SPECIFICATIONS &

CONTRACT DOCUMENTS

FOR

PHASE 1 MODERNIZATION
CITY OF MORAINE
MUNICIPAL BUILDING

CITY OF MORAINE, OHIO

MONTGOMERY COUNTY

MARCH 20, 2023

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DRAWINGS

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BIDDING REQUIREMENTS

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LEGAL NOTICE

ADVERTISEMENT FOR BIDS

The City of Moraine will receive sealed bid proposals for ***PHASE 1 MODERNIZATION CITY OF MORAINE MUNICIPAL BUILDING PROJECT FOR CITY OF MORAINE*** until **MAY 2, 2023** at ***10:00 a.m.*** local time, at the Moraine Municipal Building, 4200 Dryden, Moraine, Ohio, 45439 at which time and place they will be publicly opened and read aloud.

Copies of the specifications, proposal and contract forms are available on the City's website: www.ci.moraine.oh.us, "About the City" tab, "Legal Notices" on dropdown menu.

A pre-bid meeting for this project will be held on APRIL 11, 2023 at 10:00 a.m. local time at the Moraine Municipal Building.

Each proposal shall be signed with the full name and business address of each interested company and shall be accompanied by a security bond issued by a bonding company authorized to do business in the State of Ohio, or by a certified check on a solvent bank in the amount of ten percent (10%) of the amount of the submitted main contract proposal. Bond or certified check must be payable to the City of Moraine as a guarantee that if the proposal is accepted, a contract will be executed and its performance secured by a satisfactory bond in the amount of one hundred percent (100%) of the contract price or irrevocable letter of credit.

The proposal must be made on the forms provided in the Contract Documents, or a copy thereof, with a price quoted for the proposed maintenance services.

City Council reserves the right to accept or reject any or all proposals, to waive any informalities or irregularities in the bids received, or to accept any proposal which is deemed most favorable to the City of Moraine.

_____

Mike Davis, City Manager

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BIDDING INFORMATION

All bids must be submitted on forms provided in this packet. Bids must be regular in every respect and no changes, deletions, or special conditions shall be made or included in the bid form.

Bid documents shall be submitted in a sealed envelope, marked with the Bidder's return address, and be labeled "Bid Documents for Phase 1 Modernization City of Moraine Municipal Building" and addressed as follows:

To: Mike Davis
City Manager
City of Moraine
4200 Dryden Road
Moraine, OH 45439

Bid Opening: MAY 2, 2023 at 10:00 a.m. local time.

No Bidder may withdraw its bid after the specified time of the opening of the bids.

Project Estimated Amount: $900,000

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INSTRUCTIONS TO BIDDERS

1. Bidding documents include the Bidding Requirements and the proposed Contract Documents. The Bidding Requirements consist of the Legal Notice or Invitation to Bid, Instructions to Bidders, Supplementary Instructions to Bidders, the bid for, and contract forms. The proposed Contract Documents consist of the form of agreement between the Owner and Contractor, Conditions of the Contract (General, Supplemental, and other Provisions), Specifications and all Addenda issued prior to the execution of this Contract.

2. The Bidder, by making a Bid, represents that:

   A. The Bidder has read and understands the Bidding Documents and the Bid is made in accordance herewith.

   B. The Bidder has read and understands the Bidding Documents or contract documents to the extent that such documentation relates to the work for which the Bid is submitted.

   C. The Bidder has visited sites, become familiar with local conditions, become familiar with the equipment listed in the Contract Documents, and has correlated the Bidder's personal observations with the requirements of the proposed Contract Documents and shall report to the Superintendent errors, inconsistencies or ambiguities discovered.

   D. The Bid is based upon the materials, equipment and systems required by the Bidding Documents without exception.

3. Interpretations, corrections and changes of the Bidding Documents will be made by Addendum. Interpretations, corrections and changes of the Bidding Documents made in any other manner will not be binding, and Bidders shall not rely upon them.

4. Addenda

   A. Addenda will be mailed or delivered to all who are known by the issuing office to have received a complete set of Bidding Documents.

   B. Copies of Addenda will be made available for inspection wherever Bidding Documents are on file for that purpose.

   C. No Addenda will be issued later than four (4) days prior to the date for receipt of Bids except an Addendum withdrawing the request for Bids or one that includes postponement of the date for receipt of Bids.

D. Each Bidder shall ascertain prior to submitting a Bid that the Bidder has received all Addenda issued, and Bidder shall acknowledge receipt in the Bid.

5. Bidding Procedures – Form and Style of Bids

A. Bids shall be submitted on forms identical to the form included with the Bidding Documents.

B. All blanks on the bid form shall be filled in by typewriter or manually in ink.

C. Where indicated by the makeup of the bid form, sums shall be expressed in both words and figures, and in case of discrepancy between the two, the amount written in words shall govern.

D. The signer of the Bid must initial alterations and erasures.

E. Each copy of the Bid shall include the legal name of the Bidder and a statement that the Bidder is a sole proprietor, partnership, corporation, or other legal entity. Each copy shall be signed by the person or persons legally authorized to bind the Bidder to a contract. A bid by a corporation shall further give the State of incorporation and have the corporate seal affixed. A bid submitted by an agent shall have a current power of attorney attached certifying the agent's authority to bind the Bidder.

6. Bidding Procedures – Submission of Bids

A. All copies of the Bid and other documents required for submission with the Bid shall be enclosed in a sealed envelope. The envelope shall be addressed to the party receiving the Bids and shall be identified with the project name, and the Bidder's name and address. If the Bid is sent by mail, the sealed envelope shall be enclosed in a separate mailing envelope with the notation "SEALED BID ENCLOSED" on the face thereof.

B. Bids shall be deposited at the designated location prior to the time and date for receipt of Bids. Bids received after the time and date for receipt of Bids will be returned unopened.

C. Bidder shall assume full responsibility for timely delivery at the location designated for receipt of Bids.

D. Oral, telephonic or telegraphic Bids are invalid and will not receive consideration.

E. A Bid must remain open for acceptance for a period of sixty (60) days from the date of bid opening. A bid may be extended thereafter upon mutual agreement of the Owner and the Bidder.

7. Bidding Procedures – Modification or Withdrawal of Bid

A. A Bid may not be modified, withdrawn or canceled by the Bidder during the stipulated period following the time and date designated for the receipt of Bids, and each Bidder so agrees in submitting a Bid.

B. Prior to the time and date designated for receipt of Bids, a Bid submitted may be modified or withdrawn by notice to the party receiving Bids at the place designated for receipt of such Bids. Such notice shall be in writing over the signature of the Bidder or by telegram. If by telegram, written confirmation over the signature of the Bidder shall be mailed and postmarked on or before the date and time set for receipt of Bids. A change shall be so worded as not to reveal the amount of the original Bid.

C. Withdrawn Bids may be resubmitted up to the date and time designated for the receipt of Bids provided they are then in full conformance with these Instructions to Bidders.

8. The Owner is soliciting Bids pursuant to the bid process. If the Owner awards a Contract, it shall be to the lowest responsible Bidder provided the Bid has been submitted in accordance with the requirements of the Bidding Documents and does not exceed the funds available. The Owner shall have the right to waive informalities or irregularities in a Bid. The Owner shall have the right to reject any or all Bids, reject a Bid not accompanied by any data required by the Bidding Documents, or reject a Bid that is in any way incomplete or irregular.

9. The Owner shall have the right to accept Alternates in any order or combination, unless otherwise specifically provided in the bidding Documents, and to determine the low Bidder on the basis of the sum of the base Bid and Alternates accepted.

10. Bidders to whom award of a Contract is under consideration shall submit a Contractor's Qualification Statement.

11. Persons and entities proposed by the Bidder and to whom the Owner and Superintendent have made no reasonable objection must be used on the work for which they were proposed and shall not be changed except with written consent of the Owner and Superintendent.

12. This is a prevailing wage job and the successful Bidder must comply with all applicable laws, rules and regulations applicable thereto.

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Contractor's and Subcontractor's Insurance

SECTION 11. The Contractor and/or subcontractor on this work will be required to take out and maintain during the life of this Contract, the comprehensive commercial insurance listed below, and approval of the insurance by the Owner shall not relieve or decrease the liability of the Contractor hereunder. The Contractor shall purchase the insurance listed below to protect the Owner and authorized representatives from all claims incurred by the action(s) of the Contractor and/or subcontractors in completion of this work.

I. Compensation and Employees' General Liability Insurance

The Contractor shall procure and shall during the life of this Contract hold Workers Compensation coverage for all of Contractor's employees to be engaged in work under this Contract; and in case any such work is sublet, the Contractor shall require the subcontractor similarly to provide Workers Compensation coverage for all of the latter's employees to be engaged in such work, unless such employees are covered by the protection afforded by the Contractor's Workers Compensation coverage. The Employees Liability limit shall be as provided by statutory requirements of the State. In case any class of employees is engaged in hazardous work protected under the Workers Compensation statute, the Contractor shall provide and shall cause each subcontractor to provide Employer's General Liability Insurance for the protection of such of his employees not otherwise protected.

II. Public Liability and Owner's or Contractor's Protective Insurance

The Contractor shall take out and maintain this type of insurance and shall require any of his subcontractors performing work covered by the Contract to do the same in order to protect themselves from claims for damage to property which may arise from operations under this Contract, whether such operations be by Contractor or by any Subcontractor or by anyone directly or indirectly employed by either of them.

A. (Comprehensive) Automobile Liability Coverage:

i. Bodily injury including wrongful death in an amount not less than Five Hundred Thousand Dollars ($500,000.00) for each person and One Million Dollars ($1,000,000.00) for each accident.

ii. Property damage in an amount not less than One Hundred Thousand Dollars ($100,000.00) for each accident.

B. (Comprehensive) General Liability Coverage:

i. Bodily injury including wrongful death in an amount not less than Five Hundred Thousand Dollars ($500,000.00) for

each person and One Million Dollars ($1,000,000.00) for each accident, and

ii. Property damage in an amount not less than One Hundred Thousand Dollars ($100,000.00) for each accident, and an aggregate liability of Two Hundred Fifty Thousand Dollars ($250,000.00).

III. Scope of Insurance and Special Hazards

The insurance required under paragraph II hereof shall be primary insurance and provide adequate protection for the Owner, its elected officials, employees, or volunteers, Contractor and subcontractor respectively, against damage claims which may arise from operations under this Contract, whether such operations are by the insured or by anyone directly or indirectly employed by Contractor, and also against any of the special hazards which may be encountered in the performance of the Contract. Each of the aforesaid policies shall include the Owner as named insured and will provide that such policy will not be canceled until after the Owner shall have been given twenty (20) business days written notice of the proposed cancellation. Contractor's insurance shall be the primary insurance, and any insurance maintained by Owner, its elected officials, employees, or volunteers shall be excess to the Contractor's insurance and shall not contribute to it.

Contractor agrees to hold Owner harmless and indemnify Owner, its elected officials, employees, and volunteers for any and all claims resulting from the actions of the Contractor, its officials, employees, volunteers, and any subcontractors.

CONTRACTOR'S ALERT

REMINDER

If you are the successful bidder for work on any state, county, township, municipal corporation, school district, or other political subdivision of the State of Ohio, please keep in mind that if after award of the contract you are required to perform additional work as a result of the enactment or amendment of any statutes, ordinances, and regulations, including but not limited to those dealing with prevention of environmental pollution, then you are entitled to a change order for the cost of said additional work plus reasonable profit. The owner must issue a change order describing said additional work to you. **NOTE: You are not entitled to payment until an approved change order has been issued.**

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Bid Guaranty and Contract Bond

(ORC 153.571)

KNOW ALL MEN BY THESE PRESENTS, that we, the undersigned

_____, as Principal, and

_____, as Surety, are hereby

held and firmly bound unto the *City of Moraine* as Obligee in the penal sum of the dollar amount of the bid submitted by the Principal to the Obligee on

_____ to undertake the Project known as the

PHASE 1 MODERNIZATION – CITY OF MORAINE MUNICIPAL BUILDING

The penal sum referred to herein shall be the dollar amount of the Principal's bid to the Obligee, incorporating any additive or deductive alternate proposals made by the Principal on the date referred to above to the Obligee, which are accepted by the Obligee. In no case shall the penal sum exceed the amount of

_____ dollars

($_____).

(If above line is left blank, the penal sum will be the full amount of the Principal's bid, including alternates. Alternatively, if completed, the amount stated must not be less than the full amount of the bid, including alternates, in dollars and cents. A percentage is not acceptable.)

For the payment of the penal sum well and truly to be made, we hereby jointly and severally bind ourselves, our heirs, executors, administrators, successors, and assigns.

Signed this_____day of_____, 2023.

THE CONDITION OF THE ABOVE OBLIGATION IS SUCH that whereas the above named Principal has submitted a bid for _____

_____

NOW, THEREFORE, if the Obligee accepts the bid of the Principal and the Principal fails to enter into a proper contract in accordance with the bid and specifications; and in the event the Principal pays to the Obligee the difference not to exceed ten percent of the penalty hereof between the amount specified in the bid and such larger amount for which the Obligee may in good faith contract with the next lowest bidder to perform the work covered by the bid; or in the event the Obligee does not award the contract to the next lowest bidder and resubmits the project for bidding, the Principal pays to the Obligee the difference not to exceed ten percent of the penalty hereof between the amount specified in the bid, or the costs, in connection with resubmission, of printing new contract documents, required advertising, and printing and mailing notices to prospective bidders, whichever is less, then this obligation shall be null and void, otherwise to remain in full force and effect. If the Obligee accepts the bid of the Principal and the Principal within ten days after award of the contract enters into a proper contract in accordance with the bid and specifications, which said contract is made a part of this bond the same as though set forth herein; and

IF THE SAID_____shall well and faithfully do and perform the things agreed by the *City of Moraine, Ohio* to be done and performed according to the terms of said contract; and shall pay all lawful claims of

subcontractors, materialmen, and laborers, for labor performed and materials furnished in the carrying forward, performing, or completing of said contract; we agreeing and assenting that this undertaking shall be for the benefit of any materialman or laborer having a just claim, as well as for the Obligee herein; then this obligation shall be void; otherwise the same shall remain in full force and effect; it being expressly understood and agreed that the liability of the Surety for any and all claims hereunder shall in no event exceed the penal amount of this obligation as herein stated.

THE SAID Surety hereby stipulates and agrees that no modifications, omissions, or additions in or to the terms of said contract or in or to the plans or specifications therefore shall in any way affect the obligations of said Surety on its bond.

Principal:	Surety:
_____	_____
By:_____	By:_____
Title:_____	Title:_____

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AFFIDAVIT

Regarding payment of Montgomery County Personal Property Taxes (Bidder to complete and execute either Part A or Part B).

STATE OF_____)

) SS:

COUNTY OF_____)

Part A. That_____, being duly sworn, affirms that as of _____, 2023,_____is not charged with any delinquent personal property taxes on the general tax list of personal property of Montgomery County, Ohio.

_____

Bidder

OR ___ ___ ___ ___ ___ ___ ___ ___ ___ ___ ___

Part B. That_____, being duly sworn, affirms that _____ is currently charged with Montgomery County delinquent personal property taxes in the amount of $_____with interest in the amount of _____, and penalties in the amount of $_____, due to said Montgomery County, Ohio.

_____

Bidder

SWORN TO and subscribed before me this_____day of_____, 2023.

_____

Notary Public in and for

_____ County, Ohio.

My commission expires: _____

NOTE: If this statement indicates that the taxpayer was charged with any such taxes, a copy of the statement shall be transmitted by the Director of Finance to the County Treasurer within thirty (30) days of the date it is submitted.

NOTE: A copy of this statement shall be incorporated into the contract, and no payment shall be made with respect to said contract unless such statement has been incorporated as a part thereof.

Affidavit of Compliance

NON-COLLUSION AFFIDAVIT

STATE OF_____)

) SS:

COUNTY OF_____)

_____, being first duly sworn, deposes and says that he/she is the

_____ (sole owner, partner, president, secretary, etc.) of

_____, the party making the foregoing proposal or bid; that such bid is genuine and not collusive or sham; and that said bidder has not colluded, conspired, connived or agreed, directly or indirectly, with any other bidder or person, to put in a sham bid, or that such other person shall refrain from bidding, and has not in any manner, directly or indirectly, sought by agreement or collusion or communication or conference, with any person, to fix the bid price of affiant or any other bidder, or to fix any overhead, profit, or cost element of said bid price, or of that of any other bidder, or to secure any advantage against any company, person or persons interested in the proposed contract; and that all statements contained in said proposal or bid are true. Further, that such bidder has not, directly or indirectly, submitted this bid, or the contents thereof, or divulged information or data relative thereto to any association or to any member or agent thereof.

_____

Affiant

SWORN TO and subscribed before me this_____day of_____, 2023.

_____

Notary Public in and for

_____ County, _____

state

My commission expires: _____

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AFFIDAVIT

(TO BE COMPLETED IF THE CONTRACTOR IS A CORPORATION)

STATE OF_____)

) SS:

COUNTY OF_____)

_____, being duly sworn, deposes and says that he/she is

_____ (president, secretary, etc.) of

_____, a corporation organized and existing under and by virtue of

the laws of the State of_____, and having its principal office at

_____,

(number and street)

_____,_____.

(city) (state)

Affiant further states that he is familiar with the records, minute books and by-laws of

_____.

(name of corporation)

Affiant further states that_____,_____,

(name) (title)

of the corporation, is duly authorized to sign the contract for the provision of services for the ***PHASE 1 MODERNIZATION - CITY OF MORAINE MUNICIPAL BUILDING*** or said corporation by virtue of

_____

(State whether a provision of bylaws or a resolution of the Board of Directors. If by resolution, give date of adoption.)

_____

Affiant

SWORN TO and subscribed before me this_____day of_____, 2023.

_____

Notary Public in and for

_____ County, _____

state

My commission expires: _____

AFFIDAVIT

Drug and Alcohol Abuse Prevention and Testing Policy and Procedure

This Affidavit is required when needed regarding existence of a program and compliance with the Omnibus Transportation Employee Testing Act of 1991 (the "Act"). The Act requires that any bidder who supplies operators of safety sensitive equipment provide a **Drug and Alcohol Abuse Prevention and Testing Policy and Procedure.** The program shall provide the minimal standards as stated in the Act and cover such issues as pre-employment, reasonable suspicion, random, post-accident, return-to-work, and follow-up testing of safety-sensitive employees.

The bidder is to complete and have notarized this Affidavit if successful in receiving the contract and may be required to provide a copy of the policy.

STATE OF_____)

) SS:

COUNTY OF_____)

_____, being duly sworn, affirms that as of_____, 20____,

_____ has developed and implemented a Drug and Alcohol Abuse Prevention and Testing Policy and Procedure in compliance with the Act.

_____

Affiant

SWORN TO and subscribed before me this_____day of_____, 2023.

_____

Notary Public in and for

_____County, _____

state

My commission expires: _____

NOTE: A copy of this statement shall be incorporated into the contract, and no payment shall be made with respect to said contract unless such statement has been incorporated as a part thereof.

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AFFIDAVIT IN COMPLIANCE WITH SECTION 3517.13 OF THE OHIO REVISED CODE

STATE OF _____

COUNTY OF_____SS:

Personally appeared before me the undersigned, as an individual or as a

representative of_____for a
(Name of Entity)

contract for ***PHASE 1 MODERNIZATION – CITY OF MORAINE MUNICIPAL BUILDING*** to be let by the City of Moraine, who, being duly cautioned and sworn, make the following statement with respect to prohibited activities constituting a conflict of interest or other violations under Ohio Revised Code Section 3517.13, and further states that the undersigned has the authority to make the following representation on behalf of himself or herself or of the business entity:

1) That none of the following have **individually** made within the previous twenty-four months and that, if awarded a contract for the purchase of goods or services aggregating more than $10,000 in a calendar year, none of the following Individually will make, beginning on the date the contract is awarded and extending until one year following the conclusion of the contract, as an individual, one or more campaign contributions totaling in excess of $1,000, to any member of the City of Moraine Council or their individual campaign committees:
   a) myself;
   b) any partner or owner of the partnership or other unincorporated business (if applicable);
   c) any shareholder of the professional association organized under Chapter 1785 of the Ohio Revised Code (if applicable);
   d) any trustee of the trust (if applicable);
   e) any administrator or executor of the estate (if applicable);
   f) any owner of more than 20% of the corporation or business trust (if applicable);
   g) each spouse of any person identified in (a) through (f) of this section;
   h) each child seven years of age to seventeen years of age of any person identified in divisions (a) through (f) of this section;
2) That none of the following have **collectively** made within the previous twenty-four months, and that, if awarded a contract for the purchase of goods or services aggregating more than $10,000 in a calendar year, none of the following **collectively** will make, beginning on the date the contract is awarded and extending until one year following the conclusion of the contract, one or more campaign contributions totaling in excess of $2,000, to any member of the City of Moraine Council or their individual campaign committees:
   a) myself;

b) any partner or owner of the partnership or other unincorporated business (if applicable);

c) any shareholder of the professional association organized under Chapter 1785 of the Ohio Revised Code (if applicable);

d) any trustee of the trust (if applicable);

e) any administrator or executor of the estate (if applicable);

f) any owner of more than 20% of the corporation or business trust (if applicable);

g) each spouse of any person identified in (a) through (f) of this section;

h) each child seven years of age to seventeen years of age of any person identified in divisions (a) through (f) of this section;

i) any political action committee affiliated with the corporation, business trust, partnership or other unincorporated business, association, estate or trust identified in (a) through (f) of this section;

j) Any combination of persons identified in (a) through (i) of this section;

3) I do hereby acknowledge that to knowingly make any false statement herein may subject me and/or the above-named entity to the penalties set forth in Section 3517.992 of the Ohio Revised Code.

Further, Affiant sayeth naught.

Signature _____

Title _____

Sworn to before me and subscribed in my presence this_____day of

_____, 2023.

_____
Notary Public

My Commission Expires: _____

The requirements of Ohio Revised Code Section 3517.13 are only applicable to contributions made **on or after April 4, 2007** (Section 631.05, Amended Substitute Ohio House Bill 119).

Affidavit of Insurance

STATE OF_____)

) KNOW ALL MEN BY THESE PRESENTS

COUNTY OF_____)

BEFORE ME, the undersigned authority, on this day, personally appeared

_____, who being duly sworn, stated that he/she is

(Affiant)

_____, of_____,

(Title) (Contractor's Company Name)

the Contractor named and referred to within the Contract Documents; that he/she is fully competent and authorized to give this affidavit and that the attached original insurance certificate truly and accurately reflects the insurance coverage that is now available and will be available during the term of the Contract.

_____

Affiant

SWORN AND SUBSCRIBED before me on the_____day of_____, 2023.

_____

Notary Public

In and for the County of _____

State of_____

My commission expires:_____

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Department of Commerce
Division of Industrial Compliance

Bureau of Wage and Hour Administration
6606 Tussing Road - PO Box 4009
Reynoldsburg, OH 43068-9009
Phone 614-644-2239 | Fax 614-728-8639
TTY/TDD 800-750-0750
www.com.ohio.gov
An Equal Opportunity Employer and Service Provider

John R. Kasich, Governor
Andre T. Porter, Director

Affidavit Of Compliance

PREVAILING WAGES

I, _____
(Name of person signing affidavit) (Title)

do hereby certify that the wages paid to all employees of

_____
(Company Name)

for all hours worked on the

_____
(Project name and location)

project, during the period from _____ to _____ are in
(Project Dates)

compliance with prevailing wage requirements of Chapter 4115 of the Ohio Revised Code. I further certify that no rebates or deductions have been or will be made, directly or indirectly, from any wages paid in connection with this project, other than those provided by law.

_____
(Signature of Officer or Agent)

Sworn to and subscribed in my presence this _____ day of _____,

20_____.

_____ (Notary Public)

The above affidavit must be executed and sworn to by the officer or agent of the contractor or subcontractor who supervises the payment of employees. This affidavit must be submitted to the owner (public authority) before the surety is released or final payment due under the terms of the contract is made.

LAW1003

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**********FOR INSTRUCTIONAL USE ONLY **********

READ BEFORE COMPLETING YOUR DMA FORM

Forms not conforming to the specifications listed below or not submitted to the appropriate agency or office will not be processed.

To complete this form, you will need a copy of the Terrorist Exclusion List for reference. The Terrorist Exclusion List can be found on the Ohio Homeland Security Web site at the following address:
http://www.homelandsecurity.ohio.gov/dma/dma.asp
Be sure you have the correct DMA form. If you are applying for a state issued license, permit, certification or registration, the "State Issued License" DMA form must be completed (HLS 0036). If you are applying for employment with a government entity, the "Public Employment" DMA form must be completed (HLS 0037). If you are obtaining a contract to conduct business with or receive funding from a government entity, the "Government Business and Funding Contracts" DMA form must be completed (HLS 0038).
Your DMA form is to be submitted to the issuing agency or entity. "Issuing agency or entity" means the government agency or office that has requested the form from you or the government agency or office to which you are applying for a license, employment or a business contract. For example, if you are seeking a business contract with the Ohio Department of Commerce's Division of Financial Institutions, then the form needs to be submitted to the Department of Commerce's Division of Financial Institutions. Do NOT send the form to the Ohio Department of Public Safety UNLESS you are seeking a license from or employment or business contract with one of its eight divisions listed below.
Department of Public Safety Divisions:
Administration
Ohio Bureau of Motor Vehicles
Ohio Emergency Management Agency
Ohio Emergency Medical Services Ohio Homeland Security*
Ohio Investigative Unit
Ohio Criminal Justice Services
Ohio State Highway Patrol

* DO NOT SEND THE FORM TO OHIO HOMELAND SECURITY UNLESS OTHERWISE DIRECTED. FORMS SENT TO THE WRONG AGENCY OR ENTITY WILL NOT BE PROCESSED.

**********FOR INSTRUCTIONAL USE ONLY**********

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GOVERNMENT BUSINESS AND FUNDING CONTRACTS

In accordance with section 2909.33 of the Ohio Revised Code

DECLARATION REGARDING MATERIAL ASSISTANCE/NONASSISTANCE TO A TERRORIST ORGANIZATION

This form serves as a declaration by an applicant for a government contract or funding of material assistance/non-assistance to an organization on the U.S. Department of State Terrorist Exclusion List ("TEL"). Please see the Ohio Homeland Security Division Web site for a copy of the TEL.

Any answer of "yes" to any question, or the failure to answer "no" to any question on this declaration shall serve as a disclosure that material assistance to an organization identified on the U.S. Department of State Terrorist Exclusion List has been provided. Failure to disclose the provision of material assistance to such an organization or knowingly making false statements regarding material assistance to such an organization is a felony of the fifth degree.

For the purposes of this declaration, "material support or resources" means currency, payment instruments, other financial securities, funds, transfer of funds, financial services, communications, lodging, training, safe houses, false documentation or identification, communications equipment, facilities, weapons, lethal substances, explosives, personnel, transportation, and other physical assets, except medicine or religious materials.

COMPLETE THIS SECTION ONLY IF YOU ARE AN INDEPENDENT CONTRACTOR

LAST NAME	FIRST NAME	
HOME ADDRESS		
CITY	STATE	ZIP	COUNTY
HOME PHONE ( )	WORK PHONE ( )	

COMPLETE THIS SECTION ONLY IF YOU ARE A COMPANY, BUSINESS OR ORGANIZATION

BUSINESS/ORGANIZATION NAME	PHONE ( )
BUSINESS ADDRESS	
CITY	STATE	ZIP	COUNTY
BUSINESS/ORGANIZATION REPRESENTATIVE NAME	TITLE

DECLARATION

In accordance with section 2909.32 (A)(2)(b) of the Ohio Revised Code

For each question, indicate either "yes," or "no" in the space provided. Responses must be truthful to the best of your knowledge.

1. Are you a member of an organization on the U.S. Department of State Terrorist Exclusion List? Yes No
2. Have you used any position of prominence you have with any country to persuade others to support an organization on the U.S. Department of State Terrorist Exclusion List? Yes No
3. Have you knowingly solicited funds or other things of value for an organization on the U.S. Department of State Terrorist Exclusion List? Yes No
4. Have you solicited any individual for membership in an organization on the U.S. Department of State Terrorist Exclusion List? Yes No
5. Have you committed an act that you know, or reasonably should have known, affords "material support or resources" to an organization on the U.S. Department of State Terrorist Exclusion List? Yes No
6. Have you hired or compensated a person you knew to be a member of an organization on the U.S. Department of State Terrorist Exclusion List, or a person you knew to be engaged in planning, assisting, or carrying out an act of terrorism? Yes No

If an applicant is prohibited from receiving a government contract or funding due to a positive indication on this form, the applicant may request the Ohio Department of Public Safety to review the prohibition. Please see the Ohio Homeland Security Web site for information on how to file a request for review.

CERTIFICATION

I hereby certify that the answers I have made to all of the questions on this declaration are true to the best of my knowledge. I understand that if this declaration is not completed in its entirety, it will not be processed and I will be automatically disqualified. I understand that I am responsible for the correctness of this declaration. I understand that failure to disclose the provision of material assistance to an organization identified on the U.S. Department of State Terrorist Exclusion List, or knowingly making false statements regarding material assistance to such an organization is a felony of the fifth degree. I understand that any answer of "yes" to any question, or the failure to answer "no" to any question on this declaration shall serve as a disclosure that material assistance to an organization identified on the U.S. Department of State Terrorist Exclusion List has been provided by myself or my organization. If I am signing this on behalf of a company, business or organization, I hereby acknowledge that I have the authority to make this certification on behalf of the company, business or organization referenced on page 1 of this declaration.

APPLICANT SIGNATURE **X**	DATE

CERTIFICATE OF FISCAL OFFICER

As Fiscal Officer for the City of Moraine, Montgomery County, Ohio, I hereby certify that funds in the amount of_____Dollars have been lawfully appropriated for the purpose of meeting the obligations of this contract with_____duly authorized by Resolution No._____approved by the City of Moraine Council, Montgomery County, Ohio, and that they are in the treasury or in the process of collection to the credit of the City of Moraine free from any previous encumbrances.

Signed this_____day of_____, 2023.

_____,
Fiscal Officer for the City of Moraine,
County of Montgomery,
State of Ohio

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PROPOSAL for:

Phase 1 Modernization

City of Moraine Municipal Building
City of Moraine

The undersigned,_____, having carefully inspected the sites and locations of the work proposed to be performed, and also the premises at and adjacent to the location of the proposed work and specified equipment and conditions thereof, and having also carefully examined the "Notice to Contractor," "Instruction to Bidders," "Form of Contract," "General Provisions," and the detailed specifications which shall govern the work to be done, NOW PROPOSES to furnish any and all materials, tools, labor, transportation, machinery, appliances and/or necessary appurtenances, and to prosecute to full completion the work called for under the Contract Documents, all upon the terms and the conditions and provisions set forth in the "Instructions to Bidder," "Form of Contract," "Contract Bond," and "General Provisions," detailed specifications of this Proposal; and in consideration thereof to accept from the Owner as full payment for the completion of each specified item and any required maintenance thereof as hereinafter provided, the price quoted for each item for work completed, the price of labor and materials to be stated separately.

The undersigned_____agrees that if this Proposal shall be accepted, he will be prepared to discuss with the Owner in detail any matters relating to special features and the methods he proposes to follow for the general conduct of the work; that he will within twenty (20) business days after notice of acceptance of bid, complete the Contract Form with the Owner for the performance of the work and furnish evidence of required insurance policies.

The undersigned_____hereby certifies that no person interested in this Proposal is directly or indirectly interested in or connected with any other bid or proposal for the said work and no member of the City of Moraine or any other person in the employ of said City is directly or indirectly interested therein, or in any portion thereof, and he will, if required by the Owner, execute and submit from himself as Principal Contractor and from any subcontractor, the non-collusion affidavits as provided herein.

SUM PROPOSAL PRICE FOR: Phase 1 Modernization - City of Moraine Municipal Building

And having inspected the premises and all conditions affecting the work, the undersigned proposes to furnish all materials and perform all labor necessary for the performance and completion of the work indicated below, all in compliance with the documents named above, and further agrees that each separate item of trade or employment further agrees that, if any or all of said bids are accepted, he will enter into a Contract according to the form required by the Owner for the faithful performance of the labor and the furnishing of all materials included in such bid or bids so accepted.

Submitted by: _____

Contracting Firm

Having read and examined the Contract Documents, prepared by the Associate for the above-referenced Project, and the following Addenda:

Addendum No.	Date of Receipt
_____	_____
_____	_____
_____	_____

The undersigned Bidder having full knowledge of the site and the requirements of the Project proposes to perform all Work in accordance with the Contract Documents for the Sums as indicated on this Bid Form:

Base Bid Item 1 – General Trades / Renovation, ALL LABOR, MATERIALS, EQUIPMENT and PERMIT FEES for the total sum of

Base Bid Amount - $_____

Contingency Allowance –
[10% of the base bid amount] $_____

Total Bid Amount including All Allowances

$_____ $_____

[FIGURES] [WORDS]

_____

Signed at_____this_____day of_____, 2023.

Firm: _____

By: _____

Title:_____

(SEAL)

Official Address:

_____

_____

_____

_____
(Telephone Number)

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PREVAILING WAGE REQUIREMENTS

Prevailing Wage Rate
Skilled Crafts

Name of Union: Asbestos Local 207 OH

Change # : LCN01-2018fbLoc207OH

Craft : Asbestos Worker **Effective Date :** 08/23/2018 **Last Posted :** 08/23/2018

	BHR	Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
		H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification											
Asbestos Abatement	$25.50	$7.25	$6.45	$0.65	$0.00	$0.00	$0.07	$0.00	$0.00	$39.92	$52.67
Trainee	$16.50	$7.25	$1.50	$0.65	$0.00	$0.00	$0.07	$0.00	$0.00	$25.97	$34.22

Special Calculation Note :

Ratio :

3 Journeymen to 1 Trainee

Jurisdiction (* denotes special jurisdictional note) :

ADAMS, ASHLAND, ASHTABULA*, ATHENS, AUGLAIZE, BROWN, BUTLER*, CARROLL, CHAMPAIGN, CLARK, CLERMONT, CLINTON, COLUMBIANA, COSHOCTON, CRAWFORD, CUYAHOGA, DARKE, DELAWARE, FAIRFIELD, FAYETTE, FRANKLIN, GEAUGA, GREENE, GUERNSEY, HAMILTON, HARDIN, HARRISON, HIGHLAND, HOCKING, HOLMES, HURON, KNOX, LAKE, LICKING, LOGAN, LORAIN, MADISON, MAHONING, MARION, MEDINA, MIAMI, MONTGOMERY, MORGAN, MORROW, MUSKINGUM, NOBLE, PERRY, PICKAWAY, PORTAGE, PREBLE, RICHLAND, ROSS, SHELBY, STARK, SUMMIT, TRUMBULL, TUSCARAWAS, UNION, VINTON, WARREN*, WAYNE

Special Jurisdictional Note : Butler County:(townships of Fairfield,Hanover,Liberty,Milford,Morgan,Oxford,Ripley,Ross,StClair,Union & Wayne.) (Lemon & Madison) Warren County: (townships of: Deerfield, Hamilton, Harlan, Salem, Union & Washington). (Clear Creek, Franklin, Mossie, Turtle Creek & Wayney). Ashtabula County: (post offices & townships of Ashtabula, Austinburg, Geneva, Harperfield, Jefferson, Plymouth & Saybrook) (townships of Andover, Cherry Valley, Colbrook, Canneaut, Denmark, Dorset, East Orwell, Hartsgrove, Kingville, Lenox, Monroe,Morgan,New Lyme,North Kingsville, Orwell, Pierpoint, Richmond Rock Creek, Rome, Shefield, Trumbull, Wayne, Williamsfield & Windsor) Erie County:(post offices & townships of Berlin, Berlin Heights,Birmingham,Florence ,Huron, Milan, Shinrock & Vermilion)

Details :

Asbestos & lead paint abatement including,but not limited to the removal or encapsulation of asbestos & lead paint,all work in conjunction with the preparation of the removal of same & all work in conjunction with the clean up after said removal.The removal of all insulation materials, whether they contain asbestos or not, from mechanical

systems (pipes, boilers, ducts, flues, breaching, etc.) is recognized as being the exclusive work of the Asbestos Abatement Workers.

On all mechanical systems (pipes, boilers, ducts, flues, breaching, etc.) that are going to be demolished, the removal of all insulating materials whether they contain asbestos or not shall be the exclusive work of the Laborers.
An Abatement Journeyman is anyone who has more than 300 hours in the Asbestos Abatement field.

Prevailing Wage Rate
Skilled Crafts

Name of Union: Asbestos Local 50 Zone 2

Change # : LCN01-2023ibAsbLoc50Zone2

Craft : Asbestos Worker **Effective Date :** 03/01/2023 **Last Posted :** 03/01/2023

	BHR		Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification												
Asbestos Insulation Mechanic	$33.04		$8.45	$8.10	$0.50	$0.00	$3.25	$0.10	$0.00	$0.00	$53.44	$69.96
Firestop Technician	$33.04		$8.45	$8.10	$0.50	$0.00	$3.25	$0.10	$0.00	$0.00	$53.44	$69.96
Apprentice	**Percent**											
1st year	57.53	$19.01	$8.21	$0.00	$0.44	$0.00	$0.35	$0.10	$0.00	$0.00	$28.11	$37.61
2nd year	69.73	$23.04	$8.45	$0.95	$0.44	$0.00	$0.65	$0.10	$0.00	$0.00	$33.63	$45.15
3rd year	81.05	$26.78	$8.45	$2.38	$0.44	$0.00	$1.00	$0.10	$0.00	$0.00	$39.15	$52.54
4th year	89.40	$29.54	$8.45	$2.38	$0.44	$0.00	$1.00	$0.10	$0.00	$0.00	$41.91	$56.68

Special Calculation Note : *other is labor mgt training fund

Ratio :

1 Journeyman to 1 Apprentice
4 Journeymen to 1 Apprentice thereafter

Jurisdiction (* denotes special jurisdictional note) :

CHAMPAIGN, CLARK, DARKE, GREENE, MIAMI, MONTGOMERY, PREBLE

Special Jurisdictional Note : In Butler County the following townships are included: (Lemon Twp, Madison Twp) In Warren County the following townships are included: (Clear Creek Twp, Franklin Twp, Massie Twp, Turtle Creek Twp, Wayne Twp)

Details :

Prevailing Wage Rate
Skilled Crafts

Name of Union: Boilermaker Local 105

Change # : LCN02-2013fbLoc 105

Craft : Boilermaker **Effective Date :** 10/01/2013 **Last Posted :** 09/25/2013

	BHR		Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification												
Boilermaker	$35.26		$7.07	$13.28	$0.89	$0.00	$3.00	$0.55	$0.00	$0.00	$60.05	$77.68
Apprentice	**Percent**											
1st 6 months	70.03	$24.69	$7.07	$11.30	$0.89	$0.00	$2.10	$0.55	$0.00	$0.00	$46.60	$58.95
2nd 6 months	75.02	$26.45	$7.07	$11.30	$0.89	$0.00	$2.25	$0.55	$0.00	$0.00	$48.51	$61.74
3rd 6 months	80.00	$28.21	$7.07	$11.30	$0.89	$0.00	$2.40	$0.55	$0.00	$0.00	$50.42	$64.52
4th 6 months	85.02	$29.98	$7.07	$11.30	$0.89	$0.00	$2.55	$0.55	$0.00	$0.00	$52.34	$67.33
5th 6 months	87.52	$30.86	$7.07	$13.28	$0.89	$0.00	$2.63	$0.55	$0.00	$0.00	$55.28	$70.71
6th 6 months	90.03	$31.74	$7.07	$13.28	$0.89	$0.00	$2.70	$0.55	$0.00	$0.00	$56.23	$72.11
7th 6 months	92.50	$32.62	$7.07	$13.28	$0.89	$0.00	$2.78	$0.55	$0.00	$0.00	$57.19	$73.49
8th 6 months	95.00	$33.50	$7.07	$13.28	$0.89	$0.00	$2.85	$0.55	$0.00	$0.00	$58.14	$74.89

Special Calculation Note : Other is Supplemental Health and Welfare

Ratio :

5 Journeymen to 1 Apprentice

Jurisdiction (* denotes special jurisdictional note) :

ADAMS, ATHENS, BROWN, BUTLER, CHAMPAIGN, CLARK, CLERMONT, CLINTON, FAIRFIELD, FAYETTE, FRANKLIN, GALLIA, GREENE, GUERNSEY, HAMILTON, HIGHLAND, HOCKING, JACKSON, LAWRENCE, LICKING, MADISON, MEIGS, MIAMI, MONTGOMERY, MORGAN, MUSKINGUM, NOBLE, PERRY, PICKAWAY, PIKE, PREBLE, ROSS, SCIOTO, VINTON, WARREN

Special Jurisdictional Note :

Details :

Prevailing Wage Rate
Skilled Crafts

Name of Union: Bricklayer Local 22 Tile Finisher

Change # : LCN01-2022sksLoc22

Craft : Bricklayer **Effective Date :** 08/12/2022 **Last Posted :** 08/12/2022

	BHR		Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification												
Bricklayer Tile Marble Terrazzo Finisher	$25.86		$3.25	$6.26	$0.46	$0.00	$0.00	$0.00	$0.00	$0.00	$35.83	$48.76
Base Machine	$26.36		$3.25	$6.26	$0.46	$0.00	$0.00	$0.00	$0.00	$0.00	$36.33	$49.51
Apprentice	**Percent**											
1st 6 months 0-600 hrs	60.00	$15.52	$3.25	$0.00	$0.46	$0.00	$0.00	$0.00	$0.00	$0.00	$19.23	$26.98
2nd 6 months 601-1200 hrs	65.00	$16.81	$3.25	$0.00	$0.46	$0.00	$0.00	$0.00	$0.00	$0.00	$20.52	$28.92
3rd 6 months 1201-1800 hrs	70.00	$18.10	$3.25	$6.26	$0.46	$0.00	$0.00	$0.00	$0.00	$0.00	$28.07	$37.12
4th 6 months 1801-2400	75.00	$19.39	$3.25	$6.26	$0.46	$0.00	$0.00	$0.00	$0.00	$0.00	$29.37	$39.06
5th 6 months 2401-3000 hrs	80.00	$20.69	$3.25	$6.26	$0.46	$0.00	$0.00	$0.00	$0.00	$0.00	$30.66	$41.00
6th 6 months 3001-3600 hrs	90.00	$23.27	$3.25	$6.26	$0.46	$0.00	$0.00	$0.00	$0.00	$0.00	$33.24	$44.88
TMT Helper-May enter Apprentice Program after 90 day completionr												
First 90 Days	45.00	$11.64	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$11.64	$17.46

Special Calculation Note : Classification title contains "Bricklayer" because contract originates within the Bricklayer Local.
Note that the classification description is clarified after the local union number at the top of the page.
Medical Savings Account: The Medical Savings Account can only be deducted providing

employee shows proof voluntary enrollment in the program. Minimum contribution of $1.00 per hourworked with no maximum.

Ratio :

1 Journeyman 1 Apprentice
5 Journeyman 1 Apprentice
10 Journeyman 2 Apprentice
15Journeyman 3 Apprentice
20 Journeyman 4 Apprentice
25 Journeyman 5 Apprentice
8 Employees 1 Helper

Jurisdiction (* denotes special jurisdictional note) :

AUGLAIZE, CHAMPAIGN, CLARK, CLINTON, DARKE, GREENE, HARDIN, HIGHLAND, LOGAN, MERCER, MIAMI, MONTGOMERY, PREBLE*, SHELBY

Special Jurisdictional Note : In Preble County the following townships are included: (Jackson, Monroe, Harrison, Twin and Washington)

Details :

Tile Layer Finishers shall do mixing of mortars & adhesives,cleaning & grouting of tile,unloading of all trucks,unpacking & handling of all tile & materials such as sand,lime,cement,tile,& all types of tile panels, prefabricated on job site. Marble Setter Finishers shall do all cleaning,waxing & polishing,grouting and pointing.

Prevailing Wage Rate
Skilled Crafts

Name of Union: Bricklayer Local 22 Tile Mechanics

Change # : LCN01-2022sksLoc22

Craft : Bricklayer **Effective Date :** 08/12/2022 **Last Posted :** 08/12/2022

	BHR		Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification												
Bricklayer Tile Marble Terrazzo Mechanics	$28.95		$8.27	$6.04	$0.54	$0.00	$0.00	$0.00	$0.00	$0.00	$43.80	$58.27
Terrazzo Worker	$28.95		$8.27	$6.04	$0.54	$0.00	$0.00	$0.00	$0.00	$0.00	$43.80	$58.27
Apprentice	**Percent**											
1st 6 Months	60.00	$17.37	$8.27	$0.00	$0.54	$0.00	$0.00	$0.00	$0.00	$0.00	$26.18	$34.86
2nd 6 Months	65.00	$18.82	$8.27	$0.00	$0.54	$0.00	$0.00	$0.00	$0.00	$0.00	$27.63	$37.04
3rd 6 Months	70.02	$20.27	$8.27	$6.04	$0.54	$0.00	$0.00	$0.00	$0.00	$0.00	$35.12	$45.26
4th 6 Months	75.00	$21.71	$8.27	$6.04	$0.54	$0.00	$0.00	$0.00	$0.00	$0.00	$36.56	$47.42
5th 6 months	80.00	$23.16	$8.27	$6.04	$0.54	$0.00	$0.00	$0.00	$0.00	$0.00	$38.01	$49.59
6th 6 months	85.00	$24.61	$8.27	$6.04	$0.54	$0.00	$0.00	$0.00	$0.00	$0.00	$39.46	$51.76
7th 6 months	90.00	$26.05	$8.27	$6.04	$0.54	$0.00	$0.00	$0.00	$0.00	$0.00	$40.91	$53.93
8th 6 months	95.00	$27.50	$8.27	$6.04	$0.54	$0.00	$0.00	$0.00	$0.00	$0.00	$42.35	$56.10

Special Calculation Note : Classification title contains "Bricklayer" because contract originates within the Bricklayer Local.
Note that the classification description is clarified after the local union number at the top of the page.

Ratio :

5 Journeymen to 1 Apprentice
10 Journeymen to 2 Apprentice
15 Journeymen to 3 Apprentice
20 Journeymen to 4 Apprentice
25 Journeymen to 5 Apprentice

Jurisdiction (* denotes special jurisdictional note) :

CHAMPAIGN, CLARK, CLINTON, DARKE, GREENE, HIGHLAND, LOGAN, MIAMI, MONTGOMERY, PREBLE*, SHELBY

Special Jurisdictional Note : In Preble County the following townships are included: (Jackson, Jefferson, Monroe, Harrison, Twin and Washington)

Details :

**(Tile layers work)the laying,cutting or setting of all tile where used for floors,walls, ceilings, walks, promenade

roofs,stair treads,stair risers,facings,hearths,fireplaces & decorative inserts together with any marble plinths, thresholds or window stools used in connection with any tile work.the building, shaping forming construction or repairing of all fireplace work, whether in connection with a mantel hearth facing or not, & the setting & preparing of all material such as cement,plaster,mortar,brickwork,iron work or other materials necessary for the proper,safe construction & completion of such work:except that a mantel made exclusively of brick, marble or stone shall be conceded to be bricklayers,marble setters or stonemasons' work respectively.

**Marble,mosaic,venetian enamel & terrazzo. Cutting and assembling of mosaics.all rolling of terrazzo work.
**Caulking of all expansion,perimeter & angle joints shall be the exclusive work of the tile mechanic.
**Marble masons shall consist of carving,cutting & setting of all marble,slate (including blackboards) stone, albereen, carrara, sanionyx, vitrolite & similar opaque glass, scagliola, what ever thickness or dimension.

Prevailing Wage Rate
Skilled Crafts

Name of Union: Bricklayer Local 22

Change # : LCN01-2022sksLoc22

Craft : Bricklayer **Effective Date :** 06/01/2022 **Last Posted :** 06/01/2022

	BHR		Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification												
Bricklayer Stone Mason Refractory	$30.15		$9.25	$6.89	$0.57	$0.00	$0.00	$0.00	$0.00	$0.00	$46.86	$61.93
Pointer/Caulker/Cleaner	$30.15		$9.25	$6.89	$0.57	$0.00	$0.00	$0.00	$0.00	$0.00	$46.86	$61.93
Improver Apprentices 25 day probationary period then												
1st 6 months	$19.60		$9.25	$0.00	$0.47	$0.00	$0.00	$0.00	$0.00	$0.00	$29.32	$39.12
2nd 6 months	$22.61		$9.25	$0.00	$0.47	$0.00	$0.00	$0.00	$0.00	$0.00	$32.33	$43.64
3rd 6 months	$25.63		$9.25	$5.59	$0.47	$0.00	$0.00	$0.00	$0.00	$0.00	$40.94	$53.75
4th 6 months	$28.64		$9.25	$5.59	$0.47	$0.00	$0.00	$0.00	$0.00	$0.00	$43.95	$58.27
Bricklayer Stone Mason Refractory and PCC Appreentice	**Percent**											
1st 6 months	60.00	$18.09	$9.25	$0.00	$0.47	$0.00	$0.00	$0.00	$0.00	$0.00	$27.81	$36.85
2nd 6 months	65.00	$19.60	$9.25	$0.00	$0.47	$0.00	$0.00	$0.00	$0.00	$0.00	$29.32	$39.12
3rd 6 months	70.02	$21.11	$9.25	$5.59	$0.47	$0.00	$0.00	$0.00	$0.00	$0.00	$36.42	$46.98
4th 6 months	75.00	$22.61	$9.25	$5.59	$0.47	$0.00	$0.00	$0.00	$0.00	$0.00	$37.92	$49.23
5th 6 months	80.00	$24.12	$9.25	$5.59	$0.47	$0.00	$0.00	$0.00	$0.00	$0.00	$39.43	$51.49
6th 6 months	85.00	$25.63	$9.25	$5.59	$0.47	$0.00	$0.00	$0.00	$0.00	$0.00	$40.94	$53.75
7th 6 months	90.00	$27.13	$9.25	$5.59	$0.47	$0.00	$0.00	$0.00	$0.00	$0.00	$42.44	$56.01
8th 6 months	95.00	$28.64	$9.25	$5.59	$0.47	$0.00	$0.00	$0.00	$0.00	$0.00	$43.95	$58.27
Mason Trainee-1-90 Days	45.00	$13.57	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$13.57	$20.35
91-365 Days	45.00	$13.57	$9.25	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$22.82	$29.60
2nd Year	50.00	$15.08	$9.25	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$24.32	$31.86

Special Calculation Note : Classification title contains "Bricklayer" because contract originates within the Bricklayer Local.
Note that the classification description is clarified after the local union number at the top of the page. Apprentice and Apprentice Improver, Health and Welfare after 60 days. Mason Trainees Health and Welfare after 90 days.

Ratio :

Jurisdiction (* denotes special jurisdictional note) :

Bricklayer Stone Mason Refractory Worker:
1-2 Journeymen to 1 Apprentice
3-4 Journeymen to 2 Apprentice
5-6 Journeymen to 2 Apprentice
7-10 Journeymen to 3 Apprentice

CHAMPAIGN, CLARK, CLINTON, DARKE, GREENE, HIGHLAND, LOGAN, MIAMI, MONTGOMERY, PREBLE*, SHELBY

Mason Trainee Ratio:

1 Apprentice permits 1 Mason Trainee
2 Apprentice permits 1 Mason Trainee
3 Apprentice permits 2 Mason Trainee
4 Apprentice permits 2 Mason Trainee

In order to utilize a Pre-Apprentice, you must have 1 registered apprentice in your employ.

Ratio of Improver Apprentices to Journeymen in no case shall their be no more than 1 Improver Apprentice to 6 Journeymen

Special Jurisdictional Note : In Preble County the following townships are included: Jackson, Monroe, Harrison, Twin, Jefferson and Washington

Details :
Apprentice Ratio's covers: Bricklayer, Stone Mason, Refractory worker and Pointer, Cleaner, Caulker.

Prevailing Wage Rate
Skilled Crafts

Name of Union: Cement Mason Bricklayer Local 97 HevHwy A

Change # : LCN01-2022sksHvyHwy

Craft : Bricklayer **Effective Date :** 06/08/2022 **Last Posted :** 06/08/2022

	BHR		Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification												
Cement Mason Bricklayer Sewer Water Works A	$31.40		$9.75	$8.30	$0.50	$0.00	$0.00	$0.00	$0.00	$0.00	$49.95	$65.65
Apprentice	**Percent**											
1st year	70.00	$21.98	$9.75	$8.30	$0.50	$0.00	$0.00	$0.00	$0.00	$0.00	$40.53	$51.52
2nd year	80.00	$25.12	$9.75	$8.30	$0.50	$0.00	$0.00	$0.00	$0.00	$0.00	$43.67	$56.23
3rd year	90.00	$28.26	$9.75	$8.30	$0.50	$0.00	$0.00	$0.00	$0.00	$0.00	$46.81	$60.94

Special Calculation Note : NOT FOR BUILDING CONSTRUCTION.

Ratio :

3 Journeymen to 1 Apprentice
6 Journeymen to 2 Apprentice
9 Journeymen to 3 Apprentice
12 Journeymen to 4 Apprentice
15 Journeymen to 5 Apprentice

Jurisdiction (* denotes special jurisdictional note) :

ADAMS, ALLEN, ASHLAND, ASHTABULA, ATHENS, AUGLAIZE, BELMONT, BROWN, BUTLER, CARROLL, CHAMPAIGN, CLARK, CLERMONT, CLINTON, COLUMBIANA, COSHOCTON, CRAWFORD, CUYAHOGA, DARKE, DEFIANCE, DELAWARE, ERIE, FAIRFIELD, FAYETTE, FRANKLIN, FULTON, GALLIA, GEAUGA, GREENE, GUERNSEY, HAMILTON, HANCOCK, HARDIN, HARRISON, HENRY, HIGHLAND, HOCKING, HOLMES, HURON, JACKSON, JEFFERSON, KNOX, LAKE, LAWRENCE, LICKING, LOGAN, LORAIN, LUCAS, MADISON, MAHONING, MARION, MEDINA, MEIGS, MERCER, MIAMI, MONROE, MONTGOMERY, MORGAN, MORROW, MUSKINGUM, NOBLE, OTTAWA, PAULDING, PERRY, PICKAWAY, PIKE, PORTAGE, PREBLE, PUTNAM, RICHLAND, ROSS, SANDUSKY, SCIOTO, SENECA, SHELBY, STARK, SUMMIT, TRUMBULL, TUSCARAWAS, UNION, VAN WERT, VINTON, WARREN, WASHINGTON, WAYNE

Special Jurisdictional Note :

Details :

(A) Highway Construction, Sewer, Waterworks And Utility Construction, Industrial & Building Site Heavy

Construction, Airport Construction Or Railroad Construction Work.
(B) Power Plant, Tunnels, Amusement Park, Athletic Stadium Site Work ,Pollution Control,Sewer Plant, Waste Plant, & Water Treatment Facilities, Construction.

Prevailing Wage Rate
Skilled Crafts

Name of Union: Carpenter & Pile Driver SW District HevHwy

Change # : LCN01-2022sksLoc126

Craft : Carpenter **Effective Date :** 05/11/2022 **Last Posted :** 05/11/2022

	BHR		Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification												
Journeyman	$32.48		$8.25	$6.95	$0.50	$0.00	$3.97	$0.14	$0.00	$0.00	$52.29	$68.53
Apprentice	**Percent**											
1st 6 Months	60.00	$19.49	$8.25	$6.95	$0.50	$0.00	$3.97	$0.14	$0.00	$0.00	$39.30	$49.04
2nd 6 Months	65.00	$21.11	$8.25	$6.95	$0.50	$0.00	$3.97	$0.14	$0.00	$0.00	$40.92	$51.48
3rd 6 Months	70.00	$22.74	$8.25	$6.95	$0.50	$0.00	$3.97	$0.14	$0.00	$0.00	$42.55	$53.91
4th 6 Months	75.00	$24.36	$8.25	$6.95	$0.50	$0.00	$3.97	$0.14	$0.00	$0.00	$44.17	$56.35
5th 6 Months	80.00	$25.98	$8.25	$6.95	$0.50	$0.00	$3.97	$0.14	$0.00	$0.00	$45.79	$58.79
6th 6 Months	85.00	$27.61	$8.25	$6.95	$0.50	$0.00	$3.97	$0.14	$0.00	$0.00	$47.42	$61.22
7th 6 Months	90.00	$29.23	$8.25	$6.95	$0.50	$0.00	$3.97	$0.14	$0.00	$0.00	$49.04	$63.66
8th 6 Months	95.00	$30.86	$8.25	$6.95	$0.50	$0.00	$3.97	$0.14	$0.00	$0.00	$50.67	$66.09

Special Calculation Note : Other is UBC National Fund.

Ratio :

1 Journeymen to 1 Apprentice

An employer shall have the right to employ one (1) Apprentice for one (1) Journeyman Carpenter in its employment for the first Apprentice employed, and 1 (1) Apprentice for two (2) Journeyman Carpenter for additional Apprectices employed.
Thereafter, every third additonal carpenter hired shall be an apprentice, if available, and if practical for the type of work being performed.

Jurisdiction (* denotes special jurisdictional note) :

BROWN, BUTLER, CHAMPAIGN, CLARK, CLERMONT, CLINTON, DARKE, GREENE, HAMILTON, LOGAN, MIAMI, MONTGOMERY, PREBLE, SHELBY, WARREN

Special Jurisdictional Note :

Details :

Highway Construction, Airport Construction, Heavy Construction but not limited to:(tunnels,subways,drainage projects,flood control,reservoirs). Railroad Construction,Sewer Waterworks & Utility Construction but not limited to: (storm sewers, waterlines, gaslines). Industrial & Building Site, Power Plant, Amusement Park, Athletic Stadium Site, Sewer and Water Plants.

When the Contractor furnishes the necessary underwater gear for the Diver, the Diver shall be paid one and one half (1&1/2) times the journeyman rate for the time spent in the water.

Prevailing Wage Rate
Skilled Crafts

Name of Union: Carpenter & Pile Driver
SW Zone 1

Change # : LCR01-2022sksLoc126

Craft : Carpenter **Effective Date :** 06/29/2022 **Last Posted :** 06/29/2022

	BHR		Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification												
Carpenter	$29.50		$7.93	$6.95	$0.50	$0.00	$2.15	$0.14	$0.00	$0.00	$47.17	$61.92
Pile Driver	$29.50		$7.93	$6.95	$0.50	$0.00	$2.15	$0.14	$0.00	$0.00	$47.17	$61.92
Apprentice	**Percent**											
1st 3 Months	60.00	$17.70	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$17.70	$26.55
2nd 3 Months	60.00	$17.70	$7.93	$0.00	$0.50	$0.00	$2.15	$0.14	$0.00	$0.00	$28.42	$37.27
2rd 6 Months	60.00	$17.70	$7.93	$0.00	$0.50	$0.00	$2.15	$0.14	$0.00	$0.00	$28.42	$37.27
3th 6 Months	65.02	$19.18	$7.93	$0.00	$0.50	$0.00	$2.15	$0.14	$0.00	$0.00	$29.90	$39.49
4th 6 Months	65.02	$19.18	$7.93	$0.00	$0.50	$0.00	$2.15	$0.14	$0.00	$0.00	$29.90	$39.49
5th 6 Months	70.00	$20.65	$7.93	$6.95	$0.50	$0.00	$2.15	$0.14	$0.00	$0.00	$38.32	$48.65
6th 6 Months	75.00	$22.12	$7.93	$6.95	$0.50	$0.00	$2.15	$0.14	$0.00	$0.00	$39.80	$50.86
7th 6 Months	80.00	$23.60	$7.93	$6.95	$0.50	$0.00	$2.15	$0.14	$0.00	$0.00	$41.27	$53.07
8th 6 Months	85.02	$25.08	$7.93	$6.95	$0.50	$0.00	$2.15	$0.14	$0.00	$0.00	$42.75	$55.29

Special Calculation Note : Other is for UBC National Fund

Ratio :

1 Journeyman to 1 Apprentice
3 Journeyman to 1 Apprentice
5 Journeyman to 1 Apprentice

Jurisdiction (* denotes special jurisdictional note) :
CHAMPAIGN, CLARK, DARKE, GREENE, LOGAN, MIAMI, MONTGOMERY, PREBLE, SHELBY

Special Jurisdictional Note :

Details :
Carpenter duties shall include but not limited to: Pile driving, milling,fashioning,joining,assembling,erecting,fastening, or dismantling of all material of wood,plastic,metal,fiber,cork,and composition, and all other substitute materials: pile driving,cutting,fitting,and placing of lagging, and the handling,cleaning,erecting,installing,and dismantling of machinery,equipment,and erecting pre-engineered metal buildings.
Pile Drivers work but not limited to: unloading, assembling,erection,repairs,operation,signaling,dismantling, and

reloading all equipment that is used for pile driving including pile butts. pile butts is defined as sheeting or scrap piling. Underwater work that may be required in connection with the installation of piling. The diver and his tender work as a team and shall arrive at their own financial arrangements with the contractor.Any configuration of wood, steel, concrete, or composite that is jetted, driven, or vibrated onto the ground by conventional pile driving equipment for the purpose of supporting a future load that may be permanent or temporary.
Driving bracing,plumbing,cutting off and capping of all piling whether wood,metal,pipe piling or composite. loading, unloading, erecting, framing, dismantling, moving, and handling of pile driving equipment. piling used in the construction and repair of all wharves, docks, piers, trestles, caissons, cofferdams, and the erection of all sea walls and breakwaters. All underwater and marine work on bulkheads, wharves,docks,shipyards, caissons, piers, bridges, pipeline work, viaducts, marine cable and trestles, as well as salvage and reclamation work where divers are employed.
Rate shall include carpenters, acoustic, and ceiling installers, drywall installers, pile drivers, and floorlayers.

Prevailing Wage Rate
Skilled Crafts

Name of Union: Carpenter Floorlayer SW District G

Change # : LCN01-2022sksLocSWDayton

Craft : Carpenter **Effective Date :** 09/14/2022 **Last Posted :** 09/14/2022

	BHR		Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification												
Carpenter Floorlayer	$27.98		$8.17	$6.95	$0.50	$0.00	$2.12	$0.14	$0.00	$0.00	$45.86	$59.85
Apprentice	**Percent**											
1st 3 months	65.00	$18.19	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$18.19	$27.28
2nd 3 months	65.00	$18.19	$8.17	$0.00	$0.50	$0.00	$2.12	$0.14	$0.00	$0.00	$29.12	$38.21
2nd 6 months	65.00	$18.19	$8.17	$0.00	$0.50	$0.00	$2.12	$0.14	$0.00	$0.00	$29.12	$38.21
3rd 6 months	70.00	$19.59	$8.17	$0.00	$0.50	$0.00	$2.12	$0.14	$0.00	$0.00	$30.52	$40.31
4th 6 months	75.00	$20.98	$8.17	$0.00	$0.50	$0.00	$2.12	$0.14	$0.00	$0.00	$31.92	$42.41
5th 6 months	80.00	$22.38	$8.17	$6.95	$0.50	$0.00	$2.12	$0.14	$0.00	$0.00	$40.26	$51.46
6th 6 months	85.00	$23.78	$8.17	$6.95	$0.50	$0.00	$2.12	$0.14	$0.00	$0.00	$41.66	$53.55
7th 6 months	90.00	$25.18	$8.17	$6.95	$0.50	$0.00	$2.12	$0.14	$0.00	$0.00	$43.06	$55.65
8th 6 months	95.00	$26.58	$8.17	$6.95	$0.50	$0.00	$2.12	$0.14	$0.00	$0.00	$44.46	$57.75

Special Calculation Note : Other fs for UBC National Fund and Install

Ratio :

1 Journeymen to 1 Apprentice

Jurisdiction (* denotes special jurisdictional note) :

BROWN, BUTLER, CHAMPAIGN, CLARK, CLERMONT, CLINTON, DARKE, GREENE, HAMILTON, LOGAN, MIAMI, MONTGOMERY, PREBLE, SHELBY, WARREN

Special Jurisdictional Note :

Details :

Scope of work shall include, but not be limited to: receiving,unloading,handling,distribution and installation of all carpeting materials,carpet padding or matting materials and all resilient materials whether for use on walls, floors,counter, sink,table and all preparation work necessary in connection therewith, including sanding work. the installation of nonstructural under-layment and the work of removing, cleaning waxing of any of the above. Carpeting shall include any floor covering composed of either natural or synthetic fibers that are made in breadths to be sewed, fastened or directly glued to floors or over cushioning sound-proofing materials.Resilient Floors shall consist of and include the laying of all special designs of wood,wood block, wood composition, cork,

linoleum, asphalt, mastic, plastic, rubber tile,whether nailed or glued.

Prevailing Wage Rate
Skilled Crafts

Name of Union: Carpenter Millwright Local 1090 SW Zone II

Change # : LCN01-20212sksLoc1066

Craft : Carpenter **Effective Date :** 09/14/2022 **Last Posted :** 09/14/2022

	BHR		Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification												
Carpenter Millwright	$32.41		$8.08	$6.95	$0.57	$0.00	$7.32	$0.17	$0.00	$0.00	$55.50	$71.70
Apprentice	**Percent**											
1st 6 months	60.00	$19.45	$8.08	$4.27	$0.57	$0.00	$4.39	$0.17	$0.00	$0.00	$36.93	$46.65
2nd 6 months	65.00	$21.07	$8.08	$4.61	$0.57	$0.00	$4.76	$0.17	$0.00	$0.00	$39.26	$49.79
3rd 6 months	70.00	$22.69	$8.08	$4.94	$0.57	$0.00	$5.12	$0.17	$0.00	$0.00	$41.57	$52.91
4th 6 months	75.00	$24.31	$8.08	$5.28	$0.57	$0.00	$5.49	$0.17	$0.00	$0.00	$43.90	$56.05
5th 6 months	80.00	$25.93	$8.08	$5.61	$0.57	$0.00	$5.86	$0.17	$0.00	$0.00	$46.22	$59.18
6th 6 months	85.00	$27.55	$8.08	$5.95	$0.57	$0.00	$6.22	$0.17	$0.00	$0.00	$48.54	$62.31
7th 6 months	90.00	$29.17	$8.08	$6.28	$0.57	$0.00	$6.59	$0.17	$0.00	$0.00	$50.86	$65.44
8th 6 months	95.00	$30.79	$8.08	$6.62	$0.57	$0.00	$6.95	$0.17	$0.00	$0.00	$53.18	$68.57

Special Calculation Note : Other ($0.17) $0.12 National Fund and $0.05 for National Millwright Fund.

Ratio :

3 Journeymen to 1 Apprentice

Jurisdiction (* denotes special jurisdictional note) :

CHAMPAIGN, CLARK, DARKE, GREENE, LOGAN, MIAMI, MONTGOMERY, PREBLE, SHELBY

Special Jurisdictional Note :

Details :

Prevailing Wage Rate
Skilled Crafts

Name of Union: Carpenter NE District Industrial Dock & Door

Change # : LCN01-2014fbCarpNEStatewide

Craft : Carpenter **Effective Date :** 03/05/2014 **Last Posted :** 03/05/2014

	BHR		Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification												
Carpenter	$19.70		$5.05	$1.00	$0.15	$0.00	$0.00	$0.00	$0.00	$0.00	$25.90	$35.75
Trainee	**Percent**											
1st Year	60.00	$11.82	$5.05	$1.00	$0.15	$0.00	$0.00	$0.00	$0.00	$0.00	$18.02	$23.93
2nd Year	80.20	$15.80	$5.05	$1.00	$0.15	$0.00	$0.00	$0.00	$0.00	$0.00	$22.00	$29.90

Special Calculation Note : No special calculations for this skilled craft wage rate are required at this time.

Ratio :

1 Journeymen to 1 Trainee

Jurisdiction (* denotes special jurisdictional note) :

ADAMS, ALLEN, ASHLAND, ASHTABULA, ATHENS, AUGLAIZE, BELMONT, BROWN, BUTLER, CARROLL, CHAMPAIGN, CLARK, CLERMONT, CLINTON, COLUMBIANA, COSHOCTON, CRAWFORD, CUYAHOGA, DARKE, DEFIANCE, DELAWARE, ERIE, FAIRFIELD, FAYETTE, FRANKLIN, FULTON, GALLIA, GEAUGA, GREENE, GUERNSEY, HAMILTON, HANCOCK, HARDIN, HARRISON, HENRY, HIGHLAND, HOCKING, HOLMES, HURON, JACKSON, JEFFERSON, KNOX, LAKE, LAWRENCE, LICKING, LOGAN, LORAIN, LUCAS, MADISON, MAHONING, MARION, MEDINA, MEIGS, MERCER, MIAMI, MONROE, MONTGOMERY, MORGAN, MORROW, MUSKINGUM, NOBLE, OTTAWA, PAULDING, PERRY, PICKAWAY, PIKE, PORTAGE, PREBLE, PUTNAM, RICHLAND, ROSS, SANDUSKY, SCIOTO, SENECA, SHELBY, STARK, SUMMIT, TRUMBULL, TUSCARAWAS, UNION, VAN WERT, VINTON, WARREN, WASHINGTON, WAYNE, WILLIAMS, WOOD, WYANDOT

Special Jurisdictional Note : Industrial Dock and Door is the installation of overhead doors, roll up doors and dock leveling equipment

Details :

10/27/10 New Contract jc

Prevailing Wage Rate
Skilled Crafts

Name of Union: Cement Mason Bricklayer Local 97 HevHwy B

Change # : LCN01-2022sksHvyHwy

Craft : Bricklayer **Effective Date :** 06/08/2022 **Last Posted :** 06/08/2022

	BHR		Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification												
Cement Mason Bricklayer Power Plants Tunnels Amusement Parks B	$32.39		$9.75	$8.30	$0.51	$0.00	$0.00	$0.00	$0.00	$0.00	$50.95	$67.15
Apprentice	**Percent**											
1st year	70.00	$22.67	$9.75	$8.30	$0.51	$0.00	$0.00	$0.00	$0.00	$0.00	$41.23	$52.57
2nd year	80.00	$25.91	$9.75	$8.30	$0.51	$0.00	$0.00	$0.00	$0.00	$0.00	$44.47	$57.43
3rd year	90.00	$29.15	$9.75	$8.30	$0.51	$0.00	$0.00	$0.00	$0.00	$0.00	$47.71	$62.29

Special Calculation Note : NOT FOR BUILDING CONSTRUCTION.

Ratio :

3 Journeymen to 1 Apprentice
6 Journeymen to 2 Apprentice
9 Journeymen to 2 Apprentice
12 Journeymen to 4 Apprentice
15 Journeymen to 5 Apprentice

Jurisdiction (* denotes special jurisdictional note) :

ADAMS, ALLEN, ASHLAND, ASHTABULA, ATHENS, AUGLAIZE, BELMONT, BROWN, BUTLER, CARROLL, CHAMPAIGN, CLARK, CLERMONT, CLINTON, COLUMBIANA, COSHOCTON, CRAWFORD, CUYAHOGA, DARKE, DEFIANCE, DELAWARE, ERIE, FAIRFIELD, FAYETTE, FRANKLIN, FULTON, GALLIA, GEAUGA, GREENE, GUERNSEY, HAMILTON, HANCOCK, HARDIN, HARRISON, HENRY, HIGHLAND, HOCKING, HOLMES, HURON, JACKSON, JEFFERSON, KNOX, LAKE, LAWRENCE, LICKING, LOGAN, LORAIN, LUCAS, MADISON, MAHONING, MARION, MEDINA, MEIGS, MERCER, MIAMI, MONROE, MONTGOMERY, MORGAN, MORROW, MUSKINGUM, NOBLE, OTTAWA, PAULDING, PERRY, PICKAWAY, PIKE, PORTAGE, PREBLE, PUTNAM, RICHLAND, ROSS, SANDUSKY, SCIOTO, SENECA, SHELBY, STARK, SUMMIT, TRUMBULL, TUSCARAWAS, UNION, VAN WERT, VINTON, WARREN, WASHINGTON, WAYNE

Special Jurisdictional Note :

Details :

(A) Highway Construction, Sewer, Waterworks And Utility Construction, Industrial & Building Site Heavy Construction, Airport Construction Or Railroad Construction Work.
(B) Power Plant, Tunnels, Amusement Park, Athletic Stadium Site Work ,Pollution Control,Sewer Plant, Waste Plant, & Water Treatment Facilities, Construction.

Prevailing Wage Rate
Skilled Crafts

Name of Union: Cement Mason Statewide HevHwy

Change # : OCR01-2022sksCementHevHwy

Craft : Cement Mason **Effective Date :** 05/05/2022 **Last Posted :** 05/05/2022

	BHR		Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification												
Cement Mason	$32.49		$8.45	$7.35	$0.65	$0.00	$2.25	$0.07	$0.00	$0.00	$51.26	$67.50
Apprentice	**Percent**											
1st Year	70.00	$22.74	$8.45	$7.35	$0.65	$0.00	$2.25	$0.07	$0.00	$0.00	$41.51	$52.88
2nd Year	80.00	$25.99	$8.45	$7.35	$0.65	$0.00	$2.25	$0.07	$0.00	$0.00	$44.76	$57.76
3rd Year	90.00	$29.24	$8.45	$7.35	$0.65	$0.00	$2.25	$0.07	$0.00	$0.00	$48.01	$62.63

Special Calculation Note : Other $0.07 is for International Training Fund

Ratio :

1 Journeymen to 1 Apprentice
2 to 1 thereafter

Jurisdiction (* denotes special jurisdictional note) :

ADAMS, ALLEN, ASHLAND, ASHTABULA*, ATHENS, AUGLAIZE, BELMONT, BROWN, BUTLER, CARROLL, CHAMPAIGN, CLARK, CLERMONT, CLINTON, COLUMBIANA, COSHOCTON, CRAWFORD, CUYAHOGA*, DARKE, DEFIANCE, DELAWARE, ERIE, FAIRFIELD, FAYETTE, FRANKLIN, FULTON*, GALLIA, GEAUGA*, GREENE, GUERNSEY, HAMILTON, HANCOCK*, HARDIN, HARRISON, HENRY*, HIGHLAND, HOCKING, HOLMES, HURON, JACKSON, JEFFERSON, KNOX, LAKE*, LAWRENCE, LICKING, LOGAN, LORAIN, LUCAS*, MADISON, MAHONING, MARION, MEDINA, MEIGS, MERCER, MIAMI, MONROE, MONTGOMERY, MORGAN, MORROW, MUSKINGUM, NOBLE, OTTAWA, PAULDING, PERRY, PICKAWAY, PIKE, PORTAGE, PREBLE, PUTNAM*, RICHLAND, ROSS, SANDUSKY, SCIOTO, SENECA, SHELBY, STARK, SUMMIT, TRUMBULL, TUSCARAWAS, UNION, VAN WERT, VINTON, WARREN, WASHINGTON, WAYNE, WILLIAMS, WOOD*, WYANDOT

Special Jurisdictional Note : (A) Highway Construction, Sewer, Waterworks And Utility Construction, Industrial & Building Site, Heavy
Construction, Airport Construction Or Railroad Construction Work, Power Plant, Tunnels, Amusement Park, Athletic Stadium Site Work, Pollution Control, Sewer Plant, Waste & Water Plant, Water Treatment Facilities Construction.

*For Power Plant, Tunnels, Amusement Park, Athletic Stadium Site Work, Pollution Control, Sewer

Plant, Waste & Water Plant, Water Treatment Facility Construction work in the following Counties: Ashtabula, Cuyahoga, Fulton, Geauga, Hancock, Henry, Lake, Lucas, Putnam and Wood Counties, those counties will use the Cement Mason Statewide Heavy Highway Exhibit B District 1 Wage Rate.

Details :

This rate replaces the previous Cement Mason Heavy Highway Statewide Rates (Exhibit A and Exhibit B rates), except for Cement Mason Statewide Heavy Highway Exhibit B Dist 1. sks

Prevailing Wage Rate
Skilled Crafts

Name of Union: Painter Local 249

Change # : LCN01-2023ibLoc249

Craft : Drywall Finisher **Effective Date :** 01/11/2023 **Last Posted :** 01/11/2023

	BHR		Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification												
Painter Drywall Finisher	$25.67		$5.87	$6.25	$0.28	$0.00	$0.00	$0.00	$0.00	$0.00	$38.07	$50.91
Apprentice	**Percent**											
30 Day Probationary	50.00	$12.84	$5.87	$0.45	$0.28	$0.00	$0.00	$0.00	$0.00	$0.00	$19.44	$25.85
1st Year	65.00	$16.69	$5.87	$0.45	$0.28	$0.00	$0.00	$0.00	$0.00	$0.00	$23.29	$31.63
2nd Year	65.00	$16.69	$5.87	$0.45	$0.28	$0.00	$0.00	$0.00	$0.00	$0.00	$23.29	$31.63
3rd Year	75.00	$19.25	$5.87	$0.45	$0.28	$0.00	$0.00	$0.00	$0.00	$0.00	$25.85	$35.48
4th Year	85.00	$21.82	$5.87	$0.45	$0.28	$0.00	$0.00	$0.00	$0.00	$0.00	$28.42	$39.33

Special Calculation Note :

Ratio :

1 Journeymen to 1 Apprentice

Jurisdiction (* denotes special jurisdictional note) :

CLARK, DARKE, GREENE, MIAMI, MONTGOMERY, PREBLE

Special Jurisdictional Note :

Details :

Industrial work but not limited to:work done on industrial plants, repair garages, processing plants,storage tanks, warehouses, skeleton structures,bridges,whether new or old construction, office buildings in industrial sites and interior of shopping malls.

Prevailing Wage Rate
Skilled Crafts

Name of Union: Electrical Local 71 DOT Traffic Signal Highway Lighting American Line Builders

Change # : LCNO1-2023ibLoc71DOTClev

Craft : Lineman **Effective Date :** 03/01/2023 **Last Posted :** 03/01/2023

	BHR		Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification												
Electrical Lineman	$43.02		$7.00	$1.29	$0.43	$0.00	$8.60	$0.56	$0.00	$0.00	$60.90	$82.41
Traffic Signal & Lighting Journeyman	$41.43		$7.00	$1.24	$0.41	$0.00	$8.29	$0.56	$0.00	$0.00	$58.93	$79.64
Equipment Operator	$37.78		$7.00	$1.13	$0.38	$0.00	$7.56	$0.56	$0.00	$0.00	$54.41	$73.30
Groundman 0 to 12 months (W/O CDL)	$22.91		$7.00	$0.69	$0.23	$0.00	$4.58	$0.56	$0.00	$0.00	$35.97	$47.42
Groundman 0 to 12 Months (W CDL)	$25.03		$7.00	$0.75	$0.25	$0.00	$5.01	$0.56	$0.00	$0.00	$38.60	$51.12
Groundman greater than 1 year (W CDL)	$27.71		$7.00	$0.81	$0.28	$0.00	$5.43	$0.56	$0.00	$0.00	$41.79	$55.65
Traffic Apprentice												
1st 1000 hrs	$24.86		$7.00	$0.75	$0.25	$0.00	$4.97	$0.56	$0.00	$0.00	$38.39	$50.82
2nd 1000 hrs	$26.93		$7.00	$0.81	$0.27	$0.00	$5.39	$0.56	$0.00	$0.00	$40.96	$54.43
3rd 1000 hrs	$29.00		$7.00	$0.87	$0.29	$0.00	$5.80	$0.56	$0.00	$0.00	$43.52	$58.02
4th 1000 hrs	$31.01		$7.00	$0.99	$0.31	$0.00	$6.21	$0.56	$0.00	$0.00	$46.08	$61.59
5th 1000 hrs	$33.14		$7.00	$0.99	$0.33	$0.00	$6.63	$0.56	$0.00	$0.00	$48.65	$65.22
6th 1000 hrs	$37.29		$7.00	$1.12	$0.37	$0.00	$7.46	$0.56	$0.00	$0.00	$53.80	$72.45
Lineman Apprentice	**Percent**											
1st 1,000 Hours	60.00	$25.81	$7.00	$0.77	$0.26	$0.00	$5.16	$0.56	$0.00	$0.00	$39.56	$52.47
2nd 1,000 Hours	65.00	$27.96	$7.00	$0.84	$0.28	$0.00	$5.59	$0.56	$0.00	$0.00	$42.23	$56.21
3rd 1,000	70.00	$30.11	$7.00	$0.90	$0.30	$0.00	$6.02	$0.56	$0.00	$0.00	$44.89	$59.95

Hours												
4th 1,000 Hours	75.00	$32.27	$7.00	$0.97	$0.32	$0.00	$6.54	$0.56	$0.00	$0.00	$47.66	$63.79
5th 1,000 Hours	80.00	$34.42	$7.00	$1.03	$0.34	$0.00	$6.88	$0.56	$0.00	$0.00	$50.23	$67.43
6th 1,000 Hours	85.00	$36.57	$7.00	$1.10	$0.37	$0.00	$7.31	$0.56	$0.00	$0.00	$52.91	$71.19
7th 1,000 Hours	90.00	$38.72	$7.00	$1.16	$0.39	$0.00	$7.74	$0.56	$0.00	$0.00	$55.57	$74.93

Special Calculation Note : Other is for Safety and Education Fund ($0.06) And HRA ($0.50).

Ratio :

1 Journeymen to 1 Apprentice

Jurisdiction (* denotes special jurisdictional note) :

AUGLAIZE, CHAMPAIGN, CLARK, CLINTON, DARKE, GREENE, LOGAN, MERCER, MIAMI, MONTGOMERY, PREBLE, SHELBY

Special Jurisdictional Note :

Details :

A groundman when directed shall assist a Journeymen in the performance of his/her work on the ground, including the use of hand tools. Under no circumstances shall this classification climb poles, towers, ladders, or work from an elevated platform or bucket truck. This classification shall not perform work normally assigned to an apprentice lineman. No more than three (3) Groundmen shall work alone. Jobs with more that three Groundmen shall be supervised by a Groundcrew Foreman, Journeyman Lineman, Journeyman Traffic Signal Technician or an Equipment Operator.

Prevailing Wage Rate
Skilled Crafts

Name of Union: Electrical Local 71 High Tension Pipe Type Cable

Change # : LCN01-2023ibLoc7

Craft : Lineman **Effective Date :** 03/01/2023 **Last Posted :** 03/01/2023

	BHR		Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification												
Electrical Lineman	$48.59		$7.00	$1.46	$0.49	$0.00	$11.66	$0.75	$0.00	$0.00	$69.95	$94.24
Certified Lineman Welder	$48.59		$7.00	$1.46	$0.49	$0.00	$11.66	$0.75	$0.00	$0.00	$69.95	$94.24
Certified Cable Splicer	$48.59		$7.00	$1.46	$0.49	$0.00	$11.66	$0.75	$0.00	$0.00	$69.95	$94.24
Operator A	$43.54		$7.00	$1.31	$0.44	$0.00	$10.45	$0.75	$0.00	$0.00	$63.49	$85.26
Operator B	$38.54		$7.00	$1.16	$0.39	$0.00	$9.25	$0.75	$0.00	$0.00	$57.09	$76.36
Operator C	$30.97		$7.00	$0.93	$0.31	$0.00	$7.43	$0.75	$0.00	$0.00	$47.39	$62.88
Groundman 0-12 months Exp	$24.30		$7.00	$0.73	$0.24	$0.00	$5.83	$0.75	$0.00	$0.00	$38.85	$51.00
Groundman 0-12 months Exp w/CDL	$26.72		$7.00	$0.80	$0.27	$0.00	$6.41	$0.75	$0.00	$0.00	$41.95	$55.31
Groundman 1 yr or more	$26.72		$7.00	$0.80	$0.27	$0.00	$6.41	$0.75	$0.00	$0.00	$41.95	$55.31
Groundman 1 yr or more w/CDL	$31.58		$7.00	$0.95	$0.32	$0.00	$7.58	$0.75	$0.00	$0.00	$48.18	$63.97
Equipment Mechanic A	$38.54		$7.00	$1.16	$0.39	$0.00	$9.25	$0.75	$0.00	$0.00	$57.09	$76.36
Equipment Mechanic B	$34.75		$7.00	$1.04	$0.35	$0.00	$8.34	$0.75	$0.00	$0.00	$52.23	$69.60
Equipment Mechanic C	$30.97		$7.00	$0.93	$0.31	$0.00	$7.43	$0.75	$0.00	$0.00	$47.39	$62.88
X-Ray Technician	$48.59		$7.00	$1.46	$0.49	$0.00	$11.66	$0.75	$0.00	$0.00	$69.95	$94.24
Apprentice	**Percent**											
1st 1000 hrs	60.00	$29.15	$7.00	$0.87	$0.29	$0.00	$7.00	$0.75	$0.00	$0.00	$45.06	$59.64
2nd 1000	65.00	$31.58	$7.00	$0.95	$0.32	$0.00	$7.58	$0.75	$0.00	$0.00	$48.18	$63.98

hrs												
3rd 1000 hrs	70.00	$34.01	$7.00	$1.02	$0.34	$0.00	$8.16	$0.75	$0.00	$0.00	$51.28	$68.29
4th 1000 hrs	75.00	$36.44	$7.00	$1.09	$0.36	$0.00	$8.75	$0.75	$0.00	$0.00	$54.39	$72.61
5th 1000 hrs	80.00	$38.87	$7.00	$1.17	$0.39	$0.00	$9.33	$0.75	$0.00	$0.00	$57.51	$76.95
6th 1000 hrs	85.00	$41.30	$7.00	$1.24	$0.41	$0.00	$9.91	$0.75	$0.00	$0.00	$60.61	$81.26
7th 1000 hrs	90.00	$43.73	$7.00	$1.31	$0.44	$0.00	$10.50	$0.75	$0.00	$0.00	$63.73	$85.60

Special Calculation Note : Other is Health Retirement Account

Operator "A"
John Henry Rock Drill, D-6 (or equivalent) and above, Trackhoe Digger, (320 Track excavator), Cranes (greater then 25 tons and less than 45 tons).

Operator "B"
Cranes (greater than 6 tons and up to 25 tons), Backhoes, Road Tractor, Dozer up to D-5, Pressure Digger- wheeled or tracked, all Tension wire Stringing equipment.

Operator "C"
Trench, Backhoe, Riding type vibratory Compactor, Ground Rod Driver, Boom Truck (6 ton & below), Skid Steer Loaders, Material Handler.

*All Operators of cranes 45 ton or larger shall be paid the journeyman rate of pay. $0.30 is for Health Retirement Account.

Ratio :

1 Journeyman to 1 Apprentice

Jurisdiction (* denotes special jurisdictional note) :

ADAMS, ASHLAND, ASHTABULA, ATHENS, AUGLAIZE, BELMONT, BROWN, BUTLER, CARROLL, CHAMPAIGN, CLARK, CLERMONT, CLINTON, COLUMBIANA, COSHOCTON, CRAWFORD, CUYAHOGA, DARKE, DELAWARE, FAIRFIELD, FAYETTE, FRANKLIN, GALLIA, GEAUGA, GREENE, GUERNSEY, HAMILTON, HARRISON, HIGHLAND, HOCKING, HOLMES, JACKSON, JEFFERSON, KNOX, LAKE, LAWRENCE, LICKING, LOGAN, LORAIN, MADISON, MAHONING, MARION, MEDINA, MEIGS, MERCER, MIAMI, MONROE, MONTGOMERY, MORGAN, MORROW, MUSKINGUM, NOBLE, PERRY, PICKAWAY, PIKE, PORTAGE, PREBLE, RICHLAND, ROSS, SCIOTO, SHELBY, STARK, SUMMIT, TRUMBULL, TUSCARAWAS, UNION, VINTON, WARREN, WASHINGTON, WAYNE

Special Jurisdictional Note :

Details :

Heli - Arc Welding will be paid $.30 above Journeyman rate. Additional compensation of 10% over the Journeyman Lineman and Journeyman Technician for performing work on structures outside of buildings such as water towers, smoke stacks, radio and television towers, more than 75' above the ground.

Prevailing Wage Rate
Skilled Crafts

Name of Union: Electrical Local 71 Outside Utility Power

Change # : LCN01-2023ibLoc7

Craft : Lineman **Effective Date :** 03/01/2023 **Last Posted :** 03/01/2023

	BHR		Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification												
Electrical Lineman	$46.03		$7.00	$1.38	$0.46	$0.00	$11.05	$0.75	$0.00	$0.00	$66.67	$89.68
Substation Technician	$46.03		$7.00	$1.38	$0.46	$0.00	$11.05	$0.75	$0.00	$0.00	$66.67	$89.68
Cable Splicer	$48.21		$7.00	$1.45	$0.48	$0.00	$11.57	$0.75	$0.00	$0.00	$69.46	$93.56
Operator A	$41.26		$7.00	$1.24	$0.41	$0.00	$9.90	$0.75	$0.00	$0.00	$60.56	$81.19
Operator B	$36.47		$7.00	$1.09	$0.36	$0.00	$8.75	$0.75	$0.00	$0.00	$54.42	$72.65
Operator C	$29.28		$7.00	$0.88	$0.29	$0.00	$7.03	$0.75	$0.00	$0.00	$45.23	$59.87
Groundman 0-12 months Exp	$23.02		$7.00	$0.69	$0.23	$0.00	$5.52	$0.75	$0.00	$0.00	$37.21	$48.72
Groundman 0-12 months Exp w/CDL	$25.32		$7.00	$0.76	$0.25	$0.00	$6.08	$0.75	$0.00	$0.00	$40.16	$52.82
Groundman 1 yr or more	$25.32		$7.00	$0.76	$0.25	$0.00	$6.08	$0.75	$0.00	$0.00	$40.16	$52.82
Groundman 1 yr or more w/CDL	$29.92		$7.00	$0.90	$0.30	$0.00	$7.18	$0.75	$0.00	$0.00	$46.05	$61.01
Equipment Mechanic A	$36.47		$7.00	$1.09	$0.36	$0.00	$8.75	$0.75	$0.00	$0.00	$54.42	$72.65
Equipment Mechanic B	$32.88		$7.00	$0.99	$0.33	$0.00	$7.89	$0.75	$0.00	$0.00	$49.84	$66.28
Equipment Mechanic C	$29.28		$7.00	$0.88	$0.29	$0.00	$7.03	$0.75	$0.00	$0.00	$45.23	$59.87
Line Truck w/uuger	$32.28		$7.00	$0.97	$0.32	$0.00	$7.75	$0.75	$0.00	$0.00	$49.07	$65.21
Apprentice	**Percent**											
1st 1000 hrs	60.00	$27.62	$7.00	$0.83	$0.28	$0.00	$6.63	$0.75	$0.00	$0.00	$43.11	$56.92
2nd 1000 hrs	65.00	$29.92	$7.00	$0.90	$0.30	$0.00	$7.18	$0.75	$0.00	$0.00	$46.05	$61.01
3rd 1000	70.00	$32.22	$7.00	$0.97	$0.32	$0.00	$7.73	$0.75	$0.00	$0.00	$48.99	$65.10

hrs												
4th 1000 hrs	75.00	$34.52	$7.00	$1.04	$0.35	$0.00	$8.28	$0.75	$0.00	$0.00	$51.94	$69.20
5th 1000 hrs	80.00	$36.82	$7.00	$1.10	$0.37	$0.00	$8.84	$0.75	$0.00	$0.00	$54.88	$73.30
6th 1000 hrs	85.00	$39.13	$7.00	$1.17	$0.39	$0.00	$9.39	$0.75	$0.00	$0.00	$57.83	$77.39
7th 1000 hrs	90.00	$41.43	$7.00	$1.24	$0.41	$0.00	$9.94	$0.75	$0.00	$0.00	$60.77	$81.48

Special Calculation Note : Other is Health Retirement Account
Operator "A"
John Henry Rock Drill, D-6 (or equivalent) and above, Trackhoe Digger, (320 Track excavator), Cranes (greater then 25 tons and less than 45 tons).

Operator "B"
Cranes (greater than 6 tons and up to 25 tons), Backhoes, Road Tractor, Dozer up to D-5, Pressure Digger- wheeled or tracked, all Tension wire Stringing equipment.

Operator "C"
Trench, Backhoe, Riding type vibratory Compactor, Ground Rod Driver, Boom Truck (6 ton & below), Skid Steer Loaders, Material Handler.

Ratio :

(1) Journeyman Lineman to (1) Apprentice

Jurisdiction (* denotes special jurisdictional note) :

ADAMS, ASHLAND, ASHTABULA, ATHENS, AUGLAIZE, BELMONT, BROWN, BUTLER, CARROLL, CHAMPAIGN, CLARK, CLERMONT, CLINTON, COLUMBIANA, COSHOCTON, CRAWFORD, CUYAHOGA, DARKE, DELAWARE, FAIRFIELD, FAYETTE, FRANKLIN, GALLIA, GEAUGA, GREENE, GUERNSEY, HAMILTON, HARRISON, HIGHLAND, HOCKING, HOLMES, JACKSON, JEFFERSON, KNOX, LAKE, LAWRENCE, LICKING, LOGAN, LORAIN, MADISON, MAHONING, MARION, MEDINA, MEIGS, MERCER, MIAMI, MONROE, MONTGOMERY, MORGAN, MORROW, MUSKINGUM, NOBLE, PERRY, PICKAWAY, PIKE, PORTAGE, PREBLE, RICHLAND, ROSS, SCIOTO, SHELBY, STARK, SUMMIT, TRUMBULL, TUSCARAWAS, UNION, VINTON, WARREN, WASHINGTON, WAYNE

Special Jurisdictional Note : 0.30 is for Health Retirement Account.

Details :
Heli - Arc Welding will be paid $.30 above Journeyman rate. Additional compensation of 10% over the Journeyman Lineman and Journeyman Technician for performing work on structures outside of buildings such as water towers, smoke stacks, radio and television towers, more than 75' above the ground.

Prevailing Wage Rate
Skilled Crafts

Name of Union: Electrical Local 71 Voice Data Video Outside

Change # : LCR01-2017fbLoc71VDV

Craft : Voice Data Video **Effective Date :** 10/18/2017 **Last Posted :** 10/18/2017

	BHR	Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
		H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification											
Electrical Installer Technician I	$23.46	$5.50	$0.70	$0.00	$0.00	$0.30	$0.00	$0.00	$0.00	$29.96	$41.69
Installer Technician II	$22.37	$5.50	$0.67	$0.00	$0.00	$0.30	$0.00	$0.00	$0.00	$28.84	$40.03
Equipment Operator I	$22.37	$5.50	$0.67	$0.00	$0.00	$0.30	$0.00	$0.00	$0.00	$28.84	$40.03
Equipment Operator II	$18.43	$5.50	$0.55	$0.00	$0.00	$0.30	$0.00	$0.00	$0.00	$24.78	$33.99
Installer /Repair Outside	$22.37	$5.50	$0.67	$0.00	$0.00	$0.30	$0.00	$0.00	$0.00	$28.84	$40.03
Ground Driver W/CDL	$15.83	$5.50	$0.47	$0.00	$0.00	$0.30	$0.00	$0.00	$0.00	$22.10	$30.01
Groundman	$13.24	$5.50	$0.40	$0.00	$0.00	$0.30	$0.00	$0.00	$0.00	$19.44	$26.06
Cable Splicer	$23.46	$5.50	$0.70	$0.00	$0.00	$0.30	$0.00	$0.00	$0.00	$29.96	$41.69

Special Calculation Note :

Ratio :

Jurisdiction (* denotes special jurisdictional note) :

ADAMS, ASHLAND, ASHTABULA, ATHENS, AUGLAIZE, BELMONT, BROWN, BUTLER, CARROLL, CHAMPAIGN, CLARK, CLERMONT, CLINTON, COLUMBIANA, COSHOCTON, CRAWFORD, CUYAHOGA, DARKE, DELAWARE, FAIRFIELD, FAYETTE, FRANKLIN, GALLIA, GEAUGA, GREENE, GUERNSEY, HAMILTON, HARRISON, HIGHLAND, HOCKING, HOLMES, JACKSON, JEFFERSON, KNOX, LAKE, LAWRENCE, LICKING, LOGAN, LORAIN, MADISON, MAHONING, MARION, MEDINA, MEIGS, MERCER, MIAMI, MONROE, MONTGOMERY, MORGAN, MORROW, MUSKINGUM, NOBLE, PERRY, PICKAWAY, PIKE, PORTAGE, PREBLE, RICHLAND, ROSS, SCIOTO, SHELBY, STARK, SUMMIT, TRUMBULL,

TUSCARAWAS, UNION, VINTON, WARREN, WASHINGTON, WAYNE

Special Jurisdictional Note :

Details :

Cable Splicer: Inspect and test lines or cables, analyze results, and evaluate transmission characteristics. Cover conductors with insulation or seal splices with moisture-proof covering. Install, splice, test, and repair cables using tools or mechanical equipment. This will include the splicing of fiber.

Journeyman Technician I: Must know all aspects of telephone and cable work. This is to include aerial, underground, and manhole work. Must know how to climb and run bucket. Must have all the tools required to perform these tasks. Must be able to be responsible for the safety of the crew at all times. Must also have CDL license and have at least 5 years experience.

Installer/Repairman: Perform tasks of repairing, installing, and testing phone and CATV services.

Technician II: Have at least three years of telephone and CATV experience. Must have the knowledge of underground, aerial, and manhole work. Must be able to climb and operate bucket. Must have CDL. Must have all tools needed to perform these tasks.

Equipment Operator I: Able to operate a digger derrick or bucket truck. Have at least 5 years of experience and must have a valid CDL license.

Equipment Operator II: Able to operate a digger derrick or bucket truck. Have at least 3 years of experience and must have a valid CDL license.

Groundman W/CDL: Must have a valid CDL license and be able to perform tasks such as: climbing poles, pulling downguys, making up material, and getting appropriate tools for the job. Must have at least 5 year’s experience.

Groundman: Perform tasks such as: climbing poles, pulling downguys, making up material, and getting appropriate tools for the job. Experience 0-5 years.

Prevailing Wage Rate
Skilled Crafts

Name of Union: Electrical Local 82 Inside Lt Commercial South West

Change # : LCNO1-2021sksLoc82in

Craft : Electrical **Effective Date :** 03/30/2022 **Last Posted :** 03/30/2022

	BHR		Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification												
Electrician	$33.25		$6.47	$9.35	$0.72	$0.00	$3.50	$0.00	$0.00	$0.00	$53.29	$69.91
CE-3 12,001-14,000	$24.66		$6.47	$0.74	$0.72	$0.00	$0.74	$0.00	$0.00	$0.10	$33.43	$45.76
CE-2 10,001-12,000 Hrs	$19.56		$6.47	$0.59	$0.72	$0.00	$0.59	$0.00	$0.00	$0.10	$28.03	$37.81
CE-1 8,001-10,000 Hrs	$17.86		$6.47	$0.54	$0.72	$0.00	$0.54	$0.00	$0.00	$0.10	$26.23	$35.16
CW-4 6,001-8,000 Hrs	$16.16		$6.47	$0.48	$0.72	$0.00	$0.48	$0.00	$0.00	$0.10	$24.41	$32.49
CW-3 4,001-6,000 Hrs	$14.46		$6.47	$0.43	$0.72	$0.00	$0.43	$0.00	$0.00	$0.10	$22.61	$29.84
CW-2 2,001-4,000 Hrs	$13.61		$6.47	$0.41	$0.72	$0.00	$0.41	$0.00	$0.00	$0.10	$21.72	$28.52
CW-1 0-2,000 Hrs	$12.76		$6.47	$0.38	$0.72	$0.00	$0.38	$0.00	$0.00	$0.10	$20.81	$27.19
Apprentice	**Percent**											
1st period 0 - 1000 hrs	42.00	$13.97	$4.07	$0.62	$0.24	$0.00	$0.00	$0.00	$0.00	$0.00	$18.89	$25.88
2nd period 1001-2000 hrs	42.00	$13.97	$4.07	$0.62	$0.24	$0.00	$0.00	$0.00	$0.00	$0.00	$18.89	$25.88
3rd period 2001-3500 hrs	47.00	$15.63	$6.92	$4.39	$0.27	$0.00	$1.65	$0.00	$0.00	$0.00	$28.86	$36.67
4th period 3501-5000 hrs	52.00	$17.29	$6.97	$4.86	$0.29	$0.00	$1.82	$0.00	$0.00	$0.00	$31.23	$39.88
5th period 5001-6500 hrs	62.00	$20.61	$7.07	$5.80	$0.35	$0.00	$2.17	$0.00	$0.00	$0.00	$36.01	$46.31
6th period 6501-8000 hrs	77.00	$25.60	$7.22	$7.20	$0.44	$0.00	$2.70	$0.00	$0.00	$0.00	$43.16	$55.96

Special Calculation Note : *Misc amount is Adminstrative Fees

Ratio :

1 to 3 Journeymen to 3 Apprentices
4 to 6 Journeymen to 6 Apprentices
per job site

Construction Electrician and Construction Wireman Ratio
There shall be a minimum ratio of one inside Journeyman to every (4) employees of different classification per jobsite. An inside Journeyman Wireman is required on the project as the fifth (5th) worker or when apprentices are used.

Jurisdiction (* denotes special jurisdictional note) :

CLINTON, DARKE, GREENE, MIAMI, MONTGOMERY, PREBLE, WARREN*

Special Jurisdictional Note : The following townships in Warren County are included: Clearcreek, Franklin and Wayne.

The scope of work for the light commercial agreement shall apply to the following facilities not to exceed 200,000 square feet; office buildings, shopping centers, auto sales agencies and garages, churches, funeral homes, nursing homes, hotels, retail and wholesale facilities, small stand-alone manufacturing facilities when free standing and not part of a larger facility (not to exceed 50,000 square fee), solar projects (500 panels or less) unless otherwise covered under the agreement, lighting retrofits (when not associated with remodels involving branch re-circuiting) lighting retrofits shall be defined as the changing of lamps and ballasts in existing light fixtures and shall also include the one for one replacement of existing fixtures, warehouses, gas stations, food service centers, restaurants, entertainment facilities, hospitals, clinics, motels, residential buildings.

Details :

Prevailing Wage Rate
Skilled Crafts

Name of Union: Electrical Local 82 Inside

Change # : LCN01-2022ibLoc82in

Craft : Electrical **Effective Date :** 12/05/2022 **Last Posted :** 11/23/2022

	BHR		Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification												
Electrician	$34.25		$7.45	$9.63	$0.58	$0.00	$3.60	$0.00	$0.00	$0.00	$55.51	$72.63
Apprentice	**Percent**											
1st period 0 - 1000 hrs	42.00	$14.39	$4.07	$0.63	$0.24	$0.00	$0.00	$0.00	$0.00	$0.00	$19.32	$26.52
2nd period 1001-2000 hrs	42.00	$14.39	$4.07	$0.63	$0.24	$0.00	$0.00	$0.00	$0.00	$0.00	$19.32	$26.52
3rd period 2001-3500 hrs	47.00	$16.10	$6.92	$4.52	$0.27	$0.00	$1.69	$0.00	$0.00	$0.00	$29.50	$37.55
4th period 3501-5000 hrs	52.00	$17.81	$6.97	$5.00	$0.30	$0.00	$1.87	$0.00	$0.00	$0.00	$31.95	$40.85
5th period 5001-6500 hrs	62.02	$21.24	$7.07	$5.97	$0.36	$0.00	$2.23	$0.00	$0.00	$0.00	$36.87	$47.49
6th period 6501-8000 hrs	77.00	$26.37	$7.22	$7.41	$0.45	$0.00	$2.77	$0.00	$0.00	$0.00	$44.22	$57.41

Special Calculation Note : No special calculations for this skilled craft wage rate are required at this time.

Ratio :

1 to 3 Journeymen to 3 Apprentices
4 to 6 Journeymen to 6 Apprentices
per job site

Jurisdiction (* denotes special jurisdictional note) :
CLINTON, DARKE, GREENE, MIAMI, MONTGOMERY, PREBLE, WARREN*

Special Jurisdictional Note : The following townships in Warren County are included: Clearcreek, Franklin and Wayne.

Details :
Only correction made on 6-19-19 was the 5th year Apprentice fb.

Prevailing Wage Rate
Skilled Crafts

Name of Union: Electrical Local 82 Lightning Rod

Change # : LCN02-2022ibLoc82

Craft : Electrical **Effective Date :** 12/05/2022 **Last Posted :** 11/23/2022

	BHR		Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification												
Electrical Lightning Rod Technican	$32.79		$7.45	$9.58	$0.00	$0.00	$3.50	$0.00	$0.00	$0.00	$53.32	$69.71

Special Calculation Note : No Apprentice approved by OSAC.

Ratio :

Jurisdiction (* denotes special jurisdictional note) :
CLINTON, DARKE, GREENE, MIAMI, MONTGOMERY, PREBLE, WARREN*

Special Jurisdictional Note : The following townships in Warren County are included: (Clearcreek, Franklin and Wayne)

Details :
.

Prevailing Wage Rate
Skilled Crafts

Name of Union: Electrical Local 82 Voice Data Video

Change # : LCN01-2022ibLoc82VDV

Craft : Voice Data Video **Effective Date :** 11/28/2022 **Last Posted :** 11/23/2022

	BHR		Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification												
Electrical Installer Technician A	$26.20		$6.60	$6.79	$0.50	$0.00	$0.00	$0.00	$0.00	$0.00	$40.09	$53.19
Electrical Installer Technician B	$24.89		$6.60	$6.75	$0.47	$0.00	$0.00	$0.00	$0.00	$0.00	$38.71	$51.16
JW Installer Technician	$23.58		$6.60	$6.71	$0.45	$0.00	$0.00	$0.00	$0.00	$0.00	$37.34	$49.13
NON BICSI Installer	$17.03		$3.87	$0.51	$0.32	$0.00	$2.00	$0.00	$0.00	$0.00	$23.73	$32.25
Apprentice Indentured After 09-03-2018	**Percent**											
1st 0-1000 hours	55.00	$14.41	$3.87	$3.73	$0.27	$0.00	$0.00	$0.00	$0.00	$0.00	$22.28	$29.49
2nd 1001-2000 hours	55.00	$14.41	$3.87	$3.73	$0.27	$0.00	$0.00	$0.00	$0.00	$0.00	$22.28	$29.49
3rd 2001-3000 hours	65.00	$17.03	$6.55	$6.51	$0.32	$0.00	$0.00	$0.00	$0.00	$0.00	$30.41	$38.92
4th 3001-4000 hours	65.00	$17.03	$6.55	$6.51	$0.32	$0.00	$0.00	$0.00	$0.00	$0.00	$30.41	$38.92
5th 4001-5000 hours	75.00	$19.65	$6.56	$6.59	$0.37	$0.00	$0.00	$0.00	$0.00	$0.00	$33.17	$43.00
6th 5001-6000 hours	75.00	$19.65	$6.56	$6.59	$0.37	$0.00	$0.00	$0.00	$0.00	$0.00	$33.17	$43.00
7th 6001-7000 hours	80.00	$20.96	$6.57	$6.63	$0.40	$0.00	$0.00	$0.00	$0.00	$0.00	$34.56	$45.04
8th 7001 hours	80.00	$20.96	$6.57	$6.63	$0.40	$0.00	$0.00	$0.00	$0.00	$0.00	$34.56	$45.04
Cable Puller	50.00	$13.10	$3.87	$0.39	$0.25	$0.00	$0.25	$0.00	$0.00	$0.00	$17.86	$24.41

Special Calculation Note : No special calculations for this skilled craft wage rate are required at this time.

Ratio : **Jurisdiction (* denotes special jurisdictional**

	note) :
1 Journeymen to 2 Apprentice (Indentured After 9-4-2018)	CLINTON, DARKE, GREENE, MIAMI, MONTGOMERY, PREBLE, WARREN*
1 Journeymen to 2 Apprentice (Indentured Before 9--03-2018)	

Special Jurisdictional Note : The following townships in Warren County are included: (Clearcreek, Franklin and Wayne)

Details :
Work covered but not limited to: installation which utilize transmission and/or transference of voice, sound, vision or digital for commercial, education, security and entertainment purposes for the following:

TV monitoring and surveillance, background-foreground music, intercom and telephone interconnect, inventory control systems, microwave transmission, multimedia, multiplex, nurse call system, radio page, school intercom, sound and low voltage master clock systems.

Fire Alarm work is excluded on all new construction sites or wherever the fire alarm system is installed in conduit.

All HVAC control work is not covered by this wage rate but by the Inside Electrical wage rate.

Prevailing Wage Rate
Skilled Crafts

Name of Union: Elevator Local 11

Change # : LCN01-2020fbLoc11

Craft : Elevator **Effective Date :** 01/05/2021 **Last Posted :** 01/05/2021

	BHR		Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification												
Elevator Mechanic	$48.82		$15.88	$10.46	$0.64	$3.91	$8.85	$1.56	$0.00	$0.00	$90.12	$114.53
Probationary Apprentice	50.00	$24.41	$0.00	$0.00	$0.00	$1.46	$0.00	$0.78	$0.00	$0.00	$26.65	$38.86
1st year	55.00	$26.85	$15.88	$10.46	$0.64	$1.61	$8.85	$0.86	$0.00	$0.00	$65.15	$78.58
2nd year	65.00	$31.73	$15.88	$10.46	$0.64	$1.90	$8.85	$1.02	$0.00	$0.00	$70.48	$86.35
3rd year	70.00	$34.17	$15.88	$10.46	$0.64	$2.05	$8.85	$1.09	$0.00	$0.00	$73.14	$90.23
4th year	80.00	$39.06	$15.88	$10.46	$0.64	$2.34	$8.85	$1.25	$0.00	$0.00	$78.48	$98.00
Helper	70.00	$34.17	$15.88	$10.46	$0.64	$2.05	$8.85	$1.09	$0.00	$0.00	$73.14	$90.23
Assistant Mechanic	80.00	$39.06	$15.88	$10.46	$0.64	$2.34	$8.85	$1.25	$0.00	$0.00	$78.48	$98.00

Special Calculation Note : Other is Holiday Pay. Vacation calcuated at 6%.

Ratio :

The total number of Helpers & Apprentices employed shall not exceed the number of Mechanics on any one job, except on jobs where (2) teams or more are working, (1) extra Helper or Apprentice may be employed for the first (2) teams and an extra Helper or Apprentice for each additional (3) teams.

1 Journeymen to 1 Apprentice
2 Journeymen to 5 Apprentice
3 Journeymen to 6 Apprentice

Jurisdiction (* denotes special jurisdictional note) :

ADAMS, BROWN, BUTLER, CLERMONT, CLINTON, DARKE, GREENE, HAMILTON, HIGHLAND, MIAMI, MONTGOMERY, PREBLE, SCIOTO, SHELBY, WARREN

Special Jurisdictional Note :

Details :

Prevailing Wage Rate
Skilled Crafts

Name of Union: Glazier Local 387

Change # : LCN01-2020fbLoc387

Craft : Glazier **Effective Date :** 11/01/2020 **Last Posted :** 10/28/2020

	BHR		Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification												
Glazier	$27.93		$5.67	$10.10	$0.25	$0.00	$0.00	$0.00	$0.00	$0.00	$43.95	$57.92
Apprentice	**Percent**											
1st 6 months	53.70	$15.00	$5.67	$0.00	$0.25	$0.00	$0.00	$0.00	$0.00	$0.00	$20.92	$28.42
2nd 6 months	65.00	$18.15	$5.67	$6.19	$0.25	$0.00	$0.00	$0.00	$0.00	$0.00	$30.26	$39.34
3rd 6 months	70.00	$19.55	$5.67	$6.71	$0.25	$0.00	$0.00	$0.00	$0.00	$0.00	$32.18	$41.96
4th 6 months	75.00	$20.95	$5.67	$6.85	$0.25	$0.00	$0.00	$0.00	$0.00	$0.00	$33.72	$44.19
5th 6 months	80.00	$22.34	$5.67	$7.43	$0.25	$0.00	$0.00	$0.00	$0.00	$0.00	$35.69	$46.87
6th 6 months	85.00	$23.74	$5.67	$7.57	$0.25	$0.00	$0.00	$0.00	$0.00	$0.00	$37.23	$49.10
7th 6 months	90.00	$25.14	$5.67	$8.09	$0.25	$0.00	$0.00	$0.00	$0.00	$0.00	$39.15	$51.72
8th 6 months	95.00	$26.53	$5.67	$8.68	$0.25	$0.00	$0.00	$0.00	$0.00	$0.00	$41.13	$54.40

Special Calculation Note : No special calculations for this skilled craft wage rate are required at this time.

Ratio :

Each employer may employ and train Apprentices in the following ratio to journeymen workers employed.
1 Journeymen to 1 Apprentice

Jurisdiction (* denotes special jurisdictional note) :

ADAMS, BROWN, BUTLER, CHAMPAIGN, CLARK, CLERMONT, CLINTON, DARKE, FAYETTE*, GREENE, HAMILTON, HIGHLAND, MIAMI, MONTGOMERY, PREBLE, SHELBY*, WARREN

Special Jurisdictional Note : Fayette County: Eastern portion of route #41 being the dividing line between locals 372 and 387. Local 387 has jurisdiction of projects built on property which borders route #41 East. Shelby County: Southern portion of routes #47 & 29.

Details :

Prevailing Wage Rate
Skilled Crafts

Name of Union: Ironworker Local 290

Change # : LCN01-2021fbLoc290

Craft : Ironworker **Effective Date :** 01/27/2021 **Last Posted :** 01/27/2021

	BHR		Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification												
Ironworker Structural	$29.68		$8.30	$9.50	$0.65	$0.00	$4.45	$0.02	$0.00	$0.00	$52.60	$67.44
Welder	$29.68		$8.30	$9.50	$0.65	$0.00	$4.45	$0.02	$0.00	$0.00	$52.60	$67.44
Fence Erector	$29.68		$8.30	$9.50	$0.65	$0.00	$4.45	$0.02	$0.00	$0.00	$52.60	$67.44
Reinforcing Rods	$29.68		$8.30	$9.50	$0.65	$0.00	$4.45	$0.02	$0.00	$0.00	$52.60	$67.44
Machinery Mover	$29.68		$8.30	$9.50	$0.65	$0.00	$4.45	$0.02	$0.00	$0.00	$52.60	$67.44
Sheeter	$29.68		$8.30	$9.50	$0.65	$0.00	$4.45	$0.02	$0.00	$0.00	$52.60	$67.44
Metal Building Erector	$29.68		$8.30	$9.50	$0.65	$0.00	$4.45	$0.02	$0.00	$0.00	$52.60	$67.44
Rigger & Erector	$29.68		$8.30	$9.50	$0.65	$0.00	$4.45	$0.02	$0.00	$0.00	$52.60	$67.44
Apprentice	**Percent**											
1st year	65.05	$19.31	$8.30	$9.50	$0.65	$0.00	$2.95	$0.02	$0.00	$0.00	$40.73	$50.38
2nd year	75.07	$22.28	$8.30	$9.50	$0.65	$0.00	$2.95	$0.02	$0.00	$0.00	$43.70	$54.84
3rd year	85.05	$25.24	$8.30	$9.50	$0.65	$0.00	$2.95	$0.02	$0.00	$0.00	$46.66	$59.28
4th year	95.05	$28.21	$8.30	$9.50	$0.65	$0.00	$2.95	$0.02	$0.00	$0.00	$49.63	$63.74

Special Calculation Note : Other is for Industry Fund.

Ratio :

3 Journeymen to 1 Apprentice

Jurisdiction (* denotes special jurisdictional note) :

ALLEN*, AUGLAIZE, BUTLER*, CHAMPAIGN*, CLARK, CLINTON, DARKE, FAYETTE*, GREENE, HARDIN*, HIGHLAND*, LOGAN*, MADISON*, MERCER*, MIAMI, MONTGOMERY, PREBLE, SHELBY, VAN WERT*, WARREN*

Special Jurisdictional Note : Allen County Twps included are: Auglaize, Perry, Shawnee, Amanda, Spencer, Marion, Sugar Creek, American, Bath, Jackson. Butler County Twps included are: Milford, Wayne, Madison, Lemon. Champaign Cnty Twps included are: Union, Urbana, Jackson, Concord, Salem, Mad River, Johnson, Harrison, Adams. Fayette County Twps included are: Green, Jasper, Concord, Jefferson. Hardin County Twps included are: Round Head, Marion, Liberty. Highland County Twps included are: Fairfield, Penn, Union, Marshall, Liberty, Paint, Brush Creek. Logan County Twps included are: Richland, Stokes, Bloomfield, Washington, Harrison, McArthur, Lake, Liberty, Pleasant, Miami. Madison County Twps included are: Stokes. Mercer County Twps included are: Dublin, Washington, Jefferson, Recovery, Gibson, Union, Liberty, Butler, Granville, Center, Hopewell, Franklin,

Marion. VanWert County Twps included are: Jennings. Warren County Twps included are: Franklin, Clear Creek, Turtle Creek, Wayne, Massie, Washington, Salem, Union.

Details :

Structural Iron Work but not limited to:field fabrication, all loading to and including the erecting,rigging,assembly,dismantling, placing, temporary and permanent securing by any means of all structural iron,steel,ornamental lead,bronze,brass,copper,aluminum,glass all ferrous and non ferrous metal and composite material, precast prestressed and post-stressed concrete structures. Bridges and bridge rails,bridge viaducts,bucks bulkheads,bumper and bumper post,canopies and unistrut canopies,corrugated ferrous and non ferrous sheets when attached to steel frames,columns,beams,bar-joists,trusses,grinders,roof decking,electrical supports,elevator cars,elevator fronts and enclosures,erection of steel towers,flag poles, gymnasium equipment,stadium and arena seating,jail cell work,jail cell beds,benches,bunks,chairs,tables,mirrors,jail cell access doors,rigging and installation of machinery and equipment(erecting,aligning,anchoring and dismantling, erection and dismantling of tower cranes,derrick monorail systems, Chicago booms,overhead cranes,gantries,material and personnel hoists,tanks,hoppers and conveyors. All pre-engineered metal buildings and their entirety including siding,roofing, gutters, downspouts and erection of all.

Ornamental Iron Work but not limited to:all work in connection with field fabrication,handling including loading/off loading,sorting,cutting,fastening,anchoring,bending,hoisting,placing,burning,welding,and tying,dismantling of all materials used in miscellaneous iron or steel, for stairs,hand railings,rolling doors, rolling gates,rolling shutters,fence,windows,curtain wall,erection and welding of all metal, sash,architectural and ornamental treatments, but not necessarily limited to all sizes and types of ornamental,steel iron,lead,bronze,brass,copper,aluminum,all ferrous and non ferrous metals and composite materials
.

Fence Erector Iron Worker but not limited to: All work in connection with the field fabrication and erection of chain link fence,which includes but not limited to the loading and of the fence fabric and posts also the installation of the above.

Prevailing Wage Rate
Skilled Crafts

Name of Union: Labor HevHwy 3

Change # : LCN01-2022sksLocalHevHwy3

Craft : Laborer Group 1 **Effective Date :** 06/01/2022 **Last Posted :** 06/01/2022

	BHR		Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification												
Laborer Group 1	$34.52		$7.70	$3.95	$0.45	$0.00	$0.00	$0.00	$0.10	$0.00	$46.72	$63.98
Group 2	$34.69		$7.70	$3.95	$0.45	$0.00	$0.00	$0.00	$0.10	$0.00	$46.89	$64.23
Group 3	$35.02		$7.70	$3.95	$0.45	$0.00	$0.00	$0.00	$0.10	$0.00	$47.22	$64.73
Group 4	$35.47		$7.70	$3.95	$0.45	$0.00	$0.00	$0.00	$0.10	$0.00	$47.67	$65.40
Watch Person	$27.25		$7.70	$3.95	$0.45	$0.00	$0.00	$0.00	$0.10	$0.00	$39.45	$53.08
Apprentice	**Percent**											
0-1000 hrs	60.00	$20.71	$7.70	$3.95	$0.45	$0.00	$0.00	$0.00	$0.10	$0.00	$32.91	$43.27
1001-2000 hrs	70.00	$24.16	$7.70	$3.95	$0.45	$0.00	$0.00	$0.00	$0.10	$0.00	$36.36	$48.45
2001-3000 hrs	80.00	$27.62	$7.70	$3.95	$0.45	$0.00	$0.00	$0.00	$0.10	$0.00	$39.82	$53.62
3001-4000 hrs	90.00	$31.07	$7.70	$3.95	$0.45	$0.00	$0.00	$0.00	$0.10	$0.00	$43.27	$58.80
More than 4000 hrs	100.00	$34.52	$7.70	$3.95	$0.45	$0.00	$0.00	$0.00	$0.10	$0.00	$46.72	$63.98

Special Calculation Note : Watchmen have no Apprentices. Tunnel Laborer rate with air-pressurized add $1.00 to the above wage rate.

Ratio :

1 Journeymen to 1 Apprentice
3 Journeymen to 1 Apprentice thereafter

Jurisdiction (* denotes special jurisdictional note) :

ADAMS, ALLEN, ASHLAND, ATHENS, AUGLAIZE, BELMONT, BROWN, BUTLER, CARROLL, CHAMPAIGN, CLARK, CLERMONT, CLINTON, COLUMBIANA, COSHOCTON, CRAWFORD, DARKE, DEFIANCE, DELAWARE, FAIRFIELD, FAYETTE, FRANKLIN, FULTON, GALLIA, GREENE, GUERNSEY, HAMILTON, HANCOCK, HARDIN, HARRISON, HENRY, HIGHLAND, HOCKING, HOLMES, JACKSON, JEFFERSON, KNOX, LAWRENCE, LICKING, LOGAN, MADISON, MARION, MEIGS, MERCER, MIAMI, MONROE, MONTGOMERY, MORGAN, MORROW, MUSKINGUM, NOBLE, PAULDING, PERRY, PICKAWAY, PIKE, PREBLE, PUTNAM, RICHLAND, ROSS, SCIOTO, SENECA, SHELBY, TUSCARAWAS, UNION, VAN WERT, VINTON,

WARREN, WASHINGTON, WAYNE, WILLIAMS, WYANDOT

Special Jurisdictional Note : Hod Carriers and Common Laborers - Heavy, Highway, Sewer, Waterworks, Utility, Airport, Railroad, Industrial and Building Site, Sewer Plant, Waste Water Treatment Facilities Construction

Details :

Group 1

Laborer (Construction); Plant Laborer or Yardman, Right-of-way Laborer, Landscape Laborer, Highway Lighting Worker, Signalization Worker, (Swimming) Pool Construction Laborer, Utility Man, *Bridge Man, Handyman, Joint Setter, Flagperson, Carpenter Helper, Waterproofing Laborer, Slurry Seal, Seal Coating, Surface Treatment or Road Mix Laborer, Riprap Laborer & Grouter, Asphalt Laborer, Dump Man (batch trucks), Guardrail & Fence Installer, Mesh Handler & Placer, Concrete Curing Applicator, Scaffold Erector, Sign Installer, Hazardous Waste (level D), Diver Helper, Zone Person and Traffic Control.

*Bridge Man will perfomr work as per the October 31, 1949, memorandum on concrete forms, byand between the United Brotherhood of Caprpenters and Joiners of Americ and the Laborers' International Union of North America, which states in; "the moving, cleaning, oiling and carrying to the next point of erection, and the stripping of forms which are not to be re-used, and forms on all flat arch work shall be done by memebers of the Laborers' International Union of North America."

Group 2

Asphalt Raker, Screwman or Paver, Concrete Puddler, Kettle Man (pipeline), All Machine-Driven Tools (Gas, Electric, Air), Mason Tender, Brick Paver, Mortar Mixer, Skid Steer, Sheeting & Shoring Person, Surface Grinder Person, Screedperson, Water Blast, Hand Held Wand, Power Buggy or Power Wheelbarrow, Paint Striper, Plastic fusing Machine Operator, Rodding Machine Operator, Pug Mill Operator, Operator of All Vacuum Devices Wet or Dry, Handling of all Pumps 4 inches and under (gas, air or electric), Diver, Form Setter, Bottom Person, Welder Helper (pipeline), Concrete Saw Person, Cutting with Burning Torch, Pipe Layer, Hand Spiker (railroad), Underground Person (working in sewer and waterline, cleaning, repairing and reconditioning). Tunnel Laborer (without air),Caisson, Cofferdam (below 25 feet deep), Air Track and Wagon Drill, Sandblaster Nozzle Person, Hazardous Waste (level B), ***Lead Abatement, Hazardous Waste (level C)

***Includes the erecting of structures for the removal, including the encapsulation and containment of Lead abatement process.

Group 3

Blast and Powder Person, Muckers will be defined as shovel men working directly with the miners, Wrencher (mechanical joints & utility pipeline), Yarner, Top Lander, Hazardous Waste (level A), Concrete Specialist, Curb Setter and Cutter, Grade Checker, Concrete Crew in Tunnels. Utility pipeline Tappers, Waterline, Caulker, Signal Person will receive the rate equal to the rate paid the Laborer classification for which the Laborer is signaling.

Group 4

Miner,Welder, Gunite Nozzle Person

A.) The Watchperson shall be responsible to patrol and maintain a safe traffic zone including but not limited to barrels, cones, signs, arrow boards, message boards etc.
The responsibility of a watchperson is to see that the equipment, job and office trailer etc. are secure.

Prevailing Wage Rate
Skilled Crafts

Name of Union: Operating Engineers - Building Local 18 - Zone III

Change # : LCN01-2022sksLoc18zone3

Craft : Operating Engineer **Effective Date :** 05/25/2022 **Last Posted :** 05/25/2022

	BHR		Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification												
Operator Group A	$40.19		$9.01	$6.25	$0.85	$0.00	$0.00	$0.09	$0.00	$0.05	$56.44	$76.53
Operator Group B	$40.07		$9.01	$6.25	$0.85	$0.00	$0.00	$0.09	$0.00	$0.05	$56.32	$76.35
Operator Group C	$39.03		$9.01	$6.25	$0.85	$0.00	$0.00	$0.09	$0.00	$0.05	$55.28	$74.79
Operator Group D	$37.85		$9.01	$6.25	$0.85	$0.00	$0.00	$0.09	$0.00	$0.05	$54.10	$73.03
Operator Group E	$32.39		$9.01	$6.25	$0.85	$0.00	$0.00	$0.09	$0.00	$0.05	$48.64	$64.83
Master Mechanic	$40.44		$9.01	$6.25	$0.85	$0.00	$0.00	$0.09	$0.00	$0.05	$56.69	$76.91
Cranes & Mobile Concrete Pumps 150'-180'	$40.69		$9.01	$6.25	$0.85	$0.00	$0.00	$0.09	$0.00	$0.05	$56.94	$77.28
Cranes & Mobile Concrete Pumps 180'-249'	$41.19		$9.01	$6.25	$0.85	$0.00	$0.00	$0.09	$0.00	$0.05	$57.44	$78.03
Cranes & Mobile Concrete Pumps 249' and over	$41.44		$9.01	$6.25	$0.85	$0.00	$0.00	$0.09	$0.00	$0.05	$57.69	$78.41
Apprentice	**Percent**											
1st Year	50.00	$20.09	$9.01	$6.25	$0.85	$0.00	$0.00	$0.09	$0.00	$0.05	$36.35	$46.39
2nd Year	60.00	$24.11	$9.01	$6.25	$0.85	$0.00	$0.00	$0.09	$0.00	$0.05	$40.36	$52.42
3rd Year	70.00	$28.13	$9.01	$6.25	$0.85	$0.00	$0.00	$0.09	$0.00	$0.05	$44.38	$58.45
4th Year	80.00	$32.15	$9.01	$6.25	$0.85	$0.00	$0.00	$0.09	$0.00	$0.05	$48.40	$64.48
Field Mechanic Trainee												
1st Year	50.00	$20.09	$9.01	$6.25	$0.85	$0.00	$0.00	$0.09	$0.00	$0.05	$36.35	$46.39
2nd Year	60.00	$24.11	$9.01	$6.25	$0.85	$0.00	$0.00	$0.09	$0.00	$0.05	$40.36	$52.42
3rd Year	70.00	$28.13	$9.01	$6.25	$0.85	$0.00	$0.00	$0.09	$0.00	$0.05	$44.38	$58.45
4th Year	80.00	$32.15	$9.01	$6.25	$0.85	$0.00	$0.00	$0.09	$0.00	$0.05	$48.40	$64.48

Special Calculation Note : Other: Education & Safety $0.09; *Misc is National Training

Ratio :

For every (3) Operating Engineer Journeymen employed by the company there may be employed (1) Registered Apprentice or trainee Engineer through the referral when they are available. An apprenice, while employed as part of a crew per Article VIII, paragraph 78, will not be subject to the apprenticeship ratios in this collective bargaining agreement

Jurisdiction (* denotes special jurisdictional note) :

ADAMS, ALLEN, ASHLAND, ATHENS, AUGLAIZE, BELMONT, BROWN, BUTLER, CARROLL, CHAMPAIGN, CLARK, CLERMONT, CLINTON, COSHOCTON, CRAWFORD, DARKE, DEFIANCE, DELAWARE, FAIRFIELD, FAYETTE, FRANKLIN, FULTON, GALLIA, GREENE, GUERNSEY, HAMILTON, HANCOCK, HARDIN, HARRISON, HENRY, HIGHLAND, HOCKING, HOLMES, JACKSON, JEFFERSON, KNOX, LAWRENCE, LICKING, LOGAN, MADISON, MARION, MEIGS, MERCER, MIAMI, MONROE, MONTGOMERY, MORGAN, MORROW, MUSKINGUM, NOBLE, OTTAWA, PAULDING, PERRY, PICKAWAY, PIKE, PREBLE, PUTNAM, RICHLAND, ROSS, SANDUSKY, SCIOTO, SENECA, SHELBY, STARK, TUSCARAWAS, UNION, VAN WERT, VINTON, WARREN, WASHINGTON, WAYNE, WILLIAMS, WYANDOT

Special Jurisdictional Note :

Details :

Note: There will be a 10% increase for the apprentices on top of the percentages listed above provided they are operating mobile equipment. Mechanic Trainees will receive 10% increase if required to have CDL

Group A- Barrier Moving Machines; Boiler Operators or Compressor Operators, when compressor or boiler is mounted on crane (Piggyback Operation); Boom Trucks (all types); Cableways Cherry Pickers; Combination - Concrete Mixers & Towers; All Concrete Pumps with Booms; Cranes (all types); Compact Cranes, track or rubber over 4,000 pounds capacity; Cranes self-erecting, stationary, track or truck (all configurations); Derricks (all types); Draglines; Dredges (dipper, clam or suction) 3-man crew; Elevating Graders or Euclid Loaders; Floating Equipment; Forklift (rough terrain with winch/hoist); Gradalls; Helicopter Operators, hoisting building materials; Helicopter Winch Operators, Hoisting building materials; Hoes (All types); Hoists (with two or more drums in use); Horizonal Directional Drill; Hydraulic Gantry (lift system); Laser Finishing Machines; Laser Screed and like equipment; Lift Slab or Panel Jack Operators; Locomotives (all types); Maintenance Operator/Technician(Mechanic Operator/Technician and/or Welder); Mixers, paving (multiple drum); Mobile Concrete Pumps, with booms; Panelboards, (all types on site); Pile Drivers; Power Shovels; Prentice Loader; Rail Tamper (with automatic lifting and aligning device); Rotary Drills (all), used on caissons for foundations and sub-structure; Side Booms; Slip Form Pavers; Straddle Carriers (Building Construction on site); Trench Machines (over 24” wide); Tug Boats.

Group B - Articulating/end dumps (minus $4.00/hour from Group B rate); Asphalt Pavers; Bobcat-type and/or skid steer loader with hoe attachment greater than 7000 lbs.; Bulldozers; CMI type Equipment; Concrete Saw, Vermeer-type; Endloaders; Hydro Milling Machine; Kolman-type Loaders (Dirt Loading); Lead Greasemen; Mucking Machines; Pettibone-Rail Equipment; Power Graders; Power Scoops; Power Scrapers; Push Cats;, Rotomills (all), grinders and planers of all types.

Group C - A-Frames; Air Compressors, Pressurizing Shafts or Tunnels; All Asphalt Rollers; Bobcat-type and/or Skid Steer Loader with or without attachments; Boilers (15 lbs. pressure and over); All Concrete Pumps (without booms with 5 inch system); Fork Lifts (except masonry); Highway Drills - all types (with integral power); Hoists (with one drum); House Elevators (except those automatic call button controlled), Buck Hoists, Transport Platforms, Construction Elevators; Hydro Vac/Excavator (when a second person is needed, the rate of pay will be “Class E”); Man Lifts; Material hoist/elevators; Mud Jacks; Pressure Grouting; Pump Operators (installing or operating Well Points or other types of Dewatering Systems); Pumps (4 inches and over discharge); Railroad Tie (Inserter/Remover); Rotovator (Lime-Soil Stabilizer); Submersible Pumps (4”and over discharge); Switch & Tie Tampers (without lifting and aligning device); Trench Machines (24” and under); Utility Operators.

Group D - Backfillers and Tampers; Ballast Re-locator; Batch Plant Operators; Bar and Joint Installing Machines; Bull Floats; Burlap and Curing Machines; Clefplanes; Compressors, on building construction; Concrete Mixers, more than one bag capacity; Concrete Mixers, one bag capacity (side loaders); All Concrete Pumps (without boom with 4" or smaller system); Concrete Spreader; Conveyors, used for handling building materials; Crushers; Deckhands; Drum Fireman (in asphalt plants); Farm type tractors pulling attachments; Finishing Machines; Form Trenchers; Generators: Gunite Machines; Hydro-seeders; Pavement Breakers (hydraulic or cable); Post Drivers; Post Hole Diggers; Pressure Pumps (over 1/2") discharge); Road Widening Trenchers; Rollers (except asphalt); Self-propelled sub-graders; Shotcrete Machines; Tire Repairmen; Tractors, pulling sheepsfoot post roller or grader; VAC/ALLS; Vibratory Compactors, with integral power; Welders.

Group E – Allen Screed Paver (concrete); Boilers (less than 15 lbs. pressure); Cranes-Compact, track or rubber (under 4,000 pounds capacity); Directional Drill "Locator"; Fueling and greasing +$3.00; Inboard/outboard Motor Boat Launches; Light Plant Operators; Masonry Fork Lifts; Oilers/Helpers; Power Driven Heaters (oil fired); Power Scrubbers; Power Sweepers; Pumps (under 4 inch discharge); Signalperson, Submersible Pumps (under 4" discharge).

Master Mechanics - Master Mechanic

Cranes 150' – 180' - Boom & Jib 150 - 180 feet

Cranes 180' – 249' - Boom & Jib 180 - 249 feet

Cranes 250' and over - Boom & Jib 250-feet or over

Prevailing Wage Rate
Skilled Crafts

Name of Union: Cement Mason Local 132 (Dayton)

Change # : LCN01-2022sksLoc132

Craft : Cement **Effective Date :** 06/01/2022 **Last Posted :** 06/01/2022

	BHR		Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification												
Cement Mason	$26.82		$7.95	$7.35	$0.75	$0.00	$2.25	$0.06	$0.00	$0.00	$45.18	$58.59
Apprentice	**Percent**											
1st Six Months	70.00	$18.77	$7.95	$7.35	$0.75	$0.00	$2.25	$0.06	$0.00	$0.00	$37.13	$46.52
2nd Six Months	80.00	$21.46	$7.95	$7.35	$0.75	$0.00	$2.25	$0.06	$0.00	$0.00	$39.82	$50.54
3rd Six Months	90.00	$24.14	$7.95	$7.35	$0.75	$0.00	$2.25	$0.06	$0.00	$0.00	$42.50	$54.57

Special Calculation Note : No special calculations for this skilled craft wage rate are required at this time. *Other is International Training

Ratio :

2 Journeymen to 1 Apprentice

Jurisdiction (* denotes special jurisdictional note) :

CHAMPAIGN, CLARK, CLINTON, DARKE, GREENE, MIAMI, MONTGOMERY, PREBLE, SHELBY

Special Jurisdictional Note :

Details :

Other: Is Industry Promotion:Cement Masons on outrigger, swing, scaffolds, manlifts -$.75 per hour above scale up to (25) feet and $.75 per hour for each additional (25) feet or part of same. A Cement Mason operating a grinder- $.30 per hour above the journeyman scale.

Prevailing Wage Rate
Skilled Crafts

Name of Union: Operating Engineers - HevHwy Zone II

Change # : LCN01-2022sksLoc18hevhwyII

Craft : Operating Engineer **Effective Date :** 05/25/2022 **Last Posted :** 05/25/2022

	BHR		Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification												
Operator Class A	$40.19		$9.01	$6.25	$0.85	$0.00	$0.00	$0.09	$0.00	$0.05	$56.44	$76.53
Operator Class B	$40.07		$9.01	$6.25	$0.85	$0.00	$0.00	$0.09	$0.00	$0.05	$56.32	$76.35
Operator Class C	$39.03		$9.01	$6.25	$0.85	$0.00	$0.00	$0.09	$0.00	$0.05	$55.28	$74.79
Operator Class D	$37.85		$9.01	$6.25	$0.85	$0.00	$0.00	$0.09	$0.00	$0.05	$54.10	$73.03
Operator Class E	$32.39		$9.01	$6.25	$0.85	$0.00	$0.00	$0.09	$0.00	$0.05	$48.64	$64.83
Master Mechanic	$40.44		$9.01	$6.25	$0.85	$0.00	$0.00	$0.09	$0.00	$0.05	$56.69	$76.91
Apprentice	**Percent**											
1st Year	50.00	$20.09	$9.01	$6.25	$0.85	$0.00	$0.00	$0.09	$0.00	$0.05	$36.35	$46.39
2nd Year	60.00	$24.11	$9.01	$6.25	$0.85	$0.00	$0.00	$0.09	$0.00	$0.05	$40.36	$52.42
3rd Year	70.00	$28.13	$9.01	$6.25	$0.85	$0.00	$0.00	$0.09	$0.00	$0.05	$44.38	$58.45
4th Year	80.00	$32.15	$9.01	$6.25	$0.85	$0.00	$0.00	$0.09	$0.00	$0.05	$48.40	$64.48
Field Mech Trainee Class 2												
1st year	50.00	$20.09	$9.01	$6.25	$0.85	$0.00	$0.00	$0.09	$0.00	$0.05	$36.35	$46.39
2nd year	60.00	$24.11	$9.01	$6.25	$0.85	$0.00	$0.00	$0.09	$0.00	$0.05	$40.36	$52.42
3rd year	70.00	$28.13	$9.01	$6.25	$0.85	$0.00	$0.00	$0.09	$0.00	$0.05	$44.38	$58.45
4th year	80.00	$32.15	$9.01	$6.25	$0.85	$0.00	$0.00	$0.09	$0.00	$0.05	$48.40	$64.48

Special Calculation Note : Other: Education & Safety Fund is $0.09 per hour. *Misc is National Training

Ratio :

For every (3) Operating Engineer Journeymen employed by the company, there may be employed (1) Registered Apprentice or Trainee Engineer through the referral when they are available. An Apprentice, while employed as part of a crew per Article VIII, paragraph 65 will not be subject to the apprenticeship ratios in this collective bargaining agreement

Jurisdiction (* denotes special jurisdictional note) :

ADAMS, ALLEN, ASHLAND, ATHENS, AUGLAIZE, BELMONT, BROWN, BUTLER, CARROLL, CHAMPAIGN, CLARK, CLERMONT, CLINTON, COSHOCTON, CRAWFORD, DARKE, DEFIANCE, DELAWARE, FAIRFIELD, FAYETTE, FRANKLIN, FULTON, GALLIA, GREENE, GUERNSEY, HAMILTON, HANCOCK, HARDIN, HARRISON, HENRY, HIGHLAND, HOCKING, HOLMES, HURON, JACKSON, JEFFERSON, KNOX,

LAWRENCE, LICKING, LOGAN, LUCAS, MADISON, MARION, MEIGS, MERCER, MIAMI, MONROE, MONTGOMERY, MORGAN, MORROW, MUSKINGUM, NOBLE, OTTAWA, PAULDING, PERRY, PICKAWAY, PIKE, PREBLE, PUTNAM, RICHLAND, ROSS, SANDUSKY, SCIOTO, SENECA, SHELBY, STARK, TUSCARAWAS, UNION, VAN WERT, VINTON, WARREN, WASHINGTON, WAYNE, WILLIAMS, WOOD, WYANDOT

Special Jurisdictional Note :

Details :

**Apprentices wilt receive a 10% increase on top of the percentages listed above provided they are operating mobile equipment. Mechanic Trainees will receive 10% increase if they are required to have CDL.

Class A - Air Compressors on Steel Erection; Asphalt Plant Engineers (Cleveland District Only); Barrier Moving Machine; Boiler Operators, Compressor Operators, or Generators, when mounted on a rig; Boom Trucks (all types); Cableways; Cherry Pickers; Combination- Concrete Mixers & Towers; Concrete Plants (over 4 yd capacity); Concrete Pumps; Cranes (all types); Compact Cranes track or rubber over 4,000 pounds capacity; Cranes self-erecting stationary, track or truck; Derricks (all types); Draglines; Dredges dipper, clam or suction; Elevating Graders or Euclid Loaders; Floating Equipment (all types); Gradalls; Helicopter Crew (Operator- hoist or winch); Hoes (all types); Hoisting Engines; Hoisting Engines, on shaft or tunnel work; Hydraulic Gantry (lifting system); Industrial-type Tractors; Jet Engine Dryer (D8 or D9) diesel Tractors; Locomotives (standard gauge); Maintenance Operators/Technicians (class A); Mixers, paving (single or double drum); Mucking Machines; Multiple Scrapers; Piledriving Machines (all types); Power Shovels, Prentice Loader; Quad 9 (double pusher); Rail Tamper (with automatic lifting and aligning device); Refrigerating Machines (freezer operation); Rotary Drills, on caisson work; Rough Terrain Fork Lift with winch/hoist; Side Booms; Slip Form Pavers; Survey Crew Party Chiefs; Tower Derricks; Tree Shredders; Trench Machines (over 24” wide); Truck Mounted Concrete Pumps; Tug Boats; Tunnel Machines and /or Mining Machines; Wheel Excavators.

Class B - Asphalt Pavers; Automatic Subgrade Machines, self-propelled (CMI-type); Bobcat-type and /or Skid Steer Loader with hoe attachment greater than 7000 lbs.; Boring Machine Operators (more than 48 inches); Bulldozers; Concrete Saws, Vermeer type; Endloaders; Horizontal Directional Drill (50,000 ft. lbs. thrust and over); Hydro Milling Machine; Kolman-type Loaders (production type-dirt); Lead Greasemen; Lighting and Traffic Signal Installation Equipment includes all groups or classifications; Maintenance Operators/Technicians, Class B; Material Transfer Equipment (shuttle buggy) Asphalt; Pettibone-Rail Equipment; Power Graders; Power Scrapers; Push Cats; Rotomills (all), Grinders and Planners of all types, Groovers (excluding walk-behinds); Trench Machines (24 inch wide and under).

Class C - A-Frames; Air Compressors, on tunnel work (low Pressure); Articulating/straight bed end dumps if assigned (minus $4.00 per hour); Asphalt Plant Engineers (Portage and Summit Counties only); Bobcat-type and/or skid steer loader with or without attachments; Drones; Highway Drills (all types); HydroVac/Excavator (when a second person is needed, the rate of pay will be “Class E”); Locomotives (narrow gauge); Material Hoist/Elevators; Mixers, concrete (more than one bag capacity); Mixers, one bag capacity (side loader); Power Boilers (over 15 lbs. pressure); Pump Operators (installing or operating well Points); Pumps (4 inch and over discharge); Railroad Tie Inserter/Remover; Rollers, Asphalt; Rotovator (lime-soil Stabilizer); Switch & Tie Tampers (without lifting and aligning device); Utilities Operators, (small equipment); Welding Machines and Generators.

Class D – Backfillers and Tampers; Ballast Re-locator; Bar and Joint Installing Machines; Batch Plant Operators; Boring Machine Operators (48 inch or less); Bull Floats; Burlap and Curing Machines; Concrete Plants (capacity 4 yds. and under); Concrete Saws (multiple); Conveyors (highway); Crushers; Deckhands; Farm type tractors, with attachments (highway); Finishing Machines; Firemen, Floating Equipment (all types); Fork Lifts (highway), except masonry; Form Trenchers; Hydro Hammers; Hydro Seeders; Pavement Breakers (hydraulic or cable); Plant Mixers; Post Drivers; Post Hole Diggers; Power Brush Burners; Power Form Handling Equipment; Road Widening Trenchers; Rollers (brick, grade, macadam); Self-Propelled Power Spreaders; Self-Propelled Sub-Graders; Steam Firemen; Survey Instrument men; Tractors, pulling sheepsfoot rollers or graders; Vibratory Compactors, with integral power.

Class E - Compressors (portable, Sewer, Heavy and Highway); Cranes-Compact, track or rubber under 4,000 pound capacity; Drum Firemen (asphalt plant); Fueling and greasing (Primary Operator with Specialized CDL Endorsement Add $3.00/hr); Generators; Inboard-Outboard Motor Boat Launches; Masonry Fork Lifts; Oil Heaters (asphalt plant); Oilers/Helpers; Power Driven Heaters (oil fired); Power Scrubbers; Power Sweepers; Pumps (under 4 inch discharge); Signalperson; Survey Rodmen or Chairmen; Tire Repairmen; VAC/ALLS.
Master Mechanic - Master Mechanic

Prevailing Wage Rate
Skilled Crafts

Name of Union: Painter Local 249 HevHwy

Change # : LCN01-2023ibLoc249

Craft : Painter **Effective Date :** 01/11/2023 **Last Posted :** 01/11/2023

	BHR		Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification												
Painter Bridge Blaster Class 1	$37.38		$5.87	$6.25	$0.28	$0.00	$0.00	$0.00	$0.00	$0.00	$49.78	$68.47
Bridge Painter, Rigger, Containment Builder, Spot Blaster Class 2	$34.38		$5.87	$6.25	$0.28	$0.00	$0.00	$0.00	$0.00	$0.00	$46.78	$63.97
Equipment Operator/Field Mechanic, Grit Reclamation, Paint Mixer, Traffic Control, Boat Person, Driver Class 3	$32.38		$5.87	$6.25	$0.28	$0.00	$0.00	$0.00	$0.00	$0.00	$44.78	$60.97
Concrete Sealing, Concrete Blasting/Power Washing/Etc. Class 4	$30.38		$5.87	$6.25	$0.28	$0.00	$0.00	$0.00	$0.00	$0.00	$42.78	$57.97
Quality Control/Quality Assurance, Trafiic safety, Competent Person Class 5	$30.38		$5.87	$6.25	$0.28	$0.00	$0.00	$0.00	$0.00	$0.00	$42.78	$57.97
Apprentice	**Percent**											
30 day Probationary	50.00	$18.69	$5.87	$0.45	$0.28	$0.00	$0.00	$0.00	$0.00	$0.00	$25.29	$34.64
1st Year	65.00	$24.30	$5.87	$0.45	$0.28	$0.00	$0.00	$0.00	$0.00	$0.00	$30.90	$43.05
2nd Year	65.00	$24.30	$5.87	$0.45	$0.28	$0.00	$0.00	$0.00	$0.00	$0.00	$30.90	$43.05
3rd Year	75.00	$28.04	$5.87	$0.45	$0.28	$0.00	$0.00	$0.00	$0.00	$0.00	$34.64	$48.65
4th Year	85.00	$31.77	$5.87	$0.45	$0.28	$0.00	$0.00	$0.00	$0.00	$0.00	$38.37	$54.26

Special Calculation Note :

Ratio :

1 Journeymen to 1 Apprentice

Jurisdiction (* denotes special jurisdictional note) :

CLARK, DARKE, GREENE, MIAMI, MONTGOMERY, PREBLE

Special Jurisdictional Note :

Details :

Prevailing Wage Rate
Skilled Crafts

Name of Union: Painter Local 639 Zone 2 Sign

Change # : LCN01-2016fbLoc639

Craft : Painter **Effective Date :** 08/03/2016 **Last Posted :** 08/03/2016

	BHR	Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
		H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification											
Painter Sign Journeyman Tech/Team Leader Class A	$21.25	$1.33	$0.14	$0.00	$0.00	$0.00	$0.57	$0.00	$0.00	$23.29	$33.92
Painter Sign Journeyman Tech/Team Leader Class B	$21.25	$1.33	$0.14	$0.00	$0.41	$0.00	$0.57	$0.00	$0.00	$23.70	$34.32
Painter Sign Journeyman Tech/Team Leader Class C	$21.25	$1.33	$0.14	$0.00	$0.82	$0.00	$0.57	$0.00	$0.00	$24.11	$34.74
Painter Sign Journeyman Tech/Team Leader Class D	$21.25	$1.33	$0.14	$0.00	$1.23	$0.00	$0.57	$0.00	$0.00	$24.52	$35.14
Sign Journeyman Class A	$20.98	$1.33	$0.14	$0.00	$0.00	$0.00	$0.56	$0.00	$0.00	$23.01	$33.50
Sign Journeyman Class B	$20.98	$1.33	$0.14	$0.00	$0.40	$0.00	$0.56	$0.00	$0.00	$23.41	$33.90
Sign Journeyman Class C	$20.98	$1.33	$0.14	$0.00	$0.81	$0.00	$0.56	$0.00	$0.00	$23.82	$34.31
Sign Journeyman Class D	$20.98	$1.33	$0.14	$0.00	$1.21	$0.00	$0.56	$0.00	$0.00	$24.22	$34.71
Tech Sign Fabrication/ Erector Class A	$15.90	$1.33	$0.14	$0.00	$0.00	$0.00	$0.43	$0.00	$0.00	$17.80	$25.75
Tech Sign Fabrication/ Erector Class B	$15.90	$1.33	$0.14	$0.00	$0.31	$0.00	$0.43	$0.00	$0.00	$18.11	$26.06
Tech Sign Fabrication/	$15.90	$1.33	$0.14	$0.00	$0.61	$0.00	$0.43	$0.00	$0.00	$18.41	$26.36

Erector Class C											
Tech Sign Fabrication/ Erector Class D	$15.90	$1.33	$0.14	$0.00	$0.92	$0.00	$0.43	$0.00	$0.00	$18.72	$26.67

Special Calculation Note : Other is for paid holidays.

Ratio :

Jurisdiction (* denotes special jurisdictional note) :
ADAMS, ALLEN, AUGLAIZE, BROWN, BUTLER, CARROLL, CHAMPAIGN, CLARK, CLERMONT, CLINTON, COLUMBIANA, COSHOCTON, CRAWFORD, DARKE, DEFIANCE, DELAWARE, ERIE, FAIRFIELD, FAYETTE, FRANKLIN, FULTON, GREENE, HAMILTON, HANCOCK, HARDIN, HENRY, HIGHLAND, HOLMES, HURON, JACKSON, KNOX, LICKING, LOGAN, LORAIN, LUCAS, MADISON, MAHONING, MARION, MERCER, MIAMI, MONTGOMERY, MORROW, MUSKINGUM, OTTAWA, PAULDING, PERRY, PICKAWAY, PIKE, PREBLE, PUTNAM, ROSS, SANDUSKY, SCIOTO, SENECA, SHELBY, STARK, TRUMBULL, TUSCARAWAS, UNION, VAN WERT, WARREN, WAYNE, WILLIAMS, WOOD, WYANDOT

Special Jurisdictional Note :

Details :
Class A: less that 1 year.
Class B: 1-3 years.
Class C; 3-10 years.
Class D: More than 10 years.

Prevailing Wage Rate
Skilled Crafts

Name of Union: Painter Local 639

Change # : LCNO1-2015fbLoc639

Craft : Painter **Effective Date :** 06/10/2015 **Last Posted :** 06/10/2015

	BHR	Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
		H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification											
Painter Metal Finisher/Helpers											
Top Helper Class A	$19.09	$3.65	$0.00	$0.00	$0.66	$0.00	$0.00	$0.00	$0.00	$23.40	$32.94
Top Helper Class B	$19.09	$3.65	$0.65	$0.00	$1.03	$0.00	$0.37	$0.00	$0.00	$24.79	$34.33
Top Helper Class C	$19.09	$3.65	$1.00	$0.00	$1.76	$0.00	$0.37	$0.00	$0.00	$25.87	$35.41
Helper Class A	$14.69	$3.65	$0.00	$0.00	$0.51	$0.00	$0.00	$0.00	$0.00	$18.85	$26.19
Helper Class B	$14.69	$3.65	$0.65	$0.00	$0.79	$0.00	$0.28	$0.00	$0.00	$20.06	$27.40
Helper Class C	$14.69	$3.65	$1.00	$0.00	$1.64	$0.00	$0.28	$0.00	$0.00	$21.26	$28.60
New Hire 90 Days	$11.00	$3.65	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$14.65	$20.15

Special Calculation Note : Other is Sick and Personal Time

Ratio :

Jurisdiction (* denotes special jurisdictional note) :

ADAMS, ALLEN, ASHLAND, ASHTABULA, ATHENS, AUGLAIZE, BELMONT, BROWN, BUTLER, CARROLL, CHAMPAIGN, CLARK, CLERMONT, CLINTON, COLUMBIANA, COSHOCTON, CRAWFORD, CUYAHOGA, DARKE, DEFIANCE, DELAWARE, ERIE, FAIRFIELD, FAYETTE, FRANKLIN, FULTON, GALLIA, GEAUGA, GREENE, GUERNSEY, HAMILTON, HANCOCK, HARDIN, HARRISON, HENRY, HIGHLAND, HOCKING, HOLMES, HURON, JACKSON, JEFFERSON, KNOX, LAKE, LAWRENCE, LICKING, LOGAN, LORAIN, LUCAS, MADISON, MAHONING, MARION, MEDINA, MEIGS, MERCER, MIAMI, MONROE, MONTGOMERY, MORGAN, MORROW, MUSKINGUM, NOBLE, OTTAWA, PAULDING, PERRY, PICKAWAY, PIKE, PORTAGE, PREBLE, PUTNAM, RICHLAND, ROSS, SANDUSKY, SCIOTO, SENECA, SHELBY, STARK, SUMMIT, TRUMBULL, TUSCARAWAS, UNION, VAN WERT, VINTON, WARREN, WASHINGTON, WAYNE, WILLIAMS, WOOD, WYANDOT

Special Jurisdictional Note :

Details :

Top Helper: Shall perform the responsibilities of a Helper and be responsible for the setup, break down, safety and quality of the company's product.
Helper : Shall be responsible for performing tasks in refinishing, compliance with safety procedures, setting up and breaking down job sites, scaffolding and swing stages and preparing surfaces for refinishing including but not limited to, masking and stripping and cleaning, oxidizing, polishing and scratch removal on various surfaces .
Class A Workers: Less than 1 Year of Service.
Class B Workers: More than 1 and less than 8 Years of Service.
Class C Workers: More than 8 Years of Service.

Metal Polisher Scope of Work: Polishing, buffing, stripping, coloring, lacquering, spraying, cleaning and maintenance of ornamental and architectural metals, iron, bronze, nickel, aluminum and stainless steel and in mental specialty work, various stone finishes, stone specialty work and any other work pertaining to the finishing of metal, stones, woods, and any window washing/cleaning done in conjunction with this work, using chemicals, solvents, coatings and hand applied lacquer thinner, removing scratches from mirrow finished metals, burnishing of bronze, statuary finishes on exterior and interior surfaces and the use of all tools required to perform such work, including but not limited to polishes, spray equipment and scaffolding.

Swing State Rate: All work on scaffold 4 sections or higher, including any boom lifts and swing stage scaffolds including the rigging and derigging of hanging/suspended swing stage systems and rappelling/bolson chair work, ADD $1.50 per hour.

Prevailing Wage Rate
Skilled Crafts

Name of Union: Plasterer Local 132 (Dayton)

Change # : LCN01-2022sksLoc132

Craft : Plaster **Effective Date :** 05/18/2022 **Last Posted :** 05/18/2022

	BHR		Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification												
Plasterer	$25.15		$7.80	$7.35	$0.70	$0.00	$3.45	$0.05	$0.00	$0.00	$44.50	$57.07
Apprentice	**Percent**											
1st 6 months	70.00	$17.60	$7.80	$7.35	$0.70	$0.00	$3.45	$0.05	$0.00	$0.00	$36.96	$45.76
2nd 6 months	74.00	$18.61	$7.80	$7.35	$0.70	$0.00	$3.45	$0.05	$0.00	$0.00	$37.96	$47.27
3rd 6 months	78.00	$19.62	$7.80	$7.35	$0.70	$0.00	$3.45	$0.05	$0.00	$0.00	$38.97	$48.78
4th 6 months	82.00	$20.62	$7.80	$7.35	$0.70	$0.00	$3.45	$0.05	$0.00	$0.00	$39.97	$50.28
5th 6 months	86.00	$21.63	$7.80	$7.35	$0.70	$0.00	$3.45	$0.05	$0.00	$0.00	$40.98	$51.79
6th 6 months	90.00	$22.63	$7.80	$7.35	$0.70	$0.00	$3.45	$0.05	$0.00	$0.00	$41.99	$53.30
7th 6 months	94.00	$23.64	$7.80	$7.35	$0.70	$0.00	$3.45	$0.05	$0.00	$0.00	$42.99	$54.81
8th 6 months	98.00	$24.65	$7.80	$7.35	$0.70	$0.00	$3.45	$0.05	$0.00	$0.00	$44.00	$56.32

Special Calculation Note : *Other is International Training.

Ratio :

3 Journeymen to 1 Apprentice

Jurisdiction (* denotes special jurisdictional note) :

CHAMPAIGN, CLARK, CLINTON, DARKE, GREENE, MIAMI, MONTGOMERY, PREBLE, SHELBY

Special Jurisdictional Note :

Details :

OTHER IS:Industry Fund

Prevailing Wage Rate
Skilled Crafts

Name of Union: Plumber Pipefitter Local 162

Change # : LCNO1-2022ibLoc162

Craft : Plumber/Pipefitter **Effective Date :** 10/19/2022 **Last Posted :** 10/19/2022

	BHR		Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification												
Plumber Pipefitter	$36.47		$11.75	$10.87	$0.83	$0.00	$3.35	$0.70	$0.00	$0.00	$63.97	$82.20
Apprentice Indentured AFTER 6/1/2002	**Percent**											
1st Year	51.10	$18.64	$11.75	$3.26	$0.46	$0.00	$0.00	$0.70	$0.00	$0.00	$34.81	$44.12
2nd Year	56.00	$20.42	$11.75	$5.79	$0.50	$0.00	$0.00	$0.70	$0.00	$0.00	$39.16	$49.37
3rd Year	60.88	$22.20	$11.75	$8.68	$0.54	$0.00	$0.00	$0.70	$0.00	$0.00	$43.87	$54.97
4th Year	72.58	$26.47	$11.75	$10.63	$0.61	$0.00	$0.00	$0.70	$0.00	$0.00	$50.16	$63.39
5th Year	80.46	$29.34	$11.75	$10.87	$0.68	$0.00	$3.35	$0.70	$0.00	$0.00	$56.69	$71.37

Special Calculation Note : Other is for Training

Ratio :

1 Journeyman to 1 Apprentice
2 - 4 Journeymen to 2 Apprentices
5 - 7 Journeymen to 3 Apprentices
8 - 10 Journeymen to 4 Apprentices

Jurisdiction (* denotes special jurisdictional note) :

CHAMPAIGN, CLARK, CLINTON, DARKE, FAYETTE, GREENE, MIAMI, MONTGOMERY, PREBLE

Special Jurisdictional Note :

Details :

Wage rate covers: all plumbing, pipefitting, heating, refrigeration and air conditioning work.

Prevailing Wage Rate
Skilled Crafts

Name of Union: Sprinkler Fitter Local 669

Change # : LCN01-2022sksLoc669

Craft : Sprinkler Fitter **Effective Date :** 04/06/2022 **Last Posted :** 04/06/2022

	BHR		Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification												
Sprinkler Fitter	$43.75		$10.99	$7.10	$0.52	$0.00	$5.12	$0.00	$0.00	$0.00	$67.48	$89.35
Apprentice Indentured after April 1, 2013	**Percent**											
ClLASS 1	45.00	$19.69	$7.85	$0.00	$0.52	$0.00	$0.00	$0.00	$0.00	$0.00	$28.06	$37.90
CLASS 2	50.02	$21.88	$7.85	$0.00	$0.52	$0.00	$0.00	$0.00	$0.00	$0.00	$30.25	$41.20
CLASS 3	54.43	$23.81	$10.99	$7.10	$0.52	$0.00	$1.15	$0.00	$0.00	$0.00	$43.57	$55.48
CLASS 4	59.43	$26.00	$10.99	$7.10	$0.52	$0.00	$1.15	$0.00	$0.00	$0.00	$45.76	$58.76
CLASS 5	64.43	$28.19	$10.99	$7.10	$0.52	$0.00	$1.40	$0.00	$0.00	$0.00	$48.20	$62.29
CLASS 6	69.43	$30.38	$10.99	$7.10	$0.52	$0.00	$1.40	$0.00	$0.00	$0.00	$50.39	$65.57
CLASS 7	74.43	$32.56	$10.99	$7.10	$0.52	$0.00	$1.40	$0.00	$0.00	$0.00	$52.57	$68.85
CLASS 8	79.42	$34.75	$10.99	$7.10	$0.52	$0.00	$1.40	$0.00	$0.00	$0.00	$54.76	$72.13
CLASS 9	84.43	$36.94	$10.99	$7.10	$0.52	$0.00	$1.40	$0.00	$0.00	$0.00	$56.95	$75.42
CLASS 10	89.44	$39.13	$10.99	$7.10	$0.52	$0.00	$1.40	$0.00	$0.00	$0.00	$59.14	$78.70

Special Calculation Note :

Ratio :

1 Journeyman to 1 Apprentice

Jurisdiction (* denotes special jurisdictional note) :

ADAMS, ALLEN, ASHLAND, ASHTABULA, ATHENS, AUGLAIZE, BELMONT, BROWN, BUTLER, CARROLL, CHAMPAIGN, CLARK, CLERMONT, CLINTON, COLUMBIANA, COSHOCTON, CRAWFORD, DARKE, DEFIANCE, DELAWARE, ERIE, FAIRFIELD, FAYETTE, FRANKLIN, FULTON, GALLIA, GREENE, GUERNSEY, HAMILTON, HANCOCK, HARDIN, HARRISON, HENRY, HIGHLAND, HOCKING, HOLMES, HURON, JACKSON, JEFFERSON, KNOX, LAWRENCE, LICKING, LOGAN, LUCAS, MADISON, MAHONING, MARION, MEDINA, MEIGS, MERCER, MIAMI, MONROE, MONTGOMERY, MORGAN, MORROW, MUSKINGUM, NOBLE, OTTAWA, PAULDING, PERRY, PICKAWAY, PIKE, PORTAGE, PREBLE, PUTNAM, RICHLAND, ROSS, SANDUSKY, SCIOTO, SENECA, SHELBY, STARK, SUMMIT, TRUMBULL, TUSCARAWAS, UNION, VAN WERT,

VINTON, WARREN, WASHINGTON, WAYNE, WILLIAMS, WOOD, WYANDOT

Special Jurisdictional Note :

Details :

Sprinkler Fitter work shall consist of the installation,dismantling,maintenance,repairs,adjustments,and corrections of all fire protection and fire control systems including the unloading,handling by hand,power equipment and installation of all piping or tubing,appurtenances and equipment pertaining thereto,including both overhead and underground water mains,fire hydrants and hydrant mains,standpipes and hose connections to sprinkler systems used in connection with sprinkler and alarm systems. Also all tanks and pumps connected thereto,also included shall be CO-2 and Cardox Systems, Dry Chemical Systems,Foam Systems and all other fire protection systems.

Prevailing Wage Rate
Skilled Crafts

Name of Union: Painter Local 249

Change # : LCN-2023ibLoc249

Craft : Painter **Effective Date :** 01/11/2023 **Last Posted :** 01/11/2023

	BHR		Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification												
Painter Brush Roll	$25.67		$5.87	$6.25	$0.28	$0.00	$0.00	$0.00	$0.00	$0.00	$38.07	$50.91
Paper Hanger	$25.67		$5.87	$6.25	$0.28	$0.00	$0.00	$0.00	$0.00	$0.00	$38.07	$50.91
Spray Commercial	$25.67		$5.87	$6.25	$0.28	$0.00	$0.00	$0.00	$0.00	$0.00	$38.07	$50.91
Spray Industrial	$25.67		$5.87	$6.25	$0.28	$0.00	$0.00	$0.00	$0.00	$0.00	$38.07	$50.91
Sandblasting, Steam Cleaning-Lead Abatment	$26.42		$5.87	$6.25	$0.28	$0.00	$0.00	$0.00	$0.00	$0.00	$38.82	$52.03
Special Coating (Coal Tar) Spray Applied	$27.17		$5.87	$6.25	$0.28	$0.00	$0.00	$0.00	$0.00	$0.00	$39.57	$53.16
Steeplejack Work	$26.62		$5.87	$6.25	$0.28	$0.00	$0.00	$0.00	$0.00	$0.00	$39.02	$52.33
Elevated Tanks	$29.31		$5.87	$6.25	$0.28	$0.00	$0.00	$0.00	$0.00	$0.00	$41.71	$56.36
Water Blasting	$26.42		$5.87	$6.25	$0.28	$0.00	$0.00	$0.00	$0.00	$0.00	$38.82	$52.03
Apprentice	**Percent**											
30 Day Probationary	50.00	$12.84	$5.87	$0.45	$0.28	$0.00	$0.00	$0.00	$0.00	$0.00	$19.44	$25.85
1st Year	65.00	$16.69	$5.87	$0.45	$0.28	$0.00	$0.00	$0.00	$0.00	$0.00	$23.29	$31.63
2nd Year	65.00	$16.69	$5.87	$0.45	$0.28	$0.00	$0.00	$0.00	$0.00	$0.00	$23.29	$31.63
3rd Year	75.00	$19.25	$5.87	$0.45	$0.28	$0.00	$0.00	$0.00	$0.00	$0.00	$25.85	$35.48
4th Year	85.00	$21.82	$5.87	$0.45	$0.28	$0.00	$0.00	$0.00	$0.00	$0.00	$28.42	$39.33

Special Calculation Note :

Ratio :

1 Journeymen to 1 Apprentice

Jurisdiction (* denotes special jurisdictional note) :

CLARK, DARKE, GREENE, MIAMI, MONTGOMERY, PREBLE

Special Jurisdictional Note :

Details :

Industrial work but not limited to:work done on industrial plants, repair garages, processing plants,storage tanks, warehouses, skeleton structures,bridges,whether new or old construction, office buildings in industrial sites and interior of shopping malls.

Prevailing Wage Rate
Skilled Crafts

Name of Union: Truck Driver Bldg & HevHwy Class 2
Locals 20,40,92,92b,100,175,284,438,377,637,908,957

Change # : LCNO1-2022sksBldgHevHwy

Craft : Truck Driver Effective Date : 06/08/2022 Last Posted : 06/08/2022

	BHR		Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification												
Truck Driver CLASS 2 Tractor Trailer-Semi Tractor Trucks-Pole Trailers-Ready Mix Trucks-Fuel Trucks-Asphalt-Oil Spray bar men- 5 Axle & Over - Belly Dumps-End Dumps-Articulated Dump Trucks- Low boys-Heavy duty Equipment(irrespective of load carried) when used exclusively for transportation-Truck Mechanics (when needed)	$30.81		$7.50	$8.80	$0.20	$0.00	$0.00	$0.00	$0.00	$0.00	$47.31	$62.72
Apprentice	**Percent**											
First 6 months	79.98	$24.64	$7.50	$8.80	$0.20	$0.00	$0.00	$0.00	$0.00	$0.00	$41.14	$53.46
7-12 months	87.25	$26.88	$7.50	$8.80	$0.20	$0.00	$0.00	$0.00	$0.00	$0.00	$43.38	$56.82
13-18 months	90.00	$27.73	$7.50	$8.80	$0.20	$0.00	$0.00	$0.00	$0.00	$0.00	$44.23	$58.09
19-24 months	94.98	$29.26	$7.50	$8.80	$0.20	$0.00	$0.00	$0.00	$0.00	$0.00	$45.76	$60.40
25-30 months	100.00	$30.81	$7.50	$8.80	$0.20	$0.00	$0.00	$0.00	$0.00	$0.00	$47.31	$62.72

Special Calculation Note : No special calculations for this skilled craft wage rate are required at this time.

Ratio :

3 Journeymen to 1 Apprentice

Jurisdiction (* denotes special jurisdictional note) :

ADAMS, ALLEN, ASHLAND, ASHTABULA, ATHENS, AUGLAIZE, BELMONT, BROWN, BUTLER, CARROLL, CHAMPAIGN, CLARK, CLERMONT, CLINTON, COLUMBIANA, COSHOCTON, CRAWFORD, DARKE, DEFIANCE, DELAWARE, ERIE, FAIRFIELD, FAYETTE, FRANKLIN, FULTON, GALLIA, GREENE, GUERNSEY, HAMILTON, HANCOCK, HARDIN, HARRISON, HENRY, HIGHLAND, HOCKING, HOLMES, HURON, JACKSON, JEFFERSON, KNOX, LAWRENCE, LICKING, LOGAN, LORAIN, LUCAS, MADISON, MAHONING, MARION, MEDINA,

MEIGS, MERCER, MIAMI, MONROE, MONTGOMERY, MORGAN, MORROW, MUSKINGUM, NOBLE, OTTAWA, PAULDING, PERRY, PICKAWAY, PIKE, PORTAGE, PREBLE, PUTNAM, RICHLAND, ROSS, SANDUSKY, SCIOTO, SENECA, SHELBY, STARK, SUMMIT, TRUMBULL, TUSCARAWAS, UNION, VAN WERT, VINTON, WARREN, WASHINGTON, WAYNE, WILLIAMS, WOOD, WYANDOT

Special Jurisdictional Note :

Details :

** Asphalt - Oil spray bar man when operating from cab shall receive $0.20 cents per hour above their Basic Hourly Rate.

Prevailing Wage Rate
Skilled Crafts

Name of Union: Truck Driver Bldg & HevHwy Class 1
Locals 20,40,92,92b,100,175,284,438,377,637,908,957

Change # : LCRO1-2021fbBldgHevHwy

Craft : Truck Driver **Effective Date :** 05/21/2021 **Last Posted :** 05/21/2021

	BHR		Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification												
Truck Driver CLASS 1 4 wheel service, dump, and batch trucks, Oil Distributor - Asphalt Distributor-Tandems	$29.24		$7.50	$8.50	$0.20	$0.00	$0.00	$0.00	$0.00	$0.00	$45.44	$60.06
Apprentice	**Percent**											
First 6 months	80.00	$23.39	$7.50	$8.50	$0.20	$0.00	$0.00	$0.00	$0.00	$0.00	$39.59	$51.29
7-12 months	85.00	$24.85	$7.50	$8.50	$0.20	$0.00	$0.00	$0.00	$0.00	$0.00	$41.05	$53.48
13-18 months	90.00	$26.32	$7.50	$8.50	$0.20	$0.00	$0.00	$0.00	$0.00	$0.00	$42.52	$55.67
19-24 months	95.00	$27.78	$7.50	$8.50	$0.20	$0.00	$0.00	$0.00	$0.00	$0.00	$43.98	$57.87
25-30 months	100.00	$29.24	$7.50	$8.50	$0.20	$0.00	$0.00	$0.00	$0.00	$0.00	$45.44	$60.06

Special Calculation Note : No special calculations for this skilled craft wage rate are required at this time.

Ratio :

3 Journeymen to 1 Apprentice

Jurisdiction (* denotes special jurisdictional note) :

ADAMS, ALLEN, ASHLAND, ASHTABULA, ATHENS, AUGLAIZE, BELMONT, BROWN, BUTLER, CARROLL, CHAMPAIGN, CLARK, CLERMONT, CLINTON, COLUMBIANA, COSHOCTON, CRAWFORD, DARKE, DEFIANCE, DELAWARE, ERIE, FAIRFIELD, FAYETTE, FRANKLIN, FULTON, GALLIA, GREENE, GUERNSEY, HAMILTON, HANCOCK, HARDIN, HARRISON, HENRY, HIGHLAND, HOCKING, HOLMES, HURON, JACKSON, JEFFERSON, KNOX, LAWRENCE, LICKING, LOGAN, LORAIN, LUCAS, MADISON, MAHONING, MARION, MEDINA,

MEIGS, MERCER, MIAMI, MONROE, MONTGOMERY, MORGAN, MORROW, MUSKINGUM, NOBLE, OTTAWA, PAULDING, PERRY, PICKAWAY, PIKE, PORTAGE, PREBLE, PUTNAM, RICHLAND, ROSS, SANDUSKY, SCIOTO, SENECA, SHELBY, STARK, SUMMIT, TRUMBULL, TUSCARAWAS, UNION, VAN WERT, VINTON, WARREN, WASHINGTON, WAYNE, WILLIAMS, WOOD, WYANDOT

Special Jurisdictional Note :

Details :

** Asphalt - Oil spray bar man when operating from cab shall receive $0.20 cents per hour above their Basic Hourly Rate.

Prevailing Wage Rate
Skilled Crafts

Name of Union: Cement Mason Bricklayer Local 97 HevHwy A

Change # : LCN01-2022sksHvyHwy

Craft : Bricklayer **Effective Date :** 06/08/2022 **Last Posted :** 06/08/2022

	BHR		Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification												
Cement Mason Bricklayer Sewer Water Works A	$31.40		$9.75	$8.30	$0.50	$0.00	$0.00	$0.00	$0.00	$0.00	$49.95	$65.65
Apprentice	**Percent**											
1st year	70.00	$21.98	$9.75	$8.30	$0.50	$0.00	$0.00	$0.00	$0.00	$0.00	$40.53	$51.52
2nd year	80.00	$25.12	$9.75	$8.30	$0.50	$0.00	$0.00	$0.00	$0.00	$0.00	$43.67	$56.23
3rd year	90.00	$28.26	$9.75	$8.30	$0.50	$0.00	$0.00	$0.00	$0.00	$0.00	$46.81	$60.94

Special Calculation Note : NOT FOR BUILDING CONSTRUCTION.

Ratio :

3 Journeymen to 1 Apprentice
6 Journeymen to 2 Apprentice
9 Journeymen to 3 Apprentice
12 Journeymen to 4 Apprentice
15 Journeymen to 5 Apprentice

Jurisdiction (* denotes special jurisdictional note) :

ADAMS, ALLEN, ASHLAND, ASHTABULA, ATHENS, AUGLAIZE, BELMONT, BROWN, BUTLER, CARROLL, CHAMPAIGN, CLARK, CLERMONT, CLINTON, COLUMBIANA, COSHOCTON, CRAWFORD, CUYAHOGA, DARKE, DEFIANCE, DELAWARE, ERIE, FAIRFIELD, FAYETTE, FRANKLIN, FULTON, GALLIA, GEAUGA, GREENE, GUERNSEY, HAMILTON, HANCOCK, HARDIN, HARRISON, HENRY, HIGHLAND, HOCKING, HOLMES, HURON, JACKSON, JEFFERSON, KNOX, LAKE, LAWRENCE, LICKING, LOGAN, LORAIN, LUCAS, MADISON, MAHONING, MARION, MEDINA, MEIGS, MERCER, MIAMI, MONROE, MONTGOMERY, MORGAN, MORROW, MUSKINGUM, NOBLE, OTTAWA, PAULDING, PERRY, PICKAWAY, PIKE, PORTAGE, PREBLE, PUTNAM, RICHLAND, ROSS, SANDUSKY, SCIOTO, SENECA, SHELBY, STARK, SUMMIT, TRUMBULL, TUSCARAWAS, UNION, VAN WERT, VINTON, WARREN, WASHINGTON, WAYNE

Special Jurisdictional Note :

Details :

(A) Highway Construction, Sewer, Waterworks And Utility Construction, Industrial & Building Site Heavy Construction, Airport Construction Or Railroad Construction Work.

(B) Power Plant, Tunnels, Amusement Park, Athletic Stadium Site Work ,Pollution Control,Sewer Plant, Waste Plant, & Water Treatment Facilities, Construction.

Prevailing Wage Rate
Skilled Crafts

Name of Union: Cement Mason Local 132 (Dayton)

Change # : LCN01-2022sksLoc132

Craft : Cement **Effective Date :** 06/01/2022 **Last Posted :** 06/01/2022

	BHR		Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification												
Cement Mason	$26.82		$7.95	$7.35	$0.75	$0.00	$2.25	$0.06	$0.00	$0.00	$45.18	$58.59
Apprentice	**Percent**											
1st Six Months	70.00	$18.77	$7.95	$7.35	$0.75	$0.00	$2.25	$0.06	$0.00	$0.00	$37.13	$46.52
2nd Six Months	80.00	$21.46	$7.95	$7.35	$0.75	$0.00	$2.25	$0.06	$0.00	$0.00	$39.82	$50.54
3rd Six Months	90.00	$24.14	$7.95	$7.35	$0.75	$0.00	$2.25	$0.06	$0.00	$0.00	$42.50	$54.57

Special Calculation Note : No special calculations for this skilled craft wage rate are required at this time. *Other is International Training

Ratio :

2 Journeymen to 1 Apprentice

Jurisdiction (* denotes special jurisdictional note) :

CHAMPAIGN, CLARK, CLINTON, DARKE, GREENE, MIAMI, MONTGOMERY, PREBLE, SHELBY

Special Jurisdictional Note :

Details :

Other: Is Industry Promotion:Cement Masons on outrigger, swing, scaffolds, manlifts -$.75 per hour above scale up to (25) feet and $.75 per hour for each additional (25) feet or part of same. A Cement Mason operating a grinder- $.30 per hour above the journeyman scale.

Prevailing Wage Rate
Skilled Crafts

Name of Union: Labor Local 1410 Building

Change # : LCN01-2022sksLoc1410

Craft : Laborer **Effective Date :** 04/20/2022 **Last Posted :** 04/20/2022

	BHR		Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification												
Laborer Group 1	$29.40		$7.70	$3.95	$0.40	$0.00	$0.00	$0.00	$0.10	$0.00	$41.55	$56.25
Group 2	$30.00		$7.70	$3.95	$0.40	$0.00	$0.00	$0.00	$0.10	$0.00	$42.15	$57.15
Group 3	$30.50		$7.70	$3.95	$0.40	$0.00	$0.00	$0.00	$0.10	$0.00	$42.65	$57.90
Apprentice	**Percent**											
Building Laborer 1-1000 hrs	60.00	$17.64	$7.70	$3.95	$0.40	$0.00	$0.00	$0.00	$0.10	$0.00	$29.79	$38.61
1001-2000	70.02	$20.59	$7.70	$3.95	$0.40	$0.00	$0.00	$0.00	$0.10	$0.00	$32.74	$43.03
2001-3000	80.00	$23.52	$7.70	$3.95	$0.40	$0.00	$0.00	$0.00	$0.10	$0.00	$35.67	$47.43
3001-4000	90.03	$26.47	$7.70	$3.95	$0.40	$0.00	$0.00	$0.00	$0.10	$0.00	$38.62	$51.85
More than 4000 hrs	100.00	$29.40	$7.70	$3.95	$0.40	$0.00	$0.00	$0.00	$0.10	$0.00	$41.55	$56.25

Special Calculation Note : $0.10 LECET is for Labor Management.

Ratio :

1 Journeymen to 1 Apprentice
4 Journeymen to 1 Apprentice

Jurisdiction (* denotes special jurisdictional note) :

CHAMPAIGN, CLARK, DARKE, GREENE, LOGAN, MIAMI, MONTGOMERY, PREBLE

Special Jurisdictional Note :

Details :

Group 1
Building & Construction Laborer, Railroad Laborer, Asbestos & Hazardous Waste (Levels A,B,C, & D),Concrete Crew, Form Setter, Pipelayer, Bottom Man, Burner (Cutting Torch), Welder Helper, All Machine & Power Driven Tools, Sandblaster
Yardman-Landscaping,Sewer Jet, Waterperson, Tool Cage Laborer,Unloading Furniture & Fixtures,Final Clean-Up Watchman, Residential Construction, Signal Men

Group 2
Mason Tender For Bricklayers, Flexcore, Firebrick Tender (Blast Furnaces,Soaking Pits,Stoves & Stacks), Plasterer Tenders & Lathers

Group 3
Tender Operator

Asbestos, Lead and Hazardous Material:
The removal, abatement or encapsulation of asbestos, lead and/or toxic and hazardous waste or materials is defined as all work included in the erection, moving servicing and dismantling of all enclosures, scaffolding, barricades, etc. and the operation of all tools and equipment (including generators, compressors and vacuums) normally used in the removal or abatement or asbestos, lead and toxic and hazardous waste or materials; the labeling, bagging, cartoning, crating or otherwise packaging of materials for disposal; as well as the clean-up of the work site and all other work incidental to the removal, abatement or encapsulation of asbestos, lead or toxic and hazardous waste materials.

Level A
Protective equipment is required when the area has been determined to contain extremely toxic contaminants or contaminants unknown but may be expected to be extremely toxic and/or immediately dangerous to life and health. This ensemble includes a fully encapsulated chemical suit, self contained breathing apparatus (SCBA) or airline fed respirator, and various types and numbers of boots and gloves.

Level B
Protective equipment includes a chemically resistant splash suit and a SCBA or airline respirator. This ensemble is required when the situation is very hazardous, such as oxygen deficient atmospheres, IDLH atmospheres, or confined space entries.

Level C
Protective equipment includes a protective suit and an air purifying respirator (APR) with the appropriate filter canisters.

Level D
To be worn only in established "safe zones" may consist of, from normal work clothes to normal skin protection such as gloves, face shields goggles, coveralls and occasionally respiratory protection.

Prevailing Wage Rate
Skilled Crafts

Name of Union: Electrical Local 71 DOT Traffic Signal Highway Lighting American Line Builders

Change # : LCNO1-2023ibLoc71DOTClev

Craft : Lineman **Effective Date :** 03/01/2023 **Last Posted :** 03/01/2023

	BHR		Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification												
Electrical Lineman	$43.02		$7.00	$1.29	$0.43	$0.00	$8.60	$0.56	$0.00	$0.00	$60.90	$82.41
Traffic Signal & Lighting Journeyman	$41.43		$7.00	$1.24	$0.41	$0.00	$8.29	$0.56	$0.00	$0.00	$58.93	$79.64
Equipment Operator	$37.78		$7.00	$1.13	$0.38	$0.00	$7.56	$0.56	$0.00	$0.00	$54.41	$73.30
Groundman 0 to 12 months (W/O CDL)	$22.91		$7.00	$0.69	$0.23	$0.00	$4.58	$0.56	$0.00	$0.00	$35.97	$47.42
Groundman 0 to 12 Months (W CDL)	$25.03		$7.00	$0.75	$0.25	$0.00	$5.01	$0.56	$0.00	$0.00	$38.60	$51.12
Groundman greater than 1 year (W CDL)	$27.71		$7.00	$0.81	$0.28	$0.00	$5.43	$0.56	$0.00	$0.00	$41.79	$55.65
Traffic Apprentice												
1st 1000 hrs	$24.86		$7.00	$0.75	$0.25	$0.00	$4.97	$0.56	$0.00	$0.00	$38.39	$50.82
2nd 1000 hrs	$26.93		$7.00	$0.81	$0.27	$0.00	$5.39	$0.56	$0.00	$0.00	$40.96	$54.43
3rd 1000 hrs	$29.00		$7.00	$0.87	$0.29	$0.00	$5.80	$0.56	$0.00	$0.00	$43.52	$58.02
4th 1000 hrs	$31.01		$7.00	$0.99	$0.31	$0.00	$6.21	$0.56	$0.00	$0.00	$46.08	$61.59
5th 1000 hrs	$33.14		$7.00	$0.99	$0.33	$0.00	$6.63	$0.56	$0.00	$0.00	$48.65	$65.22
6th 1000 hrs	$37.29		$7.00	$1.12	$0.37	$0.00	$7.46	$0.56	$0.00	$0.00	$53.80	$72.45
Lineman Apprentice	**Percent**											
1st 1,000 Hours	60.00	$25.81	$7.00	$0.77	$0.26	$0.00	$5.16	$0.56	$0.00	$0.00	$39.56	$52.47

2nd 1,000 Hours	65.00	$27.96	$7.00	$0.84	$0.28	$0.00	$5.59	$0.56	$0.00	$0.00	$42.23	$56.21
3rd 1,000 Hours	70.00	$30.11	$7.00	$0.90	$0.30	$0.00	$6.02	$0.56	$0.00	$0.00	$44.89	$59.95
4th 1,000 Hours	75.00	$32.27	$7.00	$0.97	$0.32	$0.00	$6.54	$0.56	$0.00	$0.00	$47.66	$63.79
5th 1,000 Hours	80.00	$34.42	$7.00	$1.03	$0.34	$0.00	$6.88	$0.56	$0.00	$0.00	$50.23	$67.43
6th 1,000 Hours	85.00	$36.57	$7.00	$1.10	$0.37	$0.00	$7.31	$0.56	$0.00	$0.00	$52.91	$71.19
7th 1,000 Hours	90.00	$38.72	$7.00	$1.16	$0.39	$0.00	$7.74	$0.56	$0.00	$0.00	$55.57	$74.93

Special Calculation Note : Other is for Safety and Education Fund ($0.06) And HRA ($0.50).

Ratio :

1 Journeymen to 1 Apprentice

Jurisdiction (* denotes special jurisdictional note) :

AUGLAIZE, CHAMPAIGN, CLARK, CLINTON, DARKE, GREENE, LOGAN, MERCER, MIAMI, MONTGOMERY, PREBLE, SHELBY

Special Jurisdictional Note :

Details :

A groundman when directed shall assist a Journeymen in the performance of his/her work on the ground, including the use of hand tools. Under no circumstances shall this classification climb poles, towers, ladders, or work from an elevated platform or bucket truck. This classification shall not perform work normally assigned to an apprentice lineman. No more than three (3) Groundmen shall work alone. Jobs with more that three Groundmen shall be supervised by a Groundcrew Foreman, Journeyman Lineman, Journeyman Traffic Signal Technician or an Equipment Operator.

Prevailing Wage Rate
Skilled Crafts

Name of Union: Roofer Local 75

Change # : LCN01-2022sksLoc75

Craft : Roofer **Effective Date :** 08/26/2022 **Last Posted :** 08/26/2022

	BHR		Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification												
Roofer	$25.63		$8.73	$8.78	$0.76	$0.00	$0.00	$1.80	$0.00	$0.00	$45.70	$58.51
Slate and Tile	$25.85		$8.73	$8.78	$0.76	$0.00	$0.00	$1.80	$0.00	$0.00	$45.92	$58.85
Apprentice	**Percent**											
1st term 1000 hrs	66.32	$17.00	$2.50	$0.50	$0.76	$0.00	$0.00	$1.80	$0.00	$0.00	$22.56	$31.06
2nd term 1000 hrs	70.22	$18.00	$8.58	$1.32	$0.76	$0.00	$0.00	$1.80	$0.00	$0.00	$30.46	$39.46
3rd term 1000 hrs	74.12	$19.00	$8.58	$2.20	$0.76	$0.00	$0.00	$1.80	$0.00	$0.00	$32.34	$41.84
4th term 1000 hrs	78.02	$20.00	$8.58	$3.07	$0.76	$0.00	$0.00	$1.80	$0.00	$0.00	$34.21	$44.20
5th term 1000 hrs	81.95	$21.00	$8.58	$3.95	$0.76	$0.00	$0.00	$1.80	$0.00	$0.00	$36.09	$46.60
Tradesman	79.00	$20.25	$5.00	$1.58	$0.76	$0.00	$0.00	$1.80	$0.00	$0.00	$29.39	$39.51

Special Calculation Note : Other is for National Roofing Industry Pension Plan.

Ratio :

3 Journeymen to 2 Apprentices

Jurisdiction (* denotes special jurisdictional note) :

ALLEN, AUGLAIZE, CLARK, CLINTON, DARKE, GREENE, MERCER, MIAMI, MONTGOMERY, PREBLE, SHELBY, VAN WERT

Special Jurisdictional Note :

Details :

Prevailing Wage Rate
Skilled Crafts

Name of Union: Sheet Metal Local 24 (Dayton)

Change # : LCN01-2022sksLoc24(Day)

Craft : Sheet Metal Worker **Effective Date :** 06/08/2022 **Last Posted :** 06/08/2022

	BHR		Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification												
Sheet Metal Worker	$30.22		$9.35	$14.90	$1.05	$0.00	$0.00	$0.00	$0.00	$0.00	$55.52	$70.63
Apprentice	**Percent**											
Apprentice												
5th Year B	85.00	$25.69	$9.11	$11.34	$1.05	$0.00	$0.00	$0.00	$0.00	$0.00	$47.19	$60.03
5th Year A	80.00	$24.18	$9.03	$10.16	$1.05	$0.00	$0.00	$0.00	$0.00	$0.00	$44.42	$56.50
4th Year B	75.00	$22.66	$8.95	$8.97	$1.05	$0.00	$0.00	$0.00	$0.00	$0.00	$41.64	$52.97
4th Year A	70.00	$21.15	$8.87	$7.79	$1.05	$0.00	$0.00	$0.00	$0.00	$0.00	$38.86	$49.44
3rd year B	65.00	$19.64	$8.78	$6.62	$1.05	$0.00	$0.00	$0.00	$0.00	$0.00	$36.09	$45.91
3rd Year A	60.00	$18.13	$8.70	$5.43	$1.05	$0.00	$0.00	$0.00	$0.00	$0.00	$33.31	$42.38
2 Year B	57.52	$17.38	$8.66	$4.83	$1.05	$0.00	$0.00	$0.00	$0.00	$0.00	$31.92	$40.61
2 Year A	55.00	$16.62	$8.62	$4.25	$1.05	$0.00	$0.00	$0.00	$0.00	$0.00	$30.54	$38.85
Probationary 1 Year	52.50	$15.87	$8.58	$3.65	$1.05	$0.00	$0.00	$0.00	$0.00	$0.00	$29.15	$37.08

Special Calculation Note : No special calculations for this skilled craft wage rate are required at this time.

Ratio :

1 Journeyman to 1 Apprentice then,
1 Apprentice for every 2 Journeymen thereafter

Jurisdiction (* denotes special jurisdictional note) :

ALLEN, AUGLAIZE, BUTLER, CHAMPAIGN, CLARK, CLINTON, DARKE, GREENE, HARDIN, LOGAN, MERCER, MIAMI, MONTGOMERY, PREBLE, SHELBY, VAN WERT, WARREN, WYANDOT

Special Jurisdictional Note :

Details :

CONTRACT

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FORM OF CONTRACT

THIS AGREEMENT, entered into this____day of_____, 2023, by and between the *City of Moraine, Ohio*, hereinafter called the "Owner" and _____ hereinafter called the "Contractor."

WITNESSETH: That the said Contractor has agreed and by these presents does agree with the said Owner for the consideration hereinafter named, to furnish all the materials and do all of the work of whatever kind necessary to complete, in a good, substantial, and workmanlike manner, ready for use, and in strict accordance with the specifications on file in the office of the Maintenance Superintendent, and subject to all the terms and conditions of said specifications, and to the approval of said Superintendent, for the provision of services for the

PHASE 1 MODERNIZATION – CITY OF MORAINE MUNICIPAL BUILDING CONTRACT FOR CITY OF MORAINE

in accordance with the Contract Documents dated March 2023, and Addenda thereto numbered and dated_____, for

The sum of**_____thousand Dollars, ($,000.00)** for Roofing Project.

The Owner agrees to pay, and the Contractor agrees to accept as full compensation, satisfaction, and discharge for all work done and material furnished, and also for all costs and expenses incurred and losses or damages sustained by reason of the action of the elements or because of the nature of the work or because of any unforeseen obstruction or difficulty encountered in the prosecution of the work, herein as specified and also for well and faithful completion of the work, and the whole thereof, in accordance with the terms, conditions and provisions of this contract and the instructions, orders, and directions of the Superintendent hereunder, and also for maintaining the work in good condition, except extra work which shall be paid for as provided in the General Conditions and except as in this Contract otherwise specifically provided, a sum of money equal to the amount of the actual work furnished, as determined by the Superintendent, as set forth in the Proposal attached hereto.

WITNESSETH, that in consideration of the sums of money herein specified to be paid by the

CONTRACTOR:	OWNER:
_____ (name of company)	City of Moraine
By: _____	By: _____
_____ (title)	_____ (title)

Contract approved as to form _____

TECHNICAL SPECIFICATIONS

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Contract Documents for:

Phase 1 Modernization
City of Moraine
Municipal Building

4200 Dryden Road
Moraine, OH 45439

Prepared for:

The City of Moraine
progress through unity

City of Moraine
4200 Dryden Road
Moraine, OH 45439

Prepared by:

RDA GROUP ARCHITECTS LLC
7945 Washington Woods Drive
Dayton, Ohio 45459
937.610.3440

BID SET
March 20, 2023

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SECTION 01 00 00 - GENERAL REQUIREMENTS

PART 1 GENERAL

1.1 DESCRIPTION OF THE PROJECT DOCUMENTS

A. The work covered by these specifications consists of furnishing all labor, equipment and materials necessary in connection with the Phase 1 Modernization Project at the City of Moraine Municipal Building for the City of Moraine. Work includes items as shown, subject to the terms and conditions of the contract, specifications and the drawings as listed.

1.2 CONTRACT DESCRIPTION

A. Project Identification: **Phase 1 Modernization**
City of Moraine Municipal Building

B. Project Location: City of Moraine Municipal Building
4200 Dryden Road, Moraine, OH 45439

C. Owner: City of Moraine
4200 Dryden Road
Moraine, OH 45439

D. Architect: RDA Group Architects, LLC
7945 Washington Woods Drive
Dayton, OH 45459
937.610.3440 phone

E. Perform Work of Contract under a stipulated sum contract with Owner in accordance with Conditions of Contract.

1.3 CONTRACTOR'S USE OF PREMISES

A. The Municipal Building will remain in operation to the extent feasible throughout the duration of the construction project.
   1. Owner will vacate this portion of the Municipal Building over the course of the project. Staff will be present in adjacent portions of the building so exits must be maintained and construction schedule must be coordinated with the Owner.

B. The project will need to be sequenced / phased to allow continued operations. The Contractor shall develop a plan and strategy to accomplish the goal. All additional efforts, scheduling, construction duration, etc. shall be considered and included in the bid amount.

C. Contractor shall coordinate all applicable life safety aspects of the project to ensure the existing building is safe for continued use.

D. The Owner will coordinate relocation of loose furnishings, equipment, etc. out of the work area as necessary to facilitate work.

E. Work Hours: 7am – 5pm Monday thru Friday. Extended work hours thru the week and weekend work is permitted upon acceptance of the Owner.
   1. There are no specific limits on work hours as long as access to the building may be coordinated with the Owner. It is anticipated that the work will substantially occur during first shift hours, some work may be required to be accomplish off first shift hours to maintain operations of other portions of the building.
   2. The burden for scheduling and coordinating work efforts shall be on the General Contractor.
   3. It is the Contractor's responsibility to determine how the various disciplines work together and are scheduled to permit the work as outlined.

4. Contractor shall coordinate with Owner for Owner provided equipment installation as applicable.
5. Additional weekend and overtime work, supplementation of the Crews, etc. may be required by the Owner at no additional cost if the Contractor fails to meet milestone dates as prescribed in the contract.

F. Coordinate work of this contract with other work that will be occurring by the Owner. Coordinate work schedules to minimize impact to the extent possible.

1.4 CONTRACT PERIOD

A. Date of Commencement: approximately June 1, 2023, as outlined in Supplementary Conditions. A Notice to Proceed will be issued establishing the agreed upon construction start date.

B. Date of Substantial Completion: 180 calendar days from the Date of Commencement

C. A contract will be issued in May 2023 after approval by City Council.
1. The Contractor will be responsible to execute the project to allow shop drawings and product submittals to be prepared as quickly as possible such that the materials can be ordered with sufficient lead time to permit the work to be executed as scheduled prior to the date of substantial completion.

D. Coordinate schedule / activities so as not to inconvenience the Owner unnecessarily.

1.5 PROJECT ALLOWANCES

A. Contingency Allowance: 10% of the base bid amount shall be included in the total bid amount for the project for use as a project contingency allowance.

B. Contingency funds shall only be used at the approval of RDA and Owner.

C. Actual expenditures shall be tracked over the duration of the project with any unused funds deducted from the contract at the end of the project.

D. All expenditures shall be identified and documented as they occur, not afterward. Work commenced without the approval of the Owner shall be at the Contractor's risk.

1.6 INSTRUCTIONS/RESPONSBILITIES OF THE CONTRACTOR

A. Protect all finishes and equipment scheduled to remain.

B. Contractor shall commence and complete work as noted in the contract.

C. Contractor shall furnish labor, materials, equipment, and management required to complete the project.

D. Contractor shall furnish all required logistics required to accomplish the work – including lifts, scaffolding, ladders, trash chutes, safety equipment, etc.
1. All Contractor staging areas and layout areas, etc. shall be coordinated and approved by the Owner prior to the start of the project.
2. Provide protection of all existing pavement, turf, etc. from lifts, lulls, etc. which may be utilized on the project.

E. Contractor shall visit the site to become thoroughly familiar with all working conditions, check and verify all dimensions, and site conditions. Any dimensions given or referred to in the specification or drawing is to be used purely as approximate and not as a basis for exact amounts for bidding. Contractor shall promptly advise the Architect of any discrepancies, errors with the specifications and drawings before bidding the work.

F. Contractor to provide a valid Certificate of Insurance, follow all Workman's Compensation requirements and regulations, and conduct all work according to OSHA recognized safe work practices.

G. All bonds, payment schedule, insurance shall be as noted in the contract documents.

H. The plans and specifications are intended to depict the general scope, layout and quality of workmanship required, they are not intended to show or describe in detail every item necessary for the proper installation of the work.

I. Special care shall be taken not to allow dust and debris to fall onto any equipment, material, personnel, or any room below the deck.

J. The contractor shall provide Safety Data Sheets (SDS) on all products used.
   1. Submit directly to Owner. RDA does not review nor approve SDS.

K. The term 'Architect' as referenced in these contract documents is RDA Group Architects.

L. The term 'Owner' as referenced in this specification is City of Moraine.

1.7 WORK BY THE OWNER

A. Owner will clear all loose furnishings, equipment, and other materials from the work area prior to the start of the project.

B. Refer to the project phasing schedule to outline dates and specific requirements.

C. Owner will separately contract for the following work *[unless specifically noted to be within the scope of this project]*:
   1. Abatement of Asbestos Containing Materials
   2. Loose Furnishings [seating, desks, work tables, etc.]
   3. Door Access Control – final connections and system integration
   4. Security Cameras and associated wiring / system integration
   5. Data cabling [refer to Electrical drawings]
   6. Audio/visual equipment and accessories

D. Contractor shall coordinate all aspects of Work by Owner as they interface with Work.

1.8 APPLICABLE REFERENCES, CODES, AND PERMITS

A. References will be found in each section that applies to that section. In addition, Contractor shall comply with the Ohio Building Code requirements as they relate to the work.

B. Contractor shall procure at his own expense all necessary permits from municipal or other agencies and give all notices required. Fines levied due to non-compliance shall be paid by the contractor.
   1. RDA will apply for the applicable building permits with City of Moraine.

1.9 WAGES

A. This project <u>is subject</u> to prevailing wage and/or reporting requirements.

B. Refer to the Prevailing Wage Rates included with the Bid documents. Certified Payroll Reports will be required.

C. Employee interviews to confirm compliance with the prevailing wage requirements may be accomplished at any time by the Owner. Contractor shall not obstruct or otherwise prevent employee interviews.

1.10 TAXES

A. Any taxes paid by the contractor will be considered their expense for which no compensation will be made by the Owner. [Tax Exempt Project]. Tax Exempt forms can be provided upon request.

1.11 SMOKING

A. Smoking is not permitted on the property – inside or outside of any facility.

B. Contractor or crewmembers found to be smoking will be subject to a $500 fine per occurrence. Any habitual offenders will be dismissed from the project site.

1.12 CONTRACTOR / GENERAL REQUIREMENTS

A. Visit the project sites to verify general and pertinent conditions and take measurements necessary for bidding purposes.

B. Failure to show or mention petty details shall not be warranted for the omission of anything necessary for the proper completion of the work.

C. Contractor shall not take advantage of any clerical errors, omissions, contradictions, or conflicts that may develop in plans, specifications, or details. Such errors, ambiguities and discrepancies shall be reported to the Architect immediately for clarification, revision, or correction prior to the submission of bids. If no notification is given, it shall be assumed that all specifications and conditions will be met.

D. Remain in compliance with all OSHA STANDARD 1926 – REGULATIONS FOR CONSTRUCTION at all times during project. Comply with all applicable Safe Work Practices.

E. Contract Period
   1. If an extension of time is necessary, a request in writing must be submitted to the Owner at least [14] days prior to the contract completion date.
   2. Notify the Architect, in writing, upon determination of any delay in material delivery.

F. Security: Contractor's Liability for Vandalism
   1. Contractor shall be responsible at the Contractor's cost and expense, for the securing and protection of the project which is under the control of the Contractor, and for the repair and replacement of the work until that portion of the work is accepted as completed by the Owner. The Contractor shall take the measures necessary to provide such security.

G. Qualifying Contractors and Sub-Contractors: The Owner may require the contractor/sub-contractor to provide references of similar projects, past performance, financial disclosures, etc. in the interest of selection of the lowest and best bidder for the project.
   1. The Contractor is responsible for all work performed by Sub-Contractors.
   2. The Owner has the final authority to request a particular sub-contract not be engaged in the project. If this occurs, The Owner and Contractor shall determine if there is an impact to the Contract amount, and negotiate, if necessary, to an adjustment in the Contract amount.
      a. No change to the Contract amount will be permitted if there is a change to the sub-contractor due to them utilizing alternate manufacturers or products that were not approved substitution requests.

1.13 SPECIFICATION CONVENTIONS

A. These specifications are written in imperative mood and streamlined form. This imperative language is directed to the Contractor, unless specifically noted otherwise. The words "shall be" are included by inference where a colon (:) is used within sentences or phrases.

1.14 APPLICATIONS FOR PAYMENT

A. Refer to Section 01 29 00.

1.15 CHANGE PROCEDURES

A. The Architect or Owner may issue a Proposal Request including a detailed description of proposed change with supplementary or revised Drawings and specifications, a change in Contract Time for executing the change. Contractor will prepare and submit estimate within 7 days.

B. Stipulated Sum/Price Change Order: Based on Proposal Request and Contractor's fixed price quotation.

C. Change Order Forms: AIA G701.

D. Correlation Of Contractor Submittals:
   1. Promptly revise Schedule of Values and Application for Payment forms to record each authorized Change Order as separate line item and adjust Contract Sum/Price.
   2. Promptly revise progress schedules to reflect change in Contract Time, revise sub-schedules to adjust times for other items of work affected by the change, and resubmit.
   3. Promptly enter changes in Project Record Documents.

E. The Architect will advise of minor changes in the Work not involving adjustment to Contract Sum/Price or Contract Time by issuing supplemental instructions on Architect's approved forms.

F. Important: All change orders must be fully executed prior to beginning any work. Failure to comply will result in contractor request being denied and completed at no cost to the Owner.

G. Maximum mark up for overhead and profit on change orders shall be 15%.

1.16 UNIT PRICES

A. Owner will take measurements and compute quantities accordingly. Provide and assist in taking of measurements.

B. Unit Price Schedule: None

C. Unit Price includes: Full compensation for required labor, products, tools, equipment, plant and facilities, transportation, services, and incidentals; erection, application or installation of item of the Work; overhead and profit.

D. Final payment for Work governed by unit prices will be made on basis of actual measurements and quantities accepted by Architect multiplied by unit price for Work incorporated in or made necessary by the Work.

1.17 ALTERNATES

A. Alternates quoted on Bid Forms will be reviewed and accepted or rejected at Owner's option.

B. Coordinate related Work and modify surrounding Work as required.

C. Schedule of Alternates:
   1. None

1.18 COORDINATION

A. Coordinate scheduling, submittals, and Work of various sections of specifications to ensure efficient and orderly sequence of installation of interdependent construction elements.

B. Verify utility requirements and characteristics of operating equipment are compatible with building utilities. Coordinate work of various sections having interdependent responsibilities for installing, connecting to, and placing in service, operating equipment.

C. Coordinate space requirements, supports, and installation of mechanical and electrical Work indicated diagrammatically on Drawings. Follow routing shown for pipes, ducts, and conduit, as closely as practicable; place runs parallel with lines of building. Utilize spaces efficiently to maximize accessibility for other installations, for maintenance, and for repairs.

D. In finished areas, conceal pipes, ducts, and wiring within construction. Coordinate locations of fixtures and outlets with finish elements.

E. Coordinate completion and clean-up of Work of separate sections in preparation for Substantial Completion.

F. After Owner occupancy of premises, coordinate access to site for correction of defective Work and Work not in accordance with Contract Documents, to minimize disruption of Owner's activities.

1.19 QUALITY CONTROL

A. Monitor quality control over suppliers, manufacturers, Products, services, site conditions, and workmanship, to produce Work of specified quality.

B. Comply with manufacturer’s instructions.

C. When manufacturers' instructions conflict with Contract Documents, request clarification from Architect/Owner before proceeding.

D. Comply with specified standards as minimum quality for the Work except where more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.

E. Perform Work by persons qualified to produce required and specified quality.

F. Verify field measurements are as indicated on Shop Drawings or as instructed by manufacturer.

G. Secure products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion, or disfigurement.

1.20 TOLERANCES

A. Monitor fabrication and installation tolerance control of installed Products over suppliers, manufacturers, Products, site conditions, and workmanship, to produce acceptable Work. Do not permit tolerances to accumulate.

B. Comply fully with manufacturer’s tolerances.

1.21 REFERENCES

A. Conform to reference standards by date of issue current as of date of Contract Documents.

B. When specified reference standard conflicts with Contract Documents, request clarification from Architect before proceeding.

1.22 LABELING

A. Attach label from agency approved by authority having jurisdiction for products, assemblies, and systems required to be labeled by applicable code.

B. Label Information: Include manufacturer's or fabricator's identification, approved agency identification, and the following information, as applicable, on each label.
   1. Model number.
   2. Serial number.
   3. Performance characteristics.

1.23 PRECONSTRUCTION MEETING

A. Owner/RDA will schedule preconstruction meeting after Notice of Award for affected parties.

B. Owner, RDA, Contractor Project Manager, and Foreman shall be in attendance.

C. Agenda:
   1. Scheduling of construction events, set-up, storage and etc.
   2. Project personnel with contact information.
   3. Sequence of construction, starting points, events and required resources.
   4. Subcontractors list with contact information.
   5. Temporary utilities.

6. Inspection and acceptance of existing conditions.
7. Owner's requirements.

1.24 PROGRESS MEETINGS

A. Schedule and administer meetings throughout progress of the Work as applicable to the work at weekly intervals.

B. Agenda:
   1. Review of work progress and Owner's Requirements.
   2. Field Observations of the completed work.
   3. Identification of any problems and associated solutions.
   4. Proposed changes.
   5. Administrative issues – payment applications, change orders, etc.

C. RDA will record meeting minutes and will issue to the project team.

1.25 PRE-INSTALLATION MEETINGS

A. Contractor shall determine any and all necessary pre-installation meetings and shall schedule the same.

B. When required in individual Specification Sections, convene preinstallation meetings at Project Site one week before starting Work of specific Section.

C. Require attendance of parties directly affecting, or affected by, Work of specific Section.

D. Prepare agenda and preside over meeting:

E. Review conditions of installation, preparation, and installation procedures.

F. Review coordination with related Work.

G. Record minutes and distribute to participants after meeting, and those affected by decisions made.

1.26 CONTRACT ADMINISTRATION

A. RDA is providing contract administration services for this project to the Owner. However, it shall be the responsibility of the Contractor and Owner to coordinate the proposed work, schedules, installations, permits, inspections, etc. as RDA is not on-site every day.

B. It is the Contractor's responsibility to contact the RDA for clarification should there be questions regarding the interpretation or intent of the documents, field discovery, etc. that would impact or affect the work as proposed. RDA shall not be liable for deviations, field changes, and Owner changes during construction.

C. It is the Contractor's responsibility to field confirm all existing conditions, proposed installations and how they interface to ensure the systems can be installed per the intent of the documents and to meet applicable building and zoning codes, local requirements, Owner requirements, provide a watertight detail, meet aesthetic requirements, etc.

D. It is the Contractor's responsibility to meet all applicable building and zoning codes requirements whether specifically noted herein or not. Building codes represent the minimum acceptable standard.

E. It is the Contractor's responsibility to install all products, materials, installations, and the like in accordance with applicable industry standards, applicable manufacturer's details and instructions, in accordance with best practices, and building code provisions. The manufacturer details / requirements are the minimum acceptable standard, RDA drawings may require additional work.

1.27 CUTTING AND PATCHING

A. Employ skilled and experienced installer to perform cutting and patching new Work; restore Work with new Products.

B. Execute cutting, fitting, and patching [including excavation and fill,] to complete Work, and to:
   1. Fit several parts together, to integrate with other Work.
   2. Uncover Work to install or correct ill-timed Work.
   3. Remove and replace defective and non-conforming Work.
   4. Remove samples of installed Work for testing.
   5. Provide openings in elements of Work for penetrations of mechanical and electrical Work.

C. Cut masonry and concrete materials using masonry saw or core drill. Restore Work with new Products in accordance with requirements of Contract Documents.

D. Fit Work tight to adjacent elements. Maintain integrity of wall, ceiling, or floor construction; completely seal voids.

E. Fit Work tight to pipes, sleeves, ducts, conduit, and other penetrations through surfaces.

F. Refinish surfaces to match adjacent finishes. For continuous surfaces, refinish to the nearest intersection; for assembly, refinish entire unit. For painted surfaces, paint entire wall from corner to corner, floor to ceiling.

1.28 CONSTRUCTION PROGRESS SCHEDULES

A. Submit initial progress schedule in duplicate within 5 days after date of Owner-Contractor Agreement for Architect/Engineer review.

B. Prepare progress schedule using a bar chart of Critical Path chart to outline work and interrelated components.

C. Submit revised schedules as appropriate throughout the duration of the project.

1.29 SUBMITTAL PROCEDURES

A. Refer to Section 01 33 00.

1.30 MOCK-UPS

A. Accomplish mockups as directed by the Owner / RDA.

B. Accepted mock-ups are representative of quality required for the Work.

C. Where mock-up has been accepted by Owner / RDA and is specified in product specification sections to be removed; remove mock-up and clear area when directed to do so.

1.31 TEMPORARY UTILITIES

A. Utilize existing utilities at the building as required to facilitate work.

B. Utilize existing utilities at the building as required to facilitate work. Maintain existing utilities operational throughout the duration of the project. If systems need to be out of services, schedule this work for off-hours, coordinate with Owner.

C. Provide temporary lighting for construction operations as required by conditions and where existing lighting has been removed to facilitate work.

D. Provide temporary emergency egress and exit signage as required by conditions and where existing has been temporarily removed to facilitate work.

E. Coordinate with fire suppression and fire alarm system / monitoring company as applicable to facilitate work and accomplish modifications to the systems throughout the duration of the project. Maintain existing systems operational.

1.32 TEMPORARY HEATING / COOLING / VENTILATION

A. Provide and maintain temporary heating / cooling as required to facilitate the project. Do not let dust / dirt to accumulate in the existing duct systems resultant from the project.

B. Shut down HVAC systems during dusty activities. Provide and maintain filtration media at all HVAC systems.

C. Ventilate enclosed areas to achieve curing of materials, to dissipate humidity, and to prevent accumulation of dust, fumes, vapors, or gases.

1.33 TEMPORARY SANITARY FACILITIES

A. Contractor shall provide any and all necessary portable toilet facilities at the project site as applicable to the work.

1.34 TEMPORARY BARRICADES

A. Erect temporary barricades as applicable to the work to maintain security, dust control, etc.

B. Temporary barricades when Contractor has full access to the construction area: polyethylene zip walls, etc. as required to maintain dust control and/or limit access.

C. Provide all applicable signage to limit non-construction personnel from entering the construction area.

1.35 STAGING AREA / MATERIAL STORAGE

A. Coordinate with Owner on acceptable location of project staging and material storage area.

B. Owner will make reasonable effort to provide suitable space on the site for the Contractor to set up operations. Moving from this space may be necessary when instructed by the Owner and shall be accomplished without charge to the Owner. Cooperate with Owner to minimize conflict from Owner's operations.

C. Exterior project staging area if provided shall be enclosed with a minimum of a 6' high chain link fence to the satisfaction of the Owner.

1.36 FIELD OFFICE

A. Owner will attempt to make space available for the Contractor / Project Team use over the course of the project. Relocate if directed by Owner or as required by work.

1.37 PARKING

A. Park Contractor vehicles in areas designated by the Owner.

B. Do not block access to existing parking lots with construction equipment, material laydown, or storage areas.

1.38 PROGRESS CLEANING AND WASTE REMOVAL

A. Collect and maintain areas free of waste materials, debris, and rubbish. Maintain site in clean and orderly condition to the satisfaction of the Owner. Clean up shall occur on a daily basis.

B. Remove debris and rubbish from pipe chases, plenums, attics, crawl spaces, and other closed or remote spaces, prior to enclosing spaces.

C. Failure to provide routine and daily cleanup may result in a back charge from the Owner to accomplish this work.

D. Provide dumpsters or trash containers needed for the proper removal of project materials, trash, or debris related to the Work. Keep all work areas and project sites neat and free of trash and clutter at all times. Take all considerations for safety.

1.39 FIRE PREVENTION FACILITIES

A. Establish fire watch for cutting and welding and other hazardous operations capable of starting fires. Maintain fire watch before, during, and after hazardous operations until threat of fire does not exist.

B. Portable Fire Extinguishers: NFPA 10; 10 pound capacity, 4A-60B: C UL rating.
   1. Provide one fire extinguisher at each project site during work operations.
   2. Supplement as necessary per the local fire department requirements for construction operations.

1.40 PROTECTION OF INSTALLED WORK

A. Protect installed Work and provide special protection where specified in individual specification sections.

B. Provide temporary and removable protection for installed products. Control activity in immediate work area to prevent damage.

C. Protect finished pavement, concrete, stairs, and other surfaces from traffic, dirt, wear, damage, or movement of heavy objects, by protecting with durable sheet materials.

D. Prohibit traffic or storage upon waterproofed or roofed surfaces, finished surfaces, etc as is applicable to the work. When traffic or activity is necessary, obtain recommendations for protection from waterproofing or roofing material manufacturer and provide all required protection as determined necessary. Any damage caused shall be repaired to like new condition.

E. Prohibit traffic from landscaped areas.

1.41 DUST CONTROL

A. Execute work by methods to minimize raising dust from Construction operations.

B. Provide positive means to prevent air-borne dust from dispensing into atmosphere and to other areas of the project as applicable.

C. Provide temporary visqueen dust control measures to minimize the spread of dust and debris. Provide drop cloths, protective coverings as necessary.

D. Provide protection of existing HVAC / distribution systems.

1.42 DELIVERY, HANDLING, STORAGE, AND PROTECTION

A. Deliver, handle, store, and protect Products in accordance with manufacturer's instructions.

B. Contractor shall be responsible for storage and safekeeping of all materials, including company’s personal property. All damaged materials shall be removed from the site.

C. Coordinate material delivery to avoid Owner involvement.

1.43 FINAL CLEANING

A. Execute final cleaning prior to final inspection.

B. Clean interior and exterior surfaces exposed to view. Vacuum carpeted and soft surfaces.

C. Replace filters of existing operating equipment [by Owner]

D. Remove waste and surplus materials, rubbish, and construction facilities from site.

1.44 STARTING OF SYSTEMS

A. Provide seven [7] days notification prior to start-up of each item.

B. Ensure each piece of equipment or system is ready for operation.

C. Execute start-up under supervision of responsible persons in accordance with manufacturer's instructions.

D. Submit written report stating equipment or system has been properly installed and is functioning correctly.

1.45 DEMONSTRATION AND INSTRUCTIONS

A. Demonstrate operation and maintenance of Products to Owner's personnel two weeks prior to date of Substantial Completion.

B. For equipment or systems requiring seasonal operation, perform demonstration for other season within six months.

C. Demonstrate start-up, operation, control, adjustment, trouble-shooting, servicing, maintenance, and shutdown of each item of equipment at scheduled times, at equipment location.

D. Utilize operation and maintenance manuals as basis for instruction. Review contents of manual with Owner's personnel in detail to explain all aspects of operation and maintenance.
   1. Prepare and insert additional data into the operations and maintenance manuals when the need for additional data becomes apparent during instruction.

1.46 TESTING, ADJUSTING, AND BALANCING

A. Adjust operating products and equipment to ensure smooth and unhindered operation.

B. Contractor shall retain services of independent firm to perform testing, adjusting, and balancing. Cost for these services shall be included in the bid amount.

C. Reports will be submitted by independent firm to Architect/Engineer indicating observations and results of tests and indicating compliance or non-compliance with specified requirements and with requirements of Contract Documents.

D. Cooperate with independent firm; furnish assistance as requested.

E. Re-testing required because of non-conformance to specified requirements will be the responsibility of the Contractor.

1.47 POLLUTION AND ENVIRONMENTAL CONTROL

A. Provide methods, means, and facilities to prevent contamination of soil, water, and atmosphere from discharge of noxious, toxic substances, and pollutants produced by construction operations.

B. Provide dust control, erosion and sediment control, etc. to allow for proper execution of the Work.

C. Provide protective coverings, etc. as necessary to protect work.

1.48 REMOVAL OF UTILITIES, FACILITIES, AND CONTROLS

A. Remove existing utilities, connections, finishes, etc. as applicable to the work. Remove back to the nearest termination, junction box, etc. as applicable to the work. Coordinate with requirements on the drawings.

B. Remove temporary utilities, equipment, facilities, materials, prior to Substantial Completion review.

C. Clean and repair damage caused by installation or use of temporary work.

D. Restore existing facilities used during construction to original condition. Restore permanent facilities used during construction to specified condition.

1.49 CLOSE OUT PROCEDURES

A. Refer to Section 01 77 00

1.50 PROJECT RECORD DOCUMENTS

A. Refer to Section 01 77 00

1.51 OPERATION AND MAINTENANCE DATA

A. Refer to Section 01 77 00.

1.52 WARRANTIES

A. Refer to Section 01 77 00.

PART 2 PRODUCTS

2.1 MANUFACTURED PRODUCTS

A. Where a particular system, product, or material is specified by name it shall be considered a standard and most satisfactory for its particular purpose. Any other product or material considered equal or better in all respects must be approved by the Architect prior to bidding.

B. All products used on this project shall be new, unless otherwise noted on the drawings or as specified herein.

2.2 PRODUCTS

A. Products: Means new material, machinery, components, equipment, fixtures, and systems forming the Work, but does not include machinery and equipment used for preparation, fabrication, conveying and erection of the Work. Products may also include existing materials or components specifically identified for reuse.

B. Do not use materials and equipment removed from existing premises, except as specifically identified or allowed by the Contract Documents.

C. Provide interchangeable components of same manufacturer for components being replaced.

2.3 LABELING

A. Attach label from agency approved by Authority having Jurisdiction for products, assemblies, and systems required to be labeled by Applicable Code.

B. Label information: include manufacturer’s or fabricator’s identification, approved agency information, and the following information, as applicable, on each label.
   1. Model number
   2. Serial number
   3. Performance characteristics

2.4 DELIVERY, HANDLING, STORAGE, AND PROTECTION

A. Deliver, handle, store, and protect Products in accordance with manufacturer's instructions.

B. Contractor shall be responsible for storage and safekeeping of all materials, including company’s personal property. All damaged materials shall be removed from the site.

C. Coordinate material delivery to avoid Owner involvement.

D. Locations of ground level storage and waste dumpster must be approved by the Owner.

E. All materials shall be properly secured to prevent blow off during weather, wind, etc.

2.5 PRODUCT OPTIONS

A. Products Specified by Reference Standards or by Description Only: Any Product meeting those standards or description.

B. Products Specified by Naming One or More Manufacturers: Products of manufacturers named and meeting specifications, no options or substitutions allowed.

C. Products Specified by Naming One or More Manufacturers with Provision for Substitutions: Submit request for substitution for manufacturers not named.

2.6 SUBSTITUTIONS

A. Refer to Section 01 25 00.

2.7 EXTRA MATERIALS

A. Provide attic stock of finish materials totaling 5% [or as noted below] of the total installation.
   1. Each finish floor type
   2. Each finish base type
   3. Each acoustic ceiling tile type – 3%

B. Provide minimum of [1] gallon of each finish paint color.

C. Coordinate turnover of extra materials to Owner, assist in placing materials in a location suitable to the Owner.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify existing site conditions and substrate surfaces are acceptable for subsequent Work. **Beginning new Work means acceptance of existing/job-site conditions.**

B. Verify utility services are available, of correct characteristics, and in correct location.

C. Contact OUPS a minimum of 48 hours prior to beginning work to verify location of existing utilities, coordinate requirements as applicable.
   1. Contact private utility locating services as required by the conditions. It is the Contractor's responsibility to locate all public and private utilities that may be impacted by the work.

3.2 FIELD VERIFICATION

A. Prior to ordering materials, Contractor shall verify the actual dimensions of existing conditions and assume responsibility for workable solutions for all new work. Verification that the new work and items are workable for existing conditions while providing adequate clearances is the responsibility of the Contractor.

3.3 PROTECTION

A. The work shall be accomplished in accordance with the provision of Federal, State American Standard Safety Code for Building Construction and OHSA safety requirements.
   1. Contractor shall be responsible for protective railings and guards, tie-offs, fall protection, and other safety measures as required by OSHA, even if not specified. Fall protection is required. RDA is not a safety consultant and as such does not direct the means and methods of compliance with safety regulations.

B. The Contractor shall protect and maintain all building entrances, interior contents, building exterior and grounds.
   1. Return all surfaces to their original condition after all work is complete.

C. In the event of damages of any kind caused by improper protection. The Contractor shall replace/repair the damages [including interior or exterior equipment] at no expense to the Owner.

D. Contractor shall comply with all regulations of the Local Fire Department and the Owner's requirement regarding storage and handling of flammable materials, etc. It is the responsibility of the Contractor performing any hot /torch work to comply with the safety provisions of the National

Fire Codes pertaining to such work and the contractor shall be responsible for all damage or fines resulting from failure to so comply.

3.4 PREPARATION

A. Clean substrate surfaces prior to applying next material or substance.

B. Apply manufacturer required or recommended substrate primer, sealer, or conditioner prior to applying new material or substance in contact or bond.

3.5 JOB SUPERINTENDENT/EMPLOYEES

A. Each prime contractor shall have a qualified foreman on the project at all times when work is being accomplished. [ALL Shifts]

B. Employees shall refrain from fraternization with building occupants.

C. The Contractor shall furnish the Owner with a list of personnel with phone numbers that will be working on the project and emergency contacts names and numbers that has the authority to handle emergencies on a 24 hour/seven days a week.

3.6 SAFETY PROGRAM

A. Contractor must have a written safety program for all operations/ work performed on this project. The documents must be at the job site and be made available to the Owner or RDA when requested.

B. The Contractor assumes all responsibility for project safety, ways, and means and methods of constructing the project.

C. In addition, the Owner may require special safety requirements to be performed by the Contractor, these requirements will be provided prior to commencement of work.

3.7 REMOVALS AND CLEANUP

A. Contractor shall be responsible for the removal, dismantling of items that are required for proper completion of the work as applicable in each section. All debris resulting from the work not designated for reuse becomes the property of the contractor unless stated otherwise.

B. At the completion of each day, the general contractor shall maintain the work area clean of all debris to the satisfactory of the owner, including all the subcontractors work area.

C. Provide dumpsters or trash containers needed for the proper removal of project materials, trash, or debris related to the work. Keep all work areas and project sites neat and free of trash and clutter at all times.
   1. No Debris, materials, etc. may be left unprotected on the grounds.
   2. All exterior staging / dumpster areas shall be fenced / protected.

3.8 SPECIAL PROCEDURES

A. Materials: As specified in product sections; match existing with new products for patching and extending work.

B. Employ skilled and experienced installer to perform alteration work.

C. Cut, move, or remove items as necessary for access to alterations and renovation Work. Replace and restore at completion.

D. Remove unsuitable material not marked for salvage, including rotted wood, corroded metals, and deteriorated masonry and concrete. Replace materials as specified for finished Work.

E. Remove debris and abandoned items from area and from concealed spaces.

F. Prepare surface and remove surface finishes to permit installation of new work and finishes.

G. Remove, cut, and patch Work in manner to minimize damage and to permit restoring products and finishes to original or specified condition.

H. Refinish existing visible surfaces to remain in renovated rooms and spaces, to renewed condition for each material, with neat transition to adjacent finishes.

I. Where new Work abuts or aligns with existing, provide smooth and even transition. Patch Work to match existing adjacent Work in texture and appearance.

J. When finished surfaces are cut so that smooth transition with new Work is not possible, terminate existing surface along straight line at natural line of division and submit recommendation to Architect for review.

K. Patch or replace portions of existing surfaces which are damaged, lifted, discolored, or showing other imperfections.

L. Finish surfaces as specified in individual product sections.

3.9 GENERAL PROJECT REQUIREMENTS

A. Equipment delivery and equipment staging must be coordinated with Owner prior to start of project.

B. Safety is paramount and all personnel on site must wear appropriate personal protection equipment [PPE]. The Contractor is responsible for means and methods to ensure that proper PPE is provided. Failure to comply may result in dismissal from site.

C. Barricade work area with appropriate construction grade barriers to establish boundaries of work area and assure safety for all workers and general public. All work areas must be properly barricaded from the general public prior to starting any work.

D. Job sites will be maintained in an orderly and neat fashion at all times.

E. Contractor will pre-determine work phases with Owner to minimize disruption of business operations.

F. IMPORTANT: Failure to show or mention petty details shall not be warranted for the omission of anything necessary for the proper completion of the work.

G. The plans and specifications are intended to depict the general scope, layout and quality of workmanship required. The documents are not an "instruction manual" to execute the work nor are they intended to show or describe in detail every item necessary for the proper installation of the work. The means and methods required to execute the work described is the sole responsibility of the Contractor. The Contractor shall include the ancillary work required, whether explicitly stated or not, for the proper completion of the work as intended. The Contractor is required to meet or exceed building code requirements, applicable industry standards, ASTM standards, and/or manufacturer installation requirements as they relate to the work.

H. The plans and specifications represent a single complete design package indicating the intended scope of the project in its entirety. As such, the project is structured to be awarded to a single Prime Contractor. The documents do not delineate bid packages or assign responsibilities to any subsequent subcontractors, dictate construction sequencing, nor provide coordination between any "trades". Such activities are the responsibility of the holder of the construction contract. In the event of a discrepancy within the drawings or between the drawings and the specifications, the more stringent requirement represented in the documents shall prevail.

I. Contractor shall not take advantage of any clerical errors, omissions, contradictions, or conflicts that may develop in plans, specifications, or details. Such errors, ambiguities and discrepancies shall be reported to the Architect immediately for clarification, revision, or correction prior to the

submission of bids. If no notification is given, it shall be assumed that all specifications and conditions will be met.

END OF SECTION

SECTION 01 25 00 – SUBSTITUTION PROCEDURES

PART 1 GENERAL

1.1 RELATED DOCUMENTS

A. Section 00 23 13, Instructions to Bidders shall apply to this section.

1.2 WORK INCLUDES

A. Includes administration and procedural requirement for Substitutions.
   1. Substitutions' for Cause: Changes due to project conditions, such as unavailable of product.
   2. Substitutions' for Convenience: Changes that may offer advantages to the Owner.

1.3 PRODUCT OPTIONS

A. Products Specified by Reference Standards or by Description Only: Any Product meeting those standards or description.

B. Products Specified by Naming One or More Manufacturers: Products of manufacturers named and meeting specifications, no options or substitutions allowed.

C. Products Specified by Naming One or More Manufacturers with Provision for Substitutions / Approved Equal: Submit request for substitution as outlined in this section for manufacturers not named.
   1. RDA/Owner is the decision maker if the proposed "approved equal" is in fact equal and approved. Any decision rendered is final.
   2. Any Contractor, Sub-contractor, or Supplier who makes their own judgement as to "approved equal" and includes within their bid without a formal approval is doing so at their own risk.

1.4 SUBSTITUTIONS PROCEDURES

A. RDA will consider requests for Substitutions by the Bidder only [not materials suppliers, etc].

B. Document each request with complete data substantiating compliance of proposed Substitution with Contract Documents.

C. A request constitutes a representation that the Bidder:
   1. Has investigated proposed product and determined that it meets or exceeds quality level of specified product.
   2. Will provide same warranty for Substitution as for specified product.
   3. Will coordinate installation and make changes to other Work which may be required for the Work to be complete with no additional cost to Owner.
   4. Waives claims for additional costs or time extension which may subsequently become apparent.

D. Substitution Procedure
   1. **Submit copy of request for Substitution for consideration to RDA no later than 7 days before bid opening date**.
   2. Submit shop drawings, product data, and applicable certified test results attesting to proposed product equivalence. Burden on proof is on proposer.
   3. RDA will notify Contractor in writing of decision to accept or reject request within 5 days of receipt of request or request additional information or documentation for evaluation.

E. Substitutions will not be considered when they are indicated or implied on Submittals, without written request or when acceptance will require revision to the Contract Documents.

F. If the Substitution will require modifications to the Contract / Bidding Documents, the cost for updating the documents shall be paid by the Contractor making the request.

G. Substitutions will not be considered after award of the project without justification.

H. Approved substitutions will be identified by Addenda.
   1. Bidders shall not rely upon approvals made in any other manner.

END OF SECTION

SECTION 01 29 00 – PAYMENT PROCEDURES

PART 1 GENERAL

1.1 WORK INCLUDES

A. Includes administration and procedural requirement for necessary to prepare and process Application for Payment.

1.2 SCHEDULE OF VALUES

A. Submit schedule on AIA Form G703.
   1. Provide line items for each applicable CSI division / defined work scope such that the Owner and RDA can review and determine/confirm progress.
   2. Include line items for each allowance, alternates [as applicable], and general conditions.

B. Submit Schedule of Values in duplicate within 5 days after date of Owner-Contractor Agreement.

1.3 APPLICATIONS FOR PAYMENT

A. Use AIA form G702 and G703 for Application for payment or a form the Owner has requested.

B. Content and Format: Utilize Schedule of Values for listing items in Application for Payment.

C. Complete every entry, notarize and execute by a person authorized to sign document on behalf of the contractor. Include amounts for work completed following previous Application for Payment whether or not payment has been received, include amounts of Change Orders issued before last day of construction period covered by application.
   1. Stored materials included in application must have supporting documentation that verifies amount required, do not include overhead and profit on stored material.
   2. Submit to RDA for review and processing.
      a. E-mail submittal is acceptable unless otherwise directed by the Owner. Verify hard copies with Owner if required.

D. Each application for payment following the initial Application for Payments shall be consistent for payment with previous applications.

1.4 RETAINAGE

A. Refer to the Supplementary Conditions to the AIA-A104 Owner-Contractor Agreement.

1.5 PREVAILING WAGE / PAYROLL REPORTS

A. Submit certified payroll reports for each contractor [General Contractor and all Subcontractors] with each payment application. Payroll reports shall be et up on a weekly basis.

1.6 SUBMITTAL PROCEDURES

A. Submit [1] copy of each payment application on AIA Form G702 and G703, in PDF format
   1. Pencil copy to RDA for review/acceptance. RDA will review and provide any comments or questions.
   2. Submit final payment application in PDF format to RDA for processing.
   3. RDA will certify and process the payment application and will forward to Owner for payment.

B. Submit all required waivers of lien / partial release of lien [including vendors and subcontractors as requested by Owner], payroll reports, etc. as required by the Owner. Failure to submit required paperwork can delay processing of Application for Payment.

1.7 FINAL APPLICATION FOR PAYMENT

A. Refer to provisions in Section 01 77 00 for Application for Payment at Substantial Completion.

END OF SECTION

SECTION 01 33 00 – SUBMITTALS

PART 1 GENERAL

1.1 WORK INCLUDES

A. Review of shop drawings and product data by RDA / Owner.

1.2 SUBMITTAL PROCEDURES

A. Contractor to submit product data and shop drawings for all applicable components of the project. Refer to individual sections for additional requirements.
   1. Contractor to provide a submittal log at the beginning of the project for review by RDA / Owner. Submittal log shall identify proposed submittals by Spec Section.
   2. RDA review of the submittals will be general in nature and does not relieve the Contractor in any way of the responsibility in compliance with the contract requirements, manufacturer requirements, and/or applicable codes.

B. Submittals shall be accomplished in a digital [PDF format].
   1. Any hard copies received will be scanned and returned electronically.
   2. Provide those submittals required to maintain orderly progress of the work and those required for early lead time for manufacturer fabrication.
   3. Mark each component to identify applicable products, models, options, and other data. Supplement manufacturer's standard data to provide information unique to this project. Non-identified submittals will be rejected.

C. Submittals shall have a Submittal form / cover sheet to identify Project, Contractor, subcontractor or supplier; and pertinent Contract Document references.

D. Apply Contractor's stamp, signed or initialed, certifying that review, verification of Products required, field dimensions, adjacent construction Work, and coordination of information is in accordance with requirements of the Work and Contract Documents.

E. Identify variations from Contract Documents and Product or system limitations which may be detrimental to successful performance of completed Work.

F. Revise and resubmit submittals as required; identify changes made since previous submittal.

G. All submittals shall be accomplished at the beginning of the project to allow the proper ordering of materials for the project.
   1. Failure by the Contractor to provide submittals in a timely fashion does not change the project start date nor contract period.

H. Any materials on the job site that have not been reviewed as part of the submittal process are subject to rejection / removal from the job-site. Any work undertaken without review of the submittal data is at the Contractor's risk and subject to rejection or replacement at no cost to the Owner if submittals are not in conformance with the project documents.

I. Allow 7 days for review of submittal items.

1.3 SUBMITTALS / PRODUCT DATA / SHOP DRAWINGS

A. Product Data/Shop Drawings:
   1. Submitted to RDA for review for limited purpose of checking for conformance with information given and design concept expressed in Contract Documents.
   2. All shop drawings shall be to scale, submit drawings on sheets no larger than 24-inch x 36 inch, all other product data can be on 8 ½ X 11-inch sheets.

B. Samples for Review:
   1. Submitted to RDA for review and selection for aesthetic, color, or finish.

2. Submit samples of finishes from full range of manufacturer's standard colors, textures, and patterns for Owners selection.
3. Submit samples to illustrate functional and aesthetic characteristics of Product.

C. Personnel/Other Contractors
1. Submit a list of all subcontractors and on-site personnel with the list of lead contact and associated phone numbers.
2. Submit emergency contact sheet with contacts for an emergency – 24/7 call list.

D. Contract Items:
1. Submit Certificate of Insurance, Worker's Comp Certificates as required by Owner.
2. Submit bonds if applicable to the contract.
3. Submit a written Construction Schedule / Implementation and Sequencing Plan outlining starting points and length of time to complete work in each section.

E. Safety Data Sheets: Submit Safety Data Sheets [SDS] on all products to the Owner.
1. Owner shall be responsible to provide to employees as applicable.
2. Owner's representative /RDA does not review / approve any SDS sheets.

F. Site Specific Safety Plan
1. Provide to Owner for their Review.

G. Site Logistics Plan
1. Provide to Owner for their Review.

1.4 MANUFACTURER'S INSTRUCTIONS

A. When specified in individual specification sections, submit manufacturer printed instructions for delivery, storage, assembly, installation, [start-up,] adjusting, and finishing, in quantities specified for Product Data.

1.5 MANUFACTURER'S CERTIFICATES

A. When specified in individual specification sections, submit certifications by manufacturer to Owner, in quantities specified for Product Data.

B. Indicate material or Product conforms to or exceeds specified requirements. Submit supporting reference data, affidavits, and certifications as appropriate.

END OF SECTION

SECTION 01 77 00 - CLOSEOUT REQUIREMENTS

PART 1 GENERAL

1.1 WORK INCLUDES

A. Close-out of the actual work, including warranties, maintenance manuals and final cleaning. Close-out of all contract obligations.

1.2 CLOSE-OUT PROCEDURES

A. Contractor shall notify Owner 7 days prior to the work being complete to establish the desired inspection date. Owner / RDA will either proceed with the inspection or notify Contractor of unfulfilled requirements.

B. Owner / RDA shall inspect the completed project and notify the Contractor of any deficiencies. Deficiencies will form 'punch list' for final acceptance.

1.3 PUNCHLIST REQUIREMENTS

A. The Contractor shall review and inspect all work prior to notifying the Owner for a Punchlist inspection of the work. Provide written documentation certifying review along with documentation of Contractor generated Punchlist.

B. If work is clearly not complete, the Punchlist will be suspended until such time that it is evident that the Contractor has completed and reviewed/inspected their own work.

1. RDA anticipates up to [2] punchlist inspections and [1] back-punch / final inspection as part of our services to the Owner.
2. Failures by the Contractor to complete the work, complete punchlists, etc. may result in a backcharge to the Contractor for the additional time to closeout the project.

C. The Contractor shall review and provide the noted repairs and corrective work necessary at each of the Punchlist inspections to allow project close out.

1. Back-punch walk through may result in additional punchlist items which need to be addressed by the Contractor.

D. The Contractor shall provide adequate time in the construction schedule to accomplish punchout work within the overall contract period indicated within the bid documents.

E. The failure to identify any punchlist item during a walk through / inspection does not release the Contractor from contractual responsibility to address any item during the warranty period.

1.4 SUBSTANTIAL COMPLETION

A. If Requested by the owner, a Certificate of Substantial Completion will be issued upon completion of all the work as required.

1.5 PREREQUISITIES TO FINAL ACCEPTANCE AND PAYMENT

A. Prior to acceptance and final payment, all claims or disputes must have been resolved and the Contractor must have provided the following items to the Owner:

1. Notarized affidavit of waiver of liens [contractor of record], sub-contractors and material suppliers
2. Certificates of release from authorities having jurisdiction over permitting.
3. Final statement of charges [100% application for payment].
    a. Submit a final Application for Payment according to Section 01 29 00, Payment Procedures.
4. Documented evidence of completing 'punch list' as applicable.
5. Manufacturer's original warranties, including contractor maintenance agreements and warranties as applicable.
6. Evidence that claims have been settled.

7. O+M Manuals
8. Manufacturer's maintenance and repair instructions.
9. Record Drawings.
10. Final cleaning of all work areas.
11. Restore all work staging and lay-out areas to pre-construction conditions, including but not limited to, removal of debris, temporary facilities, grading and grass seeding and cleaning or repair of impacted structures.

1.6 PHOTOGRAPHIC DOCUMENTATION

A. When requested by the Owner, photos of the completed punch list along with any supporting documentation can be submitted, in lieu of a final walkthrough.

1.7 PROJECT RECORD DOCUMENTS

A. Maintain on site one set of Contract Documents to be utilized for record documents.

B. Record actual revisions to the Work. Record information concurrent with construction progress.

C. Specifications: Legibly mark and record at each Product section description of actual Products installed.

D. Record Documents and Shop Drawings: Legibly mark each item to record actual construction.

E. Submit documents to Owner.

1.8 PROJECT WARRANTIES

A. All work undertaken as part of the project shall be warranted for a period of not less than [1] year. Individual sections / products may have specific additional warranty requirements.

B. Provide notarized copies of warranty documents to the Owner.
   1. Execute and assemble transferable warranty documents from subcontractors, suppliers, and manufacturers.

C. Original warranties are required to be provided to the Owner prior to final payment.

1.9 OPERATION AND MAINTENANCE DATA

A. Submit two sets prior to or at the final inspection, bound in 8-1/2 x 11-inch text pages, binder covers.

B. Prepare binder cover with printed title "OPERATION AND MAINTENANCE INSTRUCTIONS" and title of project.

C. Internally subdivide binder contents with permanent page dividers, logically organized, with tab titles legibly printed under reinforced laminated plastic tabs.

D. Contents:
   1. Part 1: Directory, listing names, addresses, and telephone numbers of Architect, Contractor, subcontractors, and major equipment suppliers.
   2. Part 2: Permit and Inspection information
   3. Part 3: Project submittals, organized by CSI division
      a. Include applicable product warranties with individual sections / submittals
   4. Part 4: Operation and maintenance instructions, arranged by system / CSI division.
   5. Part 5: Project documents and certificates.
   6. Part 6: Colors / finishes / samples

1.10 FINAL CLEANING AND SITE REPAIR

A. Final cleaning of all work areas:
   1. Execute final cleaning prior to final inspection.

2. Clean interior and exterior surfaces exposed to view. Vacuum carpeted and soft surfaces.
3. Clean interiors of all cabinetry.
4. Clean all fixtures and finishes.
5. Replace filters of operating equipment.
6. Remove waste and surplus materials, rubbish, and construction facilities from site.

B. Restore all work staging and lay-out areas to pre-construction conditions, including but not limited to, removal of debris, temporary facilities, grading and grass seeding and cleaning or repair of impacted structures.

END OF SECTION

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SECTION 02 41 19 - SELECTIVE DEMOLITION

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Demolishing designated building equipment and fixtures.
   2. Demolishing designated construction.
   3. Cutting and alterations for completion of the Work.
   4. Removing designated items.
   5. Protecting items designated to remain.
   6. Removing demolished materials.

1.2 CLOSEOUT SUBMITTALS

A. Project Record Documents: Record actual locations of capped utilities, concealed utilities, subsurface obstructions, and any other documentation necessary for future reference.

1.3 QUALITY ASSURANCE

A. Conform to applicable code for demolition work, dust control, products requiring electrical disconnection and re-connection.

B. Conform to applicable code for procedures when hazardous or contaminated materials are discovered.

C. Obtain required permits from authorities having jurisdiction.

1.4 SCHEDULING

A. Schedule Work to coincide with proposed alterations and improvements.

B. Coordinate Work with Work by Others and Work by Owner as needed.

C. Coordinate utility and building service interruptions with Owner.
   1. Do no disable or disrupt fire alarm or life safety systems without approval from the Owner and Fire Department and/or Building Official. Coordinate requirements as needed.

1.5 PROJECT CONDITIONS

A. Cease operations immediately if structure appears to be in danger and notify Architect/Engineer. Do not resume operations until directed.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

3.1 PREPARATION

A. Notify affected utility companies before starting work and comply with their requirements.

B. Mark location and termination of utilities.

C. Erect, and maintain temporary barriers and security devices including warning signs and lights, and similar measures, for protection of the public, Owner, and existing improvements indicated to remain.

D. Erect and maintain weatherproof closures for exterior openings as applicable to work/scope.

E. Erect and maintain temporary partitions.

F. Prevent movement of structure; provide temporary bracing and shoring as required.

G. Provide appropriate temporary signage.

H. Do not close or obstruct building egress path.

I. Do not disable or disrupt building fire or life safety systems without **three** days prior written notice to Owner. Coordinate with Fire Department / Building Official.

3.2 SALVAGE REQUIREMENTS

A. Coordinate any applicable items to be salvaged with Owner.

B. Protect designated salvage items.

C. Package small and loose parts.

D. Deliver salvaged items to Owner.

3.3 DEMOLITION

A. Provide all selective demolition and removals necessary for the proposed alterations. Field coordinate all conditions with the design intent on the drawings.
   1. Drawings are diagrammatic and may not reflect the full extent of demolition / removals required to accomplish the proposed scope of work.
   2. The Contractor shall coordinate design intent and verify that all demolition work and restoration / repair work required is included in the scope of the project, regardless of specifically being noted on the drawings.

B. Minimize interference with adjacent and occupied building areas.

C. Maintain protected egress from and access to adjacent building areas.

D. Cease operations immediately when structure appears to be in danger and notify Architect/Engineer.

E. Disconnect and remove utilities within demolition areas, refer to Drawings.

F. Cap and identify abandoned utilities at termination points when utility is not completely removed.

G. Protect existing improvements.

H. Carefully remove building components indicated to be Reused:

I. Remove demolished materials from Site except where noted otherwise. Do not burn or bury materials on Site. Provide the proper removal and/or all required dumpsters for the project.

J. Remove materials as Work progresses.

K. Upon completion of Work, leave areas in clean condition.

L. Remove temporary Work.

3.4 CLEAN UP

A. Remove demolished materials from site as work progresses.

B. Leave areas of work in clean condition.

END OF SECTION

SECTION 02 50 00 - HAZARDOUS MATERIALS REQUIREMENTS

PART 1 GENERAL

1.1 HAZARDOUS MATERIALS

A. The City of Moraine believes that all asbestos containing materials have been previously abated from the area of work during previous renovation projects. If suspect asbestos containing materials are discovered during the course of this project, the Owner will address with a separate vendor.

B. Contractor shall coordinate efforts as required as they interface with the scheduled work.

1.2 SUMMARY

A. Contractors must comply with Occupational Safety and Health Administration regulation 29 CFR 1926.62 “Lead in Construction Standard” as well as the Environmental Protection Agency Lead, Renovation, Repair and Painting Rule.

B. Contractor shall follow all applicable EPA rules and regulations when working with hazardous materials. It shall be the contractor’s responsibility to remain in compliance at all times during the project.

C. If any work person encounters any material which they suspect may be hazardous or toxic, they shall immediately advise the Owner. The Contractor shall take immediate and appropriate action to protect the building users and workers in accordance with federal, state, and local laws, codes and regulations. The architect and architect's consultants shall have no responsibility for the discovery, presence, handling, removal or disposal of or exposure of persons to hazardous materials in any form at the project site, including but not limited to asbestos, asbestos products, polychlorinated biphenyl (pcb) or other toxic substances.

1. The contractor is hereby advised that RDA Group Architects, LLC is not a design professional in the determination of the presence of hazardous materials, nor is RDA a design professional involved in making recommendations regarding the testing, removal, encapsulation or other corrective measures pertaining to hazardous materials.
2. If the work which is to be performed under the contract interfaces in any way with the existing components which contain hazardous materials, it is the contractor’s responsibility to contact the owner's environmental consultant regarding the proper means & methods to be utilized in dealing with hazardous materials.
3. By execution of the contract for construction, the contractor hereby agrees to bring no claim for negligence, breach of contract, indemnity or otherwise against the architect, his principles, employees, agents or consultants if such a claim in any way would involve the investigation of or remedial work related to hazardous materials in the project.
4. By execution of the contract for construction, the contractor further agrees to defend, indemnify and hold the architect, his principles, employees, agents or consultants harmless from any such asbestos or other hazardous materials related claims that may be brought by the contractor's subcontractors, suppliers or other third parties who may be acting under the direction of the contractor pursuant to this project.

END OF SECTION

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SECTION 03 01 00 - MAINTENANCE OF CONCRETE

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Concrete sealer.

1.2 SUBMITTALS

A. Product Data: Submit product standards, physical and chemical characteristics, technical specifications, limitations, maintenance instructions, and general recommendations regarding each material.

B. Manufacturer's Instructions: Submit mixing instructions.

1.3 MOCK-UP

A. Construct mockup panel illustrating finished aesthetic and color.

B. Prepare one mockup of each type of patching/repair procedure.

C. Locate where directed by Architect.

D. Incorporate accepted mockup as part of Work.

PART 2 PRODUCTS

2.1 CONCRETE SEALER

A. Concrete Sealer for existing concrete walls:
   1. WR Meadows VOCOMP-20 or Equal: Exposed aggregate sealer, transparent, water based acrylic curing and sealing compound that improves resistance to staining and wear.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify surfaces are ready to receive work.

B. Beginning of installation means acceptance of existing surfaces.

3.2 APPLICATION – CONCRETE SEALER

A. Prep and clean surface per manufacturer requirements – clean from all prior sealers, curing compounds, oils, and foreign matters that may prevent penetration or adhesion.

B. Distribute / Apply sealer per manufacturer requirements using a sprayer or short-nap roller to apply uniform film.

END OF SECTION

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SECTION 03 30 00 - CAST-IN-PLACE CONCRETE

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Formwork.
   2. Reinforcement and Accessories.
   3. Cast-in place concrete.
   4. Finishing and curing.

1.2 SYSTEM DESCRIPTION

A. Design, engineer and construct formwork, shoring and bracing in accordance with ACI 301 to conform to design and applicable code requirements to achieve concrete shape, line and dimension as indicated on Drawings or required by proposed work.

B. Vapor Retarder Permeance: Maximum 1 perm when tested in accordance with ASTM E96/E96M, water method.

1.3 SUBMITTALS

A. Design Data: Submit mix designs, admixtures, reinforcement, and anchors.

1.4 QUALITY ASSURANCE

A. Construct and erect concrete formwork, reinforcing, and cast-in-place concrete in accordance with ACI 301.

PART 2 PRODUCTS

2.1 FORM MATERIALS AND ACCESSORIES

A. Form Materials: At discretion of Contractor.

B. Form Release Agent: Colorless mineral oil not capable of staining concrete or impairing natural bonding characteristics of coating intended for use on concrete.

C. Slab Edge Joint Filler: ASTM D1751, Premolded asphaltic board, 1/2 inch thick. As applicable to conditions.

D. Vapor Retarder: ASTM E1745 Class A; 10 mil thick clear polyethylene film; type recommended for below grade application. Furnish joint tape recommended by manufacturer.

2.2 REINFORCEMENT MATERIALS

A. Reinforcing Steel: ASTM A615/A615M, 60 ksi yield grade, plain and/or deformed billet bars to suit condition and application, uncoated finish.

B. Welded Plain Wire Fabric: ASTM A185/A185M; in flat sheets; unfinished.

C. Fabricate concrete reinforcement in accordance with ACI 301.

2.3 CONCRETE MATERIALS

A. Cement: ASTM C150, Normal-Type I Portland type.

B. Fine and Coarse Aggregates: ASTM C33.

C. Lightweight Concrete Aggregate: ASTM C330

D. Water: Clean and not detrimental to concrete.

E. Air Entrainment Admixture: ASTM C260.

F. Fiber Mesh Reinforcing: ASTM 1116-C.

G. Bonding Agent: Latex emulsion.

H. Non-shrink Grout: Premixed compound consisting of non-metallic aggregate, cement, water reducing and plasticizing agents.

2.4 COMPOUNDS, HARDENERS AND SEALERS

A. Membrane Curing Compound and Sealer: ASTM C1315 Type I, Class A. Dayton Superior or Equal
   1. Install only at areas not receiving finish flooring system.

2.5 CONCRETE MIX

A. Mix and deliver concrete in accordance with ASTM C94/C94M, Option A.

B. INTERIOR CONCRETE SLAB ON GRADE: Furnish concrete of the following strength:
   1. 150 PCF
   2. Compressive strength 3,000 psi (28 day).
   3. Slump limit of 4 inches at point of placement.
   4. Minimum Cement Content: 600 pounds/cu yd.
   5. Maximum water-cement ratio: 0.45
   6. Air Entrainment: +/- 4%.
   7. Transit Mixed.

2.6 GRANULAR BASE

A. Interior slabs:
   1. Install 4” pea gravel, clean and graded, washed river-run gravel, ASTM C33, Size #7.
   2. Match existing as applicable

PART 3 EXECUTION

3.1 FORMWORK ERECTION

A. Erect formwork, shoring and bracing to achieve design requirements.

B. Apply form release agent to formwork prior to placing form accessories and reinforcement.

C. Clean forms as erection proceeds, to remove foreign matter.

3.2 INSERTS, EMBEDDED COMPONENTS, AND OPENINGS

A. Provide formed openings where required for work to be embedded in and passing through concrete members.

B. Coordinate work of other sections in forming and setting openings, slots, recesses, chases, sleeves, bolts, anchors, and other inserts.

C. Install concrete accessories straight, level, and plumb.

D. Place joint filler at perimeter of floor slab, penetrations, and isolation joints.

3.3 REINFORCEMENT PLACEMENT

A. Place reinforcement, supported and secured against displacement.

B. Ensure reinforcing is clean, free of loose scale, dirt, or other foreign coatings.

C. Do not weld reinforcement bars for assembly.

D. Space reinforcement bars with a minimum clear space in accordance with ACI 301 of not less than 1 inch.

E. Maintain concrete cover around reinforcement in accordance with ACI 301 of not less than 1 1/2" inches for concealed work and 3 inches for concrete exposed to weather.

3.4 PLACING CONCRETE

A. Install 4” minimum thickness granular base over undisturbed soils and compact as applicable.

B. Prepare previously placed concrete by cleaning with steel brush and applying bonding agent.

C. Install vapor barrier under interior slabs on grade in accordance with ASTM E1643. **Lap joints minimum 6 inches and seal watertight using manufacturer supplied tape.**

D. Seal vapor barrier tight around all penetrations in accordance with manufacturer requirements.

E. Repair damaged vapor retarder with vapor retarder material, lap over damaged areas minimum 6 inches and seal watertight.

F. Place concrete continuously between predetermined expansion, control and construction joints. Do not break or interrupt successive pours creating cold joints.

G. Separate slabs-on-grade from vertical surfaces with 1/2 inch thick joint filler, extended from bottom of slab to within 1/4 inch of finished slab surface.

H. Where new concrete is doweled to existing work, drill holes in existing concrete, insert steel dowels and pack with non-shrink grout.

I. Screed slabs-on-grade level.

3.5 FORM REMOVAL

A. Do not remove forms or bracing until concrete has gained sufficient strength to carry its own weight and imposed loads.

B. Remove formwork progressively and in accordance with code requirements.

3.6 FLOOR FINISHING

A. Finish concrete floor surfaces in accordance with ACI 301.

B. Uniformly spread, screed, and float concrete.
   1. Smooth finish at interior slabs.
   2. Align flush with adjacent concrete finishes.

C. Maintain surface flatness, with maximum variation of 1/8 inch in 10 ft.

D. Control joints:
   1. Locate at maximum of 12’-0” o.c. each way.
   2. Sawcut joints permitted only at concealed concrete areas.
   3. Trowel and re-trace joints at all exposed concrete areas.

3.7 CURING AND PROTECTION

A. Immediately after placement, protect concrete from premature drying, excessively hot or cold temperatures, and mechanical injury.
   1. Protect concrete footings from freezing for a minimum of 7 days.

B. Maintain concrete with minimal moisture loss at relatively constant temperature for period necessary for hydration of cement and hardening of concrete for not less than 7 days.

C. Apply sealer on floor surfaces not receiving finish floor system.

3.8 ERECTION TOLERANCES

A. Install reinforcement within tolerances required by ACI 301.

3.9 FIELD QUALITY CONTROL

A. Perform field inspection and testing in accordance with ACI 301 at the request of Architect.

B. Field Testing:
   1. Measure slump and temperature for each compressive strength concrete sample.
   2. Measure air content in air entrained concrete for each compressive strength concrete sample.

C. Cylinder Compressive Strength Testing:
   1. Test Method: ASTM C39.
   2. Test Acceptance: In accordance with ACI 301.
   3. Test two cylinders at 28 days.
   4. Dispose remaining cylinders when testing is not required.

3.10 DEFECTIVE CONCRETE

A. Modify or replace concrete not conforming to required lines, details and elevations, as directed by Architect.

END OF SECTION

SECTION 04 05 14 - MASONRY MORTARING AND GROUTING

PART 1 GENERAL

1.1 SUMMARY

A. Section includes mortar and grout for masonry.

1.2 SUBMITTALS

A. Samples: Submit two samples of mortar illustrating mortar color and color range.

1.3 QUALITY ASSURANCE

A. Perform Work in accordance with ACI 530 Building Code Requirements for Masonry Structures and ACI 530.1 Specification for Masonry Structures.

1.4 ENVIRONMENTAL REQUIREMENTS

A. Cold Weather Requirements: In accordance with ACI 530.1 when ambient temperature or temperature of masonry units is less than 40 degrees F.

B. Hot Weather Requirements: In accordance with ACI 530.1 when ambient temperature is greater than 100 degrees F or ambient temperature is greater than 90 degrees F with wind velocity greater than 8 mph.

PART 2 PRODUCTS

2.1 MORTAR AND MASONRY GROUT

A. Manufacturers:
   1. Cemex
   2. Glen-Gery
   3. Quikrete Companies
   4. Southern Grouts and Mortars.

2.2 COMPONENTS

A. Portland Cement: ASTM C150, Type I, gray color.

B. Premix Mortar for below grade applications: ASTM C387/C387M, Type S using gray color cement.

C. Premix Mortar for above grade applications: ASTM C387/C387M, Type N using colored cement.

D. Mortar Aggregate: ASTM C144, standard masonry type.

E. Hydrated Lime: ASTM C206, Type N.

F. Mortar Color: color as selected by Architect from full range of available colors for above grade applications.

G. Grout Aggregate: ASTM C404, fine.

H. Water: Clean and potable.

I. Bonding Agent: Latex type.

J. Calcium chloride is not permitted.

2.3 MIXES

A. Mortar Mixes:
   1. Mortar for Structural Masonry: ASTM C270, Type N using Proportion specification.
   2. Mortar for Non-Structural Masonry: ASTM C270, Type N using Proportion specification.

B. Mortar Mixing:
   1. Thoroughly mix mortar ingredients in accordance with ASTM C270 in quantities needed for immediate use.
   2. Add mortar color.

C. Grout Mixes:
   1. Engineered Masonry: 3,000 psi strength at 28 days; 8-10 inches slump; premixed type in accordance with ASTM C94/C94M Fine grout.

D. Grout Mixing:
   1. Mix grout in accordance with ASTM C94/C94M.
   2. Do not use anti-freeze compounds to lower freezing point of grout.

PART 3 EXECUTION

3.1 INSTALLATION

A. Install mortar in accordance with ACI 530.1 Specification for Masonry Structures.

3.2 FIELD QUALITY CONTROL

A. Testing of Mortar Mix: In accordance with ASTM C780.

B. Testing of Grout Mix: In accordance with ASTM C1019.

END OF SECTION

SECTION 04 20 00 - UNIT MASONRY

PART 1 GENERAL

1.1 SUMMARY

A. Section includes concrete masonry units, reinforcement, anchorage, and accessories.

1.2 PERFORMANCE REQUIREMENTS

A. Concrete Masonry Compressive Strength (f'm): 1,500 psi; determined by unit strength method.

1.3 QUALITY ASSURANCE

A. Perform Work in accordance with ACI 530 Building Code Requirements for Masonry Structures and ACI 530.1 Specification for Masonry Structures.

1.4 ENVIRONMENTAL REQUIREMENTS

A. Cold Weather Requirements: In accordance with ACI 530.1 when ambient temperature or temperature of masonry units is less than 40 degrees F.

B. Hot Weather Requirements: In accordance with ACI 530.1 when ambient temperature is greater than 100 degrees F or ambient temperature is greater than 90 degrees F with wind velocity greater than 8 mph.

PART 2 PRODUCTS

2.1 COMPONENTS

A. Concrete Masonry Units:
   1. Size and Shape: Nominal modular size of 4 x 8 x 16, 6 x 8 x 16, 8 x 8 x 16, or 12 x 8 x 16 inches as indicated on drawings. Furnish special units for 90 degree corners, bond beams, lintels, bullnosed corners.
      a. Hollow Load Bearing Concrete Masonry Units: ASTM C90; normal weight.
      b. Hollow Non-Load Bearing Concrete Masonry Units: ASTM C129; normal weight.

2.2 ACCESSORIES

A. Single Wythe Joint Reinforcement: ASTM A951/A951M; truss or ladder type; steel; 0.148 inch diameter side rods with 0.148 inch diameter cross ties; hot dip galvanized.

B. Reinforcing Steel: ASTM A615/A615M, 60 ksi yield grade, deformed billet bars, uncoated finish.

C. Mortar and Grout: As specified in Section 04 05 14.

D. Preformed Control Joints: Neoprene material. Furnish with corner and tee accessories.

E. Joint Filler: Closed cell **polyurethane**; oversized 50 percent to joint width; self expanding; 1/2 inch wide x by maximum lengths.

F. Precast Concrete Lintels: nominal 4”x8”, 6”x8”, or 8”x8” precast concrete lintels as required by conditions at new door openings. Refer to Drawings.

G. Steel Lintels: See Section 05 12 00 and Lintel Schedule on Drawings.

H. Anchor Rods: ASTM A307; Grade C; J-shaped or L-shaped complete with washers and heavy hex nuts; sized for 15-inch embedment; ASTM A153 hot dip galvanized finish.

I. Cleaning Solution: Non-acidic, not harmful to masonry work or adjacent materials; recommended by masonry unit manufacturer.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify field conditions are acceptable and are ready to receive Work.

3.2 PREPARATION

A. Coordinate placement of anchors supplied by other sections.

3.3 INSTALLATION

A. Maintain masonry courses to uniform dimension. Form vertical and horizontal joints of uniform thickness.

B. Coursing of Concrete Masonry Units:
   1. Bond: Running.
   2. Coursing: One unit and one mortar joint to equal 8 inches.
   3. Mortar Joints: Concave.

C. Cut mortar joints flush where ceramic wall tile is scheduled, cement parging is required, resilient base is scheduled.

D. Joint Reinforcement And Anchorage - Single Wythe Masonry:
   1. Install horizontal joint reinforcement 16 inches oc. Place joint reinforcement continuous in first joint below top of walls.
   2. Place masonry joint reinforcement in first horizontal joint above and below openings. Extend minimum 16 inches each side of opening.
   3. Reinforce stack bonded unit joint corners and intersections with strap anchors 16 inches oc.

E. Lintels:
   1. Install loose steel or precast concrete lintels over openings.
   2. Install reinforced unit masonry lintels over openings where steel or precast concrete lintels are not scheduled or indicated.
   3. Maintain minimum 8 inch bearing on each side of opening.

F. Grouted Components:
   1. Reinforce bond beam and pilasters as detailed.
   2. Support and secure reinforcing bars from displacement.
   3. Place and consolidate grout fill without displacing reinforcing.
   4. At bearing locations, fill masonry cores with grout for minimum 12 inches both sides of opening.

G. Control Joints:
   1. Install control joints at the following maximum spacings, unless otherwise indicated on Drawings:
      a. Exterior Walls: 20 feet on center and within 24 inches on one side of each interior and exterior corner.
      b. Interior Walls: 30 feet on center.
      c. At changes in wall height.
   2. Do not continue horizontal joint reinforcement through control joints.
   3. Form control joint with sheet building paper bond breaker fitted to one side of hollow contour end of block unit. Fill resultant core with grout fill. Rake joint at exposed unit faces for placement of backer rod and sealant.
   4. Install preformed control joint device in continuous lengths. Seal butt and corner joints.

H. Built-In Work:
   1. As work progresses, install built-in metal door frames, window frames, anchor bolts and plates and other items to be built in the work furnished by other sections.

2. Bed anchors of metal door frames in adjacent mortar joints. Fill frame voids solid with grout or mortar. Fill adjacent masonry cores with grout minimum 12 inches from framed openings].

I. Cutting And Fitting:
   1. Cut and fit for chases, pipes, conduit, sleeves, grounds and other penetrations. Coordinate with other sections of work to provide correct size, shape, and location.

J. Cleaning:
   1. Remove excess mortar and mortar smears as work progresses.
   2. Clean soiled surfaces with cleaning solution.

K. Tolerances:
   1. Maximum Variation from Plumb: 1/4 inch per story non-cumulative; 1/2 inch in two stories or more.
   2. Maximum Variation from Level Coursing: 1/8 inch in 3 ft and 1/4 inch in 10 ft; 1/2 inch in 30 ft.

END OF SECTION

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SECTION 05 12 00 - STRUCTURAL STEEL FRAMING

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes: Structural shapes; Channels and angles; plates; bolts, connectors, and anchors; Grout.

1.2 SUBMITTALS

A. Shop Drawings: Indicate sizes, spacing, and locations of structural members, openings, connections, and welded connections.

1.3 QUALITY ASSURANCE

A. Perform Work in accordance with the following:
   1. Structural Steel: AISC 303.
   2. High Strength Bolted Connections: RCSC Specification for Structural Joints Using ASTM A 325 or A 490 Bolts.

PART 2 PRODUCTS

2.1 STRUCTURAL STEEL

A. Structural W-shapes: ASTM A992/A992M; ASTM A572, Grade 60

B. Channels and Angles: ASTM A36/A36M; ASTM A572, Grade 60

C. Square and Rectangular Structural Sections: ASTM A500/A500M, Grade B

D. Structural Pipe: ASTM A53/A53M, Grade B.

E. Structural Plates and Bars: ASTM A36/A36M; ASTM A572, Grade 60

2.2 BOLTS, CONNECTORS, AND ANCHORS

A. Bolts: Heavy hex, structural type.
   1. ASTM A325; Type 1, hot dipped galvanized, or Type 3, plain.

B. Nuts: ASTM A563 heavy hex type.
   1. Finish: Hot dipped galvanized.

C. Washers: ASTM F436; Type 1, circular. Furnish clipped washers where space limitations require.
   1. Finish: Hot dipped galvanized.

D. Tension Control Assemblies: ASTM F1872; Type 1, heavy hex head, twist off type, complete with washers and heavy hex nuts.
   1. Finish: Mechanically galvanized

E. Shear Connectors: ASTM A108; Grade 60, headed, unfinished and in accordance with AWS D1.1; Type B

F. Anchor Rods: ASTM F1554; Grade 55, weldable. Hooked shape.

G. Threaded Rods: ASTM A36/A36M.
   1. Finish: Hot dipped galvanized.

2.3 WELDING MATERIALS

A. Welding Materials: AWS D1.1; type required for materials being welded.

2.4 FABRICATION

A. Continuously seal joined members by continuous welds. Grind exposed welds smooth.

B. Fabricate connections for bolt, nut, and washer connectors.

2.5 FINISHES

A. Prepare structural component surfaces in accordance with SSPC SP 3 or as required by conditions.

B. Shop prime structural steel members.

C. Galvanizing: ASTM A123/A123M; hot dip galvanize after fabrication.

D. Galvanizing for Bolts, Connectors, and Anchors:
   1. Hot-Dipped Galvanizing:
      a. Bolts, Nuts, and Washers: ASTM F2329.
      b. Connectors and Anchors: ASTM A153/A153M.
   2. Mechanical Galvanizing: ASTM B695; Class 50 minimum.

2.6 ACCESSORIES

A. Grout: Non-shrink type, pre-mixed compound consisting of non-metallic aggregate, cement, water reducing and plasticizing additives, capable of developing minimum compressive strength of 7,000 psi at 28 days.

B. Shop Primer: SSPC Paint 15, Type 1, red oxide.

C. Touch-Up Primer: Match shop primer.

D. Touch-Up Primer for Galvanized Surfaces: SSPC Paint 20 Type I Inorganic.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify bearing surfaces are at correct elevation.

B. Verify anchors rods are set in correct locations and arrangements with correct exposure for steel attachment.

3.2 ERECTION

A. Allow for erection loads, and for sufficient temporary bracing to maintain structure safe, plumb, and in alignment until completion of erection and installation of permanent bracing.

B. Field weld components indicated.

C. Do not field cut or alter structural members without approval of Architect/Engineer.

D. After erection, touch up welds and abrasions to match shop finishes.

3.3 GROUT INSTALLATION

A. Shim bearing plates and equipment supports to proper elevation, snug tighten anchor bolts.

B. Fill void under bearing surface with grout. Install and pack grout to remove air pockets.

C. Moist cure grout.

D. Remove forms after grout is set. Trim grout edges to from smooth surface, splayed 45 degrees.

E. Tighten anchor bolts after grout has cured for a minimum of 3 days.

3.4 FIELD QUALITY CONTROL

A. Bolted Connections: Inspect in accordance with AISC 303.
   1. Visually inspect all bolted connections.
   2. For Direct Tension Indicators, comply with requirements of ASTM F959. Verify that gaps are less than gaps specified in Table 2.

B. Welding:

1. Certify welders and conduct inspections and tests as required. Record types and locations of defects found in work. Record work required and performed to correct deficiencies.
2. Visually inspect all welds.
3. Ultrasonic Inspection: ASTM E164; perform on all full penetration welds.

C. Correct defective bolted connections and welds.

END OF SECTION

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SECTION 05 31 23 - STEEL ROOF DECKING

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Steel roof deck and accessories.
   2. Bearing plates and angles.

1.2 PERFORMANCE REQUIREMENTS

A. Design metal deck in accordance with SDI 29 Design Manual and ASCE 3.

B. Calculate to structural limit stress design and maximum vertical deck deflection of 1/240.

PART 2 PRODUCTS

2.1 MATERIALS

A. Sheet Steel: ASTM A653, Grade 33 Structural Quality; with G90 galvanized coating.

B. Bearing Angles: ASTM A36/A36M steel, unfinished, primed.

C. Shop Primer: SSPC Paint 15, Type 1, red oxide

D. Touch-Up Primer for Galvanized Surfaces: SSPC Paint 20 Type I Inorganic.

2.2 FABRICATION

A. Metal Deck: Sheet steel, configured as follows:
   1. Span Design: single.
   2. Minimum Metal Thickness Excluding Finish: 20 gage.
   3. Nominal Height: 1-1/2 inch, fluted profile to match existing, field verify conditions.
   4. Side Joints: lapped.
   5. Flute Sides: plain vertical face.

B. Related Deck Accessories: Metal closure strips, cover plates, 20 gage thick galvanized sheet steel; of profile and size required for conditions.

C. Fasteners: Galvanized hardened steel, self tapping.

PART 3 EXECUTION

3.1 INSTALLATION

A. Erect metal deck in accordance with SDI Manual.

B. Bear deck on adjacent steel deck or steel supports with 6 inch minimum bearing. Align and level.

C. Fasten deck to steel support members at ends and intermediate supports with mechanical fasteners at 12 inches oc maximum, parallel with deck flute and at every other transverse flute.

D. Mechanically **clinch** male/female side laps at 24 inches oc maximum.

E. Reinforce steel deck openings from 6 to 24 inches in size with 3 x 3 x 1/4 inch steel angles. Place framing angles perpendicular to flutes; extend minimum two flutes beyond each side of opening and mechanically attach to deck at each flute.

F. Install 6 inch minimum wide sheet steel cover plates, of same thickness as deck, where deck changes direction. Mechanically attach at 12 inches oc maximum.

G. Install sheet steel closures and angle flashings to close openings between deck and walls, columns, and openings.

END OF SECTION

SECTION 06 10 53 - MISCELLANEOUS ROUGH CARPENTRY

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes: plywood wall sheathing; blocking in wall openings; concealed wood blocking; and preservative treatment of wood.

1.2 QUALITY ASSURANCE

A. Perform Work according to following:
   1. Lumber Grading Agency: Certified by DOC PS 20.
   2. Lumber: DOC PS 20.
   3. Wood Structural Panels: DOC PS 1 or DOC PS 2.

B. Surface Burning Characteristics:
   1. Fire Retardant Treated Materials: Maximum 25/450 flame spread/smoke developed index when tested according to ASTM E84.

PART 2 PRODUCTS

2.1 MATERIALS

A. Lumber Grading Rules: SPIB; ASLS

B. Miscellaneous Framing: Stress Group D SPF or SYP species, #2 grade, 19 percent maximum moisture content.

C. Plywood: APA/EWA, Structural I, Grade B-C; Exposure Durability 2; sanded, fire retardant treated.

2.2 FIRE-RETARDANT-TREATED MATERIALS (FRT)

A. General: Where fire-retardant-treated materials are indicated, use materials complying with requirements in this article, that are acceptable to authorities having jurisdiction, and with fire-test-response characteristics specified as determined by testing identical products per test method indicated by a qualified testing agency.

B. Fire-Retardant-Treated Lumber and Plywood by Pressure Process: Products with a flame spread index of 25 or less when tested according to ASTM E 84, and with no evidence of significant progressive combustion when the test is extended an additional 20 minutes, and with the flame front not extending more than 10.5 feet beyond the centerline of the burners at any time during the test.
   1. Use treatment that does not promote corrosion of metal fasteners.
   2. Exterior Type: Treated materials shall comply with requirements specified above for fire-retardant-treated lumber and plywood by pressure process after being subjected to accelerated weathering according to ASTM D 2898. Use for exterior locations and where indicated.

C. Kiln-dry lumber after treatment to a maximum moisture content of 19 percent. Kiln-dry plywood after treatment to a maximum moisture content of 15 percent.

D. Identify fire-retardant-treated wood with appropriate classification marking of qualified testing agency.

2.3 ACCESSORIES

A. Fasteners and Anchors:
   1. Fasteners: ASTM A153/A153M, hot dipped galvanized steel for high humidity and treated wood locations, unfinished steel elsewhere.

2. Nails and Staples: ASTM F1667.
3. Anchors: Toggle bolt type for anchorage to hollow masonry. Expansion shield and lag bolt type for anchorage to solid masonry or concrete. Bolt or ballistic fastener for anchorages to steel. All anchors sized to suit application and loads.

2.4 FIREBLOCKING AND FIRESTOPPING

A. Fireblocking: Solid lumber, structural wood panel, or particleboard, fire retardant treated.
   1. Solid lumber nominal 2 inches thick.
   2. Structural wood panel 23/32 inch thick with joints backed by structural wood panel.

2.5 FACTORY WOOD TREATMENT

A. Wood Preservative (Pressure Treatment): AWPA U1, Commodity Specification A-Sawn Products or F-Wood Composites using water-borne ACQ preservative.

B. Fire Retardant Treatment: Chemically treated and pressure impregnated, having flame spread of 25 or less when tested according to ASTM E84 and showing no evidence of significant progressive combustion when test is continued for an additional 20 minute period, Interior Type.

C. Moisture Content after Treatment: Kiln dried (KDAT).
   1. Lumber: Maximum 19 percent.
   2. Structural Panels: Maximum 15 percent.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify substrate conditions are ready to receive blocking and framing.

3.2 PREPARATION

A. Coordinate placement of blocking and framing items.

3.3 FRAMING

A. Erect wood framing/blocking in accordance with Ohio Building Code. Place members level and plumb. Place horizontal members crown side up.

B. Make provisions for erection loads, and for sufficient temporary bracing to maintain structure safe, plumb, and in alignment until completion of erection and installation of permanent bracing.

C. All exterior blocking intended to be left exposed to weather shall be pressure treated and anchored with galvanized fasteners and appropriate connectors.

D. All blocking and framing shall be fire retardant treated.

E. Fasten blocking per conditions and in accordance with Ohio Building Code.

3.4 FIREBLOCKING AND DRAFTSTOPPING

A. Install fireblocking to cut off concealed draft openings as required.
   1. Concealed Framed Wall and Furred Spaces: Install fireblocking vertically at floor and ceiling levels and horizontally.
   2. Connections Between Horizontal and Vertical Spaces: Install fireblocking between vertical walls and partitions and the following:
      a. Horizontal floor and roof framing.
      b. Soffits, dropped ceilings, cove ceilings and other horizontal concealed spaces.

3.5 SITE APPLIED WOOD TREATMENT

A. Treat site sawn cuts. Brush apply one coat of preservative treatment on untreated wood in contact with cementitious materials.

B. Allow preservative to cure prior to erecting members.

3.6 TOLERANCES

A. Framing members: ¼ inch from indicated position, maximum.

END OF SECTION

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SECTION 06 41 00 - ARCHITECTURAL WOODWORK

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Custom plastic-laminate-finished casework.
   2. Custom plastic-laminate-finished counter tops.
   3. Cabinet hardware.
   4. Interior Finish Carpentry

1.2 SUBMITTALS

A. Product Data:
   1. High-pressure decorative laminates.
   2. Hardware accessories.

B. Shop Drawings: Indicate materials, component profiles and elevations, assembly methods, joint details, fastening methods, accessory listings, hardware location, schedule of finishes.

C. Samples: Plastic laminate, trim profiles as applicable.

1.3 QUALITY ASSURANCE

A. Perform Work according to AWS, Section 6, Section 10, and Section 11; custom grade.

B. Surface Burning Characteristics: Maximum 25/450 flame-spread/smoke-developed index when tested according to ASTM E84.

C. Fabricator: Company specializing in fabricating products specified in this Section with minimum five years' experience similar to this Project.

1.4 DELIVERY, STORAGE, AND HANDLING

A. Protect units from moisture damage.

1.5 AMBIENT CONDITIONS

A. Maintain storage space relative humidity within ranges indicated in AWS Section 2.

B. Subsequent Conditions: Maintain same temperature and humidity conditions in building spaces as will occur after occupancy during and after installation of Work of this Section.

1.6 EXISTING CONDITIONS

A. Field Measurements: Verify field measurements prior to fabrication. Indicate field measurements on Shop Drawings.

PART 2 PRODUCTS

2.1 PLASTIC LAMINATE

A. Manufacturer:
   1. Wilsonart [basis of design]
   2. Formica
   3. Arborite

2.2 CUSTOM CASEWORK

A. Plastic-Laminate-Finished Custom Casework:
   1. Frameless construction.
   2. Style: Flush overlay.

3. AWS Section 10.
4. Custom grade.
5. Exterior and Interior Exposed Surfaces: High-pressure decorative laminate over medium density fiberboard [MDF].
6. Semi-Exposed Surfaces: Thermally Fused Melamine over particleboard.
7. Interior Surfaces, Interior Cabinet Shelves, Drawers: Thermally Fused Melamine over particleboard.

B. Casework Construction Details:
1. Drawer Side Joinery: dovetailed or lock jointed.
2. Drawer and Door Edge Profile: Square with thin, applied band.
3. Toe Base Finish: Rubber Base as specified in Section 09 65 00.
4. Grain Direction: field verify with Architect as applicable.

C. Plastic-Laminate-Finished Counter Tops: AWS Section 11; custom grade.
1. Core: Medium density fiberboard or Particleboard.
2. Splash Top Profile: Square with scribe.
3. Deck at Splash Joint Type: Horizontal Butt
4. Front Edge: Square edge, plastic laminate, 1 1/2 face dimension.
5. Splash Assembly: Field assembled.

D. Solid Surface Counter Tops: Refer to Section 06 61 16.

2.3 CASEWORK MATERIALS

A. Softwood Lumber: DOC PS 20.

B. Particleboard: ANSI A208.1 Grade M2 or better; composed of wood chips or sawdust, medium density.
1. Fire-Retardant Particleboard: ASTM E84; 25 maximum flame-spread index and 450 maximum smoke-developed index.

C. Medium-Density Fiberboard: ANSI A208.2, composed of wood fibers, medium density.
1. Fire-Retardant Fiberboard: ASTM E84; 25 maximum flame-spread index and 450 maximum smoke-developed index.

D. High-Pressure Decorative Laminate (HPDL): NEMA LD 3; through color, style/pattern as selected, and surface texture as selected.
1. Horizontal Surfaces: HGS; 0.048 in thick.
2. Vertical Surfaces: VGS; 0.028 in thick.
3. Cabinet Liner: CLS; 0.020 in thick.
4. Backing Sheet: BKL; 0.020 in thick.

E. Adjustable shelf standards: Heavy Duty type, Knape & Vogt 83 / 183 Series
1. BMHA Grade 2 Compliant
2. Material: 16 gauge steel construction
3. Finish: Corrosion resistant Anochrome
4. Size: per drawings.
5. Standards: maximum spacing at 24 inches on center.

2.4 FABRICATION

A. Fabricate interior finish carpentry to AWS Section 6 custom grade.

B. Fabricate casework to AWS Section 10 custom grade.

C. Fabricate counter tops to AWS Section 11 custom grade.

D. Shop-assemble casework for delivery to Site in units easily handled and to permit passage through building openings.

E. Fit exposed plywood edges with matching veneer edging. Use one piece for full length only.

F. Cap exposed high-pressure decorative laminate finish edges with material of same finish and pattern.

G. Door and Drawer Fronts: 3/4 inch thick.

H. When necessary to cut and fit on-Site, fabricate materials with ample allowance for cutting. Furnish trim for scribing and Site cutting.

I. Apply high-pressure decorative laminate finish in full, uninterrupted sheets consistent with manufactured sizes. Fit corners and joints hairline; secure with concealed fasteners.

J. Apply laminate backing sheet to reverse side of plastic-laminate-finished surfaces where required by AWS for specified grade.

K. Fabricate cabinets and counter tops with cutouts for applicable fixtures and fittings and cutouts. Verify locations of cutouts from on-Site dimensions. Seal cut edges.

2.5 ACCESSORIES

A. Adhesive for High-Pressure Decorative Laminates: Type recommended by laminate manufacturer to suit application.

B. Fasteners and Anchors:
   1. Fasteners: ASTM A153, hot-dip galvanized steel for high-humidity and treated wood locations, unfinished steel elsewhere.
   2. Nails and Staples: ASTM F1667.

C. Bolts, Nuts, Washers, Lags, Pins, and Screws: Of size and type to suit application.

D. Shelf Standards and Rests: In-line bored holes 1-3/8 in o.c., to within 6 in of top and bottom of opening with four support pins for each shelf.

E. Hardware: BMHA A156.9

F. Drawer and Door Pulls:
   1. U-shaped pull, stainless steel with satin finish.
   2. Size and Spacing: 4 in centers.

G. Drawer Slides: Self-closing, galvanized steel construction, ball bearings separating tracks, rail mounted full extension type.

H. Hinges: Fully Concealed hinge Grade 2 European Style, adjustable type, self closing, steel with satin finish.

I. Grommets: Plastic, sized for conditions.
   1. Grommets to be field verified by Contractor and Architect.

J. Contact Adhesives: Water Base type.

K. Wall Adhesive: Cartridge type, compatible with wall substrate, capable of achieving durable bond.

2.6 SHOP FINISHING

A. Sand work smooth and set exposed nails and screws.

B. Apply wood filler in exposed nail and screw indentations.

C. On items to receive transparent finishes, use wood filler matching surrounding surfaces and of types recommended for applied finishes.

D. Stain, seal, and varnish exposed to view surfaces, refer to Section 09 90 00.

E. Seal internal surfaces and semi-concealed surfaces.

F. Seal surfaces in contact with cementitious materials.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify adequacy of backing and support framing.

B. Verify location and sizes of utility rough-in associated with Work of this Section.

3.2 PREPARATION

A. Prime paint surfaces of woodwork items and assemblies to be in contact with cementitious materials.

3.3 INSTALLATION – PLASTIC LAMINATE CASEWORK

A. Install casework according to AWS Section 10 custom grade.

B. Install counter tops according to AWS Section 11 custom grade.

C. Set and secure casework, interior finish carpentry, and counter tops in place; rigid, plumb, and level.

D. Use fixture attachments in concealed locations for wall-mounted components.

E. Use concealed joint fasteners to align and secure adjoining cabinets and counter tops.

F. Carefully scribe casework abutting other components, with maximum gaps of 1/32 in. Do not use additional overlay trim for this purpose.

3.4 INSTALLATION – FINISH CARPENTRY

A. Install interior finish carpentry according to AWS Section 6 custom grade.

B. Carefully scribe finish carpentry abutting other components with maximum caps of 1/32 inch.

C. Countersink anchorage devices at exposed locations. Conceal with putty or wood plug as appropriate.

3.5 TOLERANCES

A. Conform to AWS Sections 6 and 10 requirements for following:
   1. Smoothness.
   2. Gaps.
   3. Flushness.
   4. Flatness.
   5. Alignment

3.6 ADJUSTING

A. Adjust moving or operating parts to function smoothly and correctly.

3.7 CLEANING

A. Clean casework, counters, shelves, hardware, fittings, and fixtures.

3.8 SCHEDULE

A. Refer to Drawings.

END OF SECTION

SECTION 06 61 16 - SOLID SURFACING FABRICATIONS

PART 1 GENERAL

1.1 SUMMARY

A. Section includes cast plastic / solid surface fabrications as scheduled.

1.2 REFERENCES

A. ASTM International:
   1. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials.

B. South Coast Air Quality Management District:
   1. SCAQMD Rule 1168 - Adhesive and Sealant Applications.

C. Underwriters Laboratories Inc.:
   1. UL - Fire Resistance Directory.

1.3 SUBMITTALS

A. Shop Drawings: Indicate dimensions, thicknesses, required clearances, tolerances, materials, colors, finishes, fabrication details, field jointing, adjacent construction, methods of support, integration of electrical components, and anchorages.

B. Product Data: Submit data on specified component products, electrical characteristics and connection requirements.

C. Samples: Submit two samples representative of countertop illustrating color, texture, and finish.

D. Manufacturer's Installation Instructions: Submit preparation of opening required, rough-in sizes; tolerances for item placement, temporary bracing of components.

1.4 CLOSEOUT SUBMITTALS

A. Operation and Maintenance Data: Submit list of approved cleaning materials and procedures required; list of substances harmful to component materials, Include instructions for stain removal, surface and gloss restoration, and general repairs.

1.5 QUALITY ASSURANCE

A. Surface Burning Characteristics: Maximum **25/450** flame spread/smoke developed index when tested in accordance with ASTM E84.

1.6 QUALIFICATIONS

A. Manufacturer: Company specializing in manufacturing products specified in this section with minimum three years documented experience.

1.7 FIELD MEASUREMENTS

A. Verify field measurements prior to fabrication.

1.8 WARRANTY

A. Manufacturer Warranty: Provide 10 year material warranty against defects and/or deficiencies in the solid surface materials.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Manufacturer List:
   1. Corian, Dupont [Basis of Design]

2. Wilsonart Contract
3. Samsung Chemical

2.2 MATERIALS

A. Solid Surface Materials: Non-porous, homogeneous material maintaining the same composition throughout the part with a composition of acrylic polymer, aluminum trihydrate filler and pigment; not coated, laminated or of composite construction; meeting following criteria:

B. Performance / Design Criteria:
1. Tensile Strength: 6,000 PSI min [ASTM D638]
2. Tensile Modulus: 1.5 x 10^6 PSI min. [ASTM D638]
3. Tensile Elongation: 0.4% min. [ASTM D638]
4. Flexural Strength: 10,000 PSI min [ASTM D790]
5. Flexural Modulus: 1.2 x 10^6 PSI min [ASTM D790]
6. Hardness: >85-Rockwell “M” scale min. [ASTM D785]
7. Thermal Expansion: 2.2 X 10^-5 in/in/deg. F [ASTM E228]
8. Fungi/ Bacteria: does not support microbial growth [ASTM G21 / G22]
9. Microbial Resistance: Highly resistant to mold growth [UL 2824]
10. Ball Impact: No fracture – ½ lb. ball, 144” drop onto 12 mm slab [NEMA LD 3, Method 3.8]
11. Flammability [ASTM E84]
12. Flame Spread: <25
13. Smoke Developed Index: <25
14. Class A Rated

C. Adhesive for Bonding to Other Products: One component silicone to ASTM C920.

D. Sealant: A standard mildew-resistant, FDA/UL and NSF/ANSI 51 compliant in Food Zone area, recognized silicone color matched sealant or clear silicone sealants.

2.3 COMPONENTS

A. Counter Perimeter Frame: 3/4" thick, moisture resistant cores for counter tops in wet areas having sinks or lavatories are 3/4" thick exterior grade plywood with waterproof adhesive, Fir or Poplar plywood, veneer core only. MDF core conforming to ANSI/NPA A208.2 balanced design, of minimum density of 48 lb/cu ft and surface character to match sample approved by Architect. Ensure fire retardant Product contains fire-retardant chemicals injected with raw materials during manufacturing and achieves a maximum flame-spread rating of 25 with a maximum smoke development of 200 when tested to ASTM E84.

B. Countertops: 1/2” [12 mm] thick countertop of solid polymer solid surfacing material, cast to desired profiles and sizes having edge details as indicated on Drawings conforming to CSA B45.5/IAPMO Z124. Provide countertops complete with backsplashes of size shown on Drawings. Attach to mounting hardware / brackets according to manufacturer's instructions.

C. Polishing Cream: Compatible polishing cream to achieve specified sheen to gel coat.

D. Adhesive: as recommended by Manufacturer.

2.4 FABRICATION

A. Fabricate components in shop to greatest extent practical to sizes and shapes indicated, in accordance with approved Shop Drawings and solid polymer manufacturer requirements. Form joints between components using manufacturer’s standard joint adhesive without conspicuous joints. Provide factory cutouts for plumbing fittings and accessories as indicated on Drawings.

B. Where indicated, thermoform corners and edges or other objects to shapes and sizes indicated on Drawings, prior to seaming and joining. Cut components larger than finished dimensions and sand edges to remove nicks and scratches. Heat entire component uniformly prior to forming.

C. Ensure no blistering, whitening and cracking of components during forming.

D. Fabricate backsplashes from solid surfacing material with radius cove where counter and backsplashes meet as indicated on Drawings.

E. Fabricate joints between components using manufacturer's standard joint adhesive. Ensure joints are inconspicuous in appearance and without voids. Attach 50 mm (2") wide reinforcing strip of solid polymer material under each joint.

F. Provide holes and cutouts for plumbing and bath accessories as indicated on Drawings.

G. Rout and finish component edges to a smooth, uniform finish. Rout cutouts, then sand edges smooth. Repair or reject defective or inaccurate work.

H. Finish: Ensure surfaces have uniform finish. Matte finishes unless noted otherwise.

I. Radius corners and edges.

2.5 SHOP FINISHING

A. Color: as selected from full range of Manufacturer colors and patterns

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify joint preparation and affected dimensions are acceptable.

3.2 PREPARATION

A. Provide anchoring devices for installation and embedding.

B. Provide templates and rough-in measurements.

3.3 INSTALLATION

A. Install components plumb, level, rigid, scribed to adjacent finishes in accordance with reviewed Shop Drawings and Product installation details.

B. Fabricate field joints using manufacturer's recommended adhesive, with joints being inconspicuous in finished work. Exposed joints/seams are not permitted. Keep components and hands clean when making joints. Reinforce field joints as specified herein. Cut and finish component edges with clean, sharp returns.

C. Route radii and contours to template. Anchor securely to base component or other supports. Align adjacent components and form seams to comply with manufacturer’s written recommendations using adhesive in color to match work. Carefully dress joints smooth, remove surface scratches and clean entire surface.

D. Install countertops with no more than 1/8" sag, bow or other variation from a straight line.

E. Seal between wall and components with joint sealant as specified.

F. Provide backsplashes and endsplashes as indicated on Drawings. Adhere to countertops using a standard color-coordinated silicone sealant. Adhere applied sidesplashes to countertops using a standard color-matched silicone sealant. Provide coved backsplashes and sidesplashes at walls and adjacent millwork. Fabricate radius cove at intersection of counters with backsplashes to dimensions shown on reviewed Shop Drawings. Adhere to countertops using manufacturer’s standard color-coordinated joint adhesive.

G. Keep components and hands clean during installation. Remove adhesives, sealants and other stains. Ensure components are clean on date of Substantial Completion of the Work.

3.4 ERECTION TOLERANCES

A. Maximum Variation From Indicated Dimension: 1/8 inch.

B. Maximum Offset From Indicated Position: 1/8 inch.

3.5 CLEANING

A. Clean and polish fabrication surfaces.

3.6 SCHEDULE

A. Refer to Drawings

END OF SECTION

SECTION 07 21 00 - THERMAL INSULATION

PART 1 GENERAL

1.1 SUMMARY

A. Section includes batt thermal insulation and sound batt insulation; foamed in place insulation at junctions of dissimilar wall and roof materials to achieve thermal and air seal.

1.2 SYSTEM DESCRIPTION

A. Provide continuity of thermal barrier at building enclosure elements.

B. Vapor Retarder Permeance: Maximum 1 perm when tested in accordance with ASTM E96/E96M, desiccant method.

1.3 SUBMITTALS

A. Product Data: Submit manufacturer's product data including thermal performance of materials.

1.4 QUALITY ASSURANCE

A. Insulation Installed in Concealed Locations Surface Burning Characteristics:
   1. Foam Plastic Insulation: Maximum 75/450 flame spread/smoke developed index when tested according to ASTM E84.
   2. Batt Insulation: 25/450 flame spread/smoke developed index when tested in accordance with ASTM E84.

B. Insulation Installed in Exposed Locations Surface Burning Characteristics: Maximum 25/450 flame spread/smoke developed index when tested according to ASTM E84.
   1. Attic Floor Insulation: Minimum 0.12 watt per sq cm critical radiant flux when tested according to ASTM E970.

C. Apply label from agency approved by authority having jurisdiction to identify each foam plastic insulation board.

1.5 SEQUENCING

A. Sequence Work to ensure firestopping, vapor retarder, and air barrier materials are in place before beginning Work of this Section.

1.6 COORDINATION

A. Coordinate Work with installation of vapor retarder for air seal materials.

PART 2 PRODUCTS

2.1 BUILDING INSULATION

A. Manufacturers:
   1. Johns Manville.
   2. Certain Teed.
   3. Owens-Corning.

2.2 COMPONENTS

A. Sound Attenuation Batt Insulation for Interior Walls: ASTM C665, Type I, preformed glass fiber batt, friction fit:
   1. Thickness: 3 inch and 6 inch to match wall thickness.
   2. Facing: Unfaced.

B. Batt Insulation: ASTM C665, preformed mineral wool insulation, friction fit
   1. Size / thickness as required for fire resistance rated assemblies.

2. Facing: Unfaced.

C. Fire Resistance Rated Batt Insulation: ASTM C665, preformed mineral wool insulation, friction fit
   1. Size / thickness as required for fire resistance rated assemblies.
   2. Facing: Unfaced.

D. Foamed in Place Insulation: ASTM C1029, Type II, Two-component, Closed Cell Polyurethane
   1. Thermal Resistance: R of 6.9 per inch.
   2. Compressive Strength: 25 psi.

2.3 ACCESSORIES

A. Adhesive: Type recommended by insulation manufacturer for application.

B. Tape: Polyester self-adhering type, mesh reinforced, 2 inch wide.

C. Insulation Fasteners: Steel impale spindle and clip on flat metal base, self adhering backing, length to suit insulation thickness, capable of securely and rigidly fastening insulation in place.

D. Primer for Foamed in Place Insulation: As required by insulation manufacturer.

E. Overcoat for Exposed Foamed in Place Insulation: As required by insulation manufacturer.

F. Ventilation Baffles: Formed plastic or cardboard, sized to fit between framing members.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify substrate, adjacent materials, and insulation boards are dry and ready to receive insulation.

3.2 INSTALLATION

A. Sound Attenuation Batt Insulation:
   1. Install in wall stud cavities without gaps or voids.
   2. Fit insulation tight in spaces. Leave no gaps or voids.
   3. Install friction fit insulation tight to framing members, completely filling prepared spaces.

B. Fire Resistance Rated Assemblies:
   1. Install in voids and cavities without gaps or voids in fire resistance rated assemblies in accordance with UL Assembly criteria and / or Building Department requirements.

C. Foamed In Place Insulation:
   1. Mask and protect adjacent surfaces from overspray or dusting.
   2. Apply primer as applicable for the conditions and in accordance with manufacturer installation instructions.
   3. Spray apply insulation to uniform monolithic density without voids.
   4. Apply to fit the requirements of the irregular void or condition.
   5. Apply overcoat where required.

D. Miscellaneous gaps and cracks in building envelope: Fill gaps with expanding foam sealant where applicable such as gaps at window and door openings, etc. Install minimal expansion foam at all locations where sealant may bow or warp materials.

E. Expanding foam sealant: Install at all penetrations of ductwork, conduits, etc. through the floor, walls or ceiling. Cap all chases with a rigid air barrier as applicable for the condition.

END OF SECTION

SECTION 07 53 00 - EPDM ROOF SYSTEM AND ROOF SPECIALTIES

PART 1 GENERAL

1.1 WORK INCLUDES BUT NOT LIMITED TO

A. It is anticipated that any impact to the existing roof systems will be minimal and directly related to any modifications to / removal of existing curbs, installation of new rail curbs and rooftop unit curbs as well as related flashing components. Provide modifications and repairs to existing EPDM roof system as required for removed, altered, and new roof penetrations.
   1. Contractor to coordinate with Mechanical Contractor for requirements.

B. Existing roof system is approximately 5 years old and is under warranty with Carlisle. The installing contractor was Cotterman & Company. All roof repairs shall be accomplished in accordance with Carlisle requirements, by an approved Contractor to maintain the existing roof warranty intact.
   1. Contractor, as a requirement of this project, shall install plywood protection over the existing roof system to provide temporary protection of the roof system. The plywood protection shall be installed at all perimeter / sides of each rooftop unit curb and any / all areas traversed from the roof access ladder to the work areas.

C. Coordination with mechanical contractor working in the building below to coordinate removals and any new penetrations required in the roof system.

D. Installation of a new EPDM roof system / flashing, etc. at the areas impacted by the proposed work.

E. Installation of new sheet metal items, bib flashing, vent flashings, equipment supports, termination bars, expansion joint and counter- flashings as is applicable to the work.

F. Installation of new flat stock and tapered insulation, cover board, tapered insulation saddles [see roof schedule] to match existing / adjacent roof system.

G. Installation of new roof accessories/specialties as outlined.

1.2 QUALITY ASSURANCE

A. Manufacturer inspection of the roof is required upon completion to ensure and document the roof system remains under warranty.

B. Applicator: Company specializing in applying single ply roofing with minimum 5 years documented experience, never been terminated by a manufacturer for workmanship problems, be approved for minimum 2 years by the manufacturer for use of their materials and be capable of providing the warranties as specified.

C. Contractor shall have a large waterproof tarp on site for sudden inclement weather.

1.3 REGULATORY PERFORMANCE REQUIREMENTS

A. Fire Hazard Classification: Underwriters Laboratories [UL], Use only Class A fire-rated materials as tested in accordance with ASTM E 108 or UL 790 for exterior fire.

B. American Society of Civil Engineers [ASCE], Factory Mutual Global Corporation [FMG]/Roof Material Manufacturer/NRCA: Roof materials supplied must be FMG approved meeting FM 4470 test standards meeting the intent of the test criteria set forth in FMG/ANSI standard 4474 to resistance the uplift design pressure as noted on the drawings and for **FMG** windstorm resistance classifications, to support internal/external fire , exposure **Class 1A** [metal deck] to support corrosion resistant fasteners/anchors and impact resistance for **severe hail [SH]** rating. The roof membrane manufacturer in compliance with the building code must provide the roof assembly securement requirements to resist the wind pressures as noted along with meeting the roof warranty wind requirements and other requirements as shown and outlined in the specifications. The manufacturer's roof assembly securement must **not** be less stringent

then the ASCE 7-10 calculations and must be successfully tested to resist wind uplift pressure according with FMG procedures. A field pull [ANSI/SPRI FX-1] or adhesion test [ANSI/SPRI 1A-1] will be necessary prior to commencing work when conditions are different then manufacture's assembly test criteria for their approval to meet the design pressures or required by the state building codes or RDA. If a test has been accomplished the results will be provided herein.

1.4 WEATHER CONDITIONS

A. Do not apply roofing system during inclement weather or when the chance is 40% or greater, percentage as listed on www.weather.com for the local area, percentage as listed when read at 7 AM local time or time of work commencement. Proceed with roofing and associated work when weather conditions will permit unrestricted use of materials and quality control of the work being installed.

B. Do not apply roofing system to damp or frozen deck surface.

C. Adverse weather conditions e.g. extreme temperature, high winds, high humidity and moisture could have a detrimental effect on adhesives, contact manufacturer for acceptable tolerances. See additional restrictions specified herein.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Do not overload structure with storage of materials, verify roof deck weight capacity and location of structural supports, only items needed that day shall be stored on the roof. Limit loads on roof to 25 pounds per square foot for uniformly distributed loads for metal/ gypsum decks, 75 pounds per square foot for uniformly distributed loads for concrete decks. Provide temporary securement of existing membrane as applicable, to prevent membrane blow off while installing new roof system.

B. Store and protect products in accordance with manufacturer's instructions.

C. Deliver products in manufacturer's original containers, dry, undamaged, with seals and labels intact. All materials must be UL or FM labeled.

D. Store products in weather-protected environment [manufacturer's plastic wrap is accepted for proper protection, unless wrap is broken, torn, partly removed or if noted otherwise by the manufacturer packing label], clear of ground 4 inches minimum and away from moisture. Protect foam insulation from direct sunlight exposure. Water damaged materials will be marked 'rejected' by the contractor/owner or RDA and removed from the site.

E. Storage of flammable liquids in buildings is prohibited. All combustible debris shall be removed from the site daily.

F. Storage shall be in areas designated by Owner.

1.6 SEQUENCING AND SCHEDULING

A. Coordinate the work of installing all associated items in such sequence that will not necessitate movement of workers and equipment over completed roof areas.

B. Sequence daily work of new roofing to be limited only that can be covered and made 100% watertight at the end of each day, including full adhesion of the membrane, flashings and night seals. No temporary roofing shall be allowed unless approved by RDA.

1.7 MANUFACTURER WARRANTIES

A. Maintain existing manufacturer warranty in place. Accomplish all work / repairs / modifications such that existing warranties remain in place.
   1. Existing warranty is 20 year, no dollar limit with 72 MPH wind rider.

1.8 PORTABLE FIRE EXTINGUISHER

A. Two standard listed multipurpose dry chemical fire extinguisher, NFPA 10, with 10-pound capacity, 4A-60B:C UL rating shall be provided and located near the work area. Additional fire extinguishers shall be provided for different roof levels/work sites.
   1. Contractor to ensure all personnel are trained to use fire extinguishers.

PART 2 PRODUCTS

2.1 ROOFING SYSTEM DESCRIPTION

A. Roof System, Elastomeric, EPDM, Ethylene Propylene Diene Monomer: Single ply, non-reinforced, fully adhered membrane system, Color Black.

B. Elastomeric Manufacture and Membrane Designation: [Single Ply]: Ethylene Propylene Diene Monomer]EPDM], .060 inches thick. Carlisle EPDM, 'Design A, Sure Seal FR' [See roofing system schedules].
   1. Insulation, Polyisocyanurate Manufacturers: Carlisle Insulbase.
   2. Base Flashing Designations, Single ply: Carlisle EPDM.
   3. Use manufacturer approved product for irregular flashing conditions, including molded EPDM manufacturer furnished items.
   4. Other Flashing Designation: Manufacturers approved details for 20-year warranty.

ROOFING SYSTEM SCHEDULES

EXISTING ROOF SYSTEM (EPDM Roof System)

Deck, Prep:	Metal deck.
Vapor Barrier	6 mil polyethylene
Insulation:	+/- 3 1/2 inch thick polyiso insulation, mopped in place
Original Roof:	Coal tar pitch built up roof system with gravel
Lightweight:	Lightweight Insulating Concrete [sloped]
Cover Board:	1/2 inch high density polyiso cover board, adhered in place
Membrane:	60 mil reinforced black EPDM, fully adhered in place

NOTE: At area of infill: match existing / adjacent roof thickness with new polyiso roof insulation, install new high density cover board, mechanically fasten or adhere all layers in place, install new 60 mil EPDM roof membrane, flashed and sealed to adjacent roof membrane.

2.2 SHEET MATERIALS [ELASTOMERIC]

A. Elastomeric Sheet: ASTM D4637, type I, class A material, cured, Black, synthetic, polyester reinforced, single ply membrane composed of Ethylene Propylene Diene Monomer [EPDM], .060 inches thick.

B. Membrane Flashing: ASTM D4811, Type I I, .055 -.060 inches thick, black, non-reinforced, semi-cured, synthetic, single ply EPDM.

C. Self-Adhesive Flashing: un-cured .045 inches thick, EPDM membrane laminated to 35 mil EPDM tape adhesive.

D. Lap Splice Tape: .035 inches thick, EPDM-based, formulated for compatibility w/EPDM membrane, self adhering, cured, width as required.

E. Adhesive Primer: Solvent based synthetic rubber based formulated for compatibility w/EPDM membrane.

F. Splice Adhesive: Synthetic polymer-based.

G. Bonding Adhesive: Solvent-Free, No odor, polymer based, designed for bonding EPDM.

H. Water Block Seal: Butyl rubber sealant.

I. Splice Cleaner: Organic solvent mixture.

2.3 INSULATION ADHESIVE

A. Insulation Adhesive: Two part, moisture cured, polyurethane based, low odor, as approved by the membrane manufacturer.

2.4 INSULATION AND COVER BOARD

A. General: All flat stock insulation or cover board from the same manufacturer. Board configuration: 48 inches x 96 inches [mechanically fastened] or 48 inches x 48 inches for adhered applied. Mixing of insulation panels from different manufacturers is not acceptable. Insulation shall meet FMG 4450.

B. Flat/Tapered Board Stock [includes infill, replacement, tapered saddles and leveling]: ASTM C1289, closed cell polyiso, rigid board; type II, class 1, grade 2, non-asphaltic, glass fiber reinforced organic facers on both sides, square edges; minimum 20 psi compressive strength, size as approved for application and as supplied by the roof membrane manufacturer. Thickness/slope as indicated in roofing schedule and roof matrix.
   1. Saddles: Each side of the saddle width shall be minimum 1/4 [25%] of the drain to drain length as applicable for conditions. Saddle insulation shall be sloped at ½ inch per foot.
   2. Drains: Tapered min. 1/4 inch per foot slope drain sumps are required at all drains.

C. Cover Board, Flat Stock: ASTM C 1289,Type II, class 4, grade 2, Carlisle 'SecurShield', 1/2 inch thick, square edges, coated inorganic bonded glass facer with a high density closed cell core.

2.5 CANTS / EDGE

A. Cant and Tapered Edge Strips: Perlite, fire resistant, performed to 45 degree angle and 18” long tapered edge strip, tapered front to back as required by the manufacturer.

2.6 ACCESSORIES / ROOF SPECIALTIES

A. General: Fasteners/Anchors: strength, type and configuration must meet the required pull test resistance for each attachment application. Fasteners rate and pattern must be FMG or local code approved to meet the intent of the wind uplift rating specified. The Contractor shall determine fastener lengths, minimum embedment: steel 3/4-inch, concrete/concrete block-1 ¼ inch, and wood-1 1/4 inch. Fastener manufacturers listed are ITW Buildex, IWT Red Head and TruFast or equal. All fasteners shall be corrosion resistant steel in accordance with meeting or ASTM F1667 [2015] or type 304 -316 stainless. Some items below may not be required for this project.

B. Summary of items and requirements are as follows:
   1. Roofing and Other Nails: square or round head, ring shanked galvanized or non-ferrous type, length and diameter as required to suit application.
   2. Other Fasteners:
      a. Metal Counterflashing and other LG metal sheets to Wood, ITW Buildlex, ‘Scots Teks' [AB point] stainless steel-hex head, ¼ inch, corrosion resistance steel shank with EPDM washer.
      b. New -Existing Wood Members or New-Existing Nailers to Steel, ITW Buildex, # 14 or ¼ inch tek/ 3, 4.5 or 5, hex washer head, corrosion resistant self-drilling steel fastener [pre-drill holes and countersink head- max. wood thickness 7 inches].
      c. New -Existing Wood Members or New-Existing Nailers to Metal Decking, TruFast , #14 HD, phillips head, corrosion resistant self drilling steel roof fastener .

d. Metal Counterflashing and Other LG Sheet Metal [exposed] to Masonry, ITW Red Head, ¼ inch,'Scots Tapcon', stainless steel-hex head, HL treads, corrosion resistant steel shank, with EPDM washer.
e. Termination Bars [exposed] to Masonry, ITW Red Head, ¼ inch, 'Scots Tapcon', stainless steel-hex head, HL treads, corrosion resistant steel shank, with EPDM washer.
f. Metal Sheets or Metal Decking to Metal Decking, #10, ITW Buildex,' tek/ 1', hex washer head, ABOT self-tapping with corrosion resistant steel shank.
g. Metal Decking to Metal Joists, #14 or 1/4 inch, ITW Buildex, ' tek/ 4 or 4.5 hex washer head, self tapping with corrosion resistant steel shank.
h. Wood Members/Nailers to Masonry: ITW Red Head, ¼ inch 'tapcon' steel anchor, corrosion resistant, pre-drilled and countersink head - max wood thickness 5 inches required. Or use TruFast, #14, HD phillips head, corrosion resistance steel roof fastener.
i. General Purpose Stainless Steel: Series 304 fasteners, with or w/out EPDM washers.

3. Pitch Pans: Pre-finished 24 gauge stainless steel, soldered together with 4 inch roof flange and 4 inch height or size required for condition, only use if liquid flashing system not applicable.
4. Continuous Cleats: Galvanized steel, 22 gauge.
5. Counter-flashing and Flange/Sleeve: 24-gauge stainless steel [flange/sleeve], with 4 inch roof flange, length/style as shown. CF corners shall be mitered and sealed with sealant
6. Pipe Supports/Hangers: Manufactured by Portable Pipe Hangers, Adjustable, stainless metal components, polypropylene base, 'type SS8 – C or R [up to 2 ½ inch pipes] or PP10' [up to 3 ½ inch pipes] or Manufactured by OMG, Pipe-Guard, non-adjustable, PGM-BK, PGS-BK, PGTS-BK pipes up to 2 inches, as required for conditions.
7. Termination Bars: Aluminum 1.3-inch-wide, 10 feet long, 1.08 inch [min.] thick bars with flat or with [integral caulk edge], if applicable per manufacturer.
8. Bib Metal: 24-gauge stainless steel, minimum 4 inch wide.
9. Pourable Sealer: Polyurethane, manufacturer's standard.
10. Rail Curbs: Manufactured by Pate, type es-1, es-2 or es-5, as required for condition, size as required by unit base size.
11. Equipment enclosure shall be 24-gauge stainless steel, shop or pre-manufactured with top fabricated [angled] to allow no moisture from entering the pipe areas. Install mortar in the bottom of base with polyurethane pourable sealer poured around pipes [2-inch depth minimum]. Seal pipes that exit enclosure with sealant/foam.
12. Light Weight Fill Patch/Replacement Material: ASTM C 317, United States Gypsum [USG], Securock, non-combustible, Concrete Patch, 500 psi compressive strength.

2.7 SHEET METAL

A. General: Roof membrane manufacturer supplied and approved components must be used, these sheet metal components must be tested and approved in accordance with ANSI/SPRI/FM 4435 ES-1 test methods and must be included into the roof warranty. All other metal shall be shop fabricated in accordance with SMACNA 6th Edition or other details or pre-manufactured as shown. All pre-finished metal [steel] shall be fabricated using galvalume, unless not available or wind resisting testing was used with galvanized steel.

B. Pre-Finished Metal [Galvalume]: ASTM A792, grade 50, 24 or 22 gauges [as outlined], primed and finished one side with a fluoropolymer Kynar 500 coating and a wash coat applied to the reverse side, 20-year warranty covering fade, chalking and film integrity. Colors as selected by the RDA Group and owner.

C. Pre-Finished Metal [Galvanized]: ASTM A755, grade A, 24 or 22 gauges [as outlined], primed and finished one side with a fluoropolymer Kynar 500 coating and a wash coat applied to the reverse side, 20-year warranty covering fade, chalking and film integrity.

D. Lead: ASTM B 749, 2 1/2 pounds per square foot [roof drain and vent pipe flashing-modified].

E. Stainless Steel: ASTM A 240/A 240M, dead soft fully annealed, smooth 24-gauge, type/grade 304 and 316 [exposed to view].

F. Galvanized Steel: ASTM A 653, hot dipped, zinc-coated, G90, gauges as shown.

2.8 SEALANT

A. General Use: ASTM C 920, Tremco's 'Dymonic FC' polyurethane, non- staining, non-shrinking, non-sagging and ultra-violet resistant, clear or to match surrounding existing color.

PART 3 EXECUTION

3.1 EXAMINATION / SURFACE CONDITIONS

A. Verify that surfaces and site conditions are ready to receive work. Verify that deck [total removed sections] is clean, dry and smooth, free of depressions, irregularities, or projections, **properly leveled**, start of work constitutes acceptance of conditions.

B. Areas of substrate where ponding water will occur [1 inch deep or greater one hour after rainfall] shall be built-up in accordance with the leveling fill manufacturer's recommendations prior to the installation of the final ply sheet, string leveling deck/insulation prior to final ply recommended. Water test may be required upon request of RDA. Failure to perform this action could result in total roof removal at Contractor expense.

3.2 PROTECTION

A. Protect building surfaces/interior spaces against damage from roofing work. It is the Contractor's responsibility to take any necessary actions to prevent construction-related leaks, to include but not limited to repairing watertight existing surrounding roofing scheduled to be replaced or overlaid. Surround roofing areas include roof top material storage areas, workers roof top access to from roofing work site areas and any drainage system [roof drain-scuppers] leak issues located in work area

B. Provide, erect barricades, guardrails as required by applicable regulatory advisory to protect occupants of building and workers.

C. Cover all drains and other openings intended for drainage during construction to prevent clogging of system, remove at the end of each day to allow for drainage.

D. Special precautions shall be taken to avoid fumes from entering the facilities through air intakes, coordinate with owner to deal with active A/C units intake location and required preparation [fibers etc] prior to starting work.

3.3 DECK PREPARATION

A. General: Depressed areas shall be made level prior to installing roofing or insulation in accordance with manufacturer's recommendation or as outlined herein.

B. Concrete [LWC] Decks: Clean and prime surfaces [if required] as recommended by the membrane manufacturer. Remove all asphalt roof membrane, residue to remain. Repair or replace all wet/deteriorated LWC.

C. Metal Deck [perimeters/corners where deck is exposed]: Fasten any loose or non- welded sections at exposed deck sections. Replace or retro-fit [overlay] all rusted metal decking with new panels, overlay structural supports min. 4 inches, match existing deck profiles and gauge, fasten in place 12 inches on center in all directions [end laps/side laps]. Holes or weak areas, less than 1 square foot or 12 inches in dia. and deck tie-ins shall be covered with 18 gauge steel sheets fastened in place in all /edges overlapping good decking 4 inches [min. 4 fasteners or 18 inches on center fastening].

3.4 INSULATION / COVER BOARD

A. Secure insulation/cover board to roof deck to the requirements of FMG loss Prevention Data Sheet 1-28 and 1-29 to include additional securement at the corners and perimeters.

B. Metal Deck: Overlay new insulation and cover board on the metal deck. Mechanically fasten the insulation in accordance with the Manufacturer's / Contractors / RDA approved layout, Secure the cover board to the insulation in low rise adhesive. Adhered insulation or cover boards shall be walked-in before skin coat develops and boards shall have continuous pressure until the adhesive sets [4 to 8 minutes, less time if adhesive is the quick setting type] to ensure not less than 85% of any board be in contact with the substrate. Install the insulation board perpendicular to roof slope with joints staggered [as applicable] no less than 24 inches in all directions Stagger joints of top layers/cover boards from bottom layers/saddles as applicable, in accordance with windstorm resistance classification securement pattern as specified and/or insulation manufacturer's securement pattern. Two opposite edges on any panel shall be supported on the flutes minimum 1 1/2 inch where total removal has taken place. Any portion of an insulation board that falls within the calculated perimeter or corner area has the increased securement applied over the entire board.

C. Apply no more insulation than can be sealed watertight with roofing membrane in the same day. Cut insulation to fit neatly to perimeter blocking and around penetrations through the roof, maximum joint width 3/8 inch.

D. All ventilators, A/C unit curbs, supports etc. [square or rectangle] will have a tapered edge strip [formed as a saddle] placed around the high side of unit to slope water from unit. Ventilators, A/C unit, supports etc. curbs over 2 feet wide will require insulation saddles sloped ½ inch per foot.

E. Provide adequate separation of insulation between hot exhaust stacks.

3.5 MEMBRANE APPLICATION [ELASTOMERIC]

A. General: Install roofing sheets as per manufacturer's recommendations and the following summary of requirements. Do not install membrane when precipitation/high wind is forecasted to occur within 24 hours of membrane bonding.

B. Beginning at the low point of the roof, place the membrane without stretching over the acceptable substrate and allow membrane to relax a minimum of 30 minutes before attachment or splicing.

C. After making sure the sheet is placed in its final position, fold it back evenly onto itself so as to expose the mating substrate. The membrane should be smooth, clean and free of wrinkles and buckles.

D. Adhere membrane with bonding adhesive to insulation/substrate to which it will be adhered at the rate as recommended by the manufacturer. Apply bonding adhesive to the substrate [not the EPDM membrane] so to provide an even and uniform film thickness using a roller. Do not apply bonding adhesive to areas that will be subsequently spliced or taped.

E. Roll the EPDM membrane immediately into the freshly applied adhesive, slowly and evenly so as to minimize wrinkles. Broom the membrane in place to the substrate with a stiff push broom.

F. Do not fully set any sheet edges that are to be lap over adjoining sheet. Leave 12 in. folded back for splicing/taping.

3.6 MEMBRANE LAP SPLICING [ELASTOMERIC]

A. General: Position the sheet at the splice area by overlapping membrane 5 inches. Tack the sheet back with primer at 5' centers and at factory splices or as necessary to hold back the membrane at the splicing area.

B. Remove excess amounts of dusting agent on the sheet and at factory splices using a stiff push broom. Apply primer to both surfaces at the same time to allow the same flash off time. Additional scrubbing is required at areas that may have become contaminated or have excess amounts of dusting agent, and at all factory splices.

C. Position the seam splice tape on the bottom sheet, aligning the edge of the release paper with the markings. Immediately roll the splice tape with a 3"-4" wide silicone or silicone sleeved steel hand roller or a short nap 3" paint roller.

D. When the seam splice tape has been installed for the entire splice length allow the top sheet to rest on top of the tape's paper backing. Trim the top sheet as necessary to assure that 1/8"-1/2" of the seam splice tape will be exposed on the finished splice.

E. Roll back the membrane sheet, then peel the paper backing off the seam splice tape by pulling against the weight of the bottom sheet at approximately a 45 degree angle to the tape and parallel with the roof surface. Allow the top sheet to fall freely onto the exposed seam splice tape. Broom the entire length of the splice as the release paper is being removed.

F. Roll the splice using a 1-1/2"-2" wide silicone or silicone sleeved steel hand roller, first across the splice, and then along the entire length of the splice.

3.7 FLASHING APPLICATION [ELASTOMERIC] – VERTICAL SURFACES, ETC

A. General: Secure membrane when there is an angle change greater that 2 in. 12 inches with a reinforced perimeter fastening strip [RPS] fastened to the deck or wall, see manufacturer’s recommendations for exceptions.

B. Remove loose or unsecured flashings, mineral surfaced or coated flashings and excessive asphalt to provide a smooth, sound surface for new flashings.

C. Complete the splice between flashing and the main roof sheet with splice adhesive before adhering flashing to the vertical surface. Provide lap splices in accordance with manufacturers details.

D. Apply bonding adhesive to the surface in which it is being bonded so as to allow approximately the same flash off time. Apply bonding adhesive in a uniform coating, in accordance with the manufacturer’s recommended coverage rate.

E. Allow bonding adhesive to become tacky. Roll the flashing into the adhesive evenly and carefully so as to minimize wrinkles.

F. Install T-Joint covers at field and flashing splice intersections as required by manufacturer.

G. Provide termination directly to the vertical by a termination bar set in water block seal and other requirements as shown on the drawings.

3.8 FLASHING APPLICATION [ELASTOMERIC] – EDGE, PIPES, DRAINS

A. General: Install flashing sheets over cants strips and other vertical surfaces, at edges and penetrations through roof as per manufacture’s recommendations, requirements of FMG loss Prevention Data Sheet 1-49 including details and the following requirements.

B. EDGES
   1. Apply primer to the metal edging and membrane. Remove approximately 2'-3' of release paper from the seam flashing and apply to the metal flange and membrane. Lap adjacent rolls of seam flashing a minimum of one inch with a 2"-3" wide silicone or silicone sleeved steel hand roller, roll the seam Flashing ensure proper adhesion. Additional attention must be given to factory splice intersections and to any change in plane.
   2. Apply 6" length of seam flashing, a seam Joint Cover, or 6"x 6" form flash to the inside edge of the seam flashing at all overlaps and at all intersections between the seam flashing and field fabricated splices.

3. Apply seam edge treatment at the intersections of the flashing sections.
4. If the roof edge includes a metal edge and sealant is not applied between the laps in the metal edging, an additional piece of seam flashing shall be applied over the metal lap to the top of the metal edge, after the initial application of seam flashing. Seam edge treatment shall be applied at the intersections of the two flashing sections.

C. PIPES
1. Flash pipes with manufactures pre-molded flashing to max. extent possible or form flash only when per-molded flashing are not available. Prime and install an additional 12" seam flashing over pre-molded flange.

3.9 INSTALLATION OF SHEET METAL / ROOF SPECIALTIES

General: Sheet metal items shall be installed in accordance with manufacturers and NRCA's/SMACNA, FMG recommendations and details from their current manual.

A. Continuous cleat [for non-pre-manufactured metal components]: Cleats shall not exceed 12 feet in length; allow a ¼ inch gap between pieces. Fasten cleat to wood nailer or deck as applicable at 6 inches on center with corrosion resistant annular threaded nails [3/16-inch head], long enough to penetrate the wood 1 ¼ inch or metal 3/4 inch.

B. Pitch pans shall have mortar installed in the bottom of pitch pans with polyurethane pourable sealer [2 inches min.] filled to the top of the pan, then slope.

C. Bib Flashing shall be installed around all roof top units/supports and all items that cannot be removed and reinstalled. Position under unit curb and anchor to unit with corrosion resistance fasteners with EPDM washers at 12 inches on center unless otherwise noted.

D. Rail curbs and pipe supports shall be installed in accordance with the manufacturer's instructions. Place curbs on deck and position curbs ends to allow water to flow toward drains or gutters.

E. Equipment enclosure shall have mortar installed in the bottom with polyurethane pourable sealer [2-inch depth minimum] filled. Seal pipes that exit enclosure with sealant.

F. Counter-flashing [CF] that is surfaced mounted shall be attached with concrete self-tapping [Scots tapcon] or wood fasteners, as applicable fitted with an EPDM washer at 12 inches on center, 1 in. minimum embedment. Apply a bead of sealant on the top of 45-degree angle lip of the metal flashing. CF that is placed in existing reglet shall be installed with lead anchors, re-cut reglet as necessary. Apply a bead of sealant where metal enters the masonry. All CF shall overlap base flashing a minimum of three inches and shall terminate no lower than 4 inch above finished roof surface, unless approved by the manufacturer.

G. Termination bars shall be placed no more then 1 1/2 inches down from top of base flashing and be fastened at 6 inches o. c with 1/4 in. diameter self-tapping [Scots tapcon] or wood steel fasteners, as applicable, 1-inch minimum embedment. Provide sealant at top edge of bars, if applicable.

H. Pipe supports shall be installed in accordance with manufacturer's instructions and be spaced no longer than ten feet.

3.10 WATER CUT-OFF [NIGHT SEALS]

A. At the end of the day's work or when precipitation is imminent, a water night seal or other cut-off waterproof protection shall be provided to ensure a 100 % watertight condition is obtained, between the new and existing conditions, to prevent water from penetrating behind or beneath the new roofing, remove cut-off prior to resuming the installation of the roofing system.

3.11 CLEANING

A. In areas where finished surfaces are soiled by any other source of soiling caused by work of this section, consult manufacturer for cleaning advice.

END OF SECTION

SECTION 07 84 00 - FIRESTOPPING

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
1. Firestopping through-penetrations of fire rated assemblies.
2. Firestopping joints in fire rated assemblies.
3. Firestopping tops of fire rated walls.
4. Smoke sealing at joints between floor slabs and exterior walls.
5. Smoke sealing penetrations and joints of smoke partitions.

1.2 REFERENCES

A. ASTM International:
1. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials.
2. ASTM E119 - Standard Test Methods for Fire Tests of Building Construction and Materials.
3. ASTM E814 - Standard Test Method for Fire Tests of Through-Penetration Fire Stops.
4. ASTM E1966 - Standard Test Method for Fire-Resistive Joint Systems.

B. Forest Stewardship Council:
1. FSC Guidelines - Forest Stewardship Council Guidelines.

C. Intertek Testing Services (Warnock Hersey Listed):
1. WH - Certification Listings.

D. South Coast Air Quality Management District:
1. SCAQMD Rule 1168 - Adhesive and Sealant Applications.

E. Underwriters Laboratories Inc.:
1. UL 263 - Fire Tests of Building Construction and Materials.
2. UL 1479 - Fire Tests of Through-Penetration Firestops.
3. UL 2079 - Tests for Fire Resistance of Building Joint Systems.
4. UL - Fire Resistance Directory.

1.3 DEFINITIONS

A. Firestopping (Through-Penetration Protection System): Sealing or stuffing material or assembly placed in spaces between and penetrations through building materials to arrest movement of fire, smoke, heat, and hot gases through fire rated construction.

1.4 PERFORMANCE REQUIREMENTS

A. Conform to UL for fire resistance ratings and surface burning characteristics.

1.5 SUBMITTALS

A. Product Data: Submit data on product characteristics, performance and limitation criteria.

B. Manufacturer's Installation Instructions: Submit preparation and installation instructions.

C. Manufacturer's Certificate: Certify products meet or exceed specified requirements and applicable code requirements.

1.6 QUALITY ASSURANCE

A. Through Penetration Firestopping of Fire Rated Assemblies: UL 1479 or ASTM E814 with 0.10 inch water gage minimum positive pressure differential to achieve fire F-Ratings and temperature T-Ratings as indicated on Drawings, but not less than 1-hour.
   1. Floor / Wall Penetrations: Fire F-Ratings as indicated on Drawings, but not less than 1-hour.

B. Through Penetration Firestopping of Non-Fire Rated Floor and Roof Assemblies: Materials to resist free passage of flame and products of combustion.

C. Fire Resistant Joints in Fire Rated Floor, Roof, and Wall Assemblies: ASTM E1966 or UL 2079 to achieve fire resistant rating as indicated on Drawings for assembly in which joint is installed.

D. Surface Burning Characteristics: Maximum 25/450 flame spread/smoke developed index when tested in accordance with ASTM E84.

1.7 ENVIRONMENTAL REQUIREMENTS

A. Maintain this minimum temperature before, during, and for minimum 3 days after installation of materials.

B. Provide ventilation in areas to receive solvent cured materials.

PART 2 PRODUCTS

2.1 FIRESTOPPING

A. Manufacturers:
   1. 3M Fire Protection Products
   2. United States Gypsum Co.
   3. Equal.

B. Product Description: Different types of products by multiple manufacturers are acceptable as required to meet specified system description and performance requirements; provide only one type for each similar application.
   1. Silicone Firestopping Elastomeric Firestopping: Single component silicone elastomeric compound and compatible silicone sealant.
      a. Interior Sealants and Sealant Primers: Maximum volatile organic compound content in accordance with SCAQMD Rule 1168.
   2. Foam Firestopping Compounds: Single component foam compound.
   3. Fiber Stuffing and Sealant Firestopping: Composite of mineral fiber stuffing insulation with silicone elastomer for smoke stopping.
   4. Intumescent Firestopping: Intumescent putty compound which expands on exposure to surface heat gain.

2.2 ACCESSORIES

A. Primer: Type recommended by firestopping manufacturer for specific substrate surfaces and suitable for required fire ratings.

B. Installation Accessories: Provide clips, collars, fasteners, temporary stops or dams, and other devices required to position and retain materials in place.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify openings are ready to receive firestopping.

3.2 PREPARATION

A. Clean substrate surfaces of dirt, dust, grease, oil, loose material, or other matter affecting bond of firestopping material.

B. Remove incompatible materials affecting bond.

C. Install backing materials to arrest liquid material leakage.

3.3 APPLICATION

A. Install material at fire rated construction perimeters and openings containing penetrating sleeves, piping, ductwork, conduit and other items, requiring firestopping.

B. Apply primer where recommended by manufacturer for type of firestopping material and substrate involved, and as required for compliance with required fire ratings.

C. Apply firestopping material in sufficient thickness to achieve required fire and smoke rating, to uniform density and texture.

D. Place foamed material in layers to ensure homogenous density, filling cavities and spaces. Place sealant to completely seal junctions with adjacent dissimilar materials.

3.4 FIELD QUALITY CONTROL

A. Inspect installed firestopping for compliance with specifications and submitted schedule.

3.5 PROTECTION OF INSTALLED CONSTRUCTION

A. Protect adjacent surfaces from damage by material installation.

END OF SECTION

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SECTION 07 90 00 - JOINT PROTECTION

PART 1 GENERAL

1.1 SUMMARY

A. Section includes sealants and joint backing.

1.2 SUBMITTALS

A. Product Data: Submit data indicating sealant chemical characteristics, performance criteria, substrate preparation, limitations, and color availability.
   1. Certify volatile organic compound for each interior adhesive and sealant and related primer.
      a. All sealants must comply with Regulation 8, Rule 51 of the Bay Area Air Quality Management District.

1.3 ENVIRONMENTAL REQUIREMENTS

A. Maintain temperature and humidity recommended by sealant manufacturer during and after installation.

1.4 QUALITY ASSURANCE

A. Sealant shall be installed by a qualified sealant applicator for any/all joint sealant exposed to view. Owner reserves the right to request a mockup of the quality for the joint sealant installation.

PART 2 PRODUCTS

2.1 JOINT SEALERS

A. Manufacturers:
   1. Tremco [basis of design]
   2. Sika
   3. GE Silicones.
   4. Pecora Corp.
   5. DAP

B. Compatibility: Provide joint sealants, backings, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by sealant manufacturer, based on testing and field experience.

C. Low-Emitting Interior Sealants: Sealants and sealant primers used inside the weatherproofing system shall comply with the testing and product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers."

D. Liquid-Applied Sealants: Comply with ASTM C920 and other requirements indicated for each liquid-applied chemically curing sealant specified, including those referencing ASTM C920 classifications for type, grade, class, and uses related to exposure and joint substrates.

E. Suitability for Contact with Food: Where elastomeric sealants are indicated for joints that will come in repeated contact with food, provide products that comply with 21 CFR 177.2600.

F. Additional Movement Capability: Where additional movement capability is specified, provide products with the capability, when tested for adhesion and cohesion under maximum cyclic movement per ASTM C719, to withstand the specified percentage change in the joint width existing at the time of installation and remain in compliance with other requirements of ASTM C920 for uses indicated.

G. Colors of Exposed Joint Sealants: As selected by Architect from manufacturer's full range, unless otherwise noted.

2.2 SILICONE JOINT SEALANTS:

A. **Type S-1**: Single component, nonsag, Silicone Joint Sealant: ASTM C920, Type S, Grade NS, Class 100/50, Use NT
   1. Tremco Spectrem 1 or Spectrem 800 or Equal

B. **Type S-2**: Single Component, nonsag, Silicone Joint Sealant: ASTM C920, Type S, Grade NS, Class 50, use NT
   1. Tremco Spectrem 2 or Spectrem 3 or Equal

C. **Type S-3**: Multi-Component, Nonsag, Silicone Joint Sealant: ASTM C920, Type M, Grade NS, Class 50, Use NT
   1. Tremco Spectrem 4-TS or Equal

D. **Type S-4**: Single Component, nonsag, Traffic-Grade, Silicone Joint Sealant: ASTM C920, Type S, Grade NS, Class 100/50, Use T
   1. Tremco Spectrem 800 or Equal

E. **Type S-5**: Mildew Resistant, Single Component, Silicone Joint Sealant: ASTM C920, Type S, Grade NS, Class 25, Use NT
   1. Tremco Tremsil 200 Sanitary or Equal

2.3 URETHANE JOINT SEALANTS

A. **Type U-1**: Single Component, nonsag, Urethane Joint Sealant: ASTM C920, Type S, Grade NS, Class 25 or 35, Use NT:
   1. Tremco Dymonic or Dymonic FC or Equal

B. **Type U-2**: Single Component, nonsag, Traffic Grade, Urethane Joint Sealant: ASTM C920, Type S, Grade NS, Class 25, Use T.
   1. Tremco Vulkem 116 or Equal.

C. **Type U-3**: Multi-Component, nonsag, Urethane Joint Sealant: ASTM C920, Type M, Grade NS, Class 25, Use T.
   1. Tremco Dymeric 240 or Dymeric 240 FC or Equal

D. **Type U-4**: Multi-Component, nonsag, Urethane Joint Sealant: ASTM C920, Type M, Grade NS, Class 25, Use NT.
   1. Tremco Vulken 227 or Equal

E. **Type U-5**: Multi-Component, nonsag, Traffic Grade, Urethane Joint Sealant: ASTM C920, Type M, Grade NS, Class 25, Use T.
   1. Tremco Vulken 227 or Equal

2.4 BUTYL JOINT SEALANTS

A. **Type B-1**: Butyl Rubber based Joint Sealants: ASTM C 1311
   1. Tremco General Purpose Butyl Sealant or Equal

2.5 LATEX JOINT SEALANTS

A. **Type L-1**: Latex Joint Sealant: Acrylic latex or Siliconized Acrylic Latex: ASTM C834, Type OP, Grade NF or better
   1. Tremco Tremflex 834 or Equal.

B. **Type L-2**: Paintable Mildew-Resistant Latex Joint Sealant: Acrylic Latex or Siliconized Acrylic Latex: ASTM C834, Type OP, Grade NF or better.
   1. Tremco Tremflex 834 or Equal.

2.6 ACCESSORIES

A. General: Provide sealant backings of material and type that are nonstaining; are compatible with joint substrates, sealants, primers, and other joint fillers; and are approved for applications indicated by sealant manufacturer based on field experience and laboratory testing.

B. Cylindrical Sealant Backings: ASTM C1330, Type C (closed-cell material with a surface skin) as approved in writing by joint-sealant manufacturer for joint application indicated, and of size and density to control sealant depth and otherwise contribute to producing optimum sealant performance:
   1. Oversized to 30 to 50 percent larger than joint width.

C. Elastomeric Tubing Sealant Backings: Neoprene, butyl, EPDM, or silicone tubing complying with ASTM D1056, nonabsorbent to water and gas, and capable of remaining resilient at temperatures down to minus 26 deg F. Provide products with low compression set and of size and shape to provide a secondary seal, to control sealant depth, and to otherwise contribute to optimum sealant performance.

D. Bond-Breaker Tape: Polyethylene tape or other plastic tape recommended by sealant manufacturer for preventing sealant from adhering to rigid, inflexible joint-filler materials or joint surfaces at back of joint where such adhesion would result in sealant failure. Provide self-adhesive tape where applicable.

E. Primer: Material recommended by joint-sealant manufacturer where required for adhesion of sealant to joint substrates indicated. Non-staining type, recommended by sealant manufacturer to suit application.

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

G. Bond Breaker: Pressure sensitive tape recommended by sealant manufacturer to suit application.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify substrate surfaces and joint openings are ready to receive work.

B. Verify joint backing and release tapes are compatible with sealant.

3.2 PREPARATION

A. Remove loose materials and foreign matter impairing adhesion of sealant.

B. Clean and prime joints.

C. Perform preparation in accordance with ASTM C1193.

3.3 INSTALLATION

A. Perform installation in accordance with ASTM C1193.

B. Measure joint dimensions and size joint backers to achieve width-to-depth ratio, neck dimension, and surface bond area as recommended by manufacturer.

C. Install bond breaker where joint backing is not used.

D. Install sealant free of air pockets, foreign embedded matter, ridges, and sags.

E. Apply sealant within recommended application temperature ranges. Consult manufacturer when sealant cannot be applied within these temperature ranges.

F. Tool joints concave.

3.4 SCHEDULE

A. Joint-Sealant Application: Exterior joints in vertical surfaces and non-traffic horizontal surfaces.
   1. Joint locations such as, but not limited to:
      a. Construction joints in cast-in-place concrete.
      b. Control joints in unit masonry.

1) Provide joint sealants slightly darker than the adjacent masonry units. Provide multiple colors as may be required for match.

c. Perimeter joints between masonry, concrete, or stone and frames of doors, windows, storefronts, louvers, and similar openings.
d. Lintels and shelf angles to masonry construction.
e. Butt joints between metal panels.
f. Control and expansion joints in ceiling/soffit and similar overhead surfaces.
g. Exterior joints between dissimilar materials where the joining of the two surfaces leaves a gap between the meeting materials or components as may be dictated by various methods of construction to make building watertight.
h. Other joints as indicated on Drawings.

2. Provide one of the following acceptable sealants as approved by manufacturer for substrates and uses indicated: **Type S-1, Type S-2, Type S-3**
3. Color: As selected by Architect from manufacturer's full range of colors.

B. Joint-Sealant Application: Interior joints in horizontal traffic surfaces.
1. Joint locations such as, but not limited to:
a. Isolation joints in cast-in-place concrete slabs.
b. Perimeter of floor slabs or concrete curbs which abut vertical surfaces.
c. Areas around all piping systems that penetrate the slab or foundation walls below grade (utility trenches, electrical conduits, plumbing penetrations, etc.).
d. Control and expansion joints in tile flooring.
e. Other joints as indicated on Drawings.
2. Provide one of the following acceptable sealants as approved by manufacturer for substrates and uses indicated: **Type S-4**
3. Color: As selected by Architect from manufacturer's full range of colors.

C. Joint-Sealant Application: Interior joints in vertical surfaces and horizontal non-traffic surfaces, subject to movement, unless otherwise noted.
1. Joint locations such as, but not limited to:
a. Control joints on exposed interior surfaces of exterior walls.
b. Interior joints where interior partitions meet exterior walls of dissimilar materials and components.
c. Other joints as indicated on Drawings.
2. Provide one of the following acceptable sealants as approved by manufacturer for substrates and uses indicated: **Type U-1**
3. Color: As selected by Architect from manufacturer's full range of colors. Paintable Sealant, prep for painted finish.

D. Joint-Sealant Application: Interior joints in vertical surfaces subject to abuse and movement.
1. Joint locations such as, but not limited to:
a. Vertical joints, including control joints and joints between masonry and structural support members, on exposed surfaces of interior unit masonry walls and partitions.
2. Provide one of the following acceptable sealants as approved by manufacturer for substrates and uses indicated: **Type U-1**
3. Color: As selected by Architect from manufacturer's full range of colors.

E. Joint-Sealant Application: Interior joints in vertical surfaces not subject to movement.
1. Joint locations such as, but not limited to:
a. Interior perimeter joints of exterior openings.
b. Perimeter joints between interior wall surfaces and frames of interior doors, windows, and elevator entrances.
c. Interior joints between dissimilar materials where a gap is created where materials meet, unless otherwise noted.
2. Provide one of the following acceptable sealants as approved by manufacturer for substrates and uses indicated: **Type L-1, Type L-2**
3. Color: As selected by Architect from manufacturer's full range of colors.

F. Joint-Sealant Application: Mildew-resistant interior joints in non-painted vertical surfaces and horizontal nontraffic surfaces.
   1. Joint locations such as, but not limited to:
      a. Interior joints between plumbing fixtures and adjoining floors and counters.
      b. Joints between countertops and backsplashes.
      c. For interior joints in non-painted vertical and horizontal surfaces where incidental food contact may occur.
      d. Tile control and expansion joints where indicated.
      e. Other joints as indicated on Drawings.
   2. Provide one of the following acceptable sealants as approved by manufacturer for substrates and uses indicated: **Type S-5**
      a. For potable water storage sealant shall be certified by National Sanitation Foundation as conforming to the requirements of NSF Standard 61 – Drinking Water System Components – Health Effect.
      b. For surfaces where incidental food contact may occur sealant must comply with United States Department of Agriculture (USDA) guidelines for incidental food contact with cured sealant.
   3. Color: As selected by Architect from manufacturer's full range of colors.

G. Joint-Sealant Application: Mildew-resistant interior joints in painted vertical surfaces and horizontal non-traffic surfaces.
   1. Joint locations such as, but not limited to:
      a. Interior joints between plumbing fixtures and adjoining painted walls.
      b. Joints where countertops or backsplashes intersect painted walls.
      c. For interior joints in painted vertical and horizontal surfaces where incidental food contact may occur.
   2. Provide one of the following acceptable sealants as approved by manufacturer for substrates and uses indicated: **Type L-2**
   3. Color: As selected by Architect from manufacturer's full range of colors.

H. Joint-Sealant Application: Interior or exterior joints in vertical surfaces between laps in fabrications of sheet metal.
   1. Provide one of the following acceptable sealants as approved by manufacturer for substrates and uses indicated: **Type U-1**
   2. Color: As selected by Architect from manufacturer's full range of colors.

I. Joint-Sealant Application: Exterior joints under metal thresholds and saddles, sill plates, or as bedding sealant for sheet metal flashing and frames of metal or wood.
   1. Provide one of the following acceptable sealants as approved by manufacturer for substrates and uses indicated: **Type S-1, Type U-1, Type B-1**
   2. Color: As selected by Architect from manufacturer's full range of colors.

END OF SECTION

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SECTION 08 11 13 - HOLLOW METAL DOORS AND FRAMES

PART 1 GENERAL

1.1 SUMMARY

A. Section includes steel frames; non-rated.

1.2 SUBMITTALS

A. Shop Drawings: Indicate door and frame elevations, internal reinforcement, cut-outs for glazing, and finishes.

B. Product Data: Submit door and frame configurations, location of cut-outs for hardware reinforcement.

1.3 QUALITY ASSURANCE

A. Perform Work in accordance with the following:
   1. ANSI 250.8 - Recommended Specifications for Standard Steel Doors and Frames.
   2. DHI - Door Hardware Institute - The Installation of Commercial Steel Doors and Steel Frames, Insulated Steel Doors in Wood Frames and Builder's Hardware.

B. Fire Rated Door Construction: Conform to NFPA 252.

C. Installed Fire Rated Door Assembly: Conform to NFPA 80 for fire rated class as indicated on Drawings.

D. Attach label from agency approved by authority having jurisdiction to identify each fire rated door.

E. Surface Burning Characteristics:
   1. Foam Insulation: Maximum 75/450 flame spread/smoke developed index when tested in accordance with ASTM E84.

F. Apply label from agency approved by authority having jurisdiction to identify each foam plastic insulation material.

PART 2 PRODUCTS

2.1 STEEL FRAMES

A. Manufacturers:
   1. Ceco Door Products.
   2. Fleming Steel Doors and Frames.
   3. Kewanee Corp.
   4. Republic Doors.
   5. Steelcraft.

B. Product Description: Standard shop fabricated steel doors, and frames; non-rated types; flush face.

2.2 FRAME TYPES

A. General: Provide steel frames for doors, transoms, sidelights, borrowed lights, and other openings that comply with ANSI A250.8 and with details indicated for type and profile. Conceal fastenings, unless otherwise indicated.

B. Frames for interior door openings and borrowed lights shall be fabricated with 2 inch face at jambs, heads, and mullions, unless otherwise indicated:
   1. 16 gauge steel, cold rolled, factory applied baked on primer, for Level 2 and Level 3 steel doors and wood doors.

2.3 FRAME ASSEMBLIES

A. Stops and Beads: Furnish minimum 20 gauge metal glazing beads with the hollow metal frames at transoms, side lights, interior glazed panels, and other locations where beads are indicated in pressed steel frames. Glazing beads for exterior frames shall be on the interior side of transoms and sidelights. Glazing beads for interior frames shall be on the same side of door.

B. Mortar/Plaster Guards: Provide minimum 26 gauge steel plaster guards or mortar boxes, welded to the frame, at back of door hardware cutouts where materials might obstruct hardware operation.

C. Provide minimum 9 MSG hinge reinforcement, including all doors with continuous type hinges.

D. Provide minimum 12 MSG frame head reinforcement for closers, surface, and concealed overhead stop and holders, removable mullions, flush bolts, and top latch of vertical rod exit devices.

E. Door Silencers: Drill stops and install 3 silencers on strike jambs of single swing frames and 2 silencers on heads of double swing frames.

F. Hollow metal frames requiring continuous hinges shall have a continuous mortar guard of a minimum 26 gauge steel, welded to frame, the full height of the door. Mortar guards shall be shop applied by frame supplier.

2.4 FRAME ANCHORAGE

A. Jamb Anchors
   1. Frames Set in Existing Masonry: Provide specifically designed 18 gauge jamb anchors used to add support for bolting the frame into the rough opening of the existing wall.
   2. Frames Set in New Masonry: Provide metal anchors of shapes and sizes required for the adjoining wall construction. Provide a minimum of 3 wall anchors per jamb.
      a. Provide adjustable strap-and-stirrup or T-shaped anchors to suit frame size, not less than 18 gauge, with corrugated or perforated straps not less than 2 inches wide by 10 inches long; or wire anchors not less than 7 WMG.
   3. Frames Set in Metal Stud Partitions: Provide a minimum of three 18 gauge metallic coated "Z" shaped sheet metal jamb anchor clips welded in each jamb.

B. Provide head anchors at door or window heads over 5 feet wide at minimum 3 feet o.c. mounted in metal-stud partitions.

C. Floor Anchors: Weld anchors to bottoms of jambs with at least four spot welds per anchor; however, for slip-on drywall frames, provide anchor clips or countersunk holes at bottom of jambs.
   1. Provide 14 gauge minimum anchors punched for two 3/8 inch diameter bolts each.

2.5 FABRICATION

A. Fabricate steel door and frame units to comply with ANSI A250.8 and to be rigid, neat in appearance, and free from defects, warp, or buckle. Accurately form metal to required sizes and profiles. Wherever practicable, fit and assemble units in the manufacturer's plant. Clearly identify work that cannot be permanently factory assembled before shipment, to assure proper assembly at the Project site.

B. Hollow-Metal Frames: Where frames are fabricated in Sections due to shipping or handling limitations, provide alignment plates of angles at each joint, fabricated of same thickness metal as frames.
   1. Sidelite and Transom Bar Frames: Provide closed tubular members with no visible face seams or joints, fabricated from same material as door frame. Fasten members at crossings

2. Door Silencers: Except on weather-stripped frames, drill stops to receive door silencers as follows. Keep holes clear during construction.
   a. Single-Door Frames: Drill stop in strike jamb to receive three door silencers.
   b. Double-Door Frames: Drill stop in head jamb to receive two door silencers.

C. Fabricate concealed stiffeners, reinforcement, edge channels, and moldings from either cold rolled or hot rolled steel (at fabricator's option).
   1. Minimum hardware reinforcement gage shall comply with Table 4 of ANSI/SDI A250.8 “SDI 100, Recommended Specifications for Standard Steel Doors and Frames”.

D. Clearances for Non-Fire Rated Doors: Not to exceed 1/8 inch at jambs and heads, 3/32 inch between pairs of doors, and 3/4 inch at bottom.

E. Clearances for Fire Rated Doors: As required by NFPA 80.

F. Exposed Fasteners: Unless otherwise indicated, provide countersunk flat Phillips heads for exposed screws and bolts.

G. Door Hardware Preparation: Factory prepare hollow-metal work to receive templated mortised hardware; include cutouts, reinforcement, mortising, drilling, and tapping according to SDI A250.6, the Door Hardware Schedule, and templates.
   1. Prepare hollow metal units to receive mortised and concealed door hardware, including cutouts, steel reinforcing, drilling, and tapping in accordance with final door hardware schedule and templates provided by hardware supplier. Comply with applicable requirements of ANSI A250.6 and ANSI/BHMA A156.115 for preparation of hollow-metal work for hardware.
   2. Reinforce hollow metal units to receive nontemplated, mortised, and surface mounted hardware. Hardware installer shall drill and tap for surface applied hardware.

H. Stops and Moldings: Manufacturer’s standard, formed from minimum 20 gauge steel sheet stops and moldings around glazed lites and louvers. Form corners of stops and moldings with butted or mitered hairline joints.
   1. Single Glazed Lites: Provide fixed stops and moldings welded on secure side of hollow-metal work.
   2. Multiple Glazed Lites: Provide fixed and removable stops and moldings so that each glazed lite are capable of being removed independently.
   3. Provide nonremovable stops on outside of exterior doors and on secure side of interior doors for glass, louvers, and other panels in doors.
   4. Provide screw applied, removable, glazing stops on inside of glass, louvers, and other panels in doors.
   5. Coordinate rabbet width between fixed and removable stops with glazing and installation types indicated.

2.6 STEEL FINISHES

A. General: Comply with recommendations in “Metal Finishes Manual by Architectural and Metal Products (AMP) Division of National Association of Architectural Metal Manufacturers (NAAMM) for applying and designating finishes.
   1. Finish standard steel door and frames after assembly.

B. Metallic Coated Steel Surface Preparation: Clean surfaces with nonpetroleum solvent so surfaces are free of oil and other contaminants. After cleaning, apply a conversion coating suited to the organic coating to be applied over it. Clean welds, mechanical connections, and abraded areas, and apply galvanizing repair paint specified below to comply with ASTM A780.
   1. Galvanizing Repair Paint: High zinc dust content paint for regalvanizing welds in steel, complying with SSPC Paint 20.

C. Steel Surface Preparation: Clean surfaces to comply with SSPC-SP1, SSPC-SP 3, SSPC-SP 6/NACE No. 3.

D. Factory Priming for Field Painted Finish: Apply shop primer specified below immediately after surface preparation and pretreatment. Apply a smooth coat of even consistency to provide a uniform dry film thickness of not less than 0.7 mils.
   1. Shop Primer: Manufacturer's standard, fast curing, lead and chromate free primer complying with ANSI A250.10 acceptance criteria; recommended by primer manufacturer for substrate; compatible with substrate and field applied finish paint system indicated; and providing a sound foundation for field applied topcoats despite prolonged exposure.

2.7 GLAZING

A. Refer to Section 08 80 00.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify opening sizes and tolerances are acceptable.

3.2 PREPARATION

A. Prior to installation, adjust and securely brace standard steel door frames for squareness, alignment, twist, and plumb to the following tolerances:
   1. Squareness: Plus or minus 1/16 inch, measured at door rabbet on a line 90 degrees from jamb perpendicular to frame head.
   2. Alignment: Plus or minus 1/16 inch, measured on jambs on a horizontal line parallel to plane of wall.
   3. Twist: Plus or minus 1/16 inch, measured at opposite face corners of jambs on parallel lines,
   4. Plumbness: Plus or minus 1/16 inch, measured at jambs on a perpendicular line from head to floor.

B. Drill and tap doors and frames to receive nontemplated mortised and surface mounted door hardware.

3.3 INSTALLATION

A. General: Provide doors and frames of sizes, thicknesses, and designs indicated. Install standard steel doors and frames plumb, rigid, properly aligned, and securely fastened in place; comply with Drawings and manufacturer's written instructions.

B. Install doors and frames in accordance with ANSI A250.11.

C. Install fire rated doors and frames in accordance with NFPA 80.

D. Coordinate installation of doors and frames with installation of hardware specified in Section 08 71 00.

E. Coordinate door frames with masonry and gypsum board wall construction for frame anchor placement.

F. Steel Doors: Fit hollow metal doors accurately in frames, within clearances specified below. Shim as necessary.
   1. Non Fire Rated Standard Steel Doors:
      a. Jambs and Head: 1/8 inch plus or minus 1/16 inch.
      b. Between Edges of Pairs of Doors: 1/8 inch plus or minus 1/16 inch.
      c. Between Bottom of Door and Top of Threshold: Maximum 3/8 inch.
      d. Between Bottom of Door and Top of Finish Floor (No Threshold): Maximum 3/4 inch.
   2. Fire Rated Doors: Install with clearances according to NFPA 80.

3. Smoke Control Door Assemblies: Install according to NFPA 105.

G. Coordinate installation of glass and glazing specified in Section 08 80 00.

H. Adjust door for smooth and balanced door movement.

I. Tolerances:
   1. Maximum Diagonal Distortion: 1/16 inch measured with straight edge, corner to corner.

3.4 SCHEDULE

A. Refer to Drawings.

END OF SECTION

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SECTION 08 14 16 - FLUSH WOOD DOORS

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Flush wood doors.
   2. Door glazing.

1.2 SUBMITTALS

A. Shop Drawings: Indicate:
   1. Door opening criteria, elevations, sizes, types, swings, undercuts required, special beveling, special blocking for hardware, and factory machining criteria.
   2. Cutouts for glazing and louvers.

B. Product Data:
   1. Door core materials and construction.
   2. Veneer species, type and characteristics.
   3. Factory finishes.

C. Samples:
   1. Two of door construction, veneer cut and grain pattern. Show veneer slices, pattern, joints, etc. Illustrate wood grain, stain color and sheen and variation in finish color.

1.3 QUALITY ASSURANCE

A. Perform Work according to AWI AWS Section 9, Premium Grade.

B. Finish doors according to AWI AWS Section 5 Premium Grade.

C. Fire-Rated Door Construction: Conform to one of following:
   1. NFPA 252; with neutral pressure level at 40 inches maximum above sill at five minutes into test.
   2. UL 10C.
   3. Twenty-Minute Fire-Rated Corridor and Smoke Barrier Doors: Fire tested without hose stream test.

D. Installed Fire-Rated Door Assembly: Conform to NFPA 80 for fire-rated class as indicated.

E. Smoke and Draft Control Doors: Tested according to UL 1784 and installed according to NFPA 105.
   1. Air Leakage: Maximum 3.0 cfm/sq ft of door opening with 0.10 inch w.g. pressure differential.

F. Attach label from agency approved by authority having jurisdiction to identify each fire-rated door.
   1. Indicate temperature rise rating for stair doors.
   2. Attach smoke label to smoke and draft control doors.

G. Manufacturer: Company specializing in manufacturing products specified in this Section with three years' experience.

1.4 COORDINATION

A. Coordinate Work with door opening construction, door frame and door hardware installation.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Protect wood doors during transit, storage, and handling to prevent damage, soiling, and deterioration. Comply with requirements of referenced ANSI standard and recommendations of WDMA pamphlet "How to Store, Handle, Finish, Install, and Maintain Wood Doors," as well as with manufacturer's instructions.

B. Identify each door with individual opening numbers that correlate with designation system used on shop drawings for door, frames, and hardware, and STC or fire rating where applicable, using temporary, removable, or concealed markings.

C. Polybag protect each door for shipment and handling.

D. Environmental Limitations: Do not deliver or install doors until conditions for temperature and relative humidity have been stabilized and will be maintained in storage and installation areas during the remainder of the construction period to comply with requirements of the referenced quality standard for Project's geographical location.

1.6 WARRANTY

A. Include coverage for delamination of veneer, warping beyond specified installation tolerances, defective materials, and telegraphing core construction.

B. Interior Doors:
   1. Factory-Finished Doors: Furnish life of installation warranty from Manufacturer.

PART 2 PRODUCTS

2.1 FLUSH WOOD DOORS

A. Manufacturers:
   1. Five Lakes Manufacturing
   2. VT Industries

B. Flush Interior Doors: Solid core. **Note new doors must match existing doors for species, veneer, finish, etc.**
   1. Thickness: 1-3/4 inches.
   2. Core: PC, flush doors
   3. Core: SCLA, structural composite lumber core for doors with light openings and / or louvers.
   4. Face Construction: five-ply.
   5. Performance Duty Level: Extra Heavy duty.
   6. Quality Grade: Premium with Grade A faces.

C. Performance / Design Criteria:
   1. Performance Duty Level: WDMA I.S. 1A.
   2. Fire Resistance: As indicated on drawings / door schedule.
   3. Sound Transmission Resistance: ASTM E413; minimum STC 35 for door and frame assemblies indicated as acoustically rated.

2.2 MATERIALS

A. Door Cores: AWI AWS Section 9.
   1. Solid Core, Non-Fire-Rated:
      a. Type: PC; particleboard, ANSI A208.1.
   2. Solid Core, Fire-Rated: Category A for positive pressure fire test.
      a. Type FD; fire-resistive composite.

B. Interior Door Faces:
   1. Transparent Finished Faces: Wood veneer.
      a. Species: Red Oak
      b. Veneer Cut: Plain Sliced or Rotary Cut to match existing doors
      c. Veneer Matching: Book matched.
      d. Face Matching: Running. Pair match multiple door leaves in single opening.

C. Facing Adhesive: Type I - waterproof.

2.3 VISION PANEL / LITE KITS

A. Wood to match doors, unless otherwise required for rated doors.

B. Vision Panels for Fire-Rated Doors: manufacturer's standard frame formed of cold-rolled sheet steel, factory primed for painted finished and approved for use in fire-protection rating indicated.

2.4 FABRICATION

A. Fabricate doors according to AWI AWS Section 9 requirements.

B. Astragals for Double Doors: Steel, T-shaped, overlapping and recessed at face edge, specifically for double doors.

C. Furnish lock blocks at lock edge and top of door for closer for hardware reinforcement.

D. Vertical Exposed Edge of Stiles: Wood veneer matching door facing.

E. Fit door edge trim to edge of stiles after applying veneer facing.

F. Bond edge banding to cores.

G. Factory machine doors for finish hardware according to hardware requirements and dimensions. Do not machine for surface hardware.

H. Factory-fit doors for frame opening dimensions identified on Shop Drawings.

I. Provide edge clearances according to AWI AWS Section 9.

2.5 FINISHES

A. Finish Work according to AWI AWS Section 5; Premium Grade.

B. Transparent Finish System: Stained, semi-gloss sheen to match existing.
   1. System 5; conversion varnish.
   2. System 11; catalyzed polyurethane.

C. Factory finish doors according to approved sample.

D. Seal door top edge with color sealer to match door facing.

2.6 ACCESSORIES

A. Light Frames:
   1. Metal beads: manufacturer standard.

B. Door Glazing:
   1. Glass: As specified in Section 08 80 00.
   2. Glass: ASTM C1048, Type 1 transparent flat, Quality Q3, Kind FT fully tempered, Condition A uncoated, float glass with horizontal tempering; conforming to CPSC 16 CFR 1201 Category II.
   3. Glazing Stops: Wood, of same species as door facing.
   4. Glazing Stops: Wood with metal clips for rated doors.

PART 3 EXECUTION

3.1 INSTALLATION

A. Install doors according to AWI AWS Section 9 and manufacturer's instructions.

B. Field Fitting and Trimming:
   1. Trim non-rated door width by cutting equally on both jamb edges.
   2. Trim door height by cutting bottom edges to maximum of 3/4 inch.
      a. Trim fire door height at bottom edge only, according to fire-rating requirements.

3. Machine cut doors for hardware installation.

C. Coordinate installation of doors with installation of frames specified in Section 08 12 14 and hardware specified in Section 08 71 00.

D. Coordinate installation of glass and glazing as specified in Section 08 80 00.

3.2 TOLERANCES

A. Conform to AWI AWS Section 9 requirements for following:
1. Fit and clearance tolerances.
2. Gaps.
3. Flushness.
4. Flatness.
5. Squareness.

3.3 SCHEDULE

A. Refer to Door and Frame Schedule on Drawings.

END OF SECTION

SECTION 08 71 00 - DOOR HARDWARE

PART 1 GENERAL

1.1 SUMMARY

A. This Section includes commercial door hardware for the following:
   1. Swinging doors.

B. Door hardware includes, but is not necessarily limited to, the following:
   1. Mechanical door hardware.
   2. Electromechanical door hardware.

C. Related Sections:
   1. Division 08 Section “Hollow Metal Doors and Frames”.
   2. Division 08 Section “Flush Wood Doors”.

D. Codes and References: Comply with the version year adopted by the Authority Having Jurisdiction.
   1. ANSI A117.1 - Accessible and Usable Buildings and Facilities.
   2. ICC/IBC - International Building Code.
   3. NFPA 70 - National Electrical Code.
   4. NFPA 80 - Fire Doors and Windows.
   5. NFPA 101 - Life Safety Code.
   6. NFPA 105 - Installation of Smoke Door Assemblies.
   7. State Building Codes, Local Amendments.

E. Standards: All hardware specified herein shall comply with the following industry standards as applicable. Any undated reference to a standard shall be interpreted as referring to the latest edition of that standard:
   1. ANSI/BHMA Certified Product Standards - A156 Series.
   2. UL10C - Positive Pressure Fire Tests of Door Assemblies.
   3. ANSI/UL 294 - Access Control System Units.
   4. UL 305 - Panic Hardware.
   5. ANSI/UL 437- Key Locks.

1.2 SUBMITTALS

A. Product Data: Manufacturer's product data sheets including installation details, material descriptions, dimensions of individual components and profiles, operational descriptions and finishes.

B. Door Hardware Schedule: Prepared by or under the supervision of supplier, detailing fabrication and assembly of door hardware, as well as procedures and diagrams. Coordinate the final Door Hardware Schedule with doors, frames, and related work to ensure proper size, thickness, hand, function, and finish of door hardware.
   1. Format: Comply with scheduling sequence and vertical format in DHI's "Sequence and Format for the Hardware Schedule."
   2. Organization: Organize the Door Hardware Schedule into door hardware sets indicating complete designations of every item required for each door or opening. Organize door hardware sets in same order as in the Door Hardware Sets at the end of Part 3. Submittals that do not follow the same format and order as the Door Hardware Sets will be rejected and subject to resubmission.
   3. Content: Include the following information:
      a. Type, style, function, size, label, hand, and finish of each door hardware item.
      b. Manufacturer of each item.
      c. Fastenings and other pertinent information.

d. Location of door hardware set, cross-referenced to Drawings, both on floor plans and in door and frame schedule.
e. Explanation of abbreviations, symbols, and codes contained in schedule.
f. Mounting locations for door hardware.
g. Door and frame sizes and materials.
h. Warranty information for each product.

4. Submittal Sequence: Submit the final Door Hardware Schedule at earliest possible date, particularly where approval of the Door Hardware Schedule must precede fabrication of other work that is critical in the Project construction schedule. Include Product Data, Samples, Shop Drawings of other work affected by door hardware, and other information essential to the coordinated review of the Door Hardware Schedule.

C. Shop Drawings: Details of electrified access control hardware indicating the following:
1. Wiring Diagrams: Upon receipt of approved schedules, submit detailed system wiring diagrams for power, signaling, monitoring, communication, and control of the access control system electrified hardware. Differentiate between manufacturer-installed and field-installed wiring. Include the following:
a. Elevation diagram of each unique access controlled opening showing location and interconnection of major system components with respect to their placement in the respective door openings.
b. Complete (risers, point-to-point) access control system block wiring diagrams.
c. Wiring instructions for each electronic component scheduled herein.
2. Electrical Coordination: Coordinate with related sections the voltages and wiring details required at electrically controlled and operated hardware openings.

D. Keying Schedule: After a keying meeting with the owner has taken place prepare a separate keying schedule detailing final instructions. Submit the keying schedule in electronic format. Include keying system explanation, door numbers, key set symbols, hardware set numbers and special instructions. Owner must approve submitted keying schedule prior to the ordering of permanent cylinders/cores.

E. Operating and Maintenance Manuals: Provide manufacturers operating and maintenance manuals for each item comprising the complete access control and site management installation in quantity as required in Division 01, Closeout Submittals. The manual to include the name, address, and telephone number of the supplier/integrator providing the installation and the nearest service representatives for each item of equipment included in the system. The final copies delivered after completion of the installation test to include "as built" modifications made during installation, checkout, and acceptance.
1. As-Built Drawings: During system installation, the Contractor to maintain a separate hard copy set of drawings, elevation diagrams, and wiring diagrams of the access control system to be used for record drawings. This set to be kept up to date by the Contractor with all changes and additions to the access control system accurately recorded.

F. Warranties and Maintenance: Special warranties and maintenance agreements specified in this Section.

1.3 QUALITY ASSURANCE

A. Manufacturers Qualifications: Engage qualified manufacturers with a minimum 5 years of documented experience in producing hardware and equipment similar to that indicated for this Project and that have a proven record of successful in-service performance.

B. Certified Products: Where specified, products must maintain a current listing in the Builders Hardware Manufacturers Association (BHMA) Certified Products Directory (CPD).

C. Installer Qualifications: A minimum 3 years documented experience installing both standard and electrified door hardware similar in material, design, and extent to that indicated for this Project and whose work has resulted in construction with a record of successful in-service performance.

D. Door Hardware Supplier Qualifications: Experienced commercial door hardware distributors with a minimum 5 years documented experience supplying both mechanical and electromechanical hardware installations comparable in material, design, and extent to that indicated for this Project. Supplier recognized as a factory direct distributor by the manufacturers of the primary materials with a warehousing facility in Project's vicinity. Supplier to have on staff a certified Architectural Hardware Consultant (AHC) available during the course of the Work to consult with Contractor, Architect, and Owner concerning both standard and electromechanical door hardware and keying.

E. Source Limitations: Obtain each type and variety of door hardware specified in this section from a single source unless otherwise indicated.
   1. Electrified modifications or enhancements made to a source manufacturer's product line by a secondary or third party source will not be accepted.
   2. Provide electromechanical door hardware from the same manufacturer as mechanical door hardware, unless otherwise indicated.

F. Each unit to bear third party permanent label demonstrating compliance with the referenced standards.

G. Keying Conference: Conduct conference to comply with requirements in Division 01 Section "Project Meetings." Keying conference to incorporate the following criteria into the final keying schedule document:
   1. Function of building, purpose of each area and degree of security required.
   2. Plans for existing and future key system expansion.
   3. Requirements for key control storage and software.
   4. Installation of permanent keys, cylinder cores and software.
   5. Address and requirements for delivery of keys.

H. Pre-Submittal Conference: Conduct coordination conference in compliance with requirements in Division 01 Section "Project Meetings" with attendance by representatives of Supplier(s), Installer(s), and Contractor(s) to review proper methods and the procedures for receiving, handling, and installing door hardware.
   1. Prior to installation of door hardware, conduct a project specific training meeting to instruct the installing contractors' personnel on the proper installation and adjustment of their respective products. Product training to be attended by installers of door hardware (including electromechanical hardware) for aluminum, hollow metal and wood doors. Training will include the use of installation manuals, hardware schedules, templates and physical product samples as required.
   2. Inspect and discuss electrical roughing-in, power supply connections, and other preparatory work performed by other trades.
   3. Review sequence of operation narratives for each unique access controlled opening.
   4. Review and finalize construction schedule and verify availability of materials.
   5. Review the required inspecting, testing, commissioning, and demonstration procedures

I. At completion of installation, provide written documentation that components were applied to manufacturer's instructions and recommendations and according to approved schedule.

1.4 DELIVERY, STORAGE, AND HANDLING

A. Inventory door hardware on receipt and provide secure lock-up and shelving for door hardware delivered to Project site. Do not store electronic access control hardware, software or accessories at Project site without prior authorization.

B. Tag each item or package separately with identification related to the final Door Hardware Schedule, and include basic installation instructions with each item or package.

C. Deliver, as applicable, permanent keys, cylinders, cores, access control credentials, software and related accessories directly to Owner via registered mail or overnight package service. Instructions for delivery to the Owner shall be established at the "Keying Conference".

1.5 COORDINATION

A. Templates: Obtain and distribute to the parties involved templates for doors, frames, and other work specified to be factory prepared for installing standard and electrified hardware. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing hardware to comply with indicated requirements.

B. Door Hardware and Electrical Connections: Coordinate the layout and installation of scheduled electrified door hardware and related access control equipment with required connections to source power junction boxes, low voltage power supplies, detection and monitoring hardware, and fire and detection alarm systems.

C. Door and Frame Preparation: Doors and corresponding frames are to be prepared, reinforced and pre-wired (if applicable) to receive the installation of the specified electrified, monitoring, signaling and access control system hardware without additional in-field modifications.

1.6 WARRANTY

A. General Warranty: Reference Division 01, General Requirements. Special warranties specified in this Article shall not deprive Owner of other rights Owner may have under other provisions of the Contract Documents and shall be in addition to, and run concurrent with, other warranties made by Contractor under requirements of the Contract Documents.

B. Warranty Period: Written warranty, executed by manufacturer(s), agreeing to repair or replace components of standard and electrified door hardware that fails in materials or workmanship within specified warranty period after final acceptance by the Owner. Failures include, but are not limited to, the following:
   1. Structural failures including excessive deflection, cracking, or breakage.
   2. Faulty operation of the hardware.
   3. Deterioration of metals, metal finishes, and other materials beyond normal weathering.
   4. Electrical component defects and failures within the systems operation.

C. Standard Warranty Period: One year from date of Substantial Completion, unless otherwise indicated.

D. Special Warranty Periods:
   1. Ten years for mortise locks and latches.
   2. Twenty five years for manual overhead door closer bodies.
   3. Two years for electromechanical door hardware, unless noted otherwise.

1.7 MAINTENANCE SERVICE

A. Maintenance Tools and Instructions: Furnish a complete set of specialized tools and maintenance instructions as needed for Owner's continued adjustment, maintenance, and removal and replacement of door hardware.

1.8 PRE-INSTALLATION MEETING

A. Establish final provisions related to security and key control. Examine hardware items of unusual provisions including special operational features, security devices, UL labels, and similar considerations related to installation.

B. Inspect and discuss preparatory work performed by other trades.

C. Review manufacturer's installation procedures related to the schedule of hardware, doors, and frames. Review the wiring diagrams for related electronic hardware and connection to the security access system and intended function.

D. Inspect and discuss electrical rough-in for electrified door hardware.

E. Review sequence of operation for each type of electrified door hardware.

F. Keying Conference: Conduct conference at Project site.
   1. Flow of traffic and degree of security required.
   2. Preliminary key system schematic diagram.
   3. Requirements for key control system.
   4. Requirements for access control.

PART 2 PRODUCTS

2.1 SCHEDULED DOOR HARDWARE

A. General: Provide door hardware for each door to comply with requirements in Door Hardware Sets and each referenced section that products are to be supplied under.

B. Designations: Requirements for quantity, item, size, finish or color, grade, function, and other distinctive qualities of each type of door hardware are indicated in the Door Hardware Sets at the end of Part 3. Products are identified by using door hardware designations, as follows:
   1. Named Manufacturer's Products: Product designation and manufacturer are listed for each door hardware type required for the purpose of establishing requirements. Manufacturers' names are abbreviated in the Door Hardware Schedule.

C. Substitutions: Requests for substitution and product approval for inclusive mechanical and electromechanical door hardware in compliance with the specifications must be submitted in writing and in accordance with the procedures and time frames outlined in Division 01, Substitution Procedures. Approval of requests is at the discretion of the architect, owner, and their designated consultants.

2.2 HANGING DEVICES

A. Hinges: ANSI/BHMA A156.1 certified butt hinges with number of hinge knuckles and other options as specified in the Door Hardware Sets.
   1. Quantity: Provide the following hinge quantity:
      a. Two Hinges: For doors with heights up to 60 inches.
      b. Three Hinges: For doors with heights 61 to 90 inches.
      c. Four Hinges: For doors with heights 91 to 120 inches.
      d. For doors with heights more than 120 inches, provide 4 hinges, plus 1 hinge for every 30 inches of door height greater than 120 inches.
   2. Hinge Size: Provide the following, unless otherwise indicated, with hinge widths sized for door thickness and clearances required:
      a. Widths up to 3'0": 4-1/2" standard or heavy weight as specified.
      b. Sizes from 3'1" to 4'0": 5" standard or heavy weight as specified.
   3. Hinge Weight and Base Material: Unless otherwise indicated, provide the following:
      a. Exterior Doors: Heavy weight, non-ferrous, ball bearing or oil impregnated bearing hinges unless Hardware Sets indicate standard weight.
      b. Interior Doors: Standard weight, steel, ball bearing or oil impregnated bearing hinges unless Hardware Sets indicate heavy weight.
   4. Hinge Options: Comply with the following:
      a. Non-removable Pins: With the exception of electric through wire hinges, provide set screw in hinge barrel that, when tightened into a groove in hinge pin, prevents removal of pin while door is closed; for the all out-swinging lockable doors.
   5. Manufacturers:

a. McKinney Products; ASSA ABLOY Architectural Door Accessories (MK).

2.3 POWER TRANSFER DEVICES

A. Electrified Quick Connect Transfer Hinges: Provide electrified transfer hinges with Molex™ standardized plug connectors and sufficient number of concealed wires (up to 12) to accommodate the electrified functions specified in the Door Hardware Sets with a 1-year warranty. Connectors plug directly to through-door wiring harnesses for connection to electric locking devices and power supplies. Wire nut connections are not acceptable.
   1. Manufacturers:
      a. McKinney Products; ASSA ABLOY Architectural Door Accessories (MK) - QC (# wires) Option.
      b. No Substitution – Owner's Standard.

B. Electric Door Wire Harnesses: Provide electric/data transfer wiring harnesses with standardized plug connectors to accommodate up to twelve (12) wires. Connectors plug directly to through-door wiring harnesses for connection to electric locking devices and power supplies. Provide sufficient number and type of concealed wires to accommodate electric function of specified hardware. Provide a connector for through-door electronic locking devices and from hinge to junction box above the opening. Wire nut connections are not acceptable. Determine the length required for each electrified hardware component for the door type, size and construction, minimum of two per electrified opening. Use same manufacturer wire harness as the door mounted electromechanical hardware and frame-to-door power transfer hardware.
   1. Provide one each of the following tools as part of the base bid contract:
      a. McKinney Products; ASSA ABLOY Architectural Door Accessories (MK) - Electrical Connecting Kit: QC-R001.
      b. McKinney Products; ASSA ABLOY Architectural Door Accessories (MK) - Connector Hand Tool: QC-R003.
   2. Manufacturers:
      a. McKinney Products; ASSA ABLOY Architectural Door Accessories (MK) - QC-C Series.
      b. No Substitution – Owner's Standard.

2.4 CYLINDERS AND KEYING

A. General: Cylinder manufacturer to have minimum (10) years experience designing secured master key systems and have on record a published security keying system policy.

B. Source Limitations: Obtain each type of keyed cylinder and keys from the same source manufacturer as locksets and exit devices, unless otherwise indicated.
   1. Manufacturers:
      a. Sargent Manufacturing (SA).
      b. Match Existing, Field Verify.
      c. No Substitution – Owner's Standard.

C. Cylinder Types: Original manufacturer cylinders able to supply the following cylinder formats and types:
   1. Threaded mortise cylinders with rings and cams to suit hardware application.
   2. Rim cylinders with back plate, flat-type vertical or horizontal tailpiece, and raised trim ring.
   3. Bored or cylindrical lock cylinders with tailpieces as required to suit locks.
   4. Tubular deadlocks and other auxiliary locks.
   5. Mortise and rim cylinder collars to be solid and recessed to allow the cylinder face to be flush and be free spinning with matching finishes.
   6. Keyway: Match Facility Standard.

D. Keying System: Each type of lock and cylinders to be factory keyed.
   1. Supplier shall conduct a "Keying Conference" to define and document keying system instructions and requirements.

2. Furnish factory cut, nickel-silver large bow permanently inscribed with a visual key control number as directed by Owner.
3. Existing System: Field verify and key cylinders to match Owner's existing system.

E. Key Quantity: Provide the following minimum number of keys:
1. Change Keys per Cylinder: Two (2)
2. Master Keys (per Master Key Level/Group): Five (5).
3. Construction Keys (where required): Ten (10).

F. Construction Keying: Provide construction master keyed cylinders.

G. Key Registration List (Bitting List):
1. Provide keying transcript list to Owner's representative in the proper format for importing into key control software.
2. Provide transcript list in writing or electronic file as directed by the Owner.

2.5 MECHANICAL LOCKS AND LATCHING DEVICES

A. Mortise Locksets, Grade 1 (Heavy Duty): ANSI/BHMA A156.13, Series 1000, Operational Grade 1 Certified Products Directory (CPD) listed. Locksets are to be manufactured with a corrosion resistant steel case and be field-reversible for handing without disassembly of the lock body.
1. Where specified, provide status indicators with highly reflective color and wording for “locked/unlocked” or “vacant/occupied” with custom wording options if required. Indicator to be located above the cylinder with the inside thumb-turn not blocking the visibility of the indicator status. Indicator window size to be a minimum of 2.1” x 0.6” with a curved design allowing a 180 degree viewing angle with protective covering to prevent tampering.
2. Manufacturers:
a. Sargent Manufacturing (SA) - 8200 Series.

B. Cylindrical Locksets, Grade 1 (Heavy Duty): ANSI/BHMA A156.2, Series 4000, Operational Grade 1 Certified Products Directory (CPD) listed.
1. Vertical Impact: Exceed 100 vertical impacts (20 times ANSI/BHMA A156.2 requirements).
2. Furnish with solid cast levers, standard 2 3/4” backset, and 1/2" (3/4" at rated paired openings) throw brass or stainless steel latchbolt.
3. Locks are to be non-handed and fully field reversible.
4. Manufacturers:
a. Sargent Manufacturing (SA) - 10X Line.

2.6 ELECTROMECHANICAL LOCKING DEVICES

A. Electromechanical Cylindrical Locksets, Grade 1 (Heavy Duty): Subject to same compliance standards and requirements as mechanical cylindrical locksets, electrified locksets to be of type and design as specified below.
1. Electrified Lock Options: Where indicated in the Hardware Sets, provide electrified options including: outside door lock/unlock trim control and request-to-exit signaling. Unless otherwise indicated, provide electrified locksets standard as fail secure.
2. Manufacturers:
a. Sargent Manufacturing (SA) - 10G70/71 Series.

2.7 LOCK AND LATCH STRIKES

A. Strikes: Provide manufacturer's standard strike with strike box for each latch or lock bolt, with curved lip extended to protect frame, finished to match door hardware set, unless otherwise indicated, and as follows:
1. Flat-Lip Strikes: For locks with three-piece antifriction latchbolts, as recommended by manufacturer.
2. Extra-Long-Lip Strikes: For locks used on frames with applied wood casing trim.

3. Aluminum-Frame Strike Box: Provide manufacturer's special strike box fabricated for aluminum framing.
4. Double-lipped strikes: For locks at double acting doors. Furnish with retractable stop for rescue hardware applications.

B. Standards: Comply with the following:
1. Strikes for Mortise Locks and Latches: BHMA A156.13.
2. Strikes for Bored Locks and Latches: BHMA A156.2.
3. Strikes for Auxiliary Deadlocks: BHMA A156.36.
4. Dustproof Strikes: BHMA A156.16.

2.8 ELECTRIC STRIKES

A. Standard Electric Strikes: Electric strikes tested to ANSI/BHMA A156.31, Grade 1, for use on non-rated or fire rated openings. Strikes shall be of stainless steel construction tested to a minimum of 1500 pounds of static strength and 70 foot-pounds of dynamic strength with a minimum endurance of 1 million operating cycles. Provide strikes with 12 or 24 VDC capability, fail-secure unless otherwise specified. Where specified provide latchbolt and latchbolt strike monitoring indicating both the position of the latchbolt and locked condition of the strike.
1. Manufacturers:
a. HES (HS) - 1500/1600 Series.

B. Provide electric strikes with in-line power controller and surge suppressor by the same manufacturer as the strike with the combined products having a five year warranty.

2.9 DOOR CLOSERS

A. All door closers specified herein shall meet or exceed the following criteria:
1. General: Door closers to be from one manufacturer, matching in design and style, with the same type door preparations and templates regardless of application or spring size. Closers to be non-handed with full sized covers.
2. Standards: Closers to comply with UL-10C for Positive Pressure Fire Test and be U.L. listed for use of fire rated doors.
3. Size of Units: Comply with manufacturer's written recommendations for sizing of door closers depending on size of door, exposure to weather, and anticipated frequency of use. Where closers are indicated for doors required to be accessible to the Americans with Disabilities Act, provide units complying with ANSI ICC/A117.1.
4. Closer Arms: Provide heavy duty, forged steel closer arms unless otherwise indicated in Hardware Sets.
5. Closers shall not be installed on exterior or corridor side of doors; where possible install closers on door for optimum aesthetics.
6. Closer Accessories: Provide door closer accessories including custom templates, special mounting brackets, spacers and drop plates as required for proper installation. Provide through-bolt and security type fasteners as specified in the hardware sets.

B. Door Closers, Surface Mounted (Heavy Duty): ANSI/BHMA A156.4, Grade 1 Certified Products Directory (CPD) listed surface mounted, heavy duty door closers with complete spring power adjustment, sizes 1 thru 6; and fully operational adjustable according to door size, frequency of use, and opening force. Closers to be rack and pinion type, one piece cast iron or aluminum alloy body construction, with adjustable backcheck and separate non-critical valves for closing sweep and latch speed control. Provide non-handed units standard.
1. Manufacturers:
a. Sargent (SA) – 351 Series

2.10 ARCHITECTURAL TRIM

A. Door Protective Trim

1. General: Door protective trim units to be of type and design as specified below or in the Hardware Sets.
2. Size: Fabricate protection plates (kick, armor, or mop) not more than 2" less than door width (LDW) on stop side of single doors and 1” LDW on stop side of pairs of doors, and not more than 1" less than door width on pull side. Coordinate and provide proper width and height as required where conflicting hardware dictates. Height to be as specified in the Hardware Sets.
3. Where plates are applied to fire rated doors with the top of the plate more than 16” above the bottom of the door, provide plates complying with NFPA 80. Consult manufacturer’s catalog and template book for specific requirements for size and applications.
4. Protection Plates: ANSI/BHMA A156.6 certified protection plates (kick, armor, or mop), fabricated from the following:
    a. Brass or Bronze to match existing: 050-inch thick.
5. Options and fasteners: Provide manufacturer's designated fastener type as specified in the Hardware Sets. Provide countersunk screw holes.
6. Manufacturers:
    a. Rockwood (RO).

2.11 DOOR STOPS AND HOLDERS

A. General: Door stops and holders to be of type and design as specified below or in the Hardware Sets.

B. Door Stops and Bumpers: ANSI/BHMA A156.16, Grade 1 certified door stops and wall bumpers. Provide wall bumpers, either convex or concave types with anchorage as indicated, unless floor or other types of door stops are specified in Hardware Sets. Do not mount floor stops where they will impede traffic. Where floor or wall bumpers are not appropriate, provide overhead type stops and holders.
    1. Manufacturers:
        a. Rockwood (RO).

C. Overhead Door Stops and Holders: ANSI/BHMA A156.8, Grade 1 Certified Products Directory (CPD) listed overhead stops and holders to be surface or concealed types as indicated in Hardware Sets. Track, slide, arm and jamb bracket to be constructed of extruded bronze and shock absorber spring of heavy tempered steel. Provide non-handed design with mounting brackets as required for proper operation and function.
    1. Manufacturers:
        a. Norton Rixson (RF).
        b. Rockwood (RO).
        c. Sargent Manufacturing (SA).

2.12 ARCHITECTURAL SEALS

A. General: Thresholds, weatherstripping, and gasket seals to be of type and design as specified below or in the Hardware Sets. Provide continuous weatherstrip gasketing on exterior doors and provide smoke, light, or sound gasketing on interior doors where indicated. At exterior applications provide non-corrosive fasteners and elsewhere where indicated.

B. Smoke Labeled Gasketing: Assemblies complying with NFPA 105 that are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for smoke control ratings indicated, based on testing according to UL 1784.
    1. Provide smoke labeled perimeter gasketing at all smoke labeled openings.

C. Fire Labeled Gasketing: Assemblies complying with NFPA 80 that are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for fire ratings indicated, based on testing according to UL-10C.

1. Provide intumescent seals as indicated to meet UL10C Standard for Positive Pressure Fire Tests of Door Assemblies, and NPFA 252, Standard Methods of Fire Tests of Door Assemblies.

D. Sound-Rated Gasketing: Assemblies that are listed and labeled by a testing and inspecting agency, for sound ratings indicated.

E. Replaceable Seal Strips: Provide only those units where resilient or flexible seal strips are easily replaceable and readily available from stocks maintained by manufacturer.

F. Manufacturers:
1. Pemko (PE).

2.13 ELECTRONIC ACCESSORIES

A. Request-to-Exit Motion Sensor: Request-to-Exit Sensors motion detectors specifically designed for detecting exiting through a door from the secure area to a non-secure area. Include built-in timers (up to 60 second adjustable timing), door monitor with sounder alert, internal vertical pointability coverage, 12VDC or 24VDC power and selectable relay trigger with fail safe/fail secure modes.
1. Manufacturers:
a. Alarm Controls (AK) - SREX Series.
b. Securitron (SU) - XMS Series.

B. Door Position Switches: Door position magnetic reed contact switches specifically designed for use in commercial door applications. On recessed models the contact and magnetic housing snap-lock into a 1" diameter hole. Surface mounted models include wide gap distance design complete with armored flex cabling. Provide SPDT, N/O switches with optional Rare Earth Magnet installation on steel doors with flush top channels.
1. Manufacturers:
a. Sargent Manufacturing (SA) - 3280 Series.
b. Securitron (SU) - DPS Series.

C. Switching Power Supplies: Provide power supplies with either single or dual voltage configurations at 12 or 24VDC. Power supplies shall have battery backup function with an integrated battery charging circuit and shall provide capability for power distribution, direct lock control and Fire Alarm Interface (FAI) through add on modules. Power supplies shall be expandable up to 16 individually protected outputs. Output modules shall provide individually protected, continuous outputs and/or individually protected, relay controlled outputs.
1. Manufacturers:
a. Securitron (SU) - AQD Series.

2.14 FABRICATION

A. Fasteners: Provide door hardware manufactured to comply with published templates generally prepared for machine, wood, and sheet metal screws. Provide screws according to manufacturers recognized installation standards for application intended.

2.15 FINISHES

A. Standard: Designations used in the Hardware Sets and elsewhere indicate hardware finishes complying with ANSI/BHMA A156.18, including coordination with traditional U.S. finishes indicated by certain manufacturers for their products.

B. Provide quality of finish, including thickness of plating or coating (if any), composition, hardness, and other qualities complying with manufacturer's standards, but in no case less than specified by referenced standards for the applicable units of hardware

C. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.

PART 3 EXECUTION

3.1 EXAMINATION

A. Examine scheduled openings, with Installer present, for compliance with requirements for installation tolerances, labeled fire door assembly construction, wall and floor construction, and other conditions affecting performance.

B. Examine roughing-in for electrical source power to verify actual locations of wiring connections before electrified and integrated access control door hardware installation.

C. Notify architect of any discrepancies or conflicts between the door schedule, door types, drawings and scheduled hardware. Proceed only after such discrepancies or conflicts have been resolved in writing.

3.2 PREPARATION

A. Hollow Metal Doors and Frames: Comply with ANSI/DHI A115 series.

B. Wood Doors: Comply with ANSI/DHI A115-W series.

3.3 INSTALLATION

A. Install each item of mechanical and electromechanical hardware and access control equipment to comply with manufacturer's written instructions and according to specifications.
   1. Installers are to be trained and certified by the manufacturer on the proper installation and adjustment of fire, life safety, and security products including: hanging devices; locking devices; closing devices; and seals.

B. Mounting Heights: Mount door hardware units at heights indicated in following applicable publications, unless specifically indicated or required to comply with governing regulations:
   1. Standard Steel Doors and Frames: DHI's "Recommended Locations for Architectural Hardware for Standard Steel Doors and Frames."
   2. DHI TDH-007-20: Installation Guide for Doors and Hardware.
   3. Where indicated to comply with accessibility requirements, comply with ANSI A117.1 "Accessibility Guidelines for Buildings and Facilities."
   4. Provide blocking in drywall partitions where wall stops or other wall mounted hardware is located.

C. Retrofitting: Install door hardware to comply with manufacturer's published templates and written instructions. Where cutting and fitting are required to install door hardware onto or into surfaces that are later to be painted or finished in another way, coordinate removal, storage, and reinstallation of surface protective trim units with finishing work specified in Division 9 Sections. Do not install surface-mounted items until finishes have been completed on substrates involved.

D. Door Closers:
   1. Install closers on room side of corridor doors, and stair side of stairways.
   2. Lobby doors: Mount on vestibule side.
   3. Exterior doors: Parallel rigid arm installation.
   4. Where through-bolts are required, install closers using only manufacturer-furnished through-bolts.
   5. Install closers using only manufacturer-furnished template machine screws for metal doors and manufacturer -furnished wood screws for wood doors.
   6. Coordinate with door supplier to provide proper blocking for surface mounting.
   7. Use of self-drilling or self-tapping fasteners is not allowed.
   8. Where full glazed door units are specified, use closer arm and mounting configuration as required to avoid use of drop brackets whenever possible.

E. Thresholds: Set thresholds for exterior and acoustical doors in full bed of sealant complying with requirements specified in Division 7 Section "Joint Sealants."

F. Storage: Provide a secure lock up for hardware delivered to the project but not yet installed. Control the handling and installation of hardware items so that the completion of the work will not be delayed by hardware losses before and after installation.

3.4 FIELD QUALITY CONTROL

A. Field Inspection (Punch Report): Reference Division 01 Sections “Closeout Procedures”. Produce project punch report for each installed door opening indicating compliance with approved submittals and verification hardware is properly installed, operating and adjusted. Include list of items to be completed and corrected, indicating the reasons or deficiencies causing the Work to be incomplete or rejected.
   1. Organization of List: Include separate Door Opening and Deficiencies and Corrective Action Lists organized by Mark, Opening Remarks and Comments, and related Opening Images and Video Recordings.

3.5 ADJUSTING

A. Initial Adjustment: Adjust and check each operating item of door hardware and each door to ensure proper operation or function of every unit. Replace units that cannot be adjusted to operate as intended. Adjust door control devices to compensate for final operation of heating and ventilating equipment and to comply with referenced accessibility requirements.

3.6 CLEANING AND PROTECTION

A. Protect all hardware stored on construction site in a covered and dry place. Protect exposed hardware installed on doors during the construction phase. Install any and all hardware at the latest possible time frame.

B. Clean adjacent surfaces soiled by door hardware installation.

C. Clean operating items as necessary to restore proper finish. Provide final protection and maintain conditions that ensure door hardware is without damage or deterioration at time of owner occupancy.

3.7 DEMONSTRATION

A. Instruct Owner's maintenance personnel to adjust, operate, and maintain mechanical and electromechanical door hardware.

3.8 DOOR HARDWARE SETS

A. The hardware sets represent the design intent and direction of the owner and architect. They are a guideline only and should not be considered a detailed hardware schedule. Discrepancies, conflicting hardware and missing items should be brought to the attention of the architect with corrections made prior to the bidding process. Omitted items not included in a hardware set should be scheduled with the appropriate additional hardware required for proper application and functionality.
   1. Quantities listed are for each pair of doors, or for each single door.
   2. The supplier is responsible for handing and sizing all products.
   3. Where multiple options for a piece of hardware are given in a single line item, the supplier shall provide the appropriate application for the opening.
   4. At existing openings with new hardware the supplier shall field inspect existing conditions prior to the submittal stage to verify the specified hardware will work as required. Provide alternate solutions and proposals as needed.

B. REFER TO DRAWINGS FOR HARDWARE SETS

C. Manufacturer’s Abbreviations:
   1. MK - McKinney

2. PE - Pemko
3. MR - Markar
4. SU - Securitron
5. RO - Rockwood
6. SA - SARGENT
7. OT - Other
8. RU - Corbin Russwin
9. HS - HES
10. RF - Rixson
11. NO - Norton
12. CR - Curries (Hardware Only)
13. AK - Alarm Controls

END OF SECTION

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SECTION 08 80 00 - GLAZING

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Glass glazing for interior windows and doors.

1.2 SYSTEM DESCRIPTION

A. System performance to achieve continuity of building enclosure air barrier and vapor retarder with glass and glazing materials of this section.

B. Glass Thickness: Select minimum thickness in accordance with ASTM E1300 to resist specified design loads.

C. Structural Design: Design in accordance with applicable code for most critical combination of wind, snow, seismic, and dead loads.

D. Exterior Glass Deflection: Maximum of 1/175 of glass edge length or 3/4 inch, whichever is less with full recovery of glazing materials.

E. Interior Glass Deflection: Maximum differential deflection for two adjacent unsupported edges when 50 plf force is applied to one panel at any point up to 42 inches above finished floor less than thickness of glass.

F. Thermal and Solar Optical Performance: Measured or calculated in accordance with the following:
   1. U-Values: NFRC 100.
   2. Solar Heat Gain Coefficients: NFRC 200.
   3. Solar Optical Properties: NFRC 300.

1.3 SUBMITTALS

A. Product Data:
   1. Glass: Provide structural, physical, and thermal and solar optical performance characteristics, size limitations, special handling or installation requirements.

B. Samples: Submit two samples, illustrating glass, coloration.

1.4 QUALITY ASSURANCE

A. Perform Work in accordance with GANA Glazing Manual for glazing installation methods.

B. Apply label from agency approved by authority having jurisdiction to identify each fire rated glass lite.

1.5 WARRANTY

A. Furnish ten year manufacturer warranty including coverage for sealed glass units from seal failure, interpane dusting, misting, and replacement of defective glass.

PART 2 PRODUCTS

2.1 GLAZING MANUFACTURERS

A. PPG / Vitro Architectural Glass

B. Pilkington

C. Old Castle

2.2 FLOAT GLASS MATERIALS

A. Annealed Glass: ASTM C1036, Type 1 transparent flat, Quality Q3, float glass.

1. Furnish annealed glass except where heat strengthened or tempered glass is required to meet specified performance requirements.

B. Tempered Glass: ASTM C1048, Type 1 transparent flat, Quality Q3, Kind FT fully tempered, Condition A uncoated, float glass with horizontal tempering.

2.3 FLOAT GLASS PRODUCTS

A. Clear Glass: Annealed, Tempered float glass as specified; Class 1 clear.
1. Clear annealed glass (FG-CA)
2. Clear tempered glass (FG-CT).
3. Minimum Thickness: 1/4 inch.

2.4 GLAZING GASKETS

A. Dense Compression Gaskets: Molded or extruded gaskets of material indicated below, complying with standards referenced with name of elastomer indicated below, and of profile and hardness required to maintain watertight seal:
1. EPDM, ASTM C 864.
2. Silicone, ASTM C 1115.
3. Thermoplastic polyolefin rubber, ASTM C 1115.

2.5 GLAZING SEALANTS

A. Elastomeric Glazing Sealants: Materials compatible with adjacent materials including glass, and glazing channels.

B. Pre-Formed Glazing Tape: Butyl-based elastomeric tape, Size to suit application.

2.6 GLAZING ACCESSORIES

A. Setting Blocks: Elastomeric material recommended by glass manufacturer, 80 to 90 Shore A durometer hardness.

B. Spacer Shims: Elastomeric material recommended by glass manufacturer, 50 to 60 Shore A durometer hardness.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify openings for glazing are correctly sized, within tolerance, and glazing channels or recesses are clean, free of obstructions, and ready to receive glazing.

3.2 PREPARATION

A. Seal porous glazing channels or recesses with substrate compatible primer or sealer.

B. Prime surfaces scheduled to receive sealant.

3.3 INSTALLATION

A. Perform installation in accordance with GANA Glazing Manual.
1. Glazing Sealants: Comply with ASTM C1193.

B. Interior Dry Method (Tape and Tape) Installation:
1. Cut glazing tape to length and set against permanent stops, projecting 1/16 inch above sight line.
2. Place setting blocks at 1/3 points.
3. Rest glazing on setting blocks and push against tape for full contact at perimeter of pane or unit.
4. Place glazing tape on free perimeter of glazing in same manner described above.

5. Install removable stop without displacement of tape. Exert pressure on tape for full continuous contact.
6. Knife trim protruding tape.

3.4 CLEANING

A. Remove glazing materials from finish surfaces.

B. Remove labels after Work is complete.

C. Clean glass and adjacent surfaces.

3.5 SCHEDULE

A. Interior Windows / Doors: 1/4 inch, clear, tempered glass.

END OF SECTION

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SECTION 08 87 00 – WINDOW FILM

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Window Film for Interior Glazing.

1.2 REFERENCES

A. NFRC 100/200 (Formerly ASTM E903) - Standard Methods of Test for Solar Absorbance, Reflectance and Transmittance of Materials Using Integrating Spheres.

1.3 PERFORMANCE REQUIREMENTS

A. Flammability: Surface burning characteristics when tested in accordance ASTM E 84, demonstrating film applied to glass rated Class A for Interior Use:
   1. Flame Spread Index: no greater than 25.
   2. Smoke Developed Index: no greater than 55.

1.4 SUBMITTALS

A. Product Data:
   1. Window Film: Manufacturer Data Sheets, preparation and installation instructions.

B. Samples: Submit two samples, illustrating coloration.

1.5 QUALITY ASSURANCE

A. Manufacturer Qualifications: All primary products specified in this section will be supplied by a single manufacturer with a minimum of ten years experience.
   1. Provide documentation that the adhesive used on the specified films is a Pressure Sensitive Adhesive (PSA).

B. Installer Qualifications: All products listed in this section are to be installed by a single installer with a minimum of five years demonstrated experience in installing products of the same type and scope as specified.
   1. Provide documentation that the installer is authorized by the Manufacturer to perform Work specified in this section.

1.6 MOCKUP

A. Mock-Up: Provide a mock-up for evaluation of surface preparation techniques, application workmanship and Color Rendition
   1. Finish areas designated by Architect.
   2. Do not proceed with remaining work until workmanship, color, and sheen are approved by Architect.
   3. Refinish mock-up area as required to produce acceptable work.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Follow Manufacturer's instructions for storage and handling.

B. Store products in manufacturer's unopened packaging until ready for installation.

C. Store and dispose of hazardous materials, and materials contaminated by hazardous materials, in accordance with requirements of local authorities having jurisdiction.

1.8 PROJECT CONDITIONS

A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's recommended limits.

1.9 WARRANTY

A. At project closeout, provide to Owner or Owners Representative an executed current copy of the manufacturer's standard limited warranty against manufacturing defect, outlining its terms, conditions, and exclusions from coverage.

B. In order to validate warranty, installation must be performed by an Authorized 3M dealer and according to Manufacturer's installation instructions. Verification of Authorized 3M dealer can be confirmed by submission of active 3M dealer code number.

PART 2 PRODUCTS

2.1 WINDOW FILM MANUFACTURERS

A. 3M Commercial Solutions

2.2 WINDOW FILM

A. 3M Scotchshield Ultra Safety & Security Window Film
   1. Co-Extruded micro-layered film composite with high graves tear resistance and high energy absorption for enhanced protection of people, property, and possessions.
   2. Film Thickness: 8 mil thickness
   3. Graves Tear Resistance: 1,075 lbs
   4. Tensile Strength: 31,500 psi
   5. Break Strength: 253 lbs/in.
   6. Elongation at Break: 135%
   7. Peel Strength: >6 lbs/in
   8. Abrasion Resistance: <5%

PART 3 EXECUTION

3.1 EXAMINATION

A. Film Examination:
   1. Glass surfaces receiving new film should first be examined to verify that they are free from defects and imperfections, which will affect the final appearance.
   2. Do not proceed with installation until glass surfaces have been properly prepared and deviations from manufacturer's recommended tolerances are corrected. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result under the project conditions.
   3. Commencement of installation constitutes acceptance of conditions.

3.2 PREPARATION

A. Clean surfaces thoroughly prior to installation.

B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

C. Refer to Manufacturer's installation instructions for methods of preparation for Impact Protection Adhesive or Impact Protection Profile film attachment systems.

3.3 INSTALLATION

A. Film Installation, General:
   1. Install in accordance with manufacturer's instructions.
   2. Cut film edges neatly and square at a uniform distance of 1/8 inch to 1/16 inch of window sealant. Use new blade tips after 3 to 4 cuts.
   3. Spray the slip solution, composed of one capful of baby shampoo or dishwashing liquid to 1 gallon of water, on window glass and adhesive to facilitate proper positioning of film.
   4. Apply film to glass and lightly spray film with slip solution.

5. Squeegee from top to bottom of window. Spray slip solution to film and squeegee a second time.
6. Bump film edge with lint-free towel wrapped around edge of a 5-way tool.
7. Upon completion of film application, allow 30 days for moisture from film installation to dry thoroughly, and to allow film to dry flat with no moisture dimples when viewed under normal viewing conditions.
8. If completing an exterior application, check with the manufacturer as to whether edge sealing is required.

3.4 CLEANING

A. Remove left over material and debris from Work area. Use necessary means to protect film before, during, and after installation.

B. Touch-up, repair or replace damaged products before Substantial Completion.

C. After application of film, wash film using common window cleaning solutions, including ammonia solutions, 30 days after application. Do not use abrasive type cleaning agents and bristle brushes to avoid scratching film. Use synthetic sponges or soft cloths.

END OF SECTION

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SECTION 08 88 56 – BALLISTIC GLAZING

PART 1 GENERAL

1.1 WORK INCLUDES

A. Ballistic glazing system, storefront framing, and related components.

1.2 REFERENCE

A. Underwriters Laboratory UL 752-Standard for Bullet Resisting Equipment

B. ASTM E119-98- Standard Test Methods for Fire Tests of Building Construction and Materials

C. ASTM B 209/B 209M- Standard Specification for Aluminum and Aluminum Alloy Sheet and Plate

D. ASTM A 666-Standard Specification for Annealed or Cold-Worked Austenitic Stainless Steel Sheet, Strip, Plate and Flat Bar.

1.3 SUBMITTALS

A. Submit for approval prior to fabrication: samples, product data, cuts & anchor spacing, reinforcement & location, product specifications, shop drawings, test reports (current UL Listing Verification & UL 752 Test Results as provided by Underwriters Laboratories), and printed data in sufficient detail to indicate compliance with the contract documents.

B. Manufacturer's Instructions for installation and cleaning of TSS Bullet Transaction Window Assemblies. All required submittals shall be approved prior to installation.

1.4 DESIGN PERFORMANCE

A. Through the design, manufacturing techniques and material application the TSS Aluminum Voice Around Transaction Window and TSS Horizontal Slider Transaction Window shall be of the "non-ricochet" type. This design is intended to permit the encapture and retention of an attacking projectile lessening the potential of a random injury or lateral penetration. This design shall employ a spacer within the frame to allow for natural sound transmission. Each transaction position shall have a stainless steel dip tray as shown on the drawings. Components must be manufactured in strict accordance with the specifications, design and details. All vision panels shall be cut to size with all exposed edges polished. Necessary holes shall be pre drilled and tapped where required. Stainless Steel assembly screws and acrylic spacers shall be provided. Frame and channel shall be provided. Anchor screws shall be provided by the installer.

B. No field alterations to the construction of the units fabricated under the acceptable standards shall be allowed unless approved by the manufacturer and the architect. Standard manufacturing tolerances shall be +/- 1/16".

C. Materials shall meet or exceed UL 752 requirements.

1.5 QUALITY ASSURANCE

A. Manufacturer shall be a Company that specializes in manufacturing products of the specified type with a minimum of five years experience. Installer shall be a Company that specializes in product type specified and Certified for the installation by the manufacturer. Manufacturer shall provide a Mock-up, if required, for evaluation of surface preparation and application workmanship and color/finish to the Architect for approval prior to start of work.

1.6 DELIVERY, STORAGE & HANDLING

A. Handle the materials with care to prevent damage. Store materials inside and under cover, stack flat and off floor. Project conditions (temperature, humidity, and ventilation) shall be within the maximum limit recommendations set by manufacturer. Do not install products that are under conditions outside these limits.

1.7 WARRANTY

A. All materials shall be warranted against defects for a period of 1 year for the date of receipt at the project site. Certificates of manufacturer's standard limited warranty shall be provided at project completion.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Total Security Solutions [Basis of Design]

B. Approved Equal

2.2 BULLET RESISTANT ALUMINUM VOICE AROUND TRANSACTION WINDOW [TYPE 'A']

A. The window system consists of custom prefabricated bullet resistant glazing section with secure air passage through frames for natural voice transmission. Includes frame with plastic laminate base and recessed deal tray. All accessories for installation are included. Available frame selections (aluminum).

B. Glazing Options:
   1. Bullet-Resisting Glazing Material Options:
   2. Bullet Resistant Level 3
   3. 1 1/4" LP 1250 Laminated
   4. TSS 003 L/S

C. Deal tray: Brushed Stainless Steel Counter Mounted or Recessed
   1. Deal tray to be 18 ga. stainless steel, # 4 finish 16" x 10" from the outside edge of flanges with a clear opening.

D. Provide a shelf 1 1/2" thick with a recessed cash tray. The shelf to be full width of window, 18" deep, centered under the glazing and covered with a black high pressure laminate.

E. Aluminum sections to be manufactured in accordance with ASTM B209, Extruded aluminum alloy 6063 T5 Anodized or powder coated finish to match the existing décor and be free of sharp edges or burrs when in place. Glazing Channel: U-Channel specifically designed for securing transparencies tightly in place. Angles and stops are only acceptable for top attachment.

F. Frame to be dark bronze anodized aluminum. The bottom of the glazing to be capped with corresponding material on the frame.

G. Product size shall be: TSS Aluminum Voice Around Transaction Window

2.3 BULLET RESISTANT HORIZONTAL SLIDING TRANSACTION WINDOW [TYPE 'B']

A. The Product shall be: TSS Horizontal Sliding Transaction Window. The window system consists of custom prefabricated bullet resistant glazing section with secure air passage through frames with black foam & wood spacers as required for natural voice transmission. Includes frame with plastic laminate base and recessed cash tray. All accessories for installation are included. Available frame selections (aluminum, steel or stainless steel).

B. Glazing Options:
   1. Bullet-Resisting Glazing Material Options:
   2. Bullet Resistant Level 3
   3. 1 1/4" LP 1250 Laminated
   4. TSS 003 L/S

C. Deal tray: Brushed Stainless Steel Counter Mounted or Recessed
   1. Deal tray to be 18 ga. stainless steel, # 4 finish, 16" x 10" from the outside edge of flanges with a clear opening.

D. Provide a shelf 1 1/2" thick with a recessed deal tray. The shelf to be full width of window, 18" deep, centered under the glazing and covered with a black high pressure laminate.

E. Aluminum sections to be manufactured in accordance with ASTM B209, Extruded aluminum alloy 6063 T5 Anodized or powder coated finish to match the existing décor and be free of sharp edges or burrs when in place. Glazing Channel: U-Channel specifically designed for securing transparencies tightly in place. Angles and stops are only acceptable for top attachment.
   1. Frame to be dark bronze anodized aluminum. The bottom of the glazing to be capped with corresponding material on the frame.

PART 3 EXECUTION

3.1 PREPARATION

A. Prior to installing the bullet resistive material, the contractor shall verify that all supports have been installed as required by the contract documents, architectural drawings, and approved shop/CAD drawings, if required. Installer shall notify architect of any unsatisfactory preparation that is responsibility of another installer.

B. Clean and prepare all surfaces per manufacturer's recommendations for achieving the best results for the substrate under the project conditions.

3.2 INSTALLATION

A. Do not begin installation until openings have been verified and surfaces properly prepared in accordance with Drawings. Install in accordance with manufacturer's instructions and UL 752. Set all equipment plumb. All products shall be installed per installation instructions provided by Total Security Solutions, if warranty is to be issued.

B. Bullet Resistant Transaction Window shall arrive on site as a completed unit. Unit shall be installed in provided opening (wall/door), secured to structure (anchors by others).

3.3 POST APPLICATION

A. Bullet Resistant Transaction Window shall be installed in accordance with manufacturer's printed recommendations, including adhering to anchoring and finishing details.

B. Inspection and Cleaning: Verify installation is complete and complies with manufacturer's requirements. Clean product and accessories, removing excess sealant, labels and protective covers.

C. Touch-up, repair or replace damaged products before Substantial Completion.

D. Product Warranty: Applicable warranty shall be issued to owner upon final release of completed project.

END OF SECTION

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SECTION 09 21 16 - GYPSUM BOARD ASSEMBLIES

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Gypsum board and joint treatment.

1.2 SUBMITTALS

A. Product Data: Submit data on gypsum board, accessories.

1.3 QUALITY ASSURANCE

A. Perform Work in accordance with:
   1. ASTM C840.
   2. GA-201 - Gypsum Board for Walls and Ceilings.
   3. GA-214 - Recommended Specification: Levels of Gypsum Board Finish.
   4. GA-216 - Recommended Specifications for the Application and Finishing of Gypsum Board.
   5. GA-600 - Fire Resistance Design Manual.

B. Furnish framing materials in accordance with SSMA - Product Technical Information.

C. Fire Rated Wall and Floor Construction: Rating as indicated on Drawings.
   1. Tested Rating: Determined in accordance with ASTM E119.
   2. Fire Rated Partitions: Listed assembly by UL.
   3. Fire Rated Ceilings and Soffits: Listed assembly by UL.

D. Surface Burning Characteristics:
   1. Textile Wall Coverings: Comply with one of the following:
      a. Maximum 25/450 flame spread/smoke developed index when tested in accordance with ASTM E84.

PART 2 PRODUCTS

2.1 GYPSUM BOARD ASSEMBLIES

A. Manufacturers:
   1. United States Gypsum Co. [basis of design]
   2. BPB Americas Inc.
   3. G-P Gypsum Corp.
   4. National Gypsum Co.
   5. Certainteed.

2.2 COMPONENTS

A. Gypsum Board Materials: ASTM C1396/C1396M; Type X fire resistant where indicated on Drawings.
   1. GB-1: Standard Gypsum Board: 5/8 inch thick, maximum available length in place; ends square cut, tapered and beveled edges.
   2. GB-2: High-Impact / Impact-Resistant Gypsum board: 5/8 inch thick, maximum available length in place; ends square cut, tapered and beveled edges.
   3. GB-3: Moisture Resistant Gypsum Board: 5/8 inch thick, maximum available length in place; ends square cut, tapered and beveled edges.
   4. GB-4: Noise Reduction Gypsum Board: 5/8 inch thick; maximum available length in place; ends square cut, tapered and beveled edges.

a. Certainteed SilentFX: Laminated noice-reducing gypsum board consisting of two layers of dense gypsum board encased in smooth, moisture, and mold resistant paper facings laminsted together with a viscoelastic polymer compound.

2.3 ACCESSORIES

A. Acoustic Insulation: ASTM C665, preformed glass fiber, friction fit type, unfaced,
   1. 3 inch thick in 3 5/8 inch metal stud walls.
   2. 6 inch thick in 6 inch metal frame walls.

B. Gypsum Board Accessories: ASTM C1047; metal; corner beads, edge trim, and expansion joints.
   1. Metal Accessories: Galvanized steel.
   2. Edge Trim: Type LC, L, or U bead as appropriate for conditions

C. Joint Materials: ASTM C475/C475M, GA-201 and GA-216, reinforcing tape, joint compound, and water.

D. Fasteners: ASTM C1002, GA-216; length to suit application.

E. Gypsum Board Screws: ASTM C954, ASTM C1002; length to suit application.
   1. Screws for Steel Framing: Type S.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify site conditions are ready to receive work.

3.2 INSTALLATION

A. Gypsum Board:
   1. Install gypsum board in accordance with GA-216.
   2. Fasten gypsum board to furring or framing with screws.
   3. Place control joints consistent with lines of building spaces as directed by Architect.
   4. Place corner beads at external corners. Use longest practical length. Place edge trim where gypsum board abuts dissimilar materials.
   5. Seal cut edges and holes in gypsum board as appropriate for the condition.

B. Joint Treatment:
   1. Finish in accordance with GA-214 for all new work.
      a. Level 4: All joints and interior angles shall have tape embedded in joint compound and shall be immediately wiped with a joint knife leaving a thin coating of joint compound over all joints and interior angles. Two separate coats of joint compound shall be applied over all flat joints and one separate coat of joint compound shall be applied over interior angles. Fastener head and accessories shall be covered with three separate coats of joint compound. All joint compound shall be smooth and free of tool marks and ridges.
         1) This level is to be used at areas to receive flat paints.
      b. Level 5: All joints and interior angles shall have tape embedded in joint compound and shall be immediately wiped with a joint knife leaving a thin coating of joint compound over all joints and interior angles. Two separate coats of joint compound shall be applied over all flat joints and one separate coat of joint compound shall be applied over interior angles. Fastener heads and accessories shall be covered with three separate coats of joint compound. A thin skim coat of joint compound trowel applied, or a material manufactured especially for this purpose and applied in accordance with manufacturer's recommendations, applied to the entire surface. The surface shall be smooth and free of tool marks and ridges.
         1) This level is to be used at areas to receive eggshell and semi-gloss and gloss paint and areas subject to severe lighting, where indicated.

2. Tape, fill, and sand exposed joints, edges, and corners to produce smooth surface ready to receive finishes.
3. Feather coats onto adjoining/existing surfaces so camber is maximum 1/32 inch.
4. Taping, filling, and sanding is not required at concealed surfaces**.**

C. Tolerances: Maximum Variation from Flat Surface: 1/8 inch in 10 feet in any direction.

3.3 SCHEDULE

A. New Gypsum Board Wall Finishes: GB-1: Level 4 finish.

B. New Gypsum Board Ceiling Finishes: GB-1: Level 4 finish.

C. New Gypsum Board Wall / Ceiling Finishes at Toilet Rooms, Wet Areas: GB-3: Level 4 finish.

D. New Gypsum Board Wall Finishes at Conference Room: GB-4, Level 4 finish.

E. Existing Walls / Ceilings: Repair existing gypsum board / plaster finishes where required by work and/or damaged. Restore to like new condition.

END OF SECTION

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SECTION 09 22 16 - NON-STRUCTURAL METAL FRAMING

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes: Metal stud framing and accessories at interior locations.

1.2 SYSTEM DESCRIPTION

A. Interior Walls: Metal stud framing system with insulation as specified in Section 07 21 00 and as indicated on wall types on Drawings, interior gypsum board as specified in Section 09 21 16.

B. Maximum Allowable Deflection for wall assemblies: 1: 240 of the wall height based upon horizontal loading of 5 lbf/SF.

C. Design Loads: 5 lbf/SF minimum.

D. Design framing systems to accommodate deflection of the primary building structure and construction tolerances and to withstand design loads as outlined.

E. Wall System:
   1. Design to provide for movement of components without damage, failure of joint seals, undue stress on fasteners, or other detrimental effects when subject to seasonal or cyclic day/night temperature ranges.
   2. Design system to accommodate construction tolerances, deflection of building structural members, and clearances of intended openings.

1.3 PERFORMANCE REQUIREMENTS

A. Select stud thickness to resist minimum 5 psf uniform load and maximum 1/240 deflection.

1.4 QUALITY ASSURANCE

A. Perform Work according to ASTM C754.

B. Form, fabricate, install, and connect components according to NAAMM ML/SFA 540.

C. Furnish framing materials according to SSMA - Product Technical Information.

PART 2 PRODUCTS

2.1 COMPONENTS

A. Framing System Components: ASTM C645.

B. Studs: ASTM A653/A653M, non-load bearing rolled steel, channel shaped, punched for utility access, as follows:
   1. Depth / Thickness:
      a. 3 5/8 inches x 20 gauge
      b. Unless otherwise noted on the drawings, or as required to suit conditions to meet deflection requirements.

C. Joists: ASTM A653/A653M, non-load bearing rolled steel, channel shaped:
   1. Depth / Thickness:
      a. 6 inches x 20 gauge unless otherwise required by conditions.

D. Tracks and Headers: Same material and thickness as studs, bent leg retainer notched to receive studs.

E. Headers and Jambs: Metal stud manufacturers proprietary shape used to form headers and jambs, columns, etc.

F. Furring Channels: ASTM A653 G40
   1. Cold Rolled Channels: 16 gauge with 1/2 inch wide flanges, 3/4 inch deep.
   2. Hat Channels: ASTM C645-07: 25 gauge, 7/8 inch deep

G. Channel Bridging:
   1. 16 gauge, 1-1/2 inch x 1/2 inch flange
   2. Clip angles: 1-1/2 inch x 1-1/2 inch, galvanized steel

H. Radius Framing: Steel sheet runner for non-load bearing curves, bends, variable radii, and arches, etc.

I. Furring and Bracing Members: Of same material as studs; thickness to suit purpose.

J. Fasteners: ASTM C1002; Type S, GA-216; length to suit application.

K. Anchorage Devices: Power actuated.

L. Grid Suspension System of Interior Ceilings: ASTM C645-07, manufacturer's standard direct-hung grid suspension system composed of main beams and cross furring members that interlock forming a modular support system.

2.2 SUSPENSION SYSTEM COMPONENTS

A. Hangers, Tie Wires, Carrying Channels, and Furring Channels as required for suspended ceiling systems.
   1. Tie Wire: ASTM A641, Class 1 zinc coating, soft temper, 0.062 inch diameter wire, or double strand 0.048 diameter wire.
   2. Wire Hangers: ASTM A641, Class 1 zinc coating, soft temper, .016 inch diameter.
   3. Carrying Channels [Main Runners]: Cold formed, commercial sheet sheet with base steel thickness of 0.0538 inch and minimum 1/2 inch wide flanges. Depth as indicated on drawings.
   4. Design load shall be 5 times the imposed load by construction per ASTM E488.

B. Grid Suspension System of Interior Ceilings: ASTM C645-07, manufacturer's standard direct-hung grid suspension system composed of the main beams and cross furring members that interlock to form a modular supporting network.
   1. Contractor’s Option for gypsum board ceilings where appropriate.

2.3 FABRICATION

A. Fabricate assemblies of framed sections to sizes and profiles required.

B. Fit, reinforce, and brace framing members to suit design requirements.

C. Fit and assemble in largest practical sections for delivery to Site, ready for installation.

2.4 SHOP FINISHING

A. Studs: Galvanize to G40 coating class.

B. Tracks and Headers: Galvanize to G40 coating class.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify rough-in utilities are in proper location.

3.2 INSTALLATION - GENERAL

A. Installation Standard: ASTM C754.
   1. Gypsum Board Assemblies: Also comply with requirements in ASTM C840 that apply to framing installation.

B. Install framing and accessories plumb, square, and true to line, with connections securely fastened.

C. Install supplementary framing, and blocking to support fixtures, equipment services, heavy trim, grab bars, toilet accessories, furnishings, or similar construction.

D. Install bracing at terminations in assemblies.

E. Do not bridge building control and expansion joints with non-load-bearing steel framing members. Frame both sides of joints independently.

F. Fit runners under and above openings; secure intermediate studs to same spacing as wall studs.

G. Align stud web openings horizontally.

H. Secure studs to tracks using fasteners. Do not weld.

I. Stud splicing not permissible.

J. Brace stud framing system rigid.

K. Coordinate erection of studs with requirements of door frames, window frames, and openings; install supports and attachments.

L. Coordinate installation of wood bucks, anchors, and wood blocking with electrical and mechanical Work to be placed within or behind stud framing.

M. Blocking: Secure wood blocking or steel channels to studs.

N. Refer to Drawings for indication of partitions extending to finished ceiling only and for partitions extending through ceiling to structure above. Maintain clearance under structural building members to avoid deflection transfer to studs. Install extended leg ceiling runners.

O. Coordinate placement of insulation in stud spaces after stud frame erection.

3.3 INSTALLATION OF FRAMED ASSEMBLIES

A. Install framing system components in accordance with spacings indicated, but not greater than spacings required by referenced installation standards for assembly types.
   1. Single-Layer Application: As required by horizontal deflection performance requirements, 16 inches o.c. unless otherwise indicated.
   2. Multilayer Application: As required by horizontal deflection performance requirements, 16 inches o.c. unless otherwise indicated.
   3. Tile Backing Panels: As required by horizontal deflection performance requirements, 16 inches o.c. unless otherwise indicated.

B. Where studs are installed directly against exterior masonry walls or dissimilar metals at exterior walls, install isolation strip between studs and exterior wall.

C. Install studs so flanges within framing system point in same direction.

D. Install tracks at floors and overhead supports. Extend framing full height to structural supports or substrates above suspended ceilings except where partitions are indicated to terminate at suspended ceilings. Continue framing around ducts that penetrate partitions above ceiling.
   1. Slip-Type Head Joints: Where framing extends to overhead structural supports, install to produce joints at tops of framing systems that prevent axial loading of finished assemblies.
   2. Door Openings: Screw vertical studs at jambs to jamb anchor clips on door frames; install track section (for cripple studs) at head and secure to jamb studs.
      a. Install two studs at each jamb unless otherwise indicated.
      b. Install cripple studs at head adjacent to each jamb stud, with a minimum 1/2-inch clearance from jamb stud to allow for installation of control joint in finished assembly.

c. Extend jamb studs through suspended ceilings and attach to underside of overhead structure.

3. Other Framed Openings: Frame openings other than door openings the same as required for door openings unless otherwise indicated. Install framing below sills of openings to match framing required above door heads.
4. Fire-Resistance-Rated Partitions: Install framing to comply with fire-resistance-rated assembly indicated and support closures and to make partitions continuous from floor to underside of solid structure.
5. Sound-Rated Partitions: Install framing to comply with sound-rated assembly indicated.
6. Curved Partitions:
   a. Bend track to uniform curve and locate straight lengths so they are tangent to arcs.
   b. Begin and end each arc with a stud, and space intermediate studs equally along arcs. On straight lengths of no fewer than two studs at ends of arcs, place studs 6 inches o.c.

E. Direct Furring:
1. Screw to wood framing.
2. Attach to concrete or masonry with stub nails, screws designed for masonry attachment, or powder-driven fasteners spaced 24 inches o.c.

3.4 INSTALLATION OF CEILING SUSPENSION SYSTEMS

A. Install suspension system components in accordance with spacings indicated, but not greater than spacings required by referenced installation standards for assembly types.
1. Hangers: 48 inches o.c.
2. Carrying Channels (Main Runners): 48 inches o.c.
3. Furring Channels (Furring Members): 24 inches o.c.

B. Isolate suspension systems from building structure where they abut or are penetrated by building structure to prevent transfer of loading imposed by structural movement.

C. Suspend hangers from building structure as follows:
1. Install hangers plumb and free from contact with insulation or other objects within ceiling plenum that are not part of supporting structural or suspension system.
   a. Splay hangers only where required to miss obstructions and offset resulting horizontal forces by bracing, countersplaying, or other equally effective means.
2. Where width of ducts and other construction within ceiling plenum produces hanger spacings that interfere with locations of hangers required to support standard suspension system members, install supplemental suspension members and hangers in the form of trapezes or equivalent devices.
   a. Size supplemental suspension members and hangers to support ceiling loads within performance limits established by referenced installation standards.
3. Wire Hangers: Secure by looping and wire tying, either directly to structures or to inserts, eye screws, or other devices and fasteners that are secure and appropriate for substrate, and in a manner that will not cause hangers to deteriorate or otherwise fail.
4. Flat Hangers: Secure to structure, including intermediate framing members, by attaching to inserts, eye screws, or other devices and fasteners that are secure and appropriate for structure and hanger, and in a manner that will not cause hangers to deteriorate or otherwise fail.
5. Do not attach hangers to roof deck.
6. Do not attach hangers to permanent metal forms. Furnish cast-in-place hanger inserts that extend through forms.
7. Do not connect or suspend steel framing from ducts, pipes, or conduit.

D. Fire-Resistance-Rated Assemblies: Wire tie furring channels to supports.

E. Grid Suspension Systems: Attach perimeter wall track or angle where grid suspension systems meet vertical surfaces. Mechanically join main beam and cross-furring members to each other and butt-cut to fit into wall track.

3.5 ERECTION TOLERANCES

A. Maximum Variation from Indicated Position: 1/8 inch in 10 feet.

B. Maximum Variation from Plumb: 1/8 inch in 10 feet.

3.6 SCHEDULES

A. Refer to wall types and sections on drawings.

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SECTION 09 51 13 - ACOUSTICAL PANEL CEILINGS

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Acoustic tile.
   2. Acoustic panels.
   3. Suspended metal grid ceiling system and perimeter trim.

1.2 SUBMITTALS

A. Product Data: Submit manufacturer's product data.

B. Samples: Submit ceiling tile and suspension system.

1.3 QUALITY ASSURANCE

A. Surface Burning Characteristics: Comply with the following when tested in accordance with NFPA 286.
   1. During 40 kW Exposure: No flame spread to ceiling.
   2. During 160 kW Exposure: No flame spread to perimeter of tested sample and no flashover.
   3. Total Smoke Release: Maximum 1,000 cu m.

B. Surface Burning Characteristics: Maximum 25/450 flame spread/smoke developed index when tested in accordance with ASTM E84.

1.4 DELIVERY, STORAGE, AND HANDLING

A. Delivery: Deliver material in the manufacturer's original, unopened, undamaged containers with identification labels intact.

B. Provide labels indicating brand name, source of procurement, style, size and thickness.

C. Storage and Protection: Store materials protected from exposure to harmful environmental conditions and at temperature and humidity conditions recommended by the manufacturer.

D. Handling: Handle materials to avoid damage.

1.5 PROJECT CONDITIONS

A. Coordination: Coordinate work of this section with installation of mechanical and electrical components and with other construction activities affected by work of this section.
   1. Review with affected installers those locations of facility services lines and equipment within ceiling plenum that prevent installation of hangers at spacings compliant with limitations established in referenced standards. Arrange for each affected mechanical or electrical installer to provide necessary number of additional structural support points for ceiling installer.

B. Maintain environmental conditions [temperature, humidity, and ventilation] within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's recommended limits.

C. Sequencing: Schedule work of affected trades to minimize or eliminate installation conflicts and rework.

1.6 EXTRA MATERIALS

A. Provide 3% additional materials for each ceiling type.for use by the Owner.

PART 2 PRODUCTS

2.1 SUSPENDED ACOUSTICAL CEILINGS

A. Manufacturers:
   1. Armstrong [Basis of Design].
   2. United States Gypsum Company.

B. Performance / Design Criteria:
   1. Provide system capable of supporting imposed loads with deflection limited to 1/360 of span.

2.2 COMPONENTS

A. Acoustic Tiles: ASTM E1264 conforming to the following:
   1. Armstrong 704 Cortega, Angled Tegular Lay-in [basis of design], match building standard
   2. Nominal Size: 24 x 24 inches.
   3. Thickness: 5/8 inches.
   4. Surface Finish: Non-directional fissured.
   5. Edge: Angled Tegular.
   6. Color: White.
   7. NRC: 0.55

B. Grid:
   1. Non-Fire Rated Grid: ASTM C635, standard duty, non-fire rated, exposed T configuration; components die cut and interlocking.
   2. Accessories: Stabilizer bars, clips, splices, edge moldings required for suspended grid system.
   3. Grid Materials: Commercial quality cold rolled steel with galvanized coating.
   4. Exposed Grid Surface Width: 15/16 inch.
   5. Perimeter Molding Width: Match grid width.
   6. Grid Finish: White color.
   7. Suspension Wire: ASTM A580, 12 gauge
   8. Support Channels and Hangers: Galvanized steel, size and type to suit application and ceiling system flatness requirements specified.

2.3 CEILING PERFORMANCE REQUIREMENTS

A. Design for maximum deflection of 1/360 of span.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify layout of hangers does not interfere with other work.

3.2 INSTALLATION - SUSPENSION SYSTEM

A. Install suspension system in accordance with ASTM C636 and manufacturer's instructions and as supplemented in this section.

B. Install hangers and inserts coordinated with overhead work. Provide additional hangers and supports as required.

C. Rigidly secure system, including integral mechanical and electrical components, for maximum deflection of 1/360.

D. Lay out system to a balanced grid design with edge units no less than 50 percent of acoustical unit size.

E. Locate system on room axis according to reflected ceiling plan.

F. Suspension System, Nonseismic: 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.

G. Where ducts, facility services, or equipment prevent the regular spacing of hangers, reinforce the nearest affected hangers and related carrying channels as applicable to span the extra distance.

H. Do not support components on main runners or cross runners if weight causes total dead load to exceed deflection capability.

I. Do not eccentrically load system or induce rotation of runners.

J. Edge Moldings: Install at intersection of ceiling and vertical surfaces and penetrations, using components of maximum length; set level. Provide edge moldings at junction with other ceiling finishes; Miter corners; Provide preformed edge closures to match bullnosed cornered partitions.
   1. Use longest practical lengths.
   2. Miter; Overlap; or Overlap and rivet corners.

3.3 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 edge 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. Cut to fit irregular grid and perimeter edge trim.
   2. Make field cut edges of same profile as factory edges.
   3. Double cut and field paint exposed reveal edges.

F. Where round obstructions; bullnose concrete block corners; and other penetrations occur, provide preformed closures to match perimeter molding.

G. Install hold-down clips where required adjacent to exterior doors.

H. Tolerances: Variation from Flat and Level Surface: 1/8 inch in 10 feet.

END OF SECTION

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SECTION 09 65 10 – SOLID VINYL FLOORING

PART 1 GENERAL

1.1 SUMMARY

A. Section includes solid vinyl floor tile.

1.2 REFERENCES

A. ASTM International:
   1. ASTM F1700 Standard Specification for Solid Vinyl Floor Tile
   2. ASTM E 648 – Standard Test Method for Critical Radiant Flux of Flooring Systems using a Radiant Energy Source.

B. National Fire Protection Association:
   1. NFPA 253 - Standard Method of Test for Critical Radiant Flux for Floor Covering Systems Using a Radiant Heat Energy Source.

1.3 SUBMITTALS

A. Shop Drawings: Indicate seaming plan, custom patterns and inlay designs.

B. Product Data: Submit data describing physical and performance characteristics; including sizes, patterns and colors available; and installation instructions.

C. Samples:
   1. Submit manufacturer's complete set of color samples for initial selection.
   2. Submit **two** samples, illustrating color and pattern for each resilient flooring product specified.

1.4 CLOSEOUT SUBMITTALS

A. Operation and Maintenance Data: Submit maintenance procedures, recommended maintenance materials, and suggested schedule for cleaning

1.5 QUALITY ASSURANCE

A. Surface Burning Characteristics:
   1. Floor Finishes and Stair Coverings: Class I, minimum 0.45 watts/sq cm when tested in accordance with NFPA 253.
   2. Base Material: Class I, minimum 0.45 watts/sq cm when tested in accordance with NFPA 253.

B. Accessibility: Flooring shall comply with accessibility requirements ICC/ANSI A117.1.
   1. Exceed Federal Standards and ADA requirements for slip-resistance.

1.6 QUALIFICATIONS

A. Manufacturer: Company specializing in manufacturing products specified in this section with minimum ten years documented experience.
   1. Manufacturers Qualifications: Flooring product manufacturer will have a technical installation representative available at the job site at the start of the installation to insure there are no conditions which will compromise the installation of the material and that the material is being installed according to industry standards, practices and manufacturers guidelines. The manufacturer’s technical representative will document and confirm that the substrate, material, and installation are in compliance with manufacturer’s guidelines and accepted industry standards and practices.
      a. Any noticed defect with the product or installation system will require the response of the manufacturer’s technical field service personnel on site to determine cause, correction or replacement.

B. Installer: Company specializing in performing Work of this section with minimum ten years documented experience.

1.7 MOCKUP

A. Provide a mockup of the floor installation in an approximate 200 SF area showing the color and pattern of the floor, layout, seams, etc.

B. Provide a mockup of each type of floor / floor pattern as indicated.

C. Coordinate locations with Owner and RDA.

D. Approved mockups may be left in place.

1.8 DELIVERY, STORAGE, AND HANDLING

A. Store resilient products and installation materials in dry spaces protected from the weather, with ambient temperatures maintained within range recommended by the manufacturer, but not less than 55 deg F (13 deg C) or more than 85 deg F (29 deg C).

1.9 PROJECT CONDITIONS / ENVIRONMENTAL REQUIREMENTS

A. Install resilient products after other finishing operations, including painting, have been completed. If that is not possible due to the compressed schedule, provide all required protection of the floor system after installation until turnover of the space.

B. Maintain ambient temperatures within range recommended by the manufacturer, but not less than 65 deg F or more than 85 deg F in spaces to receive resilient products during the following time periods:
   1. 48 hours before installation.
   2. During installation.
   3. 48 hours after installation.

C. Maintain the ambient relative humidity between 40% and 60% during installation.

D. Until Substantial Completion, maintain ambient temperatures within range recommended by the manufacturer, but not less than 55 deg F or more than 85 deg F.

1.10 EXTRA MATERIALS

A. Furnish an additional 5% of each type of floor, base, and accessories.

B. Document attic stock, properly label, and turn over to Owner.

1.11 WARRANTY

A. Provide ten [10] year manufacturer warranty for all resilient flooring, base, and accessories.

PART 2 PRODUCTS

2.1 TILE FLOORING

A. Manufacturers:
   1. Shaw Contract: Compound 5.0mm [4077V], Bisque [77620] [Basis of Design]

B. High Performance Luxury Vinyl Tile
   1. Class: Class III, Type B Printed Vinyl Tile
   2. Wear Layer Thickness: 20 mil
   3. Total Thickness: 0.197 inch
   4. Backing Class: Commercial Grade
   5. Finish: ExoGuard+
   6. Size: 24 inches x 24 inches
   7. Edge Profile: Square Edge

8. Installation Method: Quarter Turn
9. Colors: Bisque [77620]

2.2 ACCESSORIES

A. Transition Moldings and Edge Strips, same material as flooring or metal as applicable. Refer to drawings.

2.3 INSTALLATION MATERIALS

A. Trowelable Leveling and Patching Compounds: Latex-modified, portland cement based or blended hydraulic-cement-based formulation provided or approved by manufacturer for applications indicated and coordinate with substrate.

B. Primer: A primer may be required and must be verified by the manufacturer.

C. Adhesives: Water-resistant type recommended by manufacturer to suit floor tile and substrate conditions indicated.
   1. Adhesives shall be approved by manufacturer for use over concrete substrates

PART 3 EXECUTION

3.1 EXAMINATION

A. Examine substrates, with Installer present, for compliance with requirements for maximum moisture content and other conditions affecting performance of the work.

B. Verify that finishes of substrates comply with tolerances and other requirements specified in other Sections and that substrates are free of cracks, ridges, depressions, scale, and foreign deposits that might interfere with adhesion of resilient products.

C. Proceed with installation only after unsatisfactory conditions have been corrected.

D. Verify concrete floors are dry to maximum moisture content as recommended by manufacturer, and exhibit negative alkalinity, carbonization, and dusting.

E. Verify floor and wall surfaces are free of substances capable of impairing adhesion of new adhesive and finish materials.

3.2 PREPARATION

A. Contractor shall provide all required field verification of conditions, quantity take-offs, layout confirmations, etc. as applicable to the work.

B. 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.
   1. Prepare concrete substrates in accordance with ASTM F 710.

C. Prohibit traffic until filler is cured.

D. Clean substrate.

E. Apply primer as required to prevent "bleed-thru" or interference with adhesion by substances cannot be removed.

F. Do not install flooring products until they are same temperature as the space where they are to be installed.
   1. Move resilient products and installation materials into spaces where they will be installed at least 48 hours in advance of installation.

G. Sweep and vacuum clean substrates to be covered by resilient products immediately before installation.

3.3 INSTALLATION – LUXURY VINYL FLOORING

A. Mix tile from container to ensure shade variations are consistent when tile is placed.

B. Lay flooring with joints and seams parallel to building lines to produce symmetrical tile pattern.

C. Install tile to a pattern as indicated or as recommended by the manufacturer for the conditions. Allow minimum 1/2 full size tile width at room or area perimeter.

D. Scribe flooring to walls, columns, cabinets, floor outlets, and other appurtenances to produce tight joints.

E. Where floor finishes are different on opposite sides of door, terminate flooring under centerline of door.

F. Install edge strips at unprotected or exposed edges, where flooring terminates, and where indicated.

G. Install flooring in recessed floor access covers. Maintain floor pattern.

H. Install feature strips and floor markings where indicated. Fit joints tightly.

3.4 CLEANING AND PROTECTION

A. Comply with manufacturer's written instructions for cleaning and protection of resilient products.

B. Perform the following operations immediately after completing resilient product installation:
   1. Remove adhesive and other blemishes from exposed surfaces.
   2. Sweep and vacuum surfaces thoroughly.
   3. Damp-mop surfaces to remove marks and soil.

C. Protect resilient products from mars, marks, indentations, and other damage from construction operations and placement of equipment and fixtures during remainder of construction period.
   1. Prohibit traffic on resilient flooring for 48 hours after installation.
   2. No heavy traffic, rolling loads, or furniture placement for 72 hours after installation.

D. Wait 72 hours after installation before performing initial cleaning.

E. A regular maintenance program must be started after the initial cleaning.

3.5 SCHEDULE

A. Refer to Drawings.

END OF SECTION

SECTION 09 65 13 - RESILIENT BASE

PART 1 GENERAL

1.1 SUMMARY

A. Section includes rubber base.

1.2 SUBMITTALS

A. Samples:
   1. Submit manufacturer's complete set of color samples for initial selection.
   2. Submit three samples, 2x2 inch in size illustrating color and pattern for each resilient flooring product specified.

1.3 CLOSEOUT SUBMITTALS

A. Operation and Maintenance Data: Submit maintenance instruction and data.

1.4 QUALITY ASSURANCE

A. Surface Burning Characteristics:
   1. Base Material: Class I, minimum 0.45 watts/sq cm when tested in accordance with NFPA 253.

1.5 ENVIRONMENTAL REQUIREMENTS

A. Maintain temperature in storage area between 55 degrees F and 90 degrees F.

B. Store materials for not less than 48 hours prior to installation in area of installation at temperature of 70 degrees F to achieve temperature stability. Thereafter, maintain conditions above 55 degrees F.

PART 2 PRODUCTS

2.1 RESILIENT BASE

A. Manufacturers:
   1. Roppe Corp., #110 Brown [basis of design, match building standard]
   2. Approved Equal

B. Base: ASTM F1861; Type TP, Rubber; top set coved:
   1. Height: 4 inch [6 inch at toilet rooms]
   2. Thickness: 0.125 inch thick.
   3. Finish: Matte.
   4. Length: Roll.
   5. Outside Corners: Premolded or precut. Corners shall be a minimum of 4 inches in length each direction.
   6. Inside Corners: Job formed

2.2 ACCESSORIES

A. Primers and Adhesives: Waterproof, types recommended by floor material manufacturer.

2.3 MOLDINGS / TRANSITION STRIPS

A. Moldings and Edge Strips: Metal; extruded aluminum with mill finish of height required by finish floor materials, and in maximum lengths to minimize running joints.
   1. Schluter or Equal. Size / type to suit conditions.

B. Moldings and Transition Strips: Rubber, extruded rubber as required by floor materials, and in maximum lengths to minimize running joints.

1. Roppe or Equal: Size / type to suit conditions.

PART 3 EXECUTION

3.1 PREPARATION

A. Clean substrate.

B. Apply primer as required to prevent "bleed-thru" or interference with adhesion by substances that cannot be removed.

3.2 INSTALLATION

A. Adhere base tight to wall and floor surfaces.

B. Fit joints tightly and make vertical. Miter internal corners. Install pre-molded interior and exterior corners.

C. Remove excess adhesive from surfaces without damage.

3.3 SCHEDULE

A. Base:
   1. 4” / 6” rubber base at areas indicated on drawings. Provide pre-molded inside and outside corners as applicable.

B. Moldings and Transition Strips:
   1. LVT: Rubber
   2. Carpet: Rubber

END OF SECTION

SECTION 09 68 00 - CARPETING

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Carpet tile, fully adhered.
   2. Accessories.

1.2 SUBMITTALS

A. Shop Drawings: Indicate layout of joints, direction of carpet pile, location of edge moldings.

B. Product Data: Describe physical and performance characteristics; sizes, patterns, colors available, and method of installation.

C. Samples:
   1. Two carpet tile samples illustrating color and pattern design for each carpet color selected.

D. Manufacturer's Instructions: Special procedures, perimeter conditions requiring special attention.

1.3 CLOSEOUT SUBMITTALS

A. Operation and Maintenance Data: Include suggested schedule for cleaning.

1.4 QUALITY ASSURANCE

A. Surface Burning Characteristics:
   1. Floor Finishes: Comply with one of following:
      a. Class II, minimum 0.22 watts/sq cm when tested according to NFPA 253.
      b. CPSC 16 CFR 1630 and ASTM D 2859.

B. Installer: Company specializing in performing Work of this Section with five years' experience.

1.5 ENVIRONMENTAL REQUIREMENTS

A. Store materials in area of installation for 48 hours prior to installation.

1.6 MAINTENANCE MATERIAL SUBMITTALS

A. Extra Stock Materials:
   1. Furnish 100 SF of carpet tiles of each color and pattern selected.

PART 2 PRODUCTS

2.1 CARPET TILE

A. Manufacturers:
   1. Shaw Contract
   2. Approved Equal.

2.2 COMPONENTS

A. Carpet Tile: **multi-level pattern loop carpet, ShawContract Sea Tile Market 5T172-72505 24x24,** manufactured in one color dye lot.
   1. Tile Size: 24x24 inch, nominal.
   2. Fiber: ecosolution Q nylon
   3. Dye Method: 100% solution dyed
   4. Primary Backing: synthetic
   5. Secondary Backing: Ecoworx tile
   6. Gauge: 1/12 inch
   7. Stitches: 9.0 per inch

8. Finished Pile Thickness: 0.077 inches.
9. Total Thickness: 0.217 inches
10. Yarn Tufted Weight: 17.0 oz/SY minimum
11. Color: as selected from full range of colors, multicolor
12. Pattern: quarter turn.

2.3 ACCESSORIES

A. Sub-Floor Filler: latex Type recommended by flooring material manufacturer.

B. Moldings, Transitions, and Edge Strips: Rubber, profiles as required, color as selected by Architect.

C. Stair Nosing: Rubber type, color as selected by Architect

D. Contact Adhesive: As recommended by carpet manufacturer.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify floor surfaces are smooth and flat within tolerances specified and are ready to receive Work.

3.2 PREPARATION

A. Remove sub-floor ridges and bumps. Fill minor or local low spots, cracks, joints, holes, and other defects with sub-floor filler.

B. Apply, trowel, and float filler to achieve smooth, flat, hard surface. Prohibit traffic until filler is cured.

C. Clean substrate.

3.3 INSTALLATION – CARPET TILE

A. Install carpet tile according to CRI Carpet Installation Standard.

B. Do not mix carpet from different cartons unless from same dye lot.

C. Cut carpet tile clean. Fit carpet tight to intersection with vertical surfaces without gaps.

D. Install carpet tile in square pattern, with pile direction alternating to next unit, set parallel to building lines.

E. Locate change of color or pattern between rooms under door centerline.

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.

END OF SECTION

SECTION 09 72 00 - WALL COVERINGS

PART 1 GENERAL

1.1 SUMMARY

A. Section includes surface preparation and wall covering.

1.2 SUBMITTALS

A. Product Data: Submit data on covering and adhesive including test reports verifying flame/smoke ratings.

B. Samples: Submit **two s**amples of covering illustrating color, finish, and texture.

1.3 CLOSEOUT SUBMITTALS

A. Operation and Maintenance Data: Submit maintenance and cleaning instructions.

1.4 QUALITY ASSURANCE

A. Surface Burning Characteristics:
   1. Textile Wall Coverings: Comply with one of the following:
      a. Maximum 25/450 flame spread/smoke developed index when tested in accordance with ASTM E84.

1.5 ENVIRONMENTAL REQUIREMENTS

A. Do not apply materials when surface and ambient temperatures are outside temperature ranges required by adhesive or vinyl covering product manufacturer.

B. Maintain these conditions 24 hours before during and after installation of adhesive and covering.

1.6 EXTRA MATERIALS

A. Provide 25 linear feet of each color of covering selected.

PART 2 PRODUCTS

2.1 WALL COVERING

A. Manufacturers:
   1. Surface Materials, Command, Bellini, Cashew CM113-2312 [Basis of Design]

2.2 COMPONENTS

A. Wall Covering: ASTM F793, roll stock, conforming to the following:
   1. Total Weight: Type II, 20 oz/sq yd.
   2. Content: 100% Vinyl
   3. Backing: Osnaburg
   4. Width: 52 / 54 inch
   5. Repeat: Random Match

B. Adhesive: Type recommended by covering manufacturer to suit application type.

C. Substrate Filler: As recommended by adhesive and covering manufacturers compatible with substrate.

D. Substrate Primer and Sealer: As recommended by covering manufacturer.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify substrate surfaces are flat, ready to receive work.

B. Measure moisture content of surfaces using electronic moisture meter. Do not apply coverings unless moisture content of surfaces are below recommended maximum.

3.2 PREPARATION

A. Fill cracks in substrate and smooth irregularities with filler, sand smooth. Vacuum clean surfaces.

B. Apply one coat of primer to substrate surfaces, allow to dry, sand lightly.

3.3 INSTALLATION

A. Razor trim edges on flat work table, changing blade often to prevent rough cut edges. Do not razor cut on gypsum board surfaces.

B. Apply adhesive and covering smooth, without wrinkles, gaps or overlaps. Ensure full bond to substrate surface.

C. Horizontal seams are not acceptable.

D. Do not seam within 2 inches of internal corners or within 6 inches of external corners.

E. Cover spaces above and below windows, above doors, in pattern sequence from roll.

F. Remove excess wet adhesive from seams.

END OF SECTION

SECTION 09 90 00 - PAINTING AND COATING

PART 1 GENERAL

1.1 SUMMARY

A. Section includes surface preparation and field application of paints, stains, varnishes, and other coatings.

B. Paint/Stain all exposed surfaces that are not pre-finished items, finished metal surfaces, operating parts, labels, or materials obviously intended to be left exposed such as concrete, brick and tile.
   1. CMU
   2. Steel and iron
   3. Galvanized metal
   4. Gypsum board.
   5. Interior Wood Doors
   6. Running Trim.

C. Unless otherwise indicated do not paint concealed surfaces.
   1. Do not paint cabling, and protect communication cabling from overspray. Paint voids the warranty of cable and if painted shall be replaced at the painting contractor's expense.
   2. Do not paint sprinkler heads or trim rings.

D. Obtain primers and undercoat materials for each coating system from the same manufacturer as the finish coats. Primer and finish coat shall be factory applied, finish coat shall be field applied.

E. Extra Materials: Deliver to Owner any leftover paint materials, properly labeled.

F. Minimum surface temperature of 50 degrees required for all coating systems.

G. Store all materials in tightly closed containers when not in use, away from heat, electrical equipment, sparks and open flames. Use approved bonding and grounding procedures. Keep out of the reach of children and residents.

H. Transfer materials to approved containers with complete and appropriate labeling.

1.2 SUBMITTALS

A. Product Data and Color Samples: Provide product data on each coating system component indicating VOC and environmental requirements. Coordinate coating systems for each material/substrate.

B. Provide draw down samples of each coating for final review and approval by Owner.

1.3 QUALITY ASSURANCE

A. Conform to all work place safety regulations for storage, mixing, application, and disposal of all paint related materials.

B. Surface Burning Characteristics:
   1. Fire Retardant Finishes: Maximum 25/450 flame spread/smoke developed index when tested in accordance with ASTM E84.

1.4 REFERENCES AND REGULATIONS:

A. Standards: Comply with applicable provisions and recommendations of the following, except when otherwise shown or specified:
   1. OSHA Safety Standards for the Construction Industry
   2. SSPC Volume 1, Good Painting Practice,

3. SSPC Volume 2, Systems and Specifications, Surface Preparation Guide and Paint Application Specifications of the Steel Structures Painting Council.
4. SSPC and NACE Painter Safety Guidelines, latest editions.

B. Requirements of Regulatory Agencies, conform with the following:
1. Clean Air Act (CAA)
2. Clean Water Act (CWA)
3. Toxic Substances Control Act (TSCA)

1.5 ENVIRONMENTAL REQUIREMENTS

A. Store and apply materials in environmental conditions required by manufacturer's instructions.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Delivery: Deliver manufacturer's unopened containers to the work site. Packaging shall bear the manufacturer's name, label, and the following list of information:
1. Product name and type (description)
2. Application & use instructions
3. Surface preparation
4. VOC content
5. Environmental handling and an SDS
6. Batch date
7. Color number

B. Storage: Store and dispose of solvent-based materials, and materials used with solvent-based materials, in accordance with requirements of local authorities having jurisdiction. Store materials in an area that is within the acceptable temperature range, per manufacturer's instructions. Protect from freezing.

C. Handling: Maintain a clean, dry storage area to prevent contamination or damage to the coatings.

1.7 PROJECT CONDITIONS

A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not apply coatings under environmental conditions outside manufacturer's absolute limits.

1.8 MOCKUP

A. Apply benchmark samples of each paint system indicated and each color and finish selected to verify preliminary selections and demonstrate aesthetic effects and set quality standards for materials and execution.

PART 2 PRODUCTS

2.1 PAINTS AND COATINGS

A. Manufacturers:
1. Sherwin Williams [basis of design]
2. Benjamin Moore
3. PPG

B. Paints and Coatings - General:
1. Unless otherwise indicated, provide factory-mixed coatings. When required, mix coatings to correct consistency in accordance with manufacturer's instructions before application. Do not reduce, thin, or dilute coatings or add materials to coatings unless such a procedure is specifically described in manufacturer's product instructions. VOCs need to be confirmed by using the products EDS sheets.

C. Primers:
   1. Where the manufacturer offers options on primers for a particular substrate, use primer categorized as "best" by the manufacturer.

D. Coating Application Accessories:
   1. Provide all primers, sealers, cleaning agents, cleaning cloths, sanding materials, and clean-up materials required per manufacturer's specifications.

E. Colors: As selected from a full range of manufacturer's offerings, including premium colors.

F. Contractor shall provide for a minimum of paint colors per the drawings.

G. Color Pigments: Pure, non-fading, applicable types to suit substrates and service indicated.
   1. Lead: Measurable lead content in either the pigment or binder will not be permitted.
   2. The finish coats shall match colors selected.

H. Finish Quality:
   1. Finishes shall exhibit a high quality, commercial grade appearance of uniform thickness.
   2. Finishes shall be free of runs, sags, drips, waves, orange peel, festoons, dry spray, cloudiness, spotting, ropiness, brush marks, roller marks, fish eyes or other surface imperfections, voids, discontinuities, pinholes, holidays and overspray.
   3. Final coat shall be uniform in texture, color and gloss, and shall provide an acceptable match with the approved drawdown sample sheet.

2.2 INTERIOR PAINT APPLICATION SCHEDULE

A. Metals - Ferrous: [Semi-Gloss Finish]
   1. 1st Coat: S-W Pro Industrial™ Pro-Cryl® Universal Primer, B66-1300 Series (5.0 mils wet, 1.9 mils dry)
   2. 2nd Coat: S-W Pro Industrial™ Semi-Gloss Acrylic, B66-650 Series (6.0 mils wet, 2.2 mils dry per coat)
   3. 3rd Coat: S-W Pro Industrial™ Semi-Gloss Acrylic, B66-650 Series (6.0 mils wet, 2.2 mils dry per coat)

B. Metals – Aluminum / Galvanized: [Semi-Gloss Finish]
   1. 1st Coat: S-W Pro Industrial™ Pro-Cryl® Universal Primer, B66-1300 Series (5.0 mils wet, 1.9 mils dry)
   2. 2nd Coat: S-W Pro Industrial™ Semi-Gloss Acrylic, B66-650 Series (6.0 mils wet, 2.2 mils dry per coat)
   3. 3rd Coat: S-W Pro Industrial™ Semi-Gloss Acrylic, B66-650 Series (6.0 mils wet, 2.2 mils dry per coat)

C. Wood: [Semi-Gloss Finish]
   1. 1st Coat: S-W Premium Wall & Wood Latex Primer, B28W8111 (4.0 mils wet, 1.6 mils dry)
   2. 2nd Coat: S-W ProMar® HP 200 Zero VOC Latex Semi-Gloss, B31-1900 Series (4.0 mils wet, 1.5 mils dry per coat)
   3. 3rd Coat: S-W ProMar® HP 200 Zero VOC Latex Semi-Gloss, B31-1900 Series (4.0 mils wet, 1.5 mils dry per coat)

D. Wood: [Eg-Shel/Satin Finish]
   1. 1st Coat: S-W Premium Wall & Wood Latex Primer, B28W8111 (4.0 mils wet, 1.6 mils dry)
   2. 2nd Coat: S-W ProMar® 200 HP Zero VOC Latex Eg-Shel, B20-1900 Series (4.0 mils wet, 1.7 mils dry per coat)
   3. 3rd Coat: S-W ProMar® 200 HP Zero VOC Latex Eg-Shel, B20-1900 Series (4.0 mils wet, 1.7 mils dry per coat)

E. Gypsum Board Walls: [Semi-Gloss Finish]
   1. 1st Coat: S-W ProMar® 200 Zero VOC Latex Primer, B28W2600 (4.0 mils wet, 1.0 mils dry)

2. 2nd Coat: S-W ProMar® 200 HP Zero VOC Latex Eg-Shel, B31-1900 Series (4.0 mils wet, 1.5 mils dry per coat)
3. 3rd Coat: S-W ProMar® 200 HP Zero VOC Latex Eg-Shel, B31-1900 Series (4.0 mils wet, 1.5 mils dry per coat)

F. Gypsum Board Walls: [Eg-Shel/Satin Finish]
1. 1st Coat: S-W ProMar® 200 Zero VOC Latex Primer, B28W2600 (4.0 mils wet, 1.0 mils dry)
2. 2nd Coat: S-W ProMar® 200 HP Zero VOC Latex Eg-Shel, B20-1900 Series (4.0 mils wet, 1.7 mils dry per coat)
3. 3rd Coat: S-W ProMar® 200 HP Zero VOC Latex Eg-Shel, B20-1900 Series (4.0 mils wet, 1.7 mils dry per coat)

G. Gypsum Board Ceilings: [Flat Finish]
1. 1st Coat: S-W ProMar® 200 Zero VOC Latex Primer, B28W2600 (4.0 mils wet, 1.0 mils dry)
2. 2nd Coat: S-W ProMar® 200 Zero VOC Latex Flat, B30-12600 Series (4.0 mils wet, 1.4 mils dry per coat)
3. 3rd Coat: S-W ProMar® 200 Zero VOC Latex Flat, B30-12600 Series (4.0 mils wet, 1.4 mils dry per coat)

H. Stained Interior Finish Carpentry / Wood Doors
1. 1st Coat: Wood Conditioner: SW Min-Wax Pre-Stain Wood Conditioner, One Coat
2. 2nd Coat: Wood Stain: SW Min-Wax Performance Series Tintable Wood Stain 250 VOC, One Coat
3. 3rd Coat: Sealer: SW Min-Wax Performance Series Fast-Dry Sanding Sealer, one coat.
4. 4th Coat: Satin Varnish: SW Min-Wax Fast-Dry Polyurethane, two coats.

2.3 PRE-CLEANING AND SURFACE PREPARATION PRODUCTS

A. Pre-cleaning Agents
1. SW No Rinse Prepaint Cleaner
2. Krud Kutter
3. Potable water

B. Pre-cleaning (Power Wash) Equipment
1. Capacity to continuously deliver 3-5 gpm at 2,500 psig of 180-200 degree F hot water.
2. Cleaning system shall affect the 32-ounce per gallon dilution.
3. Manufacturer: Alkota, Model 565T with model 520 water heater or approved equal.
4. Power wash with 15 degree tip capable of delivering hot water at 2500 psig.

C. Power Tool Surface Preparation Media:
1. Scotch Brite No. 07451 by 3 M Corporation, Surface Conditioning disc.
   a. Texture: A Medium
   b. Maximum Speed: 18,000 RPM
2. Clean ‘N" Strip Disco No CSD2 by 3 M Corporation
   a. Texture: Course
   b. Maximum Speed: 8,000 RPM

PART 3 EXECUTION

3.1 EXAMINATION

A. Do not begin application of coatings until substrates have been properly examined and prepared. Notify Architect of unsatisfactory conditions before proceeding.

B. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

C. Proceed with work only after conditions have been corrected, and approved by all parties, otherwise application of coatings will be considered as an acceptance of surface conditions.

D. Previously Painted Surfaces: Verify that existing painted surfaces do not contain lead based paints, notify Architect immediately if lead based paints are encountered.

3.2 SURFACE PREPARATION

A. Comply with paint manufacturer's written instructions for surface preparation, environmental and substrate conditions, product mixing, and application.

B. Perform all surface preparation in accordance with SSPC specifications, guidelines and good painting practices.

C. Proper product selection, surface preparation, and application affect coating performance. Coating integrity and service life will be reduced because of improperly prepared surfaces. Selection and implementation of proper surface preparation ensures coating adhesion to the substrate and prolongs the service life of the coating system.

D. Selection of the proper method of surface preparation depends on the substrate, the environment, and the expected service life of the coating system. Economics, surface contamination, and the effect on the substrate will also influence the selection of surface preparation methods.

E. The surface must be dry and in sound condition. Remove oil, dust, dirt, loose rust, peeling paint or other contamination to ensure good adhesion. Recognize that any surface preparation short of total removal of the old coating may compromise the service length of the system.

F. Prior to attempting to remove mildew, it is always recommended to test any cleaner on a small, inconspicuous area prior to use. Bleach and bleaching type cleaners may damage or discolor existing paint films. Bleach alternative cleaning solutions may be advised.

G. Mildew may be removed before painting by washing with a solution of 1 part liquid bleach and 3 parts water. Apply the solution and scrub the mildewed area. Allow the solution to remain on the surface for 10 minutes. Rinse thoroughly with water and allow the surface to dry before painting. Wear protective eyewear, waterproof gloves, and protective clothing. Quickly wash off any of the mixture that comes in contact with your skin. Do not add detergents or ammonia to the bleach/water solution.

H. No exterior painting should be done immediately after a rain, during foggy weather, when rain is predicted, or when the temperature is below 50°F, unless products are designed specifically for these conditions. On large expanses of metal siding, the air, surface and material temperatures must be 50°F or higher to use low temperature products.

I. Methods:
   1. Aluminum: Remove all oil, grease, dirt, oxide and other foreign material by cleaning per SSPC-SP1, Solvent Cleaning.
   2. Block (Cinder and Concrete): Remove all loose mortar and foreign material. Surface must be free of laitance, concrete dust, dirt, form release agents, moisture curing membranes, loose cement, and hardeners. Concrete and mortar must be cured at least 30 days at 75°F unless the manufacturer’s products are designed for application prior to the 30-day period. The pH of the surface should be between 6 and 9 unless the products are designed to be used in high pH environments. On tilt-up and poured-in-place concrete, commercial detergents and abrasive blasting may be necessary to prepare the surface. Fill bug holes, air pockets, and other voids with a cement patching compound.
   3. Concrete, SSPC-SP13 or NACE 6: This standard gives requirements for surface preparation of concrete by mechanical, chemical, or thermal methods prior to the application of bonded protective coating or lining systems. The requirements of this standard are applicable to all types of cementitious surfaces including cast-in-place concrete floors and walls, precast slabs, masonry walls, and shotcrete surfaces. An acceptable prepared concrete surface should be free of contaminants, laitance, loosely adhering concrete, and

dust, and should provide a sound, uniform substrate suitable for the application of protective coating or lining systems.

4. Cement Composition Siding/Panels: Remove all surface contamination by washing with an appropriate cleaner, rinse thoroughly and allow to dry. Existing peeled or checked paint should be scraped and sanded to a sound surface. Pressure clean, if needed, with a minimum of 2100 psi pressure to remove all dirt, dust, grease, oil, loose particles, laitance, foreign material, and peeling or defective coatings. Allow the surface to dry thoroughly. The pH of the surface should be between 6 and 9, unless the products are designed to be used in high pH environments.
5. Drywall—Exterior: Must be clean and dry. All nail heads must be set and spackled. Joints must be taped and covered with a joint compound. Spackled nail heads and tape joints must be sanded smooth and all dust removed prior to painting. Exterior surfaces must be spackled with exterior grade compounds.
6. Exterior Composition Board (Hardboard): Some composition boards may exude a waxy material that must be removed with a solvent prior to coating. Whether factory primed or unprimed, exterior composition board siding (hardboard) must be cleaned thoroughly and primed with an alkyd primer.
7. Galvanized Metal: Clean per SSPC-SP1 using detergent and water or a degreasing cleaner to remove greases and oils. Apply a test area, priming as required. Allow the coating to dry at least one week before testing. If adhesion is poor, Brush Blast per SSPC-SP16 is necessary to remove these treatments.
8. Steel: Structural, Plate, etc.: Should be cleaned by one or more of the surface preparations described below. These methods are used throughout the world for describing methods for cleaning structural steel. Visual standards are available through the Society of Protective Coatings. A brief description of these standards together with numbers by which they can be specified follow.
9. Solvent Cleaning, SSPC-SP1: Solvent cleaning is a method for removing all visible oil, grease, soil, drawing and cutting compounds, and other soluble contaminants. Solvent cleaning does not remove rust or mill scale. Change rags and cleaning solution frequently so that deposits of oil and grease are not spread over additional areas in the cleaning process. Be sure to allow adequate ventilation.
10. Hand Tool Cleaning, SSPC-SP2: Hand Tool Cleaning removes all loose mill scale, loose rust, and other detrimental foreign matter. It is not intended that adherent mill scale, rust, and paint be removed by this process. Before Hand Tool Cleaning, remove visible oil, grease, soluble welding residues, and salts by the methods outlined in SSPC-SP1.
11. Power Tool Cleaning, SSPC-SP3: Power Tool Cleaning removes all loose mill scale, loose rust, and other detrimental foreign matter. It is not intended that adherent mill scale, rust, and paint be removed by this process. Before Power Tool Cleaning, remove visible oil, grease, soluble welding residues, and salts by the methods outlined in SSPC-SP1.
12. White Metal Blast Cleaning, SSPC-SP5 or NACE 1: A White Metal Blast Cleaned surface, when viewed without magnification, shall be free of all visible oil, grease, dirt, dust, mill scale, rust, paint, oxides, corrosion products, and other foreign matter. Before blast cleaning, visible deposits of oil or grease shall be removed by any of the methods specified in SSPC-SP1 or other agreed upon methods.
13. Commercial Blast Cleaning, SSPC-SP6 or NACE 3: A Commercial Blast Cleaned surface, when viewed without magnification, shall be free of all visible oil, grease, dirt, dust, mill scale, rust, paint, oxides, corrosion products, and other foreign matter, except for staining. Staining shall be limited to no more than 33 percent of each square inch of surface area and may consist of light shadows, slight streaks, or minor discoloration caused by stains of rust, stains of mill scale, or stains of previously applied paint. Before blast cleaning, visible deposits of oil or grease shall be removed by any of the methods specified in SSPC-SP1 or other agreed upon methods.

14. Brush-Off Blast Cleaning, SSPC-SP7 or NACE 4: A Brush-Off Blast Cleaned surface, when viewed without magnification, shall be free of all visible oil, grease, dirt, dust, loose mill scale, loose rust, and loose paint. Tightly adherent mill scale, rust, and paint may remain on the surface. Before blast cleaning, visible deposits of oil or grease shall be removed by any of the methods specified in SSPC-SP 1 or other agreed upon methods.
15. Brush-Off Blast Cleaning of Coated and Uncoated Galvanized Steel, Stainless Steels, and Non-Ferrous Metals, SSPC-SP16: This standard covers the requirements for brush-off blast cleaning of uncoated or coated metal surfaces other than carbon steel by the use of abrasives. These requirements include visual verification of the end condition of the surface and materials and procedures necessary to achieve and verify the end condition. A brush-off blast cleaned non-ferrous metal surface, when viewed without magnification, shall be free of all visible oil, grease, dirt, dust, metal oxides (corrosion products), and other foreign matter. Intact, tightly adherent coating is permitted to remain. A coating is considered tightly adherent if it cannot be removed by lifting with a dull putty knife.
16. Power Tool Cleaning to Bare Metal, SSPC-SP11: Metallic surfaces that are prepared according to this specification, when viewed without magnification, shall be free of all visible oil, grease, dirt, dust, mill scale, rust, paint, oxide corrosion products, and other foreign matter. Slight residues of rust and paint may be left in the lower portions of pits if the original surface is pitted. Prior to power tool surface preparation, remove visible deposits of oil or grease by any of the methods specified in SSPC-SP1, Solvent Cleaning, or other agreed upon methods.
17. Near-White Blast Cleaning, SSPC-SP10 or NACE 2: A Near White Blast Cleaned surface, when viewed without magnification, shall be free of all visible oil, grease, dirt, dust, mill scale, rust, paint, oxides, corrosion products, and other foreign matter, except for staining. Staining shall be limited to no more than 5 percent of each square inch of surface area and may consist of light shadows, slight streaks, or minor discoloration caused by stains of rust, stains of mill scale, or stains of previously applied paint. Before blast cleaning, visible deposits of oil or grease shall be removed by any of the methods specified in SSPC-SP1 or other agreed upon methods.
18. Water Blasting, NACE Standard RP-01-72: Removal of oil grease dirt, loose rust, loose mill scale, and loose paint by water at pressures of 2,000 to 2,500 psi at a flow of 4 to 14 gallons per minute.
19. Stucco: Must be clean and free of any loose stucco. If recommended procedures for applying stucco are followed, and normal drying conditions prevail, the surface may be painted in 30 days. The pH of the surface should be between 6 and 9, unless the products are designed to be used in high pH environments such as Loxon.
20. Wood—Exterior: Must be clean and dry. Knots and pitch streaks must be scraped, sanded, and spot primed before a full priming coat is applied. Patch all nail holes and imperfections with a wood filler or putty and sand smooth.
21. Vinyl Siding, Architectural Plastics & Fiberglass or other PVC, plastic building products. Clean the surface thoroughly by scrubbing with warm, soapy water. Rinse thoroughly, prime with appropriate white primer. Do not paint vinyl with any color darker than the original color. Do not paint vinyl with a color having a Light Reflective Value (LRV) of less than 56 unless VinylSafe® Colors are used. If VinylSafe® Colors are not used and darker colors lower than an LRV of 56 are, the vinyl may warp. Follow all painting guidelines of the vinyl manufacturer when painting. Only paint properly installed vinyl siding. Deviating from the manufacturer's painting guidelines may cause the warranty to be voided.

3.3 APPLICATION

A. Examination and Verification of Condition: Contractor shall verify the areas and conditions under which the work is to be performed and notify the Owner in writing of conditions detrimental to the proper and timely completion of the Work. Do not proceed with the Work until satisfactory conditions have been corrected. Do not coat over chalk, dirt, scale, moisture, oil, surface

contaminants, coatings that have exceeded the manufacturer's re-coat guidelines, or conditions otherwise detrimental to the formation of a durable high quality coating system.

B. Comply with manufacturer's instructions and SSPC Good Paint Practices Volumes 1 and 2.

C. Comply with OSHA regulations, State of Ohio and Federal laws, ordinances, and guidelines.

D. Follow manufacturer's requirements for temperature and humidity at time of application.

E. Refer to SDS sheets before using any product.

F. All surfaces must be thoroughly dry before coating applications. Do not apply to wet or damp surfaces.
   1. Wait at least 30 days before applying to new concrete or masonry or follow manufacturer's procedures to apply appropriate coatings prior to 30 days.
   2. Test new concrete for moisture content.
   3. Wait until wood is fully dry after rain or morning fog or dew.

G. Apply coatings using brush or roller only.

H. Apply all coatings and materials with the manufacturer's specifications in mind. Mix and thin coatings according to manufacturer's recommendation.

I. Apply coatings using methods recommended by manufacturer.

J. Uniformly apply coatings without runs, drips, or sags, without brush marks, and with consistent sheen.

K. Apply coatings at spreading rate required to achieve the manufacturer's recommended dry film thickness.

L. Regardless of number of coats specified, apply as many coats as necessary for complete hide.

M. Exterior Woodwork: If final painting must be delayed more than 2 weeks after installation of woodwork, apply primer within 2 weeks and final coating within 2 weeks.

N. Inspection: The coated surface must be inspected and approved by the Architect or Engineer just prior to the application of each coat.

3.4 CLEAN UP

A. Clean site and remove debris and empty cans daily. Remove all paint from adjacent surfaces. Clean spills and splatters immediately.

B. Clean hands and tools immediately after use with soap and water for water based products and with mineral spirits for oil based products.

C. Follow manufacturer's safety recommendations when using mineral spirits.

3.5 ENVIRONMENTAL REQUIREMENTS

A. Store and apply materials in environmental conditions required by manufacturer's instructions.

END OF SECTION

SECTION 10 14 00 - SIGNAGE

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes: Plastic interior panel signs for room identification.

1.2 SUBMITTALS

A. Product Data: Manufacturer's data sheets on each product to be used, including:
   1. Preparation instructions and recommendations.
   2. Storage and handling requirements and recommendations.
   3. Installation methods.

B. Shop Drawings: Detail drawings showing sizes, lettering and graphics, construction details of each type of sign and mounting details with appropriate fasteners for specific project substrates.

C. Manufacturer's Installation Instructions: Printed installation instructions for each signage system.

D. Message List: Signage report indicating signage location, text, and sign type.

E. Selection Samples: For each finish product specified, two complete sets of color chips representing manufacturer's full range of available colors and available pictograms, characters, and Braille indications.

1.3 QUALITY ASSURANCE

A. Manufacturer Qualifications: Minimum three years documented experience in work of this Section.

B. Installer Qualifications: Minimum three years documented experience in work of this Section.

1.4 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials in unopened factory packaging.

B. Inspect materials at delivery to verify there are no defects or damage.

C. Store products in manufacturer's original packaging until ready for installation in climate controlled location away from direct sunlight.

D. Store and dispose of solvent-based materials, and materials used with solvent-based materials in accordance with requirements of local authorities having jurisdiction.

1.5 PROJECT CONDITIONS

A. Install products in an interior climate controlled environment.

B. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.

PART 2 PRODUCTS

2.1 INTERIOR SIGNAGE

A. Manufacturers
   1. ASI Sign Systems
   2. Diskey Architectural Signage
   3. Nova Polymers
   4. Equal

2.2 PERFORMANCE REQUIREMENTS

A. General Requirements:
   1. Comply with all applicable provisions of the ANSI A117.1 Accessibility Requirements.
   2. Character Proportion: Letters and numbers on signs must have a width-to-height ratio between 3:5 and 1:1 and a stroke width-to-height ratio between 1:5 and 1:10.
   3. Color Contrast: Characters and symbols must contrast with their background - either light characters on a dark background or dark characters on a light background.
   4. Raised Characters or Symbols: Letters and numbers on signs must be raised 1/32 inch minimum and be sans serif characters. Raised characters or symbols must be at least 5/8 in high but no higher than 2 inches. Symbols or pictograms on signs must be raised 1/32 in minimum.
   5. Symbols of Accessibility: Accessible facilities required to be identified must use the international symbol of accessibility.
   6. Braille: Type II with accompanying text.

2.3 MATERIALS

A. Acrylic Sheet: ASTM D4802, Category A-1 cell-cast sheet; Type UVF [UV filtering]

B. Vinyl Film: UV-resistant vinyl film of nominal thickness indicated, with pressure-sensitive, permanent adhesive on back; die cut to form characters or images as indicated and suitable for exterior applications.

C. Molded Plastic Characters: Thermoformed or injection molded
   1. Laminated impact acrylic sheet signage:
   2. Finish: non-Glare
   3. Engraving Method: Rotating carbinde
   4. Thickness: 1/8 inch
   5. Engraving Depth: 0.012
   6. Braille: Type II, Raised room numbers
   7. Colors: to be selected, 2 colors, with contrasting color scheme
   8. Installation: Adhered

2.4 INTERIOR SIGNS

A. Acrylic Panel, fabricated in accordance with one of the following methods:
   1. Inlayed acrylic signs
      a. Acrylic sheet shall be CNC cut to specifications with square or radius corners, and/or custom shapes, 0.080 inch minimum.
      b. 1/32 inch modified acrylic plate shall be adhered to the acrylic plate with a high bond chemical adhesive and the text and/or symbols shall be CNC cut to specifications.
      c. Corresponding text and/or symbols shall be CNC cut from 1/16 inch modified acrylic embedded 1/32 inch and bond with chemical adhesive to the acrylic plate.
      d. Domed grade 2 Braille shall be embedded in the surface.
      e. Comply with requirements indicated for material, color, finish, design, shape, size, and details of construction.
   2. Double panel (window) sign with changeable insert(s).
      a. Tactile appliqué: Opaque, single ply, modified acrylic sheet not less than 0.032 inch in thickness.
      b. Braille: Braille dots shall consist of 0.0625 optically clear UV stable acrylic spheres.
      c. Face laminate: Clear, non-glare, cast acrylic sheet not less than 0.080 inch in thickness.
      d. Backing sheet: Expanded PVC sign board or acrylic sheet not less than 0.125 inch in thickness.
      e. Changeable insert: Provide one of the following:
         1) Polystyrene not more than 0.032 inch in thickness with pressure sensitive vinyl copy or digitally printed graphics.

2) 0.020 inch thick clear lexan with vinyl letters.

B. Interior Panel Sign Types:
1. Provide capacity signs for rooms constituting a place of assembly.
a. Provide capacity sign on the interior of all assembly spaces indicating “MAXIMUM CAPACITY XX OCCUPANTS”. For number of occupants, refer to Room Finish Schedule.
2. Toilet Room Handicapped Signs: Provide one sign depicting International Men/Women Symbol along with the words “Men” or “Women” indicated on the sign at each toilet room, equipped with facilities for the handicapped.
3. Interior Room Name and Number Signs
a. Layout of room name and number shall be as directed by the A/E.
b. Number of signs required:
1) Doors off halls, corridors, and passages.
2) All spaces listed in Finish Schedule. If more than one door to a space, a sign will be required for each door.
c. Provide signs with clear acrylic nameplate as indicated on Signage Types.
4. Storage Signs: Provide signs at mechanical, electrical rooms to read as follows: “COMBUSTIBLE STORAGE NOT PERMITTED”
5. Equipment Intended for the Use of the Fire Department or Other Emergency Responders: Provide signs identifying and locating the following equipment. Locate signs in corridors near rooms containing the following:
a. Air-conditioning systems.
b. Sprinkler risers and valves.
c. Other fire-detection, -suppression, or -control elements.

C. Contractor to provide temporary signage as needed to obtain final inspections for building permits.

2.5 FABRICATION

A. General: Provide manufacturer's standard signs of configurations indicated.
1. Mill joints to tight, hairline fit. Form joints exposed to weather to exclude water penetration.
2. Preassemble signs in the shop to greatest extent possible. Disassemble signs only as necessary for shipping and handling limitations. Clearly mark units for reassembly and installation, in location not exposed to view after final assembly.
3. Conceal fasteners if possible; otherwise, locate fasteners where they will be inconspicuous.
4. Provide rebates, lugs, and brackets necessary to assemble components and to attach to existing work. Drill and tap for required fasteners. Use concealed fasteners where possible; use exposed fasteners that match sign finish.

B. Subsurface-Applied Graphics: Apply graphics to back face of clear faced-sheet material to produce precisely formed image. Image shall be free of rough edges.

C. Shop and Subsurface-Applied Vinyl: Align vinyl film in final position and apply to surface. Firmly press film from the middle outward to obtain good bond without blisters or fish mouths.

2.6 ACRYLIC SHEET FINISHES

A. Colored Coatings for Acrylic Sheet: For copy and background colors, provide colored coatings, including inks, dyes, and paints, that are recommended by acrylic manufacturers for optimum adherence to acrylic surface and that are UV and water resistant for five years for application intended.

PART 3 EXECUTION

3.1 INSTALLATION

A. General: Install signs and accessories, using mounting methods of types described and complying with manufacturer's written instructions.
   1. Install signs level, plumb, and at heights indicated, with sign surfaces free of distortion and other defects in appearance.
   2. Install signs on walls adjacent to latch side of door where applicable. Where not indicated or possible, such as double doors, install signs on nearest adjacent walls. Locate to allow approach within 3 inches of sign without encountering protruding objects or standing within swing of door.
   3. Before installation, verify that sign surfaces are clean and free of materials or debris that would impair installation.
   4. Install signs so they do not protrude or obstruct according to the accessibility standard.

B. Accessibility Signs: Installation height and location shall comply with applicable provisions in the U.S. Architectural and Transportations Barriers Compliance Board’s ADA-ABA Accessibility Guidelines for Buildings and Facilities and ICC A117.1 for signs.
   1. Height above finish floor or ground: Tactile characters on signs shall be located 48 inches minimum above the “finish” floor or ground surface, measured from the base line of the lowest tactile character and 60 inches maximum above the finish floor or ground surface, measured from the baseline of the height tactile character.
   2. Location: Where a tactile sign is provided at a door, the sign shall be located alongside the door latch side. Where a tactile sign is provided at double doors with one active leaf, the sign shall be located on the inactive leaf. Where a tactile sign is provided at double doors with two active leafs, the sign shall be located to the right of the right hand door. Where there is no wall space at the latch side of a single door or at the right side of double doors, signs shall be located on the nearest adjacent wall. Signs containing tactile characters shall be located so that a clear floor space of 18 inches minimum by 18 inches minimum, centered on tactile characters, is provided beyond the arc of any door swing between the closed position and 45 degree open position.

END OF SECTION

SECTION 10 28 00 - TOILET, BATH, AND LAUNDRY ACCESSORIES

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Toilet accessories.

1.2 SUBMITTALS

A. Product Data: Accessories, describing size, finish, details of function, and attachment methods.

1.3 QUALITY ASSURANCE

A. Accessibility Requirements: Comply with requirements applicable in the jurisdiction of the project, including but not limited to ADA and ICC/ANSI A117.1 requirements as applicable.
   1. Where the bottoms of units are between 27 and 80 inches above the finished floor, accessories mounted on or in the wall cannot protrude more than 4 inches into a clear access aisle.

1.4 WARRANTY

A. Furnish fifteen-year manufacturer's warranty for mirror glass and stainless steel mirror frames.

PART 2 PRODUCTS

2.1 TOILET AND BATH ACCESSORIES

A. Manufacturer List:
   1. Bobrick
   2. ASI
   3. Bradley
   4. Approved Equal

B. Performance and Design Criteria: Design grab bars and attachments to resist minimum 250 lb concentrated load applied at any point in any direction.

2.2 MATERIALS

A. Stainless Steel: ASTM A 666, Type 304, 0.0312-inch minimum nominal thickness, unless otherwise indicated.

B. Steel Sheet: ASTM A 1008, Designation CS (cold-rolled, commercial steel), 0.0359-inch minimum nominal thickness.

C. Galvanized-Steel Sheet: ASTM A 653, with G60 hot-dip zinc coating.

D. Galvanized-Steel Mounting Devices: ASTM A 153, hot-dip galvanized after fabrication.

E. Fasteners: Screws, bolts, and other devices of same material as accessory unit and tamper and-theft resistant where exposed, and of galvanized steel where concealed.

F. Chrome Plating: ASTM B 456, Service Condition Number SC 2 (moderate service).

G. Mirrors: ASTM C 1503, Mirror Glazing Quality, clear-glass mirrors, nominal 6.0-mm thick.
   1. Provide mirror furnished with a uniform plastic film 8 mils nominal thickness with acrylic adhesive which is moisture resistant and non-corrosive, meeting 16 CFR 1201-11 and ANSI 297.1 requirements category II tape back.

H. ABS Plastic: Acrylonitrile-butadiene-styrene resin formulation.

2.3 FINISHES

A. Stainless Steel: No. 4 satin brushed finish, unless otherwise indicated.

B. Chrome/Nickel Plating: ASTM B456, Type SC 2, polished finish, unless otherwise indicated.

C. Baked Enamel: Pretreat to clean condition, apply one coat primer and minimum two coats electrostatic-baked enamel.

D. Galvanizing: ASTM A123; hot-dip galvanize after fabrication.

2.4 TOILET ROOM ACCESSORIES [COORDINATE WITH DRAWINGS]

A. Toilet Paper Dispenser: surface mounted, Provided by Owner, installed by Contractor.

B. Paper Towel Dispenser: surface mounted, Provided by Owner, installed by Contractor.

C. Waste Receptacle: semi-recessed, provided and installed by Contractor

D. Soap Dispenser: Provided by Owner, installed by Contractor, wall mounted.

E. Mirrors: Stainless-steel-framed, 6-mm-thick float glass mirror, provided and installed by Contractor
   1. Size: as indicated on Drawings.
   2. Frame: 0.05 in angle shapes, with mitered**,** welded and ground smooth corners, and tamper-proof hanging system; satin stainless steel finish.
   3. Backing: Full mirror sized, galvanized steel sheet and nonabsorptive filler material.

F. Grab Bars: Stainless steel, 1-1/2 in outside diameter, minimum 0.05 in wall thickness, nonslip grasping surface finish, concealed flange mounting; 1-1/2 in clearance between wall and inside of grab bar, provided and installed by Contractor
   1. Length and configuration: As indicated on Drawings.

G. Sanitary Napkin Disposal Unit: surface mounted, Provided and installed by Contractor

H. Toilet Seat Cover Dispenser: surface mounted, Provided and installed by Contractor

I. Pipe Wrap: Provided and installed by Contractor

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify:
   1. Exact location of accessories for installation.
   2. Field measurements and rough-in dimensions for recessed accessories are as indicated on product data or as instructed by manufacturer.

B. Coordinate locations for installation of blocking, reinforcing plates, concealed anchors in walls.

3.2 PREPARATION

A. Deliver inserts and rough-in frames to Site for timely installation.

B. Provide templates and rough-in measurements as required.

3.3 INSTALLATION

A. Do not install accessories until after completion of all finishes to adjacent wall and ceiling surfaces.

B. Install plumb and level, securely and rigidly anchored to substrate.

C. Turn over to Owner all keys and special tools required for lockable or secured accessories.

D. Mounting Heights and Locations: As required by accessibility regulations and as indicated on Drawings:

3.4 CLEANING

A. Clean mirrors and exposed surfaces using procedures as recommended by accessory manufacturer.

END OF SECTION

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SECTION 12 48 13 - ENTRANCE FLOOR MATS

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes: Entrance Carpet Tile.

1.2 SUBMITTALS

A. Product Data: Indicate mat characteristics, component dimensions.

B. Samples: Two samples, illustrating pattern, color, finish, edging.

1.3 WARRANTY

A. Lifetime Limited Warranty, including face wear, moisture barrier, wick-back, delamination, tuft bind, unraveling, and static protection.

B. Stain Resistance Warranty: 15 years

PART 2 PRODUCTS

2.1 FLOOR MATS

A. Manufacturers:
1. Shaw Contract Bon Jour II, Black Chocolate – 5T032, 31751 [Basis of Design]
2. Interface
3. Approved Equal

2.2 COMPONENTS

A. Entryway Carpet Tile:
1. Construction: Needlebond Rib
2. Fiber: Pet Polyester
3. Dye Method: 100% solution dyed
4. Primary Backing: Polypropylene
5. Secondary Backing: Ecoworx Tile
6. Protective Treatments: Inherent Stain Resistance
7. Size: 24 inch x 24 inch
8. Finished Pile Thickness: 0.344 inches
9. Average Density: 5284 per CY
10. Total Thickness: 0.451 inch
11. Tufted Weight: 50.5 oz/yd3
12. Installation method: quarter turn

PART 3 EXECUTION

3.1 INSTALLATION

A. Install mats surface-applied to existing concrete flooring after cleaning / prep of existing concrete slab.

B. Provide all required transition strips at door thresholds at exterior doors and to new concrete finish flooring system at hallway / adjacent spaces.

END OF SECTION

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SPRINKLER / FIRE PROTECTION

SECTION 15300

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SPRINKLER / FIRE PROTECTION

SECTION 15300

1. SCOPE

A. The work included in this section shall consist of the furnishing of all materials, equipment and labor which is necessary to install the sprinkler work as shown on the drawings and as specified hereinafter, including the testing and adjustment of same. All work shall be done in strict accordance with all applicable Local, State and Federal codes and regulations including the recommendations of the NFPA and the requirements of the NEC. In no case shall work be installed in violation of applicable codes.

B. All required permits for this portion of the work shall be obtained and paid for by the Sprinkler Contractor who shall also arrange for all inspections. At the completion of the project the inspection reports, certificates of approval, etc. shall be turned over to the Owner.

2. DESCRIPTION OF WORK

A. The work under this section shall include the following:

1. Complete and fully operational fire suppression systems as indicated on the drawings and as specified hereinafter.

2. All materials and equipment installed under this section shall be listed by Underwriter's Laboratories and shall be Factory Mutual approved.

3. The systems shall be installed and tested in accordance with all applicable rules and regulations of the local fire department, the National Fire Protection Association, the State Inspection Bureau and the Owner’s insurance carrier.

4. Sprinkler systems shall be provided in contract area.

5. Submittal of drawings and/or calculations made to local and state authorities for approval.

6. Complete responsibility for an acceptable and approved system(s) layout meeting the requirements indicated on the drawings. Any piping shown on the drawings shall be considered as diagrammatic. Fitting the piping and equipment to job conditions and cooperation with other trades will be required under this section of the work. The system, as proposed, shall conform with National Fire Protection Association regulations as contained in NFPA No. 13, 14 and the local Bureau of Fire Protection.

a. All sprinklers in light hazard occupancies shall be quick-response type in accordance with the latest edition of NFPA 13.

7. All labor, material, tools, scaffolding and transportation which may be required to complete the work and carry it to a successful conclusion ready for operation when turned over to the Owner.

8. Complete testing and warranty of all work installed under this section.

9. All takeoffs to individual sprinklers shall be done with riser and swing joint.

10. All sprinkler piping concealed in areas with finished ceilings.

3. SITE INVESTIGATION

A. Visit the premises and investigate all details which may have any effect on the installation or operation of the job.

B. In submitting his bid, it will be assumed that the bidder is familiar with the conditions as they may exist, and the modifications, if any to be made to provide an integral system as specified.

C. Certain areas will be designated for the storage of materials and equipment. Cooperation with the Owner in minimizing interference with existing operations will be mandatory.

4. BIDDING

A. All bids shall be based upon furnishing and installing the make of materials and apparatus specified herein WITHOUT SUBSTITUTION, in order that all bids may be properly compared.

B. Other materials, equipment, etc., that the bidder may desire to use as a substitute for that specified will be considered IF PROPOSED AT THE TIME OF BIDDING and shown on the substitution sheet of the proposal. Such alternate items shall be of equally high quality with all safeguards, design features and operational requirements as shown on the drawings and/or as specified herein.

5. DRAWINGS

A. The drawings prepared for this project are an outline to show where pipes, apparatus, equipment, etc. should be located in order to fit within the confines of available space and minimize conflicts with other trades. All work must be installed in accordance with the drawings insofar as possible. All drawings shall be carefully checked during the course of bidding and construction. If any discrepancies, errors, omissions or overlaps with other trades are discovered prior to or during the construction phase, notify the Engineer immediately for interpretation or correction. Note that an overlap

with another trade does not relieve the contractor from the obligation of performing the work indicated on the drawings for this section of the project unless written notification stating such is obtained from the Engineer.

B. Take all necessary measurements and be responsible for same, including clearances for all materials and equipment that will be furnished. The Architect/Engineer shall reserve the right to make minor location changes of piping and/or equipment where such adjustments are deemed desirable from an appearance or operational standpoint. Such changes will normally be anticipated sufficiently in advance to avoid extra work or unduly delay progress on the project.

6. SPECIFICATIONS

A. Specifications shall be interpreted in conjunction with the drawings hereinbefore described and if anything is shown on the drawings and not mentioned in the specifications or vice versa, it is to be included in the work the same as though clearly set forth by both. Should there be a conflict between the plans and specifications, the greater quantity or better quality shall be furnished.

B. Should an overlap of work between the various trades become evident, the Engineer shall be notified. Such an event shall not relieve any trade of the responsibility for the work called for under his branch of the specifications until a written clarification or directive is issued concerning the matter.

7. PERMITS, FEES, INSPECTION, LAWS AND REGULATIONS

A. Obtain and pay for all permits required in connection with this section of the work. In addition, pay all necessary inspection fees or similar charges.

B. Additional fees, charges, etc. imposed by other contractors and/or tradesmen, professional consultants, etc. for services rendered in connection with performing any portion of the work under this section shall be included as part of the work. This shall include surveys, profiles and/or other miscellaneous drawings, etc. that may be required in addition to the contract documents by any governing authority.

8. MATERIALS AND WORKMANSHIP

A. Materials used shall be those specified herein unless proposals for the use of alternate materials have been submitted and accepted. Materials shall be strictly first grade of their kind and shall be new and in first class condition when installed. Materials shall be similar and in accordance with the provisions of this specification.

B. Exact locations of electric outlets, piped equipment, piping, lighting fixtures, ducts, etc., shall be coordinated so there will be no interference at installation between the various trades.

C. Changes in direction and intersections of pipe lines shall be made with standard, specification type fittings as required and as called for under Item PIPE FITTINGS. Mitering of pipe or similar procedures will not be permitted. Welding shall be accomplished using butt or socket weld fittings, however, branch connections may be made using forged branch outlet fittings provided the nominal diameter of the branch line does not exceed 1/4 the diameter of the run. Branch outlet fittings shall be weld type, flared where attached to the run and shall conform to ANSI B31.1 requirements.

D. Non-ferrous piping may be used in lieu of steel where permitted by code. Such piping shall consist of hard temper copper water tube made up using wrot copper tube fittings and an approved solder or brazing alloy. Joint preparation shall be in accordance with IAPMO Installation Standard IS3 and all sweat joints shall conform to the requirements of ANSI B9.1. In addition, brazing and soldering shall be in accordance with the Copper Development Association Copper Tube Handbook. Joints shall be made up using a tin-silver solder or with brazed joints using an AWS listed silver brazing alloy (BAg-1) or a BCuP series brazing material as recommended for the specific application. In lieu of the above, joints may be made using HarrisCo. "Stay-Safe Bridgit" or Engelhard "Silvabrite 100" a proprietary, lead-free silver-copper brazing alloy.

E. Joints shall be made in a first class manner and in accordance with the method required by Code regulations. In case of leaks, pipe or fittings are to be taken out and replaced.

F. Workmanship throughout shall conform to the standards of best practice and labor employed must be competent to do the work required.

9. WARRANTIES

A. Provide warranties to the Owner that all materials and equipment are new, unless otherwise specified, and that all work is of good quality, free from faults and defects and in conformance with the Contract Documents.

B. Unless otherwise called for, warranties on all work and equipment shall extend for a period of one year and will commence on the date of substantial completion of the work as agreed to by the Owner and Contractor.

10. MAINTENANCE OF EXISTING FACILITIES

A. Maintenance of existing facilities for the present building(s) shall be required. The actual length of time for any interruption shall be held to an absolute minimum. At least 72 hours in advance of any severance of services or facilities due to modification of pipe and/or equipment, submit a plan to the Engineer and the Owner, detailing the nature and estimated duration of the interruption and the method of procedure. Do not, under any circumstances, proceed with an interruption of service without the Owner's authorization.

11. RECORD DRAWINGS

A. Provide and keep on the job one (1) complete print set of the contract working drawings on which shall be legibly recorded any variations or alterations from such contract drawings made during construction.

B. After the job is completed, these prints shall be presented to the Owner to provide an accurate and permanent record of location for the material and equipment actually installed.

12. PROTECTION

A. Proper protection shall be provided during the execution of work involved under this section.

B. This protection shall include covering all apparatus, building surfaces and/or other materials to protect same from dirt; adequate temporary provisions to protect apparatus from damage of any sort; and required shielding to protect finished parts of the building.

C. Provide protection of equipment from damage before, during and after installation. Do not use sprinkler supplied equipment for the storage of tools or materials nor as a support or platform. Every precaution shall be taken to avoid damage.

D. During installation and until final connections are made, all piping shall be protected against entry of foreign matter. Pump connections, etc., shall be tightly sealed until system tie-in.

13. INSERTS AND SLEEVES

A. Floor slab, exterior wall, and/or fire rated wall penetrations shall be provided with a firestop sealant to produce a fire, smoke and water barrier. Sealant material shall be noncombustible as defined by ASTM E136 and shall maintain its integrity and dimensional stability while preventing the passage of flame, smoke, etc. under conditions of installation and use when exposed to the ASTM E119 time - temperature curve for a time period equivalent to the rating of the assembly penetrated. Sealant material shall be tested to ASTM E814, ASTM E119, IEEE 634 and UL 1479. Install in accordance with manufacturer's recommendations.

B. Pipe penetrations of walls, floors, etc. in exposed areas shall be provided with escutcheons. They shall have concealed hinge and set screw and shall be securely attached to the pipe. In finished areas, escutcheons shall be polished brass or chrome plated steel. In mechanical or service areas, escutcheons shall be galvanized cast iron. Floor penetrations shall be provided with deep pattern floor plates set flush with the floor and designed to cover the entire sleeve projection. Note: Where required by code considerations, non-metallic sleeves shall be covered by escutcheons.

14. FIRESTOPPING

A. Furnish and install the required firestopping as referenced in the item of the specifications covering inserts and sleeves. Materials, installation, etc., shall be as described below. Products shall be as manufactured by Hilti, Inc., Specified Technologies Inc. or United States Gypsum Co.

B. Definition:

1. Firestopping is defined as the material or combination of materials used to retain integrity of fire-rated construction by maintaining an effective barrier against the spread of flame, smoke, water and hot gases through penetrations in fire rated wall and floor assemblies.

C. Application:

1. Tested firestop systems shall be used for all penetrations for the passage of ductwork and piping through floors, fire-rated vertical barriers (walls and partitions), horizontal barriers (floor/ceiling assemblies), and vertical service shaft walls and partitions.

D. Quality Assurance:

1. A manufacturer's direct representative (not distributor or agent) shall be on site during initial installation of firestop systems to train appropriate contractor personnel in proper selection and installation procedures. This will be done per manufacturer's written recommendations published in their literature and drawing details.

2. Firestop system installations must meet requirements of ASTM E-814, UL 1479 or UL 2079 tested assemblies that provide a fire rating equal to that of construction being penetrated. In addition, proposed firestop materials and methods shall conform to applicable governing codes having jurisdiction.

3. For those firestop applications that occur for which no UL tested system is available through any manufacturer, a drawing representing the manufacturer's engineering judgment, derived from similar UL system designs or other tests, shall be submitted to local authorities having jurisdiction for review and approval prior to installation. Engineer judgment drawings must follow current requirements set forth by the International Firestop Council.

E. Submittals:

1. Manufacturer's submittals shall include specifications and technical data for each type of material including its composition and limitations,

documentation of UL firestop systems to be used and manufacturer's installation instructions to comply with Section 1300. The submittal shall also include material safety data sheets as well as any engineering judgement drawings previously approved by local authorities.

F. Installer Qualifications:

1. The firestop system installer must be certified, licensed, or otherwise qualified by the firestopping manufacturer as having the necessary experience, staff, and training to install manufacturer's products per specified requirements as previously stated in Quality Assurance.

G. Requirements:

1. All holes, voids, miscellaneous openings, etc., made by penetrations in floor slabs (above grade) for systems provided under this section shall be completely sealed to insure water tight integrity. Installation of firestopping shall be scheduled after completion of penetrating item installation but prior to covering or concealing of openings.

2. Provide firestopping utilizing components that are compatible with adjacent surfaces, the substrates forming openings, and the items penetrating the firestopping under conditions of service and application as demonstrated by the firestopping manufacturer, based on testing and field experience. Note that materials containing flammable solvents shall not be used.

H. Materials:

1. Use only firestop products that have been UL 1479, ASTM E-814, or UL 2079 tested for specific fire-rated construction conditions conforming to construction assembly type, penetrating item type, annular space requirements, and fire-rating involved for each specific application.

2. For penetrations by combustible items (penetrants consumed by high heat and flame) including insulated metal pipe that is PVC jacketed, flexible cable or cable bundles and plastic pipe (closed piping systems), an Intumescent material is required to maintain fire rating of the assembly penetrated.

3. A firestop system with an "F" rating as determined by UL 1479, ASTM E814 or UL 2079, which is equal to the time rating of the construction being penetrated, must be utilized.

I. Preparation:

1. Surfaces to which firestop materials will be applied shall be examined for detrimental conditions. They shall be free of any substances that may effect proper adhesion.

2. Observe and comply with manufacturer's recommendations for temperature and humidity conditions before, during and after installation of firestopping.

J. Installation:

1. Firestop materials shall be installed in accordance with published recommendations listed under the heading "Through-Penetration Firestop Systems" in the UL Fire Resistance Directory. In addition, the manufacturer's instructions for installation of through-penetration materials shall be strictly followed.

2. Consult with the engineer prior to installation of any UL firestop systems that might hamper the performance of fire dampers as they pertain to duct work.

K. Miscellaneous:

1. Sealed penetration areas shall be checked thoroughly to ensure proper installation before concealing or enclosing said areas.

15. CUTTING AND PATCHING

A. All cutting and/or drilling of walls, slabs, structural members, etc., required in conjunction with work under this contract heading shall be done under the supervision of the Architect. It shall be neatly done, without unnecessary removal of material. Holes, openings, etc., shall be located where they will not weaken the structure.

B. Patching of any work, where necessary, is to be done by a mechanic of the appropriate trade in order to achieve a workmanlike job. However, unless otherwise noted, all patching for work performed under this section shall be included as part of this work.

16. PIPE AND PIPING

A. Piping shall be designed, fabricated and installed in accordance with National Fire Protection Association regulations as contained in NFPA No. 13 and 14. Pipe and tube used in the sprinkler system(s) shall be designed to withstand a minimum working pressure of 175 psi. or greater where dictated by system requirements.

B. Piping Inside Building:

1. Pipe for sprinkler and standpipe systems shall be either steel or copper. Thread-end steel pipe shall be minimum Schedule 40 weight conforming to ASTM A53 Standards. Where welding or roll-groove assembly is utilized, steel pipe shall be minimum Schedule 10 weight conforming to ASTM A135. Copper piping shall be Type K, L or M, hard temper seamless copper tube

conforming to ANSI H23.1 and ASTM B88. Verify allowable working pressure of assembly as determined by tube wall thickness, tube size and joint type.

2. Schedule 5 weight piping conforming to ASTM A135, A795 or A53 may be used for wet pipe systems. Pipe shall be assembled with Pressfit couplings and fittings formed of precision cold drawn steel as manufactured by Victaulic Corporation of America with self-contained synthetic O-ring seals in the coupling/fitting ends. O-ring seals shall be molded of synthetic rubber: Grade "C" IIR butylene. Fittings shall be pressed onto the pipe using only a Victaulic Pressfit tool in accordance with the latest recommendations of the manufacturer.

3. Couplings used to assemble threaded pipe shall be minimum Class 300 lb. Couplings for groove-end piping shall be standard, general purpose type or light-weight type but in all cases, shall provide for an allowable system working pressure of at least 175 psig or for system requirements in excess of this figure as determined by job conditions. Coupling/fitting gaskets shall be as recommended by the manufacturer for the application and shall be made of molded synthetic elastomer with properties as designated by ASTM D 2000. Coupling bolts shall be oval neck track head type plated steel with hex head nuts, per ASTM A183. NOTE: Contractor shall verify with manufacturer all gaskets to be used with dry pipe systems.

4. Transition couplings may be used to join grooved end IPS steel pipe, valves or fittings to grooved end AWWA ductile iron pipe, valves or fittings of the same nominal size. Couplings shall be supplied with a Flush Seal gasket specifically compounded to conform to ductile pipe surfaces. Such couplings shall be similar to Victaulic style 307.

5. Schedule 10 weight steel sprinkler pipe shall be assembled either by welding (in accordance with ANSI B31.10.10, B31.10a and B31.10b) or by mechanical couplings. These couplings shall be of the rolled groove type.

   a. Grooves shall be rolled only (cut grooving is not allowed on Schedule 10 pipe) and shall be dimensionally compatible with the coupling.

6. Note that steel pipe shall have at least one identifying mark or legend per length and that steel piping systems shall be galvanized where indicated on the drawings and/or required by code considerations such as for parking garages, when exposed to the weather, in corrosive atmospheres, etc.

C. Piping Outside Building and/or Below Grade:

1. Ductile cast iron mechanical joint pipe conforming to ANSI A21.51 (AWWA C151) standards with cement lining conforming to ANSI A21.40 (AWWA C104) standards shall be used for outside water service. Fittings and joints

shall be in accordance with ANSI A21.11 (AWWA C111) Standards. ANSI thickness class shall be minimum 3 or as required by pipe size and field conditions. Super Bell-Tite push on may be used in lieu of mechanical joint where approved by the local and/or state inspection agencies.

2. Water mains shall be tied and blocked as required using concrete anchors or steel yokes on all fittings over 1/16 bends. Anchors shall be per NFPA and local water department standards.

17. PIPE FITTINGS

A. All fittings shall be of a type acceptable for use on sprinkler systems and shall conform to the general requirements outlined below.

B. Steel Piping:

1. Where permitted and/or unless otherwise specified, thread-end fittings on black steel pipe may be cast iron. They shall be manufactured according to ANSI B16.4 with material used conforming to ASTM A126, Class B and shall be threaded in accordance with ANSI B2.1 for tapered pipe threads. Where flanged fittings are required, unless otherwise specified, they may be cast iron conforming to ANSI B16.1.

a. Cast iron pipe fittings, flanges, etc. shall be Class 125 or 250 lb. as determined by size and service requirements. Note that fitting class shall be in accordance with NFPA standards.

2. Malleable iron thread-end fittings shall be used where specified and/or required by applicable codes. They shall be manufactured according to ANSI B16.3 with the material used conforming to ASTM A197 and shall be threaded as specified above. Fitting class shall be in accordance with NFPA standards.

3. Unless otherwise specified, welding fittings on black steel pipe shall be carbon steel butt-welding type made from ASTM A106 Grade B seamless pipe. Fittings shall correspond to ANSIB16.9 with standard bevel ends and shall be in accordance with the Verification and Identification program accepted by ASME.

4. Where branch outlet fittings are used (see Item MATERIALS AND WORKMANSHIP) they shall be tapered transition type units of forged steel construction. Strength ratings shall be equal to Schedule 40 seamless steel pipe and all such fittings shall be manufactured in accordance with applicable requirements of ANSI B16.9 and B16.11.

5. Mechanical fittings used with grooved-end pipe shall be full flow type made with grooves or shoulders designed to accept gasket and coupling. They shall

be malleable iron or wrought steel - seamless. Allowable working pressure shall at least equal coupling working pressure or 400 psi, whichever is greater.

a. In lieu of the above, segment welded fittings may be used. All segment steel fittings are to be fabricated from carbon steel pipe per ASTM A53B. Fittings through 6" shall be fabricated from schedule 40 pipe. All segment welded grooved end fittings are to be considered a hydraulic and dimensional equal to Victaulic full flow cast grooved end fittings. Fittings shall be Total Lock Grooved Products as manufactured by Total Supplies Incorporated.

b. Pipe grooving and assembly shall be in accordance with manufacturer's specifications regarding pipe and preparation, lubrication of gaskets, assembly of couplings, fittings and flanges.

c. Gaskets and couplings shall be as described in Item PIPE AND PIPING.

6. Where making a branch connection to an existing 3" or larger steel pipe, a mechanical tee bolted branch outlet fitting may be used in conjunction with hole-cutting the existing pipe. Mechanical branch outlets are available grooved or female threaded and must be installed with centerlines at a true 90° angle and with locating collar engaging into hole. Such fittings shall be similar to Victaulic style 920.

7. Where flanged connections occur, such as at valves and equipment, the use of screwed companion flanges will be allowed in lieu of flanged welding fittings.

8. Cast iron flanges shall conform to the requirements specified above. Where ductile iron flanges are used they shall be cast to the requirements of ANSI B16.1 and threaded in accordance with ANSI B2.1. Steel flanges shall be carbon steel, ASTM A105 and shall conform to ANSI B16.5. They shall be 150 lb. or 300 lb. class as determined by service requirements.

a. Bolting shall utilize only cadmium plated carbon steel machine bolts and bolt studs, threaded in accordance with ANSI B1.1, coarse thread series. Bolt stud length to allow no more than one thread extension.

b. Gaskets shall be full face, 1/8" thick and made from red sheet rubber.

9. Galvanized malleable iron thread-end fittings, conforming to ANSI B16.3 shall be used, size limitation permitting, for all galvanized steel pipe. When the size required is beyond this range, use galvanized cast iron fittings conforming to ANSI B16.4 or galvanized cast iron flanged fittings conforming to ANSI B16.1.

C. Copper Piping:

1. Solder-joint wrot copper and cast bronze pressure fittings shall be used on copper tube piping. Wrot copper fittings shall be in accordance with ANSI B16.22 and shall be made from commercially pure copper and red bronze mill products per ASTM B75 Alloys120 and122.

2. Cast bronze fittings shall be manufactured according to ANSI B16.18 with material conforming to ASTM B584. Flanges shall be minimum Class150 and shall conform to ANSI B16.24 Standards.

18. SUPPORTS, HANGERS AND BRACKETS

A. The hangers, brackets, etc. for supporting pipe and apparatus included under this section of the work shall be furnished and installed under this section of the work. Pipe hanger support spacing shall be in accordance with requirements of NFPA and ANSI B31.1.0. Piping shall be installed in such a manner that movement due to expansion and contraction can freely take place except at anchor points. Pipe supports shall be capable of vertical adjustment after erection of pipe. Pipe rings or rolls shall be carried by threaded rods of a size determined by the hanger used. Supports and parts shall conform to the latest requirements of ANSI B31.1.0. and MSS Standard Practice SP58, except as supplemented and/or modified herein.

19. VALVES

A. Valves of each type shall be of one make and each valve shall have a manufacturer's name and trademark as well as size indicated on the valve body. Except where noted otherwise, valves shall be designed and rated 175 lb. WWP.

B. Gate valves 2-1/2" and over shall be bronze mounted with iron body, OS & Y, parallel seats and double disc. Ends shall be either flanged, groove, hub or mechanical joint as required. Flanged ends shall have Class 125 flanges to ANSI B16.1 and mechanical joint ends shall be standard type complying with AWWA C111 and ANSI A21.11. Gate valves 2" and below shall have bronze body, union bonnet and thread ends.

C. Valves, as described above, shall be as manufactured by Grinnell, Kennedy, Keystone, Mueller, Nibco, Stockham or Traverse City. Indicator posts shall be as manufactured by Grinnell, Mueller, Nibco, Kennedy, Stockham or Traverse City.

20. SPRINKLERS

A. Sprinklers and accessories shall be of one manufacturer as specified herein or as indicated on the drawing. Acceptable manufacturers are Viking, Reliable, Gem, Star, Central, or Victualic.

B. Sprinklers located in finished ceiling areas shall be decorative pendent type, chrome plated or white polyester coated with chrome plated or white semi-recessed two piece escutcheons to allow for removal of ceiling tiles without shutting down the system.

C. Sprinklers located in finished ceiling areas, and/or areas as indicated on drawings shall be concealed pendent type with painted cover plates. The sprinkler enclosure cup assembly shall be of a two piece design to allow for removal of ceiling tiles without shutting down the system.

1. All two piece escutcheons or concealed sprinkler cover plates shall be factory painted in white or to match ceiling color. Coordinate exact color with Architect.

D. Provide three (3) pairs of wedges for shutting off activated sprinklers.

21. DEMONSTRATION, CODE COMPLIANCE AND TESTING

A. Test/operate all systems, equipment and/or apparatus installed under this section as necessary and, where required, in the presence of the inspecting agency having jurisdiction. Notify the Engineer at least 72 hours in advance of any demonstration or test.

B. The system(s) shall be hydrostatically tested for a minimum of two hours at not less than 200 psi or at 50 psi in excess of maximum system static pressure when normal system pressure is in excess of 150 psig. All testing shall be done in accordance with applicable requirements of NFPA 13 and 14. The repairing or replacing of defective work that has been discovered shall be done promptly.

22. CONCEALED EQUIPMENT-ACCESS AND MARKING

A. Where equipment, valves, etc., are located in inaccessible furred spaces and/or chases or above plaster or other type fixed ceilings, access panels or doors shall be provided.

B. Reach-in access panels for valves, unions, etc., shall be 8" X 12" minimum and crawl-in access panels or doors shall be 18" X 24" minimum or as required for access.

23. VALVE IDENTIFICATION

A. All valves shall be identified with proper signage as required by the local fire department, the Ohio Basic Building Code, the National Fire Protection Association and Factory Mutual requirements.

B. Numbers and locations shall be accurately marked on the record set(s) of contract drawings. See Item RECORD DRAWINGS.

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PLUMBING

SECTION 15400

INDEX

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PLUMBING

SECTION 15400

1. SCOPE

A. The work included in this contract shall consist of the furnishing of all labor, material, equipment and incidentals which may be necessary for the installation, test, adjustment and guarantee of the plumbing work as shown on the drawings and specified hereinafter. All work shall be done in strict accordance with all applicable Local, State and Federal codes and regulations including the recommendations of the NFPA and the requirements of the NEC. In no case shall work be installed in violation of applicable codes.

2. DESCRIPTION OF WORK

A. Below is a listing of the principal categories of work under this section. Note, however, that this listing is for general information only and work will not necessarily be limited to these categories. The detailed drawings and the following specifications cover the full extent of the work.

1. Connections and / or revisions to sanitary drainage and vent system.

2. Connections and / or revisions to domestic water supply system.

3. Connections and / or revisions to the fuel gas piping system.

4. Condensate waste piping assembled and installed as indicated.

5. Outside cleanouts constructed as indicated.

6. Plumbing work in existing building as indicated on the drawings.

7. All demolition work as indicated on the drawings.

8. All plumbing fixtures, trimmings, etc.

B. All labor, material, tools, scaffolding and transportation which may be required to complete the work and carry it to a successful conclusion ready for operation when turned over to the Owner.

C. Test and guarantee of all work installed under this contract.

3. SITE INVESTIGATION

A. Prior to bidding, visit the job site and investigate all details which may have any effect on the installation, progress or operation of the project.

B. When a bid is received, it will be assumed that the bidder has made the job site visit(s) and is familiar with the conditions as they may exist, and the modifications required to be made in order to provide a fully integrated system as specified.

C. At project start-up, certain areas will be designated for the storage of materials and equipment and cooperation with the Owner in minimizing interference with existing operations will be mandatory.

4. BIDDING

A. All bids shall be based upon furnishing and installing the make of materials and apparatus specified herein WITHOUT SUBSTITUTION, in order that all bids may be properly compared.

B. Other materials and equipment that the bidder may desire to use as a substitute for those specified will be considered IF PROPOSED AT THE TIME OF BIDDING and shown on the substitution sheet of the proposal. Such alternate equipment shall be of equally high quality with all safeguards, design features and operational requirements as shown on the drawings or as specified herein.

5. MAINTENANCE OF EXISTING FACILITIES

A. Maintenance of existing facilities for the present building(s) shall be required. The actual length of time for any interruption shall be held to an absolute minimum. At least 72 hours in advance of any severance of any services or facilities due to modification of pipe and/or equipment, submit a plan to the Engineer and the Owner, detailing the nature and estimated duration of the interruption and the method of procedure. Do not under any circumstances proceed with an interruption of service without the Owner's authorization.

B. Where alterations or additions to the existing building(s) are indicated, this work shall include all removal, rerouting, or replacement of all existing facilities located in pipe spaces or walls being removed, as may be necessary to permit operation of a complete working system or systems where applicable to the trade jurisdictions involved in this section of the specifications.

C. Where an item of equipment is to be removed, all incidental piping, tubing, ductwork, accessories, etc., associated with the equipment shall also be included where it will no longer function as part of the operating system.

D. All piping, ductwork, etc. that has been rerouted or otherwise disturbed shall be insulated as required to match existing.

E. Where existing facilities are permanently abandoned, each outlet branch, etc. shall be removed completely (back to the main, when possible) and plugged or capped. All abandoned services shall be terminated well behind adjacent finished surfaces.

F. Unless otherwise mentioned, all material, equipment, etc. removed under this contract heading shall be disposed of in a proper and legal manner.

6. DRAWINGS

A. The drawings prepared for this project are an outline to show where pipes, equipment, apparatus etc. should be located in order to fit within the confines of available space and minimize conflicts with other trades. All work must be installed in accordance with the drawings insofar as possible. All drawings shall be carefully checked during the course of bidding and construction. If any discrepancies, errors, omissions or overlaps with other trades are discovered prior to or during the construction phase, notify the Engineer immediately for interpretation or correction. Note that an overlap with another trade does not relieve the contractor from the obligation of performing the work indicated on the drawings for this section of the project unless written notification stating such is obtained from the Engineer.

B. Take all necessary measurements and be responsible for same, including clearances for all materials and equipment that will be furnished. The Architect/Engineer shall reserve the right to make minor location changes of piping and/or equipment where such adjustments are deemed desirable from an appearance or operational standpoint. Such changes will normally be anticipated sufficiently in advance to avoid extra work or unduly delay progress on the project.

7. SPECIFICATIONS

A. Specifications shall be interpreted in conjunction with the drawings hereinbefore described and if anything is shown on the drawings and not mentioned in the specifications or vice versa, it is to be included in the work the same as though clearly set forth by both. Should there be a conflict between the plans and specifications, the greater quantity or better quality shall be furnished.

B. Should an overlap of work between the various trades become evident, the Engineer shall be notified. Such an event shall not relieve any trade of the responsibility for the work called for under his branch of the specifications until a written clarification or directive is issued concerning the matter.

8. PERMITS, FEES, INSPECTIONS, LAWS AND REGULATIONS

A. Obtain and pay for all permits required in connection with this section of the work. In addition, pay all necessary inspection fees or similar charges.

B. Additional fees, charges, etc. imposed by other contractors and/or tradesmen, professional consultants, etc., for services rendered in connection with performing any portion of the work under this section shall be included as part of the work.

9. SHOP DRAWINGS

A. Prepare or obtain from the manufacturer, certified shop or erection drawings of all items of equipment to be furnished under this section and submit copies of same as required for review. This shall be done as soon as possible, well prior to proceeding with installation or construction and in the proper sequence to avoid delays in the work, the work of the Owner or other contractors. Unless otherwise indicated, a minimum of six (6) hard-copies OR one (1) electronic set shall be submitted. These drawings shall be complete in every respect, showing pertinent details of size, capacities, arrangement, fittings, piping, kinds and thickness of materials, weight, loading required, clearances for service, maintenance, etc. Departures or deviations, if any, from the specifications, listed performance data, etc., shall be called out on the submittals. Note that in the following items of this specification, where more than one equipment manufacturer is listed, the first named has been used as the basis for design. All departures or deviations in material, performance, service requirements, size, construction, etc. from first named by the make submitted shall be noted on the shop drawings. **NOTE:** Where departures or deviations from the specifications do occur, the contractor shall additionally itemize same on the cover sheet that accompanies the submittals. Failure to do so will risk subsequent delay or rejection at the job site. (With regard to voluntary substitutions, refer also to Item BIDDING in this specification.).

1. By submitting such drawings, the Contractor represents that he has selected and verified all equipment, taken necessary field measurements, noted field construction criteria, etc., or will do so, and has checked and coordinated the information with the requirements of the Work and the Contract Documents.

B. The review of shop drawings shall not be construed as a complete check but will indicate only that the capacity, general method of construction and/or detailing is satisfactory.

C. Submittals shall be itemized on a standardized shop drawing submittal form and shall bear the contractor's review stamp as evidence that the items have been initially checked for compliance with Contract Documents as stated above.

D. After review, shop drawings will be returned marked in one of the following ways:

1. "NO EXCEPTIONS NOTED" - Copies may be distributed as required for construction, shipment, etc. to proceed.

2. "EXCEPTIONS NOTED" - Contractor may proceed with and/or authorize construction, shipment, etc. taking into account the necessary corrections.

3. "EXCEPTIONS NOTED - REVISE AND RESUBMIT" - Contractor will be required to resubmit shop drawings in their entirety. No fabrication, erection or installation shall be authorized or initiated until shop drawings so marked have been completely revised, resubmitted and subsequently marked in accordance with either of the two preceding sub-paragraphs. Only shop

drawings officially marked "NO EXCEPTIONS NOTED" or "EXCEPTIONS NOTED" will be permitted on the jobsite.

E. Upon return of submittals take appropriate action as specified above. Note that if an insufficient number of copies has been submitted, no review will take place until all required copies have been received.

F. Where resubmittal is required, four (4) copies will be so noted by the reviewer, of which two (2) copies will be returned for corrections one (1) copy for the contractor and one (1) copy for the supplier/subcontractor).

G. The following is a list, where applicable, of items requiring submittals.

1. Plumbing Fixtures and Equipment

H. Fixtures and equipment requiring color selection shall be accompanied by color sheets or finish selection to make the Architect/Owner aware of the finishes and colors available.

I. Submittals and Shop Drawings for manufactured items shall be manufacturer's printed literature. Equipment selection shall be within manufacturer's printed recommended ratings.

J. A complete set of shop drawings shall be filed on the job site. Such drawings shall be readily available for reference.

10. WARRANTIES

A. Provide warranties to the Owner that all materials and equipment furnished are new, unless otherwise specified, and that all work is of good quality, free from faults and defects and in conformance with the Contract Documents.

B. Warranties on all work and equipment shall commence on the date of substantial completion of the work or designated portion thereof unless otherwise provided in the Certificate of Substantial Completion. These warranties shall be in writing and, along with all related documents, shall be submitted prior to the issuance of any certificates of acceptance. Warranties shall include equipment manufacturers' one (1) year non-prorated warranty certificates or other extended warranties as well as the contractor's one (1) year warranty statement for the project. This documentation shall be submitted in an appropriately marked, 3-ring hard cover binder.

C. If, within one (1) year after the date of substantial completion of the work or within one (1) year after acceptance by the Owner or within such longer period of time as may be prescribed by the terms of any applicable special warranty specified for a particular equipment item, any work is found to be defective, malfunctioning or not in accordance with the Contract Documents, it shall be promptly corrected upon receipt of official notification to do so. This obligation shall survive termination of

the contract. Note that the term work shall be taken to include all equipment provided under the contract as well as materials and workmanship.

11. PROTECTION

A. Provide proper protection to the building during the execution of all work involved under this contract heading. This protection shall include covering all apparatus, building surfaces and/or other materials to protect same from dirt; adequate temporary connections to protect apparatus from damage of any sort; and required shielding to protect finished parts of the building.

B. Provide protection from damage for plumbing fixtures before, during and after their installation. Plumbing fixtures shall not be used for the storage of tools or materials nor as a support or platform. Every precaution shall be taken to avoid damage to fixtures and fittings.

C. During installation and until final connections are made, all piping shall be protected against entry of foreign matter. Equipment connections shall be tightly sealed until system tie-in.

12. TESTING AND INSPECTION

A. Test all systems, equipment or apparatus installed under this contract in the presence of the Owner's representative and, where required, in the presence of the plumbing inspector or other governing authorities. Necessary repairing or replacing of defective work shall be done immediately.

13. RECORD DRAWINGS

A. Provide and keep on the job site two complete print sets of the contract working drawings on which shall be legibly recorded any variations or alterations from such contract drawings made during construction. Record prints shall show location of all piping system drains.

14. MATERIALS AND WORKMANSHIP

A. Materials used in this contract shall be those specified herein unless proposals for the use of alternate materials have been submitted and accepted, in writing, as provided hereinbefore. Materials shall be strictly first grade of their kind and shall be new and in first class condition when installed.

B. Exact locations of electric outlets, piped equipment, piping, lighting fixtures, ducts, etc., shall be coordinated so there will be no interference at installation between the various trades.

C. Exposed screw pipe in the finished parts of the building shall be put together so as to conceal the threads and at completion must be left clean. Tool marks will not be permitted on any exposed metal, fixture or fitting.

D. Joint preparation for copper piping installations shall be in accordance with IAPMO Installation Standard IS3. All solder joints shall conform to the requirements of ANSI B9.1. They shall be made using tin-silver solder (Fed. Spec. #QQ-S-571E, Class SN96) for smaller sizes thru 1-1/4" and solder with high elongation properties and a melting point (liquidus) in excess of 600º F with a wide plastic range for piping sizes 1-1/2" and 2". Note, however, that all copper piping joints 2-1/2" and over shall be brazed. Brazing operations shall be in accordance with the Copper Development Association Copper Tube Handbook recommendations using an ANSI/AWS listed nonferrous brazing alloy (BAg or BCuP series filler metal) containing at least 5% silver, having a melting range (solidus) of approximately 1,200º F and listed for the specific application.

1. All pipe, fittings, solder or flux used in the potable water system shall be "lead-free" and comply with NSF 61-G requirements.

E. Valves to be installed with a welding or brazing operation shall have all internals removed, prior to installation, where required to avoid the possibility of damage from excessive temperature.

F. All piped equipment, coils, control valves, etc., shall be either flange or union connected, as determined by construction. Flanges or flanged fittings shall be used where indicated or specified.

15. CLEANUP

A. All rubbish resulting from the work herein specified shall be removed from the premises at the end of each working day.

B. Upon completion of the work, remove from the project site all tools, equipment, surplus materials and all remaining rubbish pertaining to the work under this contract heading. Responsibility for this shall include all related costs for such removal and disposition including hauling, dumping, etc.

C. By this time all extraneous labels, tags, etc., as well as other markings on equipment and ductwork not field insulated shall be removed.

16. CUTTING AND PATCHING

A. All cutting and/or drilling of walls, slabs, structural members, etc., required in conjunction with work under this section shall be performed as part of the work and shall be done under the supervision of the General Contractor. It shall be neatly done, without unnecessary removal of material. Holes, openings, etc., shall be located where they will not weaken the structure.

B. Patching of any work, where necessary, shall be performed by mechanics of the appropriate trade in order to achieve a workmanlike job. When the need for such

patching or repairs arises, it shall be accomplished under this section at no additional cost to the Owner.

17. INSERTS AND SLEEVES

A. Inserts (concrete expansion anchors) shall conform to applicable requirements of Federal Specification FF-S-325. Embedment, anchor length and size shall be in accordance with manufacturer's recommendations. Anchors 3/8" thru 3/4" shall be U.L. listed for pipe hangers.

B. Sleeves shall be provided for pipe openings cut in masonry walls as well as for similar openings in non-masonry walls, partitions, etc. Sleeves shall be of galvanized sheet metal with flanged ends and shall be securely mounted in place. Voids between masonry and sleeve shall be filled with mortar. In rated walls, openings between pipes and structure, wall or sleeve shall be filled with firestop sealant to produce a fire, smoke, and water barrier as described below.

C. Provide thimbles wherever exposed pipes, tubing, conduit, etc., pass thru interior non-masonry walls, partitions, etc. They shall be telescoping type, made from 22 ga. galvanized sheet metal and of minimum size. Thimble ends shall have cast or stamped metal plates attached thereto. Floor penetrations shall be lined with thimbles extending above the floor line.

D. Floor, roof and rated wall penetrations are to be sealed with an approved fire, smoke and water barrier sealant. Material shall be noncombustible as defined by ASTM E-136 and shall maintain its integrity and dimensional stability while preventing the passage of flame, smoke, etc. under conditions of installation and use when exposed to the ASTM E-119 time-temperature curve for a time period equivalent to the rating of the assembly penetrated. Sealant material shall be by Specified Technologies, Inc. It shall be tested to ASTM E-814, UL 2079 or UL 1479 for specific fire rated construction conditions. Install in accordance with manufacturer's recommendations.

E. Pipe, tubing and conduit penetrations of walls, floors, etc. in exposed areas shall be provided with escutcheons. They shall have concealed hinge and set screw and shall be securely attached to the pipe. In finished areas, escutcheons shall be polished brass or chrome plated steel. In mechanical or service areas, escutcheons shall be galvanized cast iron. Floor penetrations shall be provided with deep pattern floor plates set flush with the floor and designed to cover the entire sleeve projection. NOTE: Where required by code considerations, non-metallic sleeves shall be covered by escutcheons.

F. Any required openings thru roof structure shall be carefully and located in designated areas only. Pitch pockets shall be utilized as required to eliminate any chance of moisture penetration. They shall be made from 16 oz. sheet copper (ASTM B 370, temper H00) and shall extend approximately 4" above the finished roof.

18. FIRESTOPPING

A. Furnish and install the required firestopping as referenced in the item of the specifications covering inserts and sleeves. Materials, installation, etc., shall be as described below. Products shall be as manufactured by Hilti, Inc., Specified Technologies Inc. or United States Gypsum Co.

B. Definition:

1. Firestopping is defined as the material or combination of materials used to retain integrity of fire-rated construction by maintaining an effective barrier against the spread of flame, smoke, water and hot gases through penetrations in fire rated wall and floor assemblies.

C. Application:

1. Tested firestop systems shall be used for all penetrations for the passage of ductwork and piping through floors, fire-rated vertical barriers (walls and partitions), horizontal barriers (floor/ceiling assemblies), and vertical service shaft walls and partitions.

D. Quality Assurance:

1. A manufacturer's direct representative (not distributor or agent) shall be on site during initial installation of firestop systems to train appropriate contractor personnel in proper selection and installation procedures. This will be done per manufacturer's written recommendations published in their literature and drawing details.

2. Firestop system installations must meet requirements of ASTM E-814, UL 1479 or UL 2079 tested assemblies that provide a fire rating equal to that of construction being penetrated. In addition, proposed firestop materials and methods shall conform to applicable governing codes having jurisdiction.

3. For those firestop applications that occur for which no UL tested system is available through any manufacturer, a drawing representing the manufacturer's engineering judgment, derived from similar UL system designs or other tests, shall be submitted to local authorities having jurisdiction for review and approval prior to installation. Engineer judgment drawings must follow current requirements set forth by the International Firestop Council.

E. Submittals:

1. Manufacturer's submittals shall include specifications and technical data for each type of material including its composition and limitations, documentation of UL firestop systems to be used and manufacturer's installation instructions to comply with Section 1300. The submittal shall

also include material safety data sheets as well as any engineering judgement drawings previously approved by local authorities.

F. Installer Qualifications:

1. The firestop system installer must be certified, licensed, or otherwise qualified by the firestopping manufacturer as having the necessary experience, staff, and training to install manufacturer's products per specified requirements as previously stated in Quality Assurance.

G. Requirements:

1. All holes, voids, miscellaneous openings, etc., made by penetrations in floor slabs (above grade) for systems provided under this section shall be completely sealed to insure water tight integrity. Installation of firestopping shall be scheduled after completion of penetrating item installation but prior to covering or concealing of openings.

2. Provide firestopping utilizing components that are compatible with adjacent surfaces, the substrates forming openings, and the items penetrating the firestopping under conditions of service and application as demonstrated by the firestopping manufacturer, based on testing and field experience. Note that materials containing flammable solvents shall not be used.

H. Materials:

1. Use only firestop products that have been UL 1479, ASTM E-814, or UL 2079 tested for specific fire-rated construction conditions conforming to construction assembly type, penetrating item type, annular space requirements, and fire-rating involved for each specific application.

2. For penetrations by combustible items (penetrants consumed by high heat and flame) including insulated metal pipe that is PVC jacketed, flexible cable or cable bundles and plastic pipe (closed piping systems), an Intumescent material is required to maintain fire rating of the assembly penetrated.

3. A firestop system with an "F" rating as determined by UL 1479, ASTM E814 or UL 2079, which is equal to the time rating of the construction being penetrated, must be utilized.

I. Preparation:

1. Surfaces to which firestop materials will be applied shall be examined for detrimental conditions. They shall be free of any substances that may effect proper adhesion.

2. Observe and comply with manufacturer's recommendations for temperature and humidity conditions before, during and after installation of firestopping.

J. Installation:

1. Firestop materials shall be installed in accordance with published recommendations listed under the heading "Through-Penetration Firestop Systems" in the UL Fire Resistance Directory. In addition, the manufacturer's instructions for installation of through-penetration materials shall be strictly followed.

2. Consult with the engineer prior to installation of any UL firestop systems that might hamper the performance of fire dampers as they pertain to duct work.

K. Miscellaneous:

1. Sealed penetration areas shall be checked thoroughly to ensure proper installation before concealing or enclosing said areas.

19. SUPPORTS, HANGERS AND BRACKETS

A. All hangers, brackets, etc. for supporting material and equipment included under this section of the work shall be furnished and properly installed as required and as specified in the following. Material shall be as furnished by Anvil, Crane, Elcen, or Fee and Mason.

B. Pipe support spacing shall be in accordance with ANSI B3l.l.0. Piping shall be installed in such a manner that, where movement due to expansion and contraction could occur, it can freely take place except at anchor points. Supports shall be capable of vertical adjustment after erection of pipe. Pipe hangers, U-straps, clamps, pipe rolls, etc. shall be carried by threaded rods of a size determined by the support item locking device but in no case less than the size called for in the carrying capacity table for threaded rods listed in the ASME code for pressure piping. Supports and parts shall conform to the latest requirements of ANSI B31.1.0 and MSS Standard Practice SP-58, except as supplemented and/or modified herein.

20. DEMOLITION

A. Perform all demolition work as shown on the drawings and as specified herein or as may otherwise be required.

B. Where existing walls are demolished, any plumbing piping contained therein (that is not designated to be removed) shall be offset, relocated or retained in place as may be required. This requirement applies to any situation that may be encountered during construction/demolition, even though it may not be shown on the drawings.

C. Patch and repair all areas damaged by demolition work as required to match surrounding surfaces.

21. CLEANING AND PAINTING

A. Clean all fixtures removing all labels and remove stains with whiting and alcohol.

B. Equipment which has been factory painted and on which the finish has deteriorated or been damaged shall be cleaned and repainted to equivalent factory condition.

22. CONCEALED EQUIPMENT - ACCESS AND MARKING

A. Where equipment, valves, etc., are located in inaccessible furred spaces and/or chases or above plaster or other type fixed (non-accessible) ceiling, access panels or doors shall be provided by this contractor.

B. Reach-in access panels for valves, unions, etc., shall be 8" X 12" minimum and crawl-in access panels or doors shall be 18" X 24" minimum or as required for access.

23. PIPE STERILIZATION

A. Sterilize the entire domestic water distribution system prior to completion of the project. Sterilization shall be by means of chlorine injected into the system in an approved manner, near the source. Outlets thruout the system shall be tested to prove presence of minimum requirements. The sterilizing solution shall remain in the system for a period of 8 hours. Sterilization procedure shall be witnessed by the Architect or other qualified representative of the Owner.

B. The sterilizing solution shall contain not less than 50 parts per million of chlorine. Chlorinating material shall be either liquid chlorine conforming to U.S. Army Specifications 4 - 1, or sodium hypochlorite solution conforming to Federal Spec. O.B. 441a, Grade D.

C. The system shall then be flushed after completion with clean water until chlorine content is not greater than 0.2 parts per million, or until approved by the State Health Department.

D. Unless the Contractor can establish proof of expertise to the Owner's satisfaction for handling the above described operation, the Contractor shall hire, at his own expense, a company specializing in this procedure to perform the work.

24. FLASHING

A. Vent pipes extending thru the roof shall be flashed and counter-flashed. Flashing shall consist of a minimum 18" X 18", 4 lb. per square foot sheet lead. The lead shall extend to the top and bend inside vent pipe and be properly burned at joints by an experienced lead burner. Approved prefabricated seamless lead flashing systems similar to Stoneman Model S1300-4 are acceptable.

B. In all cases where pipes, tubes, conduits, etc. penetrate the roof structure they shall be flashed and counter-flashed on the weather side and otherwise sealed so as to provide a watertight installation (per SMACNA Standards).

25. PIPING

A. Piping shall be designed, fabricated and installed in accordance with the American National Standards Code for Pressure Piping ANSI B31.1.0, latest edition, the Ohio Plumbing Code and the state piping and welding codes, where applicable.

B. Pipe shall run straight between fittings and in straight horizontal and vertical lines, and parallel to building lines wherever possible. Ream ends of pipes to remove fins, burrs, etc., to full inside diameter and see that insides of pipes are clean before being placed in position. Open ends of pipe lines or equipment shall be properly capped or plugged until final connection to keep dirt or other foreign material out of the system.

C. Changes in direction and intersections of pipe lines shall be made with standard, specification type fittings as required and as called for hereinafter. Mitering of pipe to form elbows, notching straight runs to form tees or any similar procedure will not be permitted unless specifically mentioned in these specifications.

D. Consideration of and provisions for expansion and contraction in pipe lines thruout the system shall be part of this section of the work. Expansion loops, offsets, etc. which will properly care for the expansion may be used.

E. Piping shall be concealed in pipe shafts, pipe spaces, and furring, where possible. Prior to installation, determine that the proper space has been provided for pipes and exercise care in locating same in accordance with the requirements of the finish of various rooms. No pipes, etc., shall be placed where they will block access doors or in any way interfere with the swing of other doors or the operation and normal maintenance of equipment. In addition, the installation of piping in elevator equipment rooms or directly over switchgear or similar equipment shall be avoided.

F. Where piping is run exposed thru floors, walls, partitions or ceilings, furnish chromed escutcheons to cover the openings and provide a finished appearance. Escutcheons shall be securely fastened with set screws or other satisfactory means that will positively hold them in place against wall, floor or ceiling.

G. On installations incorporating steel pipe, mechanical couplings may be used. Pipe grooving and assembly to accommodate these couplings shall be in accordance with the manufacturer's specifications regarding pipe and preparation, lubrication of gaskets, assembly of couplings, fittings and flanges. Grooving dimensions shall be within specified tolerances. This method of joining pipe is acceptable for interior storm lines above grade.

H. Locate and install piping so 1/2" minimum clearance is maintained after insulation is applied.

I. Connection to plumbing fixtures shall be made using the proper method to eliminate strain due to expansion.

J. Pipe shall be tested as described in Item TESTING AND INSPECTION before connecting to equipment. Said equipment and piping shall then be connected as described in Item PIPE FITTINGS AND JOINTS.

K. Bullhead connections in any piping system are expressly prohibited.

L. Reductions in pipe sizes shall be made with reducing fittings and not with bushings.

M. All piping materials used on this project shall be those approved for use by the authorities having jurisdiction. Specific materials may have certain restrictions or exclusions as to their usage, including where they may or may not be located. All such regulations shall be adhered to where applicable.

N. Specific piping materials shall be as follows:

1. Sanitary/Vent and Storm Piping:

a. Coated cast iron service weight hub and spigot soil pipe with cast iron fittings conforming to ASTM A74 Standards.

b. Coated cast iron hubless soil pipe and fittings conforming to CISPI 301 and ASTM A888 Standards.

1. All cast iron pipe and fittings shall be made in the USA and marked with the CISPI mark C.I.

c. Copper DWV tubing conforming to ASTM B306 Standards and wrought copper drainage fittings conforming to ANSI B16.29 Standards may be used for sanitary and vent piping above slab.

d. PVC plastic pipe DWV Schedules 40, 80 and 120 conforming to ASTM D2665 or D2949 Standards may be used above grade within the building; However, its use will not be permitted in any ceiling spaces or mechanical shafts being utilized as supply or return air plenums.

e. PVC plastic DWV pipe and fittings conforming to ASTM D 2665 or D 2949 Standards and installed per ASTM D2321 Standards may be used below grade within the building.

2. Water Piping Above Grade:

a. Type L hard temper seamless copper water tubing conforming to ASTM B88 Standards with wrought copper fittings conforming to ANSI B16.22 Standards.

b. In lieu of the joining method using standard fittings with solder joints for domestic water lines, copper piping installations 2" and below may be installed using a machine crimp press fitting system utilizing engineered copper fittings and bronze unions. The press fittings, which shall incorporate a fitting bead and an elastomeric O-ring seal, shall have a listed temperature range of 0º to 250ºF at 200 psi and may be used with system pressures rated to 200 psi. Installation shall be in strict accordance with manufacturer's recommendations. Note: All materials in the potable water system shall comply with NSF 61-G.

26. PIPE FITTINGS AND JOINTS

A. Fittings for work thruout the project shall be of the type designed for the pipe on which they are to be used and shall conform to the general specifications outlined below. Cast iron and malleable iron fittings, flanges, etc. shall be minimum Class 125 or as determined by service requirements.

B. Connections at valves, unions, etc. on steel pipe shall be screwed or flanged as determined by size and/or service. Where flanged connections occur, the use of screwed companion flanges will be allowed in lieu of flanged welding fittings. Class of flanges shall be determined by service requirements.

C. Dielectric unions or couplings shall be used where dissimilar metals are joined and shall be located in accessible areas and/or where indicated on the plans.

D. Copper Piping:

1. Solder-joint wrot copper and cast bronze pressure fittings shall be used on copper tube piping. Wrot copper fittings shall be in accordance with ANSI B16.22 and shall be made from commercially pure copper and red bronze mill products per ASTM B75, Alloys 120 and 122. Note: All materials in the potable water system shall comply with NSF 61-G.

2. Cast bronze fittings shall be made to the requirements of ANSI B16.18 and material composition shall be in accordance with ASTM Specification B584. Flanges shall be minimum Class 150 and shall meet ANSI Standard B16.24 dimensions. Note: All materials in the potable water system shall comply with NSF61-G.

a. In lieu of wrot copper tees for copper tube piping at size reduction branch lines, mechanically formed tee connections may be utilized. The mechanically extracted collars for joining must be formed in one continuous operation. This shall consist of drilling a pilot hole and

drawing out the tube surface to form a collar with a height of at least three times the thickness of the tube wall. The collaring device shall be fully adjustable to insure proper tolerance and complete joint uniformity.

b. The joining branch lines shall be notched and dimpled in a single process with two dimple/depth stops. The first depth stop insures proper penetration into the collar for brazing and the second dimple, 1/4" above the first, serves as a visual inspection point. Dimple/depth stops shall be in line with the run of the tube. All such joints shall then be brazed. (Soldered joints will not be permitted).

c. All mechanically formed branch collars shall meet the requirements of applicable sections of ANSI/ASME B31 and their use shall be approved by the local and/or state inspecting agencies having jurisdiction.

E. Machine crimp press fittings, where referenced in Item PIPING, shall be engineered press fittings that meet the material requirements of ASME B16.18 or ASME B16.22. The O-ring seal shall be of EPDM. The joining method shall be recognized by the ICC International Plumbing Code and BOCA National Plumbing Code as well as state and local codes. The fittings shall be designed for use with K, L and M hard copper tubing and shall be rated for service to 300 psi. Note: All materials in the potable water system shall comply with NSF 61-G.

F. Joints in cast iron no-hub soil pipe shall be made with neoprene gasket and either a cast iron clamp or stainless steel band fastened with stainless steel bolts. Stainless steel couplings shall be heavy duty type 304 stainless steel with minimum shield thickness of .016". Couplings shall be 4 band for 1-1/2" thru 4" pipe.

1. In lieu of the above, joints in cast iron no-hub soil pipe 1-1/2" and above in size subjected to a static head of less than 40 feet may be made with neoprene gasket and either a cast iron clamp or stainless steel band fastened with stainless steel bolts conforming to CISPI-310 and ASTM C1277 Standards.

G. Joints in PVC drainage piping shall be solvent cemented in accordance with ASTM D2855 using solvent cement conforming to ASTM D2564 with a primer conforming to ASTM F656. Transitions from one approved plastics material to another approved plastics material are permitted only through the use of acceptable fittings designed for this purpose.

H. For underground plastic pipe installation, the plastic piping may be installed using solvent cement or elastomeric seals. With solvent cement use only primers, cleaners and cements specified for the materials being used.

I. No paint, varnish, or other coating shall be permitted on the jointing material until after the joint has been tested and approved.

J. Joints of any materials not mentioned herein shall be made in accordance with accepted engineering practice. Conformity to applicable Standards will be considered prima-facie evidence of conforming to accepted engineering practice.

K. No threaded joints will be permitted in any underground piping.

27. FUEL GAS PIPING SYSTEM

A. Furnish and install fuel gas piping as indicated on the drawings and in these specifications. The work shall consist of new fuel gas piping from the point of connection to the gas supply main and extending to all points of use as required. All piping to be in accordance with applicable portions of ANSI B31.2.

B. The fuel gas piping installation shall be in accordance with the latest rules and regulations of the Department of Transportation Pipe Line Safety Law, Section 191 and 192, Title 49 of the Code of Federal Regulations and all local requirements.

C. All branch lines shall be taken off of the top of the main and dirt legs shall be provided on all pipe drops to equipment.

D. Fuel gas piping above grade shall be:

1. Piping 2" and under shall be Schedule 40, welded or seamless black carbon steel pipe conforming to ASTM A53, type E or type S standards with threaded ends. Fittings shall be gray iron minimum Class 125 or malleable iron minimum Class 150 threaded in accordance with ASME B1.20.1 Standard for tapered pipe threads.

E. Furnish and install insulating fittings where indicated on the drawings or where otherwise required. Insulating fittings shall be one of the following types:

1. Insulating Union: Threaded insulating unions may be used on interior or above grade piping of 2" size or smaller. Insulated unions shall be composed of ground joint, precision machined black malleable iron castings with molded nylon insulation rated at 175 psi WOG as manufactured by Central Plastics Company or approved equal.

28. CLEANOUTS

A. Cleanouts, caulked into proper branches, shall be provided where indicated or where required by local and/or state codes. Cleanouts shall be as manufactured by Wade, Zurn, J.R. Smith, Watts or Josam. Cleanouts shall be located for convenience and easy accessibility.

B. Cleanouts shall be provided as listed below:

1. Floor Cleanouts: Cast iron floor cleanout with adjustable housing, ferrule with speedi-set outlet and plug with neoprene seal. Furnish with flashing

flange and clamping device for floors with membrane seals. Tops of cleanouts located in finished areas shall be secured and scoriated nickel bronze. Cleanouts shall be equal to the following J.R. Smith styles:

a. Finished Areas - 4111
b. Carpet Areas - 4031-Y/4031-X*
c. Concrete Areas - 4237

*As selected by Architect.

2. Wall Cleanout: J.R. Smith #4532, cleanout tee with countersunk tapped brass plug and round stainless steel cover with screw.

3. Outside cleanouts shall be standard type furnished with J.R. Smith #4237-U or equal cast iron cover and frame set in concrete flush with grade so no hazard will exist.

29. INSULATION

A. General Requirements:

1. All insulating materials, tapes, etc., for piping and equipment shall have composite fire and smoke hazard ratings, as tested by procedure ASTM E-84, NFPA 255, NFPA 258 and UL 723, not exceeding flame spread 25 and smoke developed 50 unless otherwise noted. Specific items of equipment that are factory insulated are not governed by this item of the specifications. Note that pipe insulation and coverings on pipe located in plenums and/or shafts serving to directly convey supply, return or exhaust air shall have a flame spread rating not exceeding 25 and a smoke developed rating not exceeding 50. However, pipe insulation and coverings installed in sealed chases and shafts or other similar concealed spaces, and in mechanical equipment rooms, shall have a flame spread rating not exceeding 25 and a smoke developed rating not exceeding 150. (See Note at the end of this Item.)

2. Insulation Index - Piping shall be covered with the classification and thickness of insulation noted in the Insulation Index listed in this item of the specifications.

B. General Instructions:

1. Before insulation is applied, all piping and equipment shall have been tested in accordance with specifications - see Item TESTING AND INSPECTION. Tests shall be verified by the Engineer before proceeding with the work.

2. Continue insulation thru walls, partitions, floors and pipe sleeves unless otherwise indicated on drawings or prohibited by Code requirements.

3. Insulation manufacturer's names and product names that may appear in the specifications have been listed as a guide to manufacturer and/or a standard of quality. Products of equal quality and performance by other manufacturers will be considered on approval of the Engineer.

C. Adhesives, Coating and Vapor Barrier Materials:

1. All factory attached vapor barrier materials, and all adhesives, mastics, coatings and insulation materials applied as herein specified shall have a dry flame spread index not to exceed 25 when tested in accordance with applicable Federal Standards.

2. Prior to use, submit certification by the manufacturer for each of the above materials used with respect to the flame index and toxicity.

D. Piping Insulation Index:

PIPING	CLASS	THICKNESS
Domestic Cold Water		
thru 1-1/4"	C or G	1/2"
over 1-1/4"	C, F or G	1"
Hot Water		
thru 1-1/4"	C, F or G	1"

1. NOTE: Class "G" insulation may be used in cramped or otherwise inaccessible areas on cold lines such as domestic cold water, condensate waste, etc. Molded pipe insulation - 1/2" thick, shall be used on lines through 1-1/2" in size.

E. Materials:

1. Class "C" Insulation

a. Nominal 4 pound density mineral fiber sectional pipe insulation wrapped with a factory applied ASJ jacket (similar to a Class "C" jacket) as manufactured by CertainTeed, Knauf, Johns Manville, Manson, Owens Corning or Schuller. The "k" factor shall be 0.23 or less at 75ºF mean. Product shall conform to ASTM C 1136 (jacketing), ASTM C 547 and shall meet UL 723 ratings. Published temperature range shall extend from 0º F to 800º F or greater. At installation all longitudinal and circumferential (butt) joints shall be closed and sealed in accordance with manufacturer's instructions. The use of staples is permitted only in hot pipe insulation in concealed locations at contractor's option. Note that for exterior applications, the insulation shall have an all weather (AWJ) jacket

consisting of a factory-applied weather-resistant jacket reinforced with fiber glass fabric.

b. On insulated pipe lines, all fittings, flanges, valves, etc. shall be covered with pre-molded/mitered fiberglass insulating units equal to the thickness of adjacent pipe insulation. Note that on lines subject to sweating, all of the above described work shall be given a flooding coat of vapor barrier mastic. Finally, all exposed fittings, valves and flanges shall be provided with preformed molded PVC jacket covers, as manufactured by CertainTeed, Knauf or Johns Manville. Covers shall be white with gloss finish, shall be UL 25/50 rated and shall meet the requirements of ASTM D 1784, Class 14253-C. Mechanical fasteners shall be of stainless steel.

2. Class "F" Insulation

a. Rigid urethane thermal pipe insulation - Armstrong "Armalok II" or approved equal - shall be a continuously molded polyurethane foam insulation having a nominal density of 1.0 lbs./cu. ft. and a "k" factor of 0.16 or less at 75º F mean. It shall be furnished with a factory applied vapor barrier jacket - similar to a Class "C" standard duty facing. Install in accordance with manufacturer's recommendations. Note: All requirements listed under Class "C" Insulation will apply with regard to scope, installation, etc. (See Note at end of this item).

3. Class "G" Insulation

a. Flexible, elastomeric foam insulation (tubular or sheet) - Armstrong "AP Armaflex" or equal by NOMACO, Schuller or Rubatex. The "K" factor for this material shall be 0.27 or less at 75º F mean and the published temperature range shall extend from -40º F or below to at least 210º F. On thicknesses thru 1" the flame spread rating shall be 25 or less and the smoke developed rating shall be 50 or less based on ASTM E-84. Tubular material shall be pre-slit longitudinally with mating surfaces adhesive coated and protected by release liners. All other joints shall be butted and sealed with approved adhesive. Fabricate segments for valves and fittings and install according to manufacturer's recommendations. Outdoor piping insulation and lines that are exposed in mechanical rooms, etc. shall be given two coats of a white, water-based, semi-gloss latex enamel specifically formulated for this type of application.

F. Coverings:

1. Plastic Pipe Fire Resistant Covering:

a. Where non-metallic (PVC, CPVC, PB, PE, PP, PVDF and ABS) pipe is located in return air plenums it shall be covered with a fire resistant

wrap, similar and equal to 3M Fire Barrier Plenum Wrap 5A. It shall be a refractory ceramic fiber blanket encapsulated with foil scrim, providing a flexible enclosure that is non-combustible as tested to UL 910.

2. The above described material shall be tested and rated in accordance with ASTM C411, ASTM C518, ASTM E84, ASTM E136 and the UL 910 flammability test. Note that the flame spread and smoke developed ratings shall not exceed 5 when tested to ASTM E84.

3. This pipe wrap shall be installed in strict accordance with the manufacturer's written instructions.

4. Note:

a. In view of the fact that one of the classes of insulation listed above (Class F) does not meet the smoke developed rating criteria of 50 or less, its use will not be permitted for this project unless letter(s) of approval from the inspection agencies involved accompany the insulation submittals. Letter(s) must state specifically where its use will be permitted.

30. VALVES

A. Valves of each type furnished on this project shall be of one make and each valve shall have manufacturer's name and trademark together with design working pressure (Class) clearly indicated on the body.

B. Materials:

1. Valves 2" and under shall have bronze bodies with threaded or solder ends.

2. Bronze castings shall meet NSF 61 & 372 Standards.

3. Packing shall be of a type suitable for its designated service.

4. Bronze valves shall have malleable iron or aluminum alloy handwheels and bronze alloy stem with a minimum tensile strength of 60,000 psi.

5. Note: All materials used in the potable water system shall comply with NSF 61 Annex G & NSF 372.

C. End Connections:

1. Threaded ends shall conform to ANSI B2.1 Standards; solder ends shall conform to ANSI B16.18 Standards. Press-end connections shall conform to ASTM B16.51 standards.

D. Design:

1. Bronze gate valves shall have threaded bonnet, solid wedge disc and rising stem

2. Bronze swing check valves shall have screwed bonnet or cap with renewable bronze disc and seat. Valve body shall display an arrow indicating direction of flow.

3. Other valves shall be as described under Miscellaneous.

E. Duty:

1. Pressure ratings for bronze valves shall be for cold working pressure; adjust pressure/temperature rating as required for solder end valves.

F. Manufacturer:

1. The above described valves shall be as manufactured by Crane, Hammond, Jenkins, Kitz, Milwaukee, Nibco, Powell or Watts.

G. Ball Valves (Domestic Water System):

1. Valves shall be in accordance with the following and shall incorporate a stainless steel ball, multiple rings of Teflon impregnated packing and high tensile stem. Body shell/wall thickness to be in accordance with requirements of ANSI B16.34. Lever handle shall be of nickel plated or stainless steel with plastic grip. Quarter turn of handle shall rotate ball from full open to full closed position.

2. On lines 2" and under, valves shall be bronze with 316 stainless steel ball and blow-out proof stem. They shall be rated 600 psig WOG, cold non-shock. Body shall be single piece with threaded ends or two piece with solder ends and shall incorporate an adjustable packing gland and replaceable reinforced Teflon seat. Valves shall be in conformance with Federal specification WW-V-35C.

3. Valves shall be as manufactured by Apollo, Flow-Tek, Grinnell, Hammond, Jamesbury, Kitz, Milwaukee, Nibco, Victaulic, Watts, W-K-M or Worcester. Install in accordance with manufacturer's recommendations including disassembly of sweat end valves. Note that valves for use in the potable water service shall comply with NSF 61 Annex G & NSF 372.

H. Valves for specific service shall be as follows:

1. Fuel gas shut-off valves shall be constructed of materials compatible with the piping and comply with the standard applicable to the pressure and application in which the valve is used per the IFGC.

a. Appliance shut-off valves used in applications with a pressure up to 1/2 psi shall have a forged brass body with a chrome plated brass ball, PTFE seat, lever handle and be CSA certified to ANSI Z21.15. The valve shall be a Nibco #GB10/GB1A or Engineer approved equal.

b. Shut-off valves used in applications with a pressure up to 5 psi and size 2" and under shall be 2-piece, threaded, full port, forged brass with a chrome plated brass ball, PTFE seat, lever handle and comply with ASME B16.44 standards. The valve shall be a Watts #FBV-3C series or Engineer approved equal.

31. UNIONS

A. Unions shall be provided wherever necessary to facilitate connecting to apparatus and installing necessary fittings.

B. Except as noted in the following, thread-end unions shall be used for all steel piping 2" and under. These shall be Dart Fig. 0832, 300 lb. malleable iron unions with bronze-to-bronze seat ground to a ball and socket joint. Ends shall be threaded to ANSI B2.1 Standards.

C. Copper lines shall, in general, utilize sweat-end unions. They shall be solder joint cast bronze unions, Chase #C-402 or approved equal.

D. Dielectric (insulating) unions for piping systems involving steel-to-copper connections 2" and under shall have a steel union nut with end to meet ASTM B88. Steel parts shall be zinc plated to applicable Standards set by Federal Specifications and pipe threads shall be in accordance with ANSI B2.1. Insulating polymer gaskets for standard hot water applications shall be suitable for water service at continuous temperatures of 210º F. Unions shall be rated at 250 psi working pressure.

E. Note: All material used in potable water system shall comply with NSF 61-G.

32. PLUMBING FIXTURES

A. The plumbing fixtures as specified hereinafter are based upon the use of several manufacturers whose catalog numbers have been listed as criteria for type and description unless noted otherwise.

B. The plumbing fixtures shall be furnished with supports, control stops, trim etc., and complete in all respects. NOTE: The finish and colors for the fixtures outlined below shall be selected by the Architect.

C. Plumbing fixtures and equipment that are indicated (furnished by others) will require rough-in and final connection by the Plumbing Contractor. Those fixtures and equipment shall be set in place under the general contract unless noted otherwise.

D. Should there be a conflict between the model numbers listed and the item description, notify the Engineer immediately, otherwise, the Contractor is responsible for furnishing fixtures and equipment that meet the description and performance characteristics as indicated herein.

E. Supplies to equipment shall be protected against back siphonage by installing vacuum breakers or backflow preventers where required.

F. Seal fixtures and/or equipment to floors, walls, countertops, etc.

G. Refer to drawings for schedule of connections.

H. Each complete fixture as specified within fixture specification is comprised of one or more individual items. Each item is specified individually and may list several manufacturers. HOWEVER, ONLY THOSE MANUFACTURERS LISTED IMMEDIATELY BELOW WILL BE APPROVED FOR USE ON THIS PROJECT. All fixtures and/or trim of any one category shall be as supplied by a single equipment manufacturer.

1. Basic Fixture: (Vitreous China, Cast Iron, Enameled Steel)
   American Standard; Kohler; Eljer

2. Basic Fixture: (Stainless Steel)
   Elkay; Just

3. Carrier:
   Wade; Zurn; Ancon; J. R. Smith; Josam

4. Seat:
   Beneke; Bemis; Olsonite; Sperzel; Centoco

5. Faucet:
   Chicago; T & S Brass; American Standard; Eljer; Kohler

6. Traps:
   Eljer; Kohler; McGuire; Dearborn; Frost; Engineered Brass

7. Supplies:
   McGuire; Teledyne/Ansonia; Frost

I. The Architect reserves the right to disapprove any fixture deemed not equal to these specifications. The Contractor shall name the manufacturer and type he intends to use at the time of bidding, otherwise the Architect may choose any of the above specified makes.

* * * END OF SECTION * * *

HEATING, VENTILATION AND AIR CONDITIONING

SECTION 15500

INDEX

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HEATING, VENTILATING AND AIR CONDITIONING

SECTION 15500

1. SCOPE

A. The work included under this contract heading shall consist of furnishing all material and labor which is necessary to install the heating, ventilating and air conditioning work as hereinafter specified including balancing, testing and adjustment of same. All work shall be done in strict accordance with all applicable Local, State and Federal codes and regulations including the recommendations of the NFPA and the requirements of the NEC. In no case shall work be installed contrary to or in violation of applicable codes.

B. All required permits for this portion of the work shall be obtained and paid for by the HVAC Contractor who shall also arrange for all inspections. At completion of the project the inspection reports, certificates of approval, etc. shall be turned over to the Owner.

2. DESCRIPTION OF WORK

A. The following is a description/summary of the systems to be installed under this section of the project. All such work shall be done in the manner required to provide a complete, fully operational job.

1. Demolition
2. Sheet metal and air devices
3. Gas fired rooftop package
4. Cassette type air conditioning units
5. Terminal Air boxes
6. Cutting and patching
7. Air duct and system cleaning
8. Balancing
9. Insulation
10. Temperature controls and interlock wiring
11. Check, testing, startup, and warranty

3. WORK BY OTHERS

A. The bidder shall thoroughly review the specifications and drawings for the other branches of work to clarify the points of division of responsibility between the various trades.

4. CUTTING AND PATCHING

A. Perform all drilling, cutting, and patching required for the installation of any piping, ductwork and/or equipment involved under this section of work. Cutting through masonry for piping, conduit, etc. shall be performed with a core drill. Required square or rectangular openings shall be cut neat with no overcut.

B. Patching and/or repairing of all work involved with this project shall be performed by mechanics of the appropriate trade in order to achieve a workmanlike job.

C. Any utility lines cut or damaged in the course of the project shall be repaired immediately to the satisfaction of the Engineer.

5. SUPPORTS, HANGERS AND BRACKETS

A. All hangers, brackets, etc. for supporting material and equipment included under this section of the work shall be furnished and properly installed as required and as specified in the following. These items shall be as furnished by Anvil, Crane, Elcen, or Fee and Mason.

B. Pipe support spacing shall be in accordance with ANSI B3l.l.0. Piping shall be installed so that expansion and contraction can freely take place except at anchor points. Hangers, U-straps, clamps, pipe rolls, etc. shall be carried by threaded rods of a size determined by the ASME code for pressure piping. Supports and parts shall conform to the requirements of ANSI B3l.l.0 and MSS SP-58.

C. Cold lines with compressible insulation as well as non-insulated lines shall be supported by adjustable clevis hangers with standard additional components. Suspension supports for insulated lines shall have galvanized steel insulation protection shields.

6. HAZARDOUS MATERIALS

A. This item of the specifications is designed to address the potential problem or problems occurring when hazardous materials (asbestos type insulations, etc.) are encountered on a project involving work in an existing structure and/or an existing system. Since the extent to which hazardous materials may have to be dealt with or whether, in fact, they will even be present on the site cannot always be determined prior to the actual demolition/construction phase of the project the Owner will have the responsibility for dealing with the situation, should it arise.

B. If, during the course of the project, it is suspected that hazardous materials have been encountered or are present, contact the Construction Manager / Architect / Engineer immediately and cease work in the area(s) of concern. After consultation with the parties involved, the Owner can elect to have verification testing performed by a duly authorized

and licensed organization. If it is determined from these tests that hazardous materials are actually present, the Owner will deal with the situation in an appropriate manner before work in the affected area(s) resumes.

7. INSERTS AND SLEEVES

A. Inserts (concrete expansion anchors) shall conform to applicable requirements of Federal Specification FF-S-325. Embedment, anchor length and size shall be in accordance with manufacturer's recommendations. Anchors 3/8" thru 3/4" shall be U.L. listed for pipe hangers.

B. In general, sleeves thru masonry walls shall be of minimum 16 ga. galvanized metal or PVC pipe. For exterior/foundation walls use minimum Schedule 40 PVC or galvanized steel pipe.

C. Provide sleeves for all duct penetrations of walls, partitions, etc. They shall be of galvanized sheet metal with flanged ends. In rated walls and partitions all openings shall be fire stopped as described below. Perimeter openings at penetrations in non- rated walls and partitions shall be completely filled with sound barrier.

D. Sleeves shall be provided for duct openings in walls, partitions, and floors. Sleeves shall be minimum 22 ga. galvanized sheet metal with flanged ends.

E. Provide thimbles wherever pipes, tubing, conduit, etc., pass thru interior non-masonry walls, partitions, etc. They shall be telescoping type, made from 22 ga. galvanized sheet metal. Ends shall have cast or stamped metal plates attached. Floor penetrations shall have thimbles extending above the floor line.

F. Floor, roof, and rated wall penetrations shall be sealed with a fire, smoke, and water barrier sealant. Material shall be noncombustible as defined by ASTM E-l36 and shall maintain its integrity and dimensional stability when exposed to the ASTM E-119 time-temperature curve for a time period equivalent to the rating of the assembly penetrated. Sealant material shall be tested to ASTM E-814, UL 2079 or UL 1479. Install in accordance with manufacturer's recommendations.

G. Pipe penetrations of walls, floors, etc. in exposed areas shall be provided with escutcheons of polished brass or chrome plated steel. Floor penetrations shall be provided with deep pattern floor plates.

8. FIRESTOPPING

A. Furnish and install the required firestopping as referenced in the item of the specifications covering inserts and sleeves. Materials, installation, etc., shall be as described below. Products shall be as manufactured by Hilti, Inc., Specified Technologies Inc., or United States Gypsum Co.

B. Definition:

1. Firestopping is defined as the material or combination of materials used to retain integrity of fire-rated construction by maintaining an effective barrier against the spread of flame, smoke, water and hot gases through penetrations in fire rated wall and floor assemblies.

C. Application:

1. Tested firestop systems shall be used for all penetrations for the passage of ductwork and piping through floors, fire-rated vertical barriers (walls and partitions), horizontal barriers (floor/ceiling assemblies), and vertical service shaft walls and partitions.

D. Quality Assurance:

1. A manufacturer's direct representative (not distributor or agent) shall be on site during initial installation of firestop systems to train appropriate contractor personnel in proper selection and installation procedures. This will be done per manufacturer's written recommendations published in their literature and drawing details.

2. Firestop system installations must meet requirements of ASTM E-814, UL 1479 or UL 2079 tested assemblies that provide a fire rating equal to that of construction being penetrated. In addition, proposed firestop materials and methods shall conform to applicable governing codes having jurisdiction.

3. For those firestop applications that occur for which no UL tested system is available through any manufacturer, a drawing representing the manufacturer's engineering judgment, derived from similar UL system designs or other tests, shall be submitted to local authorities having jurisdiction for review and approval prior to installation. Engineer judgment drawings must follow current requirements set forth by the International Firestop Council.

E. Submittals:

1. Manufacturer's submittals shall include specifications and technical data for each type of material including its composition and limitations, documentation of UL

firestop systems to be used and manufacturer's installation instructions to comply with Section 1300. The submittal shall also include material safety data sheets as well as any engineering judgement drawings previously approved by local authorities.

F. Installer Qualifications:

1. The firestop system installer must be certified, licensed, or otherwise qualified by the firestopping manufacturer as having the necessary experience, staff, and training to install manufacturer's products per specified requirements as previously stated in Quality Assurance.

G. Requirements:

1. All holes, voids, miscellaneous openings, etc., made by penetrations in floor slabs (above grade) for systems provided under this section shall be completely sealed to insure watertight integrity. Installation of firestopping shall be scheduled after completion of penetrating item installation but prior to covering or concealing of openings.

2. Provide firestopping utilizing components that are compatible with adjacent surfaces, the substrates forming openings, and the items penetrating the firestopping under conditions of service and application as demonstrated by the firestopping manufacturer, based on testing and field experience. Note that materials containing flammable solvents shall not be used.

H. Materials:

1. Use only firestop products that have been UL 1479, ASTM E-814, or UL 2079 tested for specific fire-rated construction conditions conforming to construction assembly type, penetrating item type, annular space requirements, and fire-rating involved for each specific application.

2. For penetrations by combustible items (penetrants consumed by high heat and flame) including insulated metal pipe that is PVC jacketed, flexible cable or cable bundles and plastic pipe (closed piping systems), an Intumescent material is required to maintain fire rating of the assembly penetrated.

3. A firestop system with an "F" rating as determined by UL 1479, ASTM E814 or UL 2079, which is equal to the time rating of the construction being penetrated, must be utilized.

I. Preparation:

1. Surfaces to which firestop materials will be applied shall be examined for detrimental conditions. They shall be free of any substances that may affect proper adhesion.

2. Observe and comply with manufacturer's recommendations for temperature and humidity conditions before, during and after installation of firestopping.

J. Installation:

1. Firestop materials shall be installed in accordance with published recommendations listed under the heading "Through Penetration Firestop Systems" in the UL Fire Resistance Directory. In addition, the manufacturer's instructions for installation of through penetration materials shall be strictly followed.

2. Consult with the engineer prior to installation of any UL firestop systems that might hamper the performance of fire dampers as they pertain to duct work.

K. Miscellaneous:

1. Sealed penetration areas shall be checked thoroughly to ensure proper installation before concealing or enclosing said areas.

9. MOTORS AND STARTERS

A. Motors shall be industrial quality as manufactured by A.O. Smith, G.E., Baldor, Allis Chalmers, Century, Gould, Lincoln, or Wagner. Polyphase motors shall meet or exceed NEMA Premium efficiency standards per NEMA Standard MG1-12.53a.

B. Fractional horsepower manual starters for manually operated single phase motors less than 1HP will be provided under the electrical section unless specifically called for. All other starters for motor driven equipment under this section shall be furnished by this contractor, either separately or as an integral part of the equipment supplied.

C. Unless otherwise indicated, starter enclosures shall be NEMA type 1 (or NEMA 3R where the unit is exposed to the elements).

10. HEATING, VENTILATING AND AIR CONDITIONING EQUIPMENT

A. See Drawing Notes, Equipment Data and Schedules.

11. AIR DUCT / SYSTEM CLEANING

A. The air duct/system cleaning portion of the project is governed by this item of the specifications. The following covers the scope, specific cleaning and performance requirements, detailed procedures, verification of cleanliness, applicable reference standards, etc., as well as the qualification requirements of the Cleaning Contractor.

B. Qualification of the Duct System Cleaning Contractor (the Contractor):

1. Membership: The Duct System Cleaning Contractor shall be either a certified member of the National Air Duct Cleaners Association (NADCA) or shall maintain membership in a nationally recognized non-profit industry organization dedicated to the cleaning of Duct systems.

2. Certification: The Duct System Cleaning Contractor shall have a minimum of:

a. At least one Air System Cleaning Specialist (ASCS) certified by NADCA on a full time basis or shall have staff certified by a nationally recognized certification program and organization dedicated to the cleaning of Duct systems.

b. Supervisor Qualifications: A person certified as an ASCS by NADCA or maintaining an equivalent certification by a nationally recognized program and organization, shall be responsible for the total work herein specified.

c. Equipment, Materials and Labor: The Duct System Cleaning Contractor shall possess and furnish all necessary equipment, materials, and labor to adequately perform the specified services.

1. The Contractor shall warrant that its employees have received safety equipment training, medical surveillance programs, individual health protection measures, and manufacturer's product and material safety data sheets (MSDS) as required for the work by the U.S. Occupational Safety and Health Administration, and as described by this specification.

2. The Contractor shall maintain a copy of all current MSDS documentation and safety certifications at the site at all times as well as comply with all other site documentation requirements of applicable OSHA programs and this specification.

3. The Contractor shall submit to the Engineer all material safety data sheets (MSDS) for all chemical products proposed to be used in the cleaning process.

d. Licensing: The Duct System Cleaning Contractor shall provide proof of maintaining the proper license(s), if any, as required to do work in this state. In addition, the Contractor shall comply with all Federal, state, and local rules, regulations, and licensing requirements.

3. Standards for Contractor

a. NADCA Standards: The Duct System Cleaning Contractor shall perform the services specified in accordance with the current published standards of the National Air Duct Cleaners Association (NADCA).

1. All terms in this specification shall have their meaning defined as stated in the NADCA Standards.

4. Documents

a. Mechanical Drawings: The Owner will provide the Duct System Cleaning Contractor with one copy of the following documents:

1. Project drawings and specifications

2. Any existing indoor air quality (IAQ) assessments or environmental reports prepared for the facility.

5. Scope of Work

a. This section defines the minimum requirements necessary to render Duct components clean, and to verify the cleanliness through inspection and/or testing in accordance with these specifications and applicable NADCA Standards.

b. The Contractor shall be responsible for the removal of visible surface contaminants and deposits from within the Duct system in strict accordance with these specifications.

c. The Duct system encompasses any interior surface of the facility's air distribution system for conditioned spaces and/or occupied zones. This includes the entire heating, air conditioning and ventilation system from the points where the air enters the system to the points where the air is discharged from the system. The return air grilles, return air ducts (except ceiling plenums and mechanical room) to the air handling unit(s) (AHU), the interior surfaces of the AHU, the mixing box, coil compartment, condensate drain pans, supply air ducts, fans, fan housings, fan blades,

turning vanes, filters, filter housings, terminal boxes, reheat coils, and supply diffusers are all considered part of the Duct system.

6. Duct System Inspections and Site Preparations

   a. Duct System Evaluation: Prior to the commencement of any cleaning work, the Contractor shall perform a visual inspection of the Duct system(s) to determine appropriate methods, tools, and equipment required to satisfactorily perform this project.

      1. Damaged system components found during the inspection shall be documented and brought to the attention of the Engineer.

   b. Site Evaluation and Preparations: The Contractor shall conduct a site evaluation, and establish a specific, coordinated plan which details how each area of the building will be protected during the various phases of the project.

7. General Duct System Cleaning Requirements

   a. Containment: Debris removed during cleaning shall be collected as described below. Precautions must be taken to ensure that debris is not otherwise dispersed outside the Duct system during the cleaning process.

   b. Particulate Collection: Where the particulate collection equipment is exhausting inside the building, HEPA filtration with 99.97% collection efficiency for 0.3-micron size (or greater) particles shall be used. When the particulate collection equipment is exhausting outside the building, mechanical cleaning operations shall be undertaken only with particulate collection equipment in place, including adequate filtration to contain debris removed from the Duct system. Also, when this equipment is exhausting outside the building, precautions shall be taken to locate the equipment so that the discharge is down wind and away from all air intakes and other points of entry into the building.

   c. Controlling Odors: All reasonable measures shall be taken to control offensive odors and/or mist vapors that may occur during the cleaning process.

   d. Component Cleaning: Cleaning methods shall be employed such that all Duct system components must be visibly clean as defined in applicable standards (see NADCA Standards). Upon completion, all components

must be returned to those settings recorded just prior to cleaning operations.

e. Air-Volume Control Devices: Dampers and any air-directional mechanical devices inside the Duct system must have their position marked prior to cleaning and, upon completion, must be restored to their marked position.

f. Service Openings: The Contractor shall utilize service openings, as required for proper cleaning, at various points of the Duct system for physical and mechanical entry, and inspection.

1. Contractor shall utilize the existing service openings already installed in the Duct system where possible.

2. Other openings shall be created where needed and they must be created so they can be sealed in accordance with industry codes and standards.

3. Closures must not significantly hinder, restrict, or alter the air-flow within the system.

4. Closures must be properly insulated to prevent heat loss/gain or condensation on surfaces within the system.

5. Openings must not compromise the structural integrity of the system.

6. Construction techniques used in the creation of openings should conform to requirements of applicable building and fire codes, and applicable NFPA, SMACNA and NADCA Standards.

7. Cutting service openings into flexible duct is not permitted. Flexible duct shall be disconnected at the ends as needed for proper cleaning and inspection.

8. Rigid fiber glass ductboard duct systems shall be resealed in accordance with NAIMA recommended practices. Only closure techniques which comply with LJL Standard 181 or UL Standard 181 a are suitable for fiber glass duct system closures.

9. All service openings capable of being re-opened for future inspection or remediation shall be clearly marked and shall have their location reported to the Engineer in project report documents.

g. Ceiling sections (tiles): The Contractor may remove and reinstall ceiling sections to gain access to Duct systems during the cleaning process.

h. Air distribution devices (registers, grilles & diffusers): The Contractor shall clean all air distribution devices.

i. Air handling units, terminal units (VAV, constant volume boxes, etc.), blowers and exhaust fans: The Contractor shall insure that supply, return, and exhaust fans and blowers are thoroughly cleaned. Areas to be cleaned include blowers, fan housings, plenums (except ceiling return plenums), scrolls, blades, or vanes, shafts, baffles, dampers and drive assemblies. All visible surface contamination deposits shall be removed in accordance with NADCA Standards. The Contractor shall:

1. Clean all air handling unit (AHU) internal surfaces, components and condensate collectors and drains.

2. Assure that a suitable operative drainage system is in place prior to beginning wash down procedures.

3. Clean all coils and related components, including evaporator fins.

8. Duct Systems: The Contractor shall:

a. Create service openings in the system as necessary in order to accommodate cleaning of otherwise inaccessible areas.

b. Mechanically clean all duct systems to remove all visible contaminants to the degree that the systems are capable of passing Cleaning Verification Testings (see NADCA Standards).

9. Health and Safety

a. Safety Standards: The Contractor shall comply with all applicable federal, state, and local requirements for protecting the safety of the contractors' employees, building occupants, and the environment. In particular, all applicable standards of the Occupational Safety and Health Administration (OSHA) shall be followed when working in accordance with this specification.

b. Occupant Safety: No processes or materials shall be employed in such a manner that they will introduce additional hazards into occupied spaces.

c. Disposal of Debris. All debris removed from the Duct System shall be disposed of in accordance with applicable federal, state, and local requirements.

10. Mechanical Cleaning Methodology

a. Source Removal Cleaning Methods: The Duct system shall be cleaned using source removal mechanical cleaning methods designed to extract contaminants from within the Duct system and safely remove contaminants from the facility. It is the Contractor's responsibility to select source removal methods which will render the Duct system visibly clean and capable of passing cleaning verification methods (See applicable NADCA Standards) and other specified tests, in accordance with all general requirements. No cleaning method, or combination of methods, shall be used which could potentially damage components of the Duct system or negatively alter the integrity of the system.

1. All methods used shall incorporate the use of vacuum collection devices that are operated continuously during cleaning. A vacuum device shall be connected to the downstream end of the section being cleaned through a predetermined opening. The vacuum collection device must be of sufficient power to render all areas being cleaned under sufficient negative pressure so that containment of debris and the protection of the indoor environment is assured.

2. All vacuum devices exhausting air inside the building shall be equipped with HEPA filters (minimum efficiency), including hand-held vacuums and wet vacuums.

3. All vacuum devices exhausting air outside the facility shall be equipped with particulate collection capability including adequate filtration to contain debris removed from the Duct system. Such devices shall exhaust in a manner that will not allow contaminants to re-enter the facility. Release of debris outdoors must not violate any outdoor environmental standards, codes, or regulations.

4. All methods require mechanical agitation devices to dislodge the debris adhered to interior Duct system surfaces, such that said debris may be safely conveyed to vacuum collection devices. Acceptable methods will include those which will not potentially

damage the integrity of the ductwork, nor damage porous surface materials such as liners inside the ductwork or system components.

b. Methods of Cleaning Fibrous Glass Insulated Components:

1. Fibrous glass thermal or acoustical insulation elements present in any equipment or ductwork shall be thoroughly cleaned with HEPA vacuuming equipment, while the Duct system is under constant negative pressure. These elements are NOT permitted to get wet in accordance with applicable NADCA and NAIMA standards and recommendations. Cleaning methods used shall not cause damage to fibrous glass components and upon completion shall render the system capable of passing Cleaning Verification Tests (see NADCA Standards).

c. Damaged Fibrous Glass Material

1. If there is any evidence of damage, deterioration, delamination, friable material, mold or fungus growth, or moisture such that fibrous glass materials cannot be restored by cleaning or resurfacing with an acceptable insulation repair coating, they shall be identified for replacement.

2. When requested or specified, the Contractor must be capable of remediating exposed damaged insulation in air handlers and/or ductwork requiring insulation replacement.

3. Replacement material: In the event fiber glass materials must be replaced, all materials shall conform to applicable industry codes and standards, including those of UL and SMACNA.

4. NOTE: Replacement of previously damaged insulation is not covered by this specification.

d. Cleaning of coils

1. Any cleaning method may be used that will render the coil visibly clean and capable of passing Coil Cleaning Verification (see applicable NADCA Standards). Coil drain pans shall be subject to Non-Porous Surfaces Cleaning Verification. The drain for the condensate drain pan shall be operational. Cleaning methods shall not cause any appreciable damage to, displacement of, inhibit heat transfer, or cause erosion of the coil tubes or fin surface, and shall

conform to coil manufacturer=s recommendations when available. Coils shall be thoroughly rinsed with clean water to remove any latent residues.

e. Antimicrobial Agents and Coatings

1. Antimicrobial agents shall only be applied if active fungal growth is reasonably suspected, or where unacceptable levels of fungal contamination have been verified through testing.

2. Application of any antimicrobial agents used to control the growth of fungal or bacteriological contaminants shall be performed after the removal of surface deposits and debris.

3. Only antimicrobial agents registered by the U.S. Environmental Protection Agency (EPA) specifically for use within Duct system shall be used. Such agents shall be applied in strict accordance with manufacturer's instructions.

4. Antimicrobial coating products for both porous and non-porous surfaces shall be EPA registered, water soluble solutions with supporting efficacy data and MSDS records.

5. Antimicrobial coatings shall be applied according to manufacturer's instructions. Coatings shall be sprayed directly onto interior ductwork surfaces, rather than "fogged" downstream onto surfaces. A continuous film must be achieved on the surface to be treated by the coating application. Application of any biocidal coatings shall be in strict accordance with manufacturer's minimum millage surface application rate standards for effectiveness.

11. Cleanliness Verification

a. General: Verification of Duct System cleanliness will be determined after mechanical cleaning and before the application of any treatment or introduction of any treatment-related substance to the Duct system, including biocidal agents and coatings.

b. Visual Inspection: The Duct system shall be inspected visually to ensure that no visible contaminants are present.

1. If no contaminants are evident through visual inspection, the Duct system shall be considered clean. However, the Owner reserves the

right to further verify system cleanliness through Surface Comparison Testing or the NADCA vacuum test specified in the NADCA standards.

2. If contaminants are evident through visual inspection, that portion(s) of the system where contaminants are visible shall be re-cleaned and subjected to re-inspection for cleanliness.

3. NADCA vacuum test analysis must be performed by a qualified third party experienced in this type of testing procedure.

c. Verification of Coil Cleaning

1. Cleaning must restore the coil pressure drop to within 10 percent of the manufacturer's listed pressure drop and/or the pressure drop measured when the coil was first installed. If the original pressure drop is not known, the coil will be considered clean only if it is completely free of foreign matter and chemical residue, based on a thorough visual inspection. (See NADCA Standards.)

12. Pre-Existing System Damage

a. The Contractor will not be held responsible for problems resulting from prior inappropriate or careless cleaning techniques of others.

13. Post-Project Report

a. At the conclusion of the project, the Contractor shall provide a report to the Engineer indicating the following:

1. Success of the cleaning project, as verified through visual inspection and/or gravimetric analysis.

2. Areas of the system found to be damaged and/or in need of repair.

14. Applicable Standards and Publications

a. The following current standards and publications of the issues currently in effect form a part of this specification to the extent indicated by any reference thereto:

1. National Air Duct Cleaners Association (NADCA): Assessment, Cleaning & Restoration of HVAC Systems (ACR 2013),"

2. National Air Duct Cleaners Association (NADCA): Understanding Microbial Contamination in HVAC Systems," 2005.

3. National Air Duct Cleaners Association (NADCA): Introduction to HVAC System Cleaning Services," 2005.

4. National Air Duct Cleaners Association (NADCA): Standard 05 Requirements for the Installation of Service Openings in HVAC Systems," 2004.

5. Underwriters= Laboratories (UL): UL Standard 181.

6. American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE): Standard 62-89, "Ventilation for Acceptable Indoor Air Quality".

7. Environmental Protection Agency (EPA): "Building Air Quality," December 1991.

8. Sheet Metal and Air Conditioning Contractors' National Association (SMACNA): AHVAC Duct Construction Standards - Metal and Flexible," 1985.

9. North American Insulation Manufacturers Association (NAIMA): "Cleaning Fibrous Glass Insulated Air Duct Systems," 1993.

12. DUCTWORK

A. All ductwork and sheet metal work shall be erected in a first class manner in accordance with applicable provisions of local and/or state building codes and in accordance with standard practice of the Sheet Metal and Air Conditioning Contractor's National Association as described in applicable SMACNA manuals of construction standards. Ducts shall be supported from the building structure as indicated in the manual and shall be free of vibration with the connected equipment in operation. Welding procedure recommendations of the AWS for light gauge metal shall be followed in all welding operations.

B. Factory fabricated materials used for installation of air duct systems shall meet the listing requirements of U.L. Standard 181 where applicable.

C. Sight-thru access units shall be provided in ductwork for inspection of and access to duct-mounted fire dampers, smoke dampers, and control dampers.

D. All ductwork penetrating floors, fire rated walls and/or smoke partitions shall be of not less than No. 22 MSG galvanized steel construction. Perimeter clearances at penetrations shall be sealed with an approved fire stop in accordance with the recommendations of NFPA 90A and as specified by applicable code requirements.

E. Splitter dampers, balancing dampers (opposed acting), and turning vanes shall be provided as required to minimize turbulence and achieve proper air distribution.

F. The installation of fire dampers, as well as any connecting ductwork, shall be in accordance with applicable installation instructions of the damper manufacturer as well as SMACNA and NFPA standards.

G. Flexible ducts shall be run with no sharp (greater than 30°) bends and shall be installed with sufficient supports to limit sag to a maximum of 2-1/2". Support bands shall be minimum 1" wide and the final support shall be within 18" of the air device. Attachment at both ends shall be made with approved plastic or steel draw-bands, screws, and duct tape. Maximum flexible duct length with low pressure systems shall not exceed 36".

H. Low Pressure Systems:

1. Low pressure ductwork shall be constructed from mild steel galvanized sheets of lock-forming quality and shall conform to the recommended gauges and construction methods listed in the SMACNA Duct Construction Standards manual. Galvanized coating thickness shall be of commercial designation G90 or G60. Pressure-velocity classification shall be for a static pressure rating of 2" Positive or Negative.

2. Ducts shall be properly braced and reinforced. Each panel of rectangular ductwork shall be girth beaded or cross-broken where stipulated in the manual. Upper attachment of hanger rods and straps to be selected for a safety factor of four.

3. On rectangular ductwork, all sub-branch connections to main branch ducts shall be made with Buckley 3300 take-off fittings with gasket and damper or with straight tap connections utilizing Buckley Model RBMD rectangular bell mouth fittings with gasket and damper. On round or flat oval duct runouts as well as small runouts with flex duct provide Buckley bell mouth type take- offs with gasket and damper unless otherwise indicated.

4. Provide quadrant locking type splitter dampers where shown or where required to properly balance system air in main branch ducts...See applicable portions of appropriate SMACNA manual.

5. Provide air turning vanes in all duct elbows per SMACNA manual and provide supply runouts with equalizing grids where the supply air devices are within 24 inches of the trunk duct.

6. Where lined duct is indicated, the liner is to be 1" thick on supply ducts and minimum 1" thick on return ducts with material composed of long glass fibers bonded together with a thermosetting resin. A black composite, non- woven mat and acrylic coating shall be bonded to the air-stream side, providing a tough, durable surface. All liner shall have a recommended velocity limit of a least 6,000'/min. and shall meet the requirements of NFPA 90A, 90B and ASTM C1071. Material shall have an NRC not less than 0.85 as tested per ASTM C 423 and a maximum "C" value of 0.25 at 75°F mean temperature. Liner shall be installed utilizing adhesive and mechanical fasteners in strict accordance with manufacturer's recommendations.

7. Flexible connectors may be used in making final connections to air devices, etc. They shall be pre-insulated type except where installed within conditioned areas or in spaces serving as return air plenums. Connectors shall comply with NFPA Standard 90A and shall be listed as Class 1, UL Standard 181. They shall be limited to a maximum length of 8 feet and UL rated velocity shall be at least 4,000 fpm and UL rated internal pressure listing shall be positive 6" w.g. and negative 4" w.g.

8. For all ceiling mounted air devices coordinate the actual model selected with the specific type of ceiling involved to insure complete compatibility at installation.

13. ISOLATING DUCT CONNECTORS

A. Isolating duct connectors shall be used at ducted connections to air handling units, fans, etc. They shall be heavy duty with a listed temperature range of -20°F to 200°F. Material shall be UL listed and meet the applicable standards covered in NFPA 90A.

14. GRILLES, REGISTERS, AND DIFFUSERS

A. Grilles, registers, and diffusers shall be manufactured by Price, Metal-Aire, or Titus. Diffusers shall have 4-way pattern control and, where required, vortex balancing dampers. Unless otherwise indicated, all air device units shall have an off-white enamel finish. Ceiling mounted air devices shall be designed for compatibility with the specific type of ceiling system involved.

15. INSULATION

A. Insulation shall be manufactured by Armacell, CertainTeed, Knauf, Johns Manville, Owens Corning or Schuller. The items to be covered shall be insulated in accordance with the requirements of OSHA, and the International Energy Conservation Code. All materials used shall have a fire and smoke hazard classification of 25/50 or better and shall be UL listed. Installation shall be in strict accordance with manufacturer's recommendations including extent and degree of vapor barrier application, selection of materials and finishes for exposed work, etc.

16. TEMPERATURE CONTROLS

A. Temperature control and automation of the control components shall be complete, fully integrated and in accordance with the following:

1. It shall be a microprocessor based building automation/control and monitoring system incorporating an integrated DDC system of temperature controls and using electric valve and damper actuators. The installation shall include all required materials, equipment, and services.

2. The controls installation shall include all sensors, thermostats, and controllers, along with all necessary relays and other devices to properly operate all equipment, systems and system components involved.

3. All control work shall be furnished and installed by Owner’s temperature controls contractor. Temperature controls shall be an extension of the Owner’s Carrier i-Vu Open system and shall include zone damper controllers, communicating zone temperature sensors, bypass damper controllers, and RTU controller for existing 3-ton RTU and the new 7.5-ton RTU. Contact Tim Spencer at Carrier Commercial Services (M: 937-604-3976) for subcontractor pricing to be included in your bid for this section of work.

B. Equipment:

1. Control dampers shall be minimum leakage type with frames of not less than 13 gauge galvanized steel and blade width not exceeding 6". Blades shall be of galvanized steel and rotate on square blade pins.

2. Control valves shall be globe type with equal percentage plug and stainless steel stem or ball type with characterizing disc and stainless steel ball.

3. Electric actuators for control valves and dampers shall have ample capacity for all normal operating conditions. Actuators shall be microprocessor controlled motors with conditioned feedback utilizing brushless DC motor technology and shall be capable of seating against 50 psi pressure with no power applied. They shall be

UL listed under Standard 873 and shall have a current limiting circuitry or microprocessor overload protection. Actuator housing shall be NEMA type 2 with visual position indicator.

C. Wiring:

1. Low voltage wiring (less than 50 volts) shall be run with insulated conductors in EMT conduit where exposed or with plenum-rated cable where concealed in areas serving as a plenum. All wiring in conduit must be color coded and tagged. All low voltage conductors shall be minimum 20 gauge, 150 volt rated. All wiring not required to be in conduit shall be installed with appropriate wire ties and hardware for open wiring runs.

17. PROJECT REQUIREMENTS

A. Shop drawings of all equipment furnished under this section of the work shall be submitted for review as soon as possible after contracts are awarded. See specification item SHOP DRAWINGS.

B. Easy access for service as well as routine maintenance on all mechanical equipment will be mandatory. Therefore, the contractor shall take this into account when locating and installing equipment, valves, etc., on the project.

C. All curbs for roof mounted equipment shall be designed to accommodate roof pitch as required so that equipment sets dead level.

D. System sound levels shall be such that NC 35 is not exceeded in office areas and the like. All apparatus installed under this section shall operate within the normal sound range for similar equipment and without vibration transmission to the structure.

18. SHOP DRAWINGS

A. Obtain from the manufacturers a minimum of six (6) hard-copies OR one (1) electronic set of certified shop or erection drawings of all items of equipment to be furnished under this section and submit for review. This shall be done well prior to proceeding with construction and in the proper sequence to avoid delays in the work. These drawings shall be complete, showing pertinent details of size, capacities, arrangement, fittings, piping, kinds and thickness of materials, weight, loading required, clearances for service, maintenance, etc. Departures or deviations from the specifications, listed performance data, etc., shall be called out on the submittals and noted on the accompanying cover sheet. Where more than one equipment manufacturer is listed, the first named has been used as the basis for design.

B. The review of shop drawings shall not be construed as a complete check but will indicate only that the capacity, general method of construction and/or detailing is satisfactory. It does not involve determining the accuracy or completeness of such particulars as dimensions or quantities or indicating full and complete compliance with the specifications.

C. Submittals shall be itemized on a standardized shop drawing submittal form stating the name of the project, specification section, paragraph and/or drawing numbers applicable to submittal and shall bear the contractor's review stamp as evidence that the items have already been checked for compliance with Contract Documents as stated above.

D. Submittals and Shop Drawings for manufactured items shall be manufacturer's printed listed literature. Equipment selections shall be within manufacturer's published recommended ratings.

E. A complete set of shop drawings, officially marked in the prescribed manner noted previously, shall be filed on the job site. Such drawings shall be kept together, maintained in good condition, and shall be readily available for reference.

19. EQUIPMENT CLEARANCE REQUIREMENTS

A. This contractor shall be responsible for verifying compliance with the specifications for all equipment provided under this section of the work. In addition, all such equipment shall be installed in strict accordance with the manufacturer's recommendations, instructions, installation drawings, etc. The recommended clearances for service and maintenance, as well as for proper operation, shall be provided in all cases.

20. FINAL PREPARATION AND TESTING

A. All mechanical equipment surfaces shall be cleaned at completion of work. Duct openings not protected during construction shall be vacuumed and/or wiped clean.

B. Balancing and adjustment of the systems installed under this section of the work shall be performed as required to achieve rated output from all components.

C. Where necessary, systems must be tested in accordance with code requirements. In addition, installed equipment shall be operated as necessary to verify listed capacity and performance capability.

D. Calibrated instruments, meters, etc. required to conduct tests and verify performance of the system(s) and equipment shall be provided as required.

21. WARRANTY

A. Warrants shall be provided to the Owner that all material and equipment is new and that all work is installed in accordance with best practice, is free from defects, and is in conformance with applicable code requirements.

B. Unless otherwise called for, warranties on all work and equipment shall extend for a period of one year and will commence on the date of substantial completion as determined and agreed to by the Owner and Contractor.

* * * END OF SECTION * * *

ELECTRICAL

SECTION 16000

INDEX

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ELECTRICAL

SECTION 16000

1. SCOPE

A. The work included under this contract heading shall consist of furnishing all material and labor which is necessary to install the electrical work as hereinafter specified including lighting, receptacles, motor and appliance connections, communication system rough-ins, testing and adjustment of same. Lighting levels are to be in accordance with the recommendations listed in the current edition of the IES lighting handbook. All work shall be done in strict accordance with all applicable codes and regulations including the recommendations of the NFPA and the requirements of the NEC. In no case shall work be installed contrary to or below minimum legal standards. In addition, all electrical components and systems must be UL listed.

B. All required permits for this portion of the work shall be obtained and paid for by the Electrical Contractor who shall also arrange for all inspections. At the completion of the project the inspection reports, certificates of approval, etc. shall be turned over to the Owner.

2. DESCRIPTION OF WORK

A. The following is a summary of the principal categories of work under this section. Note, however, that this listing is for general information only and work will not necessarily be limited to these categories. The detailed drawings and the following specifications cover the full extent of the work.

B. Secondary Services:

1. Additions and / or revisions to the existing electrical distribution system as indicated on the drawings.

2. Temporary service for construction using existing distribution system. Furnish and install temporary lighting and GFCI receptacles as required by this and other Contractors. This work shall be in accordance with all applicable state safety codes as well as applicable OSHA standards.

C. Exit Lighting:

1. Exit and emergency lighting system including conduit, wire, boxes, and fixtures.

D. Lighting:

1. Lighting fixtures including installation, complete with lamps, hangers, and accessories.

E. Devices:

1. Provide power outlets and control devices including wall switches, receptacles, floor outlets as defined on the legend.

F. Communications Systems:

1. The extension / revision of the existing network system, including conduit, cable, feeders, miscellaneous outlets, bushed plates, backboards, cabinets, and related equipment.

G. Demolition:

1. Demolition and salvage of existing devices, systems, fixtures, etc.

2. Removal of existing electrical devices that are noted on drawings and those devices in the area of the remodeling that are obviously necessary to be removed or relocated.

H. Mechanical Equipment:

1. Motor and power connections to items of mechanical and shop equipment including applicable controls.

3. WORK BY OTHERS

A. Each bidder shall read the specifications for the other branches of work to clarify the points of division of responsibility between the various trades. The following lists portions of work that are not part of this section.

1. General construction and site work...

2. Plumbing...

3. Heating and air conditioning...

4. Painting, except as specifically included in this contract...

5. Communications equipment and wiring...

6. Heating and air conditioning temperature control wiring and interlocks of automatic temperature control equipment not indicated on the electrical drawings.

B. The foregoing list of items of work by others constitutes only the major portion of such work, and is intended merely as a guide. Other minor items of such work to be done by others may appear elsewhere in these specifications or on the drawings.

4. CUTTING, PATCHING, INSERTS AND SLEEVES

A. Perform all drilling, cutting and patching required for conduit installation. No cutting, drilling, etc. will be permitted in structural members without the sanction of the General Contractor. In addition, provide all necessary sleeves for conduit and conduit fittings.

B. Floor, roof and rated wall penetrations shall be sealed with a fire, smoke and water barrier sealant. Material shall be noncombustible as defined by ASTM E-l36 and shall maintain its integrity and dimensional stability when exposed to the ASTME-119 time-temperature curve for a time period equivalent to the rating of the assembly penetrated. Sealant material shall be tested to ASTM E-814, UL 2079 or UL 1479. Install in accordance with manufacturer's recommendations.

C. Pipe penetrations of walls, floors, etc. in exposed areas shall be provided with escutcheons of polished brass or chrome plated steel. Floor penetrations shall be provided with deep pattern floor plates.

5. JUNCTION BOXES

A. Junction boxes, other than those furnished integrally with specific items of equipment or described elsewhere in the contract documents shall be furnished and installed as required. Note that where conditions dictate, junction boxes shall be watertight.

B. Boxes shall be code gauge, constructed of galvanized steel with screwed covers. They shall be so located as to be accessible. Where a natural means of access is not available, hinged metal access covers matching the ceiling finish shall be provided by this Contractor. Access covers shall be flush type with hinged door and rigid frame, with screwdriver lock. A removable pan or lay-in ceiling shall be considered as adequate means of access to boxes. Access panels shall be Milcor or approved equal and shall carry the UL 1 ½ hour "B" label when installed in fire rated construction.

6. WIRING DEVICES AND PLATES

A. All wiring devices shall be specification grade furnished in strict accordance with, and equal to, catalog numbers and manufacturers listed below.

1. Single Pole Switch:HubbellNo. 1221-I
Cooper/Arrow-HartNo. 1991-I

2. Three-Way Switch:HubbellNo. 1223-I
Cooper/Arrow-HartNo. 1993-I

3. Four-Way Switch:HubbellNo. 1224-I
Cooper/Arrow-HartNo. 1993-I

4. 20A Duplex Receptacle:HubbellNo. 5352-I
Cooper/Arrow-HartNo. 5735-I

5. 5.GFCI Receptacle:HubbellNo. GF5352-I
Cooper/Arrow-HartNo. GF5342-I

B. Provide wall plates for each device application. Standard plates shall be of smooth thermoplastic and, unless otherwise indicated, plate color shall match device color. Materials shall meet appropriate design and test requirements of NEMA-WD1-1974 as well as U.L. Plates shall be Hubbell series P, Sierra series RP, or approved equal.

C. Plates shall be attached by metal screws finished to match plate color.

D. Weatherproof "in-use" covers shall be of polycarbonate, cast aluminum or stainless steel construction.

7. LIGHTING FIXTURES

A. The lighting fixtures shown on the plans and indicated on the schedule shall be the basis for bidding.

B. Catalog numbers listed in the fixture schedule do not necessarily have complete prefix and suffix designations for the various applications. Therefore, these numbers shall be verified so that the bid price includes all hangers, plaster frames, end caps, proper ballast voltages, etc., required for a complete installation.

C. Before placing a fixture order, coordinate all recessed fixtures with the ceiling contractor to insure that fixtures of the proper type and trim are ordered in accordance with the manufacturer's recommendations for installation in the type of ceiling being used.

D. The installation of recessed lighting fixtures shall be done in such a manner that the fixture will be supported in accordance with the manufacturer's recommendations. Lay-in fixtures shall be secured to the grid system in accordance with code requirements.

E. LED drivers shall be electronic-type, labeled as compliant with radio frequency interference (RFI) requirements of FCC Title 47, Part 15, and comply with NEMA SSL1 "Electronic Drivers for LED Devices, Arrays or Systems." LED drivers shall

have a sound rating of "A" have a minimum efficiency of 85%, and be rated for a THD of less than 20 percent at all input voltages.

F. Fixtures shall be individually fused with type GLR fuses in an HLR fuseholder as made by Bussman or approved equal. Fuse sizes shall be as recommended by the fixture manufacturer.

G. Lighting fixtures which are recessed into a fire-rated ceiling or in an insulated ceiling shall be approved for that service and shall be so identified. The ceiling system supplier will furnish and install a light fixture protection enclosure with sufficient clearances to meet UL requirements for the fixtures being used.

H. Fixture runs shall be straight, level and true. Dented or warped fixtures shall be replaced or repaired to original factory condition.

I. Immediately preceding the final inspection, thoroughly clean fixtures, removing all dust, dirt, finger marks, grease, etc. This shall include all lenses, louvers, etc.

8. EXIT AND EMERGENCY SYSTEM

A. An exit and emergency lighting system shall be installed throughout the building as necessary to meet Life Safety Codes. The entire system shall be in accordance with code requirements.

9. GROUNDING

A. Provide a complete grounding system as required to conform to the latest standards, utility company requirements, and to comply with Article 250 of the N.E.C.

B. Equipment grounding conductors shall be run with the circuit conductors and shall consist of insulated solid or stranded copper conductors. No conduit grounding methods will be permitted.

10. MOTOR WIRING

A. Integral horsepower motors for compressors, fans, air conditioning units, etc., not factory mounted, will be furnished and placed by the Mechanical Contractor.

B. Motors that are an integral part of the equipment for other trades, such as for pumps, etc., will be furnished and placed by the various trades. Motor starters will be furnished by this Contractor or by other trades as indicated by the respective drawings and/or specifications. Note that all fractional horsepower motor control units shall be by this Contractor. They shall be similar to Cutler-Hammer type MS with pilot light and thermal overload protection.

C. Starters, where furnished by other trades, will be turned over to this Contractor who shall install them as well as provide the wiring from all starters to their respective motors, all complete and ready for operation.

D. Where disconnect switches are required by code in addition to the starters, they shall be furnished and installed by this Contractor.

11. MECHANICAL EQUIPMENT WIRING

A. Furnish and install boxes, conduit and wiring required to supply power to and control the items of mechanical equipment which are to be furnished and installed by the other project contractors.

B. All conduit, control wiring and interlocks required for any heating, air conditioning, refrigeration equipment, plumbing equipment, etc. shall be provided under this contract heading unless otherwise specified in the Plumbing and/or HVAC sections.

C. Air handling systems over a certain capacity will have smoke dampers installed by the HVAC Contractor in accordance with applicable standards in N.F.P.A. 90A. The damper operators shall be electrically interlocked with the appropriate fan starter to close automatically when the system is not running. Operators will be provided by the damper supplier.

12. WIRE, CABLE AND CONNECTORS

A. Unless otherwise indicated, all building feeder and branch circuit wiring shall be type THWN, 600 volt insulation - 75°C copper conductors, complying to NEC Standards.

B. Any wire feeder that has not been sized on the drawings shall be sized for sufficient ampacity as determined by the rating of the overcurrent device serving the item to be connected. Wire feeders sized in excess of the protection device ampacity requirements have been sized to compensate for voltage drop. Note that minimum wire size shall be No. 12 AWG for power wiring.

C. Wiring run from fixture junction boxes and in fixture wireways shall be 600 volt, 90°C type THHN or RHN wire.

D. Conductors shall not be drawn into conduit until that segment of the conduit system is complete, with all terminations properly bushed and conduit free of moisture, foreign material, etc.

E. All connectors and lugs shall be of the solderless type and large enough to enclose all strands of the conductors with sufficient mechanical strength to withstand vibrations and normal strains.

F. All connectors for conductors sized #10 AWG and smaller shall be 3-M SCOTCHLOK, Ideal Wingnut or Buchanan B-Cap's. Connections for conductors sized #8 AWG and larger shall be made with pressure type mechanical connectors and then wrapped with electrical tape to 150% of the rating for the conductor insulation.

G. Joints or splices in branch circuit wiring and feeders must be located as per NEC. All joints and splices shall be made electrically and mechanically sound in accordance with best practice.

H. Special low voltage system wiring (such as for signal and control circuits), shall be sized and typed in strict accordance with the individual equipment and/or system manufacturer's specifications and recommendations. Where code requirements dictate, or where specified, run wiring in conduit.

I. All parallel runs of conductors shall be cut to equal length and installed accordingly.

J. Cords for make-up connections to equipment shall be 600 volt, heat resistant, rubber insulated, portable cable with a neoprene jacket type "SO" and "W" of flexible stranded copper. Make-up cord connections shall include a green grounding conductor which is grounded to the appliance frame.

13. CONDUIT AND OUTLET BOXES

A. All wiring to be installed for this project shall be enclosed in rigid or intermediate metal conduit (RMC or IMC) or electrical metallic tubing conduit (EMT).

B. All metal conduit shall be steel and in strict accordance with applicable ANSI standards for steel conduit. Each length shall bear the UL label.

C. Conduit thruout shall be a minimum ½" size except for special connections, as detailed, and flexible runouts to fixtures, motors, etc., which may be 3/8".

D. Flexible Conduit Connections:

1. Flexible runouts shall consist of flexible metal conduit made from square locked or interlocked galvanized steel strip. The maximum allowable length of a flexible runout shall be 6'-0".

2. Flexible connections to lighting fixtures, motor equipment, etc. shall originate from a conduit and junction box network, pull box, or fused disconnect switch. Fixture-to-fixture flexible connections will not be acceptable.

3. Flexible connections to weatherproof lighting fixtures, motors, equipment, etc. or controls mounted on dynamic equipment located in a damp or dusty location or exposed to the weather shall be made with UL listed liquid and

vaportight flexible conduit. Such conduit shall be designed and catalogued for maximum water resistance and shall be used with the appropriate fittings.

E. All conduit runs located in mechanical rooms shall be rigid (RMC) or intermediate (IMC). Terminations adjacent to equipment shall tie into flexible runouts. This requirement shall also apply for conduit installed in damp areas or exposed to the weather or that could be subject to mechanical damage.

F. Conduit imbedded in poured concrete shall be rigid (RMC). Note that conduit shall not generally be run in concrete floor slabs except where surface mounted fixtures are indicated, cast-in-place boxes are indicated, or where specifically directed.

G. All conduit installed on the project shall be concealed, wherever possible, unless otherwise noted or indicated on the drawings or unless permission is obtained from the Architect to run exposed. Where conduit is exposed, it shall be run parallel or perpendicular to the building lines.

H. Steel set screw type fittings or compression type steel couplings and connectors shall be used with EMT and may be used with IMC.

I. All empty conduit including conduit installed under this section for others, such as telephone conduit and/or conduit for future systems, etc., shall be provided with solid steel pull wire or nylon pull cord.

J. Where switches or outlets occur in partitions, mullions, door frames, etc., which serve as an integral raceway, furnish partition type wall boxes and flexible metal conduit with conductors.

K. Watertight conduit expansion joints, bonding jumpers, etc., shall be provided wherever the construction dictates such devices.

L. Exposed conduit rising through floors to surface panels and boxes shall have a nominal 4" high concrete pad encasing the conduits at the floor line.

M. Conduit accessories such as outlet boxes, condulets, bends, fittings, etc.,shall be manufactured by Appleton, Steel City, Russell and Stoll, Raco, Crouse Hinds or Midwest.

N. Fixture outlet boxes shall be standard 4" x 4" x 2" deep and shall be octagonal or square with 3/8" fixture studs.

O. All outlet and device boxes shall be flush mounted in areas with finished surfaces. They shall be rigidly attached to the structure by means of steel straps or channels. Boxes shall be aligned true to building lines. Listed mounting heights and dimensions shall be to the centerline of the box.

P. All conduit extending thru the roof shall be flashed by one of the following methods:

1. On built-up roofs flashing shall be installed using 24" X 24" 4 lb. per sq. ft. sheet lead pan. Flashing shall extend a minimum of 8" above the roof with rain shield located 3" above flashing. Lead shall be properly burned at joints by an experienced lead burner.

2. On membrane roofs flashing will be by the roofing contractor.

3. On sloped asphalt shingle type roofs, flashing shall consist of a 24 gauge galvanized steel flashing base with elastomeric compound collar based on Oatey Co. Series 11500 or equal.

Q. From each flush mounted panelboard or terminal cabinet provide four empty 1" conduits stubbed to an accessible area above the ceiling and, where applicable, provide two empty 1" conduits stubbed to an accessible area below the floor.

14. MISCELLANEOUS DISTRIBUTION EQUIPMENT

A. Disconnect Switches: Provide disconnect switches where and as required. Unless otherwise specified, they shall be Heavy Duty type with NEMA 1 enclosures and shall be non-fused except where fuses are specified or required to protect wiring from overload. Switches shall be quick-make, quick-break externally operated and interlocked. They shall be manufactured by Square D, Cutler-Hammer, G.E., or Siemens.

15. FUSES

A. All switches and other fusible protective devices furnished and installed by the Electrical Contractor shall be supplied with the required fuses. They shall be properly sized to protect the equipment served as well as the smallest branch circuit conductor on the load side of the protective device.

B. Fuses shall be current limiting with 200,000 amperes interrupting rating at 600 volts and of the size and type shown on the drawings.

C. Fuses shall not be shipped installed in electrical equipment or switchgear and shall not be installed until the equipment is ready to be energized. All fuses shall be of the same manufacturer to retain selectivity as designed.

D. Fuses with ratings 1 ampere to 600 amperes (standard dimensions) shall be UL Class RK1 fuses.

E. A fuse identification label showing type and size shall be placed inside the door of each switch.

F. Upon completion of the work, furnish the Owner with 1 additional complete spare set of fuses for each type and size of fuse utilized on this project.

G. Refer to lighting fixture specification for additional fusing required.

H. Fuses shall be as manufactured by Bussman, Shawmut or Reliance/Brush.

16. MANUAL MOTOR STARTERS

A. Where indicated on the drawings, provide manual motor control units for fractional horsepower, single phase motors unless otherwise noted. They shall be flush mounted in finished areas. Starters shall be similar to Cutler-Hammer type MS with pilot light and thermal overload protection.

17. FIRE ALARM SYSTEM AND MONITORING

A. All Fire Alarm pricing and work to be included in your bid for this section of work.

B. The Electrical contractor shall purchase all equipment and devices from IMS Technology and Security who is the Owner's Fire Alarm and Security provider.

C. The Electrical Contractor shall provide all conduit, wiring, and backboxes and shall install same. All wiring shall be in accordance with applicable national, state, and local codes.

D. IMS shall be responsible for final connections, programming, necessary electrical tests and adjustments to insure that the system is operating per applicable code requirements.

E. Contact Charles Brennan at IMS Technology and Security (937-371-6776) Email: charles@imstechsec.com

18. COMMUNICATIONS SYSTEM

A. Provide an installation of outlets, backboards, cabinets, etc. to accommodate a telephone system.

B. Wiring and equipment shall be furnished and installed by the communications equipment company and items by this contractor shall meet their requirements.

C. Wall outlets shall consist of two-gang boxes, with one-gang plaster rings, mounted vertically. Stub a 1" conduit from each outlet to a point above the ceiling line.

19. MISCELLANEOUS EQUIPMENT CONNECTIONS

A. Various items of computer equipment will be furnished and set in place by others. This equipment, unless otherwise shown on the drawings, will be furnished with

necessary electrical plugs, operating and control switches, terminations in an electrical outlet box, or equivalent electrical connector located on the equipment. This Contractor shall furnish power wiring and outlets to these various items of computer equipment and make final connections complete and ready for operation.

B. Disconnect switches shall be installed in an accessible location.

C. Roughing-in drawings for equipment shall be obtained from the other Contractors, etc. through the Architect as the time approaches when such equipment is required. (Allow a reasonable period from the time of notice to secure this information.)

20. REMOVALS, ALTERATIONS AND REUSE

A. The demolition drawings may not show all existing walls, lighting fixtures, devices, etc. that are to be removed. Investigate the site and review all currently available drawings of the building to evaluate the work required to fulfill the requirements of this document. The work under this contract is to be installed in the existing building and, in some cases, the layout is being substantially changed.

B. Conduit:

1. All unused power and system conduit shall be removed.

2. Any conduit located in the permanent structure or in unaltered parts of the structure shall remain in place.

3. Conduit located in remodeled areas that is in good condition, compatible for use in the new layout, may be reused in the new system.

C. Boxes:

1. Any box located in an advantageous location and in good condition may be utilized in the new system. Close all unused openings in box.

2. Any box that must be removed and relocated may be reused if it is in good condition and meets the use requirements.

D. Wire:

1. Any wire that is removed from conduit, shall not be reused.

2. Any wire that is in an undisturbed portion of a circuit or in an undisturbed circuit, shall remain in place.

3. All wire provided in the remodeled areas shall be new.

E. Existing materials, equipment, lighting fixtures, devices, panelboards, conduit and wiring that is removed and not reused shall be disposed of or placed in storage on the premises as directed by the Owner's representative.

21. EQUIPMENT PREPARATION

A. At the completion of the job, or at such time as a portion of the work is to be turned over to the Owner, thoroughly clean all equipment installed under this section of the work. This includes switchgear, lighting fixtures, wall plates, etc. and involves the removal of all traces of grease, dirt, dust, etc., as well as temporary labels, shipping tags and the like. Equipment shall be turned over in factory inspected condition.

22. SHOP DRAWINGS

A. Obtain from the manufacturers a minimum of six (6) hard-copies OR one (1) electronic set of certified shop or erection drawings of all items of equipment to be furnished under this section, and submit for review. This shall be done as soon as possible, well prior to proceeding with rough-in, installation, etc., and in the proper sequence to avoid delays in the work. These drawings shall be complete in every respect, showing pertinent details of size, capacities, arrangement, fittings, piping, kinds and thickness of materials, weight, loading required, clearances for service, maintenance, etc. Departures or deviations, if any, from the specifications, listed performance data, etc., shall be called out on the submittals. Where more than one equipment manufacturer is listed, the first named has been used as the basis for design. NOTE: Where departures or deviations from the specifications do occur, the contractor shall additionally itemize same on the cover sheet that accompanies the submittals.

B. The review of shop drawings shall not be construed as a complete check but will indicate only that the capacity, general method of construction and/or detailing is satisfactory. It does not involve determining the accuracy or completeness of such particulars as dimensions or quantities or indicating full and complete compliance with the specifications.

C. Submittals shall be itemized on a standardized shop drawing submittal form stating the name of the project, specification section, paragraph and/or drawing numbers applicable to submittal and shall bear the contractor's review stamp as evidence that the items have already been checked for compliance with Contract Documents as stated above.

D. Submittals and Shop Drawings for manufactured items shall be manufacturer's printed listed literature. Equipment selections shall be within manufacturer's published recommended ratings.

E. A complete set of shop drawings, officially marked in the prescribed manner noted previously, shall be filed on the job site. Such drawings shall be kept together, maintained in good condition, and shall be readily available for reference.

23. WARRANTY

A. Provide warrants to the Owner and the Architect that the materials and equipment furnished will be new, unless otherwise specified, and that all work will be of good quality, free from faults and defects and in conformance with the Contract Documents.

B. If, within one year after the date of substantial completion of the work or within one year after acceptance by the Owner or within such longer period of time as maybe prescribed by the terms of any applicable special warranty required by the Contract Documents, any of the work is found to be defective or not in accordance with the Contract Documents, it shall be promptly corrected upon receipt of official notification to do so. This obligation shall survive termination of the contract.

* * * END OF SECTION * * *

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DRAWINGS [ATTACHED]

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