).

Roofing Contractor shall be recognized by the membrane supplier as an "approved" and "authorized" Contractor applicator of the roof membrane system and all associated products and components as specified herein.

Contractor shall have been in business for a minimum of three (3) years and within the past three (3) years the Contractor shall be able to document the successful completion of a minimum of three (3) projects of similar size and/or scope of the Work as specified in this Section. Backup documentation/verification may be requested by the Owner.

Roofing Contractor shall notify the membrane supplier in writing of their intent to obtain all system material and send application for the warranty for work required herein. Letterhead documentation shall be sent to the membrane supplier and include a current date, indicate the MSN and UWSA Project Number, bid document technical Section(s), indicate in full the composition of roof system to be install per bid documents and be signed by the Roofing Contractor Representative.

Membrane supplier shall provide Roofing Contractor with a current date written documentation reply stating the receipt of Contractor request including warranty application and statement that the Roofing Contractor is an "approved and authorized Contractor applicator" in good standing, for the work specified herein. A copy of this letterhead documentation shall be submitted to Owner at the preconstruction meeting. Such document shall include a current date, acknowledgement the MSN and UWSA Project Number, bid document technical Section(s), include the roofing Contractor business name, certification status, year of issue and duration of such status.

SITE VISIT: Roofing Contractor shall notify membrane supplier of start date and arrange for membrane supplier to meet with the on-site foreman on the 1st or 2nd day after start of the Work. Notify the Agency Contact concerning the membrane suppliers visit so the Agency Contact may be present. A minimum of 1 visit is required.

Changes or variations to the roof system composition as required herein shall be approved by UW-Madison, in writing. Changes provided by the Contractor without UW-Madison written approved shall be cause for rejection of the Work in its entirety.

Roofing Contractor on-site Foreman shall be approved by the membrane supplier and shall remain on-site throughout the duration of the project.

Contractor workers employed on this project shall be recognized by the supplier of the roof membrane system as “approved” or “authorized” applicator(s) and within the past two (2) years, the worker shall be able to document the successful completion of a minimum of three (3) projects of similar size and/or scope of the Work as specified in this Section.

All roofers by trade, and employed on this project shall have a certificate of successful completion of training for the system to be installed. Undocumented roofers shall not be allowed to perform the work required herein pertaining to the physical placement/installation of any and all of the roof system components specified herein.

Membrane supplier certificate of successful completion of training for each roofer employed on this project shall be submitted to UW-Madison. Document shall be up to date, indicate worker name, certification status, year of issue and duration of such status.

Contractor shall provide a list of all workers to be employed on this project. The list shall indicate each of the workers by name and their construction trade including the Project foreman and Contractor main office contact person.

List shall include after-hour/weekend emergency phone contact personal and their office and cell phone numbers, for use in case of emergency situations.

Labors, sheet metal workers or other non-roofer employees shall not be allowed to perform the actual installation of any part of the membrane suppliers warranted roof system required by this Section without manufacturer documentation of proper training, as required herein.

Contractor shall obtain and provide UW-Madison with the membrane suppliers most current dated three (3) ring or spiral bound installation and detail manual.

Contractor shall perform work required using details provided within the specifications, on the drawings or as required by the membrane supplier for a proper watertight installation and to allow issuance of warranties required herein.

All system components not specifically identified herein but required by the membrane supplier for the roof system installed by the Work required in the Project Manual shall be provided and included in the membrane supplier watertight warranty as required herein. System components required by the Work in the Project Manual but otherwise not warranted by the membrane supplier shall be upgraded to be membrane supplier specific products at the time of bid such that they are covered by the warranty required herein.

Provide all equipment recommended by the membrane supplier for proper installation of the materials specified.

Roofing installations shall comply with fire resistive rating as defined in the Wisconsin Administrative Code. Required rating on these roofs: U.L. Class A.
It is the responsibility of the General Prime Contractor to obtain the services of competent licensed sub-contractor’s to perform the Work associated with these bid documents.

Electrician Contractor: For removal and reinstallation of roof curb-mounted exhaust fans and associated covers, ventilators, electrical equipment associated wiring connections at the unit(s) as required to perform the Work.

Agency is responsible for disconnect where wiring must be pulled or cut and conduits relocated to allow installation of the new roof system.

Plumber Contractor: To re-lead drain pipe, repair and/or reset the roof drain bowls to interior piping as required to perform the Work required on this project.

Mechanical Contractor: For removal of belt, chain driven and/or electrical exhaust fans and associated flex connection and duct runs/piping and its associated roof curb penetration.

The Contractor shall raise all existing mechanical and electrical trades' roof system penetrations to a minimum height above the roof system of 8".

Contractor shall notify the Agency Contact 24 hours in advance of all Electrical, Plumbing and Mechanical disconnections.

It is the responsibility of the Agency to perform inspection of the roof areas to be replaced by this project and to provide the following services:

Agency is responsible for the following: Existing Electrical, Plumbing and Mechanical installations and associated equipment pipe and duct runs shall be identified/verified by the State Agency as in use or be spray painted in ORANGE by the Agency if they are abandoned or shall be abandoned and shall be removed by this roofing Contractor, and verify that the electrical run is terminated, prior to start of work by Contractor. Electrical conduct runs lying directly on the existing roof membrane, or fastened to perimeter wall or metal flashing or coping shall be relocated by the Agency prior to start of work.

PRODUCT DELIVERY, STORAGE AND HANDLING

Make no deliveries to the project site until ready to install or approved storage is provided. UW-Madison will not accept delivery nor will UW-Madison be responsible for any materials or equipment stored on the premises.

Deliver materials in original unopened containers of packaging clearly labeled with manufacturer's name, brand name, instructions for use, all identifying numbers and U.L. labels.

Deliver materials in sufficient quantity to allow continuity of work.

Materials used on the job must be stored in such a manner as not to create a nuisance or hazard.

Store materials on clean, raised platforms, with breathable, weather protective covering when stored outdoors. Provide continuous protection from materials against weathering and moisture absorption.

Factory applied "shrink-wrapping" is not considered to be an acceptable weather protective covering. Improper storage practices will be grounds for rejection of questionable materials.

Store flammable products away from spark or open flame.

Store primers, coatings, sealants and similar materials between 60 degrees and 80 degrees Fahrenheit.

Contaminated and Damaged Materials: Remove damaged or contaminated materials from site.

DO NOT store materials in a manner which will overload any portion of the building.
Handle all materials in a manner which will not damage the material. All damaged materials shall be removed from project site.

Select and operate material handling equipment and store materials as not to damage existing construction or applied roofing, and without overloading the building structural system.

SUBMITTALS - TECHNICAL AND OTHER DOCUMENTS

At the preconstruction meeting and prior to start of work, submit the following for approval by UW-Madison.

Prior to the start of any work, all of the following submittals as required herein, shall be brought to the pre-construction meeting in the amount specified, for review and approval by UW-Madison Project Representative.

The following information shall be included on all submitted documents:

Agency/Location/Address where work is performed obtained from the Agency Contact listed to include Building Name, Bldg. State Number, Roof Areas, MSN and UWSA Project Numbers and total sq. ft. of all roof areas.

MEMBRANE SUPPLIER WARRANTY ACKNOWLEDGEMENT

Upon receiving the Contract Offer from the Owner, Contractor shall immediately notify the membrane supplier of intent to purchase the product and to obtain the warranty as specified by this Section.

Submit: Three (3) copies of the Contractors dated notification letter sent to the membrane supplier.

Submit: Three (3) copies, on membrane supplier letterhead, stating acknowledgement of such notice and agreement to provide the warranty required by this Section. The letterhead acknowledgement shall include the date such letter was issued, Owner Project title, Project number, Section number(s), membrane supplier representative signature and be addressed to the Roofing Contractor.

CONTRACTOR AND WORKER QUALIFICATION

Submit: Three (3) copies of the membrane suppliers current written documentation stating the Contractor is an ”approved Contractor applicator” in good standing, for the work specified herein shall to be submitted to UW-Madison at the preconstruction meeting. Document shall be up to date, indicate Contractor name, certification status, year of issue and duration of such status.

Submit: Three (3) copies of the membrane supplier’s certificate of successful completion (If available from membrane supplier) of training for each roofer employed on this project shall be submitted to UW-Madison at the preconstruction meeting. Document shall be up to date, indicate worker name, certification status, year of issue and duration of such status.

Submit: Three (3) copies of a list of all workers to be employed on this project. The list shall indicate each workers name and trade. Project supervisor and main contact person shall be identified. (See Quality Assurance herein)
be reviewed such that they do not impede water flow. Saddles and crickets may be required to transfer water around such obstructions. (See Quality Assurance herein)

MEMBRANE SUPPLIER INSTALLATION INSTRUCTIONS

Submit: One (1) copy of the membrane suppliers most current version, complete edition paper-copy installation and detail 3-ring or spiral bound manual. Partial submittals taken from within the bound manual are not acceptable.

Submit: Web-site information to allow access to membrane supplier’s most current installation and detail manual.

EMERGENCY AND OFFICE CONTACT PHONE LIST

Submit: Three (3) copies of the Contractor’s office superintendent and job foreman daytime, after hours and weekend office and cell phone numbers to be given to the Agency Contact at the pre-installation meeting.

MATERIAL LIST

Submit: Three (3) copies of a list of all materials intended for use on the project, to include roofer and all other sub-contractor composite system materials, starting at the roof deck and identified by manufacturer's name, size, thickness, type or grade. List shall be submitted on Roofing Contractor's letterhead stationery. Submit product data sheets as required.

Contractor shall state the following at the bottom of the material list submittal:

"New products installed on this project do not contain asbestos".

RECYCLED MATERIALS:

Submit: Three (3) copies of a materials recycle plan to Owner for review. Include recycle business name, address, contact, and phone number where all recycled roofing material removed by this project will be delivered.

SAFETY REPORT

Submit: One (1) copy of a written report to be given to the Agency Representative at the preconstruction meeting, describing in detail the Contractors implementation of specific OSHA regulations, Contractor's worker safety program methods/means, roof perimeter safety and identification of the "watch person" required at all roof levels. Identify fire extinguisher and their locations, all equipment/operators on roof/ground in setup/storage area and travel routes used while performing the work.

Roofer shall verify that the submitted and approved tapered insulation drawing layout starts at the established drain bowl.

Tapered insulation installed contrary to the low point of the drain, over flow or scupper locations shall be cause for rejection of the work and therefore shall be removed, at no cost to the project, and re-installed to start at the drain bowl.

MSDS DATA:

Submit: One (1) copy of all MSDS paperwork for each products used on this project to be given to the Agency Representative at the preconstruction meeting.

CONTRACTOR ON-SITE APPROVED DOCUMENTS

Contractor shall maintain at least one (1) copy each of the construction set specification and drawings, addenda, value enhancement, "Request for Information" (RFI), "Construction Bulletin" (CB) and "Change Order" (CO) documents and all other approved signed submittals on site throughout construction.

Contractor shall maintain at least one (1) copy of the latest version of the membrane suppliers handbook including details and technical information concerning application techniques for all primary roofing system materials required by the work.

Contractor shall maintain at least one (1) copy of the Material Safety Data Sheets (MSDS) manual for all materials including those used on this project.

SUBMITTALS – FINAL DOCUMENTS REQUIRED UPON COMPLETION OF THE WORK:
Prior to final payment, submit the following to UW-Madison as one (1) package including a cover page listing all documents sent:
The following information shall be included on all guarantees, warranty and other submittal documents:

Agency, city or township, street address where work was performed, building name, MSN and UWSA Project numbers, Owner (DOA) building #, all roof areas involved and total sq. ft. of all roof areas.

DIGITAL PHOTOS:
Submit: One (1) copy of a CD with all photos taken.

Provide digital camera photos throughout the project as required by these specifications and/or requested by Owner. Contractor shall take multiple digital camera photos of the following to be submitted electronically, via e-mail to Owner. **Cell phone photos are not acceptable.**

Contractor shall take and submit digital camera photos' of the various difficult watertight locations and mechanical fastening that will be hidden from view or otherwise concealed beneath the completed work. Multiple photos shall be taken of the entire installation starting at the roof deck and continuing throughout the roof system installation as it progresses in layers, as required per specification

Contractor shall take and submit digital camera photos of all changes to the scope of work to include existing conditions as the work takes place in its various stages of demolition and of the new Work as it takes place throughout its various stages.

Provide digital camera photos of the completed work. Photos shall include the various metal flashing details, transitions and penetration height changes and in general an over-all view of the field of all roof areas. Photos shall be identified by the roof area where photos are taken.

STATE OF WISCONSIN ROOF GUARANTEE:
Submit one (1) original guarantee as required herein. (Refer to GUARANTEE article in Part 1 of this Section).

MEMBRANE SUPPLIER ROOF WARRANTY
Submit: One (1) of the original membrane suppliers warranty of all membrane warranties required herein. (Refer to GUARANTEE article in Part 1 of this Section).

MISCELLANEOUS METAL WARRANTY:
Submit: One (1) original of manufacturer warranty as required by Specification Section.

SETTLEMENT CERTIFICATE:
Submit: One (1) copy of each document.

The following information shall be included on all submittal documents.

Agency/Location/Address where work is performed to include the Building Name, Bldg. State Number, Roof Areas, MSN and UWSA Project Numbers and total sq. ft. of all roof areas.

PART 2 - PRODUCTS

MEMBRANE SUPPLIERS AND MATERIALS
All products used in this installation shall be compatible with one another and the membrane intended for use.

Owner has pre-approved specific membrane manufacturers and membrane suppliers whose membrane is labeled specifically for them.

Approved Membrane Manufactures and Membrane Suppliers:

Carlisle SynTec Systems; Manufacturer.
Firestone Building Products; Manufacturer.
GenFlex LLC: Supplier - Membrane manufactured by Firestone Building Products.
Johns Manville; Manufacturer.
Mule-Hide Products Co. Inc.; Supplier - Membrane manufactured by Carlisle SynTec Systems.
Versico Roofing Systems; Supplier - Membrane manufactured by Carlisle SynTec Systems.

Manufacturer shall have had membrane in production and use on roof systems for a minimum of ten (10) years.

Unapproved manufacturer and/or supplier products installed on the Project shall be cause for rejection of the roof system in its entirety and shall be completely replaced at no cost to the Project.

All associated products required by the manufacturer and membrane supplier for proper, complete and warranty specified installation of the specified membrane shall be approved and provided by the approved membrane manufacturer.

Use new materials only; salvaged or used materials are unacceptable and shall be removed from the site and be recycled.

Membrane: ASTM D4637, Type I; Non-reinforced black 60-mil EPDM (Ethylene Propylene Diene Monomer) elastomer.

Uncured Flashing: Uncured black 60-mil EPDM elastomer as recommended by the membrane manufacturer or membrane supplier.

Cured Flashing: ASTM D4637, Type I; Non-reinforced black 60-mil EPDM elastomer as recommended by the membrane manufacturer or membrane supplier.

Bonding Adhesives, Cements, Tapes, Sealants and Accessories: Foam and solvent based adhesives and related prepping and cleaning agents required for the installation of a fully-adhere system membrane, seams, membrane flashing, membrane to insulation, insulation to insulation and deck shall be approved and supplied by the approved membrane provider.

Water-base adhesives: These products are not an acceptable for use in cold climate.

Asphalt: is NOT an acceptable insulation adhesive.

Perimeter Securement Strip: ASTM D4637, Type II; reinforced, 60 mil EPDM elastomer as recommended by the membrane manufacturer or membrane supplier.

Sealant: ASTM C920, Type S, Grade NS, Class 25, Use NT, M, G, A or O; FS TT-S-00230C, Type II, Class A; one-part polyurethane base, elastomeric joint sealing compound such as Sika Chemicals "Sikaflex 1a", Sonneborn-Contech "Sonolastic NP1" or Tremco "Vulkem 116" or “Dymonic".

INSULATION

Tapered Insulation: ASTM C1289 – 13e1, Type II, Class 1, Grade 2; rigid board Polyisocyanurate insulation with felt or fibrous mat facing on both sides, factory tapered to per foot slope.

Polyisocyanurate: ASTM C1289– 13e1, Type II, Class 1, Grade 2; rigid board insulation with felt or fibrous mat facing on both sides. For mechanically attached boards, maximum size = 48" x 96"; for adhered boards, maximum size = 48” x 48”.

As of January 01, 2014 Polyisocyanurate board/tapered stock R-values are changed to meet advances in testing methodology to meet the new ASTM C1289-13e1 testing methods. Example; 1” is now rated to equal R5.6. It will now require flat stock Polyisocyanurate equaling 4.5” or a calculated tapered Polyisocyanurate insulation system to achieve a minimum average of R25.2 .

“Cricket” and “saddle” tapered board shall be factory supplied and tapered as required and/or specified to properly direction water flow to the nearest drain or scupper.

On-site fabricated “cricket” or “saddle” tapered insulation installations are not acceptable and shall be cause for rejection of the Work.

VAPOR RETARDER

None required.

MISCELLANEOUS

Plumbing Vent Flashing: Pre-molded boot with stainless steel draw-band clamp shall be approved and supplied by the membrane supplier.

Termination Bar: ASTM B209, Series 3000, Temper H-14; minimum 0.10" thick, 1.25" wide aluminum with reverse bend for sealant application along top edge shall be approved and supplied by the membrane provider.

Fasteners shall be approved and supplied by the membrane provider.

For Fastening Perimeter Securement Strip: Polymer coated screw and plate as recommended and supplied by the membrane supplier.

For Fastening Membrane to Wood: 1-1/4" galvanized roofing nails through 1" metal discs.

For Fastening Termination Bar to Concrete or Masonry: Zinc alloy expansion shield with hardened steel pin.

Pourable Sealer: 2-part polyurethane or other sealer intended for use by the membrane provider to seal provider approved penetrations accessories components. Sealer and penetrations accessories components shall be included in the membrane supplier warranty. Specified products noted on bid documents shall be upgrade to be provider’s products and shall be included in required warranty.

Other products, not specifically described, but required for a complete and proper warranted system installation as required by this section shall be selected by the Contractor to be included in the Work, identified on a materials list and subject to the approval of the Owner.

PART 3 - EXECUTION

EXAMINATION

Examine the areas and conditions under which work in this section will be installed. Notify the Owner of any conditions detrimental to the proper and timely completion of the work. Do not proceed until unsatisfactory conditions have been corrected.

SITE CONDITIONS

Apply roofing in dry weather. All roofing materials installed during rain shall be removed and replaced with dry materials at the Contractor's expense.

DO NOT apply roofing unless authorized by the Owner when the working hour's ambient temperature is below 32 degrees Fahrenheit. Under no circumstances will any seaming, flashing or adhesive activities be allowed when the ambient temperature is below 20 degrees Fahrenheit, or the wind chill factor is below 0 degrees Fahrenheit.

Existing materials designated to remain, which are damaged or defaced as a result of the work shall be replaced at Contractor's expense to like new condition.

Install all rooftop mounted equipment in a watertight manner and repair any damage to sheet metal or other components related to connection and protection of the roof system.

Prevent materials from entering and clogging roof drains and conductors. Remove roof drain plugs when no work is taking place or when rain is forecast.

Protection of surfaces: Take every precaution to prevent water leakage, or debris falling into the building interior, or other such occurrences. Contractor is responsible for any and all damage to the building interior or its contents that occur as a direct cause of the Work and due to the Contractors methods and mean practice to accomplish the Work required herein.

Provide special protection or avoid heavy traffic on completed work. Temporary protection shall be erected/installed at all interior and exterior locations as required to prevent damage and/or marring of the existing surface. Walkways and work platforms shall be provided as necessary.

Wall surfaces shall be protected with tarpaulins or other suitable cover to prevent damage, staining or discoloration that might result from operations such as removal, disposal, replacement or removing of equipment or materials to the roof surface. Windows, doorways, docks, walkways, etc. may require special protection measures.

Disposal of materials: All materials to be disposed of shall be loaded directly into trucks by means that will prevent damage to existing or new surfaces and to control pollution. Free-fall of debris from heights over 15' will not be allowed.

Contractor is responsible for any charges, such as landfill fees, incurred for disposal of materials.

Proceeding with the work shall signify the Contractor's acceptance of the substrate being covered by this Work.

Approved tapered insulation drawing layouts shall be reviewed by the Contractor installing the work in this section prior to start of such work, and before ordering the materials, to assure that the tapered insulation layout will correspond with the exact location of new and/or existing roof drains and primary through-wall and/or roof edge drain scupper locations.

Tapered insulation systems that are not installed such that they drain directly and positively to the roof drain shall be removed and installed correctly by the roofing Contractor at no additional cost to the project.

SUBSTRATE PREPARATION

Plan work and take whatever action is necessary to prevent dirt and debris from entering the building during the Work required by this Section.

All vertical surfaces to receive new flashing materials shall be thoroughly cleaned of existing adhesives, sealants, bituminous materials, etc.

Verify that wood blocking, curbs and nailers are securely anchored and that roof openings and penetrations are in place and set and braced. Verify that roof drains are properly clamped into position.

Pressure Treated Plywood and Lumber: These products shall not be specified or provided for use in roofing projects as a substrate material intended to receive mechanical fasteners used to secure metal roof panels, panel clips, metal coping, roof penetration curbs cap and Counterflashing, all other metal flashing, roofing insulation and membrane installations that are a part of the roof system.
The membrane supplier shall approve of all mechanical fasteners used to secure all roof system components.

Contractor shall take multiple digital photos to be submitted electronically to the Owner showing the various locations and types of mechanical fastening that will be hidden from view or otherwise concealed beneath the completed roof system.

Verify that the substrate is clean, dry and free from sharp projections and depressions and that all surfaces and site conditions are ready to receive new materials.
Bottom flanges (ribs) of steel deck shall be void of moisture and all other debris.

Where coal-tar pitch bitumen cannot be completely removed from the roof deck, mechanically attach a layer of thermal barrier to the roof deck as recommended or required by the manufacturer. Use manufacture's required fastener and fastener density per deck type.

Notify the Owner if the existing deck is found deteriorated, decayed or deformed preventing proper installation or drainage of new system.

INSTALLATION OF VAPOR RETARDER

None required.

INSTALLATION OF NEW ROOF SYSTEM

Install all nailers and wood blocking in accordance with Section 06 10 53.

"New Construction Fully-Adhered Systems" Requiring Mechanical Fastening To Metal Deck:
The first layer of insulation (Min. 1-1/2") only shall be mechanically fastened over existing or specified vapor retarder, if required, over metal deck. Additional layers of insulation shall be fully-adhered over the first layer in membrane suppliers approved adhesives to encapsulate the mechanical fastener and its fastener plate. Metalic mechanical fastener plates are acceptable for use in the system. Plastic or other materials plates are not acceptable.

New Construction -"Cold Weather" Option, Installation of a Mechanically Fastened Roofing System:
Prepare screw/plate/insulation to receive application of a minimum 6" x 6" piece of manufacturer peel-and-stick over each screw/plate mechanical fastener to entomb the application and aid in preventing direct condensation/moisture contact with the screw/plate. The goal would be to prevent future possible rusting of the plate at the screw head and failure of the roof system.

Repair all damage to vapor retarder before installation of first layer of insulation.

Mechanical Fasteners: Shall be sized to be long enough to fasten into the upper flute of the metal deck only, with a maximum 3/4" penetration unless membrane supplier requires additional penetration, in writing. No fasteners shall be installed that could be long enough to penetrate the lower flute of the metal deck. Fasteners installed that are longer than stated herein shall be cause for rejection of the Work, removal of such fasteners and repair of the metal deck, to the Owners satisfaction.

Install membrane in accordance with the membrane supplier's recommendations and the following:

Use largest membrane panels practical to minimize field seams; where necessary, lap all seams in direction of flow.

Unroll membrane over the insulation and position without stretching. Allow to relax approximately 30 minutes or more, per membrane supplier's instructions, prior to seaming.

Additional Counterflashing: Provide new like metal counterflashing per detail at all existing roof top units and roof hatches where none exist, to cover and protect membrane termination, unless unit will be lifted allowing membrane to be placed up and over curb framing and secured at the interior surface of existing and new curb blocking.

Termination Bar: Restrain membrane at the roof perimeter, at higher walls and around all curbed and other penetrations base flashing using mechanically fastened continuous perimeter securement strip/metal termination bar, per manufacturer's instructions.

Prior to seaming, thoroughly clean membrane of excess dirt, dust, talc, etc. Use manufacturer recommended cleaning agent. Scrub sheets with warm soapy water and rinse with clean water to insure clean surfaces.

Primers and adhesives: Mix all materials by stirring proper lengths of time as recommended by the membrane supplier. Consult membrane supplier's literature for application techniques regarding use of rollers or brushes.

Cold Weather Application: Contact membrane supplier for written adhesive application temperature restrictions.

All field seams shall be minimum 3". Seams may be made using either adhesives or tapes. After seaming, roll seams with a 2" wide steel roller, using positive pressure. ROLL PERPENDICULAR TO SEAM ONLY.

Apply flashing to seal membrane to vertical elements, at all T-seams and at other appropriate locations in accordance with the manufacturer's recommendations and the following:

Cured flashing shall be used over the water-dam portion of the roof edge/fascia at all roof perimeters.

Uncured flashing shall be used on mechanical equipment curbs, other penetrations and T-seams. (Cured flashing may be substituted for uncured flashing where a minimum of 95% adhesion is obtained.)

Totally bond (95 to 100%) all flashing to its substrate and round all exposed corners.

Use a minimum 6" x 6" patch of uncured flashing over T-seams. (A T-seam is defined as two field seams which cross to form a "T".)

Forming of uncured flashing may be assisted with use of a hot air blower; take care not to overheat or "burn" material.

Thoroughly clean and apply sealant to all field fabricated seams in the membrane and flashing systems in accordance with the membrane suppliers detailed specifications. Sealant shall be applied at the end of each day.

Flash plumbing vents as detailed to provide a minimum height of 8" above the finished roof surface.

CLEANING

Inspect adjacent roof systems, their drain strainers and the grounds below the work area and remove debris associated with this project.

Repair or replace defaced or disfigured finishes caused by work in this Section. In areas where finished surfaces are soiled by asphalt or any other source soiling, caused by Work of this Section, consult with membrane supplier for cleaning advice, product recommendation and conform to their instructions.

END OF SECTION

STATE OF WISCONSIN
DEPARTMENT OF ADMINISTRATION
DIVISION OF FACILITIES DEVELOPMENT (DFD)
DOA-4522A (R10/01/12)

Mailing Address: **Post Office Box 7866, Madison, WI 53707-7866**
Street Address: **101 E. Wilson Street, 7th Floor, Madison, WI 53702**
Phone: **608 / 266-2731**; *FAX*: **608 / 267-2710**
http://www.doa.state.wi.us/DFD

State of Wisconsin - Roofing System 1-yr Guarantee

State Agency/Location/Address _____

Building Name _____Bldg. No. _____Roof Area(s) _____

D.S.F. Project No. _____Project Total Sq. Ft. _____Manufacturer _____

Type of Roofing System _____Prime Contractor _____

Shingle Warranty Registration No._____ Warranty web site _____

Date of Completion _____ State Guarantee Starts_____State Guarantee Expires _____

List Additional Manufacturer Warranty and/or Guarantee Submittals Required

(submit all of the additional warranty/ guarantees required at the same time along with this guarantee)

Total System Warranty -Yes ☐ No ☐ Membrane Warranty -Yes ☐ No ☐ Metal Guarantee -Yes ☐ No ☐

Subject to the terms, conditions and limitations stated herein, we, the undersigned hereby jointly and severally guarantee that the roofing system installed on the above named building, will remain in a watertight condition, free from leaks and defects in materials or workmanship, for a period of one (1) years from the date of completion; and that we will at our expense, make or cause to be made such permanent repairs to said roofing system having defects in any of the materials and workmanship applied by or through the undersigned, as may be necessary to restore to compliance with the specifications or replace said roofing system in a water tight condition without defects as hereinafter defined.

This guarantee is made subject to the following terms and conditions: The term "defect" shall include leak(s), faulty installation, installation of other than specified materials, and the following,

- Built-Up and Modified Bitumen Roofing Systems: Ridges, blisters, buckles, wrinkles, fishmouths, voids or splits in the membrane or bituminous flashings, slippage of components, insufficient attachment of vapor retarders and/or insulation, deteriorated insulation, sound barrier components, bare spots or inadequate coverage by aggregate or protective coating, and loose sheet metal.

- Single Ply Membrane Roofing Systems: Defective and/or excessive deterioration of the roofing sheet or flashing, inadequate or failed perimeter restraint to include wood blocking, insufficient attachment of vapor retarders and/or insulation, deteriorated insulation, insufficient or deteriorated ballast and loose sheet metal.

- Shingle/Tile/Slate Roofing Systems: Broken, cracked, split, curled, spalled, blistered, unsealed or otherwise deteriorated shingles, tile or slate units, non-seated, non-secure nails/fasteners backing out or exposed, wrinkled underlayment; installation on loose, buckled or deteriorated sheathing/decking.

- Cold Liquid-Applied Membrane System: Improper surface preparation, premature or excessive deterioration in mil. coating, bare spots, insufficient mil coverage, non-adherence of membrane, blistering, air pockets or cratering in membrane, fasteners backing out, loose or exposed and loose sheet metal.

- Metal Roofing Systems: Loose components/fasteners, excessive buckling, oil-canning, and damaged finish.

- Sheet Metal Roof Flashing- Skylight Panels: Loose, unsecured metal flashing, panels and associated cleats, anchors, clips, wood blocking, fasteners, inadequate, improper, loose and sealant.

The term "roofing system" shall mean all the materials above the structural roof deck associated with the roof system that are furnished under this contract and the workmanship for installing such materials as required per the manufacuture's installation instructions to achieve a watertight system.

No work will be done on said roof by the State, including, but without limitation, work in connection with flues, vents, drains, sign braces, antennas, railings, platforms or other equipment fastened to or set on the roof, and no repairs or alterations will be made to said roof, unless the undersigned are first notified and given the opportunity to make the necessary roofing application recommendations with respect thereto, and such recommendations are complied with by the State. Failure to observe this condition shall render this guarantee null and void.

In the event leak(s) or defects should occur, the User Agency shall notify the undersigned parties in writing at the addresses listed below within thirty (30) days of discovery of leak(s) or defects. If repairs are not initiated within ten (10) days from the date of receipt of written notice that leaks or defects exist, the State is hereby authorized to have repairs made to the roofing system as is required without invalidating this guarantee, and the undersigned agrees to pay all costs for repair or replacement of leak(s) or defects in roofing system within thirty (30) days from the date such repairs or material replacement have been completed and approved by the State.

In the event that the State has notified the Contractor of the need to repair leak(s) through the roofing system and an emergency condition exists which requires immediate repair to avoid substantial damage to the State, the State may make such temporary repairs as may be essential and such action shall not be a breach of this Guarantee, so long as the State complies with other provisions of the Guarantee.

This Guarantee is in lieu of all other warranties expressed or implied, including warranties of merchantability or fitness for any particular purpose. No representatives of the parties herein named have the authority to make any representations other than those stated herein.

Specifically excluded from this guarantee is any and all damages to said roof system, the building or contents therein caused by any one or combination of the following,

- Acts or omissions of the State.
- Damage resulting from natural disasters; i.e., windstorm (exceeding velocity of 70 miles per hour), hail, flood, hurricane, lightning, or other phenomena of the elements.
- Damage resulting from the building structure failing to have adequate strength to support all live and dead loads, including water and snow loads, or any damage resulting from any other structural defects or failures.
- Damage resulting from objects, misuse or abuse of the roofing system, or traffic, recreational activities, or storage of material on the roofing system.
- Discharge of vegetable, mineral, animal oils, greases, solvents, or chemicals such as industrial wastes, upon the roof surface, unless originally designed for such purpose and prior written approval is received.

IN WITNESS WHEREOF, this instrument has been duly executed,

PRIME CONTRACTOR	**ROOFING CONTRACTOR**
(If the Roofing Contractor is also the Prime Contractor, only one signature in either signature block is required)	
Signature _____	Signature _____
Name/Title _____	Name/Title _____
Date _____	Date _____
Address _____	Address _____
Telephone _____	Telephone _____
Seal	Seal

SECTION 09 51 23
ACOUSTICAL TILE CEILINGS

PART 1 - GENERAL

RELATED DOCUMENTS

Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

SUMMARY

This Section includes acoustical tiles for ceilings and the following:

- Acoustical ceiling panels.
- Exposed metal suspension system for ceiling.
- Exposed reinforced fiberglass suspension system for ceiling.

Related Sections include the following:

- Division 01 Section "Sustainable Design Requirements" for additional Environmental requirements.
- Division 21 Fire Suppression
- Division 23 Ceiling Diffusers and Grilles
- Division 26 Lighting Fixtures and Sensors
- Division 28 Fire Alarm Devices

Products furnished, but not installed under this Section, include anchors, clips, and other ceiling attachment devices to be cast in concrete at ceilings.

DEFINITIONS

CAC: Ceiling Attenuation Class.
LR: Light-Reflectance coefficient.
NRC: Noise Reduction Coefficient.

SUBMITTALS

Product Data: For each type of product indicated.

Samples for Verification: For each component indicated and for each exposed finish required, prepared on Samples of size indicated below.

- Acoustical Panel: Set of 6-inch by 6-inch Samples of each type, pattern, and texture.
- Exposed Suspension System Members, Moldings, and Trim: Set of 12-inch long Samples of each type, finish, and color.

Maintenance Data: For finishes to include in maintenance manuals.

QUALITY ASSURANCE

Source Limitations:

- Acoustical Ceiling Tile: Obtain each type through one source from a single manufacturer.
- Suspension System: Obtain each type through one source from a single manufacturer.

Fire-Test-Response Characteristics: Provide acoustical tile ceilings that comply with the following requirements:

- Surface-Burning Characteristics: Provide acoustical tiles with the following surface-burning characteristics complying with ASTM E 1264 for Class A materials as determined by testing identical products per ASTM E 84:
  - Smoke-Developed Index: 450 or less.

DELIVERY, STORAGE, AND HANDLING

Deliver acoustical tiles, suspension system components, and accessories to Project site in original, unopened packages and store them in a fully enclosed, conditioned space where they will be protected against damage from moisture, humidity, temperature extremes, direct sunlight, surface contamination, and other causes.

Before installing acoustical tiles, permit them to reach room temperature and a stabilized moisture content.

Handle acoustical tiles carefully to avoid chipping edges or damaging units in any way.

PROJECT CONDITIONS

Environmental Limitations: Do not install acoustical tile ceilings until spaces are enclosed and weatherproof, wet work in spaces is complete and dry, work above ceilings is complete, and ambient temperature and humidity conditions are maintained at the levels indicated for Project when occupied for its intended use.

Pressurized Plenums or Rooms: Operate ventilation system for not less than 48 hours before beginning acoustical tile ceiling installation.

COORDINATION

Coordinate layout and installation of acoustical tiles and suspension system with other construction that penetrates ceilings or is supported by them, including light fixtures, HVAC equipment, fire-suppression system, and partition assemblies.

PART 2 - PRODUCTS

ACOUSTICAL TILES, GENERAL

Acoustical Tile Standard: Provide manufacturer's standard tiles of configuration indicated that comply with ASTM E 1264 classifications as designated by types, patterns, acoustical ratings, and light reflectance, unless otherwise indicated.

Mounting Method for Measuring NRC: Type E-400; plenum mounting in which face of test specimen is 15-3/4 inches away from test surface per ASTM E 795.

Acoustical Tile Colors and Patterns: Match appearance characteristics indicated for each product type.

Where appearance characteristics of acoustical tiles are indicated by referencing pattern designations in ASTM E 1264 and not manufacturers' proprietary product designations, provide products selected by Architect from each manufacturer's full range that comply with requirements indicated for type, pattern, color, light reflectance, acoustical performance, edge detail, and size.

ACT-1: WATER-FELTED, MINERAL-BASE ACOUSTICAL PANELS

Basis of Design Product: The design for acoustical ceiling panels is based on Armstrong Ceilings; Mesa No. 686: Subject to compliance with requirements, provide the named product or a comparable product by following:

USG Interiors

Certainteed

Classification: Provide panels complying with ASSTM E1264 for Type III, mineral base with membrane-faced overlay; Form 2 water felted.

Panel Characteristics:

Overlay: Vinyl overlay on face.

Pattern: GH.

Color: White

LR: Not less than 0.79.

NRC: N/A

CAC: 40.

Edge Detail: Square.
Dimensions: 24 by 24 by 3/4 inches thick.
Ceiling Grid: 15/16 inch ~~Clean room~~; white.

ACT-2: WATER-FELTED, MINERAL-BASE ACOUSTICAL PANELS WITH MEMBRANE-FACED OVERLAY

Basis-of-Design Product: The design for acoustical ceiling panels is bases on "Clean Room VL" No. 868; Armstrong. Subject to compliance with requirements, provide the named product or a comparable product by the following:

USG Interiors
Certainteed

Classification: Provide panels complying with ASTM E 1264 for Type IV, mineral base with membrane-faced overlay; Form 2, water felted.

Panel Characteristics:

Overlay: Mylar overlay on face.
Pattern: GH.
Color: White
LR: Not less than 0.79.
NRC: 0.55.
CAC: 35.
Edge Detail: Square.
Dimensions: 24 by 24 by 3/4 inches thick.
Ceiling Grid: 15/16 inch Clean room; white.

Gasket System: Provide manufacturer's standard system, including antimicrobial gasket and related adhesives, takes, seals, and retention clips, designed to seal out foreign material from and maintain positive pressure.

~~**ACT-3: WATER-FELTED, MINERAL-BASE ACOUSTICAL PANELS WITH MEMBRANE-FACED OVERLAY**~~

~~Basis-of-Design Product: The design for acoustical ceiling panels is bases on "Clean Room VL" No. 868; Armstrong. Subject to compliance with requirements, provide the named product or a comparable product by the following:~~

~~USG Interiors~~

~~Classification: Provide panels complying with ASTM E 1264 for Type IV, mineral base with membrane-faced overlay; Form 2, water felted.~~

~~Panel Characteristics:~~

~~Overlay: Mylar overlay on face.~~
~~Pattern: GH.~~
~~Color: White~~
~~LR: Not less than 0.79.~~
~~NRC: 0.55.~~
~~CAC: 35.~~
~~Edge Detail: Square.~~
~~Dimensions: 24 by 24 by 3/4 inches thick.~~
~~Ceiling Grid: 15/16 inch; white.~~

~~**ACT-4: WATER-FELTED, MINERAL-BASE ACOUSTICAL PANELS**~~

~~Basis-of-Design Product: The design for acoustical ceiling panels is based on Armstrong Ceilings; Cirrus No. 584: Subject to compliance with requirements, provide the named product or a comparable product by following:~~

~~USG Interiors~~

~~Classification: Provide fire-resistance-rated tiles complying with ASTM E 1264 for type, form, and pattern as follows:~~

~~Type III, mineral base with painted finish; Form 1, nodular.~~
~~Pattern: As indicated by manufacturer's designation.~~
~~Color: Black~~
~~LR: Not less than 0.80.~~
~~NRC: Not less than 0.70.~~
~~CAC: Not less than 35.~~
~~AC: Not less than 170.~~
~~Edge/Joint Detail: Angled Tegular.~~
~~Thickness: 3/4 inch.~~
~~Modular Size: 24 by 24 inches.~~
~~Ceiling Grid: 15/16 inch exposed grid; black.~~

~~Antimicrobial Treatment: Broad spectrum fungicide and bactericide based.~~

METAL SUSPENSION SYSTEMS, GENERAL

Metal Suspension System Standard: Provide manufacturer's standard direct-hung metal suspension systems of types, structural classifications, and finishes indicated that comply with applicable requirements in ASTM C 635.

Finishes and Colors, General: Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes. Provide manufacturer's standard factory-applied finish for type of system indicated.

Attachment Devices: Size for five times the design load indicated in ASTM C 635, Table 1, "Direct Hung," unless otherwise indicated. Comply with seismic design requirements.

Anchors in Concrete: Anchors of type and material indicated below, with holes or loops for attaching hangers of type indicated and with capability to sustain, without failure, a load equal to five times that imposed by ceiling construction, as determined by testing per ASTM E 488 or ASTM E 1512 as applicable, conducted by a qualified testing and inspecting agency.

Type: Postinstalled expansion anchors.

Corrosion Protection: Carbon-steel components zinc plated to comply with ASTM B 633, Class Fe/Zn 5 (0.005 mm) for Class SC 1 service condition.
Corrosion Protection: Stainless-steel components complying with ASTM F 593 and ASTM F 594, Group 1 Alloy 304 or 316 for bolts; Alloy 304 or 316 for anchors.

Power-Actuated Fasteners in Concrete: Fastener system of type suitable for application indicated, fabricated from corrosion-resistant materials, with clips or other accessory devices for attaching hangers of type indicated, and with capability to sustain, without failure, a load equal to 10 times that imposed by ceiling construction, as determined by testing per ASTM E 1190, conducted by a qualified testing and inspecting agency.

Wire Hangers, Braces, and Ties: Provide wires complying with the following requirements:

Zinc-Coated, Carbon-Steel Wire: ASTM A 641/A 641M, Class 1 zinc coating, soft temper.

Size: Select wire diameter so its stress at 3 times hanger design load (ASTM C 635, Table 1, "Direct Hung") will be less than yield stress of wire, but provide not less than 0.135-inch- diameter wire.

Hanger Rods: Mild steel, zinc coated or protected with rust-inhibitive paint.

Angle Hangers: Angles with legs not less than 7/8 inch wide; formed with 0.04-inch- thick, galvanized steel sheet complying with ASTM A 653/A 653M, G90 coating designation; with bolted connections and 5/16-inch- diameter bolts.

~~Hold-Down Clips: Where indicated, provide manufacturer's standard hold-down clips spaced 24 inches o.c. on all cross tees.~~

METAL SUSPENSION SYSTEM FOR ACT-1-TILES

Manufacturers: Subject to compliance with requirements, provide products from one of the following:

Armstrong.
Certainteed
Chicago Metallic.
USG

ACT-1: 15/16-Inch-Wide-Face, Capped, Double-Web Steel Suspension System: Main and cross runners roll formed from cold-rolled steel sheet, prepainted, electrolytically zinc coated, or hot-dip galvanized according to ASTM A 653/A 653M, not less than G30 coating designation, with prefinished 15/16-inch-wide metal caps on flanges.

Structural Classification: Intermediate-duty system.
End Condition of Cross Runners: Butt-edge type.
Face Design: Flat, flush.
Cap Material: Steel cold-rolled sheet.

~~**REINFORCED PLASTIC SUSPENSION SYSTEM FOR ACT-2 TILES**~~

~~Basis of Design Product: Gridlock (DI) Fiberglass reinforced plastic suspended ceiling system, Life Science Products. Provide the named product or comparable product by the following manufacturers:~~

~~Arcoplast wall and ceiling systems~~
~~KEELGRID; Keel Manufacturing Inc.~~

~~Suspension System: Provide suspension system of pultruded PVC fiberglass construction with gaskets. Grid deflection shall not exceed .133" with 7 lb loading in 4 ft unsupported span. Grid system to accept dead load of 2.25 lbs per square foot with hanger wire at 4 ft on center.~~

~~System includes the following:~~
~~Runners and Cross Tees: Manufactured from pultruded fiberglass; 1 3/8" min width~~
~~Assembly clips: Manufactured from Grade 1, Type 2 virgin PVC.~~
~~Wall angles: Manufactured from pultruded fiberglass; 1 ½"x 1 ½"~~
~~Gasketing: 1/16" thk cellular rubber on main runners, cross tees and wall angles.~~
~~Color: White~~

~~The grid system shall receive self adhesive EPDM d profile gaskets made of 100% cellular rubber prior to installation of panels. The EPDM gasket material must remain flexible at -40 degree F. The perimeter of the panels shall rest evenly on the gasket so the gasket can serve as the seal.~~

~~The grid suspension system is to be constructed so as to allow the ceiling tiles to be dropped in place with no locking or hold down clips added.~~

METAL SUSPENSION SYSTEM FOR ACT-2-TILES

Basis of Design Product: Armstrong 15/16" Co-Extruded Clean Room (Gasketed) suspended ceiling system. Provide the named product or comparable product by one of the following manufacturers.

Certainteed
Chicago Metallic.
USG

ACT-2: 15/16-Inch-Wide-Face, Capped, Double-Web Steel Suspension System: Main and cross runners roll formed from cold-rolled steel sheet, prepainted, electrolytically zinc coated, or hot-dip galvanized according to ASTM A 653/A 653M, not less than G30 coating designation, with prefinished 15/16-inch-wide metal caps on flanges.

Structural Classification: Intermediate-duty system.
End Condition of Cross Runners: Butt-edge type.
Face Design: Flat, flush.
Cap Material: Steel cold-rolled sheet.
Cap Finish: Painted white.
Gasketing: Integral gasketing on main runners, cross tees, and wall angles.

~~**METAL SUSPENSION SYSTEM FOR ACT-4 TILES**~~

~~Basis of Design Product: Subject to compliance with requirements, provide Armstrong World Industries; 15/16" exposed grid, black or comparable product by one of the following:~~

~~USG Interiors Inc.~~

~~ACT-4: 15/16 Inch Wide Face, Capped, Double Web Steel Suspension System: Main and cross runners roll formed from cold rolled steel sheet, prepainted, electrolytically zinc coated, or hot dip galvanized according to ASTM A 653/A 653M, not less than G30 coating designation, with prefinished 15/16 inch wide metal caps on flanges.~~

~~Structural Classification: Intermediate-duty system.~~
~~End Condition of Cross Runners: Butt-edge type.~~
~~Face Design: Flat, flush.~~
~~Cap Material: Steel cold-rolled sheet.~~
~~Color: Black~~

METAL EDGE MOLDINGS AND TRIM

Roll-Formed Sheet-Metal Edge Moldings and Trim: Type and profile indicated or, if not indicated, manufacturer's standard moldings for edges and penetrations that fit acoustical panels and suspension systems indicated; formed from sheet metal of same material, finish, and color as that used for exposed flanges of suspension system runners.

For lay-in panels with reveal edge details, provide stepped edge molding that forms reveal of same depth and width as that formed between edge of panel and flange at exposed suspension member.

For circular penetrations of ceiling, provide edge moldings fabricated to diameter required to fit penetration exactly.

~~**FIBERGLASS EDGE MOLDINGS AND TRIM**~~

~~Fiberglass Edge Moldings and Trim: Type and profile indicated or, if not indicated, manufacturer's standard moldings for edges and penetrations that fit acoustical panel edge details and suspension systems indicated; formed from same material, finish, and color as that used for exposed flanges of suspension runners.~~

~~For circular penetrations of ceiling, provide edge moldings fabricated to diameter required to fit penetration exactly.~~

ACOUSTICAL SEALANT

Acoustical Sealant for Exposed and Concealed Joints: Manufacturer's standard nonsag, paintable, nonstaining latex sealant, with a VOC content of 250 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24), complying with ASTM C 834 and effective in reducing airborne sound transmission through perimeter joints and openings in building construction as demonstrated by testing representative assemblies according to ASTM E 90.

PART 3 - EXECUTION

EXAMINATION

Examine substrates, areas, and conditions, including structural framing and substrates to which acoustical tile ceilings attach or abut, with Installer present, for compliance with requirements specified in this and other Sections that affect ceiling installation and anchorage and with requirements for installation tolerances and other conditions affecting performance of acoustical tile ceilings.

Proceed with installation only after unsatisfactory conditions have been corrected.

PREPARATION

Measure each ceiling area and establish layout of acoustical tiles to balance border widths at opposite edges of each ceiling. Avoid using less-than-half-width tiles at borders, and comply with layout shown on reflected ceiling plans.

INSTALLATION, GENERAL

General: Install acoustical tile ceilings to comply with ASTM C 636 and seismic design requirements indicated, per manufacturer's written instructions and CISCA's "Ceiling Systems Handbook."

Suspend ceiling hangers from building's structural members and as follows:

Install hangers plumb and free from contact with insulation or other objects within ceiling plenum that are not part of supporting structure or of ceiling suspension system.

Splay hangers only where required and, if permitted with fire-resistance-rated ceilings, to miss obstructions; offset resulting horizontal forces by bracing, countersplaying, or other equally effective means.

Where width of ducts and other construction within ceiling plenum produces hanger spacings that interfere with location of hangers at spacings required to support standard suspension system members, install supplemental suspension members and hangers in form of trapezes or equivalent devices.

Secure wire hangers to ceiling suspension members and to supports above with a minimum of three tight turns. Connect hangers directly either to structures or to inserts, eye screws, or other devices that are secure and appropriate for substrate and that will not deteriorate or otherwise fail due to age, corrosion, or elevated temperatures.

Do not support ceilings directly from permanent metal forms or floor deck. Fasten hangers to cast-in-place hanger inserts, postinstalled mechanical or adhesive anchors, or power-actuated fasteners that extend through forms into concrete.

When steel framing does not permit installation of hanger wires at spacing required, install carrying channels or other supplemental support for attachment of hanger wires.

Space hangers not more than 48 inches o.c. along each member supported directly from hangers, unless otherwise indicated; provide hangers not more than 8 inches from ends of each member.

Size supplemental suspension members and hangers to support ceiling loads within performance limits established by referenced standards and publications.

Install edge moldings and trim of type indicated at perimeter of acoustical tile ceiling area and where necessary to conceal edges of acoustical tiles.

Apply acoustical sealant in a continuous ribbon concealed on back of vertical legs of moldings before they are installed.

Screw attach moldings to substrate at intervals not more than 16 inches o.c. and not more than 3 inches from ends, leveling with ceiling suspension system to a tolerance of 1/8 inch in 12 feet. Miter corners accurately and connect securely.

Do not use exposed fasteners, including pop rivets, on moldings and trim.

Install suspension system runners so they are square and securely interlocked with one another. Remove and replace dented, bent, or kinked members.

Install acoustical tiles with undamaged edges and fit accurately into suspension system runners and edge moldings. Scribe and cut panels at borders and penetrations to provide a neat, precise fit.

For square edge panels on suspension system runners, install panels with edges fully hidden from view by flanges of suspension system runners and moldings.

~~For tegular edge panels on suspension system runners, install panels with bottom of reveal in firm contact with top surface of runner flanges.~~

Paint cut edges of panel remaining exposed after installation; match color of exposed panel surfaces using coating recommended in writing for this purpose by acoustical panel manufacturer.

~~Install hold-down lips in areas indicated, in areas required by authorities having jurisdiction, and for fire resistance ratings; space as recommended by panel manufacturer's written instructions, unless otherwise indicated.~~

~~Protect lighting fixtures and air ducts to comply with requirements indicated for fire-resistance-rated assembly.~~

~~At fiberglass suspension system do not support any lights, diffusers or equipment with the ceiling rail. Any ceiling lights, diffusers or other equipment must have independent support.~~

CLEANING

Clean exposed surfaces of acoustical tile ceilings, including trim, edge moldings, and suspension system members. Comply with manufacturer's written instructions for cleaning and touchup of minor finish damage.

Remove and replace tiles and other ceiling components that cannot be successfully cleaned and repaired to permanently eliminate evidence of damage.

END OF SECTION

SECTION 09 67 23
RESINOUS FLOORING

P A R T 1 - G E N E R A L

SCOPE

The work under this section shall consist of providing all work, materials, labor, equipment, and supervision necessary to provide for resinous flooring as required in these specifications and on the drawings. Included are the following topics:

PART 1 – GENERAL
- Scope
- Related Work
- Submittals
- Quality Assurance
- Delivery, Storage, And Handling
- Field Conditions

PART 2 – PRODUCTS
- Performance Requirements
- Resinous Flooring

PART 3 – EXECUTION
- Preparation
- Application
- Field Quality Control
- Protection

RELATED WORK

Applicable provisions of Division 1 shall govern work under this Section. The Contractor shall consult these provisions in detail prior to proceeding with work.

Related Sections:

Section 033000 – Cast-in-Place Concrete, for slabs on grade and underslab vapor retarder.

SUBMITTALS

Product Data: For each type of product. Include manufacturer's technical data, application instructions, and recommendations for each resinous flooring component required.

Samples for Initial Selection: For each type of exposed finish required.

Samples for Verification: For each resinous flooring system required, 6 inches square, applied to a rigid backing by Installer for this Project.

Installer Certificates: Signed by manufacturer certifying that installers comply with specified requirements.

Material Certificates: For each resinous flooring component, from manufacturer.

Maintenance Data: For resinous flooring to include in maintenance manuals.

QUALITY ASSURANCE

Installer Qualifications: An authorized representative who is trained and approved by manufacturer.

Engage an installer who is certified in writing by resinous flooring manufacturer as qualified to apply resinous flooring systems indicated.

Mockups: Build mockups to verify selections made under Sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.

Apply full-thickness mockups on 48-inch- square floor area selected by Architect.

Include 48-inch length of integral cove base.

Simulate finished lighting conditions for Architect's review of mockups.

Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.

Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

DELIVERY, STORAGE, AND HANDLING

Deliver materials in original packages and containers, with seals unbroken, bearing manufacturer's labels indicating brand name and directions for storage and mixing with other components.

FIELD CONDITIONS

Environmental Limitations: Comply with resinous flooring manufacturer's written instructions for substrate temperature, ambient temperature, moisture, ventilation, and other conditions affecting resinous flooring application.

Lighting: Provide permanent lighting or, if permanent lighting is not in place, simulate permanent lighting conditions during resinous flooring application.

Close spaces to traffic during resinous flooring application and for 24 hours after application unless manufacturer recommends a longer period.

P A R T 2 - P R O D U C T S

PERFORMANCE REQUIREMENTS

VOC Content of Liquid-Applied Flooring Components: Not more than 100 g/L when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

Flammability: Self-extinguishing according to ASTM D 635.

RESINOUS FLOORING – UF-1

Troweled Urethane Flooring System: Four-component polyurethane mortar system consisting of urethane resin, curing agent, selected, graded aggregates and inorganic pigments sealed with chemically-resistant clear urethane coating designed to produce a seamless floor.

Source Limitations: Obtain primary resinous flooring materials, including primers, resins, hardening agents, grouting coats, and topcoats, from single source from single manufacturer. Obtain secondary materials, including patching and fill material, joint sealant, and repair materials, of type and from manufacturer recommended in writing by manufacturer of primary materials.

Basis of Design: Stonclad UT, Stonhard, Inc. Provide the named product or a comparable product listed below:

Crossfield; Dex-O-Tex
Dur-A-Flex
Sika

System Characteristics:

Color and Pattern: Match Architect’s sample.
Wearing Surface: Manufacturer’s light texture for slip resistance.
Overall System Thickness: 1/4 inch
Base: Integral cove base; 4 inches

~~Waterproofing Membrane:~~

~~Basis of Design Product: Stonhard; Stonproof ME7~~
~~Resin: Urethane.~~
~~Formulation Description: Elastomeric urethane, High Solids~~
~~Application Method: 30 mil notched squeegee~~
~~Finish: Broadcast with Stonclad Texture#3 per product directions~~

Mortar Base / Body Coat:

Basis of Design Product: Stonhard; Stonclad UT.
Resin: Urethane.
Formulation Description: High Solids
Application Method: Screed, Troweled.
Number of Coats: One.
Thickness of Coats: 1/4 inch (4.8 mm).
Aggregates: Pigmented blended aggregate.

Top Coat: Sealing or finish coats.

Basis of Design Product: Stonhard Stonseal PA7.
Resin: Aromatic Urethane
Formulation Description: 100 percent solids.
Type: Pigmented
Number of Coats: One.
Finish: Standard

System Physical Properties: Provide resinous flooring system with the following minimum physical property requirements when tested according to test methods indicated:

Compressive Strength: 7,700 psi minimum according to ASTM C 579.
Tensile Strength: 1000 psi minimum according to ASTM C 307.
Flexural Strength: 2400 psi minimum according to ASTM C 580.
Flexural Modulus of Elasticity: 2.6 $x10^{-6}$ minimum according to ASTM C 580.
Water Absorption: <1 percent maximum according to ASTM C 413.
Shrinkage: Maximum 1.1 X 10^{-5} mm/deg-C per ASTM C 531.
Impact Resistance: greater than 160 in lbs. Per ASTM D4060
Flammability: Self-extinguishing per ASTM 635. Extent of burning 0.25 inches maximum
Abrasion Resistance: 0.08 gm maximum weight loss according to ASTM D 4060.
Hardness: 85-90, Shore D according to ASTM D 2240.
Bond Strength: >400 psi, 100 percent concrete failure, per ACI 503R.

System Chemical Resistance: Test specimens of cured resinous flooring system are unaffected when tested according to ASTM D 1308 for 50 percent immersion; ASTM D 543, Procedure A, for immersion; or ASTM C 267 for immersion in reagents for no fewer than seven days.

ACCESSORY MATERIALS

Primer: Type recommended by manufacturer for substrate and body coats indicated. Formulation Description: Stonclad UT urethane mortar is self priming.

Pitching and Leveling: Use a four component fast setting Urethane grout. Moisture resistant polyurethane based grout designed for permanent repairs under flooring system. Stonhard, Stonset TG6. See drawings 1/4" per foot slope to drains. Use standard drain detail, saw cut and chase.

~~Waterproofing Membrane: If application is above grade. Type recommended by manufacturer for substrate and primer and body coats indicated. Formulation Description Stonproof ME7.~~

PART 3 - EXECUTION

PREPARATION

Prepare and clean substrates according to resinous flooring manufacturer's written instructions for substrate indicated. Provide clean, dry substrate for resinous flooring application.

Concrete Substrates: Provide sound concrete surfaces free of laitance, glaze, efflorescence, curing compounds, form-release agents, dust, dirt, grease, oil, and other contaminants incompatible with resinous flooring.

Roughen concrete substrates as follows:

Shot-blast surfaces with an apparatus that abrades the concrete surface, contains the dispensed shot within the apparatus, and recirculates the shot by vacuum pickup.

Comply with ASTM C 811 requirements unless manufacturer's written instructions are more stringent.

Repair damaged and deteriorated concrete according to resinous flooring manufacturer's written instructions.

Verify that concrete substrates are dry and moisture-vapor emissions are within acceptable levels according to manufacturer's written instructions.

Perform in situ probe test, ASTM F 2170. Proceed with application only after substrates do not exceed a maximum potential equilibrium relative humidity of 85 percent

Perform anhydrous calcium chloride test, ASTM F 1869. Proceed with application only after substrates have maximum moisture-vapor-emission rate of 7 lb of water/1000 sq. ft. of slab in 24 hours

Perform additional moisture tests recommended by manufacturer. Proceed with application only after substrates pass testing

Alkalinity and Adhesion Testing: Verify that concrete substrates have pH within acceptable range. Perform tests recommended by manufacturer. Proceed with application only after substrates pass testing.

Patching and Filling: Use patching and fill material to fill holes and depressions in substrates according to manufacturer's written instructions.

Control Joint Treatment: Treat control joints and other nonmoving substrate cracks to prevent cracks from reflecting through resinous flooring according to manufacturer's written instructions.

Allowances should be included for Stonflex MP7 joint fill material, and CT5 concrete crack treatment.

Resinous Materials: Mix components and prepare materials according to resinous flooring manufacturer's written instructions.

APPLICATION

Apply components of resinous flooring system according to manufacturer's written instructions to produce a uniform, monolithic wearing surface of thickness indicated.

Coordinate application of components to provide optimum adhesion of resinous flooring system to substrate, and optimum intercoat adhesion.

Cure resinous flooring components according to manufacturer's written instructions. Prevent contamination during application and curing processes.

Expansion and Isolation Joint Treatment: At substrate expansion and isolation joints, comply with resinous flooring manufacturer's written instructions.

Apply primer(s) where required by resinous system, over prepared substrate at manufacturer's recommended spreading rate.

~~Waterproof Membrane: Mix and apply membrane base over fully cured primer using manufacturer's specially designed squeegees and rollers.~~

Integral Cove Base: Stonclad UR mortar, apply cove base mix to wall surfaces before applying flooring. Apply according to manufacturer's written instructions and details including those for taping, mixing, priming, troweling, sanding, and top coating of cove base. Round internal and external corners. Requires Primer.

Integral Cove Base: 4 inches high see drawings for details.

Mortar: Mix mortar material according to manufacturer's recommended procedures. Uniformly spread mortar over substrate at manufacturer's recommended height using specially designed trowel and or Screed box. Broadcast desired light texture directly into mortar base. Field verify texture needed.

Apply topcoat in number of coats indicated for flooring system and at spreading rates recommended in writing by manufacturer.

TERMINATIONS

Chase edges to "lock" the coating system into the concrete substrate along lines of termination.

Penetration Treatment: Lap and seal coating onto the perimeter of the penetrating item by bridging over compatible elastomer at the interface to compensate for possible movement.

Trenches: Continue coating system into trenches to maintain monolithic protection. Treat cold joints to assure bridging of potential cracks.

Treat floor drains by chasing the coating to lock in place at point of termination.

JOINTS AND CRACKS

Treat control joints to bridge potential cracks and to maintain monolithic protection.

Treat cold joints and construction joints to bridge potential cracks and to maintain monolithic protection on horizontal and vertical surfaces as well as horizontal and vertical interfaces.

Discontinue floor coating system at vertical and horizontal contraction and expansion joints by installing backer rod and compatible sealant after coating installation is completed. Provide sealant type recommended by manufacturer for traffic conditions and chemical exposures to be encountered.

FIELD QUALITY CONTROL

Contractor to engage an independent testing agency to take samples of materials being used. Material samples will be taken, identified, sealed, and certified in presence of Contractor.

Material Sampling: Owner may, at any time and any number of times during resinous flooring application, require that Contractor take material samples for testing for compliance with requirements.

Testing agency will test samples for compliance with requirements, using applicable referenced testing procedures or, if not referenced, using testing procedures listed in manufacturer's product data.

If test results show applied materials do not comply with specified requirements, pay for testing, remove noncomplying materials, prepare surfaces coated with unacceptable materials, and reapply flooring materials to comply with requirements.

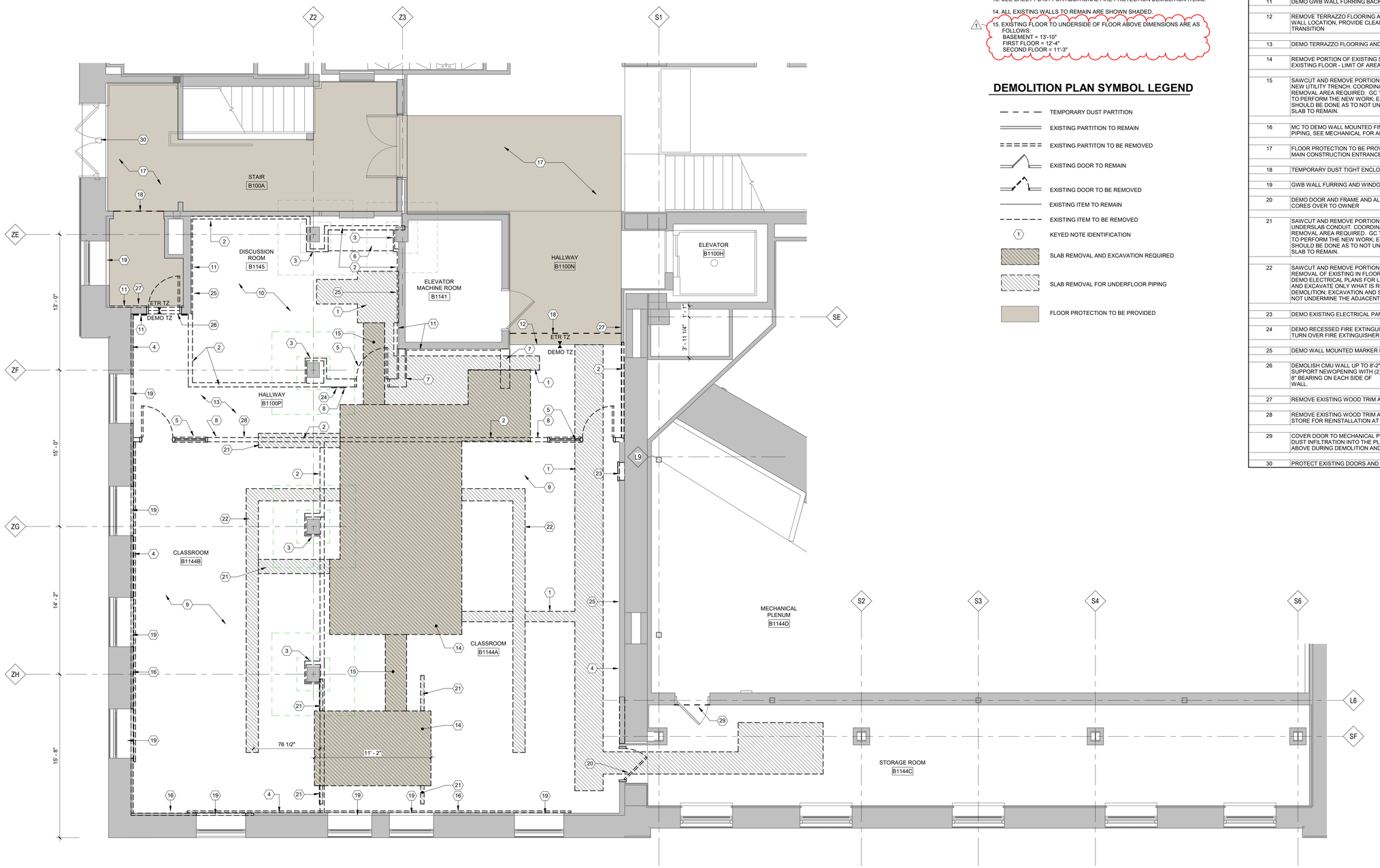
CLEANING, PROTECTING, AND CURING

Cure resinous flooring materials in compliance with manufacturer's directions, taking care to prevent contamination during stages of application and prior to completion of curing process. Close area of application for a minimum of 18 hours.

Protect resinous flooring materials from damage and wear during construction operation. Where temporary covering is required for this purpose, comply with manufacturer's recommendations for protective materials and method of application. General Contractor is responsible for protection and cleaning of surfaces after final coats.

Cleaning: Remove temporary covering and clean resinous flooring just prior to final inspection. Clean any material off vertical surfaces adjacent to cove base. Use cleaning materials and procedures recommended by resinous flooring manufacturer.

END OF SECTION



NORTH

1 BASEMENT FLOOR PLAN - DEMOLITION

1/4" = 1'-0"

0 2 4 8

DEMOLITION PLAN GENERAL NOTES:

1. VERIFY ALL DIMENSIONS AND CONDITIONS AT PROJECT SITE. PORTIONS OF EXISTING CONSTRUCTION MAY HAVE BEEN REMOVED BY OWNER.
2. VERIFY CONSTRUCTION OF ALL PARTITIONS TO BE REMOVED.
3. REFER TO MECHANICAL, ELECTRICAL, PLUMBING AND FIRE PROTECTION DRAWINGS FOR ADDITIONAL DEMOLITION ITEMS AND NOTES. COORDINATE SPECIFIC WORK WITH EACH SUB-CONTRACTOR.
4. THERE ARE NO ANTICIPATED HAZARDOUS MATERIALS TO BE REMOVED IN THIS PROJECT.
5. TEMPORARY LIGHTING IS THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR FOR THE DURATION OF THE PROJECT.
6. CONTRACTORS ARE RESPONSIBLE FOR MAINTAINING CONTINUOUS UTILITY SERVICE TO ALL SPACES IN THE BUILDING NOT AFFECTED BY THIS WORK. ANY DISRUPTION IN SERVICE REQUIRED TO PERFORM WORK OR TO MODIFY EXISTING DUCTWORK, PIPING, CONDUIT, CIRCUITS OR ANY ASSOCIATED EQUIPMENT, MUST BE COORDINATED MIN 6 WEEKS IN ADVANCE WITH THE OWNER/USER.
7. ALL WORK THAT NEEDS TO OCCUR OUTSIDE OF THE PROJECT WORK AREA NEEDS TO BE COORDINATED IN ADVANCE WITH THE OWNER/ USER.
8. COORDINATE WITH SPECIFICATION SECTION 01 74 19 FOR CONSTRUCTION WASTE MANAGEMENT AND PROJECT RECYCLING REQUIREMENTS.
9. SEE SHEET AD111 AND AD112 FOR CEILING DEMOLITION PLAN.
10. SEE SHEETS MD101 AND MD104 FOR ADDITIONAL MECHANICAL DEMOLITION ITEMS.
11. SEE SHEET ED101, ED121, ED701 AND TD101 FOR ADDITIONAL ELECTRICAL AND TECHNOLOGY DEMOLITION.
12. SEE SHEET PD131 FOR ADDITIONAL PLUMBING DEMOLITION ITEMS.
13. SEE SHEET FD101 FOR ADDITIONAL FIRE PROTECTION DEMOLITION ITEMS.
14. ALL EXISTING WALLS TO REMAIN ARE SHOWN SHADED.
15. EXISTING FLOOR TO UNDERSIDE OF FLOOR ABOVE DIMENSIONS ARE AS FOLLOWS:
    BASEMENT = 13'-10"
    FIRST FLOOR = 12'-4"
    SECOND FLOOR = 11'-3"

DEMOLITION PLAN SYMBOL LEGEND

- TEMPORARY DUST PARTITION
- EXISTING PARTITION TO REMAIN
- EXISTING PARTITON TO BE REMOVED
- EXISTING DOOR TO REMAIN
- EXISTING DOOR TO BE REMOVED
- EXISTING ITEM TO REMAIN
- EXISTING ITEM TO BE REMOVED
- (1) KEYED NOTE IDENTIFICATION
- SLAB REMOVAL AND EXCAVATION REQUIRED
- SLAB REMOVAL FOR UNDERFLOOR PIPING
- FLOOR PROTECTION TO BE PROVIDED

KEYED NOTES (#)

1	SAWCUT AND REMOVE PORTION OF 5" CONCRETE FLOOR SLAB FOR NEW UNDERGROUND PLUMBING INSTALLATION, COORDINATE WITH NEW PLUMBING PLANS FOR LOCATIONS REQUIRED. GC TO REMOVE AND EXCAVATE ONLY WHAT IS REQUIRED TO PERFORM THE DEMOLITION AND NEW PLUMBING WORK; EXCAVATION AND SLAB REMOVAL SHOULD BE DONE AS TO NOT UNDERMINE THE ADJACENT EXISTING SLAB TO REMAIN.
2	DEMO GWB AND METAL STUD WALL UP TO UNDERSIDE OF FLOOR ABOVE
3	DEMO EXISTING GWB AND METAL STUD FURRING AT EXISTING CONCRETE COLUMN ENCLOSURE
4	DEMO LAYER OF GWB THIS SIDE OF WALL FOR INSTALLATION OF WOOD BLOCKING AND NEW ELECTRICAL THIS WALL
5	DEMO EXISTING WOOD DOOR, WOOD FRAME, WOOD CASING, AND ALL ASSOCIATED HARDWARE., TURN HARDWARE OVER TO OWNER
6	DEMO BASE CABINETRY AND COUNTERTOP ENTIRELY
7	REMOVE GWB FURRING AND SAWCUT AND REMOVE PORTION OF CMU WALL AS SHOWN
8	REMOVE CARD READER, AND SAVE FOR REINSTALLATION AT NEW LOCATIONS SHOWN ON A101
9	DEMO VCT FLOORING AND RUBBER WALL BASE
10	DEMO CARPETING AND RUBBER WALL BASE
11	DEMO GWB WALL FURRING BACK TO EXISTING CMU WALL
12	REMOVE TERRAZZO FLOORING AND WALL BASE STARTING AT NEW WALL LOCATION, PROVIDE CLEAN EDGE AT TERRAZZO FLOOR TRANSITION
13	DEMO TERRAZZO FLOORING AND WALL BASE
14	REMOVE PORTION OF EXISTING SLAB AND EXCAVATE TO 36" BELOW EXISTING FLOOR - LIMIT OF AREA SHOWN HATCHED
15	SAWCUT AND REMOVE PORTION OF 5" CONCRETE FLOOR SLAB FOR NEW UTILITY TRENCH. COORDINATE WITH NEW FLOORPLAN FOR REMOVAL AREA REQUIRED. GC TO EXCAVATE ONLY WHAT IS REQUIRED TO PERFORM THE NEW WORK; EXCAVATION AND SLAB REMOVAL SHOULD BE DONE AS TO NOT UNDERMINE THE ADJACENT EXISTING SLAB TO REMAIN.
16	MC TO DEMO WALL MOUNTED FIN TUBE HEATER AND ASSOCIATED PIPING, SEE MECHANICAL FOR ADDITIONAL INFORMATION
17	FLOOR PROTECTION TO BE PROVIDED FROM AREA OF REMODEL TO MAIN CONSTRUCTION ENTRANCE
18	TEMPORARY DUST TIGHT ENCLOSURE
19	GWB WALL FURRING AND WINDOW SILLS TO REMAIN
20	DEMO DOOR AND FRAME AND ALL ASSOCIATED HARDWARE, TURN LOCK CORES OVER TO OWNER
21	SAWCUT AND REMOVE PORTION OF 5" CONCRETE FLOOR SLAB FOR UNDERSLAB CONDUIT. COORDINATE WITH NEW FLOOR PLAN FOR REMOVAL AREA REQUIRED. GC TO EXCAVATE ONLY WHAT IS REQUIRED TO PERFORM THE NEW WORK; EXCAVATION AND SLAB REMOVAL SHOULD BE DONE AS TO NOT UNDERMINE THE ADJACENT EXISTING SLAB TO REMAIN.
22	SAWCUT AND REMOVE PORTION OF 5" CONCRETE FLOOR SLAB FOR REMOVAL OF EXISTING IN FLOOR ELECTRICAL. COORDINATE WITH DEMO ELECTRICAL PLANS FOR LOCATIONS REQUIRED. GC TO REMOVE AND EXCAVATE ONLY WHAT IS REQUIRED TO PERFORM THE DEMOLITION; EXCAVATION AND SLAB REMOVAL SHOULD BE DONE AS TO NOT UNDERMINE THE ADJACENT EXISTING SLAB TO REMAIN.
23	DEMO EXISTING ELECTRICAL PANEL BY ELECTRICAL CONTRACTOR
24	DEMO RECESSED FIRE EXTINGUISHER CABINET AND SIGNAGE AND TURN OVER FIRE EXTINGUISHER TO OWNER
25	DEMO WALL MOUNTED MARKER BOARD
26	DEMOLISH CMU WALL UP TO 8'-2" TO ACCOMMODATE NEW WOOD DOOR, SUPPORT NEWOPENING WITH (2) 3 1/2"X3 1/2"X1/4" STEEL ANGLES WITH 8" BEARING ON EACH SIDE OF WALL.
27	REMOVE EXISTING WOOD TRIM AND STORE FOR RE-INSTALLATION
28	REMOVE EXISTING WOOD TRIM AT NEW SHAFT WALL LOCATION AND STORE FOR REINSTALLATION AT NEW SHAFT WALL
29	COVER DOOR TO MECHANICAL PLENUM WITH PLASTIC TO PREVENT DUST INFILTRATION INTO THE PLENUM SPACE OF THE LECTURE HALL ABOVE DURING DEMOLITION AND NEW CONSTRUCTION IN THIS SPACE.
30	PROTECT EXISTING DOORS AND FRAME

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Sheet Title: BASEMENT FLOOR DEMOLITION PLAN

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RADIANT PANEL (RCP) SCHEDULE

MARK	MANUFACTURER, MODEL NUMBER	NOM. SIZE (FT) LENGTH	NOM. SIZE (FT) WIDTH	MEDIA TYPE	FLUID CAP. RANGE (BTU/H/LF)	FLUID CAP. (BTU)	FLUID EWT (°F)	FLUID LWT (°F)	FLUID FLOW RATE (GPM)	FLUID MAX. PD (FT)	MATERIAL	MOUNTING SURFACE	CEILING TYPE	MOUNTING TYPE	SURFACE FINISH	REMARKS
RCP-1	-	(3)	2	WATER	60	-	58	63	-	5	ALUM	WALL	-	S	W	(1) (4)
RCP-2	-	4	2	WATER	414	1656	180	160	0.2	5	ALUM	CEILING	ACT	R	W	(2)
RCP-3	-	14	2	WATER	414	5796	180	160	0.6	5	ALUM	CEILING	ACT	R	W	(2)
RCP-4	-	16	2	WATER	414	6624	180	160	0.7	5	ALUM	CEILING	ACT	R	W	(2)
RCP-5	-	9	2	WATER	414	3726	180	160	0.4	5	ALUM	CEILING	GYP	R	W	(2)

CEILING TYPE		MOUNTING TYPE		SURFACE FINISH	
ACT	ACOUSTICAL TILE	R	RECESSED	W	MANUFACTURER STANDARD WHITE
GYP	GYPBOARD	S	SURFACE	PA	PAINTED
				SILK	SILK SCREENED TO MATCH TILE

REMARKS:

(1) RADIANT COOLING PANEL.
(2) RADIANT HEATING PANEL.
(3) REFER TO PLANS FOR QUANTITIES AND LENGTHS.
(4) BTU PERFORMANCE LISTED IS FOR (2) PANELS STACKED VERTICALLY FOR A TOTAL OF 4 FOOT HEIGHT.

EXISTING SUPPLY AIR TERMINAL (AT) SCHEDULE

MARK	AHU	AIR FLOW (CFM) OCC MAX.	AIR FLOW (CFM) OCC MIN.	AIR FLOW (CFM) UNOCC MIN.	HOT WATER REHEAT COIL CAP. (MBH)	EAT (°F)	LAT (°F)	EWT (°F)	LWT (°F)	FLOW (GPM)	PD (FT)	REMARKS
SAT-B1100N(E)	AHU-9(E)	115	115	-	-	-	-	-	-	-	-	(1)
SAT-B1131-1(E)	AHU-9(E)	1365	550	550	-	-	-	-	-	-	-	(1)
SAT-B1131-2(E)	AHU-9(E)	1365	550	550	-	-	-	-	-	-	-	(1)
SAT-B1131A(E)	AHU-9(E)	200	45	-	-	-	-	-	-	-	-	(1)
SAT-B1131B(E)	AHU-9(E)	150	150	150	-	-	-	-	-	-	-	(1)
SAT-B1131C(E)	AHU-9(E)	275	100	-	-	-	-	-	-	-	-	(1)
SAT-B1131D(E)	AHU-9(E)	215	80	-	-	-	-	-	-	-	-	(1)
SAT-B1131E(E)	AHU-9(E)	50	50	-	-	-	-	-	-	-	-	(1)
SAT-B1137(E)	AHU-9(E)	220	100	-	-	-	-	-	-	-	-	(1)
SAT-1100M(E)	AHU-9(E)	120	120	-	-	-	-	-	-	-	-	(1)
SAT-1135(E)	AHU-9(E)	50	50	-	-	-	-	-	-	-	-	(1)
SAT-1135A(E)	AHU-9(E)	595	210	210	-	-	-	-	-	-	-	(1)
SAT-1135C(E)	AHU-9(E)	205	75	-	-	-	-	-	-	-	-	(1)
SAT-1135D(E)	AHU-9(E)	200	70	-	-	-	-	-	-	-	-	(1)
SAT-1135E(E)	AHU-9(E)	200	70	-	-	-	-	-	-	-	-	(1)
SAT-1135F(E)	AHU-9(E)	445	160	160	-	-	-	-	-	-	-	(1)
SAT-1135G(E)	AHU-9(E)	340	120	-	-	-	-	-	-	-	-	(1)
SAT-1135H(E)	AHU-9(E)	310	110	-	-	-	-	-	-	-	-	(1)
SAT-1135J(E)	AHU-9(E)	450	160	160	-	-	-	-	-	-	-	(1)
SAT-1140(E)	AHU-9(E)	330	120	-	-	-	-	-	-	-	-	(1)
SAT-B1142(E)	AHU-9(E)	845	300	300	-	-	-	-	-	-	-	(1)
SAT-B1142C(E)	AHU-9(E)	365	130	-	-	-	-	-	-	-	-	(1)
SAT-B1142E(E)	AHU-9(E)	690	245	245	-	-	-	-	-	-	-	(1)
SAT-B1142F(E)	AHU-9(E)	295	105	-	-	-	-	-	-	-	-	(1)
SAT-B1148(E)	AHU-9(E)	765	300	300	-	-	-	-	-	-	-	(1)
SAT-2100M-1(E)	AHU-9(E)	350	115	-	-	-	-	-	-	-	-	(1)
SAT-2131-1(E)	AHU-9(E)	1040	420	420	-	-	-	-	-	-	-	(1)
SAT-2131-2(E)	AHU-9(E)	830	420	420	-	-	-	-	-	-	-	(1)
SAT-2139A(E)	AHU-9(E)	500	180	180	-	-	-	-	-	-	-	(1)
SAT-2139C(E)	AHU-9(E)	430	155	155	-	-	-	-	-	-	-	(1)
SAT-2139D(E)	AHU-9(E)	395	105	-	-	-	-	-	-	-	-	(1)

REMARKS:

(1) FOR INFORMATIONAL PURPOSES. REVISE AIR TERMINAL MINIMUM AIRFLOW IN UNOCCUPIED MODE TO SCHEDULED VALUE.

AIR OUTLET AND INLET SCHEDULE

MARK	MANUFACTURER, MODEL NUMBER	APPLICATION	(1) MAX AIRFLOW (CFM)	OUTLET / INLET	TYPE	MOUNTING SYSTEM	(2) DAMPER	(3) FACE SIZE (IN)	NECK SIZE (IN)	(4) MAX NOISE LEVEL (NC)	PATTERN	MAX SP (IN WG)	FINISH	MATERIAL	(5) MOUNTING HEIGHT (IN)	ACCESSORIES	LOCATION	REMARKS
CD-1	PRICE, ASPD	SUPPLY	110	1	7	1	NONE	24x24	6	20	4-WAY	0.1	W	ALUM	CEILING	24x24 LAY-IN PANEL	SEE PLANS	
CD-2	PRICE, ASPD	SUPPLY	230	1	7	1	NONE	24x24	8	20	4-WAY	0.1	W	ALUM	CEILING	24x24 LAY-IN PANEL	SEE PLANS	
CD-3	PRICE, ASPD	SUPPLY	405	1	7	1	NONE	24x24	10	20	4-WAY	0.1	W	ALUM	CEILING	24x24 LAY-IN PANEL	SEE PLANS	
CD-4	PRICE, ASPD	SUPPLY	475	1	7	1	NONE	24x24	12	20	4-WAY	0.1	W	ALUM	CEILING	24x24 LAY-IN PANEL	SEE PLANS	
CD-5	PRICE, ASPD	SUPPLY	600	1	7	1	NONE	24x24	14	20	4-WAY	0.1	W	ALUM	CEILING	24x24 LAY-IN PANEL	SEE PLANS	
LFD-1	PRICE, LFD	SUPPLY	280	1	4, 14	1	NONE	24x48	10	20	LAMINAR	0.1	W	ALUM	CEILING	-	SEE PLANS	(7)
SG-1	PRICE, 22	SUPPLY	880	3	2	4	NONE	20x14	18x12	25	-	0.1	W	STEEL	SEE PLANS	-	SEE PLANS	(6)
SG-2	PRICE, 22	SUPPLY	600	3	2	4	NONE	20x12	18x10	20	-	0.1	W	STEEL	SEE PLANS	-	SEE PLANS	(6)
RG-1	PRICE, 80	RETURN	2000	3	8	1	NONE	24x24	22x22	20	-	0.1	W	ALUM	CEILING	24x24 LAY-IN PANEL	SEE PLANS	
RG-2	PRICE, 60	RETURN	810	3	3	4	NONE	32x16	30x14	30	-	0.1	W	ALUM	SEE PLANS	-	SEE PLANS	(8)
EG-1	PRICE, 10	EXHAUST	120	3	4	1	NONE	24x24	6	20	-	0.1	W	ALUM	CEILING	24x24 LAY-IN PANEL	SEE PLANS	

OUTLET/INLET		TYPE				MOUNTING SYSTEM		DAMPER		FINISH	
1	DIFFUSER	1	SINGLE DEFLECTION	9	LOUVERED	1	T-BAR CEILING	N	NONE	M	MILL
2	REGISTER	2	DOUBLE DEFLECTION	10	HOODED	2	PLASTER/CONCRETE CEILING	BF	BUTTERFLY	W	MFR. STANDARD WHITE
3	GRILLE	3	FIXED BLADE	11	DOOR TRANSFER	3	PLASTER/MASONRY WALL	G	GRAVITY	S	MFR. SPECIAL COLOR
4	LOUVER	4	PERFORATED	12	BRICK	4	EXPOSED DUCTWORK	MP	MOTORIZED PNEUMATIC	A	ANODIZED ALUMINUM
5	PENTHOUSE	5	LINEAR	13	PUNKAH	5	METAL PANEL WALL	ME	MOTORIZED ELECTRIC	P	PRIME COAT (FINAL COAT BY...
6	VENT	6	PLENUM SLOT	14	LAMINAR	6	FLOOR	OB	OPPOSED BLADE	O	OTHER (SEE SPECIFICATIONS)
		7	PLAQUE	15	LINEAR BAR	7	ROOF	PB	PARALLEL BLADE		
		8	EGGCRATE			8	EXTERIOR STUD WALL	LL	LOW LEAKAGE, INSUL.		

REMARKS:

(1) SEE PLANS FOR ACTUAL INDIVIDUAL AIR QUANTITIES OF EACH DEVICE.
(2) IF DAMPER IS SCHEDULED 'NONE', EACH SUPPLY, RETURN, AND EXHAUST DEVICE TO HAVE A BALANCE DAMPER IN THE DUCT BRANCH TAKE-OFF UNLESS AN ASSOCIATED VAV BOX SERVES A SINGLE DEVICE.
(3) BORDER TYPES SHALL BE COMPATIBLE WITH CEILING OR WALL TYPES WHERE AIR DEVICE IS LOCATED. REFER TO ARCHITECTURAL PLANS AND ALL OTHER TRADES.
(4) ALL GRILLES AND DIFFUSERS SHALL NOT EXCEED NOISE CRITERIA LISTED (BASED ON 10 DB ROOM ATTENUATION) AND AT THE SCHEDULED MAXIMUM STATIC PRESSURE DROP.
(5) MOUNTING HEIGHT SHALL BE FROM FINISHED FLOOR TO BOTTOM OF OPENING.
(6) INDIVIDUALLY ADJUSTABLE AIRFOIL BLADE WITH 3/4" SPACING. FRONT BLADES PARALLEL TO THE SHORT DIMENSION. INITIALLY SET BLADES FOR APPROXIMATELY 30 DEGREE THROW.
(7) PROVIDE GASKET SEAL FOR MICROSCOPE ROOM CEILING INSTALLATION.
(8) Y BLADES PARALLEL TO THE LONG DIMENSION WITH FIXED 30 DEGREE DEFLECTION AND 3/4" SPACING.

FAN COIL UNIT (FCU) SCHEDULE

MARK	MANUFACTURER, MODEL NUMBER	TYPE	AIR FLOW (CFM) SUPPLY	AIR FLOW (CFM) OUTDOOR	(2) ESP (IN WC)	FAN MOTOR POWER (HP)	FAN MOTOR BHP	FAN MOTOR VOLTS / PH	FAN MOTOR DRIVE	COOLING CAPACITY EAT (°F) DB	EAT (°F) WB	CAPACITY (MBH) TOTAL	CAPACITY (MBH) SENS.	MEDIA TYPE	MEDIA FLOW RATE (GPM)	MEDIA FLOW RATE (TON)	EWT (°F)	LWT (°F)	LAT DB (°F)	(1) ACCESSORIES	WEIGHT (LB)	LOCATION	REMARKS
FCU-B1144C	TRANE, BCHE054	H, DU	1650	0	0.5	1	0.7	208/3	(4)	75	63	41	36	WATER	6.3	-	45	58	55	2	200	B1144C STORAGE	(3)

TYPE				ACCESSORIES	
V	VERTICAL	R	RECESSSED	1	DISCONNECT SWITCH
H	HORIZONTAL	AT	ANGLE TOP	2	CONDENSATE PUMP
LP	LOW PROFILE	SR	SEMI-RECESSED	3	LEVELING FEET
CON	CONCEALED	CAB	CABINET	4	SUB-BASE (FOR SPECIFIED MOUNTING HEIGHT)
DU	DUCTED			5	FALSE BACK
				6	FRESH AIR DAMPER
				7	FRESH AIR WALL BOX
				8	FACTORY MOUNTED PIPING PACKAGE
				9	MANUAL THREE SPEED FAN CONTROL SWITCH
				10	1/2" WIRE MESH SCREEN ON INLET & OUTLET

REMARKS:

(1) SEE SPECIFICATION SECTION 238200 FOR ANY ADDITIONAL ACCESSORIES.
(2) DOES NOT INCLUDE PRESSURE DROP FOR INTERNAL COMPONENTS.
(3) BLOWER COIL UNIT.
(4) DIRECT DRIVE, ELECTRONALLY COMMUTATED MOTOR (ECM)

DAMPER SCHEDULE

MARK	TYPE	SIZE (IN) WIDTH	SIZE (IN) DEPTH	AIR FLOW (CFM)	MAX. PD (IN WC)	CONTROL TYPE	ACTUATOR TYPE	CONSTRUCTION MATERIAL	(1) INTERLOCK WITH	SERVING	LOCATION	REMARKS
SFSD-22-1-1	M-PB	18	12	2005	0.1	TP	EL	SEE SPEC	-	AHU-22 SA	1142E OFFICE	
SFSD-22-1-2	M-PB	30	12	3450	0.1	TP	EL	SEE SPEC	-	AHU-22 SA	1142E OFFICE	
SFSD-22-3-1	M-PB	18	12	2005	0.1	TP	EL	SEE SPEC	-	AHU-22 SA	3105 MECH	
SFSD-22-3-2	M-PB	26	14	3450	0.1	TP	EL	SEE SPEC	-	AHU-22 SA	3105 MECH	
RFSD-22-1-1	M-PB	20	12	1965	0.1	TP	EL	SEE SPEC	-	AHU-22 RA	B1148 OPERATOR	
RFSD-22-1-2	M-PB	28	12	3150	0.1	TP	EL	SEE SPEC	-	AHU-22 RA	B1148 OPERATOR	
RFSD-22-3-1	M-PB	20	12	1965	0.1	TP	EL	SEE SPEC	-	AHU-22 RA	3105 MECH	
RFSD-22-3-2	M-PB	24	14	3150	0.1	TP	EL	SEE SPEC	-	AHU-22 RA	3105 MECH	
MOD-8	M-PB	30	12	3510	0.1	MOD	EL	SEE SPEC	RF-9(E)	AHU-9(E) RA	B1148A IMAG.	
MOD-22A-1	M-PB	18	16	1800	0.1	TP	EL	SEE SPEC	AHU-22	AHU-22	3105 MECH	
MOD-22A-2	M-PB	18	16	1800	0.1	TP	EL	SEE SPEC	AHU-22	AHU-22	3105 MECH	
MOD-22B-1	M-PB	18	16	1800	0.1	TP	EL	SEE SPEC	AHU-22	AHU-22	3105 MECH	
MOD-22B-2	M-PB	18	16	1800	0.1	TP	EL	SEE SPEC	AHU-22	AHU-22	3105 MECH	
MOD-22C	M-PB	30	18	3640	0.1	MOD	EL	SEE SPEC	AHU-22	AHU-22	3105 MECH	

TYPE				CONTROL TYPE		ACTUATOR TYPE	
M-PB	MOTOR OPERATED PARALLEL BLADE	G-PB	GRAVITY OPERATED PARALLEL BLADE	MOD	MODULATING	PN	PNEUMATIC
M-OB	MOTOR OPERATED OPPOSED BLADE	M-BF	MOTOR OPERATED BUTTERFLY	TP	TWO POSITION	EL	ELECTRIC

REMARKS:

(1) SEE SPECIFICATION SECTION 230993 - HVAC SEQUENCE OF OPERATIONS.

AIR TERMINAL SCHEDULE

ROOM NUMBER	ROOM NAME	SYSTEM	MARK	TYPE	AIR TERMINAL AIR FLOW (CFM) MAX.	MIN.	HEATING	UNOCC. MIN.	(3) OFFSET (CFM)	INLET SIZE (IN)	(1) MAX. PD (IN. WC)	HOT WATER REHEAT COIL AIRFLOW (CFM)	CAP. (BTUH)	EAT (°F)	LAT (°F)	MAX APD (IN. WC)	EWT (°F)	LWT (°F)	FLOW (GPM) (2)	PD (FT)	OCC SENSOR INTERLOCK	LABORATORY TERMINAL CONTROL SEQUENCE	REMARKS
B1144	UTILITY CORRIDOR	AHU-22	SAT-B1144	BUTTERFLY	255	150	150	150	-350	6	0.75	150	4547	55	83	0.25	180	160	0.5	5	NO	7	
		AHU-22	RAT-B1144	BUTTERFLY	555	450		450	-	8	0.75	-	-	-	-	-	-	-	-	-	NO	7	
B1148	OPERATORS ROOM	AHU-9	SAT-B1148	BUTTERFLY	1615	485	485	485	-	12	0.75	485	18418	55	90	0.25	180	160	1.8	5	NO	-	
B1148A	IMAGING SUPPORT	AHU-9	SAT-B1148A	BUTTERFLY	880	265	265	265	-	10	0.75	265	4888	55	72	0.25	180	160	0.5	5	NO	-	
B1148C	MICROSCOPE ROOM	AHU-22	SAT-B1148C	BUTTERFLY	3450	1950	1950	1950	300	16	0.75	1950	35968	55	72	0.25	180	160	3.6	5	NO	7	
		AHU-22	RAT-B1148C	BUTTERFLY	3150	1650		1650	-	14	0.75	-	-	-	-	-	-	-	-	-	NO	7	
B1148D	MICROSCOPE ROOM	AHU-22	SAT-B1148D	BUTTERFLY	1750	1300	1300	1300	150	12	0.75	1300	29241	55	76	0.25	180	160	2.9	5	NO	7	
		AHU-22	RAT-B1148D	BUTTERFLY	1410	960	-	960	-	12	0.75	-	-	-	-	-	-	-	-	-	NO	7	
		AHU-22	EAT-B1148D	VENTURI	190	190	-	190	-	6	0.75	-	-	-	-	-	-	-	-	-	NO	7	
3105	MECHANICAL ROOM	AHU-9	SAT-3105	BUTTERFLY	325	325	-	325	-	6	0.5	-	-	-	-	-	-	-	-	-	NO	-	

REMARKS:

(1) UNIT PRESSURE DROP INCLUDES APPLICABLE ACCESSORIES (HEATING COIL, SOUND ATTENUATOR, ETC.) BASED ON MAXIMUM SUPPLY AIRFLOW RATE (CFM). PROVIDE LARGER DETACHED COIL AND DUCTWORK TRANSITION IF AIR TERMINAL UNIT MANUFACTURER'S COIL EXCEEDS THE SCHEDULED AIR PRESSURE DROP (APD).
(2) COIL HOT WATER FLOW RATE LIMITED TO 0.5 GPM MINIMUM, AS FLOW RATES BELOW 0.5 GPM MAY CAUSE BALANCING PROBLEMS AND POOR COIL PERFORMANCE.
(3) INDICATED OFFSET TO BE MAINTAINED BETWEEN TOTAL ROOM ENTERING AIR AND TOTAL ROOM LEAVING AIR QUANTITIES. (+) INDICATES ENTERING AIR QUANTITIES EXCEED LEAVING AIR QUANTITIES.

SOUND ATTENUATING DEVICE (SAD) SCHEDULE

MARK	SERVICE	SUPPLY AIR FLOW (CFM)	MAX. PD (IN WC)	DUCT SHAPE	INLET SIZE (IN) (2) WIDTH	INLET SIZE (IN) (2) DEPTH	OUTLET SIZE (IN) (2) WIDTH	OUTLET SIZE (IN) (2) DEPTH	VEL. (FPM)	ATTEN. LENGTH (FT)	DYNAMIC INSERTION LOSS (DB) OCTAVE BAND CENTER FREQUENCY (HZ) 63	125	250	500	1000	2000	4000	8000	SELF-NOISE POWER LOSS (DB) OCTAVE BAND CENTER FREQUENCY (HZ) 63	125	250	500	1000	2000	4000	8000	WEIGHT (LB)	LOCATION	REMARKS
SAD-SAT-B1148C	B1148C SUPPLY	3450	0.2	REC, ELB	32	14	32	14	1,109	7	8	12	14	21	21	21	17	14	8	13	15	23	24	23	19	16	200	OPERATOR B1148	(1)
SAD-RAT-B1148C	B1148C RETURN	3150	0.2	REC, ELB	32	12	32	12	1,181	7	10	10	14	19	33	37	27	20	56	49	45	43	43	40	30	25	175	OPERATOR B1148	(1)
SAD-SAT-B1148D	B1148D SUPPLY	1750	0.2	REC	22	12	22	12	955	5	9	16	18	12	12	10	9	7	52	43	40	39	36	34	27	25	75	OPERATOR B1148	(1)
SAD-RAT-B1148D	B1148D RETURN	1410	0.2	REC, ELB	20	12	20	12	846	5	8	11	19	19	26	31	26	20	48	38	34	34	38	30	14	10	100	OPERATOR B1148	(1)

DUCT SHAPE			
RND	ROUND	OVAL	OVAL
REC	RECTANGULAR	ELB	ELBOW

REMARKS:

(1) DUCT SIZES MAY VARY DEPENDENT ON FIELD CONDITIONS AND SHALL BE VERIFIED BY CONTRACTOR.
(2) WIDTH AND DEPTH INDICATED REFERENCE PLAN VIEW OF SOUND ATTENUATION DEVICE.

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Sheet Title:
MECHANICAL SCHEDULES

Revisions:		
No:	Date:	Description:
1	11/18/2024	Addendum 01

Graphic Scale	NA
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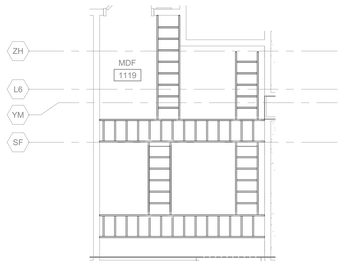
Sheet Number	M602

GENERAL NOTES

1. COORDINATE PLACEMENT OF NEW FIBER PANELS WITH DoIT.
2. COORDINATE PLACEMENT OF NEW PATCH PANELS FOR CATEGORY 6A TERMINATIONS WITH DoIT.
3. CONTACT DoIT PROJECT REPRESENTATIVE FOR DATA OUTLET STARTING NUMBER TO BE USED IN TR 1119 AND MDF 1140.

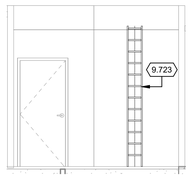
KEYED NOTES

1
- 9.721 PROVIDE (1) NEW 24-STRAND ARMORED FO CABLE HOMERUN FROM IMAGING SUPPORT ROOM AND (1) NEW 24-STRAND ARMORED FO CABLE HOMERUN FROM CONFERENCE ROOM B1131F THROUGH TR 1119 TO MDF 1140 USING EXISTING CONDUIT PATHWAYS ORIGINATING IN TR 1119. COORDINATE TERMINATION SPACE WITH IJW DOIT. TERMINATE FO CABLES IN RACK MOUNTED FIBER HOUSING IN EXISTING RACK. REFERENCE SHEETS T701 AND DIVISION 27 SPECIFICATIONS FOR ADDITIONAL INFORMATION.
- 9.723 EXISTING VERTICAL CABLE LADDER RACK.

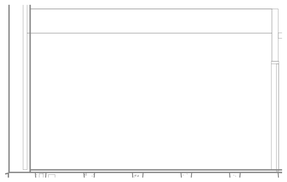


TRUE NORTH PLAN NORTH

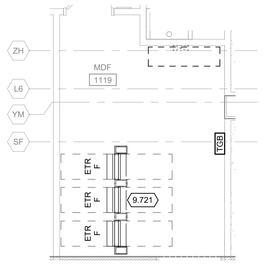
1 CABLE RUNWAY LAYOUT PLAN - MDF 1119
1/4" = 1'-0"



2 NORTH WALL - MDF 1119
1/4" = 1'-0"

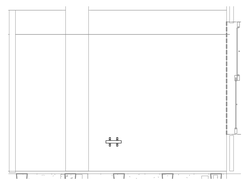


3 WEST WALL - MDF 1119
1/4" = 1'-0"

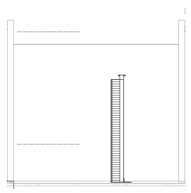


TRUE NORTH PLAN NORTH

4 ENLARGED PLAN - MDF 1119
1/4" = 1'-0"



5 EAST WALL - MDF 1119
1/4" = 1'-0"



6 SOUTH WALL - MDF 1119
1/4" = 1'-0"

OUTLET SCHEDULE (MDF 1119)

OUTLET TYPE	PORT COUNT	OUTLET COUNT	COMMENTS
CAMERA OUTLET - 1-PORT	6	6	<varies>
TECHNOLOGY OUTLET - 4-PORT	28	7	
WIRELESS ACCESS POINT OUTLET - 2-PORT	2	1	
Totals	36	14	

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Sheet Title:
ENLARGED PLANS, ELEVATIONS & SECTIONS

Revisions:

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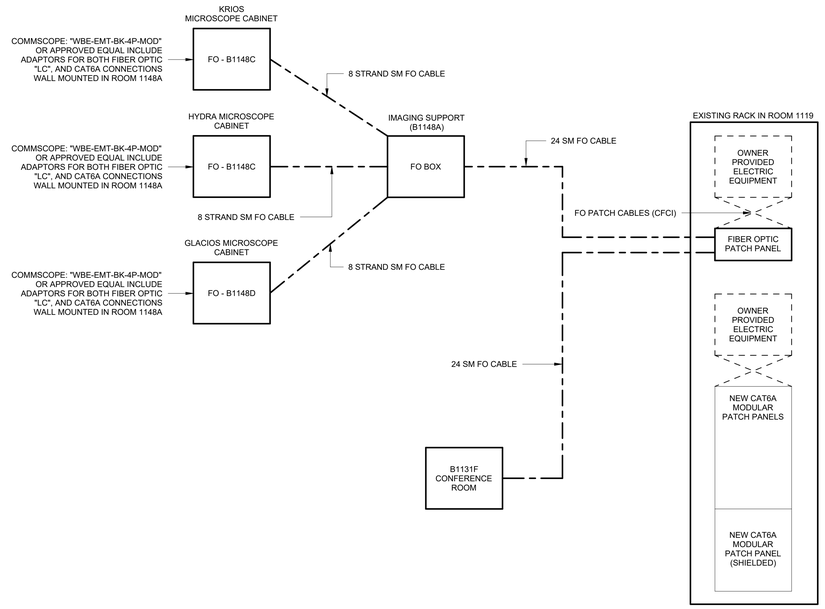
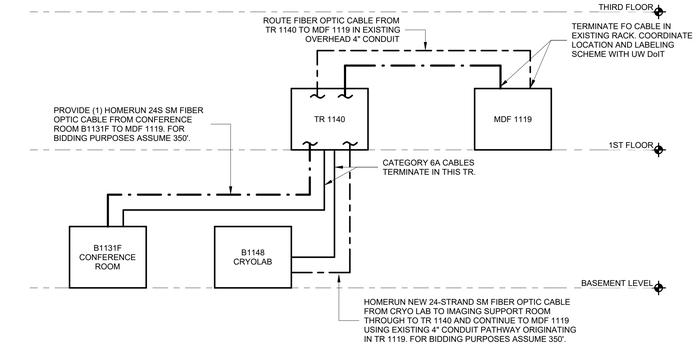
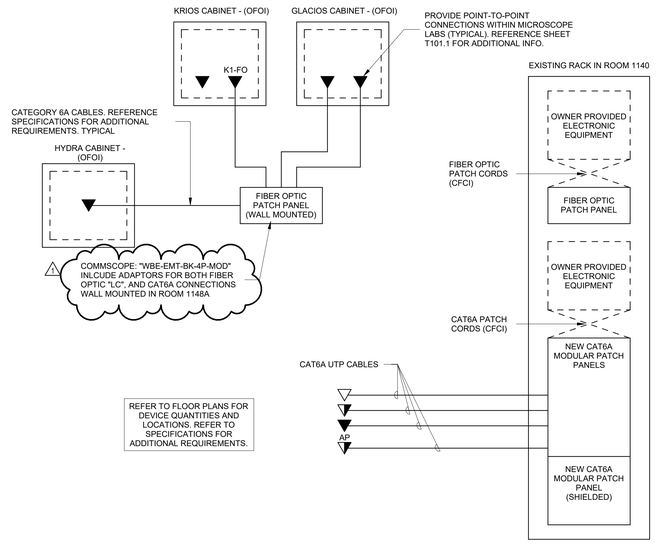


3 TECHNOLOGY FIBER OPTIC BACKBONE RISER
NO SCALE



NOTES:
1. TERMINATE ALL FIBER OPTIC CABLES WITH LC CONNECTORS.
2. PROVIDE RACK MOUNTED FIBER OPTIC HOUSING AT MTR END OF THE CABLE.
3. PROVIDE 10M DUPLEX LC JUMPER CORDS.
4. REFER TO DIVISION 27 SPECIFICATIONS FOR ADDITIONAL INFO AND REQUIREMENTS.

1 TECHNOLOGY BACKBONE RISER DIAGRAM
NO SCALE



2 TELECOMMUNICATIONS RISER DIAGRAM FOR MICROSCOPES
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Sheet Title:
ONE-LINE DIAGRAMS

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