PROJECT MANUAL FOR:

AGRICULTURE SCIENCE BUILDING – RENOVATE CLASSROOMS 2-10 & 2-11

PROJECT NO.: CP200301

AT:
UNIVERSITY OF MISSOURI - COLUMBIA
COLUMBIA, MISSOURI

FOR:
THE CURATORS OF THE
UNIVERSITY OF MISSOURI

PREPARED BY:

PLANNING
DESIGN &
CONSTRUCTION

CAMPUS FACILITIES
UNIVERSITY OF MISSOURI

September 2, 2020
SPECIAL NOTICE – DELIVERY OF BIDS and Public Bid Opening Remote Access
Due to the COVID19 situation, be advised of the modified procedures for receiving bids for this project.

- General Services Building (GSB) is locked during this time of remote work activities.
- On the date of the bid opening, an MU employee will be available at L100 GSB to receive bids starting 30 (thirty) minutes prior to the time stated.
  - Contractors should remain in their vehicles until they are ready to submit bids. The lobby of GSB will not be available for waiting or receiving phone calls.
  - US Mail and overnight deliveries are being held at a central location during this period of remote working for the MU campus. There is no guarantee that use of mail or shipping deliveries will be received at the stated address by the deadline for the receipt of bids.
- A public bid opening will be held at the entry of GSB. Those wishing to view the bid opening may be asked to stand outdoors and maintain appropriate social distance.
- The standard process of posting a bid tabulation to the website will continue as normal.
ARCHITECTURAL

The Architects seal on these contract documents has been affixed in accordance with the requirements of Chapter 327, RSMO. In affixing this seal, the Architect takes responsibility for the attached architectural specifications. The Architect hereby disclaims any and all responsibility for project specifications other than these, included in these project documents, they being the responsibility of the other design professionals, whose seals and statements appear herein.

Specification Section 02 8233 and the Hazardous Building Material Survey are technical documents that have been prepared by a qualified third party hazardous materials testing lab. The specification was not prepared under the direct supervision of the architect and therefore is not included as part of the architect’s certification.

02 4100 Demolition
06 1000 Rough Carpentry
07 9200 Joint Sealants
08 1213 Hollow Metal Frames
08 1416 Flush Wood Doors
08 7100 Door Hardware
09 5100 Acoustical Ceilings
09 6500 Resilient Flooring
09 6813 Tile Carpeting
09 8400 Acoustical Panels
09 9123 Interior Painting

(seal) Signature: 

MU Project #CP200301
MECHANICAL

The Engineers seal on these contract documents has been affixed in accordance with the requirements of Chapter 327, RSMO. In affixing this seal, the engineer takes responsibility for the attached engineering specifications. The Engineer hereby disclaims any and all responsibility for project specifications other than these, included in these project documents, they being the responsibility of the other design professionals, whose seals and statements appear herein.

23 0593  Contractor Scope for Owner Supplied TAB
23 0713  Duct Insulation
23 3100  HVAC Ducts and Casings
23 3300  Air Duct Accessories
23 3700  Air Outlets and Inlets

Digitally signed by Kirk D. Wing
Date: 2020.08.25 10:50:22 -05'00'

(seal) Signature: [Signature]

MU Project #CP200301
ELECTRICAL

The Engineers seal on these contract documents has been affixed in accordance with the requirements of Chapter 327, RSMO. In affixing this seal, the engineer takes responsibility for the attached engineering specifications. The Engineer hereby disclaims any and all responsibility for project specifications other than these, included in these project documents, they being the responsibility of the other design professionals, whose seals and statements appear herein.

26 0501 Minor Electrical Demolition
26 0510 Electrical Materials and Methods
26 5100 Interior Lighting Fixtures

(seal) Signature:

STATE OF MISSOURI

JAMES L. DOVE

NUMBER
PE-200201644

PROFESSIONAL ENGINEER

08-24-20

MU Project #CP200301
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DIVISION 5 METALS (NOT USED)

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ADVERTISEMENT FOR BIDS

Sealed bids for:

AGRICULTURE SCIENCE BUILDING – RENOVATE CLASSROOMS 2-10 & 2-11
UNIVERSITY OF MISSOURI
COLUMBIA, MISSOURI
PROJECT NUMBER: CP200301 CONSTRUCTION ESTIMATE $130,500 - $145,000

will be received by the Curators of the University of Missouri, Owner, at Campus Facilities, Planning, Design & Construction, Room L100 (Front Reception Desk), General Services Building, University of Missouri, Columbia, Missouri 65211, until 1:30 p.m., C.T., September 17, 2020 and then immediately opened and publicly read aloud.

Drawings, specifications, and other related contract information may be obtained at http://operations-webapps.missouri.edu/pdc/adsite/ad.html. Electronic bid sets are available at no cost and may be printed as desired by the plan holders. No paper copies will be issued. If paper copies are desired, it is the responsibility of the user to print the files or have them printed.

Questions regarding the scope of work and commercial conditions should be directed to Design Services Project Manager Jessie Crocker at (573) 884-4858 or crockerjl@missouri.edu.

A prebid meeting will be held at 10:00 a.m., C.T., September 9, 2020 via web conference. Instructions to access the meeting are provided below. All interested bidders are invited to attend this meeting. No walk-through at the site will be included in the prebid meeting. No walk-throughs of the project will be scheduled.

Zoom Meeting https://umsystem.zoom.us/j/96917302492?pwd=OEFkTXdySEpkQkpzM2JOU0JTYzBLQT09
Meeting ID: 96917302492
Passcode: CP200301
Call In #: 312.626.6799

Information regarding bid results will be available the day following the bid opening by calling (573) 882-1133

A Diversity Participation goal of 10% Combined MBE, WBE, DBE, Veteran and 3% SDVE has been established for this contract.

The Owner reserves the right to waive informalities in bids and to reject any and all bids.

Individuals with special needs as addressed by the Americans with Disabilities Act may contact (573) 882-1133.

Advertisement Date: September 2, 2020

Gary L. Ward
Vice Chancellor for Operations and Chief Operating Officer
University of Missouri
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BID FOR LUMP SUM CONTRACT

Date: ____________________________

BID OF
(hereinafter called "Bidder") a corporation* organized and existing under laws of the State of ________________________________,
a partnership* consisting of ________________________________,
an individual* trading as ________________________________,
a joint venture* consisting of ________________________________.
*Insert Corporation(s), partnership or individual, as applicable.

TO: Curators of the University of Missouri
    c/o Associate Vice Chancellor – Facilities
    Room L100, General Services Building
    University of Missouri
    Columbia, Missouri 65211

1. Bidder, in compliance with invitation for bids for construction work in accordance with Drawings and Specifications prepared by Planning, Design, and Construction, entitled "Agriculture Science Building- Renovate Classrooms 2-10 & 2-11", project number CP200301 dated September 2, 2020 having examined Contract Documents and site of proposed work, and being familiar with all conditions pertaining to construction of proposed project, including availability of materials and labor, hereby proposes to furnish all labor, materials and supplies to construct project in accordance with Contract Documents, within time set forth herein at prices stated below. Prices shall cover all expenses, including taxes not covered by the University of Missouri’s tax exemption status, incurred in performing work required under Contract documents, of which this Bid is a part.

Bidder acknowledges receipt of following addenda:

Addendum No. ____________________________ Dated __________
Addendum No. ____________________________ Dated __________
Addendum No. ____________________________ Dated __________
Addendum No. ____________________________ Dated __________

2. In following Bid(s), amount(s) shall be written in both words and figures. In case of discrepancy between words and figures, words shall govern.
3. BID PRICING
   a. Base Bid:

      The Bidder agrees to furnish all labor, materials, tools, and equipment required to renovate Classroom spaces including minor demolition, abatement, and modifications including walls, finishes, floors, doors, ceilings, mechanical HVAC, fire alarm, and electrical power, data, and lighting; all as indicated on the Drawings and described in these Specifications for sum of:

      ________________________________ DOLLARS ($___________________).

4. PROJECT COMPLETION
   a. Contract Period - Contract period begins on the day the Contractor receives unsigned Contract, Performance Bond, Payment Bond, and "Instructions for Execution of Contract, Bonds, and Insurance Certificates." Bidder agrees to complete project within sixty (60) calendar days from receipt of aforementioned documents. Fifteen (15) calendar days have been allocated in construction schedule for receiving aforementioned documents from Bidder.

   b. Commencement - Contractor agrees to commence work on this project after the "Notice to Proceed" is issued by the Owner. "Notice to Proceed" will be issued within seven (7) calendar days after Owner receives properly prepared and executed Contract documents listed in paragraph 4.a. above.

5. SUPPLIER DIVERSITY PARTICIPATION GOALS
   a. The Contractor shall have as a goal, subcontracting with Minority Business Enterprise (MBE) and with Women Business Enterprise (WBE), Disadvantage Business Enterprise (DBE), and/or Veteran Owned Business of a combined ten percent (10%), and with Service Disabled Veteran Owned Business (SDVE) of three percent (3%) of awarded contract price for work to be performed.

   b. Requests for waiver of this goal shall be submitted on the attached Application For Waiver form. A determination by the Director of Facilities Planning & Development, UM, that a good faith effort has not been made by Contractor to achieve above stated goal may result in rejection of bid.

   c. The Undersigned proposes to perform work with following Supplier Diversity participation level:

      MBE, WBE, DBE, and/or VETERAN PERCENTAGE PARTICIPATION
      ____________________________________________ percent (_______%)
SDVE PERCENTAGE PARTICIPATION:

……………………………………………… percent (_______%)

d. A Supplier Diversity Compliance Evaluation form shall be submitted with this bid for each diverse subcontractor to be used on this project.

6. BIDDER'S ACKNOWLEDGMENTS

a. Bidder declares that he has had an opportunity to examine the site of the work and he has examined Contract Documents therefore; that he has carefully prepared his bid upon the basis thereof; that he has carefully examined and checked bid, materials, equipment and labor required thereunder, cost thereof, and his figures therefore. Bidder hereby states that amount, or amounts, set forth in bid is, or are, correct and that no mistake or error has occurred in bid or in Bidder's computations upon which this bid is based. Bidder agrees that he will make no claim for reformation, modifications, revisions or correction of bid after scheduled closing time for receipt of bids.

b. Bidder agrees that bid shall not be withdrawn for a period of sixty (60) days after scheduled closing time for receipt of bids.

c. Bidder understands that Owner reserves right to reject any or all bids and to waive any informalities in bidding.

d. Accompanying the bid is a bid bond, or a certified check, or an irrevocable letter of credit, or a cashier's check payable without condition to "The Curators of the University of Missouri" which is an amount at least equal to five percent (5%) of amount of largest possible total bid herein submitted, including consideration of Alternates.

e. Accompanying the bid is a Bidder's Statement of Qualifications. Failure of Bidder to submit the Bidder's Statement of Qualifications with the bid may cause the bid to be rejected. Owner does not maintain Bidder's Statements of Qualifications on file.

f. It is understood and agreed that bid security of two (2) lowest and responsive Bidders will be retained until Contract has been executed and an acceptable Performance Bond and Payment Bond has been furnished. It is understood and agreed that if the bid is accepted and the undersigned fails to execute the Contract and furnish acceptable Performance/Payment Bond as required by Contract Documents, accompanying bid security will be realized upon or retained by Owner. Otherwise, the bid security will be returned to the undersigned.
7. BIDDER’S CERTIFICATE

Bidder hereby certifies:

a. His bid is genuine and is not made in interest of or on behalf of any undisclosed person, firm or corporation, and is not submitted in conformity with any agreement or rules of any group, association or corporation.

b. He has not directly or indirectly induced or solicited any other bidder to put in a false or sham bid.

c. He has not solicited or induced any person, firm or corporation to refrain from bidding.

d. He has not sought by collusion or otherwise to obtain for himself any advantage over any other Bidder or over Owner.

e. He will not discriminate against any employee or applicant for employment because of race, color, religion, sex or national origin in connection with performance of work.

f. By virtue of policy of the Board of Curators, and by virtue of statutory authority, a preference will be given to materials, products, supplies, provisions and all other articles produced, manufactured, mined or grown within the State of Missouri. By virtue of policy of the Board of Curators, preference will also be given to all Missouri firms, corporations, or individuals, all as more fully set forth in "Information For Bidders."

END OF BIDDER’S CERTIFICATE
8. **BIDDER'S SIGNATURE**

Note: All signatures shall be original; not copies, photocopies, stamped, etc.

<table>
<thead>
<tr>
<th>Authorized Signature</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Printed Name</td>
<td>Title</td>
</tr>
<tr>
<td>Company Name</td>
<td></td>
</tr>
<tr>
<td>Mailing Address</td>
<td></td>
</tr>
<tr>
<td>City, State, Zip</td>
<td></td>
</tr>
<tr>
<td>Phone No.</td>
<td>Federal Employer ID No.</td>
</tr>
<tr>
<td>Fax No.</td>
<td>E-Mail Address</td>
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<tr>
<td>Circle one:</td>
<td>Individual Partnership Corporation Joint Venture</td>
</tr>
<tr>
<td>If a corporation, incorporated under the laws of the State of__________</td>
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<tr>
<td>Licensed to do business in the State of Missouri? _____yes _____no</td>
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</tbody>
</table>

(Each Bidder shall complete bid form by manually signing on the proper signature line above and supplying required information called for in connection with the signature. Information is necessary for proper preparation of the Contract, Performance Bond and Payment Bond. Each Bidder shall supply information called for in accompanying "Bidder's Statement of Qualifications.")

**END OF SECTION**
UNIVERSITY OF MISSOURI
BIDDER'S STATEMENT OF QUALIFICATIONS

Submit with Bid for Lump Sum Contract in separate envelope appropriately labeled. Attach additional sheet if necessary.

1. Company Name______________________________________________________________
   Phone# __________________________ Fax #: ________________________________
   Address ____________________________________________________________________

2. Number of years in business ______. If not under present firm name, list previous firm names and
types of organization.
   ______________________________________
   ______________________________________
   ______________________________________

3. List contracts on hand (complete the following schedule, include telephone number).
   Project & Address          Owner/Owner's  Phone    Architect          Amount of    Percent
                                Representative Number          your Contract    Completed
   ______________________________________
   ______________________________________
   ______________________________________

4. General character of work performed by your company personnel.
   ______________________________________
   ______________________________________
   ______________________________________

5. List important projects completed in the last five (5) years on a type similar to the work now bid for,
   including approximate cost and telephone number.
   Project & Address          Owner/Owner's  Phone    Architect          Amount of your    Percent
                                Representative Number          your Contract    Completed
   ______________________________________
   ______________________________________
   ______________________________________

6. Other experience qualifying you for the work now bid.
   ______________________________________
   ______________________________________
   ______________________________________

7. No default has been made in any contract complete or incomplete except as noted below:
   (a) Number of contracts on which default was made __________________________
   (b) Description of defaulted contracts and reason therefor _______________________

8. (a) Have you or your company participated in any contract subject to an equal opportunity clause similar
to that described in the General Conditions?
   Yes ______ No ______
   (b) Have you filed all required compliance reports?
   Yes ______ No ______
(c) Is fifty percent or more of your company owned by a minority?
   Yes   No

(d) Is fifty percent or more of your company owned by a woman?
   Yes   No

(e) Is fifty percent or more of your company owned by a service disabled veteran?
   Yes   No

(f) Is fifty percent or more of your company owned by a veteran?
   Yes   No

(g) Is your company a Disadvantaged Business Enterprise?
   Yes   No

9. Have you or your company been suspended or debarred from working at any University of Missouri campus?
   Yes   No  (If the answer is "yes", give details.)

10. Have any administrative or legal proceedings been started against you or your company alleging violation of any wage and hour regulations or laws?
    Yes   No  (If the answer is "yes", give details.)

11. Workers Compensation Experience Modification Rates (last 3 yrs): / / 
    Incidence Rates (last 3 years): / / 

12. List banking references.

13. (a) Do you have a current confidential financial statement on file with Owner?
    Yes   No  (If not, and if desired, Bidder may submit such statement with bid, in a separate sealed and labeled envelope.)

    (b) If not, upon request will you file a detailed confidential financial statement within three (3) days?
        Yes   No

Dated at __________________________ this __________ day of ____________________ 20________

Name of Organization

________________________________________
Signature

________________________________________
Printed Name

________________________________________
Title of Person Signing

END OF SECTION
UNIVERSITY OF MISSOURI
BIDDER'S STATEMENT OF QUALIFICATIONS FOR ASBESTOS ABATEMENT

Submit with Bid for Lump Sum Contract in separate envelope appropriately labeled. Attach additional sheet if necessary.

1. Company Name_________________________________________Phone# __________________________
   Address ________________________________________________________________________________

2. State of Missouri Registration number______________________________

3. Number of years in business _____. If not under present firm name, list previous firm names and types of organization.
_______________________________________________________________________________________

4. List contracts on hand (complete the following schedule, include telephone number).
<table>
<thead>
<tr>
<th>Project &amp; Address</th>
<th>Owner/Owner's Representative</th>
<th>Phone Number</th>
<th>Architect</th>
<th>Amount of your Contract</th>
<th>Percent Completed</th>
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</table>

5. General character of work performed by your company personnel.
_______________________________________________________________________________________

6. List important projects completed in the last five (5) years on a type similar to the work now bid for, including approximate cost and telephone number.
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_______________________________________________________________________________________

8. No default has been made in any contract complete or incomplete except as noted below:
   (a) Number of contracts on which default was made __________________________
   (b) Description of defaulted contracts and reason therefor

_______________________________________________________________________________________

9. (a) Have you or your company participated in any contract subject to an equal opportunity clause similar to that described in the General Conditions?
    Yes _____    No _____

   (b) Have you filed all required compliance reports?
    Yes _____    No _____
(c) Is fifty percent or more of your company owned by a minority?
   Yes ______ No ______
   (d) Is fifty percent or more of your company owned by a woman?
   Yes ______ No ______
   (e) Is fifty percent or more of your company owned by a service disabled veteran?
   Yes ______ No ______
   (f) Is fifty percent or more of your company owned by a veteran?
   Yes ______ No ______
   (g) Is your company a Disadvantaged Business Enterprise?
   Yes ______ No ______

10. Have you or your company been suspended or debarred from working at any University of Missouri campus?
    Yes ______ No ____ (If the answer is "yes", give details.)

11. Have any administrative or legal proceedings been started against you or your company alleging violation of any wage and hour regulations or laws?
    Yes ______ No ____ (If the answer is "yes", give details.)

12. Workers Compensation Experience Modification Rates (last 3 yrs): __________ /
    Incidence Rates (last 3 years): ________ / ________

13. List banking references.

14. (a) Do you have a current confidential financial statement on file with Owner?
    Yes ______ No ____ (If not, and if desired, Bidder may submit such statement with bid, in a separate sealed and labeled envelope.)
    (b) If not, upon request will you file a detailed confidential financial statement within three (3) days?
    Yes ______ No ____

Dated at ______________________ this __________ day of ______________________ 20____

Name of Organization

____________________________
Signature

____________________________
Printed Name

____________________________
Title of Person Signing

END OF SECTION
SUPPLIER DIVERSITY COMPLIANCE EVALUATION FORM

This form shall be completed by Bidders and submitted with the Bidder's Statement of Qualifications form for each diverse firm who will function as a subcontractor on the contract.

The undersigned submits the following data with respect to this firm's assurance to meet the goal for Supplier Diversity participation.

I. Project:

__________________________________________________________

II. Name of General Contractor: ________________________________

III. Name of Diverse Firm: _________________________________

Address: ________________________________________________

Phone No.: ________________________________ Fax No.: __________

Status (check one) MBE _____ WBE _____ Veteran_____ Service Disabled Veteran_____ DBE_____

IV. Describe the subcontract work to be performed. (List Base Bid work and any Alternate work separately):

Base Bid: _______________________________________________

_______________________________________________________

_______________________________________________________

_______________________________________________________

_______________________________________________________

V. Dollar amount of contract to be subcontracted to the Diverse firm:

Base Bid: ______________________________________________

Alternate(s), (Identify separately): __________________________

_______________________________________________________

_______________________________________________________

_______________________________________________________

_______________________________________________________

VI. Is the proposed subcontractor listed in the Directory of M/W/DBE Vendors, Directory of Serviced Disabled Veterans and/or the Directory of Veterans maintained by the State of Missouri?

Yes ______ No ______

SD/1
Is the proposed subcontractor certified as a diverse supplier by any of the following: federal government agencies, state agencies, State of Missouri city or county government agencies, Minority and/or WBE certifying agencies?

Yes ______  No ______  If yes, please provide details and attach a copy of the certification.

---

Does the proposed subcontractor have a signed document from their attorney certifying the Supplier as a Diverse and meeting the 51% owned and committed requirement?

Yes ______  No ______  If yes, please attach letter.

---

Signature:  __________________________________________

Name:  __________________________________________

Title:  __________________________________________

Date:  __________________________________________
APPLICATION FOR WAIVER

This form shall be completed and submitted with the Bidder's Statement of Qualifications. Firms wishing to be considered for award are required to demonstrate that a good faith effort has been made to include diverse suppliers. This form will be used to evaluate the extent to which a good faith effort has been made. The undersigned submits the following data with respect to the firm's efforts to meet the goal for Supplier Diversity Participation.

1. List pre-bid conferences your firm attended where Supplier Diversity requirements were discussed.

2. Identify advertising efforts undertaken by your firm which were intended to recruit potential diverse subcontractors for various aspects of this project. Provide names of newspapers, dates of advertisements and copies of ads that were run.

3. Note specific efforts to contact in writing those diverse suppliers capable of and likely to participate as subcontractors for this project.

4. Describe steps taken by your firm to divide work into areas in which diverse suppliers/contractors would be capable of performing.

5. What efforts were taken to negotiate with prospective diverse suppliers/contractors for specific sub-bids? Include the names, addresses, and telephone numbers of diverse suppliers/contractors contacted, a description of the information given to diverse suppliers/contractors regarding plans and specifications for the assigned work, and a statement as to why additional agreements were not made with diverse suppliers/contractors.

6. List reasons for rejecting a diverse supplier/contractor which has been contacted.
8. Describe the follow-up contacts with diverse suppliers/contractors made by your firm after the initial solicitation.

9. Describe the efforts made by your firm to provide interested diverse suppliers/contractors with sufficiently detailed information about the plans, specifications and requirements of the contract.

10. Describe your firm's efforts to locate diverse suppliers/contractors.

Based on the above stated good faith efforts made to include supplier diversity, the bidder hereby requests that the original supplier diversity percentage goal be waived and that the percentage goal for this project be set at ________ percent.

The undersigned hereby certifies, having read the answers contained in the foregoing Application for Waiver, that they are true and correct to the best of his/her knowledge, information and belief.

Signature________________________________________

Name____________________________________________

Title____________________________________________

Company__________________________________________

Date_______________________________________________
AFFIDAVIT

"The undersigned swears that the foregoing statements are true and correct and include all material information necessary to identify and explain the operation of ____________________________ (name of firm) as well as the ownership thereof. Further, the undersigned agrees to provide through the prime contractor or directly to the Contracting Officer current, complete and accurate information regarding actual work performed on the project, the payment therefore and any proposed changes, if any, of the project, the foregoing arrangements and to permit the audit and examination of books, records and files of the named firm. Any material misrepresentation will be grounds for terminating any contract which may be awarded and for initiating action under federal or state laws concerning false statements."

Note - If, after filing this information and before the work of this firm is completed on the contract covered by this regulation, there is any significant change in the information submitted, you must inform the Director of Facilities Planning and Development of the change either through the prime contractor or directly.

Signature ____________________________

Name ____________________________

Title ____________________________

Date ____________________________

Corporate Seal (where appropriate)

Date ____________________________

State of ____________________________

County of ____________________________

On this day of , 19__, before me appeared (name) ____________________________ to me personally known, who, being duly sworn, did execute the foregoing affidavit, and did state that he or she was properly authorized by (name of firm) ____________________________ to execute the affidavit and did so as his or her own free act and deed.

(Seal)

Notary Public ____________________________

Commission expires ____________________________

SD/5
STATE OF MISSOURI

COUNTY OF

__________________________________________, first being duly sworn on his/her oath states: that he/she is the (sole proprietor, partner, or officer) of __________________________________________________ a (sole proprietorship, partnership, corporation), and as such (sole proprietor, partner, or officer) is duly authorized to make this affidavit on behalf of said (sole proprietorship, partnership, corporation); that under the contract known as "__________________________________________" Project No. ________________ less than 50 persons in the aggregate will be employed and therefore, the applicable Affirmative Action requirements as set forth in the "Nondiscrimination in Employment Equal Opportunity," Supplemental Special Conditions, and Article 13 in the General Conditions do not apply.

Subscribed and sworn before me this _______________ day of ___________________________, 19________.

My commission expires _____________________________________________, 19________.
CERTIFYING SUPPLIER DIVERSITY AGENCIES

Diverse firms are defined in General Conditions Articles 1.1.7 and those businesses must be certified as disadvantaged by an approved agency. The Bidder is responsible for obtaining information regarding the certification status of a firm. A list of certified firms may be obtained by contacting the agencies listed below. Any firm listed as disadvantaged by any of the following agencies will be classified as a diverse firm by the Owner.

St. Louis Development Corporation
1520 Market St., Ste. 2000
St. Louis, MO 63103
P: 314.982.1400
W: www.stlouis-mo.gov/sldc/

Bi-State Development
211 N. Broadway, Ste. 700
St. Louis, MO 63102
P: 314.982.1400
W: www.metrostlouis.dbesystem.com

St. Louis Minority Business Council
211 N. Broadway, Ste. 1300
St. Louis, MO 63102
P: 314.231.5555
W: www.slmbc.org

U.S. Small Business Administration - St. Louis, MO
8(a) Contractors, Minority Small Business
1222 Spruce Street, Suite 10.103
St. Louis, MO 63101
P: 314.539.6600
W: www.sba.gov

Lambert St. Louis International Airport
Business Diversity Development Office
11495 Navaid
Bridgeton, MO 63044
P: 314-426-8111

City of Kansas City, Missouri
Human Relations Department, MBE/WBE Division
4th Floor, City Hall
414 E. 12th Street
Kansas City, MO 64106
P: 816.513.1836
W: kcmohrd.mwdbce.com/?TN=kcmohrd

Mid-States Minority Supplier Development Council
505 N. 7th Street, Ste. 1820
St. Louis, MO 63101
P: 314.278.5616
W: midstatesdc.org

U.S. Small Business Administration - Kansas City, MO
8(a) Contractors, Minority Small Business
1000 Walnut, Suite 500
Kansas City, MO 64106
P: 816.426.4900
W: kcmohrd.mwdbce.com/?TN=kcmohrd

Missouri Department of Transportation
Division of Construction
1617 Missouri Blvd.
P.O. Box 270
Jefferson City, MO 65102
P: 573.526.2978
W: www.modot.org/mrcc-directory

Illinois Department of Transportation
MBE/WBE Certification Section
2300 Dirksen Parkway
Springfield, IL 62764
217/782-5490; 217/785-1524 (Fax)
W: webapps.dot.illinois.gov/UCP/ExternalSearch

State of Missouri OA
Office of Equal Opportunity
301 W. High St. HSC Rm 870-B
Jefferson City, MO 65101
P: 877.259.2963
W: oa.mo.gov/sites/default/files/sdvelisting.pdf
W: oeo.mo.gov/
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Minority Newspapers

Dos Mundos Bilingual Newspaper
902A Southwest Blvd.
Kansas City, MO 64108
816-221-4747
www.dosmundos.com

Kansas City Hispanic News
2918 Southwest Blvd.
Kansas City, MO 64108
816/472-5246
www.kchispanicnews.com

The Kansas City Globe
615 E. 29th Street
Kansas City, MO 64109
816-531-5253
www.thekcglobe.com/about_us.php

St. Louis American
4144 Lindell
St. Louis, MO 63108
314-533-8000
www.stlamerican.com

St. Louis Chinese American News
1766 Burns Ave, Suite 201
St. Louis, MO 63132
314-432-3858
www.scannews.com

St. Louis Business Journal
815 Olive St., Suite 100
St. Louis, MO 63101
314-421-6200
www.bizjournal.com/stlouis

Kansas City Business Journal
1100 Main Street, Suite 210
Kansas City, MO 64105
816-421-5900
www.bizjournals.com/kansascity
AFFIDAVIT OF SUPPLIER DIVERSITY PARTICIPATION

The apparent low Bidder shall complete and submit this form within 48 hours of bid opening for each Diverse firm that will participate on the contract.

1. Diverse Firm: __________________________________________
   Contact Name: __________________________________________
   Address: _______________________________________________
   Phone No.: ____________________ E-Mail: ____________________

   Status (check one)  MBE ☐  WBE ☐  Veteran ☐  Service Disabled Veteran ☐  DBE ☐
   If MBE, Certified as (circle one):  1) Black American  2) Hispanic American  3) Native American  4) Asian American

2. Is the proposed diverse firm certified by an approved agency [see IFB article 15]?  Yes ☐  No ☐
   Agency: _______________________[attach copy of certification authorization from agency]
   Certification Number: _______________________

3. Diverse firm scope work and bid/contract dollar amount of participation (List Base Bid and Alternate work separately). The final Dollar amount will be determined at substantial completion:

<table>
<thead>
<tr>
<th>Scope of Work</th>
<th>Bid/Contract Amount</th>
<th>Final Dollar Amount</th>
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</thead>
<tbody>
<tr>
<td>Base Bid</td>
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<tr>
<td>Alternate #1</td>
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<td>Alternate #6</td>
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</table>

   The undersigned certifies that the information contained herein (i.e. Scope of Work and Bid/Contract Amount) is true and correct to the best of their knowledge, information and belief.

   General Contractor: ________________________  Diverse Firm: ________________________
   Signature: _______________________________  Signature: _______________________________
   Name: ________________________________  Name: ________________________________
   Title: ________________________________  Title: ________________________________
   Date: ________________________________  Date: ________________________________

   The undersigned certifies that the information contained herein (i.e. Scope of Work and Final Dollar Amount) is true and correct to the best of their knowledge, information and belief. If the Final Dollar Amount is different than the Bid/Contract Amount, then attach justification for the difference.

   Contractor: ________________________  Diverse Firm: ________________________
   Signature: __________________________  Signature: __________________________
   Name: ______________________________  Name: ______________________________
   Title: ______________________________  Title: ______________________________
   Date: ______________________________  Date: ______________________________
1. Contract Documents
1.1 Drawings, specifications, and other contract documents, pursuant to which it is to be done, may be obtained shown in the Advertisement for Bids and Special Conditions.

2. Bidder Obligations
2.1 Before submitting bids each bidder shall carefully examine the drawings and specifications and related contract documents, visit site of work and fully inform themselves as to all existing conditions, facilities, restrictions and other matters which can affect the work or the cost thereof.

2.2 Each bidder shall include in their bid the cost of all work and materials required to complete the contract in a first-class manner as hereinafter specified.

2.3 Failure or omission of any bidder to receive or examine any form, instrument, addendum, or other document, or to visit the site and acquaint themselves with existing conditions, shall in no way relieve them from any obligation with respect to their bid or contract, and no extra compensation will be allowed by reason of any thing or matter concerning which bidder should have fully informed themselves prior to bidding.

2.4 Submission of bids shall be deemed acceptance of the above obligations and each and every obligation required to be performed by all of the contract documents in the event the bid is accepted.

3. Interpretation of Documents
3.1 If any prospective bidder is in doubt as to the true meaning of any part of the drawings and specifications or contract documents, they shall submit a written request to the Architect for an interpretation.

3.2 Requests for such interpretations shall be delivered to the Architect at least one (1) week prior to time for receipt of bids.

3.3 Bids shall be based only on interpretations issued in the form of addenda mailed to each person who is on the Architect's record as having received a set of the contract documents.

4. Bids
4.1 Bids shall be received separately or in combination as shown in and required by the Bid for Lump Sum contract. Bids will be completed so as to include insertion of amounts for alternate bids, unit prices and cost accounting data.

4.2 Bidders shall apportion each base bid between various phases of the work, as stipulated in the Bid for Lump Sum contract. All work shall be done as defined in the specifications and as indicated on the drawings.

4.3 Bids shall be presented in sealed envelopes which shall be plainly marked "Bids for (indicate name of project from cover sheet)", and mailed or delivered to the building and room number specified in the Advertisement for Bids. Bidders shall be responsible for actual delivery of bids during business hours, and it shall not be sufficient to show that a bid was mailed in time to be received before scheduled closing time for receipt of bids, nor shall it be sufficient to show that a bid was somewhere in a university facility.

4.4 The bidder's price shall include all federal sales, excise, and similar taxes, which may be lawfully assessed in connection with their performance of work and purchase of materials to be incorporated in the work. City & State taxes shall not be included as defined within Article 3.16 of the General Conditions for Construction Contract included in the contract documents.

4.5 Bids shall be submitted on a single bid form, furnished by the Owner or Architect. Do not remove the bid form from the specifications.

4.6 No bidder shall stipulate in their bid any conditions not contained in the bid form.

University of Missouri

INFORMATION FOR BIDDERS

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4.5 Bids shall be submitted on a single bid form, furnished by the Owner or Architect. Do not remove the bid form from the specifications.

4.6 No bidder shall stipulate in their bid any conditions not contained in the bid form.
4.7 The Owner reserves the right to waive informalities in bids and to reject any or all bids.

5. **Modification and Withdrawal of Bids**
5.1 The bidder may withdraw their bid at any time before the scheduled closing time for receipt of bids, but no bidder may withdraw their bid after the scheduled closing time for receipt of bids.

5.2 Only telegrams, letters and other written requests for modifications or correction of previously submitted bids, contained in a sealed envelope which is plainly marked “Modification of Bid on (name of project on cover sheet),” which are addressed in the same manner as bids, and are received by Owner before the scheduled closing time for receipt of bids will be accepted and bids corrected in accordance with such written requests.

6. **Signing of Bids**
6.1 Bids which are signed for a partnership shall be manually signed in the firm name by at least one partner, or in the firm name by Attorney-in-Fact. If signed by Attorney-in-Fact there should be attached to the bid, a Power of Attorney evidencing authority to sign the bid dated the same date as the bid and executed by all partners of the firm.

6.2 Bids that are signed for a corporation shall have the correct corporate name thereon and the signature of an authorized officer of the corporation manually written below corporate name. Title of office held by the person signing for the corporation shall appear below the signature of the officer.

6.3 Bids that are signed by an individual doing business under a firm name, shall be manually signed in the name of the individual doing business under the proper firm name and style.

6.4 Bids that are signed under joint venture shall be manually signed by officers of the firms having authority to sign for their firm.

7. **Bid Security**
7.1 Each bid shall be accompanied by a bid bond, certified check, or cashier's check, acceptable to and payable without condition to The Curators of the University of Missouri, in an amount at least equal to five percent (5%) of bidder’s bid including additive alternates.

7.2 Bid security is required as a guarantee that bidder will enter into a written contract and furnish a performance bond within the time and in form as specified in these specifications; and if successful bidder fails to do so, the bid security will be realized upon or retained by the Owner. The apparent low bidder shall notify the Owner in writing within 48 hours (2 work days) of the bid opening of any circumstance that may affect the bid security including, but not limited to, a bidding error. This notification will not guarantee release of the bidder’s security and/or the bidder from the Bidder’s Obligations.

7.3 If a bid bond is given as a bid security, the amount of the bond may be stated as an amount equal to at least five percent (5%) of the bid, including additive alternates, described in the bid. The bid bond shall be executed by the bidder and a responsible surety licensed in the State of Missouri with a Best’s rating of no less than A-/XI.

7.4 It is specifically understood that the bid security is a guarantee and shall not be considered as liquidated damages for failure of bidder to execute and deliver their contract and performance bond, nor limit or fix bidder’s liability to Owner for any damages sustained because of failure to execute and deliver the required contract and performance bond.

7.5 Bid security of the two (2) lowest and responsive Bidders will be retained by the Owner until a contract has been executed and an acceptable bond has been furnished, as required hereby, when such bid security will be returned. Surety bid bonds of all other bidders will be destroyed and all other alternative forms of bid bonds will be returned to them within ten (10) days after Owner has determined the two (2) lowest and responsive bids.

8. **Bidder’s Statement of Qualifications**
8.1 Each bidder submitting a bid shall present evidence of their experience, qualifications, financial responsibility and ability to carry out the terms of the contract by completing and submitting with their bid the schedule of information set forth in the form furnished in the bid form.

8.2 Such information, a single copy required in a separate sealed envelope, will be treated as confidential information by the Owner, within the meaning of Missouri Statue 610.010.

8.3 Bids not accompanied with current Bidder’s Statement of Qualifications may be rejected.

9. **Award of Contract**
9.1 The Owner reserves the right to let other contracts in connection with the work, including, but not by way of limitation, contracts for furnishing and installation of furniture, equipment, machines, appliances, and other apparatus.

9.2 In awarding the contract, the Owner may take into consideration the bidder's, and their subcontractor’s, ability to handle promptly the additional work, skill, facilities, capacity, experience, ability, responsibility, previous work, financial standing of bidder, and the bidder’s ability to provide the required bonds and insurance; quality, efficiency and construction of equipment proposed to be furnished; period of time within which equipment is proposed to be furnished and delivered; success in achieving the specified Supplier Diversity goal, or demonstrating a good faith effort as described in Article 15; necessity of prompt and efficient completion of work herein described, and the bidder’s status as suspended or debarred. Inability of any bidder to meet the requirements mentioned above may be cause for rejection of their bid.

10. **Contract Execution**
10.1 The Contractor shall submit within fifteen (15) days from receipt of notice, the documents required in Article 9 of the General Conditions for Construction Contract included in the contract documents.
10.2 No bids will be considered binding upon the Owner until the documents listed above have been furnished. Failure of Contractor to execute and submit these documents within the time period specified will be treated, at the option of the Owner, as a breach of the bidder's bid security under Article 7 and the Owner shall be under no further obligation to Bidder.

11. Contract Security

11.1 When the Contract sum exceeds $50,000, the Contractor shall procure and furnish a Performance bond and a Payment bond in the form prepared by Owner. Each bond shall be in the amount equal to one hundred percent (100%) of the contract sum, as well as adjustments to the Contract Sum. The Performance Bond shall secure and guarantee Contractor’s faithful performance of this Contract, including but not limited to Contractor’s obligation to correct defects after final payment has been made as required by the Contract Documents. The Payment Bond shall secure and guarantee payment of all persons performing labor on the Project under this Contract and furnishing materials in connection with this Contract. These Bonds shall be in effect through the duration of the Contract plus the Guaranty Period as required by the Contract Documents.

11.2 The bonds required hereunder shall be meet all requirements of Article 11 of the General Conditions for Construction Contract included in the contract documents.

11.3 If the surety of any bond furnished by Contractor is declared bankrupt or becomes insolvent or its right to conduct business in the State of Missouri is terminated, or it ceases to meet the requirements of this Article 11, Contractor shall within ten (10) days substitute another bond and surety, both of which must be acceptable to Owner. If Contractor fails to make such substitution, Owner may procure such required bonds on behalf of Contractor at Contractor’s expense.

12. Time of Completion

12.1 Contractors shall agree to commence work within five (5) days of the date “Notice to Proceed” is received from the Owner, and the entire work shall be completed by the completion date specified or within the number of consecutive calendar days stated in the Special Conditions. The duration of the construction period, when specified in consecutive calendar days, shall begin when the contractor receives notice requesting the documents required in Article 9 of the General Conditions for Construction Contract included in the contract documents.

13. Number of Contract Documents

13.1 The Owner will furnish the Contractor a copy of the executed contract and performance bond.

13.2 The Owner will furnish the Contractor the number of copies of complete sets of drawings and specifications for the work, as well as, clarification and change order drawings pertaining to change orders required during construction as set forth in the Special Conditions.

14. Missouri Products and Missouri Firms

14.1 The Curators of the University of Missouri have adopted a policy which is binding upon all employees and departments of the University of Missouri, and which by contract, shall be binding upon independent contractors and subcontractors with the University of Missouri whereby all other things being equal, and when the same can be secured without additional cost over foreign products, or products of other states, a preference shall be granted in all construction, repair and purchase contracts, to all products, commodities, materials, supplies and articles mined, grown, produced and manufactured in marketable quantity and quality in the State of Missouri, and to all firms, corporations or individuals doing business as Missouri firms, corporations or individuals. Each bidder submitting a bid agrees to comply with, and be bound by the foregoing policy.

15. SUPPLIER DIVERSITY

15.1 Award of Contract

The Supplier Diversity participation goal for this project is stated on the Bid for Lump Sum Contract Form, and the Owner will take into consideration the bidder's success in achieving the Supplier Diversity participation goal in awarding the contract. Inability of any bidder to meet this requirement may be cause for rejection of their bid.

The University will grant a three (3) point bonus preference to a Missouri based, certified Service Disabled Veteran Enterprise (SDVE) bidder as defined in Article 1 – (Supplier Diversity Definitions) of the General Conditions of the Contract for Construction included in the contract documents. The three percent (3%) goal can be met, and the bonus points obtained, by a qualified SDVE vendor and/or through the use of qualified subcontractors or suppliers that provide at least three percent (3%) of the total contract value.

15.2 List of Supplier Diversity Firms

15.2.1 The bidder shall submit as part of their bid a list of diverse firms performing as contractor, subcontractors, and/or suppliers. The list shall specify the single designated diverse firm name and address. If acceptance or non-acceptance of alternates will affect the designation of a subcontractor, provide information for each affected category.

15.2.2 Failure to include a complete list of diverse firms may be grounds for rejection of the bid.

15.2.3 The list of diverse firms shall be submitted in addition to any other listing of subcontractors required in the Bid for Lump Sum Contract Form.

15.3 Supplier Diversity Percentage Goal

The bidder shall have a minimum goal of subcontracting with diverse contractors, subcontractors, and suppliers, the percent of contract price stated in the Supplier Diversity goal paragraph of the Bid for Lump Sum Contract Form.

15.4 Supplier Diversity Percent Goal Computation

15.4.1 The total dollar value of the work granted to the diverse firms by the successful bidder is counted towards the applicable goal of the entire contract, unless otherwise noted below.

15.4.2 The bidder may count toward the Supplier Diversity goal only expenditures to diverse firms that perform a commercially useful function in the work of a contract. A diverse firm is considered to perform a commercially useful function when it is responsible for executing a distinct element of the work and carrying out its responsibilities by
actually performing, managing and supervising the work involved. A bidder that is a certified diverse firm may count as 100% of the contract towards the Supplier Diversity goal. For projects with separate MBE, SDVE, and WBE/Veteran/DBE goals, a MBE firm bidding as the prime bidder is expected to obtain the required SDVE, and WBE/Veteran/DBE participation; a WBE or Veteran or DBE firm bidding as the prime bidder is expected to obtain the required MBE and SDVE participation and a SDVE firm bidding as the prime bidder is expected to obtain the required MBE, and WBE/Veteran/DBE participation.

15.4.3 When a MBE, WBE, Veteran Business Enterprise, DBE, or SDVE performs work as a participant in a joint venture, only the portion of the total dollar value of the contract equal to the distinct, clearly defined portion of the work of the contract that the MBE, WBE, Veteran Business Enterprise, DBE, or SDVE performs with its own forces shall count toward the MBE, WBE, Veteran Business Enterprise, DBE, or SDVE individual contract percentages.

15.4.4 The bidder may count toward its Supplier Diversity goal expenditures for materials and supplies obtained from diverse suppliers and manufacturers, provided the diverse firm assumes the actual and contractual responsibility for the provision of the materials and supplies.

15.4.4.1 The bidder may count its entire expenditure to a diverse manufacturer. A manufacturer shall be defined as an individual or firm that produces goods from raw materials or substantially alters them before resale.

15.4.4.2 The bidder may count its entire expenditure to diverse suppliers that are not manufacturers provided the diverse supplier performs a commercially useful function as defined above in the supply process.

15.4.4.3 The bidder may count 25% of its entire expenditures to diverse firms that do not meet the definition of a subcontractor, a manufacturer, nor a supplier. Such diverse firms may arrange for, expedite, or procure portions of the work but are not actively engaged in the business of performing, manufacturing, or supplying that work.

15.4.5 The bidder may count toward the Supplier Diversity goal that portion of the total dollar value of the work awarded to a certified joint venture equal to the percentage of the ownership and control of the diverse partner in the joint venture.

15.5 Certification by Bidder of Diverse Firms
15.5.1 The bidder shall submit with its bid the information requested in the "Supplier Diversity Compliance Evaluation Form" for every diverse firm the bidder intends to award work to on the contract.

15.5.2 Diverse firms are defined in Article 1—(Supplier Diversity Definitions) of the General Conditions of the Contract for Construction included in the contract documents, and as those businesses certified as disadvantaged by an approved agency. The bidder is responsible for obtaining information regarding the certification status of a firm. A list of certified firms may be obtained by contacting the agencies listed in the proposal form document “Supplier Diversity Certifying Agencies”. Any firm listed as disadvantaged by any of the identified agencies will be classified as a diverse firm by the Owner.

15.5.3 Bidders are urged to encourage their prospective diverse contractors, subcontractors, joint venture participants, team partners, and suppliers who are not currently certified to obtain certification from one of the approved agencies.

15.6 Supplier Diversity Participation Waiver
15.6.1 The bidder is required to make a good faith effort to locate and contract with diverse firms. If a bidder has made a good faith effort to secure the required diverse firms and has failed, the bidder shall submit with the bid, the information requested in "Application for Supplier Diversity Participation Waiver." The Contracting Officer will review the bidder's actions as set forth in the bidder's "Application for Waiver" and any other factors deemed relevant by the Contracting Officer to determine if a good faith effort has been made to meet the applicable percentage goal. If the bidder is judged not to have made a good faith effort, the bid may be rejected. Bidder's who demonstrate that they have made a good faith effort to include Supplier Diversity participation may be awarded the contract regardless of the percent of Supplier Diversity participation, provided the bid is otherwise acceptable and is determined to be the best bid.

15.6.2 To determine good faith effort of the bidder, the Contracting Officer may evaluate factors including, but not limited to, the following:

15.6.2.1 The bidder’s efforts to solicit for specific subcontracting opportunities and responsibilities associated with Supplier Diversity participation.

15.6.2.2 The bidder’s advertisements in general circulation trade association, and diverse (minority) focused media concerning subcontracting opportunities.

15.6.2.3 The bidder’s written notice to specific diverse firms that their services were being solicited in sufficient time to allow for their effective participation.

15.6.2.4 The bidder’s follow-up attempts to the initial solicitation(s) to determine with certainty whether diverse firms were interested.

15.6.2.5 The bidder’s efforts to divide the work into packages suitable for subcontracting to diverse firms.

15.6.2.6 The bidder’s efforts to provide interested diverse firms with sufficiently detailed information about the drawings, specific actions and requirements of the contract, and clear scopes of work for the firms to bid on.

15.6.2.7 The bidder’s efforts to solicit for specific sub-bids from diverse firms in good faith. Documentation should include names, addresses, and telephone numbers of firms contacted a description of all information provided the diverse firms, and an explanation as to why agreements were not reached.
15.6.2.8 The bidder's efforts to locate diverse firms not on the directory list and assist diverse firms in becoming certified as such.

15.6.2.9 The bidder's initiatives to encourage and develop participation by diverse firms.

15.6.2.10 The bidder’s efforts to help diverse firms overcome legal or other barriers impeding the participation of diverse firms in the construction contract.

15.6.2.11 The availability of diverse firms and the adequacy of the bidder's efforts to increase the participation of such business provided by the persons and organizations consulted by the bidder.

15.7 Submittal of Forms

15.7.1 The bidder will include the Supplier Diversity Compliance Evaluation Form(s), or the Application for Waiver and other form(s) as required above in the envelope containing the "Bidder's Statement of Qualifications", see Article 8.

15.8 Additional Bid/Proposer Information

15.8.1 The Contracting Officer reserves the right to request additional information regarding Supplier Diversity participation and supporting documentation from the apparent low bidder. The bidder shall respond in writing to the Contracting Officer within 24-hours (1 work day) of a request.

15.8.2 The Contracting Officer reserves the right to request additional information after the bidder has responded to prior 24 hour requests. This information may include follow up and/or clarification of the information previously submitted.

15.8.3 The Owner reserves the right to consider additional diverse subcontractor and supplier participation submitted by the bidder after bids are opened under the provisions within these contract documents that describe the Owner’s right to accept or reject subcontractors including, but not limited to, Article 15.2, and the complete list of subcontractors required in Article 10.1 of this document. Should the bidder choose to perform any of the listed portions of the work with its own forces, the bidder shall enter its own name, city and state in the space provided. If acceptance or non-acceptance of alternates will affect the designation of a subcontractor, the bidder shall provide that information on the bid form.

16. List of Subcontractors

16.1 If a list of subcontractors is required on the Bid for Lump Sum Contract Form, the bidders shall list the name, city and state of the firm(s) which will accomplish that portion of the contract requested in the space provided. This list is separate from both the list of diverse firms required in Article 15.2, and the complete list of subcontractors required in Article 10.1 of this document. Should the bidder choose to perform any of the listed portions of the work with its own forces, the bidder shall enter its own name, city and state in the space provided. If acceptance or non-acceptance of alternates will affect the designation of a subcontractor, the bidder shall provide that information on the bid form.

16.2 Failure of the bidder to supply the list of subcontractors required or the listing of more than one subcontractor for any category without designating the portion of the work to be performed by each, shall be grounds for the rejection of the bid. The bidder can petition the Owner to change a listed subcontractor within 48 hours of the bid opening. The Owner reserves the right to make the final determination on a petition to change a subcontractor. The Owner will consider factors such as clerical and mathematical bidding errors, listed subcontractor’s inability to perform the work for the bid used, etc. Any request to change a listed subcontractor shall include at a minimum, contractor’s bid sheet showing tabulation of the bid; all subcontractor bids with documentation of the time they were received by the contractor; and a letter from the listed subcontractor on their letterhead stating why they cannot perform the work if applicable. The Owner reserves the right to ask for additional information.

16.3 Upon award of the contract, the requirements of Article 10 of this document and Article 5 of the General Conditions of the Contract for Construction included in the contract documents will apply.
SECTION 1.E

SPECIAL CONDITIONS

1. DEFINITIONS

a. "Drawings"

Drawings referred to in and accompanying Project Manual consist of Drawings prepared by and bearing name of below defined Architect, bearing Date of September 2, 2020, entitled "Agriculture Science Building-Renovate Classrooms 2-10 & 2-11, project number CP200301.

b. Architect / Engineer
Planning, Design, and Construction
Campus Facilities
University of Missouri
Columbia, MO 65211
(573) 882-6800

c. Other Definitions: See Article 1., General Conditions.

2. SPECIAL SCHEDULING REQUIREMENTS

a. Work shall be continuous with no down time.

b. Normal working hours are defined as weekdays between the hours of 7:00 and 5:00.

3. SCOPE OF WORK

a. The Contractor shall furnish all labor, materials, tools, equipment necessary for, and incidental to, construction of this project as indicated on Drawings and specified herein.

b. Work shall include everything requisite and necessary to finish work properly, notwithstanding that every item of labor or materials or accessories required to make project complete may not be specifically mentioned.

c. General Description of Work:

(1) Project consists of the renovation of classroom spaces including minor demolition, abatement, and modifications including walls, finishes, floors, doors, ceilings, mechanical HVAC, fire alarm, and electrical power, data, and lighting as described within the contract documents.
4. LOCATION

a. Work shall be performed under this Contract on campus of the University of Missouri - Columbia, at the Agriculture Science Building, 700 Hitt Street, Columbia, Missouri.

5. NUMBER OF CONSTRUCTION DOCUMENTS

a. The Owner's Representative will furnish the Contractor a copy of executed Contract and a complete set of Drawings and Specifications in PDF format.

b. The Owner will provide electronic data files to the Contractor for their convenience and use in progressing the Work and the preparation of shop drawings or other submittal requirements required for construction of the referenced project. The electronic data files shall reflect Construction Documents and Bid Addenda only. These files will be transmitted subject to the following terms and conditions:

(1) The Owner makes no representation as to the compatibility of these files with the Contractor’s hardware or software.

(2) Data contained on these electronic files shall not be used by the Contractor or anyone else for any purpose other than as a convenience in progressing the Work or in the preparation of shop drawings or other required submittals for the referenced project. Any other use or reuse by the Contractor or by others will be at their own sole risk and without liability or legal exposure to Owner. The Contractor agrees to make no claim and hereby waive, to the fullest extent permitted by law, any claim or cause of action of any nature against the Owner and its consultants, contractors, agents, employees, and representatives that may arise out of or in connection with the use of the electronic files transmitted.

(3) Furthermore, the Contractor shall, to the fullest extent permitted by law, indemnify and hold harmless the Owner and its consultants, contractors, agents, employees, and representatives, against all damages, liabilities or costs, including reasonable attorney’s fees and defense costs, arising out of or resulting from the use of these electronic files.

(4) These electronic files are not contract documents. Differences may exist between these electronic files and corresponding hard-copy construction documents. The Owner makes no representation regarding the accuracy or completeness of the electronic files you receive. In the event that a conflict arises between the signed or sealed hard-copy construction documents prepared by the Consultant and the electronic files, the signed and sealed hard-copy construction documents shall govern. The Contractor is responsible
for determining if any conflict exists. By use of these electronic files, the Contractor is not relieved of their duty to fully comply with the contract documents.

(5) Because information presented on the electronic files can be modified, unintentionally or otherwise, the Owner reserves the right to remove all indications of ownership and/or involvement from each electronic display.

(6) Under no circumstances shall delivery of the electronic files be deemed a sale by the Owner and no warranties are made, either expressed or implied, of merchantability and fitness for any particular purpose. In no event shall the Owner be liable for any loss of profit, or any consequential damages as a result of use or reuse of these electronic files.

6. SUBMITTALS

a. The Contractor shall submit for approval to the Architect, equipment lists and Shop Drawings, as expeditiously as possible. Failure of the Contractor to submit Shop Drawings in a timely manner will result in the Owner holding back Contractor payments. (See General Conditions)

b. The material and equipment lists shall be submitted and approved before any material or equipment is purchased and shall be corrected to as-built conditions before the completion of the project.

c. The Contractor shall submit electronic versions of all required Shop Drawings, material and equipment lists. The Contractor shall upload all Shop Drawings to a secure information sharing website determined by the Owner notifying the Owner and Consultant that these shop drawings are available for review. Each submittal shall have the General Contractors digital stamp affixed to the first page signifying their review and acceptance. Review comments, approvals, and rejections will be posted on this same site with notification to the contractor. Submittals requiring a professional seal shall be submitted hard copy with a manual seal affixed.

(1) The Contractor shall identify each submittal item with the following:

(a) Project Title and Location
(b) Project Number
(c) Supplier’s Name
(d) Manufacturer’s Name
(e) Contract Specification Section and Article Number
(f) Contract Drawing Number
(g) Acrobat file name: Spec Section_Times Submitted-Spec Title: (Example - 033000 _01-Cast In Place Concrete.pdf)
(2) Reference the accompanying Shop Drawing and Submittal Log at the end of this section (1.E.4) for required submittal information.

d. The Contractor shall submit to the Architect one (1) electronic copy, in PDF form of all required Operating Instructions and Service Manuals with one PDF file per specification division for the Architect’s and the Owner’s sole use prior to completing 50% of the adjusted contract. Payments beyond 50% of the contract amount may be withheld until all Operating Instructions and Service Manuals are received as referenced in the accompanying Operating Instructions and Service Manual Log at the end of this section (1.E.5).

e. The Contractor shall submit to the Owner’s Representative all items referenced in the accompanying Closeout Log (1.E.6) within 30 days following substantial completion of the work. The Owner’s Representative will maintain the closeout log and include as an agenda item at all coordination meetings.

7. NOTIFICATION

a. Before beginning Demolition Work or service outages, the Contractor shall provide, at minimum, seventy-two (72) hours advance notice to Owner’s Representative for purpose of verifying utility locations including, but not limited to, gas, telecommunications, electric, water, steam, sewer, and nitrogen. Contractor shall minimize the number of outages, minimize the length of outages and related work shall be continuous until the utility is restored.

8. USE OF PREMISES

a. Access: Access to construction site shall be as indicated on Drawings and as directed by the Owner's Representative.

b. Parking:

(1) The Owner will issue Contractor two (2) service vehicle parking permits for use in University Parking lot [Virginia Avenue Parking Structure]. The permits will be issued at no cost to the contractor up to the contract completion date. After the contract completion date, the permits will be re-issued on an as available basis at the contractors’ expense. These permits are to be used for general contractor or subcontractor owned and labeled vehicles only. Personal vehicles are prohibited from use of these permits. Violation of this requirement may result in ticketing and/or towing at the vehicle owner’s expense and suspension of progress payments.

(2) Parking of personal vehicles within project access/lay down/staging areas is prohibited. Violation of this requirement may result in
ticketing and/or towing at the vehicle owner’s expense and suspension of progress payments.

(3) Parking or driving on sidewalks, landscaped areas, within fire and service lanes or generally in areas not designated for vehicular traffic is prohibited except as allowed in the contract documents. Violation of this requirement may result in ticketing and/or towing at the vehicle owner’s expense and suspension of progress payments.

(4) Free parking for contractor employees is available in the Ashland Road Contractor lot on an as available basis. This space is for use by contractor employees for parking their personal vehicles only and is not to be used for staging or storage.

(5) Vendor Permits may be purchased by contractor management personnel on an as available basis by contacting the Parking and Transportation office in the General Services Building. These permits will allow contractor management personnel to park in various University lots while conducting business on University construction projects.

(6) Temporary University parking permits may be purchased by contractor employees for use with their personal vehicles on an as available basis by contacting the Parking and Transportation office in the General Services Building.

(7) Conley Avenue between Missouri Avenue and University Avenue and Hitt Street between University Avenue and the Memorial Union are designated for pedestrian use only during the work week between the hours of 8:15 AM and 3:45 PM. Unless otherwise indicated in the contract documents, this area is strictly off limits to vehicular traffic without authorization from the Owner's Representative.

c. Storage of materials: The Contractor shall store all materials within project limits. The Contractor shall confine apparatus, materials, and operation of workers to location established by the Owner's Representative. The Contractor shall not unreasonably encumber premises with materials. In addition, storage trailer locations may be available within 1-1/2 miles of project site as directed by the Owner’s Representative. Storage trailer locations shall be subject to approval by the Owner's Representative and are available to the Contractor without cost.

d. Utilities: Drinking water, water required to carry on work, and 120 volt electrical power required for small tool operation may be obtained without cost to the Contractor from existing utilities at locations designated by the Owner's Representative. Provisions for obtaining power, including temporary extensions, shall be furnished and maintained by the Contractor.
Upon completion of work such extensions shall be removed and any damage caused by use of such extensions shall be repaired to satisfaction of the Owner's Representative, at no cost to the Owner.

e. Restroom: Existing toilet facilities within Project Limits or Restrooms designated by the Owner's Representative for use by the Contractor will be available. Failure of the Contractor to maintain restrooms in a clean condition will be cause for the Contractor's discontinued use of the restroom.

f. Smoking is prohibited at the University of Missouri and all properties owned, operated, leased or controlled by the University of Missouri. Violation of the policy is defined as smoking any tobacco products, including e-cigarettes.

g. Landfill: The Contractor shall not use the Owner's landfill. Dumping or disposal of excavated or demolition materials on Owner's property shall not be permitted. The Contractor shall remove and legally dispose of excavated or demolished materials off the Owner’s property.

h. Care of Project Work Site: The contractor shall be responsible for maintaining the construction site in a reasonably neat and orderly condition by regular cleaning and mowing of the premises as determined by the Owner's Representative.

i. Discharge to Sewer Request: The University of Missouri’s MS4 permit and NPDES Storm Water Discharge Permits along with the City of Columbia’s POTW Operating Permit as well as local ordinances, and state and federal environmental regulations prohibit hazardous materials from being disposed into either the storm water or sanitary sewer systems. Unless specifically approved, all chemical products such as paints, dyes, lawn care products, maintenance products, and oil is are prohibited from drain disposal. Any product, including contaminated water, being discarded into the storm water or sanitary sewer systems requires written approval from the Owner through a formal “Discharge to Sewer Request” form obtained at Discharge to Sewer Request Form. The contractor should submit the form to the Owner’s Representative, not to the Department of Environmental Health and Safety as the form indicates.

j. All concrete waste material including washout water shall be totally contained and removed from the Owner’s property.

k. Artifacts Found During Construction: Contractor shall immediately notify the Owner’s Representative when artifacts are uncovered or found during the demolition or construction process. Artifacts include, but are not limited to, tools, drawings (construction or other), photographs, books and other objects/devices which may hold historical importance/significance. Do not remove or disturb the object(s) in question. Artifacts are not considered
part of demolished materials and shall remain the property of the University of Missouri.

I. Permit Required Confined Space" Entry Communication and Coordination:

(See OSHA 1926 subpart aa – Construction Confined Space for the definition of “permit required confined spaces” - Note: OSHA does not apply to the University. However, the University will provide a list of all known "permit required confined spaces")

There are no known “permit required confined spaces” within the project limits. Each contractor shall conduct a survey to confirm whether or not any confined spaces exist within the project limits. It is incumbent upon each contractor to list all "permit required spaces".

The Contractor shall notify the Owner’s Representative if 1) conditions change resulting in a non-permit required confined space being reclassified to a “permit required confined space” after evaluation of the space by a competent person; 2) a space previously thought to be non-permit required space is classified as a “permit required confined space”; or 3) during the course of construction a “permit required confined space” is created after evaluation by a competent person.

The Contractor shall submit to the Owner’s Representative a copy of the cancelled confined space entry permit and a written report summarizing the permit space program followed and all hazards confronted or created during entry operations. This information shall be submitted within one week of cancelling the permit.

9. PROTECTION OF OWNER'S PROPERTY

a. The Contractor shall be responsible for repair of damage to building exterior and interior, drives, curbs, streets, walks, grass, shrubbery and trees, which was caused by workmen or equipment employed during progress of work. All such repairs shall be made to satisfaction of the Owner's Representative, at no cost to the Owner, or reimburse the Owner if the Owner elects to make repairs. For landscape damage, the Owner shall make such repairs. Compensation for these repairs shall be determined by the Owner's Representative using the "Valuation of Landscape Trees, Shrubs, and other Plants" as published by the International Society of Arboriculture, as last revised.

b. Construction Project Fencing:

(1) Fencing will not be required as a part of work.

c. Preserving and Protecting Existing Vegetation:

(1) Protection and compensation for damages:
(a)   Trees and shrubs within work area designated to remain shall be protected from damage during construction by fencing or armoring as indicated on Drawings or specified herein. Plant protection devices shall be installed before work has begun and shall be maintained for duration of work unless otherwise directed by Owner's Representative.

(2)   Plants within work area designated for removal shall be removed by Contractor.

(3)   To prevent compaction of soil over tree roots, vehicles or equipment shall not at any time park or travel over, nor shall any materials be stored within drip line of trees designated to remain.

(4)   Owner's Representative will stop work immediately when proper measures are not being employed to protect trees and shrubs. Contractor will be notified to resume work after required protection measures are implemented.

(5)   Pruning of limbs necessary to repair damage or provide clearance for work shall be done by the MU Landscape Services Department at the direction of the Owner’s Representative. Limbs shall be cut off cleanly and cut surfaces treated according to established horticultural standards.

10.  SUBSTITUTIONS and EQUALS

   a. Substitutions are defined in General Conditions article 3.11.8 for and Equals are defined General Conditions Article 3.12.

   b. Use of materials, products or equipment other than those named and described in the Contract Documents are substitutions and/or equal. Substitutions and/or equals submitted during the bidding period shall be received by both the Architect and the Owner at least ten calendar days prior to the date for receipt of bids. To be considered, bidder’s proposal shall include a complete description of the proposed substitution and/or equal and a comparison of significant qualities of the proposed substitution and/or equal with those specified including drawings, performance and test data, and other information necessary for an evaluation. The Architect's decision on the approval or disapproval of a proposed substitution and/or equal shall be final.

   c. If the Architect and Owner approve a proposed substitution prior to receipt of Bids, such approval will be set forth in an Addendum. Bidders shall not rely upon approval made in any other manner.
11. CODES AND STANDARDS

   a. The Contractor shall comply with applicable codes and standards as listed in General Conditions. The following codes and standards shall also apply:

12. PERMITS

   a. Permits and inspection for work on UM property are required.

      (1) The Owner’s Representative shall secure University Authority Having Jurisdiction building permits required for the project and shall provide a list of required inspection to the Contractor.

         (a) The Contractor shall coordinate and provide reasonable scheduling and access to the Work for the Owner’s Inspection.

         (b) Re-inspection of work as a result of either failed inspection or work not ready as scheduled may be at the Contractor’s expense.

      (2) The Contractor shall comply with applicable codes and standards as listed in the Contract Documents, General Conditions, and for work authorizations on Healthcare projects also comply with the Healthcare Construction Guidelines.

      (3) All permits, including, but not limited to Infection Control, Hot Work, Fire Alarm, Energized Work and HVAC interruption shall be coordinated and scheduled with the Owner’s Representative or designee prior to commencement of the work.

      (4) Permits for Boilers, Water Heaters and Pressure Vessels require an installation permit from the State of Missouri. Before commencement of Boilers, Water Heaters or Pressure Vessels the Contractor must obtain an installation permit from the State of Missouri, Division of Fire Safety, Boiler and Pressure Unit as required by 11 CSR 40-2.010 through 11 CSR 40-2.065. The permit applications are available at http://www.dfs.dps.mo.gov/programs/bpv/ .

13. MODIFICATIONS TO GENERAL CONDITIONS

   a. General Conditions:

      (1) Reference: General Conditions, Article 3.13.5

         DELETE last three sentences of existing article 3.13.5. INSERT the following sentence to read as follows:
No payments will be made until all submittals have been received and approved by Architect.

(2) The requirements of General Conditions Article 11.6 to provide ALL Builder’s Risk are waived for this project.

(3) Add to the Insurance Requirements in General Conditions Article 11, Asbestos Liability Coverage, for specified asbestos abatement in the contract documents, in a limit no less than $1,000,000 combined single limit, per occurrence and aggregate, for both bodily injury and property damage combined. The Owner will accept coverage from the Asbestos Removal Subcontractor in lieu of the General Contractor subject to all requirements set forth in article 11.

14. PROJECT SCHEDULING

a. The project scheduling specification for the project are included immediately after the Special Conditions. For this project the Contractor shall meet the following scheduling requirements.

(1) Option #1 - Contractor Schedule (Small Projects only): Contractor is responsible for the schedule and must comply with the Owner’s requirements. See Contractor Schedule Specification included in these documents.

15. PROJECT COORDINATION

a. Coordinate construction operations included in various Sections of these Specifications to assure efficient and orderly installation of each part of the Work. Coordinate construction operations included under different Sections that depend on each other for proper installation, connection, and operation.

(1) Schedule construction operations in the sequence required to obtain the best results where installation of one part of the Work depends on installation of other components, before or after its own installation.

(2) Coordinate installation of different components to assure maximum accessibility for required maintenance, service, and repair.

(3) Make provisions to accommodate items scheduled for later installation.

   (a) Owner furnished materials:
( b) Owner contracted Audio/Visual and Technology [AV] package. The AV supplier, which is hired by the Owner independently, will provide, receive, deliver, uncrate, and set AV equipment in place. The General Contractor is required
to coordinate with this supplier for final locations of contractor supplied pathway and junction boxes as illustrated within the contract documents

(4) Construction access will be shared with MU Project CP201921 scheduled for construction between September 1, 2020 and November 30, 2020. Coordinate with the owner's representative for work efforts in these areas.

16. BUILDING SYSTEM COMMISSIONING

a. Contractor shall provide all personnel and equipment required to complete the commissioning activities referenced in the Commissioning Plan. The requirements of the commissioning plan shall be completed in their entirety before substantial completion and submitted as referenced in the Closeout Log.

b. The contractor shall designate a competent person, separate from the superintendent or project manager, to act as the contractor's commissioning coordinator. The commissioning coordinator is responsible for planning, scheduling, coordinating, conducting and verifying all commissioning activities required by the commissioning plan and ensuring all building systems are complete, operable and ready for use by the Owner. At a minimum, building ventilation systems, chilled/hot water generation systems, hydronic distribution systems, power distributions systems and fire detection and alarm systems, as applicable.

17. GENDER NEUTRAL SIGNAGE

a. All contractor installed signs including signs referenced in General Conditions articles 3.5.3 and 10.2.3 shall be gender neutral in wording.

18. HOT WORK PERMITTING AND GENERAL REQUIREMENTS

a. Hot work Requirements: The contractor shall comply with the following hot work requirements and the requirements of the International Fire Code and 2014 NFPA 51B.

b. Hot work shall be defined as any work involving burning, welding, grinding, cutting, or similar operations that are capable of initiating fires or explosions.

c. The Contractor shall utilize the hot work permit decision tree and permit provided in the 2014 NFPA 51B for all Hot Work operations.

d. A hot work permit shall be used on all hot work performed outside a designated hot work area. The hot work permit shall be posted and clearly visible within proximity of the hot work area. The hot work permit authorizing individual (PAI) shall be as designated by the Contractor.
e. Notify the Owner’s Representative 24 hours prior to starting hot work in buildings with operational fire alarm or fire suppression systems. The Owner’s Representative will coordinate the appropriate system outage with Campus Maintenance personnel.

f. Unless otherwise instructed by the Owner’s Representative, the Contractor shall post a copy of each completed hot work permit to the Owner’s project management file system the following business day.

19. CONSTRUCTION WASTE MANAGEMENT

a. The goal of Construction Waste Management is to divert construction waste from the sanitary landfill. This shall be accomplished through reuse, recycling and/or salvage of non-hazardous construction and demolition debris to the greatest extent practical. Track and report all efforts related to reuse, recycling and/or salvage of materials from the project (including clean fill material). Report all material types and weights, where material was diverted, type of diversion, documentation (e.g.: waste tickets) of this diversion, and applicable dates. In order to calculate the diversion percentage, total weights of all landfill material (non-hazardous) must also be reported.

This information shall be updated monthly with final submission prior to project substantial Completion. Copies of all applicable receipts, tickets and tracking logs shall be uploaded to the Owner’s information sharing website or reported as required by the project manager. Tracking logs shall be reported in tabular form utilizing the MU Construction Waste Management Worksheet (http://www.cf.missouri.edu/cf/pdc/contractor_information).

END OF SECTION
1. GENERAL

a. Time is of the essence for this contract. The time frames spelled out in this contract are essential to the success of this project. The University understands that effective schedule management, in accordance with the General Conditions and these Special Conditions is necessary to insure to that the critical milestone and end dates spelled out in the contract are achieved.

b. Related Documents
   Drawings and general provisions of the Contract, including General Conditions’ Article 3.17 shall apply to this Section.

c. Stakeholders
   A Stakeholder is anyone with a stake in the outcome of the Project, including the University, the University Department utilizing the facility, the Design Professionals, the Contractor and subcontractors.

d. Weather

   (1) Contractor acknowledges that there will be days in which work cannot be completed due to the weather, and that a certain number of these lost days are to be expected under normal weather conditions in Missouri.

   (2) Rather than speculate as to what comprises “normal” weather at the location of the project, Contractor agrees that it will assume a total of 44 lost days due to weather over the course of a calendar year, and include same in its as planned schedule. For projects of less than a calendar year, lost weather days should be prorated for the months of construction in accordance with the following schedule.

   (3) Anticipated weather days for allocation/proration only. For projects lasting 12 months or longer, the 44 days per year plus whatever additional months are included will constitute normal weather.

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2. SCHEDULING PROCESS
a. The intent of this section is to insure that a well-conceived plan, that addresses the milestone and completion dates spelled out in these documents, is developed with input from all stakeholders in the project. Input is limited to all reasonable requests that are consistent with the requirements of the contract documents, and do not prejudice the Contractor’s ability to perform its work consistent with the contract documents. Further, the plan must be documented in an understandable format that allows for each stakeholder in the project to understand the plan for the construction and/or renovation contained in the Project.

b. Contractor Requirements

(1) Schedule Development
Contractor shall prepare the Project Schedule using Primavera SureTrack or P3, Microsoft Project, Oracle P6, or other standard industry scheduling software, approved by the Owner’s Representative.

(2) Schedule Development
Within 2 weeks of the NTP, contractor shall prepare a schedule, preferably in CPM format, but in detailed bar chart format at a minimum, that reflects the contractor’s and each subcontractors plan for performing the contract work.

Contractor shall review each major subcontractor’s schedule with the sub and obtain the subcontractor’s concurrence with the schedule, prior to submitting to the University.

(3) Schedule Updates

(a) Schedule Updates will be conducted once a month, at a minimum.
Actual Start and Finish dates should be recorded regularly during the month. Percent Complete, or Remaining Duration shall be updated as of the data date, just prior to Contractor’s submittal of the update data.

(b) Contractor will copy the previous months schedule and will input update information into the new monthly update version.

(c) Contractor will meet with the Owner’s Representative to review the draft of the updated schedule. At this meeting, Owner’s Representative and Contractor will:
   (i) Review out of sequence progress, making adjustments as necessary
   (ii) Add any fragnets necessary to describe changes or other impacts to the project schedule
(iii) Review the resultant critical and near critical paths to determine any impact of the occurrences encountered over the last month.

(4) Schedule Narrative

After finalization of the update, the Contractor will prepare a Narrative that describes progress for the month, impacts to the schedule and an assessment as to the Contractor’s entitlement to a time extension for occurrences beyond its control during the month and submit in accordance with this Section.

(5) Progress Meetings

(a) Review the updated schedule at each monthly progress meeting. Payments to the Contractor may be suspended if the progress schedule is not adequately updated to reflect actual conditions.

(b) Submit progress schedules to subcontractors to permit coordinating their progress schedules to the general construction work. Include 4 week look ahead schedules to allow subs to focus on critical upcoming work.

3. CRITICAL PATH METHOD (CPM)

a. This Section includes administrative and procedural requirements for the critical path method (CPM) of scheduling and reporting progress of the Work.

b. Refer to the General and Special Conditions and the Agreement for definitions and specific dates of Contract Time.

c. Critical Path Method (CPM): A method of planning and scheduling a construction project where activities are arranged based on activity relationships and network calculations determine when activities can be performed and the critical path of the Project.

d. Critical Path: The longest continuous chain of activities through the network schedule that establishes the minimum overall project duration.

e. Network Diagram: A graphic diagram of a network schedule, showing the activities and activity relationships.

f. Activity: A discrete part of a project that can be identified for planning, scheduling, monitoring, and controlling, the construction project. Activities included in a construction schedule consume time and resources.

g. Critical activities are activities on the critical path.
h. Predecessor activity is an activity that must be completed before a given activity can be started.

i. Milestone: A key or critical point in time for reference or measurement.

j. Float or Slack Time: The measure of leeway in activity performance.

k. Accumulative float time is not for the exclusive use or benefit of the Owner or Contractor, but is a project resource available to both parties as needed to meet contract milestones and the completion date.

l. Total float is herein defined as the measure of leeway in starting or completing an activity without adversely affecting the planned project completion date.

m. Weather: Adverse weather that is normal for the area must be taken into account in the Contractor's Project Schedule. See 1.d.3, above.

n. Force Majeure Event: Any event that delays the project but is beyond the control and/or contractual responsibility of either party.

o. Schedule shall including the following, in addition to Contractor's work.

(1) Phasing: Provide notations on the schedule to show how the sequence of the Work is affected by the following:
   (a) Requirements for phased completion and milestone dates.
   (b) Work by separate contractors.
   (c) Work by the Owner.
   (d) Coordination with existing construction.
   (e) Limitations of continued occupancies.
   (f) Uninterruptible services.
   (g) Partial occupancy prior to Substantial Completion.

p. Area Separations: Use Activity Codes to identify each major area of construction for each major portion of the Work. For the purposes of this Article, a "major area" is a story of construction, a separate building, or a similar significant construction element.

4. TIME EXTENSION REQUEST

a. Refer to General Conditions of the Contract for Construction, Article 4.7 Claims for Additional Time.

b. Changes or Other Impacts to the Contractor's Work Plan
   The Owner will consider and evaluate requests for time extensions due to changes or other events beyond the control of the Contractor on a monthly basis only, with the submission of the Contractor's updated schedule, in conjunction with the monthly application for payment. The Update must include:
(1) An activity depicting the event(s) impacting the Contractors work plan shall be added to the CPM schedule, using the actual start date of the impact, along with actually required predecessors and successors.

(2) After the addition of the impact activity, the Contractor will identify subsequent activities on the critical path, with finish to start relationships that can be realistically adjusted to overlap using good, standard construction practice.
   (a) If the adjustments above result in the completion date being brought back within the contract time period, no adjustment will be made in the contract time.
   (b) If the adjustments above still result in a completion date beyond the contract completion date, the delay shall be deemed excusable and the contract completion date shall be extended by the number of days indicated by the analysis.
   (c) Contractor agrees to continue to utilize its best efforts to make up the time caused by the delays. However the Contractor is not expected to expend costs not contemplated in its contract, in making those efforts.

c. Questions of compensability of any delays shall be held until the actual completion of the project. If the actual substantial completion date of the project based on excusable delays, excluding weather delays, exceeds the original contract completion date, AND there are no delays that are the responsibility of the contractor to consider, the delays days shall be considered compensable. The actual costs, if any, of the Contractor’s time sensitive jobsite supervision and general conditions costs, shall be quantified and a change order issued for these costs.

END SECTION
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## SECTION 1.E.4

### SHOP DRAWING AND SUBMITTAL LOG

**Project:** Agriculture Science Building- Renovate Classrooms 2-10 & 2-11  
**Project Number:** CP200301  
**Contractor:**

<table>
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<tr>
<th>Section</th>
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<th>Contractor</th>
<th>Discipline Responsible</th>
<th>Date Received</th>
<th>Date to Consultant</th>
<th>Date Returned</th>
<th>Comments</th>
<th>Uploaded to Projex4</th>
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<td>Product Data / Accessory Products</td>
<td>08 1213</td>
<td>Hollow Metal Frames – Product Data</td>
<td>Shop Drawings</td>
<td>08 1416</td>
<td>Flush Wood Doors – Product Data</td>
<td>Shop Drawings</td>
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<td>08 7100</td>
<td>Door Hardware – Shop Drawings</td>
<td>09 6500</td>
<td>Resilient Flooring – Product Data</td>
<td>09 6813</td>
<td>Tile Carpeting – Product Data</td>
<td>Sustainable Design</td>
<td>Concrete Sub-Floor Test Report</td>
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<td>23 0713</td>
<td>Duct Insulation – Product Data</td>
<td>23 3300</td>
<td>Air Duct Accessories – Product Data</td>
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<td>Air Outlets and Inlets – Product Data</td>
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MU Project #CP200301  
SDSL - 1
## SECTION 1.E.4

### SHOP DRAWING AND SUBMITTAL LOG

**Project:** Agriculture Science Building- Renovate Classrooms 2-10 & 2-11  
**Project Number:** CP200301  
**Contractor:**

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<td>Section</td>
<td>Description</td>
<td>Catalog Data</td>
<td>Wiring Diagrams</td>
<td>Installation Instructions</td>
<td>Service &amp; Maintenance Instructions</td>
<td>Parts List &amp; Availability</td>
<td>Performance Curves</td>
<td>Startup &amp; Operating Instructions</td>
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<tr>
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## SECTION 1.E.6

**CLOSEOUT LOG**

Project: Agriculture Science Building- Renovate Classrooms 2-10 & 2-11  
Project Number: CP200301  
Contractor:

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<th>Section</th>
<th>Description</th>
<th>Contractor / Subcontractor</th>
<th>Date Rec’d</th>
<th># of Copies</th>
<th>CPM Initials</th>
<th>Remarks</th>
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<td>GC / 3.11</td>
<td>As-built drawings</td>
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<tr>
<td>02 4100</td>
<td>Recorded Actual Locations of Utilities &amp; Subsurface Construction</td>
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<td></td>
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</tr>
<tr>
<td>06 1000</td>
<td>Warranty</td>
<td></td>
<td></td>
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<td></td>
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</tr>
<tr>
<td>07 9200</td>
<td>Warranty</td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>08 1416</td>
<td>Warranty</td>
<td></td>
<td></td>
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<tr>
<td>08 7100</td>
<td>Warranty</td>
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<tr>
<td>09 5100</td>
<td>Extra Acoustical Units</td>
<td></td>
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<tr>
<td>09 6500</td>
<td>Extra Wall Base</td>
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<td>09 8400</td>
<td>Extra Panels</td>
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**Commissioning Items by CSI Division**

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<th>Commissioning Items by CSI Division</th>
<th>Verified by:</th>
<th>Coord Initial</th>
<th>Date compl</th>
<th>Documentation Required</th>
<th>Owner Witness Required</th>
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<tr>
<td><strong>1</strong> Building System Commissioning</td>
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<tr>
<td>Commissioning Agent - Conduct pre-installation meetings per specifications.</td>
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<td>Meeting Minutes</td>
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<tr>
<td><strong>24100</strong> Demolition</td>
<td></td>
<td></td>
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<tr>
<td>Do not start demolition until utility disconnect and sealing has been verified in writing</td>
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<td>✓</td>
</tr>
<tr>
<td>Maintain dust control using temp enclosures and wet mopping floors to eliminate trackable dirt</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>◻</td>
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<tr>
<td><strong>79200</strong> Joint Sealants</td>
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<td>✓</td>
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<tr>
<td>Perform Adhesion Tests</td>
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<td></td>
<td></td>
<td>field report</td>
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<tr>
<td><strong>81213</strong> Hollow Metal Doors and Frames</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
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<tr>
<td>Check and readjust all operating finish hardware and doors and fire labels of doors and frames</td>
<td></td>
<td></td>
<td></td>
<td>itemized list of doors</td>
<td>✓</td>
</tr>
<tr>
<td><strong>81416</strong> Flush Wood Doors</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Check and readjust all operating finish hardware and doors and fire labels of doors and frames</td>
<td></td>
<td></td>
<td></td>
<td>itemized list of doors</td>
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<tr>
<td><strong>87100</strong> Door Hardware</td>
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<td></td>
<td></td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Perform Field Quality Control section of specifications</td>
<td></td>
<td></td>
<td></td>
<td>test report</td>
<td>✓</td>
</tr>
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</table>

4/13/2020  COM 1 of 3
<table>
<thead>
<tr>
<th>Commissioning Items by CSI Division</th>
<th>Verified by:</th>
<th>Firm</th>
<th>Date compl</th>
<th>Coord Initial</th>
<th>Documentation Required</th>
<th>Owner Witness Required</th>
</tr>
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<tbody>
<tr>
<td><strong>95113</strong> Acoustical Ceilings</td>
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<tr>
<td>Complete all above ceiling inspections prior to installation of tiles</td>
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<tr>
<td><strong>96500</strong> Resilient Flooring</td>
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<td></td>
<td></td>
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<td>test reports</td>
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<tr>
<td>Perform pH, Chloride (moisture) and bond tests per manufacturer. Do not proceed until all manufacturing requirements are met.</td>
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<tr>
<td><strong>230593</strong> Testing, Adjusting, and Balancing</td>
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<tr>
<td>Confirm approved shop drawings, as-buils, O&amp;Ms and change orders have been submitted to the TAB engineer prior to testing and balancing</td>
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<tr>
<td>Ensure pre-test requirements as specified in paragraph D have been completed</td>
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<tr>
<td>Hold Pre Balancing conference as specified</td>
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<td>Meeting Minutes</td>
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<td><strong>233100</strong> HVAC Ducts and Casings</td>
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<tr>
<td>Test all duct before TAB.</td>
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<tr>
<td><strong>233300</strong> Air Duct Accessories</td>
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<td>✓</td>
</tr>
<tr>
<td>Test damper for travel and mounting</td>
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<tr>
<td><strong>260510</strong> Electrical Materials and Methods</td>
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<td></td>
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<td>test report</td>
<td>✓</td>
</tr>
<tr>
<td>Test all devices once installed.</td>
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<td></td>
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</table>

4/13/2020
<table>
<thead>
<tr>
<th>Commissioning Items by CSI Division</th>
<th>Verified by:</th>
<th>Firm</th>
<th>Date compl</th>
<th>Coord Initial</th>
<th>Documentation Required</th>
<th>Owner Witness Required</th>
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</thead>
<tbody>
<tr>
<td>Verify that every penetration through fire walls (re: life safety plans) has been properly firestopped</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>certification</td>
</tr>
</tbody>
</table>

**265100**

**Interior Lighting Fixtures**

| Test and adjust all motion devices; replace as required | | | | | | |

| 4/13/2020 | COM 3 of 3 |
Water – turned on to the first valve past Energy Management’s last valve.

- Review all piping and equipment being turned on for proper installation and completed testing.
- Insulation installed (preferred but not required).
- Meter properly installed, working, and in readable location.
- Contractor has swabbed out with chlorine all piping from the backflow preventer to the source.
- All bacteriological tests have been completed and passed.
- Backflow preventer installed and tested. (will need water pressure to test)
- Pressure test completed in piping being turned on.
- Contractor has method to communicate “Services On” to other contractor personnel and Owner’s personnel.
- Consultant has signed off

Steam – turned on to the first valve past Energy Management’s last valve.

- Review all piping, equipment, valves, reducing stations, relief valves, etc. for proper installation and complete testing.
- Piping protected from the weather.
- Insulation must be installed.
- All hangers and bolts have been installed.
- Meter installed, working and in readable location. (Don’t need metasys to turn on.)
- All needed traps are installed and able to be tested as they are turned on.
- Condensate system is installed and operating including the pumping system.
- Pressure test completed in piping being turned on.
- Contractor has method to communicate “Services On” to other contractor personnel and Owner’s personnel.
- Consultant has signed off

Condensate – turned on to the first valve past Energy Management’s last valve.

- Review all piping and equipment being turned on for proper installation and completed testing.
- Piping protected from the weather.
- Insulation installed (preferred but not required).
- Pressure test completed in piping being turned on.
- Contractor has method to communicate “Services On” to other contractor personnel and Owner’s personnel.
- Consultant has signed off

Electric – turned on to the first breaker past 13.8KV transformer.

- Review all wiring and equipment being turned on for proper installation and completed testing.
- GFCI set and tested.
- Breakers set and tested.
- All needed permanent grounds are installed.
- Meter installed, working and in readable location.
- Main switchgear protected from the weather.
- Contractor has method to communicate “Services On” to other contractor personnel and Owner’s personnel.
- Consultant has signed off

Chilled Water – turned on to the first valve inside of building.

- Review all piping and equipment being turned on for proper installation and completed testing.
- Insulation must be installed.
- Meter installed, working and connected to Metasys.
- Building pump and automatic isolation/control valve must be installed and under control.
- Chillers are installed, automatic loop pump isolation must be installed.
- Control valves must be installed and automatically controlled on all loads.
- Contractor has method to communicate “Services On” to other contractor personnel and Owner’s personnel.
- Consultant has signed off
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Please see following website for suggested commissioning forms:

https://www.cf.missouri.edu/cf/pdc/commissioning-forms
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SECTION 1.F

INDEX OF DRAWINGS


Drawing Sheet G101 1 of 1: Cover Sheet

Drawing Sheet A101 1 of 2: Floor & Ceiling Plans & Reference Photos

Drawing Sheet A401 2 of 2: Elevations and Schedules

Drawing Sheet M101 1 of 1: Mechanical Renovation Plan

Drawing Sheet E101 1 of 3: Electrical Modification Plans

Drawing Sheet E501 2 of 3: Electrical Details & Schedules

Drawing Sheet E701 3 of 3: Electrical Control Diagrams

END OF SECTION
SECTION 1.G

PREVAILING WAGE RATES

1. The prevailing wage rates for Boone County as issued by the Missouri Division of Labor on the following pages.
In accordance with Section 290.262 RSMo 2000, within thirty (30) days after a certified copy of this Annual Wage Order has been filed with the Secretary of State as indicated below, any person who may be affected by this Annual Wage Order may object by filing an objection in triplicate with the Labor and Industrial Relations Commission, P.O. Box 599, Jefferson City, MO 65102-0599. Such objections must set forth in writing the specific grounds of objection. Each objection shall certify that a copy has been furnished to the Division of Labor Standards, P.O. Box 449, Jefferson City, MO 65102-0449 pursuant to 8 CSR 20-5.010(1). A certified copy of the Annual Wage Order has been filed with the Secretary of State of Missouri.

Filed With Secretary of State: March 10, 2020

Last Date Objections May Be Filed: April 9, 2020
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<th>OCCUPATIONAL TITLE</th>
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<td>Boilermaker</td>
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<td>Bricklayer</td>
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<td>Carpenter</td>
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<td>Lather</td>
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<tr>
<td>Linoleum Layer</td>
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<td>Millwright</td>
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<tr>
<td>Pile Driver</td>
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<td>Cement Mason</td>
<td>$41.89</td>
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<td>Plasterer</td>
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<td>Communications Technician</td>
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<td>Electrician (Inside Wireman)</td>
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<td>Electrician Outside Lineman</td>
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<td>Lineman Operator</td>
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<td>Lineman - Tree Trimmer</td>
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<td>Groundman</td>
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<td>Groundman - Tree Trimmer</td>
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<td>Elevator Constructor</td>
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<td>Glazier</td>
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<td>Ironworker</td>
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<td>First Semi-Skilled</td>
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<td>Second Semi-Skilled</td>
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<td>Mason</td>
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<td>Marble Mason</td>
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<td>Terrazzo Worker</td>
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<td>Tile Setter</td>
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<td>Tile Finisher</td>
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<td>Operating Engineer</td>
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<td>Group I</td>
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<td>Group II</td>
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<td>Group III</td>
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<td>Group III-A</td>
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<td>Group IV</td>
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<td>Pipe Fitter</td>
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<td>Sheet Metal Worker</td>
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<tr>
<td>Sprinkler Fitter</td>
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<td>Truck Driver</td>
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<td>Truck Control Service Driver</td>
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</tr>
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<td>Group II</td>
<td></td>
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<tr>
<td>Group III</td>
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*The Division of Labor Standards received less than 1,000 reportable hours for this occupational title.
Public works contracting minimum wage is established for this occupational title using data provided by Missouri Economic Research and Information Center.
**The Prevailing Hourly Rate includes any applicable fringe benefit amounts for each occupational title.
<table>
<thead>
<tr>
<th>OCCUPATIONAL TITLE</th>
<th><strong>Prevailing Hourly Rate</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Carpenter</td>
<td>$49.56</td>
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<tr>
<td>Millwright</td>
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<tr>
<td>Pile Driver</td>
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<tr>
<td>Electrician (Outside Lineman)</td>
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<tr>
<td>Lineman Operator</td>
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<tr>
<td>Lineman - Tree Trimmer</td>
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<tr>
<td>Groundman</td>
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<tr>
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<td>Truck Control Service Driver</td>
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<td>Group III</td>
<td></td>
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<tr>
<td>Group IV</td>
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</tr>
</tbody>
</table>

Use Heavy Construction Rates on Highway and Heavy construction in accordance with the classifications of construction work established in 8 CSR 30-3.040(3).

Use Building Construction Rates on Building construction in accordance with the classifications of construction work established in 8 CSR 30-3.040(2).

If a worker is performing work on a heavy construction project within an occupational title that is not listed on the Heavy Construction Rate Sheet, use the rate for that occupational title as shown on the Building Construction Rate Sheet.

*The Division of Labor Standards received less than 1,000 reportable hours for this occupational title. Public works contracting minimum wage is established for this occupational title using data provided by Missouri Economic Research and Information Center.

**The Prevailing Hourly Rate includes any applicable fringe benefit amounts for each occupational title.
OVERTIME

For all work performed on a Sunday or a holiday, not less than twice (2x) the prevailing hourly rate of wages for work of a similar character in the locality in which the work is performed or the public works contracting minimum wage, whichever is applicable, shall be paid to all workers employed by or on behalf of any public body engaged in the construction of public works, exclusive of maintenance work.

For all overtime work performed, not less than one and one-half (1½) the prevailing hourly rate of wages for work of a similar character in the locality in which the work is performed or the public works contracting minimum wage, whichever is applicable, shall be paid to all workers employed by or on behalf of any public body engaged in the construction of public works, exclusive of maintenance work or contractual obligation. For purposes of this subdivision, "overtime work" shall include work that exceeds ten hours in one day and work in excess of forty hours in one calendar week; and

A thirty-minute lunch period on each calendar day shall be allowed for each worker on a public works project, provided that such time shall not be considered as time worked.

HOLIDAYS

January First;
The last Monday in May;
July Fourth;
The first Monday in September;
November Eleventh;
The fourth Thursday in November; and
December Twenty-Fifth;

If any holiday falls on a Sunday, the following Monday shall be considered a holiday.
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SECTION 02 41 00
DEMOLITION

PART 1 GENERAL

1.01 SECTION INCLUDES
A. Selective demolition of building elements for alteration purposes.

1.02 RELATED REQUIREMENTS
A. Section 1.E Special Conditions

1.03 REFERENCE STANDARDS
A. 29 CFR 1926 - U.S. Occupational Safety and Health Standards.

1.04 SUBMITTALS
A. See General Conditions and Special Conditions for requirements for submittal procedures.
B. Project Record Documents: Accurately record actual locations of capped and active utilities and subsurface construction.

1.05 QUALITY ASSURANCE
A. Demolition Firm Qualifications: Company specializing in the type of work required.
   1. Minimum of 10 years of experience.

PART 3 EXECUTION

2.01 SCOPE
A. Remove Items indicated on drawings for demolition.
B. Remove other items indicated, for salvage, relocation, and recycling.

2.02 GENERAL PROCEDURES AND PROJECT CONDITIONS
A. Comply with applicable codes and regulations for demolition operations and safety of adjacent structures and the public.
   1. Take precautions to prevent catastrophic or uncontrolled collapse of structures to be removed; do not allow worker or public access within range of potential collapse of unstable structures.
   2. Provide, erect, and maintain temporary barriers and security devices.
   3. Conduct operations to minimize effects on and interference with adjacent structures and occupants.
   4. Do not close or obstruct roadways or sidewalks without permit.
   5. Conduct operations to minimize obstruction of public and private entrances and exits; do not obstruct required exits at any time; protect persons using entrances and exits from removal operations.
B. Do not begin removal until receipt of notification to proceed from Owner.
C. Do not begin removal until built elements to be salvaged or relocated have been removed.
D. Protect existing structures and other elements that are not to be removed.
   1. Provide bracing and shoring.
   2. Prevent movement or settlement of adjacent structures.
   3. Stop work immediately if adjacent structures appear to be in danger.
E. If hazardous materials are discovered during removal operations, stop work and notify Architect/Engineer and Owner; hazardous materials include regulated asbestos containing materials, lead, PCB's, and mercury.
F. Perform demolition in a manner that maximizes salvage and recycling of materials.
   1. Dismantle existing construction and separate materials.
   2. Set aside reusable, recyclable, and salvageable materials; store and deliver to collection point or point of reuse.
2.03 EXISTING UTILITIES
A. Protect existing utilities to remain from damage.
B. Do not disrupt public utilities without permit from authority having jurisdiction.
C. Do not close, shut off, or disrupt existing life safety systems that are in use without at least 7 days prior written notification to Owner.
D. Do not close, shut off, or disrupt existing utility branches or take-offs that are in use without at least 3 days prior notification to Owner.
E. Locate and mark utilities to remain; mark using highly visible tags or flags, with identification of utility type; protect from damage due to subsequent construction, using substantial barricades if necessary.
F. Remove exposed piping, valves, meters, equipment, supports, and foundations of disconnected and abandoned utilities.

2.04 SELECTIVE DEMOLITION FOR ALTERATIONS
A. Drawings showing existing construction and utilities are based on casual field observation and existing record documents only.
   1. Verify that construction and utility arrangements are as shown.
   2. Report discrepancies to Architect/Engineer before disturbing existing installation.
   3. Beginning of demolition work constitutes acceptance of existing conditions that would be apparent upon examination prior to starting demolition.
B. Separate areas in which demolition is being conducted from other areas that are still occupied.
   1. Provide, erect, and maintain temporary dustproof partitions of construction specified in Section 01 50 00 in locations indicated on drawings.
C. Remove existing work as indicated and as required to accomplish new work.
   1. Remove rotted wood, corroded metals, and deteriorated masonry and concrete; replace with new construction specified.
   2. Remove items indicated on drawings.
D. Services (Including but not limited to HVAC, Plumbing, Fire Protection, and Electrical): Remove existing systems and equipment as indicated.
   1. Maintain existing active systems that are to remain in operation; maintain access to equipment and operational components.
   2. Where existing active systems serve occupied facilities but are to be replaced with new services, maintain existing systems in service until new systems are complete and ready for service.
   3. Verify that abandoned services serve only abandoned facilities before removal.
   4. Remove abandoned pipe, ducts, conduits, and equipment, including those above accessible ceilings; remove back to source of supply where possible, otherwise cap stub and tag with identification.
E. Protect existing work to remain.
   1. Prevent movement of structure; provide shoring and bracing if necessary.
   2. Perform cutting to accomplish removals neatly and as specified for cutting new work.
   3. Repair adjacent construction and finishes damaged during removal work.
   4. Patch as specified for patching new work.

2.05 DEBRIS AND WASTE REMOVAL
A. Remove debris, junk, and trash from site.
B. Leave site in clean condition, ready for subsequent work.
C. Clean up spillage and wind-blown debris from public and private lands.
D. Items listed below may become hazardous wastes as a result of this project. The items listed below remain property of the University of Missouri and shall not be disposed by the contractor. The contractor shall place these items into containers provided by the owners representative.
The contractor shall ensure collected items are stored securely and out of the elements while they are awaiting pick up. Prior to removing or otherwise disturbing the items listed below, the contractor shall request and obtain the appropriate containers from the owners representative. The contractor is not permitted to mix two different waste materials in a single container. If there are questions about any of these items, contact the owners representative for direction.

1. The renovation areas contain the following materials that have been identified as universal hazardous waste:
   a. One-hundred ten (110) each fluorescent light bulbs.
   b. Thirty-five (35) each Ballasts.

   END OF SECTION 02 41 00
TECHNICAL SPECIFICATIONS
ASBESTOS CONTAINING MATERIALS
REMOVAL AND DISPOSAL

For

UNIVERSITY OF MISSOURI
AGRICULTURE SCIENCE ROOMS 2-10, 2-11
PROJECT CP200301

Prepared for

UNIVERSITY OF MISSOURI
Campus Facilities
Columbia, Missouri 65211

Prepared by

UNIVERSITY OF MISSOURI
ENVIRONMENTAL HEALTH AND SAFETY
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PART 1 - GENERAL

Provisions of the General Conditions and Special Conditions are part of this Division.

1.1 SCOPE OF WORK

1. General: The work specified herein shall be the abatement of asbestos containing materials by certified and registered persons who are knowledgeable, qualified and trained in the abatement, handling, and disposal of asbestos containing material, and subsequent cleaning of the affected environment.

2. The Contractor shall furnish all labor, material, equipment, testing, services, permits, insurance, notifications, necessary or required to perform the work in accordance with applicable local, state, and federal regulations for the abatement of asbestos containing materials and for other work as specified in this section or as indicated in associated drawings, sketches, or reports of the work.

All fees required for notification requirements, renotifications, and/or inspections by the regulatory agencies shall be paid by the Contractor. Bulk sample analysis information required by the Department of Natural Resources, U.S. Environmental Protection Agency or local authority having jurisdiction in conjunction with the notification shall also be provided by the Contractor unless provided within this section.

3. The work shall include:

The removal and disposal of 1570 Square Feet of friable residual spray-on ceiling asbestos in Agriculture Science Building Rooms 2-10 & 2-11.

The cleaning or disposal of 50 square feet of items with visible asbestos ceiling overspray on them. Asbestos ceiling overspray may be found on original build items, but not limited to HVAC duct, electrical junction boxes, electrical conduit, concrete, or piping.
1.2 DEFINITIONS

1. Abatement - Procedures to decrease or eliminate the source of fiber release from asbestos containing building materials. Includes encapsulation, enclosure, and removal.

2. Adequately Wet - To sufficiently mix or penetrate with liquid to prevent the release of particulate.

3. Aggressive Air Sampling - Sweeping of floors, ceilings and walls and other surfaces with the exhaust of a minimum of one (1) horsepower leaf blower or equivalent immediately prior to air monitoring.

4. Approved Waste Disposal Site - A solid waste disposal area that is authorized by the Department of Natural Resources to receive asbestos containing solid wastes.

5. Asbestos - The asbestiform varieties of serpentine (chrysotile, antigorite), riebeckite (crocidolite), cummintonite-grumerite (amosite), anthophyllite, and actinolite-tremolite.

6. Asbestos Abatement Supervisor - An individual who directs, controls, or supervises others in asbestos abatement projects.

7. Asbestos Containing Building Material (ACBM) - Surfacing ACM, thermal system insulation ACM, or miscellaneous ACM that is found in or on interior structural members or other parts of a building.

8. Asbestos Containing Material (ACM) - Any material containing more than 1 percent asbestos by weight.

9. Barrier - Any surface that seals off the work area to inhibit the movement of fibers.

10. Category I Nonfriable ACM - Asbestos-containing packings, gaskets, resilient floor covering and asphalt roofing products containing more than one percent (1%) asbestos as determined using the method specified in 40 CFR part 763, subpart F, Appendix A, section 1, Polarized Light Microscopy.

11. Category II Nonfriable ACM - Any material, excluding category I nonfriable ACM, containing more than one percent (1%) asbestos as determined using the methods specified in 40 CFR part 763, subpart F, Appendix A, section 1, Polarized Light Microscopy that, when dry, cannot be crumbled, pulverized or reduced to powder by hand pressure.

12. Containment - Area where asbestos abatement project is conducted. Area must be enclosed either by a glove bag or plastic sheeting barrier.
13. Contractor’s Competent Person (Qualified Person) - One who is capable of identifying existing asbestos hazards in the workplace and selecting the appropriate control strategy for asbestos exposure, who has the authority to take prompt corrective measures to eliminate them, as specified in 29 CFR 1926.32 (f); in addition, for Class I, II, III, and IV work, who is specially trained in training courses which meet the criteria of EPA’s Model Accreditation Plan (40 CFR Part 763) for project designer or supervisor, or its equivalent.

14. Decontamination Area - Enclosed area adjacent and connected to the regulated area which is used for decontamination of workers, materials, and equipment that are contaminated with asbestos.

15. Demolition - the wrecking or taking out of any load bearing structural member of a facility together with any related handling operations.

16. Disposal Bag - A properly labeled 6 mil. thick leak-tight plastic bag used for transporting asbestos waste from work area to disposal site.

17. Encapsulant (Sealant) - A liquid material which can be applied to asbestos-containing material and which prevents the release of asbestos fibers from the material either by creating a membrane over the surface or by penetrating into the material and binding its components together.


19. Enclosure - The construction of an airtight, impermeable, permanent barrier around asbestos containing material to control the release of asbestos fibers into the air.

20. Friable Asbestos Material - Any material containing more than one percent asbestos as determined using the method specified in appendix A, subpart F, 40 CFR part 763 section 1, Polarized Light Microscopy, that, when dry, can be crumbled, pulverized, or reduced to powder by hand pressure.

21. Glove Bag - A manufactured or fabricated device, typically constructed of six (6) mil transparent polyethylene or polyvinyl chloride plastic. This device consist of two (2) inward projecting long sleeves, an internal tool pouch and an attached, labeled receptacle for asbestos waste.

22. Homogeneous Work Site - Continuous areas with the same type of ACM and in which one type of abatement process is performed.

23. Negative Initial Exposure Assessment - An assessment by a “Competent Person” in which it is concluded that employee exposures during the job are likely to be consistently below the Permissible Exposure Levels.
Outside Air - Air outside of the containment.

24. Owner's Air Monitoring Firm - Air Monitoring conducted by a person who is not under the direct control of the person carrying out the asbestos abatement project and who has been selected by the Owner.

25. Owner's Air Sampling Professional - An individual who holds a valid certification from the State of Missouri. The individual shall conduct, oversee, or be responsible for air monitoring of asbestos abatement projects before, during, and after the project has been completed. The air sampling professional must hold a 40 hour AHERA Asbestos Contractor/Supervisor Certificate, and supervised by the Owner’s Certified Industrial Hygienist (C.I.H.).

26. Owner’s Air Sampling Technician - An individual who has been trained by and is under the supervision of an air sampling professional to do air monitoring before, during, and after the asbestos abatement project. The air sampling technician must hold a 40 hour AHERA Asbestos Contractor/Supervisor Certificate, and be supervised by the Owner’s Certified Industrial Hygienist (C.I.H.).

27. Owner’s Certified Industrial Hygienist (C.I.H.) - an Industrial Hygienist, Certified in Comprehensive Practice by the American Board of Industrial Hygiene. The Owner’s C.I.H. must also be certified by the Missouri Department of Natural Resources as an air sampling professional and hold a 40 hour AHERA Asbestos Contractor/Supervisor Certificate. The Owner will identify C.I.H. before application for permit.

28. Personal Monitoring - Sampling of the asbestos fiber concentrations within the breathing zone.

29. Regulated Asbestos Containing Material (RACM) - Friable asbestos material; Category I nonfriable ACM that has become friable; Category I nonfriable ACM that will be or has been subjected to sanding, grinding, cutting, or abrading; Category II nonfriable ACM that has a high probability of becoming or has become crumbled, pulverized or reduced to powder by the forces expected to act on the material in the course of demolition or renovation operations.

30. Remove - To take out RACM or facility components that contain or are covered with RACM from any facility.

31. Renovation - Altering a facility or one or more facility components in any way, including the stripping or removal of RACM from a facility component.

32. Repair - The restoration of asbestos material that has been damaged. Repair consists of the application of rewettable glass cloth, canvas, cement or other suitable
material. It may also involve filling damaged areas with non-asbestos substitutes and re-encapsulating or painting previously encapsulated materials.

33. Strip - To take off RACM from any part of a facility or facility components.

34. Waste Shipment Record - The shipping document, required to be originated and signed by the waste generator, used to track and substantiate the disposition of asbestos containing waste material.

35. Work Area - A specific isolated area, other than the space enclosed within a glove bag, in which friable asbestos-containing materials is required to be handled. The area is designated as a work area from the time that the area is secured and access restrictions are in place. The area remains designated as a work area until the time that it has been cleaned in accordance with any requirements applicable to the operations conducted.

1.3 CODES AND REGULATIONS

1. General Applicability Of Codes, Regulations and Standards - All applicable codes, regulations, standards, statutes, laws, and rules have the same force and effect (and are made a part of the contract documents by reference) as if copied directly into the contract documents, or as if published copies are bound herewith. Where conflicts arise, the most stringent specification shall apply.

2. Contractor Responsibility - The Contractor shall assume full responsibility and liability for the compliance with all applicable federal, state, and local regulations pertaining to work practices, hauling, disposal and protection of workers, visitors to the site, and persons occupying areas adjacent to the site. The Contractor is responsible for providing medical examinations and maintaining medical records of personnel as required by the applicable federal, state, and local regulations. The Contractor shall hold the owner harmless for failure to comply with any applicable work, hauling, disposal, safety, health, or other regulations on the part of the contractor, contractor’s employees, or contractor’s subcontractors.

3. Federal and State requirements which govern asbestos abatement work or hauling and disposal of asbestos waste materials include but are not limited to the following:

1. U.S. Department of Labor, Occupational Safety and Health Administration (OSHA) including but not limited to:


2. U.S. Environmental Protection Agency (EPA) including but not limited to:


3. U.S. Department of Transportation (DOT) including but not limited to:


4. State of Missouri including but not limited to:

   1. H.B. 77, 85th General Assembly.

   2. Missouri Air Conservation Law Chapter 643.

   3. Missouri Department of Natural Resources, Division 10, Chapter 6 of the Code of State Regulations as follows:

   (1) 10 CSR 10-6.020, Definitions
   (2) 10 CSR 10-6.080, Emission Standards for Hazardous Air Pollutants
   (3) 10 CSR 10-6.230, Administrative Penalties
   (4) Volume 18, Missouri Register, Page 44
   (5) 10 CSR 10-6.250, Asbestos Abatement Projects - Certification, Accreditation, and Business Exemption Requirements
1.4 NOTIFICATIONS

1. Notifications meeting the requirements of Volume 18, Missouri Register, page 44, shall be completed and sent by the Contractor not less than ten (10) days before the intended starting date of the project. Send notification to the following:

1. Department of Natural Resources
   Air Pollution Control Program (Asbestos)
   P.O. Box 176
   Jefferson City, Missouri  65102

2. U.S. Environmental Protection Agency
   Region VII
   Air & Toxic Division, Air Branch
   ATTN:  Air Compliance
   726 Minnesota Avenue
   Kansas City, Kansas  66101

3. Provide a copy to the Owner's Representative. Five (5) day notification to the Owner’s Representative is required on jobs less than the reportable quantity.

4. If the project is under the jurisdiction of the Kansas City Air Quality Section, St. Louis County Air Pollution Control Branch, or the Springfield-Green County Air Pollution Control Authority, send notification directly to the appropriate agency.

1.5 SUBMITTALS

1. The following will be submitted by contractor prior to commencement of work for approval by the Owner’s Certified Industrial Hygienist (one copy for the Owner's Representative). Owner's C.I.H. will return reviewed copies to contractor and Owner's Representative.

1. One copy of material safety data sheets (MSDS) for products to be used by the Contractor in the performance of his work. Contractor will also maintain copies of MSDS on site per OSHA.

2. One copy of the notifications to, or any correspondence with, the regulatory agencies. Submit a listing of all prior regulatory violations.

2. Friable Abatement:

1. Current Certificates of training and statement of qualifications for the project asbestos abatement supervisor and the Missouri Asbestos Occupational
Certificates for all project personnel. List a summary of project personnel and contact phone numbers.

2. Name, address, and contact person's name of testing laboratory or laboratories to be utilized analyzing samples for bulk analysis or air samples.

3. Submit a detailed plan of the procedures proposed for use in complying with requirements of this specification and Volume 18, Missouri Register, page 44, and 29 CFR 1926.1101. Include in the plan the layout and location of barriers, decontamination units, route of ingress and egress for work area, methods used to assure safety of building occupants and visitors, methods used to isolate or closing out of HVAC system, personal air monitoring strategy, method of removal of material, and engineering controls utilized to prevent emissions from the work area.

4. Provide a disposal plan to detail type of disposal container, method of transportation to disposal site, waste hauler, and disposal site.

5. Copy of notifications required as part of the emergency notification plan.

3. Non-Friable Abatement:
   1. Submit a detailed plan of the procedures proposed to minimize emissions and to prevent the material from becoming friable during removal.
   2. Copy of emergency protection plan to be used if the nonfriable material should become friable during removal.
   3. Current Certificates of training and statement of qualifications for the “Competent Person”.
   4. One copy of the Negative Initial Exposure Assessment.

4. Upon completion of the abatement work, the following information shall be submitted to the Owner's Representative.
   1. Waste disposal receipts and waste shipment record on all asbestos waste removed from the project.

5. Upon completion of the abatement work, the following information shall be submitted by the Owner’s C.I.H. to the Contractor.
   1. Air sampling test results for personal (non-OSHA) and final clearance air samples taken under the supervision of Owner’s Certified Industrial Hygienist. Results must be in writing in final report form.
2. Written certification from the Owner’s Certified Industrial Hygienist.

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION

3.1 SUPERVISION OF ABATEMENT

1. The Contractor shall designate a competent supervisor subject to the approval of the Owner’s C.I.H. and the Owner’s Representative. The supervisor shall be the Contractor's representative on the project and shall meet the requirements of all applicable regulations and perform the following minimum requirements.

   1. Be Certified by the State of Missouri as an Asbestos Abatement Supervisor, a minimum of one year prior full time experience in asbestos abatement work and a minimum of two years experience as a supervisor, and be qualified as a Competent Person in accordance with OSHA regulation 1926.1101.

   2. Be on site and supervise all abatement work in accordance with OSHA and Volume 18, Missouri Register, page 44.

   3. Conduct all OSHA required air monitoring.

   4. Maintain a daily log on the project documenting events, visitations, problems, equipment failures, accidents, and inspections.

   5. Be responsible for implementation of first aid, safety training, respiratory protection, and ensuring all workers are trained in emergency procedures.

   6. Be responsible for conducting a visual inspection of the work area prior to a visual inspection by the Owner’s Certified Industrial Hygienist. Inspection shall be documented.

3.2 NEGATIVE INITIAL EXPOSURE ASSESSMENT

1. The Contractor must conduct a Negative Initial Exposure Assessment (non-friable asbestos) prior to removal of the asbestos material. The Negative Initial Exposure Assessment shall be performed by a "Competent Person" to determine whether the material may be removed and maintained in a nonfriable condition. If the material cannot be removed without becoming friable then the contractor shall comply to the requirements in this specification at no additional cost to the Owner.

2. The method of removal is the Contractor's option. However, in the event of any of the following:
1. Visible emissions are observed
2. Sanding, grinding, cutting, or abrading of the material
3. Air samples exceed 0.1 f/cc

The contractor shall immediately stop work, implement corrective work practices, make any necessary notifications to all regulatory agencies of the changes in work practices and material conditions, and comply with the requirements as set forth in this specification.

3.3 WORKER PROTECTION & TRAINING

1. The Contractor shall be responsible for providing his employees with proper respiratory protection, respiratory training, written respirator program, medical examinations, maintaining medical records, and protective clothing and equipment to comply with OSHA requirements.

2. The Contractor shall be responsible for all testing and costs incurred for complying with requirements of OSHA regulations for Personal Air Sampling.

3. All workers shall be trained in the dangers inherent in handling asbestos and breathing asbestos dust and in proper work procedures and personal and protective measures.

4. All workers shall hold valid diplomas as accredited Asbestos Abatement Workers as required by 10 CSR 10-6.250.

3.4 INDEPENDENT TESTING LABORATORY

1. Testing Laboratories utilized by the Contractor for sample analysis during the project shall meet the following minimum requirements and be approved by the Owner’s C.I.H. This information shall be submitted to the Owner's Representative for review.

   1. All air monitoring samples shall be analyzed by a testing laboratory accredited by the American Industrial Hygiene Association (AIHA) or by an individual who is currently on the Asbestos Analyst Registry.

   2. All bulk samples shall be analyzed by a testing laboratory accredited by the National Voluntary Laboratory Accreditation Program (NVLAP).
3.5 OWNER’S AIR SAMPLING PROFESSIONAL & CERTIFIED INDUSTRIAL HYGIENIST

1. It will be the Owner’s responsibility to hire an Air Sampling Professional & Certified Industrial Hygienist. The Air Sampling Professional & Industrial Hygienist will also be required to perform the following duties as a minimum:

   1. Approval of the Contractor's work plan and methods of abatement to meet regulatory requirements and ensure the health and safety of University faculty, staff, and students.

   2. Verify that the contractor is satisfactorily performing personal air monitoring as directed by OSHA regulations.

   3. Visual inspection of the work area and final clearance air monitoring.

   4. Certify in writing that the Contractor's procedures, methods and practices were, to the best of my knowledge and belief, in compliance with current EPA, OSHA, State and/or applicable local regulations and that the work areas meet the requirements for final clearance testing and account of any known deviations.

   5. Issue final air clearance.

3.6 EMERGENCY PROTECTION PLAN

1. The contractor shall be responsible for developing a written Emergency Protection Plan and shall maintain this plan on site. The plan shall include considerations of asbestos leakage from the site, fire, explosion, toxic atmospheres, electrical hazards, slips, falls, and heat related injury. All employees shall be instructed and trained in the procedures.

2. Emergency protection plan shall also include written notification of police, fire and medical personnel of the planned abatement activities, work schedule, and layout of work area, particularly barriers that may affect response capabilities.

3.7 LOCAL AREA PROTECTION & SITE SECURITY

1. The contractor shall be responsible for all areas of the building used by him and/or subcontractors in the performance of the work. Contractor shall exert full control over the actions of all employees and other persons with respect to the use and preservation of the existing building, except such controls as may be specifically reserved to the owner.
2. Contractor has the right to exclude from the work area all persons who have no purpose related to the work or its inspection, and shall require all persons in the work area to observe the same regulations required of Contractor’s employees.

3. The contractor shall have control of site security during abatement operations in order to protect work environment and equipment. Contractor shall have the owners assistance in notifying building occupants of impending activity and enforcement of restricted access by owners employees.

4. The contractor shall keep a minimum of two 10 lbs. type ABC fire extinguishers on site. One shall be maintained outside the work area and one inside the work area. The employees shall be trained in the operation of extinguishers.

5. Where areas cannot be isolated by existing walls and doors from employees, clients, or the public, barriers must be constructed of ½” plywood and 2”x4” framing 16” o.c. to isolate the area. The barriers must be installed in such a manner to prevent damage to existing walls, floors, or ceilings. Barrier may have a lockable door.

6. The contractor shall maintain the work area free from rubbish, debris, and dirt and keep a clean, safe working area.

7. The Contractor shall provide warning signage around the regulated area as required by OSHA.

8. The Contractor shall isolate any and all air supply and returns to the abatement space as required by OSHA. Contractor shall coordinate with the Owner’s Representative.

9. The Contractor shall keep all areas where adhesive stripper is in use (such as mastic removal) under negative pressure and exhausted to the outside ambient air.

3.8 FINAL CLEARANCE REQUIREMENTS (FRIABLE ASBESTOS)

1. Upon completion of the abatement work, the supervisor shall perform a visual inspection of the work area. If satisfactory, the supervisor shall then request the Owner’s C.I.H. or the C.I.H.’s air sampling technician to perform a visual inspection. When the Owner’s C.I.H. feels the area is ready based on the results of their visual inspection, the Contractor shall apply a lockdown encapsulant. Following application of lockdown encapsulant, the Owner’s C.I.H. shall perform the final clearance sampling for airborne fiber concentrations.

2. The Owner’s C.I.H. or designee will perform final clearance testing per the following requirements:
1. Aggressive sampling shall be required for all areas where removal has taken place with the exception of glove bag projects where nonaggressive sampling is permitted.

2. P.C.M. samples analyzed on site shall be counted by an accredited registered microscopist.

3. For areas specifically specified for clearance by Transmission Electron Microscopy, the method shall be NIOSH 7402.

3. Any work areas failing to meet the clearance requirements of this section shall be recleaned and retested at the contractor's expense until satisfactory levels are obtained.

4. The Owner's C.I.H. shall provide a written report of the air monitoring activities to the contractor within 7 days after the final clearance testing.

3.9 REESTABLISHMENT OF THE WORK AREA AND SYSTEMS

1. Reestablishment of the work area shall only occur after the contractor has received final clearance in writing from the Owner's C.I.H.

2. All damage to finishes, equipment, and/or the area affected by the abatement shall be repaired by the contractor to equal or better condition as it was prior to the work, at no cost to the owner.

3.10 WASTE DISPOSAL

1. All asbestos containing waste and/or asbestos contaminated debris shall as a minimum be double bagged in approved 6 mil. disposal bags. Each bag shall be tagged to meet requirements of NESHAPS with an asbestos caution label and a source identification label.

2. Transportation shall meet the requirements of all regulatory agencies for asbestos containing materials and shall be transported in an enclosed truck.

3. The waste disposal site shall be approved by the Missouri Department of Natural Resources for asbestos disposal. A chain of custody letter/waste shipment record and disposal receipts shall be provided to the owner for all materials disposed of.

3.11 DRAWINGS

1. Drawings, when provided, are not intended to be used for anything but a "reference" to the work area. Information is not specific to quantities or to exact location of ACM unless explicitly noted. Contractor will be required to field verify the conditions and quantities.
3.12 REPORTS

1. Reports, when provided, are intended to be used as a basis for the type and composition of the asbestos present for both bidding purposes and for the information required for the notifications to the governing agencies.

END OF SECTION
MU EHS has completed an Asbestos Survey for the renovation of room’s 2-10 & 2-11 within the Agriculture Bldg. The survey was made to determine the presence of asbestos-containing material (ACM) within the building materials that will be impacted by proposed changes to existing; wall sections, HVAC, electrical and lighting.

The asbestos survey was conducted by Rudy Zachary (Missouri Asbestos Inspector #14679, expires 11/04/2020). The survey was conducted to satisfy the requirements of 40CFR 61, subpart M, which stipulates that all buildings be “thoroughly inspected” for asbestos before the commencement of renovation or demolition activities.

Asbestos Summary

9” tan floor tile along with associated black mastic both tested positive for asbestos.
- Both rooms contain a combined total of 1,570 ft² of asbestos containing floor tile and mastic.

Residual asbestos containing spray on insulation is present along the seams between the wall section and ceiling. This asbestos containing spray on ceiling insulation is also present on electrical junction boxes, electrical conduit, and HVAC duct section above and in the hard ceiling. Please note that the anchors present for the suspended ceiling may also have residual asbestos containing spray on insulation present.

Project Scope;

The project scope call for the following renovations within room’s 2-10 & 2-11;
Demolition of wall separating rooms 2-10 and 2-11 along with the replacement of the existing suspended ceiling. Removal of entrance door and infill with drywall.
Project Scope continued;

Flooring changes include, removal of carpet and installation of LVT over existing VCT and the replacement of existing lighting. Additional changes include modifications to existing electrical system components within both rooms.

Field Observations

Walls within the project space are comprised of a non-asbestos containing plaster finish coat installed onto concrete covered metal lathe. Flooring within the area is comprised of 9” light tan asbestos containing floor tile installed with positive black mastic onto a concrete subfloor.

The ceilings within both rooms is comprised of 24” non-asbestos containing ceiling tiles suspended in a metal grid that is attached to the original asbestos plaster ceiling. Non-asbestos containing spray on insulation is present on the ceiling and on some HVAC duct sections below the original plaster ceiling, but may not be present above the original plaster ceiling.

**Residual Asbestos Containing spray-on ceiling material is present along the seam between the hard ceiling and the wall section identified for demolition. The residual asbestos material is present within the seam along both sides of the wall section, all other plaster on wall sections is negative for asbestos. Asbestos abatement will be needed if the wall is to be removed in its entirety.**

**In addition to hard ceiling residual asbestos. Asbestos spray-on insulation may be present on the following items that are present above or on the hard ceiling.**

- Electrical wiring / junction boxes
- Anchors for the suspended ceiling
- HVAC duct sections

Electrical lines above the ceiling are currently energized and subsequently were not inspected. Plumbing lines and HVAC system components could not be inspected due to no access panels being present in the suspended ceiling.

It is recommended that any insulation other than fiberglass that may be present on plumbing lines along with any seam tape or sealants on HVAC duct sections be tested for the presence of asbestos prior to any disturbance.

Doors and frames within the project area are of metal construction and are not fire rated. Paint present on wall section identified for demo and repair does not contain lead.

Room’s 2-10 & 2-11 both contain the following items that have been identified as Universal Hazardous Waste;

- 110 ea. fluorescent light bulbs
- 35 ea. Ballasts
## Sample Information

<table>
<thead>
<tr>
<th>Sample Number</th>
<th>Description and Location</th>
<th>Analysis Results</th>
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<tbody>
<tr>
<td>200319-01</td>
<td>Finish Coat Plaster sample from east wall above entrance door room 2-10</td>
<td>Negative for Asbestos • &lt;1% Chrysotile</td>
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<tr>
<td>200319-01</td>
<td>Base Coat Plaster sample from east wall above entrance door room 2-10</td>
<td>Negative for Asbestos</td>
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<tr>
<td>200319-02</td>
<td>Spray on insulation sample from suspended ceiling room 2-10</td>
<td>Negative for Asbestos</td>
</tr>
<tr>
<td>200319-03</td>
<td>9&quot; tan floor tile on black mastic room 2-10</td>
<td>Positive for Asbestos • 2.5% Chrysotile</td>
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<tr>
<td>200319-04</td>
<td>Black mastic sample room 2-10</td>
<td>Positive for Asbestos • 13.1% Chrysotile</td>
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<td>200319-05</td>
<td>Black cove base sample room 2-10</td>
<td>Negative for Asbestos</td>
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<tr>
<td>200319-06</td>
<td>Brown cove base adhesive sample room 2-10</td>
<td>Negative for Asbestos</td>
</tr>
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<td>200319-07</td>
<td>24&quot; Ceiling tile sample room 2-10</td>
<td>Negative for Asbestos</td>
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<td>200319-08</td>
<td>Plaster sample from demo wall section room 2-10</td>
<td>Negative for Asbestos</td>
</tr>
<tr>
<td>200330-01</td>
<td>Plaster Verification sample room 2-10 above entrance door</td>
<td>Negative for Asbestos • &lt;1% Chrysotile</td>
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<tr>
<td>200330-02</td>
<td>Plaster Verification sample room 2-10 demo wall section (sample collected at seam between ceiling and wall section) residual spray on insulation present in seam</td>
<td>Positive for Asbestos • 2% Chrysotile</td>
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SECTION 06 10 00
ROUGH CARPENTRY

PART 1 GENERAL

1.01 SECTION INCLUDES
   A. Sheathing.
   B. Concealed wood blocking, nailers, and supports.

1.02 RELATED REQUIREMENTS
   A. Section 03 5413 - Cast Underlayment

1.03 REFERENCE STANDARDS
   D. PS 2 - Performance Standard for Wood-Based Structural-Use Panels.

1.04 DELIVERY, STORAGE, AND HANDLING
   A. General: Cover wood products to protect against moisture. Support stacked products to prevent deformation and to allow air circulation.

1.05 WARRANTY
   A. See Section 1.E Special Conditions

PART 2 PRODUCTS

2.01 GENERAL REQUIREMENTS
   A. Dimension Lumber: Comply with PS 20 and requirements of specified grading agencies.
      1. If no species is specified, provide any species graded by the agency specified; if no grading agency is specified, provide lumber graded by any grading agency meeting the specified requirements.
      2. Grading Agency: Any grading agency whose rules are approved by the Board of Review, American Lumber Standard Committee (www.alsc.org) and who provides grading service for the species and grade specified; provide lumber stamped with grade mark unless otherwise indicated.
   B. Lumber fabricated from old growth timber is not permitted.

2.02 DIMENSION LUMBER FOR CONCEALED APPLICATIONS
   A. Sizes: Nominal sizes as indicated on drawings, S4S.
   B. Moisture Content: S-dry or MC19.
   C. Miscellaneous Framing, Blocking, Nailers, Grounds, and Furring:
      1. Lumber: S4S, No. 2 or Standard Grade.
      2. Boards: Standard or No. 3.

2.03 CONSTRUCTION PANELS
   A. Subfloor/Underlayment Combination: Oriented strand board wood structural panel; PS 2, rated Single Floor.
      3. Edges: Tongue and groove.
      4. Exposure Time: Sheathing will not delaminate or require sanding due to moisture absorption from exposure to weather for up to 200 days.
5. Warranty: Manufacturer's standard lifetime limited warranty against manufacturing defects and that panels will not delaminate or require sanding due to moisture absorption damage from exposure to weather for up to the stated period.

2.04 ACCESSORIES
A. Fasteners and Anchors:
B. Subfloor Adhesives: Waterproof, air cure type, cartridge dispensed.
C. Water-Resistive Barrier: Plastic sheet complying with ICC-ES AC38.

2.05 FACTORY WOOD TREATMENT
A. Treated Lumber and Plywood: Comply with requirements of AWPA U1 - Use Category System for wood treatments determined by use categories, expected service conditions, and specific applications.

PART 3 EXECUTION

3.01 PREPARATION
A. Coordinate installation of rough carpentry members specified in other sections.

3.02 INSTALLATION - GENERAL
A. Select material sizes to minimize waste.
B. Reuse scrap to the greatest extent possible; clearly separate scrap for use on site as accessory components, including: shims, bracing, and blocking.
C. Where treated wood is used on interior, provide temporary ventilation during and immediately after installation sufficient to remove indoor air contaminants.

3.03 BLOCKING, NAILERS, AND SUPPORTS
A. Provide framing and blocking members as indicated or as required to support finishes, fixtures, specialty items, and trim.
B. In framed assemblies that have concealed spaces, provide solid wood fireblocking as required by applicable local code, to close concealed draft openings between floors and between top story and roof/attic space; other material acceptable to code authorities may be used in lieu of solid wood blocking.
C. In metal stud walls, provide continuous blocking around door and window openings for anchorage of frames, securely attached to stud framing.
D. In walls, provide blocking attached to studs as backing and support for wall-mounted items, unless item can be securely fastened to two or more studs or other method of support is explicitly indicated.
E. Where ceiling-mounting is indicated, provide blocking and supplementary supports above ceiling, unless other method of support is explicitly indicated.
F. Provide the following specific non-structural framing and blocking:
   1. Subfloor panels not otherwise supported by structural framing.

3.04 INSTALLATION OF CONSTRUCTION PANELS
A. Subflooring/Underlayment Combination: Glue and nail to framing; staples are not permitted.

3.05 TOLERANCES
A. Surface Flatness of Floor: 1/8 inch in 10 feet maximum, and 1/4 inch in 30 feet maximum.

3.06 CLEANING
A. Comply with applicable regulations.
   1. Do not burn scrap on project site.
   2. Do not burn scraps that have been pressure treated.
3. Do not send materials treated with pentachlorophenol, CCA, or ACA to co-generation facilities or “waste-to-energy” facilities.

END OF SECTION 06 10 00
SECTION 07 92 00
JOINT SEALANTS

PART 1 GENERAL

1.01 SECTION INCLUDES
   A. Nonsag gunnable joint sealants.
   B. Joint backings and accessories.

1.02 REFERENCE STANDARDS

1.03 SUBMITTALS
   A. See Section 1.E Special Conditions, for submittal procedures.
   B. Product Data for Sealants: Submit manufacturer's technical data sheets for each product to be used, that includes the following.
      1. Physical characteristics, including movement capability, VOC content, hardness, cure time, and color availability.
      2. List of backing materials approved for use with the specific product.
      3. Substrates that product is known to satisfactorily adhere to and with which it is compatible.
      4. Substrates the product should not be used on.
   C. Product Data for Accessory Products: Submit manufacturer's technical data sheet for each product to be used, including physical characteristics, installation instructions, and recommended tools.

1.04 QUALITY ASSURANCE
   A. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years documented experience.
   B. Installer Qualifications: Company specializing in performing the work of this section and with at least three years of documented experience.
   C. Field Adhesion Tests of Joints: Test for adhesion using most appropriate method in accordance with ASTM C1521, or other applicable method as recommended by manufacturer.

1.05 WARRANTY
   A. Correct defective work within a five year period after Date of Substantial Completion.
   B. Warranty: Include coverage for installed sealants and accessories that fail to achieve watertight seal, exhibit loss of adhesion or cohesion, or do not cure.

PART 2 PRODUCTS

2.01 MANUFACTURERS
   A. Non-Sag Sealants: Permits application in joints on vertical surfaces without sagging or slumping.
2.02 JOINT SEALANT APPLICATIONS

A. Scope:
1. Interior Joints: Do not seal interior joints unless specifically indicated to be sealed. Interior joints to be sealed include, but are not limited to, the following items.
   a. Joints between door, window, and other frames and adjacent construction.
   b. In wall and ceiling assemblies, gaps at electrical outlets, wiring devices, piping, and other openings; between wall/ceiling and other construction; and other flanking sound paths.
   c. Other joints indicated below.
2. Do not seal the following types of joints.
   a. Joints indicated to be treated with manufactured expansion joint cover or some other type of sealing device.
   b. Joints where sealant is specified to be provided by manufacturer of product to be sealed.
   c. Joints where installation of sealant is specified in another section.
   d. Joints between suspended panel ceilings/grid and walls.

B. Interior Joints: Use non-sag polyurethane sealant, unless otherwise indicated.
2. In Sound-Rated Assemblies: Acrylic emulsion latex sealant.

2.03 NONSAG JOINT SEALANTS

A. Polyurethane Sealant: ASTM C920, Grade NS, Uses M and A; single or multi-component; not expected to withstand continuous water immersion or traffic.
3. Color: To be selected by Architect/Engineer from manufacturer's standard range.
4. Service Temperature Range: Minus 40 to 180 degrees F.
5. Manufacturers:

B. Acrylic Emulsion Latex: Water-based; ASTM C834, single component, non-staining, non-bleeding, non-sagging; not intended for exterior use.
1. Color: To be selected by Architect/Engineer from manufacturer's standard range.
2. Grade: ASTM C834; Grade Minus 18 Degrees C (0 Degrees F).
3. Manufacturers:

2.04 ACCESSORIES

A. Backer Rod: Cylindrical cellular foam rod with surface that sealant will not adhere to, compatible with specific sealant used, and recommended by backing and sealant manufacturers for specific application.
1. Type for Joints Not Subject to Pedestrian or Vehicular Traffic: ASTM C1330; Type O - Open Cell Polyurethane.
2. Open Cell: 40 to 50 percent larger in diameter than joint width.

B. Backing Tape: Self-adhesive polyethylene tape with surface that sealant will not adhere to and recommended by tape and sealant manufacturers for specific application.
C. Masking Tape: Self-adhesive, nonabsorbent, non-staining, removable without adhesive residue, and compatible with surfaces adjacent to joints and sealants.

D. Joint Cleaner: Non-corrosive and non-staining type, type recommended by sealant manufacturer; compatible with joint forming materials.

E. Primers: Type recommended by sealant manufacturer to suit application; non-staining.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that joints are ready to receive work.

B. Verify that backing materials are compatible with sealants.

C. Verify that backer rods are of the correct size.

3.02 PREPARATION

A. Remove loose materials and foreign matter that could impair adhesion of sealant.

B. Clean joints, and prime as necessary, in accordance with manufacturer's instructions.

C. Perform preparation in accordance with manufacturer's instructions and ASTM C1193.

D. Mask elements and surfaces adjacent to joints from damage and disfigurement due to sealant work; be aware that sealant drips and smears may not be completely removable.

3.03 INSTALLATION

A. Perform work in accordance with sealant manufacturer's requirements for preparation of surfaces and material installation instructions.

B. Perform installation in accordance with ASTM C1193.

C. Perform acoustical sealant application work in accordance with ASTM C919.

D. Measure joint dimensions and size joint backers to achieve the following, unless otherwise indicated:
   2. Neck dimension no greater than 1/3 of the joint width.
   3. Surface bond area on each side not less than 75 percent of joint width.

E. Install bond breaker backing tape where backer rod cannot be used.

F. Install sealant free of air pockets, foreign embedded matter, ridges, and sags, and without getting sealant on adjacent surfaces.

G. Do not install sealant when ambient temperature is outside manufacturer's recommended temperature range, or will be outside that range during the entire curing period, unless manufacturer's approval is obtained and instructions are followed.

H. Nonsag Sealants: Tool surface concave, unless otherwise indicated; remove masking tape immediately after tooling sealant surface.

3.04 POST-OCCUPANCY

A. Post-Occupancy Inspection: Perform visual inspection of entire length of project sealant joints at a time that joints have opened to their greatest width; i.e. at low temperature in thermal cycle. Report failures immediately and repair.

END OF SECTION 07 92 00
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1.01 SECTION INCLUDES
A. Non-fire-rated hollow metal frames for non-hollow metal doors.

1.02 RELATED REQUIREMENTS
A. Section 08 14 16 - Flush Wood Doors: Non-hollow metal door for hollow metal frames.
B. Section 08 71 00 - Door Hardware: Hardware and silencers.

1.03 REFERENCE STANDARDS
A. ADA Standards - Americans with Disabilities Act (ADA) Standards for Accessible Design.
B. ANSI/SDI A250.8 - Specifications for Standard Steel Doors and Frames (SDI-100).
C. ANSI/SDI A250.10 - Test Procedure and Acceptance Criteria for Prime Painted Steel Surfaces for Steel Doors and Frames.
D. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
G. BHMA A156.115 - American National Standard for Hardware Preparation in Steel Doors and Steel Frames.
I. NAAMM HMMA 830 - Hardware Selection for Hollow Metal Doors and Frames.
J. NAAMM HMMA 831 - Hardware Locations for Hollow Metal Doors and Frames.

1.04 SUBMITTALS
A. See Section 1.E - Special Conditions.
B. Product Data: Materials and details of design and construction, hardware locations, reinforcement type and locations, anchorage and fastening methods, and finishes; and one copy of referenced grade standard.
C. Shop Drawings: Details of each opening, showing elevations, glazing, frame profiles, and identifying location of different finishes, if any.
D. Manufacturer's Qualification Statement.
E. Installer's Qualification Statement.

1.05 QUALITY ASSURANCE
B. Installer Qualifications: Company specializing in performing work of the type specified and with at least three years of documented experience.

1.06 DELIVERY, STORAGE, AND HANDLING
A. Store in accordance with applicable requirements and in compliance with standards and/or custom guidelines as indicated.
PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Hollow Metal Frames with Integral Casings:
   5. Substitutions: See Section 1.E - Special Conditions.

2.02 DESIGN CRITERIA

A. Door Frame Type: Provide hollow metal door frames with integral casings.
B. Steel used for fabrication of frames shall comply with one or more of the following requirements: Galvannealed steel conforming to ASTM A653/A653M, cold-rolled steel conforming to ASTM A1008/A1008M, or hot-rolled pickled and oiled (HRPO) steel conforming to ASTM A1011/A1011M, Commercial Steel (CS) Type B for each.
C. Accessibility: Comply with ICC A117.1 and ADA Standards.
D. Combined Requirements: If a particular door and frame unit is indicated to comply with more than one type of requirement, comply with the specified requirements for each type; for instance, an exterior frame that is also indicated as being sound-rated must comply with the requirements specified for exterior frames and for sound-rated frames; where two requirements conflict, comply with the most stringent.
E. Hardware Preparations, Selections and Locations: Comply with BHMA A156.115, NAAMM HMMA 830 and NAAMM HMMA 831 or ANSI/SDI A250.8 (SDI-100) in accordance with specified requirements.

2.03 HOLLOW METAL DOOR FRAMES WITH INTEGRAL CASINGS

A. Interior Door Frames, Non-Fire Rated: Full profile/continuously welded type.
   1. Based on SDI Standards: ANSI/SDI A250.8 (SDI-100).
      a. Level 3 - Extra Heavy-duty.
      b. Frame Metal Thickness: 16 gage, 0.053 inch, minimum.
      c. Zinc Coating: A60/ZF180 galvannealed coating; ASTM A653/A653M.

2.04 FINISHES

A. Primer: Rust-inhibiting, complying with ANSI/SDI A250.10, door manufacturer's standard.

2.05 ACCESSORIES

A. Silencers: Resilient rubber, fitted into drilled hole; 3 on strike side of single door, 3 on center mullion of pairs, and 2 on head of pairs without center mullions.

2.06 FINISHES

A. Primer: Rust-inhibiting, complying with ANSI/SDI A250.10, door manufacturer's standard.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify existing conditions before starting work.
B. Verify that opening sizes and tolerances are acceptable.
C. Verify that finished walls are in plane to ensure proper door alignment.

3.02 INSTALLATION

A. Install frames in accordance with manufacturer's instructions and related requirements of specified frame standards or custom guidelines indicated.
B. Coordinate frame anchor placement with wall construction.
C. Install door hardware as specified in Section 08 71 00.
D. Touch up damaged factory finishes.

3.03 TOLERANCES
A. Maximum Diagonal Distortion: 1/16 inch measured with straight edges, crossed corner to corner.

END OF SECTION 08 12 13
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SECTION 08 14 16
FLUSH WOOD DOORS

PART 1 GENERAL

1.01 SECTION INCLUDES
A. Flush wood doors; flush and flush glazed configuration; non-rated.

1.02 RELATED REQUIREMENTS
A. Section 08 12 13 - Hollow Metal Frames.
B. Section 08 71 00 - Door Hardware.

1.03 REFERENCE STANDARDS
B. WDMA I.S. 1A - Interior Architectural Wood Flush Doors.

1.04 SUBMITTALS
A. See Section 1.E - Special Conditions.
B. Product Data: Indicate door core materials and construction; veneer species, type and characteristics.
C. Shop Drawings: Show doors and frames, elevations, sizes, types, swings, undercuts, beveling, blocking for hardware, factory machining, factory finishing, cutouts for glazing and other details.
D. Samples: Submit two samples of door veneer, 2” by 2” inch in size illustrating wood grain, stain color, and sheen.
E. Certificate: Submit labels and certificates required by quality assurance and quality control programs.
F. Specimen warranty.
G. Warranty, executed in Owner's name.

1.05 QUALITY ASSURANCE
A. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section, with not less than three years of documented experience.

1.06 DELIVERY, STORAGE, AND HANDLING
A. Package, deliver and store doors in accordance with specified quality standard.
B. Accept doors on site in manufacturer's packaging. Inspect for damage.
C. Protect doors with resilient packaging sealed with heat shrunk plastic. Do not store in damp or wet areas; or in areas where sunlight might bleach veneer. Seal top and bottom edges with tinted sealer if stored more than one week. Break seal on site to permit ventilation.

PART 2 PRODUCTS

2.01 MANUFACTURERS
A. Wood Veneer Faced Doors:
  4. VT Industries, Holstein, Iowa.

2.02 DOORS
A. Doors: Refer to drawings for locations and additional requirements.
  1. Quality Standard: Premium Grade, Extra Heavy Duty performance, in accordance with WDMA I.S. 1A.
  2. Wood Veneer Faced Doors: 5-ply unless otherwise indicated.
B. Interior Doors: 1-3/4 inches thick unless otherwise indicated; flush construction.
   1. Provide solid core doors at each location.
   2. Wood veneer facing with factory transparent finish to match existing adjacent doors.

2.03 DOOR AND PANEL CORES
   A. Non-Rated Solid Core and 20 Minute Rated Doors: Type particleboard core (PC), plies and faces as indicated.

2.04 DOOR FACINGS
   A. Veneer Facing for Transparent Finish: Veneer to match adjacent existing, HPVA Grade AA, plain sliced (flat cut), with book match between leaves of veneer, center balance match of spliced veneer leaves assembled on door or panel face; unless otherwise indicated.

2.05 DOOR CONSTRUCTION
   A. Fabricate doors in accordance with door quality standard specified.
   B. Cores Constructed with stiles and rails:
   C. Factory machine doors for hardware other than surface-mounted hardware, in accordance with hardware requirements and dimensions.
   D. Factory fit doors for frame opening dimensions identified on shop drawings, with edge clearances in accordance with specified quality standard.
   E. Provide edge clearances in accordance with the quality standard specified.

2.06 FACTORY FINISHING - WOOD VENEER DOORS
   A. Finish work in accordance with WDMA I.S. 1A for grade specified and as follows:
   B. Factory finish doors in accordance with approved sample.
   C. Seal door top edge with color sealer to match door facing.

2.07 ACCESSORIES
   A. Hollow Metal Door Frames: As specified in Section 08 12 13.
   B. Glazed Openings:
      2. Glazing: Single vision units, 1/4 inch thick glass.
      3. Tint: Clear.
   C. Glazing Stops: Wood, of same species as door facing, mitered corners; prepared for countersink style tamper proof screws.
   D. Door Hardware: As specified in Section 08 71 00.

PART 3 EXECUTION
3.01 EXAMINATION
   A. Verify existing conditions before starting work.
   B. Verify that opening sizes and tolerances are acceptable.
   C. Do not install doors in frame openings that are not plumb or are out-of-tolerance for size or alignment.

3.02 INSTALLATION
   A. Install doors in accordance with manufacturer's instructions and specified quality standard.
   B. Factory-Finished Doors: Do not field cut or trim; if fit or clearance is not correct, replace door.
   C. Use machine tools to cut or drill for hardware.
   D. Coordinate installation of doors with installation of frames and hardware.
   E. Coordinate installation of glazing.
3.03 ADJUSTING

A. Adjust doors for smooth and balanced door movement.
B. Adjust closers for full closure.

END OF SECTION 08 14 16
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PART 1 GENERAL

1.01 SECTION INCLUDES

A. Hardware for wood doors.
B. Electrically operated and controlled hardware.

1.02 REFERENCE STANDARDS

A. ADA Standards - Americans with Disabilities Act (ADA) Standards for Accessible Design.
B. BHMA A156.1 - American National Standard for Butts and Hinges.
C. BHMA A156.2 - American National Standard for Bored and Preassembled Locks & Latches.
D. BHMA A156.3 - American National Standard for Exit Devices.
E. BHMA A156.4 - American National Standard for Door Controls - Closers.
F. BHMA A156.31 - American National Standard for Electric Strikes and Frame Mounted Actuators.
H. NFPA 70 - National Electrical Code.
I. UL (DIR) - Online Certifications Directory.

1.03 ADMINISTRATIVE REQUIREMENTS

A. Coordinate the manufacture, fabrication, and installation of products that door hardware is installed on.

1.04 SUBMITTALS

A. See Section 1.E Special Conditions.
B. Shop Drawings - Electrified Door Hardware: Submit diagrams for power, signal, and control wiring for electrified door hardware that include details of interface with building safety and security systems. Provide elevations and diagrams for each electrified door opening as follows:
   1. Prepared by or under supervision of Architectural Hardware Consultant (AHC) and Electrified Hardware Consultant (EHC).
   2. Diagrams: Submit point-to-point wiring diagram that shows each device in door opening system with related colored wire connections to each device.
C. Manufacturer's Installation Instructions: Indicate special procedures and perimeter conditions requiring special attention.
D. Warranty: Submit manufacturer's warranty and ensure that forms have been completed in Owner's name and registered with manufacturer.
E. Project Record Documents: Record actual locations of concealed equipment, services, and conduit.

1.05 QUALITY ASSURANCE

A. Installer Qualifications: Company specializing in performing work of the type specified for commercial door hardware with at least three years of documented experience.

1.06 WARRANTY

A. Warranty against defects in material and workmanship for period indicated, from Date of Substantial Completion.
   1. Closers: Five years, minimum.
   2. Exit Devices: Three years, minimum.
   3. Locksets and Cylinders: Three years, minimum.
   4. Other Hardware: Two years, minimum.
PART 2 PRODUCTS

2.01 DESIGN AND PERFORMANCE CRITERIA

A. Provide specified door hardware as required to make doors fully functional, compliant with applicable codes, and secure to extent indicated.
B. Provide individual items of single type, of same model, and by same manufacturer.
C. Provide door hardware products that comply with the following requirements:
   1. Applicable provisions of federal, state, and local codes.
   3. Products Requiring Electrical Connection: Listed and classified by UL (DIR) as suitable for the purpose specified.
D. Electrically Operated and/or Controlled Hardware: Provide necessary power supplies, power transfer hinges, relays, and interfaces as required for proper operation; provide wiring between hardware and control components and to building power connection in compliance with NFPA 70.

2.02 LOCKS AND LATCHES

A. Locks: Provide a lock for every door, unless specifically indicated as not requiring locking.
   1. Hardware Sets indicate locking functions required for each door.
   2. Trim: Provide lever handle or pull trim on outside of all locks unless specifically stated to have no outside trim.
   3. Lock Cylinders: Provide key access on outside of all locks unless specifically stated to have no locking or no outside trim.
B. Electrically Operated Locks: Fail secure unless otherwise indicated.
C. Lock Cylinders: Manufacturer’s standard tumbler type, to receive owner provided, contractor installed, seven-pin standard core.
   1. Provide cams and/or tailpieces as required for locking devices required.
D. Keying: Owner-provided keys and seven-pin cores.

2.03 HINGES

A. Manufacturers:
   2. Substitutions: See Section 1.E Special Conditions
B. Hinges: Comply with BHMA A156.1, Grade 1.
   1. Provide hinges on every swinging door.
   2. Provide five-knuckle full mortise butt hinges unless otherwise indicated.
   3. Provide following quantity of butt hinges for each door:
      a. Doors From 60 inches High up to 90 inches High: Three hinges.

2.04 EXIT DEVICES

A. Manufacturers:
   2. Substitutions: See Section 1.E Special Conditions
B. Exit Devices: Comply with BHMA A156.3, Grade 1.
   1. Lever design to match lockset trim.
   2. Provide cylinder with cylinder dogging or locking trim.
   3. Provide exit devices properly sized for door width and height.
   4. Provide strike as recommended by manufacturer for application indicated.
   5. Provide UL (DIR) listed exit device assemblies for fire-rated doors and panic device assemblies for non-fire-rated doors.

2.05 ELECTRIC STRIKES

A. Manufacturers:
   1. Von Duprin.
2. Substitutions: See Section 1.E Special Conditions

B. Electric Strikes: Comply with BHMA A156.31, Grade 1.
   1. Provide UL (DIR) listed burglary-resistant electric strike; style to suit locks.
   2. Provide non-handed 24 VDC electric strike suitable for door frame material and scheduled lock configuration.
   3. Provide transformer and rectifier as necessary for complete installation.
   4. Connect electric strikes into fire alarm where non-rated doors are scheduled to release with fire or sprinkler alarm condition.

2.06 CYLINDRICAL LOCKS
A. Manufacturers:
   2. Substitutions: See Section 1.E Special Conditions

B. Cylindrical Locks (Bored): Comply with BHMA A156.2, Grade 1.
   2. Provide a lock for each door, unless otherwise indicated that lock is not required.
   3. Trim: Provide lever handle or pull trim on outside of each lock, unless otherwise indicated.
   4. Interchangeable 7 pin core. Core provided by owner.

2.07 CLOSERS
A. Manufacturers; Surface Mounted:
   1. LCN, an Allegion brand; 4040XP: www.allegion.com/us/#sle.
   2. Substitutions: See Section 1.E Special Conditions

B. Manufacturers; Low Energy Automatic Operator for ADA Applications:
   1. LCN 4642.
   2. Substitutions: See Section 1.E Special Conditions

C. Closers: Comply with BHMA A156.4, Grade 1.
   1. Type: Surface mounted to door.
   2. At corridor entry doors, mount closer on room side of door.

2.08 POWER SUPPLY
A. Power Supply: Hard wired, with multiple zones providing eight (8) breakers for each output panel with individual control switches and LED's; UL (DIR) Class 2 listed.
   1. Power: 24 VAC, 10 Amp; with 120 VAC power supply.
   2. Operating Temperature: 32 to 110 degrees F.
   3. Provide with emergency release terminals that release devices upon activation of fire alarm system.

PART 3 EXECUTION
3.01 EXAMINATION
A. Verify that electric power is available to power operated devices and of correct characteristics.

3.02 INSTALLATION
A. Install hardware in accordance with manufacturer’s instructions and applicable codes.
B. Use templates provided by hardware item manufacturer.

3.03 FIELD QUALITY CONTROL
A. Provide an Architectural Hardware Consultant (AHC) to inspect installation and certify that hardware and installation has been furnished and installed in accordance with manufacturer’s instructions.

3.04 ADJUSTING
A. Adjust hardware for smooth operation.
B. Adjust gasketing for complete, continuous seal; replace if unable to make complete seal.
3.05 CLEANING
   A. Clean finished hardware in accordance with manufacturer's written instructions after final
      adjustments have been made.
   B. Clean adjacent surfaces soiled by hardware installation.
   C. Replace items that cannot be cleaned to manufacturer's level of finish quality at no additional
      cost.

3.06 PROTECTION
   A. Do not permit adjacent work to damage hardware or finish.

END OF SECTION 08 71 00
SECTION 09 51 00
ACOUSTICAL CEILINGS

PART 1 GENERAL

1.01 SECTION INCLUDES
   A. Suspended metal grid ceiling system.
   B. Acoustical units.

1.02 REFERENCE STANDARDS
   B. ASTM E1264 - Standard Classification for Acoustical Ceiling Products.

1.03 SUBMITTALS
   A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.
   B. Product Data: Provide data on suspension system components and acoustical units.
   C. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
      1. Extra Acoustical Units: Quantity equal to 5 percent of total installed.

1.04 FIELD CONDITIONS
   A. Maintain uniform temperature of minimum 60 degrees F, and maximum humidity of 40 percent prior to, during, and after acoustical unit installation.

PART 2 PRODUCTS

2.01 MANUFACTURERS
   A. Acoustic Tiles/Panels:
      2. Substitutions: See Section 1.E Special Conditions
   B. Suspension Systems:
      1. Same as for acoustical units.

2.02 ACOUSTICAL UNITS
   A. Acoustical Panels: Painted mineral fiber, with the following characteristics:
      1. Classification: ASTM E1264 Type III.
         a. Form: 2, water felted.
         b. Pattern: "D" - fissured.
      2. Size: 24 by 24 inches.
      7. Products:
         b. Substitutions: See Section 1.E Special Conditions

2.03 SUSPENSION SYSTEM(S)
   A. Metal Suspension Systems - General: Complying with ASTM C635/C635M; die cut and interlocking components, with perimeter moldings, hold down clips, stabilizer bars, clips, and splices as required.
   B. Exposed Suspension System: Hot-dipped galvanized steel grid with aluminum cap.
      1. Structural Classification: Intermediate-duty, when tested in accordance with ASTM C635/C635M.
      2. Profile: Tee; 15/16 inch face width.
      3. Finish: Baked enamel.

2.04 ACCESSORIES
   A. Support Channels and Hangers: Galvanized steel; size and type to suit application and ceiling system flatness requirement specified.
   B. Hanger Wire: 12-gage 0.08 inch galvanized steel wire.
   C. Perimeter Moldings: Same metal and finish as grid.
   D. Touch-up Paint: Type and color to match acoustical and grid units.

PART 3 EXECUTION

3.01 INSTALLATION - SUSPENSION SYSTEM
   A. Rigidly secure system, including integral mechanical and electrical components, for maximum deflection of 1:360.
   B. Perimeter Molding: Install at intersection of ceiling and vertical surfaces and at junctions with other interruptions.
      1. Use longest practical lengths.
   C. Suspension System, Non-Seismic: Hang suspension system independent of walls, columns, ducts, pipes and conduit. Where carrying members are spliced, avoid visible displacement of face plane of adjacent members.
   D. Where ducts or other equipment prevent the regular spacing of hangers, reinforce the nearest affected hangers and related carrying channels to span the extra distance.
   E. Do not support components on main runners or cross runners if weight causes total dead load to exceed deflection capability.
   F. Support fixture loads using supplementary hangers located within 6 inches of each corner, or support components independently.
   G. Do not eccentrically load system or induce rotation of runners.

3.02 INSTALLATION - ACOUSTICAL UNITS
   A. Install acoustical units in accordance with manufacturer's instructions.
   B. Fit acoustical units in place, free from damaged edges or other defects detrimental to appearance and function.
   C. Fit border trim neatly against abutting surfaces.
   D. Install acoustical units level, in uniform plane, and free from twist, warp, and dents.
   E. Cutting Acoustical Units:
      1. Make field cut edges of same profile as factory edges.

3.03 TOLERANCES
   A. Maximum Variation from Flat and Level Surface: 1/8 inch in 10 feet.
   B. Maximum Variation from Plumb of Grid Members Caused by Eccentric Loads: 2 degrees.

END OF SECTION 09 51 00
PART 1  GENERAL

1.01  SECTION INCLUDES
A. Resilient base.
B. Installation accessories.

1.02  REFERENCE STANDARDS
B. RFCI (RWP) - Recommended Work Practices for Removal of Resilient Floor Coverings; Resilient Floor Covering Institute.

1.03  QUALITY ASSURANCE
A. Installer Qualifications: Engage an experienced installer to perform work of this Section who has specialized in installing resilient product similar to those required for this project and with a record of successful in-service performance. Installer must have a minimum of 5 years experience.

1.04  SUBMITTALS
A. See Section 1.E Special Conditions
B. Product Data: Provide data on specified products, describing physical and performance characteristics; including sizes, patterns and colors available; and installation instructions.
C. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
   1. Extra Wall Base: 12 linear feet of each type and color.

1.05  QUALITY ASSURANCE
A. Installer Qualifications: Company specializing in installing specified flooring with minimum three years documented experience.

1.06  DELIVERY, STORAGE, AND HANDLING
A. Upon receipt, immediately remove any shrink-wrap and check materials for damage and the correct style, color, quantity and run numbers.
B. Store all materials off of the floor in an acclimatized, weather-tight space.
C. Maintain temperature in storage area between 65 degrees F and 85 degrees F.
D. Protect roll materials from damage by storing on end.
E. Do not double stack pallets.

1.07  FIELD CONDITIONS
A. Deliver materials in good condition to the jobsite in manufacturer's original unopened containers that bear the name and brand of the manufacturer, project identification, and shipping and handling instructions.
B. Store materials in a clean, dry, flat, enclosed space off the ground and protected from weather for not less than 48 hours prior to installation in area of installation at a temperature of 70 degrees F to achieve temperature stability. Thereafter, maintain conditions above 55 degrees F.

PART 2  PRODUCTS

2.01  RESILIENT BASE
A. Resilient Base: ASTM F1861, Type TV, vinyl, thermoplastic; top set Style B, Cove.
   1. Manufacturers:
      b. Substitutions: See Section 1.E Special Conditions.
   2. Height: 4 inch.
3. Thickness: 0.125 inch thick.
5. Length: 4 foot sections.

2.02 ACCESSORIES
A. Adhesives: Waterproof; types recommended by flooring manufacturer.
B. Moldings, Transition and Edge Strips: Vinyl.
   1. Manufacturers:
      b. Roppe.
      c. Substitutions: See Section 1.E Special Conditions.
   2. Product: #177 manufactured by Roppe.

PART 3 EXECUTION
3.01 EXAMINATION
A. Verify that surfaces are flat to tolerances acceptable to flooring manufacturer, free of cracks that might telegraph through flooring, clean, dry, and free of curing compounds, surface hardeners, and other chemicals that might interfere with bonding of flooring to substrate.
B. Maintain a temperature of not less than 65 degrees F or more than 95 degrees F in spaces to receive products for at least 48 hours before installation, during installation, and at least 48 hours after installation, unless manufacturer's written recommendations specify longer time periods. After post-installation period, maintain a temperature of not less than 55 degrees F or more than 95 degrees F.

3.02 PREPARATION
A. Remove existing resilient flooring and flooring adhesives; follow the recommendations of RFCI (RWP).
B. Prepare floor substrates as recommended by flooring and adhesive manufacturers.
C. Remove sub-floor ridges and bumps. Fill minor low spots, cracks, joints, holes, and other defects with sub-floor filler to achieve smooth, flat, hard surface.
D. Prohibit traffic until filler is cured and during and after tile installation as recommended by the manufacturer.
E. Clean substrate.

3.03 INSTALLATION - GENERAL
A. Starting installation constitutes acceptance of sub-floor conditions.
B. Install in accordance with manufacturer's written instructions.
C. Adhesive-Applied Installation:
   1. Place copper grounding strip in conductive adhesive and apply additional adhesive to top side of strip before installing static control flooring. Allow strip to extend beyond flooring in accordance with static control flooring manufacturer's instructions. Refer to Section 26 05 26 for grounding and bonding to building grounding system.
   2. Fit joints and butt seams tightly.
   3. Set flooring in place, press with heavy roller to attain full adhesion.
D. Spread only enough adhesive to permit installation of materials before initial set.
E. Fit joints and butt seams tightly.
F. Set flooring in place, press with heavy roller to attain full adhesion.
G. Where type of floor finish, pattern, or color are different on opposite sides of door, terminate flooring under centerline of door.
H. Install edge strips at unprotected or exposed edges, where flooring terminates, and where indicated.
I. Scribe flooring to walls, columns, cabinets, floor outlets, and other appurtenances to produce tight joints.

3.04 INSTALLATION - RESILIENT BASE
   A. Fit joints tightly and make vertical. Maintain minimum dimension of 18 inches between joints.
   B. Install base on solid backing. Bond tightly to wall and floor surfaces.

3.05 CLEANING
   A. Remove excess adhesive from floor, base, and wall surfaces without damage.
   B. Clean in accordance with manufacturer's written instructions.

END OF SECTION 09 65 00
SECTION 09 68 13
TILE CARPETING

PART 1 GENERAL
1.01 SECTION INCLUDES
   A. Carpet tile, fully adhered.
   B. Removal of existing carpet tile.

1.02 RELATED REQUIREMENTS
   A. Section 03 5413 - Cast Underlayment.

1.03 REFERENCE STANDARDS

1.04 SUBMITTALS
   A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.
   B. Product Data: Provide data on specified products, describing physical and performance characteristics; sizes, patterns, colors available, and method of installation.
   C. Sustainable Design Submittal: Submit VOC content documentation for adhesives.
   D. Concrete Sub-floor Test Report: Submit a copy of the moisture and alkalinity (pH) test reports.
   E. Installer's Qualification Statement.
   F. Maintenance Data: Include maintenance procedures, recommended maintenance materials, and suggested schedule for cleaning.

1.05 QUALITY ASSURANCE
   A. Manufacturer Qualifications: Company specializing in manufacturing specified carpet tile with minimum three years documented experience.
   B. Installer Qualifications: Company specializing in installing carpet tile with minimum three years documented experience and approved by carpet tile manufacturer.

1.06 FIELD CONDITIONS
   A. Store materials in area of installation for minimum period of 24 hours prior to installation.

PART 2 PRODUCTS
2.01 MANUFACTURERS
   A. Tile Carpeting:
      1. Interface, Inc: www.interfaceinc.com/#sle.
      4. Substitutions: See Section 1.E - Special Conditions.

2.02 MATERIALS
   A. Tile Carpeting: Tufted, manufactured in one color dye lot.
      1. Product: Tandus manufactured by Tarkett.
      2. Tile Size: 24 by 24 inch, nominal.
      4. Primary Backing Material: Polypropylene.

2.03 ACCESSORIES
   A. Carpet Tile Adhesive: Recommended by carpet tile manufacturer; releasable type.

PART 3 EXECUTION
3.01 EXAMINATION
   A. Verify that sub-floor surfaces are smooth and flat within tolerances specified for that type of work and are ready to receive carpet tile.
B. Cementitious Sub-floor Surfaces: Verify that substrates are dry enough and ready for flooring installation by testing for moisture and pH.
   1. Obtain instructions if test results are not within limits recommended by flooring material manufacturer and adhesive materials manufacturer.

3.02 PREPARATION
   A. Remove existing carpet tile.
   B. Prepare floor substrates as recommended by flooring and adhesive manufacturers.
   C. Remove sub-floor ridges and bumps. Fill minor or local low spots, cracks, joints, holes, and other defects with sub-floor filler.
   D. Vacuum clean substrate.

3.03 INSTALLATION
   A. Starting installation constitutes acceptance of sub-floor conditions.
   B. Install carpet tile in accordance with manufacturer's instructions.
   C. Blend carpet from different cartons to ensure minimal variation in color match.
   D. Cut carpet tile clean. Fit carpet tight to intersection with vertical surfaces without gaps.
   E. Lay carpet tile in square pattern, with pile direction parallel to next unit, set parallel to building lines.
   F. Fully adhere carpet tile to substrate.
   G. Trim carpet tile neatly at walls and around interruptions.
   H. Complete installation of edge strips, concealing exposed edges.

3.04 CLEANING
   A. Remove excess adhesive without damage, from floor, base, and wall surfaces.
   B. Clean and vacuum carpet surfaces.

END OF SECTION 09 68 13
SECTION 09 84 00
ACOUSTICAL PANELS

PART 1 GENERAL
1.01 SECTION INCLUDES
   A. Fabric-covered mineral fiber core panels and mounting accessories.

1.02 RELATED REQUIREMENTS
   A. Section 09 91 23 - Interior Painting.

1.03 REFERENCE STANDARDS

1.04 SUBMITTALS
   A. Product Data: Manufacturer's printed data sheets for products specified.
   B. Verification Samples: Fabricated samples of each type of panel specified; 12 by 12 inch, showing construction, edge details, and fabric covering.
   C. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
      1. Extra Panels: Quantity equal to 5 percent of total installed, but not less than one of each type.

1.05 QUALITY ASSURANCE
   A. Manufacturer Qualifications: Company with not less than five years of experience in manufacturing acoustical products similar to those specified.

1.06 DELIVERY, STORAGE, AND HANDLING
   A. Protect acoustical panels from moisture during shipment, storage, and handling. Deliver in factory-wrapped bundles; do not open bundles until panels are needed for installation.
   B. Store panels flat, in dry, well-ventilated space; do not stand panels on end.
   C. Protect panel edges from damage.

PART 2 PRODUCTS
2.01 MANUFACTURERS
   A. Fabric-Covered Acoustical Panels:
      2. Substitutions: See Section 1.E Special Conditions.
   B. Provide all acoustical panels by one manufacturer.

2.02 FABRIC-COVERED ACOUSTICAL PANELS
      1. Surface Burning Characteristics: Flame spread index of 25 or less and smoke developed index of 450 or less, when tested in accordance with ASTM E84.
   B. Mineral Fiber Core Panels:
      1. Noise Reduction Coefficient (NRC): 0.60 to 0.70 when tested in accordance with ASTM C423.
      2. Panel Width: As detailed.
      3. Panel Height: As detailed.
   C. Fabric Covering: Seamless fabric facing material, for stretched covering of core material.
      1. Fabric: Owner-supplied.
      2. Fabric: Manufacturer's standard.
      3. Color: As scheduled.
2.03 **FABRICATION**
   A. Fabric Wrapped, General: Fabricate panels to sizes and configurations indicated, with fabric facing installed without sagging, wrinkles, blisters, or visible seams.
   B. Tolerances: Fabricate to finished tolerance of plus or minus 1/16 inch for thickness, overall length and width, and squareness from corner to corner.

2.04 **ACCESSORIES**
   A. Back-Mounting Accessories: Manufacturer's standard accessories for concealed support, designed to allow panel removal, and as follows:
      1. Two-part clip and base-support bracket system; brackets designed to support full weight of panels and clips designed for lateral support, with one part mechanically attached to back of panel and the other attached to substrate.

**PART 3 EXECUTION**

3.01 **EXAMINATION**
   A. Examine substrates for conditions detrimental to installation of acoustical panels. Proceed with installation only after unsatisfactory conditions have been corrected.

3.02 **INSTALLATION**
   A. Install acoustical panels in locations indicated, following installation recommendations of panel manufacturer. Align panels accurately, with edges plumb and top edges level. Scribe to fit accurately at adjoining work and penetrations.
   B. Install panels to construction tolerances of plus or minus 1/16 inch for the following:
      1. Plumb and level.
      2. Flatness.
      3. Width of joints.

3.03 **CLEANING**
   A. Clean fabric facing upon completion of installation from dust and other foreign materials, following manufacturer's instructions.
   B. Remove surplus materials, trimmed portions of panels, and debris resulting from installation.

3.04 **PROTECTION**
   A. Provide protection of installed acoustical panels until completion of the work.
   B. Replace panels that cannot be cleaned and repaired to satisfaction of the Architect/Engineer.

END OF SECTION 09 84 00
PART 1 GENERAL

1.01 SECTION INCLUDES

A. Surface preparation.
B. Field application of paints.
C. Scope: Finish interior surfaces exposed to view, unless fully factory-finished and unless
otherwise indicated.
   1. Prime surfaces to receive wall coverings.
   2. Mechanical and Electrical:
      a. In finished areas, paint insulated and exposed pipes, conduit, boxes, insulated and
         exposed ducts, hangers, brackets, collars and supports, mechanical equipment, and
         electrical equipment, unless otherwise indicated.
D. Do Not Paint or Finish the Following Items:
   1. Items factory-finished unless otherwise indicated; materials and products having
      factory-applied primers are not considered factory finished.
   2. Items indicated to receive other finishes.
   3. Items indicated to remain unfinished.
   4. Fire rating labels, equipment serial number and capacity labels, bar code labels, and
      operating parts of equipment.
   5. Stainless steel, anodized aluminum, bronze, terne coated stainless steel, and lead items.
   6. Marble, granite, slate, and other natural stones.
   7. Floors, unless specifically indicated.
   8. Glass.
   9. Concealed pipes, ducts, and conduits.

1.02 RELATED REQUIREMENTS

A. Section 1.E Special Conditions.

1.03 DEFINITIONS

A. Comply with ASTM D16 for interpretation of terms used in this section.

1.04 REFERENCE STANDARDS

A. 40 CFR 59, Subpart D - National Volatile Organic Compound Emission Standards for
Architectural Coatings; U.S. Environmental Protection Agency.
D. SCAQMD 1113 - South Coast Air Quality Management District Rule No.1113.
E. SSPC-SP 1 - Solvent Cleaning.
F. SSPC-SP 2 - Hand Tool Cleaning.
G. SSPC-SP 6 - Commercial Blast Cleaning.

1.05 SUBMITTALS

A. Paints provided by owner.

1.06 QUALITY ASSURANCE

A. Applicator Qualifications: Company specializing in performing the type of work specified with
minimum five (5) years experience.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Deliver products to site in sealed and labeled containers; inspect to verify acceptability.
B. Container Label: Include manufacturer's name, type of paint, brand name, lot number, brand code, coverage, surface preparation, drying time, cleanup requirements, color designation, and instructions for mixing and reducing.

C. Paint Materials: Store at minimum ambient temperature of 45 degrees F and a maximum of 90 degrees F, in ventilated area, and as required by manufacturer's instructions.

1.08 FIELD CONDITIONS

A. Do not apply materials when surface and ambient temperatures are outside the temperature ranges required by the paint product manufacturer.

B. Follow manufacturer's recommended procedures for producing best results, including testing of substrates, moisture in substrates, and humidity and temperature limitations.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Provide paints and finishes from the same manufacturer to the greatest extent possible.

B. Paints:
   1. Benjamin Moore & Co.
   2. PPG Paints: www.ppgpaints.com/#sle.

C. Primer Sealers: Same manufacturer as top coats.

D. Substitutions: See Section 1.E Special Conditions.

2.02 PAINTS AND FINISHES - GENERAL

A. Paints and Finishes: Ready mixed, unless intended to be a field-catalyzed paint.
   1. Provide paints and finishes of a soft paste consistency, capable of being readily and uniformly dispersed to a homogeneous coating, with good flow and brushing properties, and capable of drying or curing free of streaks or sags.
   2. Supply each paint material in quantity required to complete entire project's work from a single production run.
   3. Do not reduce, thin, or dilute paint or finishes or add materials unless such procedure is specifically described in manufacturer's product instructions.

B. Volatile Organic Compound (VOC) Content:
   1. Provide paints and finishes that comply with the most stringent requirements specified in the following:
      a. SCAQMD 1113 Rule.
      b. Architectural coatings VOC limits of University of Missouri. Green Seal Standards.
   2. Determination of VOC Content: Testing and calculation in accordance with 40 CFR 59, Subpart D (EPA Method 24), exclusive of colorants added to a tint base and water added at project site; or other method acceptable to authorities having jurisdiction.

C. Sheens: Provide the sheens specified; where sheen is not specified, sheen will be selected later by Architect/Engineer from the manufacturer's full line.

D. Colors: As indicated on drawings.
   1. In finished areas, finish pipes, ducts, conduit, and equipment the same color as the wall/ceiling they are mounted on/under.

2.03 PAINT SYSTEMS - INTERIOR

A. Paint I-OP - Interior Surfaces to be Painted, Unless Otherwise Indicated: Including gypsum board and plaster.
   1. Two top coats and one coat primer.
   2. Top Coat(s): High Performance Architectural Interior Latex; MPI # 140.
   3. Top Coat Sheen:
      a. Flat: MPI gloss level 1; use this sheen for ceilings and other overhead surfaces.
      b. Satin: MPI gloss level 4; use this sheen at walls.
   4. Primer: As recommended by top coat manufacturer for specific substrate.
B. Paint I-OP-MD-DT - Medium Duty Door/Trim: For surfaces subject to frequent contact by occupants, including metals:
   1. Medium duty applications include vent covers.
   2. Two top coats and one coat primer.
   3. Top Coat(s): Interior Alkyd; MPI # 47.
   4. Top Coat Sheen:
      a. Semi-Gloss: MPI gloss level 5; use this sheen at all locations.

2.04 ACCESSORY MATERIALS
   A. Accessory Materials: Provide primers, sealers, cleaning agents, cleaning cloths, sanding materials, and clean-up materials as required for final completion of painted surfaces.
   B. Patching Material: Plaster filler.
   C. Fastener Head Cover Material: Latex filler.

PART 3 EXECUTION
3.01 EXAMINATION
   A. Do not begin application of paints and finishes until substrates have been properly prepared.
   B. Verify that surfaces are ready to receive work as instructed by the product manufacturer.
   C. Examine surfaces scheduled to be finished prior to commencement of work. Report any condition that may potentially affect proper application.
   D. Measure moisture content of surfaces using an electronic moisture meter. Do not apply finishes unless moisture content of surfaces are below the following maximums:
      1. Gypsum Wallboard: 12 percent.
      2. Plaster and Stucco: 12 percent.

3.02 PREPARATION
   A. Clean surfaces thoroughly and correct defects prior to application.
   B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.
   C. Remove or repair existing paints or finishes that exhibit surface defects.
   D. Remove or mask surface appurtenances, including electrical plates, hardware, light fixture trim, escutcheons, and fittings, prior to preparing surfaces or finishing.
   E. Seal surfaces that might cause bleed through or staining of topcoat.
   F. Remove mildew from impervious surfaces by scrubbing with solution of tetra-sodium phosphate and bleach. Rinse with clean water and allow surface to dry.
   G. Gypsum Board: Fill minor defects with filler compound. Spot prime defects after repair.
   H. Plaster: Fill hairline cracks, small holes, and imperfections with latex patching plaster. Make smooth and flush with adjacent surfaces. Wash and neutralize high alkali surfaces.
   I. Galvanized Surfaces:
      1. Remove surface contamination and oils and wash with solvent according to SSPC-SP 1.
      2. Prepare surface according to SSPC-SP 2.
   J. Ferrous Metal:
      1. Solvent clean according to SSPC-SP 1.
      2. Remove rust, loose mill scale, and other foreign substances using methods recommended in writing by paint manufacturer and blast cleaning according to SSPC-SP 6 "Commercial Blast Cleaning". Protect from corrosion until coated.

3.03 APPLICATION
   A. Remove unfinished louvers, grilles, covers, and access panels on mechanical and electrical components and paint separately.
B. Apply products in accordance with manufacturer's written instructions and recommendations in "MPI Architectural Painting Specification Manual".
C. Do not apply finishes to surfaces that are not dry. Allow applied coats to dry before next coat is applied.
D. Apply each coat to uniform appearance in thicknesses specified by manufacturer.
E. Sand metal surfaces lightly between coats to achieve required finish.
F. Vacuum clean surfaces of loose particles. Use tack cloth to remove dust and particles just prior to applying next coat.
G. Reinstall electrical cover plates, hardware, light fixture trim, escutcheons, and fittings removed prior to finishing.

3.04 CLEANING
A. Collect waste material that could constitute a fire hazard, place in closed metal containers, and remove daily from site.

3.05 PROTECTION
A. Protect finishes until completion of project.
B. Touch-up damaged finishes after Substantial Completion.

END OF SECTION 09 91 23
SECTION 23 05 93
CONTRACTOR SCOPE FOR OWNER SUPPLIED TAB

DRAWINGS AND GENERAL PROVISIONS OF CONTRACT, INCLUDING GENERAL AND SPECIAL
CONDITIONS APPLY TO THIS SECTION.

1.01 DESCRIPTION OF WORK

A. This scope of services specifies the requirements and procedures for mechanical systems
testing, adjusting, and balancing. Requirements include measurement and establishment of the
fluid quantities of the mechanical systems as required to meet design specifications, and
recording and reporting the results. The test and balance work will be performed by the Owner’s
personnel. It is the Contractor’s responsibility to assist as outlined below.

1. Test, adjust and balance the following mechanical systems which are shown in the
construction documents.
   a. Supply air systems, all pressure ranges, including variable volume and constant
      volume systems.
   b. Return air systems.
   c. Exhaust air systems.
   d. Hydronic systems.
   e. Steam distribution systems.
   f. Cooling towers.
   g. Verify temperature control system operation.
   h. The contractor’s responsibilities are as follows:
      1) Notify the Owner’s Representative fourteen (14) days prior to the schedule date
         for balancing the system.
      2) Schedule a two (2) week allowance for the testing and balancing firm to
         complete the testing and balancing work when scheduling completion of all work
         required of the Contractor by the contract documents.
      3) Cooperate with the testing and balancing firm and shall make all necessary
         preparations for the TAB efforts.
      4) Complete the following work prior to requesting the TAB effort.
         (a) Clean and flush all piping systems.
         (b) Leak test and make tight all piping systems.
         (c) Fill all piping systems with clean water.
         (d) Clean and seal all ductwork systems.
         (e) Service and tag all equipment.
         (f) Set and align all motors and drives.
         (g) Start up and prove all equipment and systems.
         (h) Make preliminary settings on all control devices and have all systems
             operational.
         (i) Operate all systems successfully for twenty-four (24) hours minimum.
         (j) Lubricate all motors and bearings.
         (k) Check fan belt tension.
         (l) Check fan rotation.
         (m) Patch insulation, ductwork and housing, using materials identical to those
             removed.
         (n) Seal ducts and piping, and test for and repair leaks.
         (o) Seal insulation to re-establish integrity of the vapor barrier.
            (1) Attend a coordination meeting prior to the balancing of the system and
                a coordination meeting following the balancing of the system.
            (2) Provide a complete set of as-built drawings prior to the TAB effort.
            (3) Provide craftsmen of the proper trade to work with the TAB firm to
                make adjustments and installation changes as required.
            (4) Change out fan sheaves when and if required by the TAB firm.
(5) Dedicate the resources to accommodate all changes identified by the test and balance firm in a timely manner.

(6) If a significant rebalance (Owner's determination) of the HVAC system is required due to the Contractor's failure to properly install and check out the HVAC system, the cost of rebalancing the system shall be borne by the Contractor.

2. PRE-BALANCING CONFERENCE
   a. Prior to beginning of the testing, adjusting and balancing procedures, a conference with the Owner's representative, Engineer and the Test and Balance Agency's representative will be held. The objective of the conference is final coordination and verification of system operation and readiness for testing, adjusting and balancing.

3. SEQUENCING AND SCHEDULING OF SERVICES
   a. Test, adjust and balance the air conditioning systems during summer season and heating systems during winter season. This includes at least a period of operation at outside conditions within 5 deg. F wet bulb temperature of maximum summer design condition, and within 10 deg. F dry bulb temperature of minimum winter design conditions. Take final temperature readings during seasonal operation.

PART 2 – PRODUCTS

2.01 PRODUCTS (NOT APPLICABLE) PART 3 – EXECUTION

2.02 GENERAL (NOT APPLICABLE)

END OF SECTION 23 05 93
SECTION 23 07 13
DUCT INSULATION

PART 1 GENERAL

1.01 SECTION INCLUDES
A. Duct insulation.
B. Duct liner.

1.02 RELATED REQUIREMENTS
A. Section 23 31 00 - HVAC Ducts and Casings: Glass fiber ducts.

1.03 REFERENCE STANDARDS

1.04 SUBMITTALS
A. Product Data: Provide product description, thermal characteristics, list of materials and thickness for each service, and locations.

1.05 QUALITY ASSURANCE
A. Manufacturer Qualifications: Company specializing in manufacturing products of the type specified in this section with not less than three years of documented experience.
B. Applicator Qualifications: Company specializing in performing the type of work specified in this section, with minimum 3 years of experience and approved by manufacturer.

1.06 DELIVERY, STORAGE, AND HANDLING
A. Accept materials on site in original factory packaging, labelled with manufacturer's identification, including product density and thickness.
B. Protect insulation from weather and construction traffic, dirt, water, chemical, and mechanical damage, by storing in original wrapping.

1.07 FIELD CONDITIONS
A. Maintain ambient temperatures and conditions required by manufacturers of adhesives, mastics, and insulation cements.
B. Maintain temperature during and after installation for minimum period of 24 hours.

PART 2 PRODUCTS

2.01 REGULATORY REQUIREMENTS
A. Surface Burning Characteristics: Flame spread index/Smoke developed index of 25/50, maximum, when tested in accordance with ASTM E84 or UL 723.

2.02 GLASS FIBER, FLEXIBLE
A. Manufacturer:

B. Insulation: ASTM C553; flexible, noncombustible blanket.
1. K value: 0.36 at 75 degrees F, when tested in accordance with ASTM C518.
2. Maximum Service Temperature: 1200 degrees F.
3. Maximum Water Vapor Absorption: 5.0 percent by weight.

C. Vapor Barrier Jacket:
1. Kraft paper with glass fiber yarn and bonded to aluminized film.
2. Moisture Vapor Permeability: 0.02 perm inch, when tested in accordance with ASTM E96/E96M.
3. Secure with pressure sensitive tape.

D. Vapor Barrier Tape:
1. Kraft paper reinforced with glass fiber yarn and bonded to aluminized film, with pressure sensitive rubber based adhesive.

E. Indoor Vapor Barrier Mastic:
1. Manufacturers:
   b. Vinyl emulsion type acrylic or mastic, compatible with insulation, black color.

F. Tie Wire: Annealed steel, 16 gage, 0.0508 inch diameter.

2.03 DUCT LINER - ACOUSTIC

A. Manufacturers:

B. Glass Fiber Insulation: Non-corrosive, incombustible glass fiber complying with ASTM C1071; flexible blanket; impregnated surface and edges coated with poly vinyl acetate polymer, acrylic polymer, or black composite.
1. Fungal Resistance: No growth when tested according to ASTM G21.
2. Apparent Thermal Conductivity: Maximum of 0.31 at 75 degrees F.
3. Service Temperature: Up to 250 degrees F.
4. Minimum Noise Reduction Coefficients:
   a. 1 inch Thickness: 0.45.

C. Adhesive: Waterproof, fire-retardant type, ASTM C916.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that ducts have been tested before applying insulation materials.
B. Verify that surfaces are clean, foreign material removed, and dry.

3.02 INSTALLATION

A. Install in accordance with manufacturer's instructions.
B. Insulated ducts conveying air below ambient temperature:
   1. Provide insulation with vapor barrier jackets.
   2. Finish with tape and vapor barrier jacket.
   3. Continue insulation through walls, sleeves, hangers, and other duct penetrations.
   4. Insulate entire system including fittings, joints, flanges, fire dampers, flexible connections, and expansion joints.

C. Insulated ducts conveying air above ambient temperature:
   1. Provide with or without standard vapor barrier jacket.
2. Insulate fittings and joints. Where service access is required, bevel and seal ends of insulation.

3.03 SCHEDULES
   A. Supply Ducts: Exterior flexible glass fiber insulation.
   B. Return Boots: Acoustic duct liner.

END OF SECTION 23 07 13
SECTION 23 31 00
HVAC DUCTS AND CASINGS

PART 1 GENERAL

1.01 SECTION INCLUDES
   A. Metal ductwork.
   B. Nonmetal ductwork.
   C. Duct cleaning.

1.02 RELATED REQUIREMENTS
   A. Section 23 07 13 - Duct Insulation: External insulation and duct liner.
   B. Section 23 37 00 - Air Outlets and Inlets.

1.03 REFERENCE STANDARDS
   B. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
   E. ICC-ES AC106 - Acceptance Criteria for Predrilled Fasteners (Screw Anchors) in Masonry Elements.
   G. ICC-ES AC308 - Acceptance Criteria for Post-Installed Adhesive Anchors in Concrete Elements.
   I. SMACNA (DCS) - HVAC Duct Construction Standards Metal and Flexible.

1.04 QUALITY ASSURANCE
   A. Manufacturer Qualifications: Company specializing in manufacturing the type of products specified in this section, with minimum three years of documented experience, and approved by manufacturer.
   B. Installer Qualifications: Company specializing in performing the type of work specified in this section, with minimum 3 years of documented experience.

1.05 FIELD CONDITIONS
   A. Do not install duct sealants when temperatures are less than those recommended by sealant manufacturers.
   B. Maintain temperatures within acceptable range during and after installation of duct sealants.

PART 2 PRODUCTS

2.01 DUCT ASSEMBLIES
   A. Regulatory Requirements: Construct ductwork to NFPA 90A standards.
   B. Ducts: Galvanized steel, unless otherwise indicated.
   C. Low Pressure Supply: 1/2 inch w.g. pressure class, galvanized steel.
   D. Return and Relief: 1/2 inch w.g. pressure class, galvanized steel.

2.02 MATERIALS
   A. Galvanized Steel for Ducts: Hot-dipped galvanized steel sheet, ASTM A653/A653M FS Type B, with G60/Z180 coating.
   B. Joint Sealers and Sealants: Non-hardening, water resistant, mildew and mold resistant.
1. Type: Heavy mastic or liquid used alone or with tape, suitable for joint configuration and compatible with substrates, and recommended by manufacturer for pressure class of ducts.
2. VOC Content: Not more than 250 g/L, excluding water.
3. Surface Burning Characteristics: Flame spread index of zero and smoke developed index of zero, when tested in accordance with ASTM E84.
4. For Use With Flexible Ducts: UL labeled.
C. Gasket Tape: Provide butyl rubber gasket tape for a flexible seal between transfer duct connector (TDC), transverse duct flange (TDF), applied flange connections, and angle rings connections.
D. Hanger Rod: ASTM A36/A36M; steel, galvanized; threaded both ends, threaded one end, or continuously threaded.
E. Hanger Fasteners: Attach hangers to structure using appropriate fasteners, as follows:
   3. Concrete Screw Type Anchors: Complying with ICC-ES AC193.
   5. Concrete Adhesive Type Anchors: Complying with ICC-ES AC308.

2.03 DUCTWORK FABRICATION
A. Fabricate and support in accordance with SMACNA (DCS) and as indicated.
B. Provide duct material, gages, reinforcing, and sealing for operating pressures indicated.
C. Construct T’s, bends, and elbows with radius of not less than 1-1/2 times width of duct on centerline. Where not possible and where rectangular elbows must be used, provide air foil turning vanes of perforated metal with glass fiber insulation.
D. Increase duct sizes gradually, not exceeding 15 degrees divergence wherever possible; maximum 30 degrees divergence upstream of equipment and 45 degrees convergence downstream.
E. Fabricate continuously welded round and oval duct fittings in accordance with SMACNA (DCS).

2.04 MANUFACTURED DUCTWORK AND FITTINGS
A. Flexible Ducts: Black polymer film supported by helically wound spring steel wire.
   1. UL labeled.
   2. Insulation: Fiberglass insulation with polyethylene vapor barrier film.
   3. Pressure Rating: 4 inches WG positive and 0.5 inches WG negative.
   5. Temperature Range: Minus 20 degrees F to 175 degrees F.

PART 3 EXECUTION

3.01 INSTALLATION
A. Install, support, and seal ducts in accordance with SMACNA (DCS).
B. During construction provide temporary closures of metal or taped polyethylene on open ductwork to prevent construction dust from entering ductwork system.
C. Flexible Ducts: Connect to metal ducts with adhesive.
D. Duct sizes indicated are inside clear dimensions. For lined ducts, maintain sizes inside lining.
E. Locate ducts with sufficient space around equipment to allow normal operating and maintenance activities.
F. Connect diffusers or light troffer boots to low pressure ducts directly or with 5 feet maximum length of flexible duct held in place with strap or clamp.
3.02 CLEANING

A. Clean duct system and force air at high velocity through duct to remove accumulated dust. To obtain sufficient air, clean half the system at a time. Protect equipment that could be harmed by excessive dirt with temporary filters, or bypass during cleaning.

END OF SECTION 23 31 00
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SECTION 23 33 00
AIR DUCT ACCESSORIES

PART 1 GENERAL

1.01 SECTION INCLUDES
A. Volume control dampers.

1.02 RELATED REQUIREMENTS
A. Section 23 31 00 - HVAC Ducts and Casings.

1.03 REFERENCE STANDARDS
B. SMACNA (DCS) - HVAC Duct Construction Standards Metal and Flexible.

1.04 SUBMITTALS
A. Product Data: Provide for shop fabricated assemblies including volume control dampers. Include electrical characteristics and connection requirements.

1.05 QUALITY ASSURANCE
A. Manufacturer Qualifications: Company specializing in manufacturing the type of products specified in this section, with minimum three years of documented experience.

1.06 DELIVERY, STORAGE, AND HANDLING
A. Protect dampers from damage to operating linkages and blades.

PART 2 PRODUCTS

2.01 VOLUME CONTROL DAMPERS
A. Manufacturers:
   3. MKT Metal Manufacturing: www mktduct.com/#sle.
   5. NCA, a brand of Metal Industries Inc: www ncatmfg.com/#sle.
B. Fabricate in accordance with SMACNA (DCS) and as indicated.
C. Single Blade Dampers:
   1. Fabricate for duct sizes up to 6 by 30 inch.
   2. Blade: 24 gage, 0.0239 inch, minimum.
D. Quadrants:
   1. Provide locking, indicating quadrant regulators on single and multi-blade dampers.
   2. On insulated ducts mount quadrant regulators on stand-off mounting brackets, bases, or adapters.
   3. Quadrants shall be continuously adjustable with no discrete locking positions.
   4. Where rod lengths exceed 30 inches provide regulator at both ends.

PART 3 EXECUTION

3.01 INSTALLATION
A. Install accessories in accordance with manufacturer’s instructions, NFPA 90A, and follow SMACNA (DCS). Refer to Section 23 31 00 for duct construction and pressure class.
B. Provide balancing dampers at points on supply, return, and exhaust systems where branches are taken from larger ducts as required for air balancing. Install minimum 2 duct widths from duct take-off.
C. Provide balancing dampers on duct take-off to diffusers, grilles, and registers, regardless of whether dampers are specified as part of the diffuser, grille, or register assembly.

END OF SECTION 23 33 00
SECTION 23 37 00
AIR OUTLETS AND INLETS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Diffusers:
   1. Rectangular ceiling diffusers.
B. Registers/grilles:
   1. Ceiling-mounted, egg crate exhaust and return register/grilles.

1.02 REFERENCE STANDARDS

A. ASHRAE Std 70 - Method of Testing the Performance of Air Outlets and Inlets.
B. SMACNA (DCS) - HVAC Duct Construction Standards Metal and Flexible.

1.03 SUBMITTALS

A. Product Data: Provide data for equipment required for this project. Review outlets and inlets as to size, finish, and type of mounting prior to submission. Submit schedule of outlets and inlets showing type, size, location, application, and noise level.

1.04 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing the type of products specified in this section, with minimum three years of documented experience.

PART 2 PRODUCTS

2.01 MANUFACTURERS

D. Tuttle and Bailey: www.tuttleandbailey.com/#sle.

2.02 RECTANGULAR CEILING DIFFUSERS

A. Type: Provide square, stamped, multi-core diffuser to discharge air in 360 degree pattern with sectorizing baffles where indicated.
B. Connections: Round.
C. Frame: Provide inverted T-bar type.
D. Fabrication: Steel with baked enamel finish.
E. Color: As indicated.

2.03 CEILING EGG CRATE EXHAUST AND RETURN GRILLES

B. Type: Egg crate style face consisting of 1/2 by 1/2 by 1/2 inch grid core.
C. Fabrication: Grid core consists of aluminum with mill aluminum finish.
D. Color: As indicated.

PART 3 EXECUTION

3.01 INSTALLATION

A. Install in accordance with manufacturer's instructions.
B. Check location of outlets and inlets and make necessary adjustments in position to comply with architectural features, symmetry, and lighting arrangement.
C. Install diffusers to ductwork with air tight connection.
D. Provide balancing dampers on duct take-off to diffusers, and grilles and registers, despite whether dampers are specified as part of the diffuser, or grille and register assembly.

END OF SECTION 23 37 00
SECTION 26 05 01
MINOR ELECTRICAL DEMOLITION

PART 1 GENERAL
1.01 GENERAL
A. Provisions of the General Requirements and Special Conditions, Division 1, are a part of this Division and Section.

1.02 SECTION INCLUDES
A. Electrical demolition.

PART 2 PRODUCTS
2.01 MATERIALS AND EQUIPMENT
A. Materials and equipment for patching and extending work: As specified in individual sections.

PART 3 EXECUTION
3.01 EXAMINATION
A. Verify field measurements and circuiting arrangements are as shown on Drawings.
B. Verify that abandoned wiring and equipment serve only abandoned facilities.
C. Demolition drawings are based on casual field observation and existing record documents.
D. Beginning of demolition means installer accepts existing conditions.

3.02 PREPARATION
A. Disconnect electrical systems in walls, floors, and ceilings to be removed.
B. Coordinate utility service outages with Owner's Representative.
C. Provide temporary wiring and connections to maintain existing systems in service during construction. When work must be performed on energized equipment or circuits, use personnel experienced in such operations.
D. Existing Electrical Service: Maintain existing system in service until new system is complete and ready for service. Disable system only to make switchovers and connections. Minimize outage duration.
   1. Obtain permission from Owner's Representative at least 24 hours before partially or completely disabling system.
   2. Make temporary connections to maintain service in areas adjacent to work area.

3.03 DEMOLITION AND EXTENSION OF EXISTING ELECTRICAL WORK
A. Remove, relocate, and extend existing installations to accommodate new construction.
B. Remove abandoned wiring to source of supply.
C. Remove exposed abandoned conduit, including abandoned conduit above accessible ceiling finishes. Cut conduit flush with walls and floors, and patch surfaces.
D. Disconnect abandoned outlets and remove wiring devices and conductors. Remove abandoned outlets if conduit and conductors servicing them is abandoned and removed. Provide blank cover for abandoned device boxes which are not removed.
E. Disconnect and remove abandoned luminaires. Remove brackets, stems, hangers, and other accessories.
   1. Fluorescent Ballasts:
      a. Contractor shall inspect fluorescent ballasts and dispose of all ballasts that are marked as Non-PCB.
      b. All ballasts that are not marked as Non-PCB shall be removed from the fixtures and returned to the Owner's Representative for disposal.
   2. Fluorescent Lamp Handling Procedures:
      a. Empty boxes/drums for disposal of fluorescent lamps will be provided by Owner.
b. Do not tape bulbs together prior to putting them in the lamp boxes. Close container lid after placing lamps into the lamp box.

c. Lamps must be sorted by type:
   1) Green tipped ("Alto") lamps are included in lamps to be recycled.
   2) Up to 4' straight tube lamps in 4' box or fiber drum.
   3) Over 4' up to 8' straight tube lamps in 8' box.
   4) Shattershield lamps (i.e., lamps covered with a plastic coating to protect from breakage) must be accumulated/stored/counted separate from regular straight fluorescent lamps.
   5) Compact, circular, and round fluorescent lamps can be collected in a single box. [Note: All compact lamps have a plastic or porcelain plug, regardless of the size or shape of the lamp tube.]
   6) U-Tube lamps. [Note: If the lamp is in a "U" shape, regardless of length, and has a metal end cap, then they may be collected in a single box.]
   7) Broken lamps (of all types) must be put into the broken lamp drum (see paragraph h below).

d. When a used lamp is first placed into a consolidation box or drum, that container shall be labeled with a "Universal Waste" label (contact Owner's Representative for instructions on proper completion of this label). The label must be placed correctly on the box:
   1) All labels must be visible from the front of the box.
   2) All labels must be right side up.
   3) Labels must be placed within 12" from the top of the container.

e. When the lamp container is full, inventory the contents and post this information to the "Universal Waste" label as shown on the label instructions.

f. Close and tape shut the filled lamp container.

g. Store boxes inside a dry, secured area.

h. Broken lamps must go into the plastic bag located in the metal drum provided by EHS.
   1) At the time that the first broken bulb(s) are placed in the metal drum, a completed Hazardous Materials Label (EHS HML 10/93) must be affixed to the drum (please see separate instructions for completion of this label).
   2) The plastic bag in the drum must be kept securely closed except when adding broken lamps to it.
   3) The lid must be kept on the drum and secured with the lever-lock ring except when adding broken lamps to the drum.

i. Deliver containers of lamps to Columbia Campus location as directed by Owner's Representative.

F. Repair adjacent construction and finishes damaged during demolition and extension work.

G. Maintain access to existing electrical installations which remain active. Modify installation or provide access panel as appropriate.

H. Extend existing installations using materials and methods compatible with existing electrical installations, or as specified.

3.04 CLEANING AND REPAIR

   A. Clean and repair existing materials and equipment which remain or are to be reused.

END OF SECTION 26 05 01
SECTION 26 05 10
ELECTRICAL MATERIALS AND METHODS

PART 1 GENERAL

1.01 SCOPE OF WORK
A. The Contractor shall provide all labor, materials, tools, and equipment required to furnish, construct, and install electrical power circuits, and other items and equipment as detailed on the Drawings and specified herein.
B. The Work shall include everything requisite and necessary to finish the Work properly, notwithstanding that every item of labor or materials or accessories required to make the installation complete may not be specifically mentioned.
C. The Work shall include, but shall not necessarily be limited to: Furnish and install all wiring, splices, and terminations required to connect new equipment, and to reconnect existing equipment.

1.02 REFERENCES

1.03 SUBMITTALS
A. Product Data: Provide data for conduit fittings & hardware, wire, receptacles & switches.

PART 2 MATERIALS

2.01 RACEWAYS
A. Metallic Conduit: Conduit for low voltage electrical circuits (Rated 600 volts or below) shall consist of all metal raceway, fittings and hardware, unless indicated otherwise in the specifications or on the drawings. Conduit shall be hot dipped galvanized. Flexible Metal Conduit and Liquidtight Flexible Metal Conduit shall be used for raceway terminating at motors, light fixtures, and pre-engineered equipment where vibration isolation is required. Conduit shall be manufactured by Triangle PWC, Inc., or approved equal.
1. Fittings: Fittings shall consist of die-cast, metal alloy bodies, device boxes, insulated bushings, sealing fittings, cord fittings, etc., as manufactured by Appleton Electric Co., Crouse-Hinds, or approved equal.
2. Hardware: Hardware shall consist of all malleable iron conduit clamps, beam clamps and hangers required to install the raceway system. Raceway support spacing shall not exceed ten feet.
3. All conduit and fittings shall be UL listed for use as an equipment grounding conductor.
4. Minimum conduit size shall be 3/4-inch diameter unless otherwise indicated.
5. Conduit or raceway shall NOT be used as the grounding conductor. All metallic raceway shall be electrical continuous and bonded to the grounding conductor.
B. Indoor Raceway/Conduit: Shall be EMT, Rigid Metal Conduit, cable tray or approved surface raceway. Non-metallic conduit or boxes will not be used, unless otherwise specified.
1. All EMT fittings shall be compression type. (Set screw type EMT fittings are NOT permitted).
2. All exposed conduit installed in a finished space will be painted to match the background.
C. Surface Raceways: 1. Surface mounted metallic raceway system shall be two piece design with a base and a snap-on cover. The contractor shall furnish and install the raceway as a complete system including all fittings. Raceway shall be anchored to wall using a mechanical expansion anchors system, with a maximum spacing of four (4) feet between anchors. Raceway base shall be manufactured of 0.040-inch (nominal thickness) steel, and be zinc plated or galvanized. Raceway cover shall be manufactured of 0.040-inch (nominal thickness) steel, and be factory painted with a baked enamel finish that is suitable for over-painting in the field.
2. Surface mounted metallic raceway system shall be Wiremold V500 and/or V700 series raceway unless otherwise indicated, as manufactured by The Wiremold Company, Electrical Division, West Hartford, Connecticut, or approved equal.
   a. Switch and receptacle boxes shall have a minimum depth of 2-1/4 inches. Boxes shall be Wiremold V5744S series or approved equal.
3. Surface mounted metallic raceway system shall be Wiremold V3000 series raceway unless otherwise indicated, as manufactured by The Wiremold Company, Electrical Division, West Hartford, Connecticut, or approved equal.
   a. 2-gang Switch and receptacle boxes shall have a minimum depth of 2-1/4 inches. Boxes shall be Wiremold V3044-2 series or approved equal.
4. All boxes, fittings, switchplates, receptacle coverplates, elbows, and associated parts required to provide a complete raceway system shall be provided by the same manufacturer.

2.02 WIRES AND CABLES
   A. Equipment grounding conductors shall be copper conductors, with solid or stranded construction. Grounding conductors other than copper shall NOT be used.
   B. Wiring shall be copper conductor with a minimum size of #12 AWG (Aluminum conductors shall not be used). Conductor insulation shall be type THHN/THWN unless noted otherwise.
   C. Electrical Tape: Vinyl electrical tape shall be flame-retardant, weather-resistant, conformable down to zero degrees Fahrenheit, with a maximum operating temperature range not less than 220 degrees Fahrenheit (105 degrees Celsius). Electrical tape shall be resistant to UV rays, moisture, alkalis, and acids. Scotch Super 33+ or Scotch Super 88 as manufactured by 3M Electrical Products Division, or approved equal.

2.03 FIRE STOP COMPOUND
   A. Firestop compound shall be Fire Barrier Caulk CP25, Putty 303 as manufactured by 3M Company, or approved equal.

2.04 WALL PLATES
   A. Wall Plates: Wall plates for switches and receptacles shall be high impact, abuse-resistant nylon, as manufactured by Hubbell Wiring Device Division, Hubbell Incorporated, Leviton Manufacturing Co., Inc., or approved equal. Wall plates shall have a smooth finish, and match the color of the receptacle/switch. Preferred color for receptacles and switches is ivory. Other colors may be used to match existing devices or for special uses.

2.05 WIRING DEVICES
   A. The mounting heights for receptacles and switches shall comply with ADA reach restrictions, and are preferred to be 46" for switches, and 18" for receptacles, above finished floor.
   B. 20 ampere simplex receptacles shall be 125 volt, two (2) pole, three (3) wire grounding, straight blade (NEMA 5-20R), specification grade, nylon construction, with side/back wired option. Receptacles shall be ivory color unless otherwise indicated on drawings. Hubbell Catalog No. 5361-I as manufactured by Hubbell Wiring Device Division, Hubbell, Inc., Leviton Catalog No. 5361-I as manufactured by Leviton Manufacturing Co., Inc.
   C. 20 ampere duplex receptacles shall be 125 volt, two (2) pole, three (3) wire grounding, straight blade (NEMA 5-20R), specification grade, nylon construction, with side/back wired option, one piece brass mounting strap with integral ground contacts. Receptacles shall be ivory color unless otherwise indicated on drawings. Hubbell Catalog No. 5362-I as manufactured by Hubbell Wiring Device Division, Hubbell Incorporated, Leviton Catalog No. 5362A-I as manufactured by Leviton Manufacturing Co., Inc., or approved equal.
   D. 20 ampere GFCI (Ground Fault Circuit Interrupter) receptacles shall be 125 volt, two (2) pole, three (3) wire grounding, straight blade (NEMA 5-20R), commercial specification grade, nylon construction, with 20 amp feed-through, and side wired option. Receptacles shall be ivory color unless otherwise indicated on Drawings. Hubbell Catalog No. GF5362-I as manufactured by
Hubbell Wiring Device Division, Hubbell, Inc., or Leviton Catalog No. 6899-I as manufactured by Leviton Manufacturing Co., Inc.

2.06 SWITCHES

A. Four way switches shall be 20 ampere, heavy duty specification grade, with standard toggle, back and side wired, with grounding screw and clip. Switches shall have ivory color handle unless otherwise indicated. Hubbell Catalog No. HBL 1224-I as manufactured by Hubbell Wiring Device Division, Hubbell, Inc., Leviton Catalog No. 1224-2I as manufactured by Leviton Manufacturing Co., Inc. or approved equal.

B. Where not specifically specified Lutron, Pass & Seymour, and Hubbell are considered equivalent manufacturers to basis of design manufacturer(s).

2.07 MANUFACTURED WIRING SYSTEMS

A. No prewired cable such as type MC or armored cable shall be used unless indicated on Drawings and as permitted for use as a lighting fixture whip in Specification Section 26 5100.

PART 3 EXECUTION

3.01 INSTALLATION

A. Where circuits require more than one conductor per phase, the Contractor shall take steps (such as cutting all conductors for each phase to the same length) to prevent conductors from hogging load.

B. Conduits size shall meet or exceed the requirements of the National Electric Code for the wiring installed within.

C. All wiring shall be encased within a metallic raceway system. Flexible metal conduit and liquid tight flexible metal conduit shall not exceed the following lengths:
   1. Motor Terminations: Three (3) feet maximum length.
   2. Pre-Engineered Equipment: Three (3) feet maximum length.
   3. Light Fixtures: Six (6) feet maximum length.

D. The contractor shall provide and install branch circuit and feeder circuit identification using a typed identification card at each panelboard.

E. No splicing or joints shall be permitted in either feeder or branch circuits except at outlet boxes and junction boxes. Solderless compression type connectors or twist-on (wire nut) connectors shall be used when making splices. All compression type splices shall be insulated with cold shrink insulation, and twist on splices shall be taped with vinyl electrical tape.

F. All wiring and existing (reconnected) electrical equipment and lights shall be grounded in accordance with the NEC. The equipment grounding conductor shall be copper wire. Metallic conduit shall be installed to form a continuous ground path, with the copper equipment grounding conductor installed. Other types of equipment grounding conductors (such as water pipes) shall not be used.

G. All electrical conduit passing through building exterior walls, or fire rated partitions (such as the transformer vault wall) shall be sealed in the space between the conduit and wire with approved raceway sealing material. In addition, the space between the conduit and the building walls shall be caulked with an approved firestop compound. Escutcheons shall be provided to all finished interior penetrations. All damaged wall surfaces shall be patched and repaired to proper condition that is suitable for painting by owner.

H. Contractor shall coordinate all power outages with Owner's Representative.

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SECTION 26 51 00
INTERIOR LIGHTING FIXTURES

PART 1 GENERAL

1.01 RELATED DOCUMENTS
   A. Provisions of the General Requirements and Special Conditions, Division 1, are a part of this Division and Section.

1.02 SCOPE OF WORK
   A. Remove existing interior light fixtures in locations as indicated on Drawings.
   B. Dispose of ballasts and fluorescent lamps as indicated.
   C. Install exit signs in locations as indicated on Drawings.
   D. Install interior fluorescent light fixtures in locations as indicated on Drawings.

1.03 SUBMITTALS
   A. Product Data: Submit manufacturer’s product data and installation instructions on each type interior building lighting fixture and component.
   B. Shop Drawings: Submit fixture shop drawings with proposed fixture and accessories clearly indicated on each sheet. Submit details indicating compatibility with ceiling suspension system.
   C. Maintenance Data: Submit maintenance data and parts list for each interior lighting fixture and accessory, including a “trouble shooting” maintenance guide. In addition to this data, provide product data and shop drawings in a maintenance manual.

1.04 QUALITY ASSURANCE
   A. Manufacturer's Qualifications: Firms regularly engaged in manufacture of interior lighting fixtures of sizes, types, and ratings required, whose products have been in satisfactory use in similar service for not less than five (5) years.
   B. Installer's Qualifications: Firms with at least three (3) years of successful installation experience on projects with interior lighting fixture work similar to that required for this project.
   C. Codes and Standards:
      1. Electrical Code Compliance: Comply with NEC Articles 220, 410, and 510 as applicable to installation, and construction of interior building lighting fixtures.
      2. UL Compliance: Comply with UL standards, including UL 486A and B, pertaining to interior lighting fixtures. Provide interior lighting fixtures and components which are UL listed and labeled.
      3. CBM Labels: Provide fluorescent lamp ballasts which comply with Certified Ballast Manufacturers Association standards and carry the CBM label.

1.05 DELIVERY, STORAGE, AND HANDLING
   A. Deliver interior lighting fixtures in factory-fabricated containers or wrappings, which properly protect fixtures from damage.
   B. Store interior lighting fixtures in original packaging. Store inside well-ventilated area protected from weather, moisture, soiling, extreme temperatures, humidity, stored flat and blocked off ground.
   C. Handle interior lighting fixtures carefully to prevent damage, breaking, and scoring of finishes. Do not install damaged units or components; replace with new.

PART 2 PRODUCTS

2.01 FIXTURES
   A. General: Provide lighting fixtures of sizes, types, and ratings indicated; complete with, but not limited to, housings, energy efficient ballasts, lamp holders (Medium Bi-Pin), reflectors, and wiring. Ship fixtures factory-assembled with those components required for a complete
installation. Design fixtures with concealed hinges and catches, with metal parts grounded as common unit, and so constructed as to dampen ballast generated noise.

B. Exit Signs: Exit Signs shall have bright long-life LED lighting with UV stable housing. Exit signs shall be self contained for emergency operation, fully automatic with solid-state charger, maintenance-free battery, 2-hour minimum operation, automatic battery protection, test switch, normal power (AC-on) indicator and meet the minimum requirements for UL924 and NFPA101. Provide remote head where indicated on drawings.

C. Wiring: Provide electrical wiring within fixture suitable for connecting to branch circuit. Wiring shall be NEC Type SF-2, minimum No. 18 AWG.

D. Emergency Lights: Emergency lights shall have two (2) LED lamp heads with impact-resistant and UV stable housing. Emergency lights shall be self contained for emergency operation, fully automatic with solid-state charger, integral maintenance-free battery, 90 minutes minimum illumination, automatic battery protection, test switch, normal power (AC-on) indicator and meet the minimum requirements for UL924 and NFPA 101.

E. Interior Lighting Fixture Types:
1. General: Various fixture types required are indicated below. Fixtures must comply with minimum requirements as stated herein. Review Drawings and Specifications to verify ceiling types, modules, and suspension systems appropriate to installation.
2. Troffer Volumetric Architectural Lighting Fixtures (Mark 'A'): Provide recessed, LED fixtures as indicated on the drawings. Fixtures shall have length, width, lumen package, correlated color temperature, and voltage as indicated on drawings. Fixtures submitted as proposed equals shall have similar photometric characteristics and shall have full photometric and catalog data submitted at the time of bid. Photometric data shall be suitable for calculations on the Acuity Industries Visual Program.
   a. Housing: 22 gauge die formed and pre-punched with sufficient knockouts for mounting and supply wire.
   b. Lumen Package:
      1) 3,300 lumens
      2) 3,500 lumens
      3) 4,000 lumens
   c. Correlated Color Temperature:
      1) 3,500K
   d. Products:
      1) H.E. Williams PT24
      2) Lithonia 2VTL4
      3) Cree ZR24
      4) Metalux 24CZ
   e. Diffuser:
      1) Frosted acrylic
      2) Acrylic linear prismatic
      3) Smooth frosted acrylic
      4) Smooth lens with square pattern insert
      5) Smooth lens with round pattern insert
   f. End Plates: 22 gauge die formed and pre-punched with knockouts for supply wiring and end-to-end mounting in continuous rows. End plates attach to housing with screws for a true and rigid assembly.
   g. Lens: Lens shall be non-yellowing virgin acrylic, clear prismatic design.
   h. Finish: All cold rolled steel parts shall be cleaned and pre-treated after fabrication with a phosphate process to ensure paint adhesion and corrosion resistance. A baked white gloss finish shall be applied. Minimum average reflectance shall be 90 percent.

F. OCCUPANCY SENSORS
1. Manufacturers:
a. WattStopper:  www.wattstopper.com
b. Sensor Switch Inc:  www.sensorswitch.com
c. Lutron Electronics Company, Inc.:  www.lutron.com
d. Pass & Seymour:  www.legrand.us/passandseymour
e. Hubbell Building Automation, Inc.:  www.hubbellautomation.com
g. Source Limitations: Furnish products produced by a single manufacturer and obtained from a single supplier.

2. All Occupancy Sensors:
   a. Description: Factory-assembled commercial specification grade devices for indoor use capable of sensing both major motion, such as walking, and minor motion, such as small desktop level movements, according to published coverage areas, for automatic control of load indicated.
   b. Sensor Technology:
   c. Passive Infrared (PIR) Occupancy Sensors: Designed to detect occupancy by sensing movement of thermal energy between zones.
   d. Ultrasonic Occupancy Sensors: Designed to detect occupancy by sensing frequency shifts in emitted and reflected inaudible sound waves.
   e. Passive Infrared/Ultrasonic Dual Technology Occupancy Sensors: Designed to detect occupancy using a combination of both passive infrared and ultrasonic technologies.
   f. Provide LED to visually indicate motion detection.
   g. Operation: Unless otherwise indicated, occupancy sensor to turn-on and hold-on activation.
   h. Dual Technology Occupancy Sensors: Field configurable turn-on and hold-on activation with settings for activation by either or both sensing technologies.
   i. Turn-off Delay: Field adjustable, with time delay setting up to 30 minutes.
   j. Sensitivity: Field adjustable.

3. Ceiling Mounted Occupancy Sensors:
   a. All ceiling mounted occupancy sensors:
   b. Description: Low profile occupancy sensors designed for ceiling installation.
   c. Unless otherwise indicated or required to control the load indicated on the drawings provide low voltage units, for use with separate compatible accessory power packs.
   d. Occupancy sensor to be field selectable as either manual-on/automatic-off or automatic on/off.
   e. Finish: White unless otherwise indicated.

4. Passive Infrared Technology Ceiling Mounted Occupancy Sensors:
   a. Standard Range Sensors: Capable of detecting motion within an area of 500 square feet at a mounting height of eight (8) feet, with a field of view of 360 degrees.

PART 3 EXECUTION

3.01 INSTALLATION OF INTERIOR LIGHTING FIXTURES

A. Install interior lighting fixtures at locations and heights as indicated, in accordance with fixture manufacturer's written instructions, applicable requirements of NEC, NEMA standards, and with recognized industry practices to ensure that lighting fixtures fulfill requirements.

B. Provide fixtures and/or fixture outlet boxes with hangers to properly support fixture weight. Submit design of hangers, method of fastening, other than indicated or specified herein, for review by Engineer.

C. Verify that outlet bases are installed in proper location and at proper mounting heights and are properly sized to accommodate devices and conductors in accordance with NFPA 70.

D. Tap conductors shall be permitted to run from the fixture terminal connection to a junction box placed at least one (1) foot from the fixture. Tap conductors shall be MC cable or installed in flexible conduit at least four (4) feet in length, but not more than six (6) feet in length.
E. "Daisy Chaining" of MC Cable or flexible conduit from one light fixture to another is NOT permitted.

F. Tighten connectors and terminals, including screws and bolts, in accordance with equipment manufacturer's published torque tightening values for equipment connectors. Where manufacturer's torquing requirements are not indicated, tighten connectors and terminals to comply with tightening torques specified in UL Standards 486A and B, and the National Electrical Code.

G. Support surface mounted fixtures greater than two (2) feet in length at a point in addition to the outlet box fixtures stud.

H. The branch circuit feeding the Exit Lights and Emergency Lights shall be the same branch circuit as that serving the normal lighting in the area and connected ahead of any local switches.

3.02 INSTALLATION OF LIGHTING CONTROL DEVICES

A. Perform work in a neat and workmanlike manner in accordance with NECA 1 and where applicable, NECA 130, including mounting heights specified in those standards unless otherwise indicated.

B. Coordinate locations of outlet boxes as required for installation of lighting control devices.

C. Mounting Heights: Unless otherwise indicated, as follows:
   1. Wall Switch Occupancy Sensors: 46 inches (to center) above finished floor.
   2. 360 degree field of view Occupancy Sensors: On Ceiling.
   3. Directional Occupancy Sensors: On Ceiling, or Wall not to exceed 8'-6" (to center) above finished floor, unless noted otherwise.

D. Orient outlet boxes for vertical installation of lighting control devices unless otherwise indicated.

E. Locate wall switch occupancy sensors on strike side of door with edge of wall plate three inches (3") from edge of door frame. Where locations are indicated otherwise, notify Architect/Engineer to obtain direction prior to proceeding with work.

F. Install lighting control devices in accordance with manufacturer's instructions.

G. Unless otherwise indicated, connect lighting control device grounding terminal or conductor to branch circuit equipment grounding conductor and to outlet box with bonding jumper.

H. Install lighting control device plumb and level, and held securely in place.

3.03 EXAMINATION OF OCCUPANCY SENSORS

A. Verify that field measurements are as shown on the drawings.

B. Verify that outlet boxes are installed in proper locations and at proper mounting heights and are properly sized to accommodate devices and conductors in accordance with NFPA 70.

C. Verify that openings for outlet boxes are neatly cut and will be completely covered by devices or wall plates.

D. Verify that final surface finishes are complete, including painting.

E. Verify that branch circuit wiring installation is completed, tested, and ready for connection to lighting control devices.

F. Verify that the service voltage and ratings of lighting control devices are appropriate for the service voltage and load requirements at the location to be installed.

G. Verify that conditions are satisfactory for installation prior to starting work.

H. Inspect each lighting control device for damage and defects.

I. Test occupancy sensors to verify proper operation, including time delays and ambient light thresholds where applicable. Verify optimal coverage for entire room or area. Record test results in written report to be included with submittals.

J. Correct wiring deficiencies and replace damaged or defective lighting control devices.
3.04 ADJUSTING AND CLEANING
A. Clean interior lighting fixtures of dirt and construction debris upon completion of installation in accordance to manufacturer's recommendations. Clean fingerprints and smudges from lenses and louvers.
B. Protect installed fixtures from damage during remainder of construction period.
C. Provide extension rings to bring outlet boxes flush with finished surface as necessary.
D. Adjust devices and wall plates to be flush and level.
E. Adjust occupancy sensor settings to minimize undesired activations while optimizing energy savings, and to achieve desired function as indicated or as directed by Architect/Engineer.
F. Adjust position of directional occupancy sensors and outdoor motion sensors to achieve optimal coverage as required.

3.05 GROUNDING
A. Provide equipment grounding connections for interior lighting fixtures.

END OF SECTION 26 51 00