

Invitation to Bid

City of Canton, Ohio

Purchasing Department 218 Cleveland Ave. SW, 4th floor Canton, Ohio 44702

Cornerstone Parking Garage Tenant Space Remodel Project

The City of Canton Water Department Billing Item/Project Water Department Billing **Responsible Department** Thursday, January 24, 2019 at 2:00 PM local time **Bids Due On or Before Bid Proposal Submitted By: Company Name Street Address** City State Zip **Contact Person** Phone No. **Email Address**



LEGAL NOTICE: Ordinance 163/2018

The City of Canton, Ohio Director of Public Service will accept sealed bids on or before 2:00 PM local time on **Thursday**, **January 24**, **2019** for the purpose of securing bids for the:

Cornerstone Parking Garage Tenant Space Remodel Project The City of Canton Water Department Billing

The City will disqualify any bid not received on or before 2:00 PM local time on Thursday, January 24, 2019. Shortly after the deadline for the submission of bids, bids received on time will be publically opened and read aloud. The Sixth Floor Conference Room of Canton City Hall, 218 Cleveland Ave. SW, Canton, OH 44702 is the location for the Bid Opening.

Submit all bids to the City of Canton Purchasing Department, 218 Cleveland Avenue SW, Fourth Floor, Canton, Ohio 44702 according to the specifications and bid documents at the City of Canton Purchasing Department's website at https://cantonohio.gov/purchasing/.

Each bid must contain the full name of every person or company participating in the bid.

A certified check, cashier's check or surety bond, in accordance with Section 153.54 of the Ohio Revised Code, must accompany the bid. This check or bond must be made payable to the City of Canton. Draw this check or bond from a solvent bank or bonding company satisfactory to the Director of Public Service as a guarantee the contract and its performance are properly secured if the bid is accepted. Said certified check or cashier's check shall be for ten percent (10%) of the total amount bid. Where a bid bond is used, it shall be in an amount of one hundred percent (100%) of the total amount of the bid. The City of Canton will only accept original checks and bid bonds. Therefore if any company and/or bidder submits a copy of its security, the City will disqualify the bid. Bidders submitting a certified or cashier's check will be required to provide a surety bond in the amount of one hundred percent (100%) of the contract sum for faithful performance. The Director of Public Service reserves the right to waive any technical defects in any bid bond submitted so long as the bond is in substantial compliance with state law. Should any bid not be awarded or be rejected, such check or bond will be returned to the bidder or bidders after the execution of the contract.

Any bidder may withdraw his bid, by written request, at any time prior to the hour set for the bid opening by following the instructions in the Invitation to Bid.

The Board of Control reserves the right to reject any or all bids and to accept the bid(s) deemed most beneficial to the City of Canton.

The successful bidder must comply with all State of Ohio Prevailing Wage Rates.

All companies must submit their Federal ID Number.

A Project Labor Agreement (PLA) is required for this project.

The Engineer's estimate for this project combined is \$515,000.00.

The bidder is responsible for monitoring the City's website for any official addenda.

Please contact Director of Purchasing Andrew Roth at andrew.roth@cantonohio.gov if you have any questions regarding this bid.

By order of the Canton Director of Public Service: John M. Highman, Jr.

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Section I: Instructions to Bidders

A. Submitting Bids

1. Bids are to be returned to:

The City of Canton Purchasing Department 218 Cleveland Avenue SW, 4th floor Canton, OH 44702

- 2. Bids should be enclosed in an opaque sealed envelope, box, or other suitable container, marked with the following:
 - a. Project title.
 - b. Office where bid is to be submitted.
 - c. The name and address of the bidder.
 - d. The date and time of the bid opening.
- 3. The following items should be submitted with the bid in order for it to be considered. Failure to submit one of these items may result in a disqualification of the bid.
 - a. Bid Title Page
 - b. Signature Page
 - c. Proposal Pages
 - d. Bid Form 1 Minority Business Enterprise Utilization Commitment
 - e. Bid Form 2 Bidder and Contractor Employment Practices Report
 - f. Bid Form 3 Authority of Signatory
 - g. Bid Form 4 Bid Guarantee
 - h. Bid Form 5 Bidder Information
 - i. Bid Form 6 Project References
 - j. Bid Form 7 Non-Collusion Affidavit
 - k. Bid Form 8 Questionnaire in Determining Lowest and Best Bid
 - 1. Bid Form 9 Insurance Affidavit and Certificates
- 4. Bids will not be accepted after 2:00 PM on **Thursday, January 24, 2019**. The party submitting a bid is solely responsible for the delivery of the bid to the specified location prior to the deadline for the receipt of bids. The Purchasing Department time stamp clock is the official time used for the deadline of the submission of bids.
- 5. Bidders may withdraw their bids between the time they are submitted and opened if so desired. This must be done via written request submitted to the City of Canton Purchasing Department.
- 6. The bids shall be opened and publicly read shortly after the deadline for their submission.



B. Pre-Bid Meeting and Data Center Fiber Termination inspection

- 1. There will be a Pre-Bid Meeting for this project on January 10, 2019 at 9:00 am. The Pre-bid will be held at the Cornerstone Parking Garage (Tenant Space).
- 2. At 10:00 am interested parties are able to inspect the Data Center Fiber Termination located at 225 4th ST. NE (the corner of 4th and Walnut).

C. Questions and Addenda

- 1. All questions should be submitted in writing at least five (5) business days prior to the bid opening. This is **Thursday**, **January 17**, **2019 at 2:00 PM**. Answers to questions will be issued in writing as official addenda no later than seventy two (72) business hours prior to the time of the bid opening. **This is Monday**, **January 21**, **2019 at 2:00 PM**. Said addenda will become a component of the official bid packet and must be acknowledged as received on the signature page. Failure to acknowledge all official addenda in this manner may result in your bid being disqualified.
- 2. Bidders are expected to and are responsible for monitoring the City's website for all official addenda.
- 3. Oral instructions or decisions, unless confirmed by addenda, will not be considered valid, legal or binding.
- 4. All questions pertaining to the project should be directed to:
 Andrew Roth, Director of Purchasing
 Email: Andrew.roth@cantonohio.gov

D. Bid Proposal Form and Proposal Page

1. The proposal page is the only form upon which the proposed bid price can be offered. Bidder's quote sheets, letters, or other materials cannot be used in lieu of the proposal page. When descriptive literature is included with the bid submittal, they shall be considered only for informational purposes. Payment, warranty and other terms that may appear on such forms that vary from the terms of the contract documents shall be considered null and void.

E. Contract Award

1. The City of Canton Board of Control will evaluate the bids and award the contract on the basis of the lowest and best bid. The Board of Control reserves the right to reject any and all bids and to award the bid deemed in the best interests of the City. The Board of Control and Director of Public Service reserve the right to waive minor deficiencies contained within a bid.

2. One or more bidders may be required to submit information to the Owner or its representative to assist in the evaluation of the bid. A bidder may also be required to participate in an interview during which, among other things, the bidder would be requested to make a presentation regarding its organization, resources and its preliminary plan to perform the construction (schedule, means and methods, etc.).

F. Notice of Award and Execution of Contract Documents

- 1. The successful bidder will be notified in writing once the contract is awarded by the Board of Control.
- 2. At this time the contractor will be required to sign official contract documents and submit any remaining bid forms.
- 3. Once the completed contract is certified by the City of Canton Auditor, a copy of the contract, Purchase Order, and Notice to Proceed will be sent to the contractor.

G. Pre-Job Meeting

1. A pre-construction meeting will be held prior to the start of this project. This meeting will include the Contractor and the Owner's representative. The condition of the project limits shall be recorded and the contractor shall be responsible for the correction and/or repair of any additional damage to the facilities resulting from the related work and in addition to the conditions noted at the pre-construction meeting.

H. Notice to Proceed and Job Completion

- 1. The Contractor shall not start the work embraced in this contract before the date of a written Notice to Proceed from the City. The Contractor is required to start work within 10 days after receiving the Notice to Proceed. Work shall be completed as per applicable sections in the General Conditions.
- 2. If the work done under this contract conflicts with other work done for or by the City, or with its consent, the City shall determine the time and manner of the procedure of the operations carried on under this contract.
- 3. The Contractor is responsible for any additional costs due to weather-sensitive construction.
- 4. The permitting of the Contractor to complete the work or any part thereof, after the time fixed for its completion shall in no way operate as a waiver on the part of the City of any of its rights under this contract.



I. Document Order of Precedence

- 1. In the event of an internal conflict within the bid/contract documents the following will be the order of precedence.
 - a. Change Order Documents
 - b. Signed Contract Documents
 - c. Official Addenda
 - d. Invitation to Bid Signature and Proposal Pages
 - f. Instructions to Bidders
 - g. Technical Specifications and Project Drawings
 - h. Supplemental Specifications
 - i. General Conditions
 - i. Bid Forms
 - k. Bid Form Instructions
 - 1. Additional Requirements and/or Conditions
 - m. Legal Notice
 - n. Bid Advertisement

J. Non-Exclusivity

1. The City reserves the right to contract for the same or similar services, or perform the same or similar work with City employees during the course of this contract, if found to be in the best interest of the City.

K. Contractor's Final Release and Waiver of Lien

1. The successful bidder will be required to sign and submit the Contractor's Final Release and Waiver of Lien before final payment will be made.

L. City of Canton Income Tax

- 1. All successful bidders shall be required to comply with all City of Canton income tax ordinances including the following:
 - a. No person, partnership, corporation or unincorporated association may be awarded a contract with the City under Sections 105.09 or 105.10, unless the vendor is paid in full or is current and not otherwise delinquent in the payment of City income taxes, including any obligation to pay taxes withheld from employees under Section 182.05 and any payment on net profits under Section 182.06



- b. Falsification of any information related to or any post-contractual violation of the requirement to pay City income taxes set forth in subsection (a) shall constitute cause for the rescission of the balance of the contract at the City's discretion.
- c. No partnership, corporation or unincorporated association which has as one of its partners, shareholders or owners a person who is a twenty percent (20%) or greater equity owner in such partnership, corporation or unincorporated association and who is delinquent in the payment of City income taxes as set forth in subsection (a), may be awarded a contract with the City under Sections 105.09 or 105.10.
- d. A person who is a twenty percent (20%) or greater equity owner in any partnership, corporation or unincorporated association which is delinquent in the payment of City income taxes as set forth in subsection (a) may not be awarded a contract with the City under Sections 105.09 or 105.10.
- e. By entering into contract with the City of Canton the vendor agrees with the City regarding the manner of withholding of City income taxes as provided in Section 718.011(F) of the Ohio Revised Code including the following:
 - i. Municipal income tax withholding provisions of Sections 718.011(B)(1) and 718.011(D) ORC shall not apply to qualifying wages paid to employees for work done or services performed or rendered inside the City or on City property.
 - ii. The vendor agrees to withhold income tax for the City from employees' qualifying wages earned inside the City or on City property, beginning with the first day of work done or services performed or rendered inside the City.
- 2. The successful bidder will be registered with the City of Canton Income Tax Department to ensure that the above qualifications are met. Bidders are encouraged to contact the City of Canton Income Tax Department prior to bidding with any questions regarding these provisions and for registration. Please use the contact information below.

City of Canton Income Tax Department

Office Address 424 Market Ave. N Canton OH 44702 Correspondence Address P.O. Box 9940 Canton, OH 44711

Phone: (330) 430-7900 **Fax:** (330) 430-7944

Email: cantontax@cantonohio.gov

3. Additionally, all public improvement, professional services, and services contracts shall also contain the following provisions: **Provision 1** hereby further agrees to withhold all City Said income taxes due or payable under Chapter 182 of the Codified Ordinances for wages, salaries, fees and commissions paid to its employees and further agrees that any of its subcontractors shall be required to agree to withhold any such City income taxes due for services performed under this contract. Furthermore, any person, firm or agency that has a contract or agreement with the City shall be subject to City income tax whether a resident or nonresident in the City, and whether the work being done is in the City or out of the City. In addition to the tax withheld for employees, the net profits on the contract shall be subject to City income tax. **Provision 2** By entering into contract with the City of Canton agrees with the City regarding the manner of withholding of City income taxes as provided in Section 718.011(F) of the Ohio Revised Code. Municipal income tax withholding provisions of Sections 718.011(B)(1) and 1. 718.011(D) ORC shall not apply to qualifying wages paid to employees for work done or services performed or rendered inside the City or on City property. 2. agrees to withhold income tax for the City from employees' qualifying wages earned inside the City or on City property, beginning with the first day of work done or services performed or rendered inside the City.



Section II: General Conditions

(The headings of the various sections are for convenience in reference. Do not consider these parts of the specifications.)

(1) **Definitions:** The term "City" wherever used in these specifications shall mean the City of Canton, acting through its Director of Public Service, or his properly authorized agents, such agents acting severally within the scope of the particular duties entrusted to them.

The term "Director" wherever used shall mean the Director of Public Service of the City of Canton, duly appointed and holding office at the same time the contract was executed or during the fulfillment thereof.

The term "Engineer" whenever used, shall mean the City Engineer of said City or his properly authorized agents to the extent of the powers invested in them.

The term "Contractor" wherever used, shall mean the party of the second part entering into contract with the City for the performance of the work herein specified, or his properly authorized agents.

In all cases when the term "days" as used in these specifications shall be held to mean calendar days, unless otherwise noted.

The term "Work" wherever used, shall mean the furnishing of all labor, tools, machinery and the furnishing of all materials, except as herein otherwise specified, necessary to performing and completing of all the work herein specified. The methods and appliances used therefor must be such as will produce a satisfactory quality of work and ensure safety to the workmen, the public and to property.

Wherever, in the specifications, or upon the drawings and plans, the words directed, required, permitted, ordered, designated, prescribed, or words of like import are used, it shall be understood that the direction, requirement, permission, order, designation or prescription of the City is understood, and similarly, the words approved, acceptable, satisfactory to, refer to the City unless otherwise expressly so stated.

- (2) **Decisions:** Contractor will perform all the work under this contract to the satisfaction of the City. The City, in all cases, shall determine the amount, quality, acceptability, and fitness of the several kinds of work, and materials paid for hereunder. The City shall decide all questions that may arise for determining the fulfillment of this contract. The City's determination and decision thereon shall be final and conclusive; and the City's determination and decision in case of any question that may arise, shall be a condition precedent to the right of the Contractor to receive any money hereunder.
- (3) **Orders to the Contractor and Failure to Execute:** The address given in the bid or proposal upon which this contract is founded is hereby designated as the place where all notices, letters and other communications to the Contractor shall be mailed or delivered. Such address may be

changed at any time by a written notice from the Contractor and delivered to the City.

The Contractor must have on the work at all times, a foreman, superintendent or other competent representative, to whom orders and instructions may be given. Such orders and instructions shall have the same force and effect as if given directly to the Contractor.

Whenever instructions or orders which in the opinion of the Engineer require prompt or immediate attention, are neglected or ignored by the Contractor or his Superintendent, the Engineer shall have the power to place necessary men, machinery and materials on the work and charge the entire cost, including overhead expenses, to the Contractor, who shall either pay the entire cost and expenses into the City Treasury, or the amount thereof shall be deducted from money due the Contractor under the contract.

(4) **Subletting or assigning contract:** The Contractor shall give his personal attention to the faithful prosecution of the work, shall retain the same under his personal control and shall not assign by power of attorney or otherwise, nor sublet the work or any part thereof, without the previous written consent of the City, and shall not, either legally or equitably assign any of the money payable under this agreement, or his claim hereto except by and with the consent of the City.

Assigning or subletting of the whole or any portion of this contract shall not operate to release the Contractor or his bondsmen or surety hereunder from the contract obligations.

(5) **Subsidiary Contracts:** The Engineer may, when in his opinion, it becomes necessary, make alterations or modifications of the plans and specifications, or order additional materials and work, subject to the approval of the Director; and the Contractor shall be obliged to accept such alterations, modifications and additional work and materials not included in this contract. The price to be paid for the work under such altered or modified contract shall be agreed upon in writing, in a subsidiary contract for such portion of, or additional improvement and signed by the Director and Contractor, before such work is done; such additional work, alteration or modification shall be considered and treated as though originally contracted for and shall be subject to all the terms, conditions and provisions of the original contract, except that a material increase in the amount of work will be considered as a proper claim by the Contractor for an extension of the contract time for completion, by an amount to be determined by the City.

And it is expressly agreed and understood that such alterations, additions or modifications or omissions shall not, in any way, violate, or annul the original contract and the Contractor hereby agrees not to claim or bring suit for any damages, whether for loss of profits or otherwise, on account of such alterations, additions, modifications or omissions.

(6) **Permits:** The Contractor shall obtain and pay for all construction permits and licenses. City shall assist Contractor, when necessary, in obtaining such permits and licenses. Contractor shall pay all governmental charges and inspection fees necessary for the prosecution of the Work which are applicable at the time of opening of Bids, or, if there are no Bids, on the Effective Date of the Agreement. City shall pay all charges of utility owners for connections for providing permanent service to the Work.

(7) **Inspection:** No material of any kind shall be used in the work until it has been inspected and accepted by the City. The Contractor must furnish all labor necessary in handling such material for inspection. All materials rejected must be immediately removed from the vicinity of the work. Materials or workmanship found at any time to be defective shall be immediately remedied by the Contractor, regardless of previous inspection.

The Engineer, his assistants, inspectors and agents, together with other parties who may enter into contracts with the City for doing work within the territory covered by this contract, shall, for all purposes which may be required by their contracts, have access to the work and the premises used by the Contractor, and the Contractor shall provide safe and proper facilities therefor.

The Engineer, his assistants and agents shall at all times have immediate access to all places of manufacture where materials are being made for use under this contract, and shall have full facilities for inspecting the same.

No work shall be done except in the presence of the Engineer, his assistants, agents or inspectors. It shall be the duty of such agents or inspectors to see that all materials used and all work done shall be strictly in accordance with these specifications, but such agents and inspectors shall have no authority whatsoever to order any change in materials, manner of doing the work or quantity of work done.

The field inspection of the work, testing of materials, giving lines and grades, preparation of general and detail drawings, except as otherwise specified, will be done by the Engineer. The inspection and supervision by the Engineer is intended to aid the Contractor in supplying all materials and in doing all work in accordance with the drawings and specifications, but such inspection shall not operate to release him from any of his contract obligations.

- (8) **Time for doing work:** The City is instructing the Contractor to base the project schedule upon a 5-day work week, Monday through Friday from 7:30 am to 4:00 pm except on City recognized holidays; this is the "standard schedule." The Engineer may direct the Contractor to work outside of the standard schedule to save life or property or in case of emergencies. If the Contractor wishes to work outside of the standard schedule, the Contractor must submit this request in writing to the Engineer. The Engineer will review nonstandard scheduling and approve/deny the request. The Engineer will base his approval/denial upon benefit to the project, benefit to the City, and necessity to facilitate Contractor operations. Contractor must make special provisions for project inspection for nonstandard schedules and will be required to pay for all costs associated with inspection for approved nonstandard schedules. This includes both City personnel as well as consultants representing the City. The Engineer shall determine method of payment when the need arises.
- (9) **Working Season:** Work done under these specifications, such as grading of streets and placing foundation for paving, curb setting, brick or other roadway paving, sidewalk laying, shall cease from the first day of December until the first day of April of the following year, unless otherwise directed by the Engineer.

- (10) **Lines and grades:** All work done under this contract shall be done in accordance with the lines, grades and instructions as given by the City and as directed in the plans.
- (11) **Order of procedure of work:** The Contractor shall proceed with the work at such points as the Engineer may direct, and not more than two adjoining blocks or squares in length, shall be torn up at the same time, unless otherwise directed by the Engineer; nor shall any block be closed to traffic, except where the Contractor is actually working.

Whenever, in the opinion of the City, it is necessary that certain portions of the work be done immediately, the Contractor, upon written order from the Engineer, shall proceed with such work without delay. Should he fail to so proceed, the City may do, or cause to be done, such work, and the cost of the same will be deducted from any money due, or to become due the Contractor under this contract.

- (12) **Incompetent workmen:** Any employee of or persons connected with the Contractor who shall use profane or abusive language to the inspector, or other employees of the City, or otherwise interfere with them in the performance of their duties, or who shall disobey or evade the instructions of such employees of the City, or who is careless or incompetent, or who is objectionable to the City authorities, shall be discharged at the request of the Engineer, and shall not again be employed, except with his consent. Skilled labor only shall be used in the cases where the same is required.
- (13) **Suspending the work:** The City, on account of public necessity, adverse weather conditions, or for other reasons, may order any portion or all work suspended, and thereupon the Contractor shall neatly pile up all materials, provide and maintain board walks and crossings, and take other means to properly protect the public and the work and to facilitate traffic. In case of such suspension of work, the time allowed for the completion of the work shall be extended in an amount equal to that lost by the Contractor, but the Contractor shall be entitled to no additional claim for damages therefor.
- (14) **Forfeiture of contract:** Should the work to be done under this contract be abandoned by the Contractor, or if this contract or any part thereof be assigned or the work sublet by him without the previous written consent of the City or if at any time any official of the City or employee thereof become directly or indirectly interested in this contract or in furnishing the supplies or performing the work hereunder, or in any portion thereof; or if at any time the City may be of the opinion that the performance of the contract is unnecessarily or unreasonably delayed, or that the Contractor is willfully violating any of the provisions of this contract; or if the work be not fully completed within the time named in the contract; then and in any such case the City may notify the Contractor in writing to discontinue all work or any part hereof as may be designated, and the City may thereupon, according to law, enter upon and take possession of the work or part thereof, complete, or cause the same to be completed, and charge the entire expense of so completing the work or part thereof to the Contractor; and for such completion, the City itself or for its Contractors, may take possession of and use or cause to be used any materials, machinery, or tools of every description provided by the Contractor for the purpose of this work, and may procure or cause to be procured other materials, machinery, or tools required for the completion of the work.

All cost and expenses, including those of re-letting, (and damages resulting from the non-completion of the work within the specified time) incurred under these clauses, or by virtue of this contract, shall be deducted and paid by the City out of any monies then due or to become due the Contractor under and by virtue of this contract or any part thereof. In case such cost and expenses shall exceed the amount which would have been payable under this contract if the same had been completed by the Contractor, the Contractor or his sureties shall pay the amount of such excess to the City; and should such expense be less than the amount payable under this contract had the same been completed by the Contractor, he shall receive the difference, after deducting the amount retained as hereinafter specified, but shall not be entitled to damages for not being allowed to complete the work himself.

In case of abandonment of the work by the contractor, or its termination by the City, the Director of Public Service shall at once cause the work already done under this contract to be measured. Five percent (5%) of the value of the amount thus shown will be set aside as a retainer under the provisions hereof. In such case no money, due or payable to the Contractor under this contract after the annulling of the same, shall be paid until the work is completed, accepted, and all claims and suits by reason of said work have been finally settled. The retained five percent (5%) shall be held for the full guaranty period, as specified herein and used as provided in other provisions hereof, for keeping in repair so much of the work as was done or completed under this contract.

(15) **Storing materials delivered on work:** All materials required in the work may be placed on the sides of the roadway, or parking area, or upon a portion of the sidewalk along the sides of the roadway to be improved and upon adjoining portions of intersecting streets, as directed by the Engineer; but all such materials shall be neatly and compactly piled in such a manner as to cause the least inconvenience to the property owners and the general public. All fire hydrants must at all times be kept free and unobstructed; water and gas shut off boxes must be left uncovered by such materials; and passageways must be left for store entrances, private driveways and street intersections.

No materials, tools or machinery shall be piled or placed against shade trees unless they be amply protected against injury therefrom, and all shade trees and other improvements must be protected from injury caused by the storing of materials or otherwise during the prosecution of the work.

All materials, tools, machinery, etc. stored upon public thoroughfares must be provided with red lights at night time, and danger signals by day, to warn the traffic of such obstructions.

- (16) **Storage of materials, tools and machinery during suspension of work:** Upon the suspension, stoppage, or abandonment of the work, or any part thereof, all materials shall be neatly and compactly piled, and all tools and machinery so located as not to impede public traffic on roadways, sidewalks and crosswalks unnecessarily. All such stored materials, tools and machinery shall be provided with danger signals by day and red lights by night.
- (17) **Ownership of old materials:** All old curbing, stone walk, paving brick, brick crosswalks, gutter paving bricks, gutter plates and culverts, sewer pipe, iron pipe and castings, are the property

of the City and all such materials as are not ordered replaced, shall be removed by and at the expense of the Contractor, to such places as the Engineer may direct. If the Engineer chooses to not accept such materials, the Contractor must dispose of them at no cost to the City.

(18) **Plans, profiles, and specifications:** The plans, profiles and specifications are intended to be explanatory and supplementary of each other, but should any discrepancy appear or misunderstanding arise as to the import of anything contained in either, the explanation of the City shall be final and binding on the Contractor. Any correction of errors or omissions in the plans, profiles and specifications may be made when such corrections are necessary for the proper fulfillment of their intentions as construed by the City.

Any correction in the plans, drawings, and specifications made pursuant to the provisions of this paragraph shall not be retroactive, but shall take effect at the date of notification to the Contractor of such correction.

The City will furnish the Contractor with up to three (3) sets of additional copies of the plans (full size or half size, if available) as may be required, for the construction of the work herein specified.

- (19) **Private rights of way:** Whenever it is required as a part of this contract to perform work within the limits of private property or private right of way, such work shall be done in conformity with the agreements between the City and such owners, and whether or not such a condition be a part of this agreement, care shall be taken to avoid injury to the premises entered, which premises must be left in a neat and orderly condition by the removal of rubbish and surplus materials and restoring vegetation to meet or exceed pre-contract condition.
- (20) **Injunctions:** If legal obstructions to the prosecution of the work arise, the delay shall operate to extend the time allowed for the completion of the part or parts of the work obstructed, for the length of time obstruction continues and no longer, but no damages shall be claimed or allowed the Contractor for any such delay.
- (21) **Related Work at Site:** City may perform other work related to the Project at the Site with City's employees, or through other direct contracts therefor, or have other work performed by utility owners. If such other work is not noted in the Contract Documents, then:
 - 1. written notice thereof will be given to Contractor prior to starting any such other work; and
 - 2. if City and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times that should be allowed as a result of such other work, a Claim may be filed.

Contractor shall afford each other contractor who is a party to such a direct contract, each utility owner, and City, if City is performing other work with City's employees, proper and safe access to the Site, provide a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such other work, and properly coordinate the Work with theirs. Contractor shall do all cutting, fitting, and patching of the Work that may be required to properly connect or otherwise make its several parts come together and properly integrate with such other

work. Contractor shall not endanger any work of others by cutting, excavating, or otherwise altering such work; provided, however, that Contractor may cut or alter others' work with the written consent of Engineer and the others whose work will be affected. The duties and responsibilities of Contractor under this Paragraph are for the benefit of such utility owners and other contractors to the extent that there are comparable provisions for the benefit of Contractor in said direct contracts between City and such utility owners and other contractors.

If the proper execution or results of any part of Contractor's Work depends upon work performed by others, Contractor shall inspect such other work and promptly report to Engineer in writing any delays, defects, or deficiencies in such other work that render it unavailable or unsuitable for the proper execution and results of Contractor's Work. Contractor's failure to so report will constitute an acceptance of such other work as fit and proper for integration with Contractor's Work except for latent defects and deficiencies in such other work.

- (22) **Attested accounts:** In case any person who has performed labor or has furnished materials, tools, or machinery for the work herein specified, he may file sworn itemized statement of the amount of value therein, as required by law, and if such claims be not disputed by the Contractor, or if the same are disputed, after the amount and validity have been determined by law, the City may pay the amount of such claims out of any money due the Contractor under this contract.
- (23) **Authorized Variations in Work:** City may authorize minor variations in the Work from the requirements of the Contract Documents which do not involve an adjustment in the Contract Price or the Contract Times and are compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. These may be accomplished by a Field Order and will be binding on City and also on Contractor, who shall perform the Work involved promptly. If City or Contractor believes that a Field Order justifies an adjustment in the Contract Price or Contract Times, or both, then the City or Contractor must provide written notification prior to performing the Field Order. If the parties are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment, a Claim may be made.
- (24) Claims for extra materials and work: All claims for furnishing extra materials, or for doing extra work, for which the Contractor may consider himself entitled to receive extra compensation, must be presented to the Director of Public Service in writing, at the time the cause for such claim arises. Such statement must contain an itemized account of such materials and labor required, and unless such claim is so presented, it is expressly agreed, by the parties to this contract, that the Contractor has waived such claim, and that he shall not be entitled, subsequently to claim, or receive any pay for the same. No claim for extra labor and material shall be allowed, unless the necessity therefor has first been determined by the Director and the price to be paid therefor has been agreed upon, in writing, before such additional materials have been used, and such additional labor performed. See Change Order Policy in the Appendices for more information.
- (25) Claims for damage for omission or delays: If any change or alteration involves the omission of any materials or work called for in the original plans and specifications, any claim for loss of profits, or any other cause growing out of any such omissions is hereby expressly waived by the Contractor.

No claims for prospective profits will be allowed, by reason of the inability of the City to proceed with all, or any part of the work provided for in this contract; nor for damages by reason of any delay on the part of the City, but any such delay shall entitle the Contractor to a corresponding extension of time for the completion of the work. See Claims Management Policy in Section V for more information.

- (26) **Damages to property:** All damages to lawns, fences, trees, buildings, sidewalks, water, sewer or gas pipes, or other public or private property along or near the line of work, or the vicinity thereof, if the same are occasioned through neglect or failure on the part of the Contractor, or that of any person in his employ, to take all necessary precautions to prevent the same, must be replaced or made good by him, to the satisfaction of the owners of same and at his cost and expense whenever the Engineer may so direct.
- (27) **Liability of contractor for injuries, patents, etc.:** It is expressly understood and is hereby agreed that the whole of the work to be done is at the Contractor's risk. The contractor assumes by bidding under these specifications, the full responsibility and risk of all damages to the work itself, the property along the line of the work, injury to persons or animals which may be occasioned by floods, stoppage of water in sewers or gutters, caving in of surface of grounds or trenches, neglect in properly protecting work by barricades, etc., or any manner whatsoever. He shall bear all losses resulting to him on account of character of the work, or because the nature of the ground in or on which the work is done, is different from what was estimated or expected, or as may have been indicated by borings or test pits, or on account of the weather, actions of the elements or other causes.

He shall assume the defense of any indemnity and save harmless the City and its individual officers and agents from all claims relating to labor and materials furnished for the work to inventions, patents and patent rights used in doing the work, to injuries to any person or corporation received or sustained by or from the Contractor and his agents and employees in doing the work, or in consequence of any improper materials, methods, implements or labor used therein, or by reason of any condition in the improvement created by the Contractor or for any other liability therefor.

The Contractor, if required at any time by the Director, shall furnish the City satisfactory evidence that all persons who have claims for labor performed or material furnished hereunder, or have suffered damages on account of his operations, have been fully paid or secured. And in case evidence be not furnished as aforesaid and such amounts as the Director may consider necessary to meet lawful claims of persons aforesaid, shall be retained from the monies otherwise due the Contractor hereunder, until the liabilities shall have been fully satisfied.

If the Contractor shall claim compensation for any damages sustained by reason of the acts of the City, he shall within five (5) days after the sustaining of such damages, present a written statement to the City of the nature of the damage sustained. On or before the fifteenth day of the month succeeding that in which any such damage shall have been sustained, he shall file with the City an itemized statement of the details and amount of such damage, and unless such statement shall have been filed as thus required, his claim for compensation shall be forfeited and invalidated,

and he shall not be entitled to any payment on account of such damage.

The statement of any specific duty or liability of the Contractor in any part of the specifications shall not be construed as a limitation or restriction upon any general liability or duty imposed upon the Contractor by these specifications, said reference to any specific duty or liability being merely for the purpose of explanation.

- (28) **Safety measures -- barricades:** The Contractor must provide and maintain barricades to properly protect persons, animals, vehicles and property against injury. He shall also provide, place and maintain sign boards, letter "STREET CLOSED" in plain legible type, upon the streets and alleys in which the work is in progress and upon each street and alley intersection therewith at a distance of one block therefrom, as may be directed by the Engineer.
- (29) **Traffic regulations:** The Contractor is responsible for all traffic control on the project whether or not it is called out in the detailed specifications or plans. All traffic control must comply with appropriate City, State, and Federal rules, regulation, and guidelines. During the progress of the work, the Contractor shall accommodate both the vehicular and foot traffic and shall maintain free access to fire hydrants, water and gas valves. Gutters and water ways must be kept open and other provisions made for the removal of storm water.

During the construction of the sewer work and other ditches, only one-half of the street intersections may be blocked at one time and the Contractor shall provide and maintain temporary driveways, bridges, and crosswalks over sewer and other trenches, such as, in the opinion of the Engineer in charge of the work, are necessary to reasonably accommodate the public.

To accommodate pedestrians during the progress of the work, the Contractor shall provide and maintain crosswalks on that portion of the street being improved, both across the main roadway and at the street and alley intersections. The crosswalks shall be constructed of planks two (2) inches thick, and within the fire limits of the City, they shall be at least five (5) feet wide, and outside the fire limits at least three (3) feet wide.

When the City deems it advisable or necessary to divert traffic from the work or any portion thereof, the Contractor shall provide and maintain detour signs, letter "DETOUR" in plain and legible type, and indicating the direction to be taken by traffic as directed by the Engineer.

In the event of the Contractor's failure to comply with the above provisions relative to traffic regulations, the City may cause said provisions to be carried out and the cost and expense of such work shall be deducted from any money due the Contractor under this contract, but the performance of any such work by the City, or at its insistence or request, shall in no way release the Contractor from his general or particular liability for the failure to provide for the safety of the public or the work under this contract.

The Contractor shall not place any material on any sidewalk so as to interfere with the free access to any crosswalk by pedestrians.

No additional compensation will be paid to the Contractor by the provision and maintenance of bridges, crosswalks, etc., as above specified, but the cost and expense of maintaining the same

shall be considered as part of the general contract and shall be included by the Contractor in the prices bid by him upon the several items as named upon the proposal therefor.

- (30) **Hauling materials on paved streets:** During the progress of the work and in the cleaning up thereof, the Contractor shall provide and use vehicles in which the excavated or other materials are hauled over paved streets in the City, with tight bodies for transportation of fine materials and shall not overload the same so as to allow such materials to fall off the tops thereof upon the streets. The paved streets over which such material is hauled must be kept free from dirt and other materials in accordance with the provisions of City Ordinance regulating same.
- (31) Cleaning up during the progress and completion of work: During the progress of the work the Contractor shall remove all surplus excavated materials, obstructions, old materials not used, trees, stumps, filth or rubbish of any kind that may be encountered in the execution of the work, at his own cost and expense except when the removal and transplanting of trees be specified and bids therefor are required upon the blank proposal attached thereto.

As fast as any portion of the work, such as the construction of sewers or drains not located in the street or streets to be improved under the contract is completed, the backfilling of trenches and the repaying over the same shall be done as soon as possible, as herein specified.

As fast as the roadway pavement is completed, the Contractor shall remove all rubbish and surplus materials which have accumulated during the progress of the work provided herein, from the new or existing sewers, the roadway, sidewalk space and intersecting streets and shall render the streets suitable, safe and convenient for traffic.

Upon the completion of the improvement and before the final acceptance thereof, the Contractor shall remove all machinery, tools, temporary building and shall clean the pavement, curb and sidewalks in such a thorough and effective manner by hand sweeping, scraping or by flushing, according to kind of pavement or condition of the street, as will be determined by the Engineer, so as to leave the entire surface of the pavement, curbs and sidewalks so exposed that the quality and texture of the materials used and workmanship may be readily determined. He shall also remove all centering, scaffolding and accumulations of sand, earth, materials, and rubbish of all kinds from the sewers, manholes, inlets, and catch basins. If the improvement is completed too late in the fall to permit all of the cleaning up as herein specified, that portion not completed shall be done the following spring within ten (10) days after written notice to do so from the Engineer.

All such cleaning and removal of cleanings shall be done by the Contractor and the cost and expense thereof shall be included in his price for furnishing of materials and laying of pavement.

In case the Contractor shall fail or neglect to do any cleaning within forty-eight (48) hours after the receipt of notice to do so, or in the manner specified, the Director of Public Service may and is hereby authorized to cause the same to be done and charge the cost and expense thereof to said Contractor and deduct the amount of such cost and expense from any estimate due him at any time thereafter.

(32) **Existing surface fixtures and structures:** At least forty-eight (48) hours before breaking ground, the Contractor shall notify all the City Departments and public service corporations, whose tracks, wires, pipes, conduit or other structures may be affected by his operations. He shall likewise notify the Chief of the Fire Department of the temporary blocking of any street.

Existing surface structures which may be encountered in the work shall be removed and replaced or maintained by the Contractor at his cost and expense, or by the parties interested, and in such a manner as to secure the safety of the public and structure. The use of pipes, conduits, etc. shall not be interrupted without the consent of the parties owning or controlling the same.

(33) **Existing sub-surface fixtures and structures:** Existing sub-surface structures encountered in the work shall be protected and maintained in complete operation, unless permission is given for their removal. Existing substructures, including old sewers, abandoned sewers, abandoned drains, etc., which may appear within the limits of the excavating, shall be removed, if required by the City, but such removal will not be paid for separately, except when expressly specified, being paid for in the price for excavation or other items including excavation.

In case the uncovering of sub-surface structures necessitates a change in the alignment of grade of the proposed work, the Contractor shall give immediate notice of such obstruction to the Engineer, and shall cease work at such points until ordered to proceed.

And in case any change of grade or alignment shall delay the work, the time allowed for the completion of the contract will be extended to the extent which the delay shall have operated, the decision of the Engineer upon this point being final.

(34) **City may construct sewers, drains, etc.:** The City reserves the right to suspend or stop the work on all or any part of the progressing improvement, for the purpose of laying, relaying or allowing to be laid, or re-laid, any sewers, drains, gas pipes, water pipes, conduits or appurtenances thereto, which, in the opinion of the Director of Public Service are necessary or expedient, or for any other reason, and at any stage of the work, and the Contractor shall not interfere with or place any impediment in the way of any person or persons engaged in such work; and in such cases the Contractor shall not be entitled to any damages or recompense, either for digging up the street, or delay or hindrance, but the time of completion shall be extended as many days as the delay shall have operated.

It is the intention of the City to require all property owners to have water and sewer connections made to all lots, and to cause to be laid all water mains, gas mains, sewers and sewer connections, and other pipes, conduits, etc., not included in the contract hereunder, in advance of the improvement, except when in the opinion of the Director of Public Service such procedure be impracticable and the Contractor shall not be entitled to damages or recompense by reason of delay or hindrance, but he shall be granted an extension of time equal to that in which the delay shall have operated, as determined by the Director of Public Service.

If the Contractor hereunder finds that the trenches are not properly backfilled, he shall so notify the Engineer in writing, allowing ample time to have the defects remedied before proceeding with the improvement.

The Contractor may exercise the right to such supervision of the work, as he may deem necessary to insure good material and workmanship, in order that he may properly protect himself from defects in the finished pavement for which he will be responsible under his guaranty. The Contractor will be allowed and paid for any additional materials, the use of which is made necessary on his part by reason of the above specified work, such reasonable sum (not to exceed contract price) as may be agreed upon in writing between himself and the Director before such additional materials be used, and in the manner specified for subsidiary contracts.

- (35) **Special repairs:** The City reserves the right, whenever in its judgment, to take up or permit the taking up of any part of the improvement during the progress of the work, or subsequent to the completion thereof and during the period of guaranty for the purpose of constructing, repairing, or renewal of any sewers, drains, water or gas pipes, or other improvements. Whenever any part of the improvement is taken up as herein specified, all the work of restoring the same will be done by or under the direction of the City and the Contractor hereunder will be relieved of any maintenance requirements on that portion of the completed improvement so disturbed.
- (36) **Rejecting Defective Work:** The City will have authority to reject Work which the City believes to be defective, or that the City believes will not produce a completed Project that conforms to the Contract Documents or that will prejudice the integrity of the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. The City will also have authority to require special inspection or testing of the Work whether or not the Work is fabricated, installed, or completed.
- (37) **Use of city water supply:** The City will furnish water at the hydrants for the purpose of puddling trenches, construction purposes, operation of machinery, mixing concrete, mortar, etc., but the cost of water and the proper facilities for conveying the same from the hydrants must be included by the Contractor in the unit prices bid for the various items of work wherein water will be used. All water used must pass through meters installed by the Water Department at its hydrants and subject to its regulation and paid for at the builder's rate per one thousand (1,000) cubic feet of water consumed, as established by said Department, plus the cost of meters and installation of same. A deposit will be required covering the cost of meter and installation thereof, which deposit of cost of meter will be refunded on return of meter in good condition.

The Contractor must notify the Water Department at least forty-eight (48) hours in advance of the time such installation is required.

- (38) **Use of sewer:** At any time during the progress of the work the City may, by written notice to the Contractor, take over and utilize the whole or part of any sewer, drain or appurtenance thereof which has been completed, giving if desired, permits to tap and connect therewith. In such event, the Contractor shall be relieved from the maintenance of such part as may be used except as provided under the section "Guaranty" and such will be deemed as final acceptance by the City of the part or parts used, subject to the responsibility of the Contractor for all defects in workmanship, etc., as provided under the "Guaranty" section of these specifications.
 - (39) Sanitary regulations: Necessary sanitary conveniences for the use of the laborers on the

work, properly secluded from public observation, shall be constructed and maintained in a sanitary condition by the Contractor in such manner and at such points as shall be approved, and their use shall be strictly enforced.

- (40) **OSHA standards:** It is the City's requirement, under OSHA Regulations, that all outside contractors hired by the City of Canton are and will be in full compliance with all OSHA standards and perform said work in accordance with all applicable OSHA standards.
- (41) **Laws and ordinances:** The Contractor shall keep himself fully informed of all laws, municipal ordinances and regulations that in any manner affect the persons engaged in or employed upon the work, or the materials used in the work, or any way affecting the conduct of the work, and of the decrees of the bodies or tribunals having jurisdiction or authority over the same. He shall also himself observe and comply with and shall cause all of his agents and employees to observe and comply with all such existing and subsequent laws and ordinances, regulations, orders and decrees, and to protect and indemnify the City against claim or liability arising from or based upon the violation of such laws, ordinances, regulations, orders or decrees by himself or by his agents or employees.

References to special laws and ordinances in other sections of this contract shall in no way relieve the Contractor from compliance with all the provisions of this section.

- (42) **Monuments and landmarks:** The Contractor shall preserve intact all City monuments, benchmarks and landmarks, as shown upon the plans or encountered in the excavation. In such case that such monument, benchmark or landmark not shown on the drawings be encountered in opening the excavation, the Contractor shall stop work at such point, immediately notify the Engineer of such findings and not disturb same until directed to do so by the Engineer.
- (43) **Prices:** The City shall pay and the Contractor shall receive the prices hereafter stipulated as full compensation for everything furnished and done by the Contractor under this contract. This shall include all incidental work required but not specifically mentioned, and also for all loss or damage arising out of the nature of the work, or from the action of the weather, floods, or from unforeseen obstruction or difficulty encountered in the prosecution of the work, and for the expenses incurred by or in consequence of the suspension or discontinuance of the work as herein specified, and for well and faithfully completing the work and the whole thereof, as herein provided, together with the remedying of all defects developing during the prosecution of the work and during the period for which the work is guaranteed.
- (44) **Allowances:** It is understood that Contractor has included in the Contract Price all allowances so named in the Contract Documents and shall cause the Work so covered to be performed for such sums and by such persons or entities as may be acceptable to the City.

Cash Allowances: Contractor agrees that:

- a. the cash allowances include the cost to Contractor (less any applicable trade discounts) of materials and equipment required by the allowances to be delivered at the Site, and all applicable taxes; and
- b. Contractor's costs for unloading and handling on the Site, labor, installation, overhead, profit, and other expenses contemplated for the cash allowances have been included in



the Contract Price and not in the allowances, and no demand for additional payment on account of any of the foregoing will be valid.

Contingency Allowance: Contractor agrees that a contingency allowance, if any, is for the sole use of the City to cover unanticipated costs.

Prior to final payment, an appropriate Change Order will be issued as recommended by the City to reflect actual amounts due Contractor on account of Work covered by allowances, and the Contract Price shall be correspondingly adjusted.

(45) **Starting and completing the work (Contract Duration):** The Contractor shall not start the work embraced in this contract before the date of a written notification from the Engineer, and shall commence at such points as the City may direct.

If the work done under this contract conflicts with other work done for or by the City, or with its consent, the City shall determine the time and manner of procedure of the operations carried on under this contract.

The duration of this agreement for the completion of the work embraced in this contract shall be <u>150 days</u> from the Notice to Proceed date.

Contractor is responsible for any additional costs due to weather-sensitive construction, such as, but not limited to, protecting concrete from freezing, heating of water as needed, etc. as well as insuring that all materials used satisfy appropriate specifications such as, but not limited to, asphalt temperature specifications, non-frozen backfill material, etc.

The permitting of the Contractor to complete the work or any part thereof, after the time fixed for its completion, shall in no way operate as a waiver on the part of the City of any of its rights under this contract.

(46) **Liquidated Damages and Paving Time Restrictions:** The Contractor guarantees that he can and will complete the work on or before the time affixed in his bid, or on or before the extended time as provided for in the contract. The payment to the City for such delay and failure on the part of the Contractor shall be <u>Six Hundred Dollars (\$600.00)</u> for each day by which the Contractor fails to complete the work, or any part (including Interim) thereof, in accordance with the provisions of the contract. The City will deduct and retain, from any money due or any money to become due under the contract, the amount of the liquidated damages. The Contractor shall be liable for the payment of the difference upon demand of the City.

All asphalt paving, if any, must take place on the city's road surfaces from May 1st to October 1st; and/or during optimal climatic conditions that are conducive to the best mix compacting and long term durability of the pavement, according to the highest and best practices of the asphalt paving industry. The City will deduct and retain, from any money due or any money to become due under the contract <u>Six Hundred Dollars (\$600.00)</u> for each day by which the contractor fails to pave within the stated time restrictions. The Contractor shall be liable for the payment of the difference upon demand of the City.

- (47) **Samples:** Each bidder shall submit samples of materials, or refer to samples of materials furnished by the Manufacturer or Producer, at the time of submitting the bid, as required in detail specifications under each item, for which bids are received. Whenever samples of any material or workmanship have been filed by the Contractor, or are on file as specimen of the work to be done or materials to be furnished for the work herein specified, such samples shall be the standard by which that kind and class of work shall be judged.
- (48) **Measurements:** The contract will not use extra or customary measurements of any kind, unless specially noted, in measuring the work under these specifications; the length, area, solid contents or number only, are considered as a basis for payment as hereinafter specified.

The measurements as made by the City of the amount of the work done shall be final and conclusive.

Payments will be made upon the work done within the lines prescribed by the plans, drawings or specifications, and in accordance with the unit prices for the items under which the work is done. Nothing therein contained depriving the City of any remedy or defense it may have under the same, for violation of the terms or conditions of this agreement.

(49) **Partial payments:** The Contractor shall, on a day of each calendar month as is mutually agreeable to the Contractor and the City, make an approximate estimate of the quantities and prices of the labor furnished and the materials incorporated into the project during the previous calendar month and forward such estimate to the Engineer for approval. More frequent estimate submission, at the option of the City, may be made at any time during the progress of the project.

Partial payments to the Contractor for work performed for a lump sum price shall be based on a well-balanced schedule prepared by the Contractor and approved by the Engineer which schedule shall apportion the lump sum price to the principal features entering into or forming a part of the work covered thereby.

The City shall pay the Contractor monthly, not less than the difference between the amount of each monthly estimate which has been approved by the Engineer and the sum of retainage and/or any other amounts which the City is authorized by the contract to withhold. The making of any monthly payment shall not be taken or construed as approval or acceptance by the City of any work included in the estimate upon which such payment is based.

Payment shall be made and retainage kept in accordance with applicable sections of Chapter 153 of the Ohio Revised Code.

To aid in determining quantities of materials for pay, the Contractor shall, whenever requested by the Engineer, provide scales, equipment and assistance for weighing or for measuring such materials.

For estimating quantities in which computation of areas by geometric methods would be comparatively laborious, the City agrees that a planimeter or other agreed upon method may be used.

(50) **Change of Contract Price**: The Contract Price may only be changed by a Change Order. Any Claim for an adjustment in the Contract Price shall be based on written notice submitted by the party making the Claim to the City and the other party to the Contract.

The value of any Work covered by a Change Order or of any Claim for an adjustment in the Contract Price will be determined as follows:

- 1. Where the Work involved is covered by unit prices contained in the Contract Documents, by application of such unit prices to the quantities of the items involved; or
- 2. where the Work involved is not covered by unit prices contained in the Contract Documents, by a mutually agreed lump sum (which may include an allowance for overhead and profit not necessarily in accordance with ODOT's Force Account procedures; or
- 3. Where the Work involved is not covered by unit prices contained in the Contract Documents and agreement to a lump sum is not reached under previous paragraph, on the basis of ODOT's Force Account procedures.

Contractor's Fee: The Contractor's fee for overhead and profit shall be determined as follows:

- 1. a mutually acceptable fixed fee; or
- 2. if a fixed fee is not agreed upon, then the fee shall be based upon ODOT's Force Account procedures.
- (51) (52) **Pre-final and final estimates and payments:** As soon as practicable after the completion of work under the contract, the Engineer will perform a formal inspection of the project. If the project appears to be acceptable, the Engineer will recommend tentative acceptance thereof and make a pre-final estimate of the amount of the work done by the Contractor based on quantities and prices submitted by the Contractor. Upon such certified pre-final estimate, the City will pay the Contractor all funds owed under the contract pending final acceptance of the project and submission of all required documentation deducting expenses of correcting any deficiencies in the work as determined by the Engineer. Such final inspection and payment will not discharge the liability of the Contractor under the contract or of the surety under the contract bond, but such liabilities and all guarantees shall remain in effect for the period fixed by law.
- (53) **Additional contract:** It must be distinctly understood that should more than one contract be awarded to the same Contractor, he may be required to prosecute the work upon all of them at one and the same time. At the option of the Director, and he shall not be permitted to transfer men, tools, or machinery from one job to another without the consent of the Engineer. The contractor shall at all times have a competent foreman and a sufficient number of men, tools, and machinery upon each job, at the same time, as well, in the opinion of the Engineer, be sufficient for the proper prosecution of the work.
- (54) **Insurance:** The Contractor shall at all times during the progress of the work, comply with all the provisions of the laws of Ohio relating to workmen's compensation and State insurance fund for the benefit of injured and the dependents of killed employees. The Contractor shall at all

times during the progress of the work carry accident liability insurance in an amount sufficient to reasonably indemnify himself against loss from claims for personal injuries or fatal accidents occurring upon the work or caused thereby including injuries and accidents to employees of the Contractor, persons engaged on the work under another contractor, employees of any subcontractor or other engaged on or about the work and the public. The City reserves the right to annul this contract at any time upon receiving evidence of the Contractor's failure to comply with the statutes as described above.

- (55) Last payment to terminate liability of City: No person or corporation, other than the signer of this contract as Contractor, has now any interest hereunder, and no claim shall be made or be valid, and neither the City nor its agents shall be liable for, or be held to pay any money, except that provided in this contract. The acceptance by the Contractor of the last payment made as aforesaid shall operate as and shall be a release to the City and agents thereof, from all claims and liability to the Contractor for anything done or furnished for, or relating to the work, or for any act or neglect of the City or of any person relating to or affecting the work, except the claim against the City for the remainder, if there be any, of the amount kept or retained.
- (56) **Guaranty:** The Contractor, for and in consideration of the monies received and to be received by him, hereby agrees that the repairs of all defects in the work done and completed under this contract arising, in the opinion of the Director, out of the use of defective materials, settlements of sewers, structures, and foundations or improper workmanship in the construction thereof, and which repairs from such causes may become necessary during the period of years, as set forth below, after the date of the approval by the Director of the Engineer's certificate of the "FINAL COST", shall be made by him without cost and expense to the City, and the Contractor agrees to make such repairs when, and as ordered by the Director, by written notice served upon him and if after having received such notice, the Contractor fails to make such repairs within the number of days stated in such notice, from the date of receipt thereof, the Director shall thereupon have the power to cause said repairs to be made and charge the cost and expense thereof to the Contractor or his surety.

The failure of the Director to give notice within the specified period shall not preclude the operation of this section.

The guaranty periods referred to above in this section shall be as follows:

Piles and Anchors require a 5 year warranty and 75 year design life

C.I.P.P. Rehabilitated Sewers, 2 years

Concrete curbing, 1 year

Concrete sidewalks, 1 year

Concrete masonry, 1 year



Brick masonry, 1 year

Sewers, waterlines, manholes, catch basins, 1 year

Asphaltic concrete pavement, 1 year

Concrete foundation, 1 year

(57) **No estoppel:** The City shall not be precluded or estopped by any return or certificate made or given it, from showing at any time, either before or after the final completion and acceptance of the work and payment therefor pursuant to any such return or certificate, the true and correct amount and character of the work done and materials furnished by the Contractor or any other person under this agreement, or from showing at any time that any such return or certificate is untrue and incorrect or improperly made in any particular, or that the work and materials, or any part thereof, do not in fact conform to the specifications; and the City shall not be precluded or estopped, notwithstanding any such return or certificate and payment in accordance therewith, from demanding and recovering from the Contractor such damages as it may sustain by reason of his failure to comply with the specifications.

Neither the acceptance by the City, nor any order, measurement, or certificate, by the City, nor any order for payment of money, nor any payment for, nor acceptance of the whole or any part of the work by the City, nor any extension of time, nor any possession taken by the City, or its employees, shall operate as a waiver of any portion of this contract or of any power herein reversed to the City, or any rights to damages herein provided; nor shall any waiver of any breach of this contract be held to be a waiver of any other or subsequent breach.



Section III: Additional Requirements and/or Conditions

- A. Notwithstanding any provisions to contrary, Ohio Law shall govern this Agreement.
- B. Contractor agrees that Canton's specifications and bid documents shall incorporate and be made part of any subsequent contract entered by the parties.
- C. Once both parties have fully executed the contract, said contract shall by binding upon the parties' heirs, successors and assigns.
- D. Contractor shall not assign or transfer any interest under this agreement without the express written consent of Canton.
- E. Contractor agrees to indemnify and hold harmless the City of Canton, Ohio, its employees and agents from and against all demands, claims, causes of action, or judgments or omissions by Contractor, its agents, employees or subcontractors. Nothing herein shall be constructed to hold Contractor liable for Canton's negligence.
- F. Contractor's liability to the City of Canton for default shall not be limited and the City of Canton shall be entitled to all damages permitted under Ohio law upon Contractor's breach, default or non-performance under this Agreement.
- G. A waiver of a breach of any of the terms or conditions of the contract will not be construed as a waiver of any subsequent breach. Any consent to delay in the performance of contractor of any obligation shall be applicable only to the particular transaction to which it relates, and it shall not be applicable to any other obligation or transaction. Delay in the enforcement of any remedy in the event of a breach of any term or condition of the contract or in the exercise by either party of any right under the contract shall not be construed as a waiver.
- H. When, during the course of construction, it appears to the contractor that any work does not conform to the provisions of the contract documents, it will make necessary corrections so that such work will conform. Additionally, the Contractor will correct any defects caused by faulty materials, equipment or workmanship in work supervised by the Contractor or by a subcontractor. This shall apply to the Contractor or any subcontractor appearing within one year from the date of issuance of a certificate of substantial completion or within such longer periods as prescribed by law or by applicable special guarantees or warranties in the contract documents.
- I. The owner reserves the right to order work changes in the nature of additions, deletions, or modifications, without invalidating the contract, and agrees to make corresponding adjustments in the contract price and time of termination if necessary. The Owner will authorize all changes by a written change order signed by the owner, or the architect of other designee of the owner. The change order will include conforming changes in the contract and termination time.
- J. Work changed, and the contract price and termination time modified can be modified only as set out in the written change order. Any adjustment in the contract sum resulting in a credit or a charge to the owner will determined by mutual agreement of the parties before starting any work involved in the change order.



Section IV: City of Canton Codified Ordinances

Bidders shall take notice that they are to comply with the Codified Ordinances of the City of Canton, including but not limited to, the following:

1. Chapter 105.02 – Public Paving Time Restrictions.

All City public paving contracts shall include a provision for liquidated damages in order to provide the City reasonable compensation for actual damages due to a failure to ensure that asphalt paving take place on the City's road surfaces from May 1st to October 1st; and/or during optimal climatic conditions that are conducive to the best mix compacting and long term durability of the pavement, according to the highest and best practices of the asphalt paving industry. (*Ord.* 270-2014. *Passed* 12-29-14.)

2. Chapter 105.03 – U.S. Steel Usage Required; Exception.

All City contracts shall stipulate or provide that all steel necessary in the construction of any work performed under such contracts shall be steel that is produced in the United States unless a specific product which is required is not produced by manufacturers in the United States in which event this prohibition does not apply. This section shall apply to only contracts awarded by the Board of Control of the City.

(Ord. 224-77. Passed 6-27-77.)

3. Chapter 105.05 – Materials to be Purchased Locally.

In all future contracts for the construction of buildings, structures, or other improvements under the Capital Improvement Budget, the following clause shall be printed or typewritten on each contract:

It is the desire of the City of Canton that all materials used in the construction covered by this contract shall be purchased in the Canton area except such materials which are unavailable in the Canton area.

(Res. 49-77. Passed 2-7-77.)

4. Chapter 105.06 – Minority Contract Provision.

a. All contracts with the City shall include the following clause:

The bidder agrees to expend at least \$_______ of the Contract in the event the contract is awarded to such bidder for minority/women's business enterprises. For purposes of this pledge, the term "minority/women's business enterprise" means a bona fide business established as a sole proprietorship, partnership or corporation owned, operated and controlled by one or more minority persons or women who have at least fifty-one percent (51%) ownership. "Minority" includes African Americans, Asian/Pacific Islanders, Hispanic/Latino Americans and Native American Indians. The minority or woman must have operational and managerial control, interest in capital, and earnings commensurate with the percentage of ownership. Minority/women's business enterprises may be employed as construction contractors, subcontractors, vendors or suppliers. (Ord.185-2011. Passed 10-31-11.)



5. Chapter 105.12 – Local Bidder Preference.

- a. The Board of Control, in determining the lowest and best bidder in the award of contracts to which this section is applicable, is authorized to award contracts to local bidders as hereinafter defined, whose bid is not more than five percent (5%) higher, subject to a maximum amount of twenty thousand dollars (\$20,000.00), than the lowest dollar bid submitted by non-local bidders. The Board of Control's decision in making such an award shall be final.
- b. For purposes of this section, "local bidder" means an individual or business entity which at the time of the award of the contract has a headquarters, division, sales office, sales outlet, manufacturing facility, or similar significant business-related location in Stark County, Ohio.
- c. All contract specifications and/or bid documents that are distributed by Canton for the purpose of soliciting bids for goods and/or services shall contain the following notice:

Prospective bidders will take notice that the City of Canton, in determining the lowest and best bidder in the award of this contract, may award a local bidder preference to any qualified bidder pursuant to Section 105.12 of the Codified Ordinances of the City of Canton. The determination of whether a bidder qualifies for the local preference shall be made by Board of Control. The Board's decision shall be final. A copy of Section 105.12 is attached.

d. This section shall be applicable to all contracts for equipment, goods, machinery, materials, supplies, vehicles and/or services, which are purchased, leased and/or constructed at a cost in excess of fifty thousand dollars (\$50,000.00) and which require bidding pursuant to Ohio R.C. 735.05 through 735.09 and Ohio R.C. 737.03.

(Ord. 115-2018. Passed 5-14-18.)

6. Chapter 105.15 – City Income Tax

- a. No person, partnership, corporation or unincorporated association may be awarded a contract with the City under Sections 105.09 or 105.10, unless the bidder is paid in full or is current and not otherwise delinquent in the payment of City income taxes, including any obligation to pay taxes withheld from employees under Section 182.05 and any payment on net profits under Section 182.06.
- b. Falsification of any information related to or any post-contractual violation of the requirement to pay City income taxes set forth in subsection (a) shall constitute cause for the rescission of the balance of the contract at the City's discretion.
- c. No partnership, corporation or unincorporated association which has as one of its partners, shareholders or owners a person who is a twenty percent (20%) or

greater equity owner in such partnership, corporation or unincorporated association and who is delinquent in the payment of City income taxes as set forth in subsection (a), may be awarded a contract with the City under Sections 105.09 or 105.10.

- d. A person who is a twenty percent (20%) or greater equity owner in any partnership, corporation or unincorporated association which is delinquent in the payment of City income taxes as set forth in subsection (a) may not be awarded a contract with the City under Sections 105.09 or 105.10.
- e. A contract awarded under Sections 105.09 or 105.10 for a public improvement project, services other than personal or professional services, and personal or professional services shall not be binding or valid unless such contract contains the following provisions:

7. Chapter 182.30 – Contract Provisions

a. No contract on behalf of the City under Sections 105.09 or 105.10 of the Codified Ordinances of Canton for a public improvement project, services other than personal or professional services, and personal or professional services shall be binding or valid unless such contract contains the following provisions:

Said ________ hereby further agrees to withhold all City income taxes due or payable under Chapter 182 of the Codified Ordinances for wages, salaries, fees and commissions paid to its employees and further agrees that any of its subcontractors shall be required to agree to withhold any such City income taxes due for services performed under this contract. Furthermore, any person, firm or agency that has a contract or agreement with the City shall be subject to City income tax whether a resident or nonresident in the City, and whether the work being done is in the City or out of the City. In addition to the tax withheld for employees, the net profits on the contract shall be subject to City income tax.



- b. By entering into contract with the City of Canton ______ agrees with the City regarding the manner of withholding of City income taxes as provided in Section 718.011(F) of the Ohio Revised Code.
 - i. Municipal income tax withholding provisions of Sections 718.011(B)(1) and 718.011(D) ORC shall not apply to qualifying wages paid to employees for work done or services performed or rendered inside the City or on City property.
 - ii. _____ agrees to withhold income tax for the City from employees' qualifying wages earned inside the City or on City property, beginning with the first day of work done or services performed or rendered inside the City.

(Ord. 238-2015. Passed 11-30-15.)

8. Chapter 507.03 – Equal Employment Opportunity Clause.

- b. During the performance of this contract, the contractor agrees as follows:
 - 1. The contractor shall not discriminate against any employee or applicant for employment because of race, age, handicap, religion, color, sex, national origin, sexual orientation or gender identity. The contractor shall take affirmative action to insure that applicants are employed and that employees are treated during employment without regard to race, religion, color, sex, national origin, military status, sexual orientation or gender identity. As used herein, the word "treated" shall mean and include without limitation the following: recruited, whether by advertising or other means; compensation, whether in the form of rates or pay or other forms of compensation; selected for training, including apprenticeship; promoted; demoted; upgraded; downgraded; transferred; laid off; and terminated. The contractor agrees to and shall post in conspicuous places available to employees and applicants for employment notices to be provided by the contracting officers setting forth the provisions of this nondiscrimination clause.
 - 2. The contractor shall, in all solicitations or advertisements for employees placed by or on behalf of the contractor, state that all qualified applicants will receive consideration for employment without regard to race, age, handicap, religion, color, sex, national origin, military status, sexual orientation or gender identity.

(Ord. 153-2012. Passed 9-24-12.)

- 3. The contractor shall send to each labor union or representative of workers, with which he has a collective bargaining agreement or other contract or understanding, a notice advising the labor union or workers' representative of the contractor's commitments under the equal opportunity clause of the City; and he shall post copies of the notice in conspicuous places available to employees and applicants for employment.
- 4. The contractor shall submit in writing to the City his affirmative action plan, and each subcontractor and supplier of equipment or supplies shall submit to the general contractor his affirmative action plan. The

responsibility for securing these affirmative action plans falls upon the general contractor and shall be on file at the office of the general contractor. The contractor shall furnish all information and reports required by the City or its representative pursuant to this chapter, and shall permit access to his books, records, and accounts by the contracting agency and by the Executive Secretary for purposes of investigation to ascertain compliance with the program.

- 5. The contractor shall take such action with respect to any subcontractor as the City may direct as a means of enforcing the provisions of this equal opportunity clause, including penalties and sanctions for noncompliance; provided, however, that in the event the contractor becomes involved in or is threatened with litigation as the result of such direction by the City, the City will enter into such litigation as is necessary to protect the interests of the City and to effectuate the City's equal opportunity program and, in the case of contracts receiving Federal assistance, the contractor or the City may request the United States to enter into such litigation to protect the interests of the United States.
- 6. The contractor shall file and shall cause his subcontractors, if any, to file compliance reports with the City in the form and to the extent prescribed by the City or its representative. Compliance reports filed at such times as directed shall contain information as to the employment practices, policies, programs and statistics of the contractor and his subcontractors.
- 7. The contractor shall include the provisions of this equal employment opportunity clause in every subcontract or purchase order, so that such provisions will be binding upon each subcontractor or vendor.
- 8. Refusal by the contractor or subcontractor to comply with any portion of this program as herein stated and described will subject the offending party to any or all of the following penalties:
 - A. Withholding of all future payments under the involved public contract to the contractor in violation, until it is determined that the contractor or subcontractor is in compliance with the provisions of this contract.
 - B. Refusal of all future bids for any public contract with the City or any of its departments or divisions, until such time as the contractor of subcontractor demonstrates that he has established and shall carry out the policies of the program as herein outlined.
 - C. Cancellation of the public contract and declaration of forfeiture of the performance bond.
 - D. In cases in which there is substantial or material violation or the threat of substantial or material violation of the compliance procedure or as may be provided by contract, appropriate proceedings may be brought to enforce these provisions, including the enjoining within applicable laws of contractors, subcontractors or other organizations, individuals or groups who prevent, directly or indirectly, or seek to prevent, directly or indirectly, compliance with the policy as herein outlined.

(Ord. 179-74. Passed 6-17-74.)



Section V: Construction Claims Management Policy

The City of Canton recognizes the need to contend with claims experienced by contractors that are not addressed by the contract. This policy is to act as a directive to provide stability and expertise in the management of claims and to ensure they are investigated, evaluated, and resolved in a timely and professional manner.

This policy attempts to resolve disputes in a fair and cost effective manner. The documentation resulting from this procedure will provide information needed to make a reasonable and unbiased decision. The City recognizes that costs can be kept to a minimum when the resolution is found at the departmental level.

Prior to entering into the formal claims management process, both the Prime Contractor and City's Project Manager agree to attempt to resolve any disputes in a good faith effort in accordance with the contract.

Please be advised that all disputes or claims must be presented by the Prime Contractor. Disputes or claims submitted by a sub-contractor or supplier against the City or the Prime Contractor shall not be accepted.

DEFINITION OF KEY TERMS

City Department Head is defined as the City Engineer, Water Department Superintendent, Reclamation Facility Superintendent, Building Maintenance Superintendent, and Collection Systems Superintendent.

City Project Manager is defined as a representative from City Engineering Department, the City Water Department, City Sewer and Sanitation Department, Collection Systems, Building Maintenance or a party who has a contract with the City of Canton for construction engineering services for this particular project.

Claims are defined as disputes that are not settled in Steps One or Step Two of this process.

Contract Documents is defined by those documents listed in the Document Order of Precedence.

Disputes are defined as and include disagreements, matters in question, and differences of opinion that may result in a request for additional money and/or time.

Prime Contractor is defined as the contractor who has a contract directly with the City of Canton for this particular project.

PROCESS

The Prime Contractor must follow this policy to be eligible for any compensation (time or monetary) for any and all claims not covered by the Change Order Policy. All steps in the policy must be completed prior to proceeding to the next step. The Prime Contractor shall immediately

provide oral notification to the City Project Manager upon discovering a circumstance that may result in a dispute. The Prime Contractor shall continue all work, including that work that is the subject of the dispute or claim. The City will continue to pay for work being performed.

STEP ONE CITY PROJECT MANAGER

Within two (2) business days of providing oral notification to the City Project Manager, the Contractor must provide a written notice to the same of any circumstance that may result in a dispute. The City Project Manager will confirm, in writing, receipt of the written notice. The City Project Manager will negotiate in an effort to reach a resolution according to the Contract Documents. The City Project Manager shall issue a written decision within fourteen (14) business days of the Step One meeting. If the dispute is not resolved, the Prime Contractor must either abandon or escalate the dispute to Step Two.

• STEP TWO CITY DEPARTMENT HEAD

Within seven (7) business days of receipt of the Step One decision, the Prime Contractor must submit a written request for a Step Two meeting to the City Department Head. The City Department Head will acknowledge the request, in writing, and assign the dispute a dispute number. Within fourteen (14) business days of the receipt of the City Department Head's written acknowledgment, the Prime Contractor shall submit dispute documentation as follows:

- 1. The Prime Contractor shall submit three (3) complete copies of the documentation of the dispute to the City Department Head.
- 2. The dispute documentation shall be identified on a cover page by the project name, the parties involved in the dispute and the dispute number.
- 3. All documentation must be original documents that details the required information for each item of additional compensation and/or time extension requested.
- 4. A narrative of the disputed work or project circumstance at issue. This section must include the dates of the disputed work and the date of the written notice as required in Step One.
- 5. References to the applicable provisions of the plans, specifications, proposal, or other contract documents. Copies of the cited provisions shall be included.
- 6. The dollar amount of additional compensation and length of time extension being requested, supported by documentation that serve as the basis for said amounts of compensation or time.
- 7. A detailed schedule analysis must be included for any dispute concerning additional time, actual or constructive acceleration, or delay damages. Failure to submit the required schedule analysis will result in denial of that portion of the Prime Contractor's request.
- 8. Copies of all relevant correspondence and other pertinent documents.

The City Department Head shall review the dispute documentation and make a written recommendation within fourteen (14) business days of receipt of the dispute documentation. If the Prime Contractor accepts, in writing, the City Department Head's recommendation, the dispute will cease and/or be processed as a Change Order. If the Prime Contractor does not accept the City Department Head's recommendation, in writing, the City Department Head will



set a time for a Step Two meeting within fourteen (14) business days of receipt of the Prime Contractor's written response. The Step Two meeting shall be attended by the Prime Contractor and City Project Manager. Each party will have reasonable time to explain their positions regarding the dispute. Within ten (10) business days of the Step Two meeting, the City Department Head will issue a written determination of the dispute to the Prime Contractor and the City Project Manager. If the Prime Contractor accepts the City Department Head's determination, in writing, the dispute will cease and/or be processed as a Change Order. If the Prime Contractor does not accept the City Department Head's determination, the Prime Contractor may escalate to Step Three.

• STEP THREE DIRECTOR OF PUBLIC SERVICE CLAIMS COMMITTEE

Within fourteen (14) business days of receipt of the City Department Head's written determination, the Prime Contractor shall submit a Notice of Intent to File a Claim and four (4) copies of its claim documentation to the Director of Public Service by certified U.S. mail. This notice shall state the Prime Contractor's request for a Step Three Hearing on the claim. Within ten (10) calendar days of receipt of the Notice of Intent to File a Claim, the Director of Public Service shall submit the Notice of Intent to File a Claim and one (1) complete copy of the Prime Contractor's claim documentation to the City Department Head and City Project Manager. Within thirty (30) calendar days of the receipt of the *Notice of Intent to File a Claim* by the City Department Head and City Project Manager, the City Department Head and City Project Manager shall submit four (4) copies of its documentation to the Director of Public Service and one (1) copy to the Prime Contractor. After receiving the both the Prime Contractor and City Department Head and/or City Project Manager's documentation, the Director of Public Service shall set a hearing date not more than sixty (60) days from the date of receipt of said documentation. At any time between the receipt of either party's documentation and the hearing date, the Director of Public Service may request additional information. If the party fails to provide the requested information, the Director of Public Service may render his/her decision without it. The hearing date may be rescheduled one (1) time to allow time for additional review of submitted information.

The hearing will be conducted by the Director of Public Service Claims Committee. The Committee shall consist of, at the minimum, the Director of Public Service, a representative of the Canton Law Department, and a representative of the Canton Purchasing Department. The Director of Public Service may add members as he/she sees fit.

Upon completion of the hearing, the Committee will take both sides of the claim into consideration. Within thirty (30) calendar days of the Step Three hearing, the Director of Public Service will send a written decision to all parties. Within (14) calendar days, the Prime Contractor must either accept or reject the decision in writing. Step Three is the final step of the Claims Policy.

Hearing Procedure

The Prime Contractor and City Department Head and/or City Project Manager will each be allowed adequate time to present their respective positions. Each party's position will be



presented by someone who is thoroughly knowledgeable about the claim. Each party will be allowed to have others assist in the presentation. Each party will also be allowed one (1) rebuttal period limited to the scope of the other party's presentation. The Committee may ask questions at any time during the presentation.

The parties shall behave in a professional manner. The parties shall refrain from interrupting and/or interfering with the other party's presentation. The Director of Public Service reserves the right to maintain order in the hearing. If a party continues to interrupt and/or interfere with the other party's presentation, after one warning, that party may: be removed from the hearing or forfeit their rebuttal time.

In the event that both parties do not behave in a professional manner, the Director of Public Service may choose to hear each party's presentation in caucus.

Claim Documentation

When submitting the claim documentation, the Prime Contractor must certify the claim in writing. Such certification shall attest to the following:

- 1. The claim is made in good faith.
- 2. To the best of the Prime Contractor's knowledge, all data offered to support the claim is accurate and complete.
- 3. The claim amount accurately reflects the Contractor's actual incurred costs and additional time impacts.

This claim certification shall also be notarized pursuant to the laws of the State of Ohio. The following is an example of the correct form for a claim certification:

(Prime Contractor) certifies that this claim is made in good faith, that all supporting data is accurate and complete to the best of the (Prime Contractor's) knowledge and belief, and that the claim amount accurately reflects the contract amendment for which (Prime Contractor) believes the City of Canton is liable.

<i>By:</i>	 	
Date of Execution:		

At a minimum, the Prime Contractor's Claim Documentation shall include:

- 1. A narrative of the disputed work or project circumstance at issue with sufficient description and information to enable understanding by a third party who has no knowledge of the dispute or familiarity with the project. This section must include the dates of the disputed work and the date of the written notice as required in Step One. This section must also list the steps the parties have taken to resolve this claim.
- 2. References to the applicable provisions of the plans, specifications, proposal, or other contract documents. Copies of the cited provisions shall be included.

- 3. The dollar amount of additional compensation and length of time extension being requested, supported by documentation that serve as the basis for said amounts of compensation or time.
- 4. A detailed schedule analysis must be included for any dispute concerning additional time, actual or constructive acceleration, or delay damages. Failure to submit the required schedule analysis will result in denial of that portion of the Prime Contractor's request.
- 5. Copies of all relevant correspondence and other pertinent documents

At a minimum, the City Department Head and/or City Project Manager's Claim Documentation shall include:

- 1. A narrative of the disputed work or project circumstance at issue with sufficient description and information to enable understanding by a third party who has no knowledge of the dispute or familiarity with the project. This section must also list the steps the parties have taken to resolve this claim.
- 2. References to the applicable provisions of the plans, specifications, proposal, or other contract documents. Copies of the cited provisions shall be included.
- 3. Response to each argument set forth by the Prime Contractor.
- 4. Any counter-claims, accompanied by supporting documentation they wish to assert.
- 5. Copies of all relevant correspondence and other pertinent documents.



Section VI: Bid Forms and Instructions

Failure to submit Bid Forms 1 through 9 with the bid may cause the bid to be deemed non-responsive, and therefore it may not be considered.

Bid Forms 10 through 14 will be required of the successful bidder but may be submitted after the awarding of the contract.

The City of Canton does encourage bidders to submit all bid forms with their bids

BID FORM 1 – MINORITY BUSINESS ENTERPRISE UTILIZATION COMMITMENT

The City of Canton is committed to economic inclusion of certified minority and women's business enterprises (MBEs/WBEs). This form is for the bidder to identify the dollar amount he is willing and/or able to expend if the contract is awarded to his company for minority and/or women's business enterprises.

BID FORM 2 – BIDDER AND CONTRACTOR EMPLOYMENT PRACTICES REPORT

This form is designed to provide an evaluation of the bidder's policies and practices relating to the extension of equal employment opportunity to all persons without regard to race, religion, color, sex or national origin. The successful bidder will be required to complete and submit the Bidder and Contractor Employment Practices Report. Additionally, the successful bidder will be required to submit an "affirmative action plan" and/or "EEO policy." If the successful bidder does not have a formal EEO policy, he/she will be required to complete and submit the provided EEO policy statement.

BID FORM 3 – AUTHORITY OF SIGNATORY

The authority of the bid signatory must be established. Bid Form 3 provides the means by which the bidder can identify the type of business organization it is (corporation, partnership, etc.) and provides instructions as to how signature authority is commonly established.

BID FORM 4 – BID GUARANTY

Each proposal shall be accompanied by a bid guaranty which shall consist of one of the following:

- 1. Ohio Statutory Bid Guaranty and Contract Bond, substantially in the form prescribed by ORC 153.571. The 153.571 statutory bond form requires that the penal amount be an amount not less than the bid price. It is a bid error to write in an amount equal to ten percent (10%) of the amount bid.
- 2. A certified check or cashier's check in an amount not less than ten percent (10%) of the total amount bid for all items upon which the proposal is made.

 A bid guaranty check shall be made payable to the owner without condition. A



contractor using a bid check will be required to furnish a performance bond in the amount of one hundred percent (100%) of the total bid within ten (10) days of notice of the award.

Bidders using the Ohio Statutory Bid Guaranty and Contract Bond Form can leave the penal amount blank, if such is acceptable to the bidder and the surety. The statutory bond form, per ORC 153.571, is read as having a penal amount equal to the price bid, if no amount is written.

In the case where a bidder to whom a contract award is made fails to execute and secure a contract within ten (10) days after the issuance of the notice of award in writing, the award may be vacated and the bid guarantee, in an amount not to exceed ten percent (10%) of the amount bid, forfeited.

The Bid Bond must be provided by an approved surety company authorized to transact business in the State of Ohio and with a local agent. Agents of bonding companies which write the Bid Bond for this contract shall be licensed to conduct business in the State of Ohio and have a local (Ohio) agent. Each bid shall contain the power of attorney, bearing the seal of the company and evidencing such agent's authority to execute the documents furnished. Identification of the local agent is to accompany each Bond.

The surety used for the bid bond shall be listed in the current edition of the U.S. Treasury Circular 570 and the Penal Sums shall be within the maximum specified for such company in said Circular 570.

BID FORM 5 – BIDDER INFORMATION

The bidder shall submit the required information on the included form and shall supplement the information there given as may be required by the City after the receipt of bids. Low bidders may be interviewed by the City and shall furnish such information as the City may deem necessary to consider prior to making an award.

BID FORM 6 – PROJECT REFERENCES

Each bidder shall provide references as set forth on Bid Form 6.

BID FORM 7 – NON-COLLUSION AFFIDAVIT

Each bidder is required to submit with the bid an affidavit stating that neither he nor his agents, nor any other party for him, has paid or agreed to pay, directly or indirectly, any person, firm or corporation any money or valuable consideration for assistance in procuring or attempting to procure the contract herein referred to, and further agreeing that no such money or reward will be hereafter paid. This affidavit must be on the form provided in this document.



BID FORM 8 – QUESTIONNAIRE IN DETERMINING LOWEST AND BEST BID

This form identifies a series of factors to be considered by the Board of Control in determining whether a bid is not only the lowest bid, but also the best bid.

BID FORM 9 – INSURANCE AFFIDAVIT AND REQUIREMENTS

The successful bidder will be required to submit the required insurance as outlined in Bid Form 9.

All bidders would be well advised to consult their insurance agent as soon as possible so that all questions and concerns can be given due consideration.

BID FORM 10 – AFFIDAVIT FOR FOREIGN CORPORATIONS

A successful bidder who is a foreign corporation, (a corporation not chartered in the State of Ohio), will be required to submit an affidavit duly executed by the authorized bid signatory stating in said affidavit that said foreign corporation has, in accordance with the provisions of the laws of the State of Ohio, obtained a certificate authorizing it to do business in the State of Ohio.

BID FORM 11 – LISTING OF SUBCONTRACTORS

The successful bidder shall provide the name, type of work to be performed and value of each subcontract. Note that subcontractors are distinguishable from suppliers.

BID FORM 12 – PERSONAL PROPERTY TAX CERTIFICATION (ORC 5719.042)

This form and/or certification must be retyped on the bidder's letterhead and notarized utilizing either paragraph (A) or (B) as it applies to the successful bidder's company.

BID FORM 13 – CERTIFICATION – AUDITOR OF THE STATE OF OHIO

This form is to be completed in which to certify that the bidder does not have outstanding unresolved finding for recovery issued by the Auditor of the State of Ohio.

BID FORM 14 – ARTICLES OF INCORPORATION

The successful bidder will be required to submit a copy of the company's articles of incorporation.

BID FORM 15 – W-9 TAX FORM

Please attach your company's current W-9.



Bid Form 1: Minority and Women's Business Enterprises

A. Overview

section.

The City of Canton is committed to economic inclusion of certified minority and women's business enterprises (MBEs/WBEs). For the purposes of this form, the term "minority/women's business enterprise" means a bona fide business established as a sole proprietorship, partnership or corporation owned, operated and controlled by one or more minority persons or women who have at least fifty-one percent (51%) ownership. "Minority" includes African Americans, Asian/Pacific Islanders, Hispanic/Latino Americans and Native American Indians. The minority or woman must have operational and managerial control, interest in capital, and earnings commensurate with the percentage of ownership. Minority/women's business enterprises may be employed as construction contractors, subcontractors, vendors or suppliers.

B. MBE/WBE Certification
Is your company or business a certified MBE or WBE in the City of Canton, any other governmental entity, and/or National Minority Supplier Development Council?
Yes No
If yes, please list the entities where you have received certification below:
If you are interested in becoming a certified MBE or WBE with the City of Canton, please visit the Compliance Department's website for an application and instructions. (http://cantonohio.gov/compliance/?pg=116)
C. MBE/WBE Utilization in the Subcontracting of Work and Purchase of Supplies It is the goal of the City of Canton that at least ten percent (10%) of the total of all contracts be expended for minority/women's business enterprises.
If awarded the bid, will you be utilizing subcontractors or purchasing supplies for use under the contract?
Yes No
If yes, please complete the remaining questions and provide the information requested in this



1. The Bidder must indicate the minority business enterprises it intends to utilize in this document as follows: (Please attach additional sheets if necessary.) For a current list of City of Canton Certified Businesses please contact the City of Canton Compliance Department at 330-438-4302.

	Name of Business	Business Address	Nature of Participation	Dollar Amount	MBE/WBE and Certifying Body
Business 1					
Business 2					
Business 3					
Business 4					
Business 5					

- 2. The bidder agrees to expend at least \$______ or _____ % of the Contract in the event the contract is awarded to such bidder for minority/women's business enterprises.
- 3. The Bidder agrees to furnish implementation reports to indicate the minority business enterprises which it has or intends to utilize. A copy of the implementation report is included at the end of this bid form. These reports will be due at 50% completion of the project and 100% completion of the project. These reports should be forwarded to the following address.

City of Canton Purchasing Department 218 Cleveland Ave., SW, 4th floor Canton, OH 44702

Date

Name/Title of Authorized Officer

4. If the ten percent (10%) minority business utilization cannot be met, a waiver can be granted by the Board of Control upon recommendation of the Director of Public Service and/or Safety. To justify a waiver, it must be shown that due diligence has been made to comply, and it must be demonstrated that sufficient, relevant, qualified minority business enterprises (which can perform subcontracts or furnish supplies) are unavailable in the market area of the project, or unable to perform the work, in order to meet the ten percent (10%) minority business enterprise goal. In order to request a waiver, the attached waiver request should be filled out and returned with your bid.

D. Signature

D. Signature	
The undersigned hereby certifies that he or she has read the terms of the commitment and	is
authorized to bind the Bidder to the commitment herein set forth.	

Signature of Authorized Officer



City of Canton - Office of Compliance

Subcontractor and Supplier Implementation Report

Please submit a form for each MBE/WBE subcontractor and/or supplier utilized. Please note that this form is due at 50% completion of the project and at 100% completion of the project.

Bidder/Contractor Name:		T						
Subcontractor/Supplier Na	ame:							
Project Name:								
Troject Nume.								
If no MBE/WBE subcoabove for the subcontra						me, pleas	se write NA	
Subcontractor/Supplier is	s a:	MBE □	WB	E 🗆				
Please list all entities who	ere this	certificati	ion has b	een recei	ved:			
Part 1: SPEC ITEM #s	TYPE	E OF WOR	Part RK OR SU		IATERIALS	Part 3: TOTAL		
						SUBC	CONTRACT OUNT IN	
							OLLARS	
						\$		
*Please provide a signed utilized to document the					abcontractors	and/or s	uppliers	
The undersigned contrac accurate to the best of its						this repor	rt is true and	
Authorized Contractor Representative & Title:								
Signature:						DATE:		



City of Canton - Office of Compliance MBE/WBE Utilization Waiver Request

Bidder/Contractor Name:	
Project Name:	

Note: To justify a waiver of the City's MBE/WBE goals, it must be shown that due diligence has been made to comply, and it must be demonstrated that sufficient, relevant, qualified minority business enterprises (which can perform subcontracts or furnish supplies) are unavailable in the market area of the project, or unable to perform the work, in order to meet the ten percent (10%) minority business enterprise goal. Please use the spaces below to document the efforts that were made to meet the City of Canton's MBE/WBE goals. Please attach additional sheets if necessary.

Contacted Contractor	Proposed Work/Supplies	Reason for Unavailability	Date of Contact	Date Response Received
1.				
2.				
3.				
4.				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				

Authorized Contractor Representative & Title:		
Signature:	DATE:	



Bid Form 2: Bidder and Contractor Employment Practices Report

Bidder and Contractor Employment Practices Report

City of Canton Office of Compliance

I. INSTRUCTIONS

- A. This form is designed to provide an evaluation of your policies and practices as they relate to the extension of equal employment opportunity to all persons regardless to race, religion, color, sex, age, national origin, disability, sexual orientation, or sexual identity.
- B. City of Canton Codified Ordinance 507 and rules and regulations pursuant thereto provide for a contract compliance inspection of personnel policies and practices related to any contract with the City including contracts for work, labor, services, supplies, equipment, materials, leases, concession agreements, and permits.
- C. Completion of this Contractor and Bidder Employment Practices Report is one of the steps which demonstrate compliance with the City's Equal Employment Opportunity Program. Responsibility for demonstrating compliance with the Program by the vendor and its subcontractors rests with the vendor or subcontractor. Such demonstration is a prerequisite for continued eligibility for the award City contracts.

II. VENDOR OR BIDDER INFORMATION

1. Repo	orting Status			
A	. Prime Contractor	B. Prime Subcontractor	C. Supplier	D. Other (Specify)
2. Nam	e, Address and Teleph	one Number of Bidder Cover	red by This Report	t
3. Nam	e, Address and Teleph	one Number of Principal Off	ficial or Manager of	of Bidder
4. Nam	e, Address and Teleph	one Number of Principal Off	fice of Bidder	
Б 1 .	· (0.66; II 0.1	`		
Evaluat	ion (Office Use Only	y)		
0	Compliant			
	1			
0	Non-Compliant			
	Follow up pooded			
0	Follow up needed_			



III. POLICIES AND PRACTICES

The bidder and/or Contractor will indicate his/her willingness or unwillingness to comply with the requirements of the Equal Employment Opportunity Program of the City of Canton by circling the applicable letter associated with each item below. The letters are interpreted as follows:

A – Current Practice B – Company will immediately adopt this policy C – Company is unwilling or is unable to adopt policy.

Ci	rcle (ne	Items	State Reason if (C) is checked
A	В	С	1. The company will adopt a policy of non-discrimination on the basis of race, religion, color, sex, age, national origin, disability, sexual orientation, or sexual identity, with regard to recruitment, hiring, training, upgrading, promotion and discipline of employees or applicants for employment. This policy will be communicated in writing to all employees, subcontractors, recruitment sources and all relevant labor organizations and unions.	
A	В	С	2. The Company will develop procedures which will assure that this policy is understood and carried out by managerial, administrative, supervisory personnel.	
A	В	С	3. The company will use recruitment sources such as employment agencies, unions, and schools which have a policy of referring applicants on a non-discriminatory basis.	
A	В	С	The company will participate in training programs for the benefit of employees or prospective employees, according to the intent of City Codified Ordinance 507.	
A	В	С	5. Company recruiters will seek a broad recruitment base in order that a representative cross-section of applications might be obtained, and will refrain from a hiring policy which limits job applicants to persons recommended by company personnel.	
A	В	С	6. Company will take steps to integrate any position, departments, or plant locations which have no minority persons, or are almost completely staffed with one particular ethnic or racial group.	
A	В	С	7. The Company will review its qualifications for each job to determine whether such standards eliminate unemployed persons who could, if hired, perform the duties of the job adequately. The following qualifications should be reviewed: Education, Experience, Tests, and Criminal Records.	
A	В	С	8. Residence in a particular geographical area will not be a qualifying or disqualifying criterion for employment with the Company.	
A	В	С	9. The Company will provide that all bargaining agreements with employee organizations, including labor unions, have non-discrimination clauses requiring equal employment opportunity.	



IV. EMPLOYMENT DATA

Please note that this data may be obtained by visual survey or post-employment records. Neither visual surveys nor post-employment records are prohibited by any Federal, State or local law. All specified data is required to be filled in. Please provide truthful and accurate information. If information provided is found be false, bidder/contractor will be subject to the loss of future awards.

MALE: FEMALE:

	MALE:						FEMALE:				
Categories	Overall	Total Male	Total	African	Asian	Native	Hispanic	African	Asian	Native	Hispanic
<u> </u>	Total		Female	American	American	American	-	American	American	American	•
Officials,											
Managers and											
Supervisors											
Professionals											
Technicians											
Part-Time											
Seasonal											
Office &											
Clerical											
Craftsman											
(skilled)											
(SKIIICU)											
0 "											
Operatives											
(semi-skilled)											
Laborers											
(un-skilled)											
Service		1									
Workers		ĺ								ĺ	
11 OI KCIS		ĺ									
		ĺ									
m . 1											
Total:		ĺ									
		ĺ								ĺ	
		ĺ									
	l	1	i	1	i	1	l	l	l	1	l

REMARKS: Please explain any identification data appearing on the last report which differs from that given above. This includes major changes in employment, changes in composition of reporting units, and other pertinent information. Use a separate sheet if additional space is required.

V. ADDITIONAL INFORMATION (Optional)

Describe any other actions taken which show that all employees are recruited, hired trained, and promoted without regard to their race, religion, color, sex, age, national origin, disability, sexual orientation, or sexual identity. Use a separate sheet if additional space is required.



VI. POLICY STATEMENT

VII.

contr	y of Canton, Ohio in conformance with local, state, and federal regulations, requires each vendor, tor, and material suppliers working on City projects or awarded City contracts be signatures of the ng statements:	
	It is the policy of that equal employment opportunities the afforded to all qualified persons without regard to race, religion, color, sex, age, national original disability, sexual orientation, or sexual identity.	es ;in,
2	In support of this document will not discrimina against any employee or applicant because of race, religion, color, sex, age, national origin, disability, sexual orientation, or sexual identity.	ıte
Í	will take affirmative action to ensith that applicants for employment and current employees are treated fairly without regard to race, religion, color, sex, age, national origin, disability, sexual orientation, or sexual identity. Such action will include but not be limited to recruitment, advertising, or solicitation for employment hiring, placement, upgrading, transfer or demotion, selection for training including apprentices rates of pay or other forms of compensation, layoffs or termination.	,
	will make every effort to comply with minority utilization goals as follows: (9%) nine percent minorities in your workforce on the job, (6.9%) six point nine percent female utilization on this job, and (10%) ten percent of contra amount expended with minority business enterprises, women-owned business enterprises or a combination of both.	
:	shall require each sub-contractor him for this project to adhere to this statement.	ed
SIGNAT	RE	
and state state know made set fo	dersigned certifies that he/she is legally authorized by the vendor/bidder to affirm all information nts included in this employment practices report. That he/she has read all of the foregoing nts, representations, and affirmations and that they are true and correct to the best of his/her dge and belief. The undersigned, understands that if any of the statements and representations are nowing them to be false or there is a failure to implement any of the stated intentions or objective herein, without prior notice to the Office of Compliance, the bidder/contractor could be subject of current and future awards.	
Firm	r Corporation Name	
Sign	ıre	
Title		
—— Date	'Signing	



Bid Form 3: Authority of Bid Signatory

The bidder shall indicate which of the following is the source of the bid signatory's authority to sign the bid on behalf of the bidder. The bidder shall follow the instructions noted.

 The party bidding is a sole partnership.
 The party bidding is a partnership and the party signing is one of the partners.
 The party is a corporation. The party signing is authorized to sign on behalf of the corporation. A copy of the resolution of the corporation's Board of Directors which delegates signatory authority to the individual signing is to be attached to this bid form. This resolution can be a general delegation of authority for signing bids or can be a specific authorization for this project. The Secretary of the corporation shall authenticate the resolution as currently being in full force and effect.
 Signatory authority is evidenced by other means noted below:



Bid Form 4: Bid Guaranty

If a Bid Bond is supplied, the Ohio Statutory Bid Guaranty and Contract Bond, as set forth in ORC 153.571 is to be used.

Please include your bid bond or bid check at the front of your submitted bid packet

PERFORMANCE BOND AFFIDAVIT

Unless Bidder submits, with its bid, a Bid and Contract Bond per ORC. 153.571, Canton may request that the Bidder obtain, from its insurance representative, a performance bond affidavit that contains the representations noted below. The affidavit shall be made on the insurance agency's letterhead, reference this project by name and state at least the following:

- (1) The representative certifies that, should the contract be awarded to the contractor on whose behalf the certificate is being provided, the performance bond specified will be provided.
- (2) The name and A.M. Best Company ratings of companies which are expected to provide the required performance bond.

THE PERFORMANCE BOND AFFIDAVIT SHALL BE NOTARIZED



Bid Form 5: Bidder Information

Bidder Information Page 1 of 3

1.	The Bidder shall provide the f	ollowing informa	ation as part of it	s bid.
a.	Name of Bidder			_
b.	Business Address			_
	Ci	ty	State	Zip
c.	Business Telephone Number	()		
d.	Person, address, email and telephone to whom official notices are to be sent			
e.	Person, address, email and telephone for further information regarding this proposal			
f.	State(s) of incorporation (w/dates of incorporation)			
g.	Principal place of business			
h.	Federal I.D. Number	#		
i.	Amount of Certified Check, Cashier's Check, Bid Bond	\$		



Bidder Information Page 2 of 3

2.	Form of Business Organization.		
	Corporation	Partnership	Other
3.		ames and addresses of all persons s) in this proposal. Write first name in	
-	All of documents in the discontinuous		
		gnatory to this bid, are citizens of the Unddresses of those not a citizen of the	-
- 1. -	Name and address of other person	n, firms or companies interested in thi	is contract.
- 5.	office, sales outlet, manufacturing	tion: Does your company have a heacing facility, or similar significant busing se provide the name and address of the	iness-related location in
-			



Bidder Information Page 3 of 3

The undersigned certifies that the bidder has the facilities, ability and financial resources available for the fulfillment of the contract if such be awarded to said bidder.

Upon request, the bidder will be expected to amplify the foregoing statements as necessary to satisfy the OWNER concerning his ability to successfully perform the work in a satisfactory manner.

Signed this	day of	
		Contractor
	Ву	
	(Signature of in	ndividual, partner or officer signing the proposal.)
	ribed before me th	isday of
	, - v	
		Notary Public in and for
		County,
	My Co	mmission Expires:
		, 20



Bid Form 6: Project References

Each bidder should provide a list of comparable projects performed over the last three (3) years (maximum of 10) indicating the following:

- Owner (with name, address and telephone number of Owner's project manager).
- General description of work, and size and type of project. Also indicate whether participation was as a prime or subcontractor. If the bidder's participation on the project was as a subcontractor, identify prime contractor with information requested above for the OWNER.

All previous work for the OWNER over the last five (5) years should be identified.



Bid Form 7: Bidder's Affidavit: Non-Collusion Statement, Page 1

This affidavit is to be filled out and executed by the bidder; if the bid is made by a corporation, then by its properly authorized agent.

STATE OF)
) SS: COUNTY OF)
hairs first duly arrows dansess and save that ha is
being first duly sworn, deposes and says that he is
(Sole Owner, a Partner, President, Secretary, etc.)
of
the party making the enclosed proposal or bid, and say further that
(Give names of all persons, firms or corporations interested in the bid)

is/are the only party or parties interested with the party making this bid in the profits of any contract which may result from the herein contained proposal; that the said proposal is made without any connection or interest in the profits thereof with any other person making any other bid or proposal for said work; that no member of the City of Canton, head of any department or bureau or employee therein or any official or officer of City of Canton, is directly or indirectly interested therein; that said proposal or bid is genuine and not collusive or sham; that said bidder has not colluded, conspired, connived, or agreed, directly or indirectly, with any bidder or person, to put in a sham bid, or that such 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 the OWNER, or any person interested in the proposed contract; and that all



Bid Form 7: Page 2

statements contained in said proposal or bid are true; that such bidder has not, directly or indirectly submitted this bid, or the contents thereof, or divulged information or data relative thereto any association or to any member or agent thereof; and further says that all the statements made by him in said proposal or bid are true.

	Affiant	
Sworn to and subscribed before me this	day of	
, 20		
	Notary Public in and for	
	County,	
My Commis	ssion Expires:	
		20



Bid Form 8: Factors to Be Used When Determining Lowest and Best Bid, Page 1

NOTICE

All bidders shall hereby take notice of the factors to be considered by the Board of Control in determining whether a bid is not only the lowest bid, but the best bid. Said factors are contained in Canton Ordinance 86/2009, Chapter 105.01.

QUESTIONNAIRE

When completing Bid Form #8, please submit your answers, separately, on your company letterhead and attach to Bid Form #8.

In accordance with Canton Ordinance 86/2009, Chapter 105.01, Section (c), each bidder must complete the following questionnaire. This questionnaire is to be completed in a truthful and responsible manner by the bidder. The City reserves the right to consider the bidder in default for any false or misleading information supplied per this questionnaire. If the bid is made by a corporation, then this questionnaire is to be completed by its properly authorized agent.

- 1. Please describe the work, supplies and materials covered by the bidder's bid.
- 2. Please state the identification of all work to be subcontracted. All subcontractors are also subject to the approval of the Board of Control based on the criteria contained in this section.
- 3. Please provide the descriptions of the bidder's experience with projects of comparative size, complexity and cost within recent years, demonstrating the bidder's ability and capacity to perform a substantial portion of the project with its own forces.
- 4. Please provide documentation from previous, similar projects regarding timeliness of performance, quality of work, extension requests, fines and penalties imposed and payments thereof, liens field, explanations of the same.
- 5. Please state the number of years the bidder has been actively engaged as a contractor in the construction industry.
- 6. Please provide your recent experience record in the construction industry, including the original contract price for each construction job undertaken by the bidder, the amount of any change orders or cost overruns on each job, the reasons for the change orders or cost overruns, and the bidder's record for complying with and meeting completion deadlines on construction projects.
- 7. Please identify any project(s) within the previous five years that the bidder was determined by a public entity not to be a responsible bidder, the reasons given by the public entity, together with an explanation thereof.



Bid Form 8: Page 2

- 8. Please identify your financial responsibility to assure that the bidder processes adequate resources and availability of credit, the means and ability to procure insurance and acceptable performance bonds required for the project and whether any claims have been made against performance bonds secured by the bidder on other construction projects.
- 9. Please describe any suspension or revocations of any professional license of any director, officer, owner, or managerial employees of the bidder, to the extent that any work to be performed is within the field of such licensed professional.
- 10. Please describe any and all OSHA violations within the previous three years, as well as all notices of OSHA citations filed against the bidder in the same three year period, together with an explanation of remediation or other steps taken regarding such violations and notices of violation.
- 11. Please describe any and all violations within the previous five years pertaining to unlawful intimidation or discrimination against any employee by reason race, creed, color, disability, gender or national origin and/or violations of an employee's civil or labor rights or equal employment opportunities.
- 12. Please describe any litigation (including copies of pleadings) in which the bidder has been named as a defendant or third party defendant in an action involving a claim for personal injury or wrongful death arising from performance of work related to any project in which it has been engages within the previous five years.
- 13. Please describe any allegations of violations of the prevailing wage law and any other state or federal labor law, including, but not limited to, child labor violations, failure to pay wages, or unemployment insurance tax delinquencies or unfair practices within the past five years.
- 14. Please describe any violations of the worker compensation law.
- 15. Please describe any criminal convictions or criminal indictments, involving the bidder, its officers, directors, owners, and/or managers within the past five years.
- 16. Please describe any violation within the past five years or pending charges concerning federal, state, or municipal environmental and/or health laws, codes, rules and/or regulations.
- 17. Please provide documentation that the bidder provides health insurance and pension benefits to its employees.
- 18. Please state the experience and the continuity of the bidder's work force.



Bid Form 8: Page 3

- 19. Please submit the identity of the bidder's permanent work force that will be employed on the public contract, to include the number of employees (or contract labor) to be assigned to the contract, their city and state of residence, and their job descriptions or trade specialties.
- 20. Please provide the identity of any temporary work force that will be employed on the public contract, to include the number of employees (or contract labor) to be assigned to the contract, their city and state of residence, and their job descriptions or trade specialties.
- 21. Please state whether the bidder's work force is drawn mainly from local employees as defined below. The number of local employees, and their job descriptions or trade specialties that the bidder will employ on the public contract.

Local Employee Definition

- A. A person residing within the City of Canton or Stark County,
- B. A person working for a contractor or from a pool of labor located within the City of Canton or Stark County; or
- C. Due to the specialty nature of the employment to be performed, where a suitable person meeting either subsection A or B hereof is not available, a person residing or working within a location as close to Canton as is available. A "suitable person" means a person who is qualified to perform the work or trainable within a reasonable period of time.
- 22. If the bidder claims that non-local employees (or non-local contract labor) are to be assigned to the public contract instead of local employees, please state in detail the reasons therefore.
- 23. If the bidder claims that local employees are not intended to be used by the bidder on the public contract because they are not available, qualified or trainable within a reasonable period of time, please state in detail the reasons therefore.
- 24. State whether the bidder participates in a bona fide apprenticeship program that is approved by the Ohio State Apprenticeship Council and the United States Department of Labor.
- 25. State whether the bidder has adopted and implemented a comprehensive drug and alcohol testing program for its employees.
- 26. State whether the bidder's employees are OSHA-10 and/or OSHA-30 certified.



Bid Form 9: Insurance Affidavit and Requirements

Insurance Requirements

- A. The following standard indemnity agreement and minimum insurance requirements are incorporated in the Specifications for all work performed by the Contractor for the City of Canton, Ohio and its affiliated and associated organizations or subsidiaries hereinafter referred to as Owner.
 - I. The Contractor agrees to indemnify and save the Owner harmless from and against any and all costs, loss and expense, liability damages, or claims for damages, including cost for defending any action, on account of any injury to persons (including death) or damage to or destruction of property of the Owner, arising or resulting from the work provided for or performed, or from any act, omission, or negligence of the Contractor, Subcontractor and his or their agents or employees. The foregoing provisions shall in no way be deemed released, waived or modified in any respect by reason of any insurance or surety provided by the Contractor.
 - II. The Contractor shall maintain insurance of the kinds and in amounts specified in the attached schedule and furnish the Director of Public Service with Certificates of Insurance as evidence thereof in the prescribed form. If any work provided for or to be performed under any Specifications is sublet (as otherwise permitted by the terms of such Specifications), the Contractor shall require the sub-contractors to maintain and furnish him with satisfactory evidence of Workmen's Compensation, Employers' Liability and such other forms and amounts of insurance which Contractor deems reasonably adequate.
 - III. In accordance with Item II, the Contractor shall maintain the following insurance:
 - 1. Worker's Compensation and Employer's Liability Insurance affording,
 - (a) Protection under the Workmen's Compensation Law in the State of Ohio.
 - (b) Employer's Liability protection subject to a minimum limit of \$100,000.00.
 - 2. Commercial General Liability Insurance in amounts not less than:

\$2,000,000.00
\$2,000,000.00
\$1,000,000.00
\$1,000,000.00
\$100,000.00
\$5,000.00



This insurance shall:

- a. include coverage for the liability assumed by Contractor under Item I (Indemnity);
- b. not to be subject to any of the special property damage liability exclusions commonly referred to as the XCU exclusions pertaining to blasting or explosion, collapse or structural damage and underground property;
- c. not be subject to any exclusion of property used by the insured or property in the care, custody or control of the insured or property as to which the insured for any purpose is exercising physical control unless the required Builders Risk or Installation Floater coverage is indicated on the required Certificate of Insurance (Item III.4);
- d. and the Certificates of Insurance furnished by the Contractor shall show by specific reference that each of the foregoing items have been provided for.
- e. Include the City of Canton, Ohio and its agents, as an additionally named insured for purposes of coverage under the subject policy.
- 3. Comprehensive Automobile Liability Insurance in the following minimum amounts:

Bodily Injury and Property Damage any one accident or loss:

\$1,000,000.00

4. The contractor will provide and maintain Installation/Builders Risk Insurance to protect the interests of both the contractor and the owner for materials transported to the job, stored or installed on the premises, or stored at any temporary location off premises. Such insurance shall be written on an "All Risk" form to include the perils of Fire, Extended Coverage, Vandalism, Malicious Mischief, Theft, Collapse and Water Damage. The amount of Insurance shall be 100% of the insurable value of the work to be performed including all items of labor and materials incorporated therein, materials in storage on or off the job site to be used in completing the work, and such other supplies and equipment incidental to the work as are not owned or rented by the contractor, the cost of which is included in the direct cost of the work. This Insurance shall not cover any tools, derricks, machinery, tar buckets, ladders, engines, workmen's quarters, boilers, pumps, wagons, scaffolds, forms, compressors, shanties or other items owned or rented by the Contractor, the cost of which is not included in the direct cost of the work.

B. The Certificates of Insurance furnished by the Contractor as evidence of the Insurance maintained by him shall include a clause obligating the Insurer to give the City of Canton thirty (30) days prior written notice for cancellation or any material change in the insurance.

Insurance Affidavit

Each bidder should obtain from its insurance representative and include in the bid submittal an insurance affidavit that contains the representations noted below. Make the affidavit on the insurance agency's letterhead, reference this project by name, and state at least the following:

- 1. The representative has reviewed and understands the insurance requirements (including the cancellation/non-renewal provisions) set forth in Bid Form 9.
- 2. The representative certifies that the company will provide the specified insurance should the contract be awarded to the contractor on whose behalf the certificate is being provided.
- 3. The names and A.M. Best Company ratings of companies required to provide the required insurance.

You must have the insurance affidavit notarized.

The successful bidder will be required to provide evidence of the required insurance as outlined in this bid form.



Bid Form 10: Bidder's Affidavit: Foreign Corporation

Note: This statement is to be reproduced on the bidder's letterhead, signed by the authorized bid signatory, notarized and submitted with the bid.



Bid Form 11: Listing of Subcontractors

The bidder shall set forth the name, location of principal place of business, proposed amount of subcontract, and type of work to be performed of each subcontractor who will perform work or labor or render service, as listed, to the bidder in or about the construction of the work or improvement to be performed under the contract for which the attached bid is submitted, and where the portion of the work which will be performed by each subcontractor will be. Note that subcontractors are distinguishable from suppliers.

<u>Subcontractor</u> – An individual or entity having a direct contract with CONTRACTOR or with any other Subcontractor for the performance of a part of the work at the site.

<u>Supplier</u> – A manufacturer, fabricator, supplier, distributor, material man, or vendor having a direct contract with CONTRACTOR or with any Subcontractor to furnish materials or equipment to be incorporated in the work by the CONTRACTOR or any Subcontractor.

The Bidder understands that if he fails to specify a subcontractor for any portion of the work to be performed under the Contract, he shall be deemed to have agreed to perform such portion himself.



Bid Form 12: Personal Property Tax Certification (ORC 5719.042)

NOTE: The below form and/or certification <u>must</u> be retyped on the bidder's letterhead and notarized utilizing either paragraph (A) or (B), and paragraph (C) as it applies to your company.

Office of the Auditor Cit 21 Ca

218 Cl	Canton eveland Avenue S.W., 2 nd floor A, OH 44702		
To Wh	om It May Concern:		
(A)	The undersigned hereby certifies the considered was not charged with any bid opening for the project nor is said the general tax list of personal proper	delinquent personal property tax party currently charged with sucl	at the time of the
		Or	
(B)	The undersigned hereby certifies the considered has been charged with a general tax list of personal property for of bid opening for the project. The including any due and unpaid penaltic	delinquency regarding personal por Stark County, Ohio, either curred amount of the due and unpaid	property tax on the ently, or at the time delinquent taxes,
		and	
(C)	It is understood that, under Ohio law, bid has been tentatively accepted, and requires that his statement is to be subbe incorporated into the pending cont subject contract.	I must be affirmed under oath. The mitted to the City Auditor and the	ne law also is statement must
	Name of Company	Signato	ry
		Secret	ary
Sworn	to and subscribed in my presence this	day of	, 20
	-	(Notary Public)	



Bid Form 13: Certification: Auditor of the State of Ohio

•	
(Name of person signing affidavit)	(Title)
do hereby certify that(Company or Individual)	does not have an dual Name)
outstanding unresolved finding for recover	y issued by the Auditor of the
State of Ohio as defined by Ohio Revised	Code (ORC) Section 9.24 as of
(Current date)	
	Signature of Officer or Agent
	Name (Print)
Sworn to and subscribed in my presence th	is day of
, 20	
	(Notary Public)
	(Trotal y Tublic)



Bid Form 14: Articles of Incorporation

Please provide a copy of the bidding company's articles of incorporation. The City of Canton may request this information if it is not provided.



Bid Form 15: W-9 Tax Form

Please attach your company's current W-9 Tax Form.



Section VII: Supplemental Specification 01-00

PROJECT DOCUMENTATION AND SUBMITTAL REQUIREMENTS FOR ALL PUBLIC WORK PROJECTS AND SUBDIVISION DEVELOPMENTS

September, 2000 * Revised August, 2009

Project Submittals: The following listed items are the full responsibility of the Contractor. These items become part of the administrative duties imposed upon this Contract. The Contractor shall be responsible for submitting all detail items prior to the contract Notice of Commencement, or as directed by the City's Project Manager. A typewritten letter shall accompany all items, on Company letterhead; clearly describe each item submitted. If Contractor elects to fax any documentation due to expediency, the Contractor will be responsible for submitting hard copy for project documentation. The City will reject any information not clearly legible. **Submit four copies of the project submittals.**

Contractor will clearly affix a label or stamp identifying the submittal and its status for project review. All actions other than "no exception taken" will require supporting notation or information for project review.

Allow at least 10 business days for City's review and execution. The City Project Manager shall assist the Contractor with any questions or clarification during this process to ensure timely response to the Contractor.

The City will not pay directly for the performance of the work listed. This work is a subsidiary obligation of the Contractor.

- 1. Shop Drawings
- 2. Preconstruction Video
- 3. Progress Schedule
- 4. Release Statement for Disposal of Excavated Material
- 5. Traffic Control Plan
- 6. Contractor and Subcontractor Emergency Contact List
- 7. Statements of Final Compliance

1. Shop Drawings

- a) Upon written request from the Engineer, the Contractor shall submit detailed drawings, acceptable catalog data, specification and material certifications for all materials and/or equipment specialized or required for the proper completion of the work.
- b) Contractor shall submit shop drawings in not less than four (4) copies to the Engineer.
- c) Contractor shall submit shop drawings in proper sequence of construction to cause no delay in the work. The Engineer will have ten (10) business days to review submittals. The Contractor's failure to transmit appropriate submittals to the Engineer sufficiently in advance of work shall not be grounds for time extension. No work shall be performed



requiring shop drawings until same the Engineer has approved these shop drawings.

- d) Label each shop drawing with the following:
 - 1. Project Name
 - 2. Name of Contractor
 - 3. Name of Subcontractor (if applicable)
 - 4. Name and Address of Supplier and/or Manufacturer
 - 5. Log Reference Number
- e) The Contractor is responsible for reviewing and approving all shop drawings prior to submittal. The Engineer's review does not make him responsible for the accuracy of said drawings.
- 2. **Preconstruction Video:** Prior to actual construction, the Contractor shall take video recording of the entire length and width of the work site.
 - a) The Contractor shall notify the Engineering Department prior to scheduling the video recording of the site. A representative of the Engineering Department shall be present when the recording this video.
 - b) The video and audio recordings shall be on DVD or pre-approved alternative for replay. Contractor must submit alternative medium to the Engineer and approval received prior to scheduling.
 - c) The video portion shall have continuous time and date incorporated into it, locations and person(s) doing the work.
 - d) Audio comments during the recording must address each item in the field of view as it may pertain to the project construction. The recording technician will need to become familiar with the project plans to know what subject matter is pertinent. Further, contractor must incorporate a post recording review and audio comments into the recording.
 - e) Submitted copies of all recordings are the property of the Engineer. Contractor must submit the recording and be accepted in full by the Engineering Department prior to the start of construction.
- 3. **Progress Schedule:** The Contractor shall provide to the City, as mutually agreed upon at the Contract's Preconstruction meeting, a graphic progress schedule, which shall include the following:
 - a) Progress schedule as a minimum to be prepared in **CRITICAL PATH METHOD FORMAT (CPM)**. The schedule shall be submitted, as a minimum, on 11" x 17" format for clarity and any necessary notations. Progress schedule shall include all work activities relative to the project, as further described in the Contract. Activities and rate of expected progress to secure completion as set forth in the Contract shall be shown on the schedule. Contractor to annotate any milestones that may be indicated in the Contract. Project completion date shall be clearly defined on the original schedule and all ensuing schedules provided.
 - b) Schedules shall be updated, as a minimum, every 30 days, or as agreed to by the City's Project Manager.



4. Release Statement for Disposal of Excavated Materials

- (a) The Contractor shall provide to the City a written consent statement from all property owners whose property is a landfill depository for all surplus or unsuitable excavated material from the project site.
- (b) The Contractor shall follow ODOT 105.16 for specific guidelines and name the "City of Canton" in lieu of "the Department" on all forwarded documents. The City requires a contract or permit that contains the language stating that the City is not party to the contract or permit, the material is not the City's, and that the contractor and the property owner will hold the City harmless from claims that may arise from this contract or permit.
- (c) See attached sample copy for referencing purposes.
- 5. **Traffic Control Plan:** Contractor shall submit a graphical presentation or written document detailing the signage to be used and its location for maintenance of traffic. If traffic control will be performed in stages, submit a plan for each stage. Any proposed detours should be approved by the Engineer prior to plan submission.
- 6. **Contractor and Subcontractor Emergency Contact List:** Contractor shall submit to the Engineer, prior to commencing construction, a complete list of the Contractor's personnel associated with the project. List should include name, title, and emergency contact phone numbers for each individual.
- 7. **Statements of Final Compliance:** The Contractor shall submit to the City the following documentation, in addition to the Project's General Conditions. All submittals shall be completed and approved prior to the release of the final retainer.
 - a) <u>Certificates of Substantial and Final Completion.</u> Contractor shall submit in writing, the date on which work is substantially completed and upon Final Completion. Any deviation from the stated contract completion date to what is being submitted shall be explained further by the Contractor. The City, at their discretion, will further review this subject, as needed.

b) Final Waiver of Lien

Contractor shall furnish a written report indicating the resolution of any and all property damage claims filed with Contractor by any party during the contract period. The information shall include the name of claimant; date filed with Contractor; name of Insurance Company and/or Adjustor handling the claim; how the claim was resolved; if claim was not resolved for the full amount, a statement indicating the reason for such action. If there were no damage claims filed with the Contractor, then this shall be so stated in the report.



(SAMPLE COPY) Waste Disposal Agreement for Projects in the City of Canton

		ional and discretionary to the undersigned
THIS W	VASTE AGREEMENT, made this	day of 20 , by and between d "Contractor"), and of
	(called	d "Contractor"), and of
	(call	ed "Land Owner"), concerning a certain construction contract
betweei	the Contractor and	in the City of Canton, OH for the
		ect), as follows:
1.		er grants to Contractor the exclusive right to place dirt, earth, rock,
		ther excess material (called "waste material") upon the area
		ithout requirement, limit, or restriction as to depth, amount, manner,
_	or time.	
2.		hich Contractor is permitted to place material is commonly known
_	as	(address).
3.		Owner warrants that it has title to and the right to contract for
		a and agrees to defend and indemnify Contractor against any claim,
	suit, or damage arising out of such title	
4.		eby grants Contractor the right of ingress and egress to the waste
		ractor for all purposes necessary to the complete fulfillment of this
_	agreement, and the right of quiet enjoys	
5.		and Land Owner agrees to accept as full and final compensation for
	C C	ned herein and all claims of every nature the sum of
	payable	
6.		mutually agreed that measurement of the amount of materials
		on the following basis: and
7	said measurement shall be binding upon	
7.		wes any and all claims for damage to the waste area and to the area of
0	ingress and egress except as specifically	
8.		nent hereunder, and provided all terms of this agreement have been
	fulfilled, Land Owner nereby releases C	Contractor from further liability of any kind or nature hereunder.
X/ITNII	ESSES:	CONTRACTOR:
WIINI	COOEO:	CONTRACTOR:
		A. d 1 C' 0 T' d .
		Authorized Signature & Title
		I ANDOWNED.
		LANDOWNER:
		Signatura
		Signature

- 9. <u>ENTIRE AGREEMENT:</u> It is agreed that the terms and conditions of this agreement are fully covered in the foregoing, and that any oral or written statements made by either party, or agents claiming to represent either party, not set forth herein, are not binding on the parties and are not considered as part of this Agreement.
- 10. <u>DISCLAIMER:</u> The City of Canton is not a party to the here above agreement. The Contractor and Landowner shall indemnify and save harmless the City of Canton from any claim that may arise from the here above agreement. The waste material is the property of the Contractor, not the City of Canton



Section VIII: Signature and Proposal Pages

Signature Page Cornerstone Parking Garage Tenant Space Remodel Project The City of Canton Water Department Billing

To the Director of Public Service of the City of Canton:

The undersigned, having carefully examined the complete invitation to bid, herewith proposes to furnish all the labor and materials required to complete the **Cornerstone Parking Garage Tenant Space Remodel Project, The City of Canton Water Department Billing** in accordance with the specifications on file, including any and all work and materials that may be necessary to complete the project in a proper and workmanlike manner, and in accordance with the instructions in the bid packet and under the direction of and to the satisfaction of the Director of Public Service of said City.

Director of Public Service of said City.	
The bidder hereby agrees that the Director of Public Service the bid(s) deemed most beneficial to the City of Canton.	has the right to reject any and all bids and to accept
The bidder hereby certifies that the undersigned in the bid and the bidder herewith certifies that no officer or interested therein.	is the only person interested employee of the City of Canton is in any manner
The bidder herewith encloses a	work included in the proposal, the Director of Public Service, within the notice of award, otherwise such bond or checks shal
The bidder acknowledges receipt of Addenda Numbers:	,
SIGNATURE OF BIDDER:	
(1.) NOTE: If bidder is a corporation, set forth the legal nam	e of the corporation, together with the signature of

(1.)**NOTE:** If bidder is a corporation, set forth the legal name of the corporation, together with the signature of the officer or officers authorized to sign contracts on behalf of the corporation. If bidder is a partnership, set forth the name of the firm, together with the signature of the partner or partners authorized to sign contracts on behalf of the partnership.



Proposal Page

We (I), the above signed hereby propose to furnish the following article(s) and/or service(s) at the price(s) and terms stated subject to all instructions, conditions, specifications, and all attachments hereto. We (I) have read all attachments including the specifications and fully understand what is required.

BID ITEM	SPEC ITEM	DESCRIPTION	QTY	UNIT	PRICE LABOR	PRICE MATERIAL	TOTAL
RECONSTR	RUCTION C	DF SPRINGHOUSE					
Base Bid	ALL	Perform all General Contract work as outlined in specification manual and as shown on drawings	1	Lump			
Allowance		General Contractor to Furnish and Install Exterior Building Signage.	1	Lump			\$7,000.00
Allowance		General Contractor to include General Purpose Construction Allowance.	1	Lump			\$10,000.00
		PROJECT TOTAL					

Bid Price in Figures	FRC	OM:
Bid Price in Words		
Worus		

Appendix A: Contractor's Final Release and Waiver of Lien

	Project/Owner		Contractor								
Project:			Nam	ne:							
Address:			Add	ress:							
City	State	Zip	City		State	Zip					
Owner:			Cont	tractor License	:	<u> </u>					
Contract Date: _											
TO ALL WHO	M IT MAY CONCE	ERN:									
liens against the in the name of t available for the such funds or m a result of the fu Contractor on o contract betwee liens, claims or	ntractor hereby wait e above-mentioned phe above-referenced e construction of sait nonies, which the unarnishing of labor, nor in connection with on the Contractor and rights of lien may and	project, and any d Owner and aga d project, and an idersigned Continuaterials, and/or a said project, will the Owner per rise and exist.	and all oth ainst any and all vactor may equipment hether und taining to s	er property ow and all funds of warrants drawn have or may he t, and the perfo er and pursuant said project or o	ned by or the tit the Owner appro- upon or issued ereafter acquire rmance of Work to the above-montherwise, and v	le to which is opriated or against any or possess as a by the aentioned which said					
connection with the Contractor v	n said project whether will constitute paym ractor may have or a	er under said con ent in full and w	ntract or ot vill fully sa	herwise and that tisfy any and a	at the payment of ll liens, claims,	of said sum to and demands					
		Dat	ed this	day of	2	20					
				Signati	ure	<u>.</u>					
Witness to Sign	ature:	Na	ame Printe	d:							
		_ Ti	tle:								

Prevailing Wage Determination Cover Letter

 County:
 STARK

 Determination Date:
 12/20/2018

 Expiration Date:
 03/20/2019

THE FOLLOWING PAGES ARE PREVAILING RATES OF WAGES ON PUBLIC IMPROVEMENTS FAIRLY ESTIMATED TO BE MORE THAN THE AMOUNT IN O.R.C. SEC. 4115.03 (b) (1) or (2), AS APPLICABLE.

Section 4115.05 provides, in part: "Where contracts are not awarded or construction undertaken within ninety days from the date of the establishment of the prevailing wages, there shall be a redetermination of the prevailing rate of wages before the contract is awarded." The expiration date of this wage schedule is listed above for your convenience only. This wage determination is not intended as a blanket determination to be used for all projects during this period without prior approval of this Department.

Section 4115.04, Ohio Revised Code provides, in part: "Such schedule of wages shall be attached to and made a part of the specifications for the work, and shall be printed on the bidding blanks where the work is done by contract."

The contract between the letting authority and the successful bidder shall contain a statement requiring that mechanics and laborers be paid a prevailing rate of wage as required in Section 4115.06, Ohio Revised Code.

The contractor or subcontractor is required to file with the contracting public authority upon completion of the project and prior to final payment therefore an affidavit stating that he has fully complied with Chapter 4115 of the Ohio Revised Code.

The wage rates contained in this schedule are the "Prevailing Wages" as defined by Section 4115.03, Ohio Revised Code (the basic hourly rates plus certain fringe benefits). These rates and fringes shall be a minimum to be paid under a contract regulated by Chapter 4115 of the Ohio Revised Code by contractors and subcontractors. The prevailing wage rates contained in this schedule include the effective dates and wage rates currently on file. In cases where future effective dates are not included in this schedule, modifications to the wage schedule will be furnished to the Prevailing Wage Coordinator appointed by the public authority as soon as prevailing wage rates increases are received by this office.

"There shall be posted in a prominent and accessible place on the site of work a legible statement of the Schedule of Wage Rates specified in the contract to the various classifications of laborers, workmen, and mechanics employed, said statement to remain posted during the life of such contract." Section 4115.07, Ohio Revised Code.

Apprentices will be permitted to work only under a bona fide apprenticeship program if such program exists and if such program is registered with the Ohio Apprenticeship Council.

Section 4115.071 provides that no later than ten days before the first payment of wages is due to any employee of any contractor or subcontractor working on a contract regulated by Chapter 4115, Ohio Revised Code, the contracting public authority shall appoint one of his own employees to act as the prevailing wage coordinator for said contract. The duties of the prevailing wage coordinator are outlined in Section 4115.071 of the Ohio Revised Code.

Section 4115.05 provides for an escalator in the prevailing wage rate. Each time a new rate is established, that rate is required to be paid on all ongoing public improvement projects.

A further requirement of Section 4115.05 of the Ohio Revised Code is: "On the occasion of the first pay date under a contract, the contractor shall furnish each employee not covered by a collective bargaining agreement or understanding between employers and bona fide organizations of Labor with individual written notification of the job classification to which the employee is assigned, the prevailing wage determined to be applicable to that classification, separated into the hourly rate of pay and the fringe payments, and the identity of the prevailing wage Coordinator appointed by the public authority. The contractor or subcontractor shall furnish the same notification to each affected employee every time the job classification of the employee is changed."

Work performed in connection with the installation of modular furniture may be subject to prevailing wage

THIS PACKET IS NOT TO BE SEPARATED BUT IS TO REMAIN COMPLETE AS IT IS SUBMITTED TO YOU. (Reference guidelines and forms are included in this packet to be helpful in the compliance of the Prevailing Wage law.)
wh1500

1 of 1 12/20/2018, 9:50 AM

Prevailing Wage Rate Skilled Crafts

Name of Union: Boilermaker Local 744

Change # : CN01-2008Loc744

Craft: Boilermaker Effective Date: 07/01/2009 Last Posted: 06/30/2010

	ВІ	HR		F	ringe Bene	fit Paymer	its		Irrevocable Fund		Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classifi	cation											
Boilermaker	\$36	5.84	\$6.82	\$6.46	\$0.35	\$0.00	\$3.75	\$0.00			\$54.22	\$72.64
Apprentice	Per	cent										
1st 6 months	70.00	\$25.79	\$6.62	\$6.46	\$0.30	\$0.00	\$3.75	\$0.00			\$42.92	\$55.81
2nd 6 months	72.52	\$26.72	\$6.62	\$6.46	\$0.30	\$0.00	\$3.75	\$0.00			\$43.85	\$57.20
3rd 6 months	75.00	\$27.63	\$6.62	\$6.46	\$0.30	\$0.00	\$3.75	\$0.00			\$44.76	\$58.58
4th 6 months	77.51	\$28.55	\$6.62	\$6.46	\$0.30	\$0.00	\$3.75	\$0.00			\$45.68	\$59.96
5th 6 months	80.02	\$29.48	\$6.62	\$6.46	\$0.30	\$0.00	\$3.75	\$0.00			\$46.61	\$61.35
6th 6 months	85.00	\$31.31	\$6.62	\$6.46	\$0.30	\$0.00	\$3.75	\$0.00			\$48.44	\$64.10
7th 6 months	90.00	\$33.16	\$6.62	\$6.46	\$0.30	\$0.00	\$3.75	\$0.00			\$50.29	\$66.86
8th 6 months	95.02	\$35.01	\$6.62	\$6.46	\$0.30	\$0.00	\$3.75	\$0.00			\$52.14	\$69.64
Helper	60.00	\$22.10	\$6.82	\$6.46	\$0.35	\$0.00	\$3.75	\$0.00			\$39.48	\$50.54

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

5 Journeymen to 1 Apprentice to 1 Helper

Jurisdiction (* denotes special jurisdictional note) :
ASHTABULA, CARROLL, COSHOCTON, CUYAHOGA, GEAUGA, HARRISON,
HOLMES, LAKE, LORAIN, MAHONING, MEDINA, PORTAGE, STARK, SUMMIT,
TRUMBULL, TUSCARAWAS, WAYNE

Special Jurisdictional Note:

Details:

12/20/2018, 8:57 AM 1 of 1

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 #: CN1-2017-fbBldgHevHwy

Craft: Truck Driver Effective Date: 07/05/2017 Last Posted: 07/05/2017

	Bl	HR		Fr	ringe Benef	it Paymer	nts		Irrevo Fu		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 Dump Trucks-Low boys-Heavy duty Equipment(irrespective of load carried) when used exclusively for transportation-Truck Mechanics (when needed)		5.91	\$7.00	\$7.30	\$0.20	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$41.41	\$54.87
Apprentice	Per	cent										
First 6 months	80.00	\$21.53	\$7.00	\$7.30	\$0.20	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$36.03	\$46.79
7-12 months	85.00	\$22.87	\$7.00	\$7.30	\$0.20	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$37.37	\$48.81
13-18 months	90.00	\$24.22	\$7.00	\$7.30	\$0.20	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$38.72	\$50.83
19-24 months	95.00	\$25.56	\$7.00	\$7.30	\$0.20	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$40.06	\$52.85
25-30 months	100.00	\$26.91	\$7.00	\$7.30	\$0.20	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$41.41	\$54.87

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

Ratio:

3 Journeymen to 1 Apprentice per company/project

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.

1 of 1 12/20/2018, 9:37 AM

Prevailing Wage Rate Skilled Crafts

Name of Union: Elevator Local 45

Change #: LCN01-2012kpLoc45

Craft : Elevator Effective Date : 04/04/2012 Last Posted : 04/04/2012

	BI	łR	Fringe Benefit Payments							ocable nd	Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classifi	cation											
Elevator Mechanic	\$41	92	\$11.03	\$6.96	\$0.55	\$3.35	\$5.00	\$0.00	\$0.00	\$0.00	\$68.81	\$89.77
Helper	\$29	0.34	\$11.03	\$6.96	\$0.55	\$1.76	\$5.00	\$0.00	\$0.00	\$0.00	\$54.64	\$69.31
0-6 months Probation	50.00	\$20.96	\$11.03	\$6.96	\$0.55	\$1.26	\$5.00	\$0.00	\$0.00	\$0.00	\$45.76	\$56.24
1st year	55.00	\$23.06	\$11.03	\$6.96	\$0.55	\$1.38	\$5.00	\$0.00	\$0.00	\$0.00	\$47.98	\$59.50
2nd year	65.00	\$27.25	\$11.03	\$6.96	\$0.55	\$1.64	\$5.00	\$0.00	\$0.00	\$0.00	\$52.43	\$66.05
3rd year	70.00	\$29.34	\$11.03	\$6.96	\$0.55	\$1.76	\$5.00	\$0.00	\$0.00	\$0.00	\$54.64	\$69.32
4th year	80.00	\$33.54	\$11.03	\$6.96	\$0.55	\$2.01	\$5.00	\$0.00	\$0.00	\$0.00	\$59.09	\$75.85

Special Calculation Note: Vacation moves to 8% of BHR after 5 years

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.

 $\begin{tabular}{ll} \textbf{Jurisdiction (* denotes special jurisdictional note):} \\ ASHLAND, CARROLL, COLUMBIANA, COSHOCTON, HARRISON, HOLMES, \\ \end{tabular}$ MAHONING, MEDINA, PORTAGE, RICHLAND, STARK, SUMMIT, TRUMBULL, TUSCARAWAS, WAYNE

Special Jurisdictional Note:

Details:

Vacation 6%/under 5 years based on regular hourly rate for all hours worked. 8%/over 5 years based on regular hourly rate for all hours worked.

1 of 1 12/20/2018, 9:29 AM

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

	BI	łR	Fringe Benefit Payments							cable nd	Total PWR	Overtime Rate
		H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC			
									(*)	(*)		
Classification												
Carpenter	\$19	0.70	\$5.05	\$1.00	\$0.15	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$25.90	\$35.75
Trainee	Per	cent										
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

1 of 1 12/20/2018, 9:21 AM

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		F	ringe Bene	fit Paymen	its		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/ Erector Class C	\$15.90	\$1.33	\$0.14	\$0.00	\$0.61	\$0.00	\$0.43	\$0.00	\$0.00	\$18.41	\$26.36
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:

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.

Jurisdiction (* denotes special jurisdictional note) :

ADAMS, ALLEN, AUGLAIŻE, BRÓWN, 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

1 of 1 12/20/2018, 9:33 AM

Prevailing Wage Rate Skilled Crafts

Name of Union: Cement Mason Statewide HevHwy Exhibit A District II

Change #: LCN01-2017fbCementHevHwy

Craft: Cement Mason Effective Date: 05/01/2018 Last Posted: 04/11/2018

	dit : Oction massin Encouve Date : 00/01/2010 East 1 Osted : 04/11/2010												
	BI	IR		F	ringe Bene	fit Paymen	ts		Irrevocable Fund		Total PWR	Overtime Rate	
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)			
Classifi	cation												
Cement Mason	\$28	.86	\$7.65	\$6.50	\$0.65	\$0.00	\$2.25	\$0.00	\$0.00	\$0.00	\$45.91	\$60.34	
Apprentice	Per	cent											
1st Year	60.00	\$17.32	\$7.65	\$6.50	\$0.65	\$0.00	\$2.25	\$0.00	\$0.00	\$0.00	\$34.37	\$43.02	
2nd Year	75.00	\$21.64	\$7.65	\$6.50	\$0.65	\$0.00	\$2.25	\$0.00	\$0.00	\$0.00	\$38.70	\$49.52	
3rd Year	90.00	\$25.97	\$7.65	\$6.50	\$0.65	\$0.00	\$2.25	\$0.00	\$0.00	\$0.00	\$43.02	\$56.01	

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

Ratio:

1 Journeymen to 1 Apprentice

2 to 1 thereafter

Jurisdiction (* denotes special jurisdictional note) :

BROWN, BUTLER, CLERMONT, COLUMBIANA, DEFIANCE, ERIE, HAMILTON, HIGHLAND, HURON, LORAIN, MAHONING, MEDINA, OTTAWA, PAULDING, PORTAGE, SANDUSKY, SENECA, STARK, SUMMIT, TRUMBULL, WARREN, WILLIAMS

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

Details:

1 of 1 12/20/2018, 9:23 AM

Prevailing Wage Rate Skilled Crafts

Name of Union: Roofer Local 88

Change #: LCN01-2017fbLoc88

Craft: Roofer Effective Date: 07/26/2017 Last Posted: 07/27/2017

	В	HR		F	ringe Bene	fit Paymer	nts			ocable ınd	Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classificati	ion											
Roofer	\$2	5.30	\$8.52	\$7.69	\$0.13	\$0.00	\$0.40	\$0.12	\$0.00	\$0.00	\$42.16	\$54.81
HELPERS									ĺ			
1st year Helper - 500 1st 6 months	\$1	2.00	\$2.25	\$0.00	\$0.13	\$0.00	\$0.40	\$0.12	\$0.00	\$0.00	\$14.90	\$20.90
1st year Helper - 500 w/12 months	\$1	2.65	\$8.52	\$7.69	\$0.13	\$0.00	\$0.40	\$0.12	\$0.00	\$0.00	\$29.51	\$35.84
2nd year Helper - w/12 months	\$1	4.17	\$8.52	\$7.69	\$0.13	\$0.00	\$0.40	\$0.12	\$0.00	\$0.00	\$31.03	\$38.11
Brd year Helper - w/12 nonths	\$1	5.69	\$8.52	\$7.69	\$0.13	\$0.00	\$0.40	\$0.12	\$0.00	\$0.00	\$32.55	\$40.39
4th year Helper - w/12 months	\$1	7.20	\$8.52	\$7.69	\$0.13	\$0.00	\$0.40	\$0.12	\$0.00	\$0.00	\$34.06	\$42.66
5th year Helper - w/12 months	\$1	8.72	\$8.52	\$7.69	\$0.13	\$0.00	\$0.40	\$0.12	\$0.00	\$0.00	\$35.58	\$44.94
6th year Helper	\$2	0.24	\$8.52	\$7.69	\$0.13	\$0.00	\$0.40	\$0.12	\$0.00	\$0.00	\$37.10	\$47.22
Apprentice	Per	rcent										
1st 6 months w/500 hrs	50.00	\$12.65	\$8.52	\$7.69	\$0.13	\$0.00	\$0.40	\$0.12	\$0.00	\$0.00	\$29.51	\$35.84
2nd 6 months w/500 hrs	56.00	\$14.17	\$8.52	\$7.69	\$0.13	\$0.00	\$0.40	\$0.12	\$0.00	\$0.00	\$31.03	\$38.11
3rd 6 months w/500 hrs	62.00	\$15.69	\$8.52	\$7.69	\$0.13	\$0.00	\$0.40	\$0.12	\$0.00	\$0.00	\$32.55	\$40.39
4th 6 months w/500 hrs	68.00	\$17.20	\$8.52	\$7.69	\$0.13	\$0.00	\$0.40	\$0.12	\$0.00	\$0.00	\$34.06	\$42.67
5th 6 months w/500 hrs	74.00	\$18.72	\$8.52	\$7.69	\$0.13	\$0.00	\$0.40	\$0.12	\$0.00	\$0.00	\$35.58	\$44.94
6th 6 months w/500 hrs	80.00	\$20.24	\$8.52	\$7.69	\$0.13	\$0.00	\$0.40	\$0.12	\$0.00	\$0.00	\$37.10	\$47.22
7th 6 months w/500 hrs	86.00	\$21.76	\$8.52	\$7.69	\$0.13	\$0.00	\$0.40	\$0.12	\$0.00	\$0.00	\$38.62	\$49.50
8th 6 months w/500 hrs	92.00	\$23.28	\$8.52	\$7.69	\$0.13	\$0.00	\$0.40	\$0.12	\$0.00	\$0.00	\$40.14	\$51.77

Special Calculation Note: Roofers working in any form of coal tar pitch, whether hot or cold, installing and/or removing will be paid \$.25 more per hour. Other \$0.12 is for C.I.D.B.

Ratio

No helper shall be used on any one job unless 1 Journeymen, and 1 Apprentices are working on said job . One

(1) Journeymen to One (1) Apprentice to One (1) Helper

Special Jurisdictional Note: In Lorain County (South of the Turnpike)

Details:

Jurisdiction (* denotes special jurisdictional note) :

ASHLAND, CARROLL, COSHOCTON, CRAWFORD, HOLMES, HURON, LORAIN*, MEDINA, PORTAGE, RICHLAND, STARK, SUMMIT, TUSCARAWAS, WAYNE

1 of 1 12/20/2018, 9:35 AM

Prevailing Wage Rate Skilled Crafts

Name of Union: Ironworker Local 550 Glass & Curtain Wall

Change #: LCN01-2017fbLoc550

Craft: Ironworker Effective Date: 07/01/2017 Last Posted: 06/28/2017

	ВІ	HR		F	ringe Bene	fit Paymen	nts		Irrevo Fu	ocable nd	Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classifie	cation											
ronworker Glass & Curtain Wall	\$22	2.00	\$7.00	\$7.47	\$0.09	\$0.00	\$0.33	\$0.00	\$0.00	\$0.00	\$36.89	\$47.89
Apprentice	Per	cent										
1st 6 months	60.00	\$13.20	\$7.00	\$7.47	\$0.09	\$0.00	\$0.33	\$0.00	\$0.00	\$0.00	\$28.09	\$34.69
2nd 6 months	65.00	\$14.30	\$7.00	\$7.47	\$0.09	\$0.00	\$0.33	\$0.00	\$0.00	\$0.00	\$29.19	\$36.34
3rd 6 months	70.00	\$15.40	\$7.00	\$7.47	\$0.09	\$0.00	\$0.33	\$0.00	\$0.00	\$0.00	\$30.29	\$37.99
4th 6 months	75.00	\$16.50	\$7.00	\$7.47	\$0.09	\$0.00	\$0.33	\$0.00	\$0.00	\$0.00	\$31.39	\$39.64
5th 6 months	80.00	\$17.60	\$7.00	\$7.47	\$0.09	\$0.00	\$0.33	\$0.00	\$0.00	\$0.00	\$32.49	\$41.29
6th 6 months	85.00	\$18.70	\$7.00	\$7.47	\$0.09	\$0.00	\$0.33	\$0.00	\$0.00	\$0.00	\$33.59	\$42.94
7th 6 months	90.00	\$19.80	\$7.00	\$7.47	\$0.09	\$0.00	\$0.33	\$0.00	\$0.00	\$0.00	\$34.69	\$44.59
8th 6 months	95.00	\$20.90	\$7.00	\$7.47	\$0.09	\$0.00	\$0.33	\$0.00	\$0.00	\$0.00	\$35.79	\$46.24

Special Calculation Note:

Ratio:

1 Apprentice to 1 Journeymen

Jurisdiction (* denotes special jurisdictional note) : ASHLAND, CARROLL, COLUMBIANA*, COSHOCTON, HOLMES, HURON*, MAHONING*, MEDINA*, PORTAGE*, RICHLAND, STARK, SUMMIT*, TUSCARAWAS, WAYNE

Special Jurisdictional Note: The jurisdictional line between Locals 17 and 550 is determined as follows: All territory North of Old Route 224 line is to be within the jurisdiction of Local 17.

All territory South of Old Route 224 line is to be the jurisdiction of Local 550, except for everything within the City limits of Barberton which shall be under the jurisdiction of Local 17.

Details:

1 of 1 12/20/2018, 9:30 AM

Prevailing Wage Rate Skilled Crafts

Name of Union: Painter Local 841 Zone II

Change #: LCN01-2017fbLoc603Com.

Craft · Painter Effective Date · 11/08/2017 Last Posted · 11/08/2017

	D)	ITD				64 D	4-		Y	1.1.	T-4-1	0
	Ві	HR		F	ringe Bene	lit Paymen	ts			ocable md	Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classifi	ication											
Painter Brush Roll	\$21	1.77	\$6.16	\$6.37	\$0.35	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$34.65	\$45.53
Paperhanger	\$2:	1.87	\$6.16	\$6.37	\$0.35	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$34.75	\$45.69
Spray Painter	\$22	2.27	\$6.16	\$6.37	\$0.35	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$35.15	\$46.28
Epoxy Applications Class 3	\$22	2.27	\$6.16	\$6.37	\$0.35	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$35.15	\$46.28
Epoxy Applications Class 4	\$22	2.27	\$6.16	\$6.37	\$0.35	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$35.15	\$46.28
Apprentice	Per	cent										
1st 6 months	50.00	\$10.89	\$6.16	\$6.37	\$0.35	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$23.77	\$29.21
2nd 6 months	55.00	\$11.97	\$6.16	\$6.37	\$0.35	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$24.85	\$30.84
3rd 6 months	60.00	\$13.06	\$6.16	\$6.37	\$0.35	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$25.94	\$32.47
4th 6 months	65.00	\$14.15	\$6.16	\$6.37	\$0.35	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$27.03	\$34.11
5th 6 months	70.00	\$15.24	\$6.16	\$6.37	\$0.35	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$28.12	\$35.74
6th 6 months	75.00	\$16.33	\$6.16	\$6.37	\$0.35	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$29.21	\$37.37
7th 6 months	80.00	\$17.42	\$6.16	\$6.37	\$0.35	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$30.30	\$39.00
8th 6 months	90.00	\$19.59	\$6.16	\$6.37	\$0.35	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$32.47	\$42.27

Special Calculation Note: Apprentice pay based on percentage of above appropriate classification.

Ratio:

3 Journeymen to 1 Apprentice

Jurisdiction (* denotes special jurisdictional note) : CARROLL, COSHOCTON, HOLMES, STARK, TUSCARAWAS, WAYNE

Special Jurisdictional Note:

Details:

Commercial and industrial work, performed outside the regular work day, the rate of pay shall be \$2.00 per hour above the applicable wage scale. This rate of pay is only applicable for eight – (8) hours. Additional hours shall be paid at the rate of time and one – half.

12/20/2018, 9:33 AM 1 of 1

Prevailing Wage Rate Skilled Crafts

Name of Union: Painter Local 841 Zone II

Change #: LCN01-2017fbLoc603Com.

Craft: Drywall Finisher Effective Date: 11/08/2017 Last Posted: 11/08/2017

	BI	HR		F	ringe Bene	fit Paymen	its		Irrevo Fu		Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classifi	cation											,
Painter Drywall Finisher	\$22	2.17	\$6.16	\$6.37	\$0.35	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$35.05	\$46.14
Drywall Faping	\$22	2.17	\$6.16	\$6.37	\$0.35	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$35.05	\$46.14
Taping and Finishing with Machines	\$22	2.52	\$6.16	\$6.37	\$0.35	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$35.40	\$46.66
Wipe Down Man & Taper, Swing Stage, Ladder Jack or Window Jack	\$22	2.82	\$6.16	\$6.37	\$0.35	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$35.70	\$47.11
Stilts & Automatic Fools	\$22	2.97	\$6.16	\$6.37	\$0.35	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$35.85	\$47.33
Apprentice	Per	cent										
1st 6 months	50.00	\$11.09	\$6.16	\$6.37	\$0.35	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$23.97	\$29.51
2nd 6 months	55.00	\$12.19	\$6.16	\$6.37	\$0.35	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$25.07	\$31.17
3rd 6 months	60.00	\$13.30	\$6.16	\$6.37	\$0.35	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$26.18	\$32.83
4rd 6 months	70.00	\$15.52	\$6.16	\$6.37	\$0.35	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$28.40	\$36.16
5th 6 months	80.00	\$17.74	\$6.16	\$6.37	\$0.35	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$30.62	\$39.48
6th 6 months	90.00	\$19.95	\$6.16	\$6.37	\$0.35	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$32.83	\$42.81

Special Calculation Note: Apprentice pay based on percentage of above appropriate classification.

3 Journeymen to 1 Apprentice

Jurisdiction (* denotes special jurisdictional note) : CARROLL, COSHOCTON, HOLMES, STARK, TUSCARAWAS, WAYNE

Special Jurisdictional Note:

Commercial and industrial work, performed outside the regular work day, the rate of pay shall be \$2.00 per hour above the applicable wage scale. This rate of pay is only applicable for eight – (8) hours. Additional hours shall be paid at the rate of time and one – half.

12/20/2018, 9:34 AM 1 of 1

Prevailing Wage Rate Skilled Crafts

Name of Union: Painter Local 841 Zone II Industrial

Change #: LCN01-2017fbLoc841

Craft: Painter Effective Date: 11/08/2017 Last Posted: 11/08/2017

	BI	HR		F	ringe Bene	fit Paymer	nts		Irrevo Fu		Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classifi	cation											
Painter Brush and Roll	\$22	2.07	\$6.16	\$6.37	\$0.35	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$34.95	\$45.99
Painter Spray Painter	\$22	2.60	\$6.16	\$6.37	\$0.35	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$35.48	\$46.78
Fank Interior & Exterior	\$22	2.60	\$6.16	\$6.37	\$0.35	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$35.48	\$46.78
Sandblasting Steel, Structural Steel & Metallizing	\$22	2.78	\$6.16	\$6.37	\$0.35	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$35.66	\$47.05
Epoxy Application Class 3	\$22	2.57	\$6.16	\$6.37	\$0.35	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$35.45	\$46.74
Epoxy Application Class 4	\$23	3.07	\$6.16	\$6.37	\$0.35	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$35.95	\$47.49
Bridges,, Towers, Poles & Stacks	\$22	2.78	\$6.16	\$6.37	\$0.35	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$35.66	\$47.05
Apprentice	Per	cent										
1st 6 Months	50.00	\$11.04	\$6.16	\$6.37	\$0.35	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$23.92	\$29.43
2nd 6 Months	55.00	\$12.14	\$6.16	\$6.37	\$0.35	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$25.02	\$31.09
3rd 6 Months	60.00	\$13.24	\$6.16	\$6.37	\$0.35	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$26.12	\$32.74
4th 6 Months	65.00	\$14.35	\$6.16	\$6.37	\$0.35	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$27.23	\$34.40
5th 6 Months	70.00	\$15.45	\$6.16	\$6.37	\$0.35	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$28.33	\$36.05
6th 6 Months	75.00	\$16.55	\$6.16	\$6.37	\$0.35	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$29.43	\$37.71
7th 6 Months	80.00	\$17.66	\$6.16	\$6.37	\$0.35	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$30.54	\$39.36
8th 6 Months	90.00	\$19.86	\$6.16	\$6.37	\$0.35	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$32.74	\$42.67

Special Calculation Note: Apprentice pay based on percentage of above classification.

Ratio:

3 Journeymen to 1 Apprentice

Jurisdiction (* denotes special jurisdictional note) : CARROLL, COSHOCTON, HOLMES, STARK, TUSCARAWAS, WAYNE

Special Jurisdictional Note:

Details:

Commercial and industrial work, performed outside the regular work day, the rate of pay shall be \$2.00 per hour above the applicable wage scale. This rate of pay is only applicable for eight – (8) hours. Additional hours shall be paid at the rate of time and one – half.

1 of 1 12/20/2018, 9:35 AM

Prevailing Wage Rate Skilled Crafts

Name of Union: Cement Mason Statewide HevHwy Exhibit B District II

Change #: LCN01-2018fbCementHevHwy

Craft: Cement Mason Effective Date: 05/01/2018 Last Posted: 04/11/2018

	CHE MUSON ENCOUVE				.,							
	BI	HR		F	ringe Bene	fit Paymen	its		Irrevo Fu		Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET	MISC (*)		
									(*)	(*)		
Classific	cation											
Cement Mason	\$29.73		\$7.65	\$6.50	\$0.65	\$0.00	\$2.25	\$0.00	\$0.00	\$0.00	\$46.78	\$61.64
Apprentice	Per	cent										
1st Year	60.00	\$17.84	\$7.65	\$6.50	\$0.65	\$0.00	\$2.25	\$0.00	\$0.00	\$0.00	\$34.89	\$43.81
2nd Year	75.00	\$22.30	\$7.65	\$6.50	\$0.65	\$0.00	\$2.25	\$0.00	\$0.00	\$0.00	\$39.35	\$50.50
3rd Year	90.00	\$26.76	\$7.65	\$6.50	\$0.65	\$0.00	\$2.25	\$0.00	\$0.00	\$0.00	\$43.81	\$57.19

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

Ratio:

1 Journeymen to 1 Apprentice

2 to 1 thereafter

Jurisdiction (* denotes special jurisdictional note) :

BROWN, BUTLER, CLERMONT, COLUMBIANA, DEFIANCE, ERIE, HAMILTON, HIGHLAND, HURON, LORAIN, MAHONING, MEDINA, OTTAWA, PAULDING, PORTAGE, SANDUSKY, SENECA, STARK, SUMMIT, TRUMBULL, WARREN, WILLIAMS

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

Details:

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Prevailing Wage Rate Skilled Crafts

Name of Union: Cement Mason Bricklayer Local 97 HevHwy A

Change #: LCN01-2018fbHvyHwy

Craft: Bricklayer Effective Date: 06/06/2018 Last Posted: 06/06/2018

	Mayor Encourse Date											
	BF	IR		F	ringe Bene	fit Paymen	ts		Irrevo Fu		Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET	MISC		
									(*)	(*)		
Classifi	ication	\$28.65										
Cement Mason Bricklayer Sewer Water Works A	\$28	\$9.08	\$6.03	\$0.44	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$44.20	\$58.52	
Apprentice	Per	cent										
1st year	50.00	\$14.33	\$9.08	\$6.03	\$0.44	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$29.88	\$37.04
2nd year	70.00	\$20.05	\$9.08	\$6.03	\$0.44	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$35.60	\$45.63
3rd year	90.00	\$25.78	\$9.08	\$6.03	\$0.44	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$41.34	\$54.23

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, ${\tt GEAUGA, GREENE, GUERNSEY, HAMILTON, HANCOCK, HARDIN, HARRISON,}$ 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.

1 of 1 12/20/2018, 9:22 AM

Prevailing Wage Rate Skilled Crafts

Name of Union: Cement Mason Bricklayer Local 97 HevHwy B

Change #: LCN01-2018fbHvyHwy

Craft: Bricklayer Effective Date: 06/06/2018 Last Posted: 06/06/2018

	mayor = mooning pare											
	BF	IR		F	ringe Bene	fit Paymen	nts		Irrevo Fu		Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classifi	ication											
Cement Mason Bricklayer Power Plants Tunnels Amusement Parks B	\$29.64		\$9.08	\$6.03	\$0.45	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$45.20	\$60.02
Apprentice	Per	cent										
1st year	50.00	\$14.82	\$9.08	\$6.03	\$0.45	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$30.38	\$37.79
2nd year	70.00	\$20.75	\$9.08	\$6.03	\$0.45	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$36.31	\$46.68
3rd year	90.00	\$26.68	\$9.08	\$6.03	\$0.45	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$42.24	\$55.57

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.

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Prevailing Wage Rate Skilled Crafts

Name of Union: Labor HevHwy 2

Change #: LCN01-2018fbLaborHevHwy2

Craft: Laborer Group 1 Effective Date: 05/01/2018 Last Posted: 04/11/2018

	ВІ	HR		F	ringe Bene	fit Paymen	ıts		Irrevo Fu		Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classific	cation											
Laborer Group	\$31	1.05	\$6.90	\$3.60	\$0.45	\$0.00	\$0.00	\$0.00	\$0.10	\$0.00	\$42.10	\$57.63
Group 2	\$31	1.22	\$6.90	\$3.60	\$0.45	\$0.00	\$0.00	\$0.00	\$0.10	\$0.00	\$42.27	\$57.88
Group 3	\$31	1.55	\$6.90	\$3.60	\$0.45	\$0.00	\$0.00	\$0.00	\$0.10	\$0.00	\$42.60	\$58.38
Group 4	\$32	2.00	\$6.90	\$3.60	\$0.45	\$0.00	\$0.00	\$0.00	\$0.10	\$0.00	\$43.05	\$59.05
Watch Person	\$23	3.35	\$6.90	\$3.60	\$0.45	\$0.00	\$0.00	\$0.00	\$0.10	\$0.00	\$34.40	\$46.08
Apprentice	Per	cent										
0-1000 hrs	60.00	\$18.63	\$6.90	\$3.60	\$0.45	\$0.00	\$0.00	\$0.00	\$0.10	\$0.00	\$29.68	\$39.00
1001-2000 hrs	70.02	\$21.74	\$6.90	\$3.60	\$0.45	\$0.00	\$0.00	\$0.00	\$0.10	\$0.00	\$32.79	\$43.66
2001-3000 hrs	80.00	\$24.84	\$6.90	\$3.60	\$0.45	\$0.00	\$0.00	\$0.00	\$0.10	\$0.00	\$35.89	\$48.31
3001-4000 hrs	90.00	\$27.94	\$6.90	\$3.60	\$0.45	\$0.00	\$0.00	\$0.00	\$0.10	\$0.00	\$39.00	\$52.97
More Than 4000 hrs	100.00	\$31.05	\$6.90	\$3.60	\$0.45	\$0.00	\$0.00	\$0.00	\$0.10	\$0.00	\$42.10	\$57.63

Special Calculation Note: Watchman has 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):
ASHTABULA, ERIE, HURON, LORAIN, LUCAS, MAHONING, MEDINA, OTTAWA,

PORTAGE, SANDUSKY, STARK, SUMMIT, TRUMBULL, WOOD

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 perform work as per the October 31, 1949, memorandum on concrete forms, by and 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 members 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)

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.

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

Prevailing Wage Rate Skilled Crafts

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

Change #: LCN01-2018fbLoc7

Craft: Lineman Effective Date: 03/28/2018 Last Posted: 03/28/2018

	BI	HR		F	ringe Bene	fit Paymer	nts		Irrevo Fu	ocable nd	Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classific	cation											
Electrical Lineman	\$42	2.32	\$5.75	\$1.27	\$0.42	\$0.00	\$9.31	\$0.35	\$0.00	\$0.00	\$59.42	\$80.58
Certified Lineman Welder	\$42	2.32	\$5.75	\$1.27	\$0.42	\$0.00	\$9.31	\$0.35	\$0.00	\$0.00	\$59.42	\$80.58
Certified Cable Splicer	\$42	2.32	\$5.75	\$1.27	\$0.42	\$0.00	\$9.31	\$0.35	\$0.00	\$0.00	\$59.42	\$80.58
Operator A	\$37	7.98	\$5.75	\$1.14	\$0.38	\$0.00	\$8.36	\$0.35	\$0.00	\$0.00	\$53.96	\$72.95
Operator B	\$33	3.67	\$5.75	\$1.01	\$0.34	\$0.00	\$7.41	\$0.35	\$0.00	\$0.00	\$48.53	\$65.36
Operator C	\$27	7.18	\$5.75	\$0.82	\$0.27	\$0.00	\$5.98	\$0.35	\$0.00	\$0.00	\$40.35	\$53.94
Groundman 0-12 months Exp	\$21	1.16	\$5.75	\$0.63	\$0.21	\$0.00	\$4.66	\$0.35	\$0.00	\$0.00	\$32.76	\$43.34
Groundman 0-12 months Exp w/CDL	\$23	3.28	\$5.75	\$0.70	\$0.23	\$0.00	\$5.12	\$0.35	\$0.00	\$0.00	\$35.43	\$47.07
Groundman 1 yr or more	\$23	3.28	\$5.75	\$0.70	\$0.23	\$0.00	\$5.12	\$0.35	\$0.00	\$0.00	\$35.43	\$47.07
Groundman 1 yr or more w/CDL	\$27	7.51	\$5.75	\$0.83	\$0.28	\$0.00	\$6.05	\$0.35	\$0.00	\$0.00	\$40.77	\$54.53
Equipment Mechanic A	\$33	3.67	\$5.75	\$1.01	\$0.34	\$0.00	\$7.41	\$0.35	\$0.00	\$0.00	\$48.53	\$65.36
Equipment Mechanic B	\$30).42	\$5.75	\$0.91	\$0.30	\$0.00	\$6.69	\$0.35	\$0.00	\$0.00	\$44.42	\$59.63
Equipment Mechanic C		7.18	\$5.75	\$0.82	\$0.27	\$0.00	\$5.98	\$0.35	\$0.00	\$0.00	\$40.35	\$53.94
X-Ray Technician	\$42	2.32	\$5.75	\$1.27	\$0.42	\$0.00	\$9.31	\$0.35	\$0.00	\$0.00	\$59.42	\$80.58
Apprentice	Per	cent										
1st 1000 hrs	60.00	\$25.39	\$5.75	\$0.76	\$0.25	\$0.00	\$5.59	\$0.35	\$0.00	\$0.00	\$38.09	\$50.79
2nd 1000 hrs	65.00	\$27.51	\$5.75	\$0.83	\$0.28	\$0.00	\$6.05	\$0.35	\$0.00	\$0.00	\$40.77	\$54.52
3rd 1000 hrs	70.00	\$29.62	\$5.75	\$0.89	\$0.30	\$0.00	\$6.52	\$0.35	\$0.00	\$0.00	\$43.43	\$58.25
4th 1000 hrs	75.00	\$31.74	\$5.75	\$0.95	\$0.32	\$0.00	\$6.98	\$0.35	\$0.00	\$0.00	\$46.09	\$61.96
5th 1000 hrs	80.00	\$33.86	\$5.75	\$1.02	\$0.34	\$0.00	\$7.45	\$0.35	\$0.00	\$0.00	\$48.77	\$65.69
6th 1000 hrs	85.00	\$35.97	\$5.75	\$1.08	\$0.36	\$0.00	\$7.91	\$0.35	\$0.00	\$0.00	\$51.42	\$69.41
7th 1000 hrs	90.00	\$38.09	\$5.75	\$1.14	\$0.38	\$0.00	\$8.38	\$0.35	\$0.00	\$0.00	\$54.09	\$73.13

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, AUGLAÍZE, 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.

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PW Rate Skilled LCN01-2018fbLoc7 Page

Prevailing Wage Rate Skilled Crafts

Name of Union: Electrical Local 71 Outside Utility Power

Change #: LCN01-2018fbLoc7

Craft: Lineman Effective Date: 03/28/2018 Last Posted: 03/28/2018

	BI	HR		F	ringe Bene	fit Paymer	nts			ocable nd	Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classifi	cation											JL
Electrical Lineman	\$40).12	\$5.75	\$1.20	\$0.40	\$0.00	\$8.83	\$0.35	\$0.00	\$0.00	\$56.65	\$76.71
Substation Fechnician	\$40).12	\$5.75	\$1.20	\$0.40	\$0.00	\$8.83	\$0.35	\$0.00	\$0.00	\$56.65	\$76.71
Cable Splicer	\$41	1.99	\$5.75	\$1.26	\$0.42	\$0.00	\$9.24	\$0.35	\$0.00	\$0.00	\$59.01	\$80.00
Operator A	\$36	5.01	\$5.75	\$1.08	\$0.36	\$0.00	\$7.92	\$0.35	\$0.00	\$0.00	\$51.47	\$69.47
Operator B	\$31	1.90	\$5.75	\$0.96	\$0.32	\$0.00	\$7.02	\$0.35	\$0.00	\$0.00	\$46.30	\$62.25
Operator C	\$25	5.73	\$5.75	\$0.77	\$0.26	\$0.00	\$5.66	\$0.35	\$0.00	\$0.00	\$38.52	\$51.39
Groundman 0-12 months Exp	\$20	0.06	\$5.75	\$0.60	\$0.20	\$0.00	\$4.41	\$0.35	\$0.00	\$0.00	\$31.37	\$41.40
Groundman 0-12 months Exp w/CDL	\$22	2.07	\$5.75	\$0.66	\$0.22	\$0.00	\$4.86	\$0.35	\$0.00	\$0.00	\$33.91	\$44.95
Groundman 1 yr or more	\$22	2.07	\$5.75	\$0.66	\$0.22	\$0.00	\$4.86	\$0.35	\$0.00	\$0.00	\$33.91	\$44.95
Groundman 1 yr or more w/CDL	\$26	5.08	\$5.75	\$0.78	\$0.26	\$0.00	\$5.74	\$0.35	\$0.00	\$0.00	\$38.96	\$52.00
Equipment Mechanic A	\$31	1.90	\$5.75	\$0.96	\$0.32	\$0.00	\$7.02	\$0.35	\$0.00	\$0.00	\$46.30	\$62.25
Equipment Mechanic B	\$28	3.83	\$5.75	\$0.86	\$0.29	\$0.00	\$6.34	\$0.35	\$0.00	\$0.00	\$42.42	\$56.84
Equipment Mechanic C	\$25	5.73	\$5.75	\$0.77	\$0.26	\$0.00	\$5.66	\$0.35	\$0.00	\$0.00	\$38.52	\$51.39
Line Truck w/uuger	\$28	3.39	\$5.75	\$0.85	\$0.28	\$0.00	\$6.25	\$0.35	\$0.00	\$0.00	\$41.87	\$56.07
Apprentice	Per	cent										
1st 1000 hrs	60.00	\$24.07	\$5.75	\$0.72	\$0.24	\$0.00	\$5.30	\$0.35	\$0.00	\$0.00	\$36.43	\$48.47
2nd 1000 hrs	65.00	\$26.08	\$5.75	\$0.78	\$0.26	\$0.00	\$5.74	\$0.35	\$0.00	\$0.00	\$38.96	\$52.00
3rd 1000 hrs	70.00	\$28.08	\$5.75	\$0.84	\$0.28	\$0.00	\$6.18	\$0.35	\$0.00	\$0.00	\$41.48	\$55.53
4th 1000 hrs	75.00	\$30.09	\$5.75	\$0.90	\$0.30	\$0.00	\$6.62	\$0.35	\$0.00	\$0.00	\$44.01	\$59.05
5th 1000 hrs	80.00	\$32.10	\$5.75	\$0.96	\$0.32	\$0.00	\$7.06	\$0.35	\$0.00	\$0.00	\$46.54	\$62.58
6th 1000 hrs	85.00	\$34.10	\$5.75	\$1.02	\$0.34	\$0.00	\$7.50	\$0.35	\$0.00	\$0.00	\$49.06	\$66.11
7th 1000 hrs	90.00	\$36.11	\$5.75	\$1.08	\$0.36	\$0.00	\$7.94	\$0.35	\$0.00	\$0.00	\$51.59	\$69.64

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, AUGLAÍZE, 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.

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Prevailing Wage Rate Skilled Crafts

Name of Union: Operating Engineers - HevHwy Zone II

Change #: LCN01-2018fbLoc18hevhwyll

Craft: Operating Engineer Effective Date: 07/05/2018 Last Posted: 07/05/2018

	BI	łR		F	ringe Bene	fit Paymen	nts		Irrevo Fu		Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classifi	cation											
Operator Class	\$35	5.89	\$8.26	\$6.00	\$0.80	\$0.00	\$0.00	\$0.09	\$0.00	\$0.00	\$51.04	\$68.98
Class 2	\$35	5.77	\$8.26	\$6.00	\$0.80	\$0.00	\$0.00	\$0.09	\$0.00	\$0.00	\$50.92	\$68.80
Class 3	\$34	1.73	\$8.26	\$6.00	\$0.80	\$0.00	\$0.00	\$0.09	\$0.00	\$0.00	\$49.88	\$67.24
Class 4	\$33	3.55	\$8.26	\$6.00	\$0.80	\$0.00	\$0.00	\$0.09	\$0.00	\$0.00	\$48.70	\$65.47
Class 5	\$28	3.09	\$8.26	\$6.00	\$0.80	\$0.00	\$0.00	\$0.09	\$0.00	\$0.00	\$43.24	\$57.28
Class 6	\$36	5.14	\$8.26	\$6.00	\$0.80	\$0.00	\$0.00	\$0.09	\$0.00	\$0.00	\$51.29	\$69.36
Apprentice	prentice Percent											
1st Year	50.00	\$17.94	\$8.26	\$6.00	\$0.80	\$0.00	\$0.00	\$0.09	\$0.00	\$0.00	\$33.10	\$42.07
2nd Year	60.00	\$21.53	\$8.26	\$6.00	\$0.80	\$0.00	\$0.00	\$0.09	\$0.00	\$0.00	\$36.68	\$47.45
3rd Year	70.00	\$25.12	\$8.26	\$6.00	\$0.80	\$0.00	\$0.00	\$0.09	\$0.00	\$0.00	\$40.27	\$52.83
4th Year	80.00	\$28.71	\$8.26	\$6.00	\$0.80	\$0.00	\$0.00	\$0.09	\$0.00	\$0.00	\$43.86	\$58.22
Field Mech Trainee Class 2												
1st year	49.85	\$17.89	\$8.26	\$6.00	\$0.80	\$0.00	\$0.00	\$0.09	\$0.00	\$0.00	\$33.04	\$41.99
2nd year	59.78	\$21.46	\$8.26	\$6.00	\$0.80	\$0.00	\$0.00	\$0.09	\$0.00	\$0.00	\$36.61	\$47.33
3rd year	69.77	\$25.04	\$8.26	\$6.00	\$0.80	\$0.00	\$0.00	\$0.09	\$0.00	\$0.00	\$40.19	\$52.71
4th year	79.73	\$28.62	\$8.26	\$6.00	\$0.80	\$0.00	\$0.00	\$0.09	\$0.00	\$0.00	\$43.77	\$58.07

Special Calculation Note: Other: Education & Safety Fund is \$0.09 per hour.

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 CARROLL, CHAMPAIGN, CLARK, CLERMONT, CLINTON, COSHOCTON, available. An apprentice, while employed as part of a crew per Article VIII paragraph 65, will not be subject the apprenticeship ratios in this collective bargaining agreement.

Jurisdiction (* denotes special jurisdictional note) :

ADAMS, ALLÈN, ASHLAND, ATHENS, AUGLAIZE, BÉLMONT, 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 will 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 1 - Air Compressors on Steel Erection; Barrier Moving Machine; Boiler Operators, on Compressors or Generators, when mounted on a rig: Cableways, Combination Concrete mixers & Towers; Concrete Pumps; Concrete Plants (over 4 yd capacity); Cranes (all types, including Boom Trucks, Cherry Pickers); Derricks; Draglines, Dredgers (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, on shaft or tunnel work; Hydraulic Gantry (lifting system); Industrial - Type Tractors; Jet Engine Dryers (D8 or D9), Diesel Tractors; Locomotives (standard gage); Maintenance Operators (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); Side Booms; Slip Form Pavers; Tower Dericks; Tree Shredders; Truck Mounted Concrete Pumps; Tug Boats; Tunnel Machines and /or Mining Machines; Wheel Excavators. Rough Terrain Fork-lift with Winch/Hoist; Compact Cranes, track rubber over 4,000 pound capacity, self-erecting cranes; stationary, track or truck (all configurations) Bucket trench machines (over 24 inches wide).

Class 2 - 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; Endloaders; Hydro Milling Machine; Kolman-type Loaders (production type-dirt); Lead Greasemen; Maintenance Operators, Class B (Portage and Summit Counties only); Pettibone-Rail Equipment; Power Graders; Power Scrapers; Push Cats; Lighting and Traffic Signal Installation Equipment includes all groups or classifications; Trench Machines (24inch wide and under); Vermeer Type Concrete saw. Material Transfer Equipment (Shuttle buggy) Asphalt; All rotomills, grinders and planers of all types. Horizontal Directional Drill (Over 50,000 ft.lbs.thrust and over)

Class 3 - A-Frames; Air Compressors, on tunnel work (low Pressure); Asphalt Plant Engineers; Bobcat-type and/or skid steer loader with or without attachments; Power Boilers (15 lbs pressure and over); Highway Drills (all types); Rollers, asphalt; Pump Operators (installing or operating well Points); Pumps (4 inch and over discharge); Railroad Tie Inserter/Remover; Rotator (lime-soil Stabilizer), Switch & Tie Tampers (without lifting and aligning device); Locomotives (narrow gage); Mixers, concrete (more than one bag capacity); Mixers, one bag capacity (side loader); Utilities Operators, (small equipment); Welding Machines; Material hoist/elevators. Articulating/straight bed end dumps if assigned (minus \$4.00 per hour).

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

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Appendix B

Class 5 - Compressors (portable, Sewer, Heavy and Highway); Generators; Inboard-Outboard Motor Boat Launches; Masonry Fork Lifts; Oilers/Helpers; Power Driven Heaters; Power Scrubbers; Power Sweepers; Pumps (under 4 inch discharge); Signalmen; Drum Fireman (in Asphalt Plant); Oil Heaters (Asphalt Plant); Tire Repairmen; VAC/ALLS; Fueling and greasing (plus \$3.00), compact cranes: track or rubber under 4,000 pounds.

Class 6 - Master Mechanic

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Prevailing Wage Rate Skilled Crafts

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

Change #: LCN01-2018fbLoc18zone3

Craft: Operating Engineer Effective Date: 07/05/2018 Last Posted: 07/05/2018

	ВІ	łR		F	ringe Bene	fit Paymen	nts		Irrevo Fu	nd	Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classifi	cation											
Operator Class	\$35	5.89	\$8.26	\$6.00	\$0.80	\$0.00	\$0.00	\$0.09	\$0.00	\$0.00	\$51.04	\$68.98
Class 2	\$35	5.77	\$8.26	\$6.00	\$0.80	\$0.00	\$0.00	\$0.09	\$0.00	\$0.00	\$50.92	\$68.80
Class 3	\$34	1.73	\$8.26	\$6.00	\$0.80	\$0.00	\$0.00	\$0.09	\$0.00	\$0.00	\$49.88	\$67.24
Class 4	\$33	3.55	\$8.26	\$6.00	\$0.80	\$0.00	\$0.00	\$0.09	\$0.00	\$0.00	\$48.70	\$65.47
Class 5	\$28	3.09	\$8.26	\$6.00	\$0.80	\$0.00	\$0.00	\$0.09	\$0.00	\$0.00	\$43.24	\$57.28
Class 6	\$36	5.14	\$8.26	\$6.00	\$0.80	\$0.00	\$0.00	\$0.09	\$0.00	\$0.00	\$51.29	\$69.36
lass 7	\$36	5.39	\$8.26	\$6.00	\$0.80	\$0.00	\$0.00	\$0.09	\$0.00	\$0.00	\$51.54	\$69.73
Class 8	\$36	5.89	\$8.26	\$6.00	\$0.80	\$0.00	\$0.00	\$0.09	\$0.00	\$0.00	\$52.04	\$70.48
Class 9	\$37	7.14	\$8.26	\$6.00	\$0.80	\$0.00	\$0.00	\$0.09	\$0.00	\$0.00	\$52.29	\$70.86
Apprentice	Per	cent										
1st Year	50.00	\$17.94	\$8.26	\$6.00	\$0.80	\$0.00	\$0.00	\$0.09	\$0.00	\$0.00	\$33.10	\$42.07
2nd Year	60.00	\$21.53	\$8.26	\$6.00	\$0.80	\$0.00	\$0.00	\$0.09	\$0.00	\$0.00	\$36.68	\$47.45
3rd Year	70.00	\$25.12	\$8.26	\$6.00	\$0.80	\$0.00	\$0.00	\$0.09	\$0.00	\$0.00	\$40.27	\$52.83
4th Year	80.00	\$28.71	\$8.26	\$6.00	\$0.80	\$0.00	\$0.00	\$0.09	\$0.00	\$0.00	\$43.86	\$58.22
Field Mechanic Trainee												
1st Year	50.00	\$17.94	\$8.26	\$6.00	\$0.80	\$0.00	\$0.00	\$0.09	\$0.00	\$0.00	\$33.10	\$42.07
2nd Year	60.00	\$21.53	\$8.26	\$6.00	\$0.80	\$0.00	\$0.00	\$0.09	\$0.00	\$0.00	\$36.68	\$47.45
3rd Year	70.00	\$25.12	\$8.26	\$6.00	\$0.80	\$0.00	\$0.00	\$0.09	\$0.00	\$0.00	\$40.27	\$52.83
4th Year	80.00	\$28.71	\$8.26	\$6.00	\$0.80	\$0.00	\$0.00	\$0.09	\$0.00	\$0.00	\$43.86	\$58.22

Special Calculation Note: Other: Education & Safety \$0.09

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 77, will not be subject to the apprenticeship ratios in this collective bargaining agreement

ADAMS, ALLEN, ASHLAND, ATHENS, AUGLAIZE, BELMONT, BROWN, I CARROLL, CHAMPAIGN, CLARK, CLERMONT, CLINTON, COSHOCTON, CRAWFORD, DARKE, DEFIANCE, DELAWARE, FAIRFIELD, FAYETTE, FRANKLIN, FULTON, GALLIA, GREENE, GUERNSEY, HAMILTON, HANCE

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 :

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

Class 1 - Barrier Moving Machine; 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) Derricks (all types); Draglines Dredges (dipper, clam or suction) 3-man crew; Elevating Graders or Euclid Loaders; Floating Equipment; Gradalls; Helicopter Operators; hoisting building materials; Helicopter Winch Operators, Hoisting building materials; Holicopter Winch Operators, Hoisting building materials; Holicopter Winch Operators, Locomotives (all types); Maintenance Engineers (Mechanic 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 work; Side Booms; Slip Form Pavers; Straddle Carriers (Building Construction on site); Tug Boats. Horizontal Directional Drill, Rough Terrain Fork-lift with Winch/Hoist, Laser Screed, and Like equipment; Compact Cranes, track or rubber over 4,000 pound capacity, self-erecting cranes: stationary, track or truck (all configurations) bucket trench machines (over 24 " wide).

Class 2 - Asphalt Pavers; Bobcat-type and/or skid steer loader with hoe attachment greater than 7000 lbs. Bulldozers; CMI type Equipment; Endloaders; Hydro Milling Machine; Kolman-type Loaders (Dirt Loading); Lead Greasemen; Mucking Machines; Pettibone-Rail Equipment; Power Graders; Power Scrapers; Push Cats; Vermeer Type Concrete Saw; All rotomills, grinders & planers of all types. Articulating/end dumps (minus \$4.00/hour from Class 2 rate)

Class 3 - 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 Drillers - all types (with integral power); Hoists (with one drum); House Elevators (except those automatic call button controlled); Man lifts; 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; Rotator (Lime-Soil Stabilizer); Submersible Pumps (4 inches and over discharge); Switch & Tie Tampers (without lifting and aligning device); Trench Machines (24 inches and under); Utility Operators; Material hoist/elevators.

Class 4 - Ballast Re-locator; Backfillers and Tampers; Barch Plant Operators; Bar and Joint Installing Machines; Burlap and Curing Machines; Clefplanes; Compressors, on building construction; Concrete Spreader; Conveyors, used for handling building materials; Concrete Mixers, one bag capacity (side loader); Concrete Mixers, capacity more than one bag; Crushers; Deck Hands; Drum Fireman (in Asphalt Plant); 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 inch discharge); Road Widening Trenchers; Rollers (except asphalt); All Concrete pumps (without Boom with 4 inch or smaller systems); Self-Propelled Power Spreaders; Concrete Spreaders; Self-Propelled Sub-graders; Shotcrete Machines; Tire

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Repairmen; Tractors, pulling sheepfoot rollers or graders; VAC/ALLS; Vibratory Compactors, with integral power; Welder Operators.

Class 5 - Boilers (less than 15 lbs. pressure); 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); Signalmen, Submersible Pumps (under 4 inch discharge). Directional Drill Locator and Allen Screed Concrete Paver. Fueling and greasing (plus \$3.00), compact cranes; track or rubber under 4,000 pounds.

Class 6 - Master Mechanic

Class 7 - Boom & Jib 150 - 180 feet

Class 8 - Boom & Jib 180 - 249 feet

Class 9 - Boom & Jib 250 - or over

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Prevailing Wage Rate Skilled Crafts

Name of Union: Sheet Metal Local 33 (Akron)

Change #: LCN01-2018fbLoc33Akron

Craft: Sheet Metal Worker Effective Date: 06/04/2018 Last Posted: 05/25/2018

	BI	HR	Fringe Benefit Payments							ocable nd	Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classifi												
Sheet Metal Worker	\$30	\$7.65	\$12.89	\$1.21	\$0.00	\$6.00	\$0.00	\$0.00	\$0.00	\$58.32	\$73.60	
1st year	45.00	\$13.76	\$7.65	\$3.47	\$0.17	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$25.05	\$31.92
2nd year	50.00	\$15.29	\$7.65	\$4.62	\$1.21	\$0.00	\$3.00	\$0.00	\$0.00	\$0.00	\$31.77	\$39.41
3rd year	55.00	\$16.81	\$7.65	\$5.00	\$1.21	\$0.00	\$3.00	\$0.00	\$0.00	\$0.00	\$33.67	\$42.08
4th year	65.00	\$19.87	\$7.65	\$5.77	\$1.21	\$0.00	\$3.00	\$0.00	\$0.00	\$0.00	\$37.50	\$47.44
5th year	80.00	\$24.46	\$7.65	\$6.93	\$1.21	\$0.00	\$3.00	\$0.00	\$0.00	\$0.00	\$43.25	\$55.47

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

Ratio:

- 1 Journeymen to 1 Apprentice
- 2 Journeymen to 1 Apprentice
- 3 Journeymen to 2 Apprentice
- 4 Journeymen to 2 Apprentice
- 5-7 Journeymen to 3 Apprentice
- 8-10 Journeymen to 4 Apprentice
- 11-13 Journeymen to 5 Apprentice
- 14, 15 Journeymen to 6 Apprentice

and maintaining a three to one apprentice ratio thereafter.

Jurisdiction (* denotes special jurisdictional note) :

ASHLAND, CARROLL, COSHOCTON, CRAWFORD, HOLMES, MEDINA, PORTAGE, RICHLAND, STARK, SUMMIT, TUSCARAWAS, WAYNE

Special Jurisdictional Note:

Details :

Scope of Work: This Agreement covers the rates of pay and conditions of employment of all employees of the Employer engaged in, but not limited to, the a) manufacture, fabrication, assembling, handling, erection, installation, dismantling, conditioning, adjustment, alteration, repairing and servicing of all ferrous or non-ferrous metal work and all other materials used in lieu thereof and of all HVAC systems, air-veyor systems, exhaust systems, and air handling systems regardless of material used, including the setting of all equipment and all reinforcements in connection therewith; (b) all lagging over insulation and all duct-lining; (c) testing, servicing, and balancing of all air-handling equipment and duct work; (d) the preparation of all shop and field sketches, whether manually drawn or computer assisted, used in fabrication and erection, including those taken from original architectural and engineering drawings or sketches, and (e) metal roofing; and (f) all other work included in the jurisdictional claims of Sheet Metal Worker's International Association.

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Prevailing Wage Rate Skilled Crafts

Name of Union: Electrical Local 71 Outside (North Central Ohio)

Change #: LCN01-2018fbLoc71CentralOhio

Craft: Lineman Effective Date: 03/21/2018 Last Posted: 03/21/2018

	BF	IR		F	ringe Bene	fit Paymer	nts			ocable md	Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification	on											
Electrical Lineman	\$37	.36	\$5.75	\$1.12	\$0.37	\$0.00	\$6.72	\$0.06	\$0.00	\$0.00	\$51.38	\$70.06
Traffic Signal & Lighting Journeyman	\$35	.93	\$5.75	\$1.08	\$0.36	\$0.00	\$6.47	\$0.06	\$0.00	\$0.00	\$49.65	\$67.61
Equipment Operator	\$32	.84	\$5.75	\$0.99	\$0.33	\$0.00	\$5.91	\$0.06	\$0.00	\$0.00	\$45.88	\$62.30
Groundman 0-12 months (W/O CDL)	\$19	.98	\$5.75	\$0.60	\$0.20	\$0.00	\$3.60	\$0.06	\$0.00	\$0.00	\$30.19	\$40.18
Groundman 0-12 months (W/CDL) plus	\$21	.83	\$5.75	\$0.65	\$0.22	\$0.00	\$3.93	\$0.06	\$0.00	\$0.00	\$32.44	\$43.35
Groundsman greater than 1 Year (W/CDL)	\$23	.65	\$5.75	\$0.71	\$0.24	\$0.00	\$4.26	\$0.06	\$0.00	\$0.00	\$34.67	\$46.50
Traffic Signal Apprentices												
1st 1,000 hours	\$21	.56	\$5.75	\$0.65	\$0.22	\$0.00	\$3.88	\$0.06	\$0.00	\$0.00	\$32.12	\$42.90
2nd 1,000 hours	\$23	.35	\$5.75	\$0.70	\$0.23	\$0.00	\$4.20	\$0.06	\$0.00	\$0.00	\$34.29	\$45.97
3rd 1,000 hours	\$25	.15	\$5.75	\$0.75	\$0.25	\$0.00	\$4.53	\$0.06	\$0.00	\$0.00	\$36.49	\$49.07
4th 1,000 hours	\$26	.95	\$5.75	\$0.81	\$0.27	\$0.00	\$4.85	\$0.06	\$0.00	\$0.00	\$38.69	\$52.17
5th 1,000 hours	\$28	.74	\$5.75	\$0.86	\$0.29	\$0.00	\$5.17	\$0.06	\$0.00	\$0.00	\$40.87	\$55.24
6th 1,000 hours	\$32	.34	\$5.75	\$0.97	\$0.32	\$0.00	\$5.82	\$0.06	\$0.00	\$0.00	\$45.26	\$61.43
Apprentice Lineman	Pero	cent										
1st 1,000 Hours	60.00	\$22.42	\$5.75	\$0.67	\$0.22	\$0.00	\$4.04	\$0.06	\$0.00	\$0.00	\$33.16	\$44.36
2nd 1,000 Hours	65.00	\$24.28	\$5.75	\$0.73	\$0.24	\$0.00	\$4.37	\$0.06	\$0.00	\$0.00	\$35.43	\$47.58
3rd 1,000 Hours	70.00	\$26.15	\$5.75	\$0.78	\$0.26	\$0.00	\$4.71	\$0.06	\$0.00	\$0.00	\$37.71	\$50.79
4th 1,000 Hours	75.00	\$28.02	\$5.75	\$0.84	\$0.28	\$0.00	\$5.04	\$0.06	\$0.00	\$0.00	\$39.99	\$54.00
5th 1,000 Hours	80.00	\$29.89	\$5.75	\$0.90	\$0.30	\$0.00	\$5.38	\$0.06	\$0.00	\$0.00	\$42.28	\$57.22
6th 1,000 Hours	85.00	\$31.76	\$5.75	\$0.95	\$0.32	\$0.00	\$5.72	\$0.06	\$0.00	\$0.00	\$44.56	\$60.43
7th 1,000 Hours	90.00	\$33.62	\$5.75	\$1.01	\$0.34	\$0.00	\$6.05	\$0.06	\$0.00	\$0.00	\$46.83	\$63.65

Special Calculation Note: Other is Safety & Education Fund.

Ratio

1 Journeymen to 1 Apprentice

Jurisdiction (* denotes special jurisdictional note) :

BELMONT, CARROLL, HARRISON, HOLMES, JEFFERSON, MEDINA, PORTAGE, STARK, SUMMIT, WAYNE

Special Jurisdictional Note:

Details

A groundman when directed shall assist a Journeyman in the performance of his/her work on the ground, including the use of hand tools. A Groundman under no circumstances shall climb poles, towers, ladders, or work from an elevated platform or bucket truck.

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.

Scope of Work: installation and maintenance of highway and street lighting, highway and street sign lighting, electronic message boards and traffic control systems, traffic signal work, substation and line construction including overhead and underground projects for private and industrial work as in accordance with the IBEW Constitution. This Agreement includes the operation of all tools and equipment necessary for the installation of the above projects.

1 of 1 12/20/2018, 9:28 AM

Prevailing Wage Rate Skilled Crafts

Name of Union: Asbestos Local 84 Heat & Frost Insulators

Change #: LCN01-2018fbLoc84

Craft: Asbestos Worker Effective Date: 06/06/2018 Last Posted: 06/06/2018

	ВІ	HR		F	ringe Bene	fit Paymen	ts		Irrevocable Fund		Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classif												
Asbestos Insulation Worker	\$31.47			\$8.36	\$0.36	\$0.00	\$3.39	\$0.24	\$0.00	\$0.00	\$53.31	\$69.04
Apprentice	Per	cent										
1st Year	50.00	\$15.74	\$9.49	\$8.36	\$0.36	\$0.00	\$3.39	\$0.24	\$0.00	\$0.00	\$37.58	\$45.44
2nd Year	60.00	\$18.88	\$9.49	\$8.36	\$0.36	\$0.00	\$3.39	\$0.24	\$0.00	\$0.00	\$40.72	\$50.16
3rd Year	70.00	\$22.03	\$9.49	\$8.36	\$0.36	\$0.00	\$3.39	\$0.24	\$0.00	\$0.00	\$43.87	\$54.88
4th Year	80.00	\$25.18	\$9.49	\$8.36	\$0.36	\$0.00	\$3.39	\$0.24	\$0.00	\$0.00	\$47.02	\$59.60

Special Calculation Note: Other is Industry and Labor Management Fund

Ratio

3 Journeymen to 1 Apprentice per shop

Jurisdiction (* denotes special jurisdictional note) :

ASHLAND, ASHTABULA*, CARROLL, COLUMBIANA, COSHOCTON, ERIE*, HARRISON, HOLMES, MAHONING, MEDINA, PORTAGE, RICHLAND, STARK, SUMMIT, TRUMBULL, TUSCARAWAS, WAYNE

Special Jurisdictional Note: Ashtabula County: except for the townships of Ashtabula, Austinburg, Geneva, Harpersfield, Jefferson, Plymouth and Saybrook. Erie except Sandusky city limits.

Details

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 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.

1 of 1 12/20/2018, 8:56 AM

Prevailing Wage Rate Skilled Crafts

Name of Union: Plumber Pipefitter Local 94

Change #: LCN01-2018fbLoc94

Craft: Plumber/Pipefitter Effective Date: 08/15/2018 Last Posted: 08/15/2018

	BI	HR		F	ringe Bene	fit Paymer	nts		Irrevo Fu		Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classifi	cation											
Plumber Pipefitter	\$35	5.28	\$7.48	\$5.49	\$0.72	\$0.00	\$5.55	\$0.19	\$0.00	\$0.00	\$54.71	\$72.35
Apprentice Hired Before 05-01-2017												
1st 6 Months	\$14	4.11	\$7.48	\$0.00	\$0.72	\$0.00	\$1.76	\$0.19	\$0.00	\$0.00	\$24.26	\$31.32
2nd 6 Months	\$15	5.88	\$7.48	\$0.00	\$0.72	\$0.00	\$1.76	\$0.19	\$0.00	\$0.00	\$26.03	\$33.97
3 rd 6 months	\$17	7.64	\$7.48	\$0.50	\$0.72	\$0.00	\$1.76	\$0.19	\$0.00	\$0.00	\$28.29	\$37.11
th 6 Months	\$19	9.40	\$7.48	\$0.50	\$0.72	\$0.00	\$1.76	\$0.19	\$0.00	\$0.00	\$30.05	\$39.75
5th 6 Months	\$21	1.17	\$7.48	\$0.50	\$0.72	\$0.00	\$1.76	\$0.19	\$0.00	\$0.00	\$31.82	\$42.40
6th 6 months	\$22	2.93	\$7.48	\$0.50	\$0.72	\$0.00	\$1.76	\$0.19	\$0.00	\$0.00	\$33.58	\$45.04
7th 6 Months	\$26	5.46	\$7.48	\$0.50	\$0.72	\$0.00	\$1.76	\$0.19	\$0.00	\$0.00	\$37.11	\$50.34
8th 6 Months	\$28	3.22	\$7.48	\$0.50	\$0.72	\$0.00	\$1.76	\$0.19	\$0.00	\$0.00	\$38.87	\$52.98
th 6 Months	\$29	9.99	\$7.48	\$0.50	\$0.72	\$0.00	\$1.76	\$0.19	\$0.00	\$0.00	\$40.64	\$55.64
10th 6 Months	\$31	1.75	\$7.48	\$0.50	\$0.72	\$0.00	\$1.76	\$0.19	\$0.00	\$0.00	\$42.40	\$58.28
Apprentice If Hired After 5-01-2017	Per	cent										
1st Year	40.00	\$14.11	\$7.48	\$0.00	\$0.72	\$0.00	\$2.65	\$0.19	\$0.00	\$0.00	\$25.15	\$32.21
2nd Yeat	50.00	\$17.64	\$7.48	\$0.50	\$0.72	\$0.00	\$2.64	\$0.19	\$0.00	\$0.00	\$29.17	\$37.99
3rd Year	60.00	\$21.17	\$7.48	\$0.50	\$0.72	\$0.00	\$2.64	\$0.19	\$0.00	\$0.00	\$32.70	\$43.28
4th Year	70.00	\$24.70	\$7.48	\$0.74	\$0.72	\$0.00	\$4.16	\$0.19	\$0.00	\$0.00	\$37.99	\$50.33
5th Year	80.00	\$28.22	\$7.48	\$0.75	\$0.72	\$0.00	\$4.16	\$0.19	\$0.00	\$0.00	\$41.52	\$55.64

Special Calculation Note: Other is Industry and International Training Fund.

Ratio

1 Journeymen to 2 Apprentice

4 Journeymen to 3 Apprentice

6 Journeymen to 4 Apprentice

9 Journeymen to 5 Apprentice

3 Journeyman to 1 Apprentice Thereafter

Jurisdiction (* denotes special jurisdictional note) :

CARROLL*, STARK, WAYNE

Special Jurisdictional Note: In Carroll County the following townships are included: Ross, Monroe, Union, Lee, Orange, Perry and London.

Details :

1 of 1 12/20/2018, 9:35 AM

Prevailing Wage Rate Skilled Crafts

Name of Union: Cement Mason & Plasterer Local 109

Change #: LCN01-2018fbLoc109

Craft: Cement Effective Date: 06/01/2018 Last Posted: 05/30/2018

	BI	ĦR		F	ringe Bene	fit Paymen	ts			ocable nd	Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classifi	cation											
Cement Mason	\$29	9.54	\$8.19	\$6.50	\$0.40	\$0.00	\$3.50	\$0.06	\$0.00	\$0.00	\$48.19	\$62.96
lasterer	\$28.83		\$7.69	\$6.50	\$0.40	\$0.00	\$3.25	\$0.06	\$0.00	\$0.00	\$46.73	\$61.14
Apprentice Cement Mason	Per	cent										
1st year	60.00	\$17.72	\$8.19	\$6.50	\$0.40	\$0.00	\$3.50	\$0.06	\$0.00	\$0.00	\$36.37	\$45.24
2nd year	75.00	\$22.16	\$8.19	\$6.50	\$0.40	\$0.00	\$3.50	\$0.06	\$0.00	\$0.00	\$40.81	\$51.88
3rd year	90.00	\$26.59	\$8.19	\$6.50	\$0.40	\$0.00	\$3.50	\$0.06	\$0.00	\$0.00	\$45.24	\$58.53
Plasterer Apprentice												
1st year	58.58	\$17.30	\$7.69	\$6.50	\$0.40	\$0.00	\$3.25	\$0.06	\$0.00	\$0.00	\$35.20	\$43.86
2nd year	73.20	\$21.62	\$7.69	\$6.50	\$0.40	\$0.00	\$3.25	\$0.06	\$0.00	\$0.00	\$39.52	\$50.33
3rd year	87.85	\$25.95	\$7.69	\$6.50	\$0.40	\$0.00	\$3.25	\$0.06	\$0.00	\$0.00	\$43.85	\$56.83

Special Calculation Note: Other is for International Training.

Ratio:

- 1 Journeymen to 1 Apprentice
- 5 Journeymen to 2 Apprentice

Special Jurisdictional Note:

Details:

Finishers when applying colorshake shall be paid an additional \$2.00 per DAY. Swing Scaffolds up to 50 feet shall be paid \$0.25 above the Journeymen rate. Swing Scaffolds over 50 feet shall be paid \$0.35 above the Journeymen rate.

Jurisdiction (* denotes special jurisdictional note) :

CARROLL, HOLMES, MEDINA, PORTAGE, STARK, SÚMMIT, TUSCARAWAS, WAYNE

1 of 1 12/20/2018, 9:24 AM

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		F	ringe Bene	fit Paymen	its		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.

1 of 1 12/20/2018, 8:54 AM

Prevailing Wage Rate Skilled Crafts

Name of Union: Electrical Local 540 Inside

Change #: LCN01-2018fbLoc540in

Craft: Electrical Effective Date: 01/10/2018 Last Posted: 01/10/2018

	tilcal Effective Date			.,,								
	BI	HR	Fringe Benefit Payments							ocable nd	Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification												L
Electrician	\$31.49		\$6.00	\$8.20	\$0.97	\$3.15	\$3.51	\$1.04	\$0.00	\$0.00	\$54.36	\$70.11
Apprentice	Percent											
1st 1000 hrs	40.00	\$12.60	\$6.00	\$0.00	\$0.47	\$0.00	\$0.00	\$0.38	\$0.00	\$0.00	\$19.45	\$25.74
2nd 1000 hrs	45.00	\$14.17	\$6.00	\$0.00	\$0.51	\$0.00	\$0.00	\$0.43	\$0.00	\$0.00	\$21.11	\$28.20
3rd 1500 hrs	50.00	\$15.75	\$6.00	\$1.64	\$0.57	\$1.26	\$0.70	\$0.51	\$0.00	\$0.00	\$26.42	\$34.30
4th 1500 hrs	60.00	\$18.89	\$6.00	\$3.28	\$0.65	\$1.51	\$1.40	\$0.61	\$0.00	\$0.00	\$32.34	\$41.79
5th 1500 hrs	70.00	\$22.04	\$6.00	\$4.92	\$0.73	\$1.76	\$2.11	\$0.71	\$0.00	\$0.00	\$38.27	\$49.29
6th 1500 hrs	80.00	\$25.19	\$6.00	\$6.56	\$0.80	\$2.02	\$2.81	\$0.82	\$0.00	\$0.00	\$44.20	\$56.80

Jurisdiction (* denotes special jurisdictional note) :

Special Calculation Note: OTHER = (NEBF) National Electrical Benefit Fund. Vacation contribution is equal to 8% of the gross weekly wages.

The first person assigned to any job site shall be

CARROLL*, COLUMBIANA*, HOLMES, MAHONING*, STARK, TUSCARAWAS*, WAYNE* a Journeyman Wireman. Ratio thereafter:

- 1-3 Journeymen to 2 Apprentices
- 4 to 6 Journeymen up to 4 Apprentices
- 7 to 9 Journeymen up to 6 Apprentices

Special Jurisdictional Note: Carroll County: North half including; Fox, Harrison, Rose and Washington Townships. Columbiana County: Knox Township only. Mahoning County: Smith Township only.

Tuscarawas County: That portion North of Auburn, Clay, Rush and York Townships.

Wayne County: That portion south of Baughman, Chester, Green, Wayne and Wooster Townships.

Details:

1 of 1 12/20/2018, 9:25 AM

Prevailing Wage Rate Skilled Crafts

Name of Union: Electrical Local 540 Inside Lt Commercial Northern

Change #: LCN01-2018fbLoc540in

Craft: Electrical Effective Date: 01/10/2018 Last Posted: 01/10/2018

	BI	HR		F	ringe Bene	fit Paymen	its		Irrevo Fu		Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classific	cation											
Electrician	\$31	1.49	\$6.00	\$8.20	\$0.97	\$3.15	\$3.51	\$1.04	\$0.00	\$0.00	\$54.36	\$70.11
CE-3 12,001-14,000 Hrs	\$24	4.51	\$5.75	\$0.00	\$0.81	\$0.00	\$0.74	\$0.84	\$0.00	\$0.00	\$32.65	\$44.91
CE-2 10,001-12,000 Hrs	\$19	9.26	\$5.75	\$0.00	\$0.81	\$0.00	\$0.58	\$0.68	\$0.00	\$0.00	\$27.08	\$36.71
CE-1 8,001-10,000 Hrs	\$17	7.51	\$5.75	\$0.00	\$0.81	\$0.00	\$0.53	\$0.63	\$0.00	\$0.00	\$25.23	\$33.99
CW-4 6,001-8,000 Hrs	\$15	5.76	\$5.75	\$0.00	\$0.81	\$0.00	\$0.47	\$0.57	\$0.00	\$0.00	\$23.36	\$31.24
CW-3 4,001-6,000 Hrs	\$14	4.00	\$5.75	\$0.00	\$0.81	\$0.00	\$0.42	\$0.52	\$0.00	\$0.00	\$21.50	\$28.50
CW-2 2,001-4,000 Hrs	\$13	3.13	\$5.75	\$0.00	\$0.81	\$0.00	\$0.39	\$0.49	\$0.00	\$0.00	\$20.57	\$27.13
CW-1 0-2,000 Hrs	\$12	2.25	\$5.75	\$0.00	\$0.81	\$0.00	\$0.37	\$0.47	\$0.00	\$0.00	\$19.65	\$25.77
Apprentice	Per	cent										
1st 1000 hrs	40.00	\$12.60	\$5.80	\$0.00	\$0.47	\$0.00	\$0.00	\$0.37	\$0.00	\$0.00	\$19.24	\$25.53
2nd 1000 hrs	45.00	\$14.17	\$5.80	\$0.00	\$0.50	\$0.00	\$0.00	\$0.42	\$0.00	\$0.00	\$20.89	\$27.98
3rd 1500 hrs	50.00	\$15.75	\$5.80	\$1.62	\$0.56	\$1.23	\$0.66	\$0.50	\$0.00	\$0.00	\$26.11	\$33.99
4th 1500 hrs	60.00	\$18.89	\$5.80	\$3.24	\$0.64	\$1.48	\$1.32	\$0.60	\$0.00	\$0.00	\$31.97	\$41.42
5th 1500 hrs	70.00	\$22.04	\$5.80	\$4.86	\$0.71	\$1.72	\$1.99	\$0.70	\$0.00	\$0.00	\$37.82	\$48.84
6th 1500 hrs	80.00	\$25.19	\$5.80	\$6.48	\$0.79	\$1.97	\$2.65	\$0.80	\$0.00	\$0.00	\$43.68	\$56.28

Special Calculation Note: OTHER = (NEBF) National Electrical Benefit Fund and Aministration Fee...

Ratio:

1 to 3 Journeymen to 2 Apprentices

4 to 6 Journeymen up to 4 Apprentices

7 to 9 Journeymen up to 6 Apprentices

Jurisdiction (* denotes special jurisdictional note) :

CARROLL*, COLUMBIANA*, HOLMES, MAHONING*, STARK, TUSCARAWAS*, WAYNE*

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

Special Jurisdictional Note: Carroll County: North half including; Fox, Harrison, Rose and Washington Townships.

Columbiana County: Knox Township only. Mahoning County: Smith Township only.

Tuscarawas County: That portion North of Auburn, Clay, Rush and York Townships.

Wayne County: That portion south of Baughman, Chester, Green, Wayne and Wooster Townships.

The scope of work for the light commercial agreement shall apply to the following small medical clinics, stand-alone doctor and dentist offices with up to 600 amp service (not attached to a hospital), gas stations/convenience stores, fast food restaurants and franchised chain restaurants including independent bars and taverns, places of worship, funeral homes, nursing homes, assisted living facilities and day-care facilities under 15,000 sq ft, small office, retail/wholesale facilities under 15,000 sq ft with less than 10 units attached, storage units, car washes, express hotels and motels (4 stories or less) without conference or restaurants facilities, residential units (subject to Davis Bacon Rates) small stand-alone manufacturing facilities when free standing and not part of a larger facility (less than 15,000 sq ft) solar projects (500 panels or less) unless other wise covered under this 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.

Details :

1 of 1 12/20/2018, 9:25 AM

PW Rate Skilled LCN01-2018fbLoc550 Page

Prevailing Wage Rate Skilled Crafts

Name of Union: Ironworker Local 550

Change #: LCN01-2018fbLoc550

Craft: Ironworker Effective Date: 05/01/2018 Last Posted: 04/11/2018

	BI	IR .		F	ringe Bene	fit Paymen	nts		Irrevo	cable	Total	Overtime
									Fu	nd	PWR	Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classifi	cation											
ronworker	\$27	7.60	\$7.68	\$8.34	\$0.71	\$0.00	\$2.73	\$0.15	\$0.00	\$0.00	\$47.21	\$61.01
Apprentice	Per	cent										
1st 6 months	60.00	\$16.56	\$7.68	\$8.34	\$0.71	\$0.00	\$2.73	\$0.15	\$0.00	\$0.00	\$36.17	\$44.45
2nd 6 months	65.00	\$17.94	\$7.68	\$8.34	\$0.71	\$0.00	\$2.73	\$0.15	\$0.00	\$0.00	\$37.55	\$46.52
3rd 6 months	70.00	\$19.32	\$7.68	\$8.34	\$0.71	\$0.00	\$2.73	\$0.15	\$0.00	\$0.00	\$38.93	\$48.59
4th 6 months	75.00	\$20.70	\$7.68	\$8.34	\$0.71	\$0.00	\$2.73	\$0.15	\$0.00	\$0.00	\$40.31	\$50.66
5th 6 months	80.00	\$22.08	\$7.68	\$8.34	\$0.71	\$0.00	\$2.73	\$0.15	\$0.00	\$0.00	\$41.69	\$52.73
6th 6 months	85.00	\$23.46	\$7.68	\$8.34	\$0.71	\$0.00	\$2.73	\$0.15	\$0.00	\$0.00	\$43.07	\$54.80
7th 6 months	90.00	\$24.84	\$7.68	\$8.34	\$0.71	\$0.00	\$2.73	\$0.15	\$0.00	\$0.00	\$44.45	\$56.87
8th 6 months	95.00	\$26.22	\$7.68	\$8.34	\$0.71	\$0.00	\$2.73	\$0.15	\$0.00	\$0.00	\$45.83	\$58.94

Special Calculation Note: OTHER IS: JOURNEYMAN UPGRADE AND WELLNESS FUND.

Patio

4 Journeymen to 1 Apprentice

1 Journeymen to 1 Apprentice, spinning of cable for suspension bridge

1 Journeymen to 1 Apprentice, ornamental work

2 Journeymen to 1 Apprentice, reinforcing work

1 Journeymen to 2 Apprentice, roadway sinage/sound barrier

***the ratio of apprentices to journeymen may be adjusted higher on a job-to job basis with

the approval of the business manager and/or business agent.

Special Jurisdictional Note: The jurisdictional line between Local 17 and Local 550 is determined as follows: All territory North of Old Route 224 line to be within the jurisdiction of Local 17. All territory South of Old Route 224 line is to be the jurisdiction of Local 550, except for everything within the City limits of Barberton which shall be under the jurisdiction of Local 17.

TUSCARAWAS, WAYNE

Jurisdiction (* denotes special jurisdictional note) :

ASHLAND, CARROLL, COLUMBIANA*, COSHOCTON, HOLMES*, HURON,

MAHONING*, MEDINA*, PORTAGE*, RICHLAND, STARK, SUMMIT*,

Details :

1 of 1 12/20/2018, 9:30 AM

Prevailing Wage Rate Skilled Crafts

Name of Union: Labor Local 1015 Building

Change #: LCN01-2018fbLoc1015

Craft: Laborer Effective Date: 05/01/2018 Last Posted: 04/11/2018

	BI	łR		F	ringe Bene	fit Paymen	its		Irrevo Fu	ocable nd	Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classifi	cation											
Laborer Group	\$27	7.02	\$6.90	\$3.60	\$0.40	\$0.00	\$0.00	\$0.00	\$0.10	\$0.00	\$38.02	\$51.53
Group 2	\$27	7.42	\$6.90	\$3.60	\$0.40	\$0.00	\$0.00	\$0.00	\$0.10	\$0.00	\$38.42	\$52.13
Group 3	\$27	1.77	\$6.90	\$3.60	\$0.40	\$0.00	\$0.00	\$0.00	\$0.10	\$0.00	\$38.77	\$52.66
Group 4	\$27	1.72	\$6.90	\$3.60	\$0.40	\$0.00	\$0.00	\$0.00	\$0.10	\$0.00	\$38.72	\$52.58
Group 5	\$20	0.06	\$6.90	\$3.60	\$0.40	\$0.00	\$0.00	\$0.00	\$0.10	\$0.00	\$31.06	\$41.09
Apprentice	Per	cent										
0-1000 hrs	60.00	\$16.21	\$6.90	\$3.60	\$0.40	\$0.00	\$0.00	\$0.00	\$0.10	\$0.00	\$27.21	\$35.32
1001-2000 hrs	70.00	\$18.91	\$6.90	\$3.60	\$0.40	\$0.00	\$0.00	\$0.00	\$0.10	\$0.00	\$29.91	\$39.37
2001-3000 hrs	80.00	\$21.62	\$6.90	\$3.60	\$0.40	\$0.00	\$0.00	\$0.00	\$0.10	\$0.00	\$32.62	\$43.42
3001-4000 hrs	90.00	\$24.32	\$6.90	\$3.60	\$0.40	\$0.00	\$0.00	\$0.00	\$0.10	\$0.00	\$35.32	\$47.48
More than 4000 hrs	100.00	\$27.02	\$6.90	\$3.60	\$0.40	\$0.00	\$0.00	\$0.00	\$0.10	\$0.00	\$38.02	\$51.53

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

Ratio

1 Journeyman to 1 Apprentice

4 Journeyman to 1 Apprentice

Jurisdiction (* denotes special jurisdictional note) :

CARROLL, STARK, WAYNE

Special Jurisdictional Note:

Details:

Group 1

Building & Construction Laborer, Signalman, Flagman, Tool Cribman, Carpenter Tender, Finisher Tender, Concrete Handler, Utility Construction Laborer, Guard Rail Erectors, Hazardous Waste (Level D)

Group 2

Bottom Man, Scaffold Builder, Tunnel laborer, Pipe Layer, Air and Power Driven Tools, Burner on Demolition Work, Swinging Scaffold, Mucker, Caisson Worker, Cofferdam Worker, Powder Men and Dynamite Blaster, Creosote Worker, Form Setter, Plasterer Tender, Hod Carrier Laser Beam Set-up Man, All confined space work, furnaces, pickel tubs, acid-pits, and Hazardous Waste Level (C)

Group 3

Mason Tender, Mortar Mixer, Stonemason Tender, skid-loader, Hazardous Waste Level (B)

Group 4

Gunnite Operator, Hazardous Waste Level (A)

Group 5

Watchman

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Prevailing Wage Rate Skilled Crafts

Name of Union: Carpenter Commercial NE Zone 2B

Change #: LCN01-2018fbLocNEZone2B

Craft : Carpenter Effective Date : 09/19/2018 Last Posted : 09/19/2018

	BI	HR		F	ringe Bene	fit Paymen	ts		Irrevo Fu	ocable nd	Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classifi	cation											L
Carpenter	\$26	5.20	\$6.77	\$9.37	\$0.45	\$0.00	\$0.57	\$0.00	\$0.00	\$0.00	\$43.36	\$56.46
Apprentice	Per	cent										
1st 3 Months	60.00	\$15.72	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$15.72	\$23.58
2nd 3 Months	60.00	\$15.72	\$6.77	\$0.00	\$0.45	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$22.94	\$30.80
2nd 6 Months is 1st year	60.00	\$15.72	\$6.77	\$0.00	\$0.45	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$22.94	\$30.80
3rd 6 Months	60.00	\$15.72	\$6.77	\$0.00	\$0.45	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$22.94	\$30.80
4th 6 Months is 2nd year	60.00	\$15.72	\$6.77	\$0.00	\$0.45	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$22.94	\$30.80
5th 6 Months	70.00	\$18.34	\$6.77	\$6.56	\$0.45	\$0.00	\$0.40	\$0.00	\$0.00	\$0.00	\$32.52	\$41.69
6th 6 Months is 3rd year	75.00	\$19.65	\$6.77	\$7.03	\$0.45	\$0.00	\$0.43	\$0.00	\$0.00	\$0.00	\$34.33	\$44.16
7th 6 Months	80.00	\$20.96	\$6.77	\$7.50	\$0.45	\$0.00	\$0.46	\$0.00	\$0.00	\$0.00	\$36.14	\$46.62
8th 6 Months is 4th year	85.00	\$22.27	\$6.77	\$7.96	\$0.45	\$0.00	\$0.48	\$0.00	\$0.00	\$0.00	\$37.93	\$49.07

Special Calculation Note :

Ratio:

2 Journeymen to 1 Apprentice

Special Jurisdictional Note:

Details:

Jurisdiction (* denotes special jurisdictional note) : CARROLL, STARK, TUSCARAWAS, WAYNE

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Prevailing Wage Rate Skilled Crafts

Name of Union: Carpenter Floorlayer NE Zone 2B

Change #: LCN01-2018fbLocNEZone2B

Craft : Carpenter Effective Date : 09/19/2018 Last Posted : 09/19/2018

	BI	HR		F	ringe Bene	fit Paymen	ıts		Irrevo Fu	ocable nd	Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classifi	cation											L
Carpenter Floorlayer	\$26	5.20	\$6.77	\$9.37	\$0.47	\$0.00	\$0.57	\$0.00	\$0.00	\$0.00	\$43.38	\$56.48
Apprentice	Per	cent										
1st 3 Months	60.00	\$15.72	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$15.72	\$23.58
2nd 3 Months	60.00	\$15.72	\$6.77	\$0.00	\$0.47	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$22.96	\$30.82
2nd 6 Months is 1st year	60.00	\$15.72	\$6.77	\$0.00	\$0.47	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$22.96	\$30.82
3rd 6 Months	60.00	\$15.72	\$6.77	\$0.00	\$0.47	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$22.96	\$30.82
4th 6 Months is 2nd year	60.00	\$15.72	\$6.77	\$0.00	\$0.47	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$22.96	\$30.82
5th 6 Months	70.00	\$18.34	\$6.77	\$6.56	\$0.47	\$0.00	\$0.40	\$0.00	\$0.00	\$0.00	\$32.54	\$41.71
6th 6 Months is 3rd year	75.00	\$19.65	\$6.77	\$7.03	\$0.47	\$0.00	\$0.43	\$0.00	\$0.00	\$0.00	\$34.35	\$44.17
7th 6 Months	80.00	\$20.96	\$6.77	\$7.50	\$0.47	\$0.00	\$0.46	\$0.00	\$0.00	\$0.00	\$36.16	\$46.64
8th 6 Months is 4th year	85.00	\$22.27	\$6.77	\$7.96	\$0.47	\$0.00	\$0.48	\$0.00	\$0.00	\$0.00	\$37.95	\$49.08

Special Calculation Note:

Ratio:

2 Journeymen to 1 Apprentice

Jurisdiction (* denotes special jurisdictional note) : CARROLL, STARK, TUSCARAWAS, WAYNE

Special Jurisdictional Note:

Details :

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Prevailing Wage Rate Skilled Crafts

Name of Union: Carpenter Insulation NE Zone 2B

Change #: LCN01-2018fbLocNEZone2B

Craft · Carpenter Effective Date · 09/19/2018 Last Posted · 09/19/2018

	BF	IR		F	ringe Bene	fit Paymen	nts		Irrevo Fu		Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classifi	cation											
Carpenter nsulation	\$20	1.96	\$6.77	\$9.37	\$0.45	\$0.00	\$0.57	\$0.00	\$0.00	\$0.00	\$38.12	\$48.60
Apprentice	Pero	cent										
1st 3 months	50.00	\$10.48	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$10.48	\$15.72
2nd 3 months	50.00	\$10.48	\$6.77	\$0.00	\$0.45	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$17.70	\$22.94
2nd 6 months	50.00	\$10.48	\$6.77	\$0.00	\$0.45	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$17.70	\$22.94
3rd 6 months	55.00	\$11.53	\$6.77	\$0.00	\$0.45	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$18.75	\$24.51
4th 6 months	60.00	\$12.58	\$6.77	\$0.00	\$0.45	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$19.80	\$26.08
5th 6 months	70.00	\$14.67	\$6.77	\$6.56	\$0.45	\$0.00	\$0.40	\$0.00	\$0.00	\$0.00	\$28.85	\$36.19
6th 6 months	75.00	\$15.72	\$6.77	\$7.03	\$0.45	\$0.00	\$0.43	\$0.00	\$0.00	\$0.00	\$30.40	\$38.26
7th 6 months	80.00	\$16.77	\$6.77	\$7.50	\$0.45	\$0.00	\$0.46	\$0.00	\$0.00	\$0.00	\$31.95	\$40.33
8th 6 months	85.00	\$17.82	\$6.77	\$7.96	\$0.45	\$0.00	\$0.48	\$0.00	\$0.00	\$0.00	\$33.48	\$42.38

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

Ratio:

2 Journeymen to 1 Apprentice

Jurisdiction (* denotes special jurisdictional note) : CARROLL, STARK, TUSCARAWAS, WAYNE

Special Jurisdictional Note:

Details:

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Prevailing Wage Rate Skilled Crafts

Name of Union: Carpenter Millwright NE Zone M3

Change #: LCN01-2018fbLocNEZoneM3

Craft: Carpenter Effective Date: 09/19/2018 Last Posted: 09/19/2018

	ВІ	ir .		F	ringe Bene	fit Paymen	its		Irrevo Fu		Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classifi	cation											
Carpenter Millwright	\$26	5.06	\$6.80	\$9.10	\$0.45	\$0.00	\$1.71	\$0.05	\$0.00	\$0.00	\$44.17	\$57.20
Certified Welder	\$27	7.06	\$6.80	\$9.10	\$0.45	\$0.00	\$1.71	\$0.05	\$0.00	\$0.00	\$45.17	\$58.70
ay-Out Man on Monorail	\$27.56		\$6.80	\$9.10	\$0.45	\$0.00	\$1.71	\$0.05	\$0.00	\$0.00	\$45.67	\$59.45
Apprentice	Per	cent										
1st 6 months	60.00	\$15.64	\$6.80	\$9.10	\$0.45	\$0.00	\$1.71	\$0.05	\$0.00	\$0.00	\$33.75	\$41.56
2nd 6 months	60.00	\$15.64	\$6.80	\$9.10	\$0.45	\$0.00	\$1.71	\$0.05	\$0.00	\$0.00	\$33.75	\$41.56
3rd 6 months	62.00	\$16.16	\$6.80	\$9.10	\$0.45	\$0.00	\$1.71	\$0.05	\$0.00	\$0.00	\$34.27	\$42.35
4th 6 months	65.50	\$17.07	\$6.80	\$9.10	\$0.45	\$0.00	\$1.71	\$0.05	\$0.00	\$0.00	\$35.18	\$43.71
5th 6 months	69.00	\$17.98	\$6.80	\$9.10	\$0.45	\$0.00	\$1.71	\$0.05	\$0.00	\$0.00	\$36.09	\$45.08
6th 6 months	72.50	\$18.89	\$6.80	\$9.10	\$0.45	\$0.00	\$1.71	\$0.05	\$0.00	\$0.00	\$37.00	\$46.45
7th 6 months	76.00	\$19.81	\$6.80	\$9.10	\$0.45	\$0.00	\$1.71	\$0.05	\$0.00	\$0.00	\$37.92	\$47.82
8th 6 months	80.00	\$20.85	\$6.80	\$9.10	\$0.45	\$0.00	\$1.71	\$0.05	\$0.00	\$0.00	\$38.96	\$49.38

Special Calculation Note: Other \$0.05 is UBC Millwright Promotional Fund

Ratio

2 Journeymen to 1 Apprentice

Jurisdiction (* denotes special jurisdictional note) :

CARROLL, STARK, TUSCARAWAS, WAYNE

Special Jurisdictional Note:

Details

The term "Millwright and Machine Erectors" jurisdiction shall mean the unloading, hoisting, rigging, skidding, moving, dismantling, aligning, erecting, assembling, repairing, maintenance and adjusting of all structures, processing areas either under cover, under ground or elsewhere, required to process material, handle, manufacture or service, be it powered or receiving power manually, by steam, gas, electricity, gasoline, diesel, nuclear, solar, water, air or chemically, and in industries such as and including, which are identified for the purpose of description, but not limited to, the following: woodworking plants; canning industries; steel mills; coffee roasting plants; paper and pulp; cellophane; stone crushing; gravel and sand washing and handling; refineries; grain storage and handling; asphalt plants; sewage disposal; water plants; laundries; bakeries; mixing plants; can, bottle and bag packing plants; textile mills; paint mills; breweries; milk processing plants; power plants; aluminum processing or manufacturing plants; and amusement and entertainment fields. The installation of mechanical equipment in atomic energy plants; installation of reactors in power plants; installation of control rods and equipment in reactors; and installation of mechanical equipment in rocket missile bases, launchers, launching gantry, floating bases, hydraulic escape doors and any and all component parts thereto, either assembled, semiassembled or disassembled. The installation of, but not limited to, the following: setting-up of all engines, motors, generators, air compressors, fans, pumps, scales, hoppers, conveyors of all types, sizes and their supports; escalators; man lifts; moving sidewalks; hoists; dumb waiters; all types of feeding machinery; amusement devices; mechanical pin setters and spotters in bowling alleys; refrigeration equipment; and the installation of all types of equipment necessary and required to process material either in the manufacturing or servicing. The handling and installation of pulleys, gears, sheaves, fly wheels, air and vacuum drives, worm drives and gear drives directly or indirectly coupled to motors, belts, chains, screws, legs, boots, guards, booth tanks, all bin valves, turn heads and indicators, shafting, bearings, cable sprockets, cutting all key seats in new and old work, troughs, chippers, filters, calendars, rolls, winders, rewinders, slitters, cutters, wrapping machines, blowers, forging machines, rams, hydraulic or otherwise, planing, extruder, ball, dust collectors, equipment in meat packing plants, splicing of ropes and cables. The laying-out, fabrication and installation of protection equipment including machinery guards, making and setting of templates for machinery, fabrication of bolts, nuts, pans, drilling of holes for any equipment which the Millwrights install regardless of materials; all welding and burning regardless of type, fabrication of all lines, hose or tubing used in lubricating machinery installed by Millwrights; grinding, cleaning, servicing and any machine work necessary for any part of any equipment installed by the Millwrights; and the break-in and trial run of any equipment or machinery installed by the Millwrights. It is agreed the Millwrights shall use the layout tools and optic equipment necessary to perform their work.

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Prevailing Wage Rate Skilled Crafts

Name of Union: Carpenter Pile Driver NE Zone P3

Change #: LCN01-2018fbLocNEZoneP3

Craft : Carpenter Effective Date : 00/10/2018 Last Posted : 00/10/2018

	BI	HR		F	ringe Bene	fit Paymen	its		Irrevo Fu	ocable nd	Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classifi	cation											
Carpenter Pile Driver	\$26	5.01	\$6.70	\$9.10	\$0.45	\$0.00	\$1.65	\$0.00	\$0.00	\$0.00	\$43.91	\$56.92
Diver	\$39	9.02	\$6.70	\$9.10	\$0.45	\$0.00	\$1.65	\$0.00	\$0.00	\$0.00	\$56.92	\$76.43
Certified Welder	\$27	7.06	\$6.70	\$9.10	\$0.45	\$0.00	\$1.65	\$0.00	\$0.00	\$0.00	\$44.96	\$58.49
Apprentice	Per	cent										
1st 6 months	60.00	\$15.61	\$6.70	\$9.10	\$0.45	\$0.00	\$1.65	\$0.00	\$0.00	\$0.00	\$33.51	\$41.31
2nd 6 months	60.00	\$15.61	\$6.70	\$9.10	\$0.45	\$0.00	\$1.65	\$0.00	\$0.00	\$0.00	\$33.51	\$41.31
3rd 6 months	62.00	\$16.13	\$6.70	\$9.10	\$0.45	\$0.00	\$1.65	\$0.00	\$0.00	\$0.00	\$34.03	\$42.09
4th 6 months	65.50	\$17.04	\$6.70	\$9.10	\$0.45	\$0.00	\$1.65	\$0.00	\$0.00	\$0.00	\$34.94	\$43.45
5th 6 months	69.00	\$17.95	\$6.70	\$9.10	\$0.45	\$0.00	\$1.65	\$0.00	\$0.00	\$0.00	\$35.85	\$44.82
6th 6 months	72.50	\$18.86	\$6.70	\$9.10	\$0.45	\$0.00	\$1.65	\$0.00	\$0.00	\$0.00	\$36.76	\$46.19
7th 6 months	76.00	\$19.77	\$6.70	\$9.10	\$0.45	\$0.00	\$1.65	\$0.00	\$0.00	\$0.00	\$37.67	\$47.55
8th 6 months	80.00	\$20.81	\$6.70	\$9.10	\$0.45	\$0.00	\$1.65	\$0.00	\$0.00	\$0.00	\$38.71	\$49.11

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

Ratio:

2 Journeymen to 1 Apprentice

Jurisdiction (* denotes special jurisdictional note) : STARK, WAYNE, CARROLL, TUSCARAWAS

Special Jurisdictional Note:

Details:

Pile Drivers 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 pule butts is defined as sheeting or scrap piling. Underwater work that may be required in connection with the installation of piling. The driver 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. The construction of all wharves and docks, including the fabrication and installation of floating docks. 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 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.

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Prevailing Wage Rate Skilled Crafts

Name of Union: Glazier Local 1162

Change #: LCN02-2017fbLoc1162

Craft: Glazier Effective Date: 11/08/2017 Last Posted: 11/08/2017

	Ві	HR		F	ringe Bene	fit Paymer	nts		Irrevo Fu	ocable nd	Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classifi	cation											,
Glazier	\$25	5.00	\$6.48	\$5.76	\$0.30	\$0.00	\$0.00	\$0.25	\$0.00	\$0.00	\$37.79	\$50.29
Apprentice	Per	cent										
1st 6 months	50.00	\$12.50	\$6.48	\$5.76	\$0.30	\$0.00	\$0.00	\$0.25	\$0.00	\$0.00	\$25.29	\$31.54
2nd 6 months	55.00	\$13.75	\$6.48	\$5.76	\$0.30	\$0.00	\$0.00	\$0.25	\$0.00	\$0.00	\$26.54	\$33.42
3rd 6 months	60.00	\$15.00	\$6.48	\$5.76	\$0.30	\$0.00	\$0.00	\$0.25	\$0.00	\$0.00	\$27.79	\$35.29
4th 6 months	65.00	\$16.25	\$6.48	\$5.76	\$0.30	\$0.00	\$0.00	\$0.25	\$0.00	\$0.00	\$29.04	\$37.17
5th 6 months	70.00	\$17.50	\$6.48	\$5.76	\$0.30	\$0.00	\$0.00	\$0.25	\$0.00	\$0.00	\$30.29	\$39.04
6th 6 months	75.00	\$18.75	\$6.48	\$5.76	\$0.30	\$0.00	\$0.00	\$0.25	\$0.00	\$0.00	\$31.54	\$40.92
7th 6 months	80.00	\$20.00	\$6.48	\$5.76	\$0.30	\$0.00	\$0.00	\$0.25	\$0.00	\$0.00	\$32.79	\$42.79
8th 6 months	90.00	\$22.50	\$6.48	\$5.76	\$0.30	\$0.00	\$0.00	\$0.25	\$0.00	\$0.00	\$35.29	\$46.54

Special Calculation Note: OTHER IS: Supplemental Unemployment Benefits

1 Journeyman to 1 Apprentice

3 Journeymen to 1 Apprentice Thereafter

Jurisdiction (* denotes special jurisdictional note) : ASHLAND, CARROLL, COSHOCTON, HOLMES, MEDINA, PORTAGE, RICHLAND, STARK, SUMMIT, TUSCARAWAS, WAYNE

Special Jurisdictional Note:

Add \$1.25 per hour for High Pay which is all work that requires the employee be supported by equipment which hangs or suspends from the roof of a building or structure including all repelling.

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Prevailing Wage Rate Skilled Crafts

Name of Union: Bricklayer Local 6

Change #: LCN02-2018fbLoc6

Craft: Bricklayer Effective Date: 08/08/2018 Last Posted: 08/08/2018

	BI	HR		F	ringe Bene	fit Paymen	ıts		Irrevo Fu		Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classifi	cation											
Bricklayer	\$28	3.29	\$8.59	\$6.61	\$1.15	\$0.00	\$0.00	\$0.05	\$0.00	\$0.00	\$44.69	\$58.84
Pointer Caulker Cleaner	\$28	3.28	\$8.59	\$6.61	\$1.15	\$0.00	\$0.00	\$0.05	\$0.00	\$0.00	\$44.68	\$58.82
Stone Mason	\$28	3.28	\$8.59	\$6.61	\$1.15	\$0.00	\$0.00	\$0.05	\$0.00	\$0.00	\$44.68	\$58.82
Cement Mason	\$28	3.28	\$8.59	\$6.61	\$1.15	\$0.00	\$0.00	\$0.05	\$0.00	\$0.00	\$44.68	\$58.82
Plaster	\$28	3.28	\$8.59	\$6.61	\$1.15	\$0.00	\$0.00	\$0.05	\$0.00	\$0.00	\$44.68	\$58.82
Apprentice	Per	cent										
1st 6 months	55.00	\$15.56	\$8.59	\$6.61	\$1.15	\$0.00	\$0.00	\$0.05	\$0.00	\$0.00	\$31.96	\$39.74
2nd 6 months	60.00	\$16.97	\$8.59	\$6.61	\$1.15	\$0.00	\$0.00	\$0.05	\$0.00	\$0.00	\$33.37	\$41.86
3rd 6 months	65.00	\$18.39	\$8.59	\$6.61	\$1.15	\$0.00	\$0.00	\$0.05	\$0.00	\$0.00	\$34.79	\$43.98
4th 6 months	70.00	\$19.80	\$8.59	\$6.61	\$1.15	\$0.00	\$0.00	\$0.05	\$0.00	\$0.00	\$36.20	\$46.10
5th 6 months	75.00	\$21.22	\$8.59	\$6.61	\$1.15	\$0.00	\$0.00	\$0.05	\$0.00	\$0.00	\$37.62	\$48.23
6th 6 months	80.00	\$22.63	\$8.59	\$6.61	\$1.15	\$0.00	\$0.00	\$0.05	\$0.00	\$0.00	\$39.03	\$50.35
7th 6 months	90.00	\$25.46	\$8.59	\$6.61	\$1.15	\$0.00	\$0.00	\$0.05	\$0.00	\$0.00	\$41.86	\$54.59
8th 6 months	95.00	\$26.88	\$8.59	\$6.61	\$1.15	\$0.00	\$0.00	\$0.05	\$0.00	\$0.00	\$43.28	\$56.71

Special Calculation Note: OTHER IS DRUG TESTING

Ratio:

- 1 Journeymen to 1 Apprentice
- 5 Journeymen to 2 Apprentice
- 9 Journeymen to 3 Apprentice 13 Journeymen to 4 Apprentice

Special Jurisdictional Note:

Details:

Jurisdiction (* denotes special jurisdictional note) : CARROLL, STARK, TUSCARAWAS

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Prevailing Wage Rate Skilled Crafts

Name of Union: Electrical Local 540 Voice Data Video

Change #: LCN03-2018fbLoc540VDV

Craft: Voice Data Video Effective Date: 10/03/2018 Last Posted: 10/03/2018

	BI	HR		F	ringe Bene	fit Paymen	ıts			cable	Total	Overtime
									Fu	nd	PWR	Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classifi	ication								(')	(')		
Electrical Installer Technician	\$21	1.65	\$6.00	\$4.59	\$0.54	\$2.16	\$1.63	\$0.71	\$0.00	\$0.00	\$37.28	\$48.11
Cable Puller	\$10.83		\$6.00	\$4.59	\$0.27	\$1.08	\$1.63	\$0.36	\$0.00	\$0.00	\$24.76	\$30.17
Apprentice	Percent											
1st period	55.00	\$11.91	\$6.00	\$0.00	\$0.27	\$0.00	\$0.00	\$0.36	\$0.00	\$0.00	\$18.54	\$24.49
2nd period	65.00	\$14.07	\$6.00	\$0.00	\$0.34	\$1.13	\$0.00	\$0.46	\$0.00	\$0.00	\$22.00	\$29.04
3rd period	75.00	\$16.24	\$6.00	\$4.59	\$0.39	\$1.30	\$1.63	\$0.53	\$0.00	\$0.00	\$30.68	\$38.80
4th period	80.00	\$17.32	\$6.00	\$4.59	\$0.42	\$1.39	\$1.63	\$0.56	\$0.00	\$0.00	\$31.91	\$40.57
5th period	85.00	\$18.40	\$6.00	\$4.59	\$0.45	\$1.47	\$1.63	\$0.60	\$0.00	\$0.00	\$33.14	\$42.34
6th period	90.00	\$19.48	\$6.00	\$4.59	\$0.47	\$1.56	\$1.63	\$0.63	\$0.00	\$0.00	\$34.37	\$44.11

Special Calculation Note: OTHER = (NEBF) National Electrical Benefit Fund.

VACATION PAY - For Journeymen is 10% of wages and 8% for Apprentices.

Ratio

1-3 Journeyman to 2 Apprentice 4-6 Journeyman to 4 Apprentice

Jurisdiction (* denotes special jurisdictional note) : CARROLL*, COLUMBIANA*, HOLMES, MAHONING*, STARK, TUSCARAWAS*,

Special Jurisdictional Note: Carroll County includes the following townships: North half including Fox, Harrison, Rose and Washington. Tuscarawas County includes the following townships: The portion North of Auburn, Clay, Rush and York. Wayne County includes the following townships: The portion South of Baughman, Chester, Green, and Wayne. Columbiana County includes Knox township. Mahoning County includes Smith township.

Details :

CABLE PULLERS - are for the installation of cable from one termination point to another.

The following work is EXCLUDED from the Teledata Technician work scope:

- * Installation of computer systems in industrial applications such as assembly lines, robotics, computer controller manufacturing systems.
- * Installation of conduit and/ or raceways shall be installed by Inside Wireman . On sites where there is no Inside Wireman employed, the Teledata Technician may install raceway, or conduit not greater than 10 feet.
- * Fire Alarm work on all new construction sites or wherever the fire alarm system is installed in conduit.
- * All HVAC control work.

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^{**} Exception - When fire alarm falls within the scope of this addendum, Cable Pullers can be used to aid in test and be the 2nd Teledata employee on the job

Prevailing Wage Rate Skilled Crafts

Name of Union: Sprinkler Fitter Local 669

Change #: LCN03-2018fbLoc669

Craft: Sprinkler Fitter Effective Date: 01/01/2019 Last Posted: 12/19/2018

	В	HR		F	ringe Bene	fit Paymen	ts			ocable ind	Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classif	ication								(*)	(1)		
Sprinkler Fitter	\$37	7.78	\$10.02	\$6.60	\$0.52	\$0.00	\$5.12	\$0.00	\$0.00	\$0.00	\$60.04	\$78.93
Apprentice Indentured after April 1, 2013		cent										
CILASS 1	45.00	\$17.00	\$7.75	\$0.00	\$0.52	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$25.27	\$33.77
CLASS 2	50.00	\$18.89	\$7.75	\$0.00	\$0.52	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$27.16	\$36.61
CLASS 3	55.00	\$20.78	\$10.02	\$6.60	\$0.52	\$0.00	\$0.65	\$0.00	\$0.00	\$0.00	\$38.57	\$48.96
CLASS 4	60.00	\$22.67	\$10.02	\$6.60	\$0.52	\$0.00	\$0.65	\$0.00	\$0.00	\$0.00	\$40.46	\$51.79
CLASS 5	65.00	\$24.56	\$10.02	\$6.60	\$0.52	\$0.00	\$0.90	\$0.00	\$0.00	\$0.00	\$42.60	\$54.88
CLASS 6	70.00	\$26.45	\$10.02	\$6.60	\$0.52	\$0.00	\$0.90	\$0.00	\$0.00	\$0.00	\$44.49	\$57.71
CLASS 7	75.00	\$28.33	\$10.02	\$6.60	\$0.52	\$0.00	\$0.90	\$0.00	\$0.00	\$0.00	\$46.38	\$60.54
CLASS 8	80.00	\$30.22	\$10.02	\$6.60	\$0.52	\$0.00	\$0.90	\$0.00	\$0.00	\$0.00	\$48.26	\$63.38
CLASS 9	85.00	\$32.11	\$10.02	\$6.60	\$0.52	\$0.00	\$0.90	\$0.00	\$0.00	\$0.00	\$50.15	\$66.21
CLASS 10	90.00	\$34.00	\$10.02	\$6.60	\$0.52	\$0.00	\$0.90	\$0.00	\$0.00	\$0.00	\$52.04	\$69.04

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

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.

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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		F	ringe Bene	fit Paymen	nts			ocable nd	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.

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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 #: LCON1-2017fbBldgHevHwy

Craft: Truck Driver Effective Date: 07/05/2017 Last Posted: 07/05/2017

	BHR			Fringe Benefit Payments						ocable nd	Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classifi	cation											1
Truck Driver CLASS 1 4 wheel service, dump, and batch trucks, Oil Distributor - Asphalt Distributor- Tandems	\$26	5.49	\$7.00	\$7.30	\$0.20	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$40.99	\$54.24
Apprentice	Per	cent										
First 6 months	80.00	\$21.19	\$7.00	\$7.30	\$0.20	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$35.69	\$46.29
7-12 months	85.00	\$22.52	\$7.00	\$7.30	\$0.20	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$37.02	\$48.27
13-18 months	90.00	\$23.84	\$7.00	\$7.30	\$0.20	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$38.34	\$50.26
19-24 months	95.00	\$25.17	\$7.00	\$7.30	\$0.20	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$39.67	\$52.25
25-30 months	100.00	\$26.49	\$7.00	\$7.30	\$0.20	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$40.99	\$54.24

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

Ratio:

3 Journeymen to 1 Apprentice per company/project

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.

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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.

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SPECIFICATIONS INDEX

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01 33 00	SUBMITTAL PROCEDURES					
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DIVISION 1 - GENERAL REQUIREMENTS

1. The General Conditions and the other Contract Documents as set forth in the foregoing pages are hereby incorporated into and become a part of the Specifications for the work under this division insofar as they apply hereto.

SECTION 01 10 00 - SUMMARY OF WORK

A. GENERAL SCOPE OF WORK

- 1. The work included in these Contracts consists of the construction and completion of the CITY OF CANTON WATER DEPARTMENT BILLING CORNERSTONE PARKING GARAGE TENANT SPACE, located in Canton, Ohio, all in strict accordance with these Specifications and the accompanying Drawings, excepting only those items specifically shown, noted or specified as "Not in Contract".
 - a. The Contractor shall furnish all material, labor, equipment and appliances necessary to <u>complete all portions</u> of the work described in these Specifications and as shown on Drawings.
- 2. The Instructions to Bidders, General Conditions, Supplementary Conditions, and any other Contract Documents shall apply to all Contractors.

B. WORK NOT INCLUDED OR BY OTHERS

1. All items noted "N.I.C." (NOT IN CONTRACT)

END OF SECTION 01 10 00

SECTION 01 29 73 – SCHEDULES OF VALUES

A. SUMMARY

- 1. This Section specifies administrative and procedural requirements governing the General Contractor's Schedule of Values.
 - 1. Coordinate the Schedule of Values (Contract Cost Breakdown) with the Applications for Payment, Project Schedule, Submittal Schedule, and List of Subcontracts.
- 2. Progress payments will not be processed without an approved Schedule of Values on file.

B. SCHEDULE OF VALUES (CONTRACT COST BREAKDOWN)

- 1. Coordination: The General Contractor shall coordinate preparation of its Schedule of Values for its part of the Work with the Master Construction Schedule.
 - a. Correlate line items in the Schedule of Values with other required administrative schedules and forms, including:
 - 1. Master Construction Schedule.
 - 2. Application for Payment forms, including Continuation Sheets.
 - 3. List of subcontractors.
 - 4. Schedule of allowances.
 - 5. Schedule of alternates.
 - 6. List of products.
 - 7. List of principal suppliers and fabricators.
 - 8. Schedule of submittals.
 - b. Within 10 days of award of Contract, each the General Contractor shall submit to the Architect a Schedule of Values, for approval, showing accurate costs for the items of work assigned to the Contractor, defined under Section 01 10 00 Summary of the Work.
- 2. Format and Content: The Schedule of Values shall include at a minimum a line item for labor and material costs for each unit of Work, and shall further divide the work into a sufficient number of individual work items to serve as an accurate basis for Contractor's Application for Payment. Each work item shall receive its prorated share of profit and overhead, including a line item for closeout. The Schedule of Values shall consist of a complete breakdown of the Contractor's contract sum showing the various items of work, divided so as to facilitate the approval of payments to the Contractor for Work completed. Each item of Work shall have indicated a separate cost of labor and material. This schedule when reviewed by the Architect and Owner shall be used as the basis of approving payments along with establishing percentages of Work complete.
 - a. Provide a breakdown of the Contract Sum in sufficient detail to facilitate continued evaluation of Applications of Payment and progress reports. Break principal subcontract amounts down into several line items.
 - b. Arrange the Schedule of Values in tabular form with separate columns to indicate the following of each item listed.
 - 1. Related Specification Section or Division.
 - 2. Description of Work.
 - 3. Name of subcontractor.
 - 4. Name of manufacturer or fabricator.
 - 5. Name of supplier.
 - 6. Change Order (numbers) that affect value.
 - 7. Dollar value.
 - 8. Percentage of Contract Sum to nearest one-hundredth percent, adjusted to total 100 percent.
 - c. Round amounts of nearest whole dollar; the total shall equal the Contract Sum.

- d. Provide a separate line item in the Schedule of Values for each part of the Work where Applications for Payment may include materials or equipment, purchased or fabricated and stored, but not yet installed.
 - 1. Differentiate between items stored on-site and items stored off-site. Include requirements for insurance bonded warehousing, if required.
- e. Provide separate line items on the Schedule of Values for initial cost of the materials, for each subsequent stage of completion, and for total installed value of the part of the Work.
- f. Unit-Cost Allowances: Show the line-item value of unit-cost allowances, as a product of the unit cost, multiplied by the measured quantity. Estimate quantities from the best indication in the Contract Documents.
- g. Margins of Cost: Show line items for indirect costs and margins on actual costs only when such items are listed individually in Applications for Payment. Each item in the Schedule of Values and Applications for Payment shall be complete. Include the total cost and proportionate share of general overhead and profit margin for each item.
 - 1. At the contractor's option, Temporary facilities and other major cost items that are not direct cost of actual work-in-place may be shown either as separate line items in the Schedule of Values or distributed as general overhead expense, at the Contractor's option.
- h. Schedule Updating: Update and resubmit the Schedule of Values prior to the next Applications for Payment when Change Orders or Construction Change Directives result in a change in the Contract Sum.
- 3. Should the Schedule of Values be "rejected, resubmit", resubmittal is due within 5 days of receipt of rejected schedule.

C. CONTRACTORS CONTRACT COST BREAKDOWN / SCHEDULE OF VALUES

- 1. Within 10 days after Notice to Proceed, the General Contractor's Contract Cost Breakdown shall be submitted to the Architect on the contractor's letterhead.
- 2. The Contract Cost Breakdown is to be presented in tabular format with four columns consisting of:
 - a. Item description.
 - b. Labor value.
 - c. Material value.
 - d. Total value.
- 3. The Contract Cost Breakdown must be approved by the Architect prior to receipt of any progress payments.

END OF SECTION 01 29 73

PAGE 01 29 76 - 1 SEC. 01 29 76 APPLICATIONS FOR PAYMENT & CHANGE ORDER

SECTION 01 29 76 - APPLICATIONS FOR PAYMENT & CHANGE ORDER

A. SUMMARY

- 1. This Section specifies administrative and procedural requirements governing the General Contractor's Applications for Payment.
 - a. Coordinate the applications for Payment with the Schedule of Values, Project Schedule, Submittal Schedule, and List of Subcontracts.
- 2. Change Order Pricing

B. APPLICATION FOR PAYMENT PROCEDURES

- 1. Submit request for each calendar month, not later than 15th day of following month. Use form AIA G702, fully completed and executed; submitted in triplicate, including attachment of waivers and similar documentation with one copy.
- 2. Each Application for Payment shall be consistent with previous applications and payments as certified by the Architect and paid for by the Owner.
- 3. Application Preparation: Complete every entry on the form. Include notarization and execution by a person authorized to sign legal documents on behalf of the Contractor. The architect will return incomplete applications without action.
 - a. Entries shall match data on the Schedule of Values and the Project Schedule. Use updated schedules, if revisions were made.
 - b. Include amounts of fully executed Change Orders and Construction Change Directives issued prior to the last day of the construction period covered by the application.
- 4. Transmittal: Submit 3 signed original copies of each Application for Payment to the Architect by a method ensuring receipt within 24 hours.
- 5. Waivers of Mechanics Lien: With each application for Payment, submit waivers of mechanics lien from every entity who is lawfully entitled to file a mechanics lien arising out of the Contract and related to the Work covered by the payment.
 - a. Submit partial waivers on each item for the amount requested, prior to deduction for retainage, on each item.
 - b. When an application shows completion of an item, submit final or full waivers.
 - c. Waiver Forms: Submit waivers of lien on forms, and executed in a manner, acceptable to the Owner.
- 6. Initial Application for Payment: Administrative actions and submittals that must precede or coincide with submittal of the first Application for Payment include the following:
 - a. Executed Contract.
 - b. List of subcontractors.
 - c. List of principal suppliers and fabricators.
 - d. Contract Cost Breakdown and Schedule of Values.
 - e. Master Project Schedule.
 - f. Copies of building permits.
 - g. Copies of authorizations and licenses from governing authorities for performance of the Work.
 - h. Certificates of insurance and insurance policies.
- 7. Application for Payment at Substantial Completion: Following issuance of the Certificate of Substantial Completion, submit an Application for Payment.
 - a. This application shall reflect Certificates of Partial Substantial Completion issued previously for Owner occupancy of designated portions of the Work.
 - b. Administrative actions and submittals that shall precede or coincide with this application include:
 - 1. Occupancy permits and similar approvals.
 - 2. Warranties (guarantees) and maintenance agreements.
 - 3. Test/adjust/balance records and startup performance reports.
 - 4. Meter readings.
 - 5. Changeover information related to Owner's occupancy, use, operation, and maintenance.

Appendix C CITY OF CANTON WATER DEPARTMENT BILLING CORNERSTONE PARKING GARAGE TENANT SPACE DECEMBER 3, 2018

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- 6. Final cleaning.
- 7. Advise on shifting insurance coverage's.
- 8. List of incomplete Work, recognized as exceptions to Architect's Certificate of Substantial Completion.
- 8. Final Payment Application: Administrative actions and submittals that must precede or coincide with submittal of the final Application for Payment include the following:
 - a. Completion of Project closeout requirements.
 - b. Completion of items specified for completion after Substantial Completion.
 - c. Ensure that unsettled claims will be settled.
 - d. Ensure that incomplete Work is not accepted and will be completed without undue delay.
 - e. Transmittal or required Project construction records to the Owner.
 - f. Proof that taxes, fees, and similar obligations were paid.
 - g. Removal of temporary facilities and services.
 - h. Removal of surplus materials, rubbish, and similar elements.

C. CHANGE ORDER REQUESTS

- 1. All Requests for Change Order shall be submitted on the General Contractor's Letterhead.
- 2. Supplemental instructions authorizing minor changes in the Work, not involving an adjustment to the Contract Sum or Contract Time, will be issued by the Architect.
- 3. Change Order Proposal Requests.
 - a. Owner Initiated Proposal Requests: Proposed changes in the Work that will require adjustment to the Contract Sum or Contract time, will be issued by the Architect with a detailed description of the proposed change and supplemental or revised Drawings and Specifications, if necessary. This process shall include the following:
 - 1. Detailed description of the change, products and location of the change in the Project.
 - 2. Supplementary or revised Drawings and Specifications.
 - 3. The duration for implementing the change.
 - 4. Such request is for information only, and is not an instruction to execute the changes, not to stop Work in progress.
 - 6. Unless otherwise indicated in the proposal request, within 14 days of receipt of the proposal requires, submit to the Architect, an estimate of cost necessary to execute the proposed change.
 - b. The General Contractor may initiate proposed changes by submitting a written notice to the Architect containing:
 - 1. Description of the proposed change.
 - 2. Statement of the reason for making the changes.
 - 3. Statement of the effect on the Contract Sum and the Contract Time.
 - 4. State of the effect on the work of other Contractors.
 - 5. Documentation supporting any change in Contract Sum and the Contract Time, as appropriate.

D. CONSTRUCTION CHANGE DIRECTIVE

- Construction Change Directive: When the Owner and General Contractor are not in total agreement on
 the terms of a Change Order Proposal Request, the Architect may issue a Construction Change Directive
 Document, instructing the General Contractor to proceed with a change in the Work, for subsequent
 inclusion in a Change Order.
 - a. At completion of the change, the General Contractor shall submit itemized accounting and supporting data as provided in this Section.
 - b. Architect will determine the allowable cost of such work, as provided by in the General and Supplementary Conditions.

SECTION 01 31 19 - PROJECT MEETINGS

A. SUMMARY

- 1. This Section specifies administrative and procedural requirements for project meetings, including, but not limited to, the following:
 - 1. Pre-construction conferences.
 - 2. Pre-installation conferences.
 - 3. Progress meetings.

B. RELATED REQUIREMENTS

- 1. Section 01 32 16 Schedules and Reports
- 2. Section 01 33 00 Submittal Procedures
- 3. Individual Specification Sections: Pre-Installation Meetings

C. DESCRIPTION

- 1. To enable orderly review during progress of the Work and to provide for systematic discussion of construction issues, the Architect will conduct Project Meetings throughout the construction period.
- The General Contractor and principal subcontractors shall be required to have present at each of the
 following project meetings a representative acceptable to the Architect and Owner. The designated
 representative shall have sufficient authority and knowledge to make decisions for the Contractor he is
 representing on matters affecting this Project.
- 3. Contractors or representative unable to attend a specified meeting shall have an acceptable alternate representative designed or shall notify the Architect not less than 7 days prior to data of meeting.

D. PRE-CONSTRUCTION CONFERENCE

- 1. The purpose of this meeting is to review submittals that will be required by the Contractors and to review the project procedures that are to be followed during the progress of construction.
- 2. The Architect will send advance written notice of the Pre-Construction Conference date, time, and place to the various successful bidders. General Contractor shall require principal subcontractors to attend.
- 3. Architect will schedule and administer the Pre-Construction Conference for exchange of preliminary submittals, clarification of Owner, Architect and Contractor responsibilities, and for review of administrative procedures.
- 4. Architect shall prepare minutes and record significant discussions and agreements of each conference, and distribute the record of the meeting to everyone concerned.

E. PRE-INSTALLATION CONFERENCES

- 1. Conduct a pre-installation conference at the project site before each construction activity that requires coordination with other construction, as outlined in the technical sections.
- 2. The Architect will schedule a pre-installation conference, upon Contractor notification, at the project site before each construction activity that requires coordination with other construction.
- 3. Review conditions of installation, preparation, and coordination with related work.
- 4. Attendees: The Authorized representative of the Owner, Architect and their consultants; General Contractor, appropriate subcontractor(s), installer and representatives of manufacturers and fabricators involved in or affected by the installation, and its coordination or integration with other materials and installations that have preceded or will follow, shall attend the meeting.
- 5. Do not proceed with the installation if the conference cannot be successfully concluded. Initiate whatever actions are necessary to resolve impediments to performance of Work and reconvene the conference at the earliest feasible date.

F. JOB PROGRESS MEETINGS

- Job Progress meetings will be established on a weekly basis, or more frequent as determined by the
 Architect, to review the progress of construction, possible delays, problems, and projected construction
 activity. The General Contractor and principal subcontractors are required to attend progress meetings.
 Noted participants failing to be represented at project meetings, when specifically requested, will be taken
 into consideration when payment applications are being considered for approval by the
 Architect/Engineer.
 - a. Architect shall initiate and schedule Progress Meetings.
 - b. General Contractor shall require principal sub-contractors to attend.
 - c. The progress and schedule of the General Contractor and principal subcontractors shall be coordinated at this meeting. The representatives of the General Contractor and subcontractors present shall have the authority to change the Contractor's work schedule or authorize work with the consent of the Architect. If the noted participants fail to attend this meeting, it shall be his responsibility to obtain the information discussed at the meeting. Attendance at the meetings is required for Contractors' payment.
- 2. The Architect will schedule and administer Project progress meetings regularly throughout the project. Times and dates shall be agreed upon by the Architect, Owner and General Contractor.
- 3. Project meetings shall be held at the job site in a location designated by the Owner and Architect.
- 4. The Architect will prepare agenda with copies for participants, preside all meetings, record minutes and distribute copies to the participants and those affected by decisions made at meetings.
- 5. Attendance: General Contractor's Project Manager and Project Superintendent, Owner and Architect. All as appropriate to address agenda topics for each meeting. Major subcontractors and suppliers shall attend when requested by the Architect or General Contractor.
- 6. At each Progress Meeting, the General Contractor shall present to Owner and Architect any questions that have arisen as a result of carefully examining the Drawings and Specifications. Architect shall present any guides and advice or administrative procedures they wish to have followed for orderly and expeditious prosecution and administration of the Work. Agenda shall include at least the following:
 - a. Review and correct or approve minutes of the previous Progress Meeting.
 - b. Review other items of significance that could affect progress.
 - c. Include topics for discussion as appropriate to the current status of the Project.
 - d. Master Construction Schedule: Review progress since the last meeting. Determine where each activity is in relation to the Master Construction Schedule, whether on time, ahead or behind schedule. Determine how activities behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities shall be completed within the Contract time.

END OF SECTION 01 31 19

PAGE 01 32 16 - 1 SEC. 01 32 16 SCHEDULES AND REPORTS

SECTION 01 32 16 - SCHEDULES AND REPORTS

A. GENERAL REQUIREMENTS

1. PROGRESS SCHEDULE AND REPORTS

- a. <u>General</u>: Within 15 days of date established for "commencement of the work", General Contractor shall submit a bar-chart type progress schedule indicating a time bar for each significant category of work to be performed. Arrange schedule to indicate required sequencing of units, and time allowances for submittals inspections and similar time margins.
 - 1. The primary objectives of the scheduling requirements are:
 - a. To insure adequate planning and execution of the work by all contractors
 - b. To assist Owner and Architect in evaluating progress of the Work
 - c. To provide the optimum coordination by all sub-contractors of their respective trades and suppliers.
 - d. To permit the timely detection of events or occurrences which may affect the timely prosecution of the Work.
 - e. To provide a mechanism or tool for use by the Owner, Architect and Contractor in determining and monitoring any actions of the Contractor which may be required in order to comply with the requirements of the Contract Documents relating to the completion of the various portions of the Work by the Specific Dates specified in the Contract Documents.
- b. The General Contractor is responsible for determining the sequence of activities, the time estimates of the detailed construction activities and the means, methods, techniques and procedures to be employed. The General Contractor shall ensure that the Construction Schedule is current and accurate and is properly and timely monitored, updated and revised as project conditions and the Contract Documents may require.
- c. The General Contractor shall consult with all other principal subcontractors and suppliers relating to the preparation of his construction plan and Construction Schedule. All principal sub-contractors shall receive copies of the Construction Schedule, which relates to their work and shall be continually advised of any updates or revisions to the Master Construction Schedule as the work progresses.
- d. When there are separate contractors working concurrently on the Project whose work must interface or be coordinated, the General Contractor shall coordinate his activities with the activities of the other subcontractors.
- e. It is understood and agreed that the Construction Schedule is to represent the Contractor's best plan and estimate for the Work; however, the Contractor acknowledges that the Construction Schedule may have to be revised from time-to-time as progress proceeds. Any changes, modifications or adjustments made by the General Contractor to the Construction Schedule shall be in full compliance with all requirements of the Contract Documents.
- f. <u>Submittal:</u> Following initial revision of schedule after Architect's review, print and distribute schedule to entities with a need-to-know responsibility, including 3 copies to Architect.

B. PRE-AWARD ACTIVITIES

- 1. Upon receipt by the General Contractor of the Intent to Award, and until the Construction Schedule is approved by Owner, Architect, the Contractor and all principal sub-contractors shall proceed with his Work in accordance with the Contract Documents.
- Pre-Award Meetings: The General Contractor shall, upon notification from the Architect, attend all preaward meetings relating to the Schedules and Reports requirements for this Project. The pre-award meeting is designed to assist the General Contractor in planning their work and in developing the Construction Schedule.
- 3. Among other things, the Owner and Architect will review: The objectives of the Schedules and Reports requirements; the procedures and requirements for the preparation of the Construction Schedule and the

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- Contract Cost Breakdown by contractor; how the Requirements of the Contract Documents will be monitored and enforced by the Owner and Architect; long-lead items and time requirements for work by Subcontractors will be identified.
- 4. Should the General Contractor or his principal Subcontractors and Suppliers fail or refuse to attend preaward meeting(s), Owner shall have the right to terminate Contractor for default pursuant to the provisions of the General Contracts.

C. CONTRACT COST BREAKDOWN

1. Within ten (10) calendar days after Notice to Proceed, the General Contractor shall submit to the Architect a Contract Cost Breakdown for review, allocating a dollar value for the activities on the Construction Schedule in accordance with the requirements of the General Conditions. The dollar value for the activities shall be the cost of the work of the activity including labor, materials and pro rata contribution of General Conditions requirements, overhead and profit. The sum of all activity costs shall equal the total Contract Sum. The Contractor shall revise the Contract Cost Breakdown as necessary to gain the approval of the Architect and the Owner.

D. RECOVERY SCHEDULE

1. Should the Construction Schedule show at any time during the General Contractor's performance, in the sole opinion of the Architect, that the General Contractor is three (3) or more workdays behind schedule, the General Contractor shall prepare a Recovery Schedule at no additional cost to the Owner, explaining and displaying how to reschedule his Work in order to regain compliance with the Construction Schedule.

E. LIST OF SUBCONTRACTORS, SUPPLIERS AND MANUFACTURERS

1. The General Contractor shall submit with his bid, a list of subcontractors, suppliers and manufacturers participating on the Project. The list shall be complete with names and addresses.

F. COORDINATION

1. The General Contractor shall coordinate their work with that of the sub-contractors and shall cooperate fully with the Architect and Owner in maintaining orderly progress toward completion of work as scheduled. The General Contractor's decisions regarding priority between the sub-contractor's work at the site shall be final and shall not be cause for extra compensation or extension of time, except where extension of time is granted because of delay for which the Contractor is otherwise entitled to an extension of time under the Contract Documents.

END OF SECTION 01 32 16

PAGE 01 33 00 - 1 SEC. 01 33 00 SUBMITTAL PROCEDURES

SECTION 01 33 00 – SUBMITTAL PROCEDURES

A. SUMMARY

- 1. This Section includes administrative and procedural requirements for submittals required for performance of the Work, including the following:
 - a. Shop drawings.
 - b. Product data.
 - c. Samples.

B. SUBMITTAL PROCEDURE

- 1. Submittals, including those specified herein shall be submitted to the Architect for review.
- 2. Contractors on this Project shall provide all submittals in strict accordance with the requirements of this Section. Where a submittal is required by a Contractor but assistance needed from others, Contractors shall participate and cooperate to expedite each submittal.
- 3. Where submission of samples, shop drawings, or other items are required from suppliers or subcontractors, it shall be the responsibility of the Contractor for whom the subcontractor is executing the Work to see that the submittal items required are complete and properly submitted, and corrected and resubmitted at the time and in the order required so as not to delay the progress of the Work. All Submittals shall be made through the Prime Contractor.
- 4. The Contractor shall check shop drawings, samples, and other submittals and submit them to the Architect with a letter of transmittal giving his approval, comments, and suggestions. Each transmittal shall include the following information:
 - a. Date submitted.
 - b. Project title and number.
 - c. Contractor's name and address.
 - d. Identification by Specification Section and quantity submitted for each submittal including name of subcontractors, manufacture or supplier.
 - e. Notification of deviations from the Contract Documents for each submittal.
 - f. Contractor's written approval marked on each submittal.
- 5. The Contractor shall prepare, review and stamp with his approval and submit, with reasonable promptness or within the specified time periods and in orderly sequence so as to cause no delay in the Work or in the Work of another Contractor, submittals required by these Contract Documents or subsequently required by modifications.
- 6. The Architect shall review and take action on submittals with reasonable promptness, so as to cause no delay in the progress. A reasonable period of time in accordance with approved project schedule for review of and action taken on submittals shall be as specified herein, but in no case shall it be less than 10 calendar days from the time the submittal is received by the Architect until the time the submittal is marked and forwarded or returned. Contractors shall allow sufficient mailing time for submittals.

C. SHOP DRAWINGS

- 1. Submit newly prepared information drawn accurately to scale. Highlight, encircle or otherwise indicate deviations from the Contract Documents. Do not reproduce Contract Documents or copy standard information as the basis of Shop Drawings. Standard information prepared without specific reference to the Project is not a Shop Drawing.
 - a. Auto-cad drawings may be available from the Architect. The Contractors requiring this service must contact the Architect to verify availability.
- 2. Shop Drawings are drawings, diagrams, illustrations, schedules, performance charts, brochures and other data which are prepared by the Contractor or subcontractor, manufacturer, supplier or distributor to illustrate some portion of the Work.
 - a. Advertising brochures will not be accepted as shop drawings.

PAGE 01 33 00 - 2 SEC. 01 33 00 SUBMITTAL PROCEDURES

- b. Erection and setting drawings as referred to in these Specifications will be considered as shop drawings and shall be submitted along with detailed shop drawings.
- c. Where schedules are required to indicate locations, they shall be submitted as part of the shop drawings package for that item.
- d. Shop drawings and schedules shall repeat the identification shown on the Contract Drawings.
- e. The Contractor shall check all shop drawings, samples and other submittals and submit them to the Architect, giving his approval and/or comments and suggestions.
- f. Include the following information:
 - 1. Dimensions and clearances required.
 - 2. Identification of products and materials included by sheet and detail number.
 - 3. Compliance with specified standards.
 - 4. Notation of coordination requirements.
 - 5. Notation of dimensions established by field measurements.
 - 6. Clearly mark each copy of identify pertinent materials.
 - 7. Show performance characteristics and capacities.
 - 8. Note variances from the Contract Documents including manufacturer's recommended changes to sequencing and to piping and control diagrams.
- 3. Preparation of Submittals: Provide permanent marking on each submittal to identify project, date, Contractor, Subcontractor, submittal name and similar information to distinguish it from other submittals. Show Contractor's executed review and approval marking and provide space for Architect's "action" marking. Package each submittal appropriately for transmittal and handling. Submittals that are received from sources other than the General Contractor may be returned "without action". Package each submittal according to applicable specification section. Use a separate transmittal for each submittal.
- 4. By approving and submitting shop drawings, the Contractor thereby represents that he has determined and verified field measurements, field construction criteria, materials, catalog numbers, and similar data, and that he has checked and coordinated each shop drawing with the requirements of the Work and of the Contract Documents prior to submitting to the Architect. Submittals that are received from sources other than the General Contractor will be returned without review, requiring re-submittal.
- 5. The Contractor shall make corrections required by the Architect and shall resubmit the required number of corrected copies of shop drawings until approved or accepted. The Contractor shall direct specific attention in writing or on resubmitted shop drawings to revisions other than the corrections requested by the Architect on previous submissions.
- 6. The Architect will review shop drawings only for conformance with the design concept of the Project and with the information given in the Contract Documents. The Architect's review of a separate item shall not indicate review of an assembly in which the item functions.
 - a. Only shop drawings, product data and samples marked "No Exceptions Taken" or "Note Marking/Confirm" shall be considered "final" and used in conjunction with the work of the Project.
- 7. The Architect's review of shop drawings shall not relieve the Contractor of responsibility for any deviation from the requirements of the Contract Documents unless the Contractor has informed the Architect in writing of such deviation at the time of submission and the Architect has given written approval to the specific deviation, nor shall the Architect's action relieve the Contractor from responsibility for errors or omissions in the shop drawings.
 - a. The Architect's review of such submittals is not conducted for the purpose of determining the accuracy and completeness of other details such as dimensions and qualities, or for substantiating instructions or performance of equipment or systems, all of which remain the responsibility of the Contractor as required by the Contract Documents. The Architect's review shall not constitute approval of safety precautions or, unless otherwise specifically stated by the Architect, of any construction means, methods, techniques, sequences or procedures. The Architects approval of a specific item shall not indicate approval of an assembly of which it is a component.

PAGE 01 33 00 - 3 SEC. 01 33 00 SUBMITTAL PROCEDURES

- 8. Notations and remarks added to shop drawings by the Architect are to insure compliance to Contract Documents and do not imply a requested or approved change to contract cost.
- 9. Should deviations, discrepancies or conflicts between shop and contract drawings and Specifications be discovered, either prior to or after review, Contract Documents shall control and be followed.
- 10. Submit electronic PDF files of all shop drawings and product data submittals.
- 11. Shop drawings will be marked as follows: Contractor shall take the following action for each respective marking:
 - a. "APPROVED" or "NO EXCEPTIONS TAKEN" Copies will be distributed as indicated under above schedule.
 - b. "APPROVED AS NOTED" or "NOTE MARKINGS/CONFIRM" Final but Restricted Release; Contractor may proceed with fabrication, taking into account the necessary corrections on submittal and with Contract Documents. Corrected shop drawings shall be resubmitted before fabrication of this Work is completed or materials are delivered to the Project site.
 - c. "REVISE AND RESUBMIT" or "NOTE MARKINGS/RESUBMIT" Contractor may proceed with fabrication, taking into account the necessary corrections. Corrected shop drawings shall be resubmitted before fabrication of this work is complete to obtain a different action marking. Do not follow drawings marked "Resubmit" to be used in connection with installation of the Work.
 - d. "REJECTED" Contractor will be required to resubmit shop drawings in their entirety. No fabrication or installation shall be started until shop drawings so marked have been completely revised, resubmitted and marked by Architect according to preceding Paragraphs.

D. SCHEDULE OF VALUES

- 1. Contractor shall prepare and submit to the Architect a Schedule of Values for approval within 14 days after award of Contract. The contract breakdown shall be the same form as used in submitting request for Payments as covered in Applications for Payment of the General and Supplementary Conditions. Each item of work shall have indicated a separate cost for labor and material. Allowances shall be noted as separate line items.
- 2. Schedule of Values shall be coordinated with the Construction Schedule such that the percentages of work completed closely relates to the values for the work shown on the request for payments.
- 3. At the beginning of the project, the Contractor shall prepare a schedule of monthly payments showing the amount the Contractor may require for Work proposed to be completed.

E. PRODUCT DATA

- 1. Collect Product Data into a single submittal for each element of construction or system. Product data includes printed information, such as manufacturer's installation instructions, catalog cuts, standard color charts, roughing-in diagrams and templates, standard wiring diagrams and performance curves.
 - a. Mark each copy to show applicable choices and options. Where printed Product Data includes information on several products that are not required, mark copies to indicate the applicable information. Include the following information:
 - 1. Manufacturer's printed recommendations.
 - 2. Compliance with trade association standards.
 - 3. Compliance with recognized testing agency standards.
 - 4. Application of testing agency labels and seals.
 - 5. Notation of dimensions verified by field measurement.
 - 6. Notation of coordination requirements.
 - b. Do not submit Product Data until compliance with requirements of the Contract Documents has been confirmed.
 - 1. Preliminary Submittal: Submit a preliminary single copy of Product Data where selection of options is required.

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- c. Distribution: Furnish copies of final submittal to installers, subcontractors, suppliers, manufacturers, fabricators and others required for performance of construction activities. Show distribution on transmittal forms.
 - 1. Do not proceed with installation until a copy of Product Data is in the Installer's possession.
- 2. In compliance with the OSHA Hazard Communication Standard (1910, 1200, 08-24-1987) Contractors are required to submit to the Architect, MSDS (Material Safety Data Sheets) for ALL products classified as hazardous that their firm has knowledge that they will be furnishing, using or storing on the jobsite during the duration of this Project in accordance with OSHA standards.

F. SAMPLES

- 1. The Contractor shall submit to the Architect triplicate samples to illustrate materials or workmanship, colors and textures, and establish standards by which the Work will be judged.
 - a. Submit full size, fully fabricated samples cured and finished as specified and physically identical with the material or product proposed. Samples include partial sections of manufactured or fabricated components, cuts or containers of materials, color range sets, and swatches showing color, texture and pattern.
 - 1. Mount or display samples in the manner to facilitate review of quantities indicated. Prepare samples to match the Architect's sample. Include the following:
 - a. Specification Section number and reference.
 - b. Generic description of the sample.
 - c. Sample Source.
 - d. Product name or name of the manufacturer.
 - e. Compliance with recognized standards.
 - f. Availability and delivery time.
 - 2. Submit samples for review of size, kind, color, pattern and texture. Submit samples for final check of these characteristics with other elements and a comparison of these characteristics between the final submittal and the actual component as delivered and installed.
 - a. Where variation in color, pattern, texture and other characteristic is inherent in the materials or product represented, submit at least 3 multiple units that show approximate limits of the variations.
 - b. Refer to other Specification sections for requirements for samples that illustrate workmanship, fabrication techniques, details of assembly, connections, operation and similar construction characteristics.
- 2. By approving and submitting samples, the Contractor thereby represents that he has determined and verified materials, catalog numbers and similar data, and that he has checked and coordinated each sample with the requirements of the Work and of the Contract Documents prior to submitting to the Architect
- 3. The Contractor shall resubmit the required number of correct or new samples until approved. The Contractor shall direct specific attention in writing or on resubmitted samples to revisions other than the changes requested by the Architect on previous submissions.
- 4. The Architect will review samples but only for conformance with the design concept of the Project and with the information given in the Contract Documents. The Architect's review of a separate item shall not indicate approval of an assembly in which the item functions.
- 5. The Architect's action shall not relieve the Contractor of responsibility for deviations from the requirements of the Contract Documents unless the Contractor has informed the Architect in writing of the deviation at the time of submission and the Architect has given written approval to the specific deviation, nor shall the Architect's action relieve the Contractor from responsibility for errors or omissions in the samples.

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PAGE 01 33 00 - 5 SEC. 01 33 00 SUBMITTAL PROCEDURES

- 6. Unless otherwise specified, samples shall be in triplicate and of adequate size to show function, equality, type, color, range, finish and texture of material. When requested full technical information and certified test data shall be supplied.
 - a. Each sample shall be labeled, bearing material name and quality, the Contractor's name, date, project name and other pertinent data.
 - b. Transportation charges to and from the Architect's office must be prepaid on samples forwarded. The Architect shall retain samples until the Work for which they were submitted has been accepted.
- 7. Materials shall not be ordered until final review is received in writing from the Architect. Materials shall be furnished, equal in every respect to reviewed samples. Where color or shade cannot be guaranteed, the manufacturer shall indicate the maximum deviation. Work shall be in accordance with the final reviewed samples.

END OF SECTION 01 33 00

SECTION 01 43 00 – QUALITY CONTROL

A. SUMMARY

- 1. This Section includes Contractors' responsibilities of quality control services and extent of quality control sources to be performed.
- 2. Definitions: Quality control services include inspections and tests, and actions related thereto, including reports, but do not include contract enforcement activities performed directly by Architect/Engineer. Quality control services include those inspections and tests and related actions performed by independent agencies and governing actions performed by independent agencies and governing authorities, as well as directly by Contractor.
 - a. Testing service is required to immediately notify Architect of discrepancies observed in the Work performed and to be performed to the Contract Documents.
- 3. Inspections, tests and related actions specified in this Section and elsewhere in Contract Documents are not intended to limit Contractor's quality control procedures, which facilitate compliance with requirements of Contract Documents.
- 4. Requirements for quality control services by Contractor, as requested or to be requested by Architect/Engineer, Owner, governing authorities or other authorized entitles are not limited by provisions of this section.
- 5. Contractors shall review and become familiar with the requirements of Tests and Inspections, of the General Conditions covering the provisions for testing the Work.

B. CONTRACTOR RESPONSIBILITIES

- 1. Contractor shall coordinate with independent testing agency and/or governing authority performing inspections, test and quality control services.
 - a. Contractor shall schedule services of independent testing agency and/or governing authority to perform testing and inspections in a timely manner so as not to delay progress.
 - b. Owner will engage and pay for services of independent agency to perform inspections and tests.
 - c. Except where specifically provided as indicated by another entity, inspections, tests, and similar quality control services, including those specified to be performed by independent agency are the Owner's responsibility, and costs thereof are not to be included in contract sum.
- Retest Responsibility: Where results required inspection, test or similar service are unsatisfactory (do not
 indicate compliance of related work with requirements of Contract Documents), retests are responsibility
 of Contractor. Retesting of work revised or replaced by Contractor is Contractor's responsibility, where
 required tests were performed on original work.
- 3. Responsibility for Associated Services: Contractor is required to cooperate with independent agencies performing required inspections, tests and similar services. Provide auxiliary services as reasonably requested, including access to work, the taking of samples or assistance with the taking of samples, delivery of samples, delivery of samples to test laboratories, and security and protection for samples and test equipment at project site.
- 4. Coordination: Contractor and each engaged independent agency performing inspections, tests and similar services for project are required to coordinate and sequence activities so as to accommodate required services with minimum delay of work and without the need for removal/replacement of work to accommodate inspections and tests. Scheduling of times for inspections, tests taking of samples and similar activities is Contractor's responsibility.

C. QUALIFICATION OF LABORATORY

1. Shall meet "Recommended Requirements of Independent Laboratory Qualifications," published by American Council of Independent Laboratories. For concrete and steel the laboratory shall comply with

PAGE 01 43 00 - 2 SEC. 01 43 00 QUALITY CONTROL

- the basic requirements of ASTM E 329, "Standards of Recommended Practice for Inspection and Testing Agencies for Concrete and Steel as Used in Construction."
- 2. Submit copy of report of inspection of facilities made by Materials Reference Laboratory of National Bureau of Standards during most recent tour of inspection; with memorandum of remedies of deficiencies reported by inspection.
- 3. Testing equipment shall be calibrated at maximum 12-month intervals by devices of accuracy traceable to either:
 - a. National Bureau of Standards.
 - b. Accepted values of natural physical constants.
 - c. Submit copy of certificate of calibration, made by accredited calibration agency.

D. SUBMITTALS

1. Submit two (3) copies of test reports directly to the Architect from the approved testing services.

END OF SECTION 01 43 00

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SEC. 01 51 00 CONSTRUCTION
FACILITIES AND
TEMPORARY CONTROLS

SECTION 01 51 00 - CONSTRUCTION FACILITIES AND TEMPORARY CONTROLS

A. GENERAL REQUIREMENTS

- 1. Furnish labor materials, tools, equipment, and services for temporary facilities, including maintenance and their subsequent removal, in accordance with provisions of the Contract Documents and as required for the progress and completion of the Project.
- 2. Any Contractor requiring one of the temporary services before it can be provided as specified, or whose requirements with respect to a particular service differ from the service specified, shall provide such services as suits his needs at his own expense and in a manner satisfactory to the Architect.
- 3. Pay applicable costs unless specifically stated otherwise. Contractor to obtain and pay for all required permits and inspections for temporary services included under its Contract.
- 4. Coordinate temporary facilities work with other trades and the Owner/Architect. The responsible Contractor doing the Work, if the temporary work has not been coordinated with the other trades, shall pay rerouting or relocation expenses.
- 5. Repair, as required, Work that has been interfered with or damaged as a result of temporary facilities work, including holes in walls and/or floors from temporary partition anchorage. Pay for repair any damage to roofing resulting from installation of temporary protection.
- 6. Provide and maintain temporary facilities in compliance with governing rules, regulations, codes, ordinances and laws of municipalities, agencies and utilities having jurisdiction over work involved in the Project.

B. TEMPORARY ELECTRIC AND LIGHTING

- 1. Existing power receptacles and lighting are available within the vicinity of the Work.
- 2. The Contractor will be held responsible for reasonable and customary practices for the conservation of electrical energy.
- 3. Supplemental Temporary Lighting: Electrical Contractor shall provide temporary lighting to sustain a minimum level of 100-watt lamp for every 100 SF of floor area. The lighting shall be installed as soon as possible. The furnishing of all lamps, lamp guards and maintenance of the lighting will be by the Electrical Contractor. Suspend wiring as required to keep bottom of fixtures at approximately 10'-0" above floor. As interior partitions are constructed, Electrical Contractor to revise temporary lighting so that specified lighting level is provided in each room or space, including custodial areas and pipe chases. If temporary wiring interferes with construction, the removal and relocation of the wiring as required to avoid any interference will be provided by the Electrical Contractor at no additional cost to the Trade Contractor requiring relocation, or Owner.
 - a. Any temporary lighting or electrical service required beyond that specified above shall be provided by the party requiring the same at no additional cost to the Owner.
 - b. Each contractor or subcontractor to provide its own extension cords and necessary related items.
 - c. Electrical work constructed in connection with temporary service specified herein to conform with Federal safety requirements, Ohio Safety Code IC-3 and requirements of the National Electric Code as interpreted by the inspecting authority. Electrical Contractor to obtain and pay for required applications, permits and inspections pertaining to this work, and such costs shall be included in Electrical Contractors Base Bid proposal.
 - d. Temporary wiring is to be laid out, balanced and sized so as to produce a voltage drop of no more than five percent at extreme end of line when operation at full load.
- 4. Temporary wiring, fittings and devices are not to be used for permanent installations, but remain the property of the Contractor and are to be removed as soon as permitted by installation of permanent systems.

C. TEMPORARY WATER SERVICE

1. Temporary water service connection shall be made available on-site.

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- 2. Contractors or Subcontractors requiring water to provide adequate hoses and fittings as required to meet their own needs.
- 3. Owner will pay for all water consumed during construction period.

D. TEMPORARY TOILETS

- 1. General Contractor shall be responsible for providing and maintaining temporary chemical toilet facility, to be used by work persons. Quantity of Units shall be per OSHA recommendations for total workforce. Location of the toilet shall be determined at pre-construction coordination meeting.
 - a. No toilet fixtures, drains, or other connections shall be used for the disposal of building refuse or waste materials.

E. PROTECTION OF INSTALLED WORK

- 1. Each Contractor and his subcontractor shall provide adequate protection of their related work and necessary repairs prior to Owner acceptance. See also section 01 60 00.
- 2. Protect installed Work and provide protection where specified in individual specification Sections.
- 3. Provide temporary and removable protection for installed Products.

F. FIRE SUPPRESSION

1. Fire suppression shall conform to OSHA, NFPA, and OBBC temporary suppression.

G. TELEPHONE AND FAX

1. Each Contractor will provide and pay for phone and fax service as required for its contracted work.

H. MATERIALS STORAGE

- 1. Each Contractor shall manage location, size and sequencing of all material storage areas on site. It is highly recommended that each Contractor shall provide supplemental off site storage as required by progress of work.
- 2. Each contractor and subcontractor shall provide adequate storage facilities for protection of materials and equipment they furnish. Materials and equipment shall be stored so as to ensure preservation of their quality and fitness of work. Perishable items and items affected by weather, rain, wind, dust, heat or cold shall be stored in temporary waterproof sheds or trailers with raised floors, and heated if necessary. Other materials and equipment shall be stored on platforms and not on ground.
- 3. Temporary storage of materials at the site shall not interfere with the work of other contractors. If necessary, stored materials shall be relocated or removed from the site.

I. TRASH DUMPSTERS

1. General Contractor shall be responsible for arrangements and associated costs for trash dumpsters. Contractors are encouraged to coordinate and consolidate trash dumpsters.

END OF SECTION 01 51 00

PAGE 01 60 00 - 1 SEC. 01 60 00 PRODUCT REQUIREMENTS

SECTION 01 60 00 - PRODUCT REQUIREMENTS

A. SUMMARY

- 1. This Section includes administrative and procedural requirements governing the Contractor's selection of products for use in the Project.
 - a. Product standards and quality.
 - b. Manufacturer's directions.
 - c. Warranties.
 - d. Material delivery and responsibilities.
 - e. Protection.
 - f. Acceptance of equipment or systems.
- 2. It is the intent of the Contract Documents to accomplish a complete and first-grade installation in which there shall be installed new materials and products of the latest and best design and manufacturer. Workmanship shall be thoroughly first-class and complete, executed by competent and experienced workmen.
- 3. Equipment, specialties, and similar items shall be checked for compliance and fully approved prior to installation. Contractors are cautioned that work or equipment installed without approval is subject to condemnation, removal, and subsequent replacement with an approved item without extra cost to Owner.

B. DEFINITIONS

- 1. Definitions used in this Article are not intended to change the meaning of other terms use in the Contract Documents, such as "specialties," "system," "finishes," "accessories," and similar terms. Such terms are self-explanatory and have well recognized meanings in the construction industry.
 - a. "Products" are items purchased for incorporation in the Work, whether purchased for the project or taken from previously purchased stock. The term "product" includes the terms "material," "equipment," "system," and terms of similar intent.
 - b. "Named Products" are items identified by the manufacturer's product name, including make or model number or other designation, shown or listed in the manufacturer's published product literature, that is current as of the date of the Contract Documents.
- 2. "Materials" are products substantially shaped, cut, worked, mixed, finished, refined, or otherwise fabricated, processed, or installed to form a part of the Work.
- 3. "Equipments" is a product with operational parts, whether motorized or manually operated, that require service connections, such as wiring or piping.

C. QUALITY ASSURANCE

- 1. Source Limitations: To the fullest extent possible, provide products of the same kind from a single source.
- 2. Compatibility of Options: When the Contractor is given the option of selecting between 2 or more products for use on the project, the product selected shall be compatible with products previously selected, even if previously selected products were also options.
 - a. Each prime contractor is responsible for providing products and construction methods that are compatible with products and construction methods of other prime or separate contractors.

D. PRODUCT DELIVERY, STORAGE, AND HANDLING

- 1. Deliver, store, and handle products according to the manufacturer's recommendations, using means and methods that will prevent damage, deterioration, and loss, including theft.
 - a. Schedule delivery to minimize long term storage at the site and to prevent over crowding of construction spaces.
 - b. Coordinate delivery with installation time to assure minimum holding time for items that are flammable, hazardous, easily damaged or sensitive to deterioration, theft and other losses.

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- c. Deliver products to the site in an undamaged condition in the manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting and installing.
- d. Inspect products upon delivery to ensure compliance with the Contract Documents and to ensure that products are undamaged and properly protected.
- e. Store products off the site in a manner that will facilitate inspection and measurement of quality or counting of units.
- f. Store heavy materials away from the project structure in a manner that will not endanger the supporting construction.
- g. Store products subject to damage by elements above ground, under cover in a weather tight enclosure, with ventilation adequate to prevent condensation. Maintain temperature and humidity within range required by manufacturer's instructions.

E. PRODUCT STANDARDS AND QUALITY

- 1. The Contract is based on the materials, equipment and methods described in the Contract Documents.
- 2. Where in the Drawings and Specifications certain products, manufacturer's trade names, or catalog numbers are given, it is done for the expressed purpose of establishing a basis of quality, durability, and efficiency of design for the work outlined and is not intended for the purpose of limiting competition.
- 3. The Architect will consider proposals for substitution of materials, equipment, and methods only when such proposals are accompanied by full and complete technical data and all other information required by the Architect to evaluate the proposed substitution. Such proposals need to be submitted at least ten (10) days prior to the scheduled date for receipt of bids.
- 4. Do not substitute materials, equipment or methods unless such substitution has been specifically approved for this Work by the Architect as evidenced by the incorporation of such materials, equipment or methods into the Contract Documents by written Addendum.
- 5. "Or equal":
 - a. Where the phrase "or equal" or "or equal as approved by the Architect" occurs in the Contract Documents, do not assume that material, equipment, or methods will be approved as equal by the Architect unless the item has been specifically approved via submittal process.
- 6. Availability of Specified Items:
 - a. Verify prior to bidding that specified items will be available in time for installation during orderly and timely progress of the Work.
 - b. In the event specified item or items will not be so available, notify the Architect prior to bidding.
 - c. Costs of delays because of non-availability of specified items, when such delays could have been avoided by the Contractor, will be back charged as necessary and shall not be borne by the Owner.
- 7. The Architect reserves the right to refuse approval of substituted products proposed for those specified, if in his opinion the item to be substituted will not achieve the finished effect, appearance or performance desired, as portrayed in the Drawings and Specifications. The Architect's said refusal to approve, established by this paragraph, is final and not subject to arbitration.

F. MANUFACTURER'S DIRECTIONS

- 1. Products shall be applied, installed, erected, used, and cleaned in accordance with the manufacturer's printed direction, unless herein specified to the contrary. Where manufacturer's printed directions are available and where reference is made to manufacturer's directions in the contract documents, the Contractor shall submit copies of such directions to the Architect prior to the beginning of Work covered thereby.
- 2. Where specific installation instructions are not part of these Specifications and Drawings, equipment shall be installed in strict accordance with instructions from the respective manufacturers. Where installation instructions included in these Specifications or Drawings are at a variance with instructions

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furnished by the equipment manufacturer, the Contractor shall make written request for clarification from the Architect.

3. In accepting or assenting to the use of apparatus or material, or make, or arrangement thereof, the Architect in no way waives the requirements of these Specifications or the warranty embodied therein.

G. WARRANTIES

- 1. Specific warranties called for in the Contract Documents, in addition to that falling under the general warranty as set forth in General Conditions, shall be furnished in accordance with the requirements of the Specifications.
 - a. Manufacturer's disclaimers and limitations on product warranties do not relieve the Contractor of the warranty on the Work that incorporates the products. Manufacturer's disclaimers and limitations on product warranties do not relieve suppliers, manufacturers, and subcontractors required to countersign special warranties with the Contractor.
 - b. Owner's Recourse: Expressed warranties made to the Owner are in addition to implied warranties and shall not limit the duties, obligations, rights, and remedies otherwise available. Expressed warranty periods shall not be interpreted as limitations on the time in which the Owner can enforce such other duties, obligations, rights, or remedies.
 - 1. Rejection of Warranties: The owner reserves the right to reject warranties and to limit selection to products with warranties not to conflict with requirements of the Contract Documents.
- 2. Each Contractor shall and does hereby agree to warrant for a period of one year, or for longer periods, where so provided in the Specifications, as evidenced by the date of Substantial Completion issued by the Architect, products installed under the Contract to be of good quality in every respect and to remain so for periods described herein.
- 3. Should defects develop in the Work within the specified periods, due to faults in products or their workmanship, the Contractor hereby agrees to make repairs and do necessary Work to correct defective Work to the Architect's satisfaction, in accordance with the General and Supplementary Conditions. Such repairs and corrective Work, including costs of making good other Work damaged by or otherwise affected by making repairs or corrective Work, shall be done without cost to the Owner and at the entire cost and expense of the Contractor within 14 days after written notice to the Contractor by the Owner.
 - a. Related Damages and Losses: When correcting failed or damaged warranted construction, removed and replace construction that has been damaged as a result of such failure or must be removed and replaced to provide access for correction of warranted construction.
 - b. Reinstatement of Warranty: When Work covered by a warranty has failed and been corrected by replacement or rebuilding, reinstate the warranty by written endorsement. The reinstated warranty shall be equal to the original warranty with an equitable adjustment for depreciation.
- 4. Where service on products is required under this Article, it shall be promptly provided when notified by the Owner and no additional charge shall be made, unless it can be established that the defect or malfunctioning was caused by abuse or accidental damage not to be expected under conditions or ordinary wear and tear.
- 5. The manufacturer and supplier expressly warrants that each item of equipment furnished by him and installed in this Project is suitable for the application shown and specified in the Contract Documents and includes features, accessories and performing characteristics listed in the manufacturer's catalog in force on the date bids are requested for the Work. This warranty is intended as an assurance by the manufacturer that his equipment is not being misapplied and is fit and sufficient for the services intended. This warranty is in addition to and not in limitation of other warranties or remedies required by law or by the contract Documents. It shall be the responsibility of the contractor for the particular equipment to obtain this warranty in writing.
- 6. In case the Contractor fails to do Work so ordered, the Owner may have work done and charge the cost thereof against monies retained as provided for in the Agreement and, if said retained monies shall be

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insufficient to pay such cost or if no money is available, the Contractor and his Sureties shall agree to pay to the Owner the cost of such work.

H. MATERIAL DELIVERY AND RESPONSIBILITIES

- 1. Each Contractor shall be responsible for materials he orders for delivery to the jobsite. Responsibility includes, but is not limited to, receiving, unloading, storing, protecting and setting in place; ready for final connections.
- 2. Contractors shall insure that products are delivered to the Project in accordance with the Master Construction Schedule of the Project. In determining data of delivery, sufficient time shall be allowed for shop drawings and sample approvals, including the possibility of having to resubmit improperly prepared submittals or products other than those specified and the necessary fabrication or procurement time along with the delivery method and distance involved.

I. PROTECTION

- 1. Each Contractor shall protect building elements and products when subject to damage. Should workmen or other persons employed by one Contractor be responsible for damage, the entire cost of repairing said damage shall be assumed by said individual contractor. Should damage be done by a person or persons not employed by a Contractor, the respective Contractors shall make repairs.
- 2. Each Contractor shall protect their products prior to installation and final acceptance. Storage shall be dry, clean and safe. Materials or equipment damaged, deteriorated, rusted or defaced due to improper storage, shall be repaired, refined or replaced, as required by the Architect. Products lost through theft or mishandling shall be replaced by the Contractor without cost to the Owner.

J. ACCEPTANCE OF EQUIPMENT OR SYSTEMS

1. The Owner will not accept the start of the warranty period on systems or equipment until Substantial completion is issued to the respective Contractor(s) for Owner's occupancy of the building, in part or whole. Each Contractor shall make sure provisions as required to extend the manufacturer's warranty from time of initial operation of systems or equipment until Substantial Completion is given in writing.

END OF SECTION 01 60 00

SECTION 01 74 23 - CONSTRUCTION CLEANING

A. SUMMARY

- 1. The Contractor is responsible for cleaning his own Work and the work of their subcontractors.
- 2. Related Work Specified Elsewhere.
 - a. Section 01 78 00 Closeout Procedures.
 - b. Special cleaning requirements for specific construction elements are included in appropriate sections of Divisions 2 through 32.

B. DAILY CLEANING

- Define and emphasize the responsibility of each Contractor to remove his rubbish and debris from the
 construction site to guard against fire and safety hazards as well as to provide a more efficient
 construction operation for all Contractors.
- 2. Each Contractor and Subcontractor, at the end of each working day, shall collect and remove all waste materials and debris pertaining to its work. General Contractor, shall be responsible for all costs associated with dumpster fees. All Contractors and/or Subcontractors working on the Project site are encouraged to coordinate and consolidate dumpster orders. At no time shall rubbish be allowed to accumulate or cause a fire hazard, either within the building or on site.
- 3. If any Contractor or Subcontractor fails to remove rubbish and/or debris pertaining to its Work, the Owner will authorize and direct removal of the rubbish and/or debris. Cost of removal will be charged to delinquent Contractor at hourly cost plus fringe benefits, overhead and profit.

C. ROUTINE CLEANING

Near the end of each work week, and more often if necessary, he General Contractor shall perform an
overall clean up of the entire site, including a broom cleaning of appropriate surfaces. The trades shall
remove their rubbish and debris from the building site to the rubbish collection location promptly upon
its accumulation.

D. RUBBISH CONTAINMENT

1. Refer to Section 01 51 00 – Temporary Facilities and Controls for requirements.

E. SAFETY REQUIREMENTS

- 1. Hazards Control
 - a. Store volatile wastes in covered metal containers, and remove from premises daily.
 - b. Prevent accumulation of wastes which create hazardous conditions.
 - c. Provide adequate ventilation during use of volatile or noxious substances.
- 2. Conduct cleaning and disposal operations to comply with local ordinances and anti-pollution laws.
 - a. Do not burn or bury rubbish and waste materials on project site.
 - b. Do not dispose of volatile wastes in storm or sanitary drains, streams or waterways.

F. MATERIALS

- 1. Use only cleaning materials recommended by manufacturer of surface to be cleaned.
 - a. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finish surface.

G. FINAL CLEANING

1. <u>General</u>: Provide final cleaning operations when indicated. Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit of work to the condition expected from a commercial building cleaning and maintenance program. Comply with manufacturer's instructions.

PAGE 01 74 23 - 2 SEC. 01 74 23 CONSTRUCTION CLEANING

- 2. Each Contractor shall perform his respective final clean up and shall leave the Work of the completed Project in clean, neat condition.
- 3. The following are examples, but not by way of limitation, of cleaning levels required:
 - a. Remove labels which are not required as permanent labels.
 - b. Clean transparent materials, including mirrors and window/door glass to a polished condition, removing substances which are noticeable as vision-obscuring materials. Replace broken glass and damaged transparent materials.
 - c. Clean exposed exterior and interior hard-surfaced finishes, to a dirt-free condition, free of dust, stains, films, and similar noticeable distracting substances. Except as otherwise indicated, avoid disturbance of natural weathering of exterior surfaces. Restore reflective surfaces to original reflective condition.
 - d. Wipe surfaces of mechanical and electrical equipment clean, including elevator equipment and similar equipment; remove excess lubrication and other substances.
 - e. Remove debris and surface dust from limited-access spaces including roofs, plenums, shafts, trenches, equipment vaults, manholes, attics and similar spaces.
 - f. Clean concrete floors in unoccupied spaces broom clean.
 - g. Vacuum clean carpeted surfaces and similar soft surfaces.
 - h. Clean plumbing fixtures to a sanitary condition, free of stains, including those resulting from water exposure.
 - i. Clean light fixtures and lamps so as to function with full efficiency.
 - j. Clean project site (yard and grounds), including landscape development areas of litter and foreign substances. Sweep paved areas to a broom-clean condition; remove stains, petrol-chemical spills, and other foreign deposits. Rake grounds, which are neither planted nor paved, to a smooth, even textured surface.
 - k. Sweep paved areas broom clean. Rake grounds that are neither planted nor paved to a smooth, even textured surface.
 - 1. Remove petrochemical spills, stains and other foreign deposits.
 - m. Remove tools, construction equipment, machinery and surplus material from the site.
- 4. <u>Removal of Protection</u>: Remove temporary protection and facilities installed during construction to protect previously completed installations during the remainder of the construction period.
- 5. <u>Compliances</u>: Comply with governing regulations and safety standards for cleaning operations. Remove waste materials from the site and dispose of lawfully.

END OF SECTION 01 74 23

SECTION 01 78 00 - CLOSEOUT PROCEDURES

A. RELATED DOCUMENTS

- 1. The Work of this Section shall be included as a part of the Contract Documents of each Contractor on this Project. Where such Work applies to only one Contractor, it shall be defined as to which Contractor the Work belongs.
- 2. Refer to the General and Supplementary Conditions of the Contract for Substantial Completion and final payment.

B. SUMMARY

- 1. Closeout is hereby defined to include general requirements near end of Contract Time. In preparation for final acceptance, final payment, normal termination of contract, occupancy by Owner, and similar actions evidencing completion of the Work. Specific requirements for individual units of Work are specified in Sections of Division 2 through 28. Time of closeout is directly related to "Substantial Completion."
- 2. This Section includes administrative and procedural requirements for contract closeout including, but not limited to, the following:
 - a. Prerequisites to substantial completion.
 - b. Prerequisites to final payment.
 - c. Project record documents.
 - d. Certification of code compliance.
 - e. Operation and maintenance manuals.
 - f. Instruction of Owner's personnel.

C. PREREQUISITIES TO SUBSTANTIAL COMPLETION

- 1. General: Prior to requesting Architect/Engineer inspection for certification Substantial Completion (for either Work of portions thereof), complete the following and list known exceptions in request.
 - a. In the Application for Payment that coincides with, or first follows, the date of Substantial Completion is claimed, show 100 percent completion for the Work claimed as substantially complete.
 - 1. Include supporting documents for completion as indicated in those Contract Documents and a statement showing an accounting for changes to the Contract Sum.
 - 2. If 100 percent completion cannot be shown, include a list of incomplete items, the value of incomplete construction, and reasons the Work is not compete.
 - b. Advise Owner of pending insurance changeover requirements.
 - c. Submit specific warranties, workmanship/maintenance bonds, maintenance agreements, agreements, final certifications and similar documents.
 - d. Obtain and submit releases enabling Owner's full and unrestricted use of the Work and access to services and utilities, including occupancy permits, operating certificate and similar releases.
 - e. Submit record drawings, maintenance manuals, damage or settlement surveys, property survey and similar final record information.
 - f. Delivery tools, spare parts, extra stocks of materials and similar physical items to Owner.
 - g. Make final changeover of locks and transmit keys to Owner and advise Owner's personnel of changeover in security provisions.
 - h. Complete start-up testing of systems and instructions of Owner's operating/maintenance personnel. Discontinue and remove from project site temporary facilities and services, along with construction tools, mock-ups and similar elements.
 - i. Complete final cleaning-up requirements. Refer to Section 01 74 23 Construction Cleaning.
 - j. Touch up and otherwise repair and restore marred, exposed finishes.
- 2. Inspection Procedures: On receipt of a request for inspection, the Architect will either proceed with inspection or advice the Contractor of unfilled requirements. The Architect will prepare the Certificate of Substantial Completion following inspection or advise the Contractor of construction that must be completed or corrected before the certificate will be issued.

- a. The Architect will repeat inspection when requested and assured that the Work is substantially complete.
- b. Results of the complete inspection will form the basis of requirements for final acceptance.

D. PREREQUISITES TO FINAL PAYMENT

- 1. General: Prior to requesting Architect/Engineer final inspection for certification of final payment, complete the following:
 - a. Refer to General Conditions.
 - b. Submit an updated final statement, accounting for final additional changes to the Contact Sum.
 - c. Submit final payment request, with releases and supporting documentation not previously submitted and accepted. Include insurance certificates for products and complete operations where required.
 - d. Submit copy of Architect/Engineer final punch list of itemized work to be completed or corrected, stating that each item has been completed or otherwise resolved for acceptance.
 - e. Submit record drawings, maintenance manuals, and similar final record information.
 - f. Certification of code compliance.
 - g. Submit certification stating that no materials containing asbestos were incorporated into the Work.
 - h. Plumbing Contractor shall submit certification stating no flux or solder used for drinking water piping contained more than 0.2 percent lead, and that no pipe or fittings used for drinking water piping contained more than 8.0 percent lead.
 - i. Fire stopping Contractor's letter of certification stating that all fire stopping systems have been installed in accordance with the Contract Documents.
 - j. Submit final meter readings for contractor paid utilities, and similar data as for the date of Substantial Completion or when the Owner took possession of and assumed responsibility for corresponding elements of the work.
 - k. Submit consent of surety to final payment.
 - 1. Submit evidence of final, continuing insurance coverage complying with insurance requirements.
 - m. Submit a final liquidated damages settlement statement.
- 2. Re-inspection Procedure: The Architect will re-inspect the work upon receipt of notice that the work, including inspection list items from earlier inspections, has been completed, except for items whose completion is delayed under circumstances acceptable to the Architect.
 - a. Upon completion of re-inspection, the Architect will prepare a certificate of final acceptance. If the Work is incomplete, the Architect will advise the Contractor of work that is incomplete or of obligations that have not been fulfilled but are required for final acceptance.

E. PROJECT RECORD DOCUMENTS

- 1. Project Record Documents include, drawings, project manual, product data and samples.
- 2. Each Contractor shall update "Project Record Drawings" on separate line prints set-aside especially for this purpose on the job. Drawings shall incorporate changes made in the Work of the respective trades during the construction period. Such change shall be indicated at the time they occur.
- 3. Each of these project record drawings shall be clearly marked "Project Record Documents", maintained in good condition; available for observation by the Architect. Mark these drawings to show the actual installation where the installation varies from the installation shown originally. Give particular attention to information on concealed elements that would be difficult to identify or measure and record later. Items required to be marked include, but are not limited to, the following:
 - a. Significant changes and selections made during the construction process.
 - b. Dimensional changes to the Drawings.
 - c. Significant detail not shown in the original Contract documents including Change Orders or Construction Change Directives.
 - d. The location of underground utilities and appurtenances dimensionally referenced to permanent surface improvements.

- e. The location of internal utilities and appurtenances concealed in building structures, referenced to visible and accessible features of the structures.
- f. Revisions to details shown on the Drawings.
- g. Depths of foundations below the first floor.
- h. Revisions to routing of piping and conduits.
- i. Revisions to electrical circuiting.
- j. Actual equipment locations.
- k. Duct size and routing.
- 1. Changes made following the Architect's written orders.
- m. Details not on original Contract Drawings.
- n. Charts and locations of concealed work.
 - 1. The Plumbing and HVAC Contractors shall prepare a suitable chart identifying and locating each concealed control or other concealed item requiring repair, adjustment, and maintenance.
 - 2. Charts shall list each item, together with its function, item number and location.
 - 3. Locations throughout the building shall be identified on the wall or ceiling by permanent, non-obstructive plates, labels or other approved means secured in a permanent manner.
- 4. Keep project record documents current. Do not permanently conceal work until the required information has been recorded. Mark record prints of Contract Drawings or Shop Drawings, whichever is most capable of showing actual physical conditions, completely and accurately. Where shop drawings are marked, show cross-reference on Contract Drawings location.
 - a. Mark record sets with color that may be photo copied.
 - b. Note Construction Change Directive number, alternate numbers, change order numbers and similar identification.
- 5. During the construction period, maintain one copy of the Project Manual, including addenda and modifications issued, for Project Record Documents purposes.
 - a. Mark the Specifications to indicate the actual installation where the installation varies from that indicated in Specifications and modifications issued. Note related project record drawings information, where applicable. Give particular attention to substitutions, section of product options, and information on concealed installations that would be difficult to identify or measure and record later.
- 6. During the construction period, maintain 3 copies of each product data submittal for Project Record Document purposes.
 - a. Mark product data to indicate the actual product installation where the installation varies substantially from the indicated in project data submitted. Include significant changes in product delivered to the site and changes in manufacturer's instruction and recommendations for installation.
 - b. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
 - c. Note related Change Orders and markup of record drawings, where applicable.
 - d. Where record product data is required as a part of maintenance manuals, submit marked up product data as an insert in the manual instead of submittal as record product data.
- 7. Prior to final payment on the Project, submit to the Architect the "Project Record Documents" for changes recorded for the Work of Divisions 2 through 16.
 - a. Each drawing shall be labeled "Project Record," dated, and signed by the Contractor(s).

F. MAINTENANCE AND OPERATING MANUALS

- 1. Operating instructions shall include necessary printed directions for correct operations, adjustment, servicing and maintenance of movable parts. Also included shall be suitable parts lists, approved shop drawings, diagrams showing parts location and assembly, information specified in individual Specification Sections and the following:
 - a. Emergency instructions.
 - b. Copies of specific warranties.

- c. Wiring diagrams.
- d. Recommended maintenance procedures and turn around times.
- e. Inspection and system test procedures.
- f. Precautions against improper maintenance and exposure.
- 2. Prior to issuance of final payments, each Contractor shall submit 3 completed copies of maintenance manuals to the Architect.
- 3. Finished manuals shall be loose-leaf type with hardboard covers and titled tabs identifying each particular portion or item of the Work.
- 4. For each titled item or work portion, manual must provide the names, addresses, and phone numbers of the following parties:
 - a. Contractor/installer.
 - b. Manufacturer.
 - c. Nearest dealer/supplier and agency capable of supplying parts and service.
- 5. For each manual label on front cover or spine shall indicate the following information:
 - a. Project name and address.
 - b. Owner's name.
 - c. Name and address of Architect.
 - d. Name and address of Contractor.
 - e. Date of submission.

G. INSTRUCTION TO OWNER'S PERSONNEL

- 1. Arrange for each Installer of equipment that requires regular maintenance and noted in technical sections, to meet with the Owner's personnel to provide instruction in proper operation and maintenance. Provide instruction by manufacturer's representatives if Installers are not experienced in operation and maintenance procedures. Include a detailed review of the following manuals.
 - a. Maintenance manuals.
 - b. Spare parts, materials or special tools.
 - c. Lubricants.
 - d. Fuels.
 - e. Identification systems.
 - f. Control sequences.
 - g. Hazards.
 - h. Cleaning.
 - i. Warranties and maintenance agreements and similar continuing commitments.
- 2. As part of instruction for operating equipment, demonstrate the following procedures:
 - a. Startup.
 - b. Shutdown.
 - c. Emergency operations.
 - d. Noise and vibration adjustments.
 - e. Safety procedures.
 - f. Economy and efficiency adjustments.
 - g. Effective energy utilization.

END OF SECTION 01 78 00

SECTION 02 41 19 – SELECTIVE DEMOLITION, CUTTING AND PATCHING

A. SUMMARY OF WORK

1. Requirements and limitations for selective demolition, cutting and patching of work.

B. RELATED SECTIONS

- 1. Section 01 01 00 Summary of Work
- 2. Section 01 33 00 Submittals.
- 3. Section 01 60 00 Product Requirements: Product Options and Substitutions.
- 4. Individual Product Specification Sections:
 - a. Selective demolition, cutting and patching incidental to work of the Section.
 - b. Advance notification to other Sections of openings required in work of those Sections.
 - c. Limitations on cutting structural members.

C. SUBMITTALS

- 1. Submit written request in advance of patching or alteration which affects:
 - a. Structural integrity of any element of Project.
 - b. Integrity of weather-exposed or moisture-resistant element.
 - c. Efficiency, maintenance, or safety of any operational element.
 - d. Visual qualities of sight-exposed elements.

2. Include in request:

- a. Identification of Project.
- b. Location and description of affected work.
- c. Description of proposed work, and products to be used.
- d. Alternatives to patching.
- e. Effect on work of Owner or separate contractor.
- f. Written permission of affected separate contractor.
- g. Date and time work will be executed.

D. MATERIALS

- 1. Primary Products: Those required for original installation.
- 2. Product Substitution: For any proposed change in materials, submit request for substitution under provision of Section 01 60 00.

E. EXECUTION

- 1. Inspect existing conditions prior to commencing work, including elements subject to damage or movement during cutting and patching.
- 2. After uncovering existing work, inspect conditions affecting performance of work.
- 3. Beginning of cutting or patching means acceptance of existing conditions.

F. PREPARATION

1. Provide temporary supports to ensure structural integrity of the Work. Provide devices and methods to protect other portions of Project from damage.

G. SELECTIVE DEMOLITION

- 1. Demolish and remove existing construction only to the extent required by new construction and as indicated. Use methods required to complete work within limitations of governing regulations and as follows:
 - a. Proceed with selective demolition systematically, from higher to lower level. Complete selective demolition work above each floor or tier before disturbing supporting members at lower levels.

- b. Neatly cut openings and holes plumb, square and true to dimensions required. Use cutting methods least likely to damage construction to remain or adjoining construction. To minimize disturbance of adjacent surfaces, use hand or small power tools designed for sawing or grinding, not hammering or chopping. Temporarily cover openings to remain.
- c. Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.
- d. Do not use cutting torches until work area is cleared of flammable materials. At concealed spaces, such as duct or pipe interiors, verify condition and content of hidden space before starting flame-cutting operations. Maintain portable fire extinguishing devices during flame cutting operations.
- e. Maintain adequate ventilation when using cutting torches.
- f. Remove decayed, vermin-infested, or otherwise dangerous or unsuitable materials and promptly dispose of off site.
- g. Remove structural framing members and lower to ground by method suitable to avoid free fall and to prevent ground impact and dust generation.
- h. Locate selective demolition equipment throughout the structure and remove debris and materials so as not to impose excessive loads on supporting walls, floors or framing.
- i. Dispose of demolished items and materials promptly. In-site storage or sale of removed items is prohibited.
- j. Return elements of construction and surfaces to remain to condition existing before start of selective demolition operations.
- 2. Demolish concrete and masonry in small sections. Cut concrete and masonry at junctures with construction to remain, using power driven masonry saw or hand tools; do not use power driven impact tools.

H. CUTTING AND PATCHING

- 1. Execute cutting, fitting, and patching including excavation and fill to complete work.
- 2. Fit products together, to integrate with other work.
- 3. Structural Work:
 - a. Do not cut-and-patch structural work in a manner resulting in a reduction of load-carrying capacity or load/deflection ratio. Submit proposal and request and obtain Architect's approval before proceeding with cut-and-patch of structural work.
- 4. Operational/Safety Limitations:
 - a. Do not cut-and-patch operational elements and safety components in a manner resulting in decreased performance, shortened useful life, or increased maintenance. Submit proposals and requests and obtain Architect's approvals before proceeding with cut-and-patch work.
- 5. Visual/Quality Limitations:
 - a. Do not cut-and-patch work exposed to view (exterior and interior) in a manner resulting in noticeable reduction of visual qualities and similar qualities, as judged by the Architect.

I. PERFORMANCE

- 1. Execute work by methods to avoid damage to other Work, and which will provide appropriate surfaces to receive patching and finishing.
- 2. Employ original installer/fabricator, or if not available, an acceptable equivalent entity, to perform patching for all cut-and-patch materials and site-exposed surfaces.
- 3. Cut rigid materials using masonry saw or core drill. Pneumatic tools not allowed without prior approval.
- 4. Restore work with new products in accordance with requirements of Contract Documents.
- 5. Fit work tight to pipes, sleeves, ducts, conduit, and other penetrations through surfaces.
- 6. At penetrations of fire-rated walls, partitions, ceiling, or floor construction, completely seal voids with fire-rated material to full thickness of the penetrated element.

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7. Refinish surfaces to match adjacent finish. For continuous surfaces, refinish to nearest intersection or natural break. For an assembly, refinish entire unit.

J. LIMITATIONS OF APPROVALS

1. Architect's approval to proceed with cutting and patching does not waive the right to later require removal/replacement of work found to be cut-and-patched in an unsatisfactory manner, as judged by the Architect.

END OF SECTION 02 41 19

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SECTION 06 41 16 - ARCHITECTURAL CASEWORK

A. WORK INCLUDED:

1. Provide and install Architectural casework as shown and specified. Architectural casework herein shall mean all casework exposed to view, including all exposed wood, plywood, and hard plastics.

B. RELATED WORK:

- 1. Section 06 10 00 Rough Carpentry
- 2. Section 07 90 00 Joint Sealants
- 3. Section 09 65 13 Resilient Flooring
- 4. Section 09 91 23 Painting

C. REFERENCES

- 1. American Laminator's Association (ALA)
- 2. American National Standards Institute (ANSI)
 - a. A208.1 Wood Particleboard
 - b. A208.2 Medium Density Fiberboard for Interior Use
- 3. American Society of Mechanical Engineers (ASME)
 - a. B18.6.1 Wood Screws (Inch Series)
- 4. American Society of Testing and Materials (ASTM)
 - a. D 523 Test Method for Specular Gloss
- 5. Architectural Woodwork Institute (AWI)
 - a. AWI Quality Standards 6th Edition Version 1.1
- 6. Builders Hardware Manufacturers Association (BMHA)
 - a. A156.9 Cabinet Hardware
 - b. A156.18 Materials and Finishes
- 7. Federal Specification (FS)
 - a. FF-N-105 Nails, Brads, Staples, and Spikes: Wire, Cut and Wrought
- 8. Hardwood Plywood and Veneer Association (HPVA)
 - a. HP 1 Interim Voluntary Standard for Hardwood and Decorative Plywood
- 9. National Electrical Manufacturers Association (NEMA)
 - a. LD 3 High-Pressure Decorative Laminates
- 10. National Particleboard Association (NPA)
 - a. 9 Voluntary Standard for Formaldehyde Emission from Medium Density Fiberboard (MDF)

D. SUBMITTALS

- 1. Submit in accordance with General, Supplementary and Special Conditions.
- 2. Submit electronic pdf file of Shop Drawings for approval. Show materials, dimensions, cabinet-cut details, and sink locations. Shop Drawings shall be furnished for all casework, and shall be drawn in related and/or dimensional position with sections shown either full size or 3" scale.
- 3. Submit color samples upon award of contract for selection and coordination with other suppliers. Architect may request and retain samples and catalog cuts as required for accessory and special items.
- 4. Product certificates signed by woodwork manufacturer certifying that products comply with specified requirements.

E. QUALITY ASSURANCE

1. Fabricator Qualifications: Firm experienced in producing architectural woodwork similar to that indicated for this Project, and with record of successful in-service performance, as well as sufficient production capacity to produce required units without delaying Work.

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- 2. Single-Source Responsibility for Fabrication and Installation: Engage qualified woodworking firm to assume undivided responsibility for fabricating, finishing, and installing woodwork specified in this Section.
- 3. Quality Standard: Except as otherwise indicated, comply with AWI Quality Standard "Architectural Woodwork Quality Standards" for grades of interior architectural woodwork, construction, finishes, and other requirements.
- 4. Source of Cabinet Accessories: Provide accessories obtained from one single source for each type of hardware and accessories so that finishes match.
- 5. The casework manufacturer is responsible for details and dimensions not controlled by job conditions, and shall show on his Shop Drawings all required field measurements beyond his control.
- 6. The Contractor, when installing items not shop assembled shall distribute to the best over-all advantage the defects allowed in the quality grade specified.
- 7. The Contractor shall be responsible to deliver casework when the building and/or storage area is sufficiently dry, to prevent damaged caused by excessive changes in moisture content.
- 8. All Counters, Tops and Desk surfaces shall be fabricated as self-edge type, with 2" radius on all exposed corners when viewed in plan.

F. DELIVERY, STORAGE, AND HANDLING

- 1. Protect woodwork during transit, delivery, storage, and handling to prevent damage, soilage, and deterioration.
- 2. Do not deliver woodwork until painting and similar operations that could damage, soil, or deteriorate woodwork have been completed in installation areas. If woodwork must be stored in other than installation areas, store only in areas whose environmental conditions meet requirements specified in "Project Conditions."

G. PROJECT CONDITIONS

- 1. Environmental Limitations: Do not deliver or install woodwork until building is enclosed, wet-work is completed, and HVAC system is operating and will maintain temperature and relative humidity at occupancy levels during the remainder of the construction period.
- Field Measurements: Where woodwork is indicated to be fitted to other construction, check actual
 dimensions of other construction by accurate field measurements before fabrication, and show recorded
 measurements on final shop drawings. Coordinate fabrication schedule with construction progress to
 avoid delaying Work.
 - a. Verify locations of concealed framing, blocking, reinforcements, and furring that support woodwork by accurate field measurements before being enclosed. Record measurements on final shop drawings.
 - b. Where field measurements cannot be made without delaying Work, guarantee dimensions for accurate fit and proceed with fabricating woodwork without field measurements. Provide allowance for trimming at site and coordinate construction to ensure that actual dimensions correspond to guaranteed dimensions.

H. QUALITY, GRADE AND MATERIALS SELECTION

1. Quality, Grade: Material and workmanship of all cabinetry work shall conform to the "Custom Grade" requirements of the AWI Quality Standards.

2. Materials:

- a. Laminated Plastics/Finishes:
 - 1. High-pressure plastic laminate, V32 grade, for exterior cabinet surfaces shall exceed NEMA standards for vertical grade.
 - 2. Color Selection Available: Textured finish vertical surface grade from casework manufacturer's

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- stock colors consisting of complete range of colors and patterns.
- 3. Plastic Laminate Balancing Sheet: Heavy gauge plastic laminate backing sheet shall be textured surface, and meet NEMA standards, and be of a type and thickness to properly balance face-finish.
- 4. Counter top High Pressure Plastic Laminate: High-pressure plastic laminate, textured finish .050 thickness. Color as selected from manufacturer's stock standard patterns and solid colors.
- 5. Heavy gauge neutral colored backing sheet for balanced construction.
- b. Pressure Fused Laminate:
 - 1. Thermosetting acid resistant Pressure Fused laminate, permanently bonded to substrate.
 - 2. Pressure Fused laminate color to be selected by Architect.
 - 3. The following agency requirements, standards and tests shall apply:

U.S. Federal F.S.L.P.-508
ASTM D-1300-53T
U.S. Food & Drug Section 175.300
NEMA LD3-1985

- 4. Neutral colored Pressure Fused for semi-exposed cabinet interiors behind doors and drawers, interiors of all open cabinets, and underside of wall cabinets.
- c. High Performance Particle Board Core:
 - Particle Board to be of 47 lb. density, and balanced construction with moisture content not to exceed 8%. 3-Ply Particleboard shall exceed the requirements for its type and classification under Commercial Standard CS-236-66. Federal Specifications LLL-8-800A, and ASTM D 1037-78.
 - 2. ParticleBoard shall meet the following Performance Requirements. Submit compliance data from the manufactured prior to fabrication:

Screw Holding, Face 371 lbs.

Modulus of Rupture 2,400 psi

Modoulus of Elasticity 450,000 psi
Internal Bond 90 psi
Surface Hardness 900 lbs

- d. Hardboard: Hardboard shall meet or exceed Commercial Standards CS-251 and Federal Specifications LLL-B-00810. Tempered hardboard ¼ inch thick smooth both sides.
- e. Hardware:
 - 1. Acceptable Manufacturers:
 - a. Accuride
 - b. Amerock
 - c. Grass
 - d. Ives
 - e. Knape & Vogt
 - 2. Hinges:
 - a. Heavy duty, 120-degree concealed cabinet hinge, 3-3/8". Provide Grass 3803 Hinge, or approved equal.
 - b. One pair per door to 48 inch height. One and one-half pair over 48 inch in height. Hinge to accommodate 13/16 inch thick laminated door, and allow 270 degree swing.
 - 3. Pulls: 4" centers, brushed Aluminum (26D).
 - 4. Drawer Slides:
 - a. Standard Drawers: 20" Full Extension Drawer Glides, with positive in-stop, out-stop and out-keeper to maintain drawer in 80% open position. Captive nylon rollers, both front and rear. Minimum 100 lb. dynamic load rating. Provide adjuster cam to regulate body side sway.

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- 1. Standard Specified: Accuride Model 7432.
- b. File Drawers: Full extension, 3 part progressive opening slide, minimum 150 lb., zinc plated or epoxy coated at manufacturer's option.
 - 1. Standard Specified: Accuride Model 9301.
- c. Pencil Drawers: Minimum 45 lb.
 - 1. Standard Specified: Accuride Model 2006.
- 5. Catches: 6 lb. magnetic catch for base and wall cabinets. Provide two 6 lb. pulls at each tall cabinet door.
- 6. Locks (all cabinet doors and drawers):
 - 1. Standard Specified: National Cabinet Lock NL-C8055-14A disc tumbler cam lock.

I. CABINET CONSTRUCTION

1. Sub-Base:

a. Cabinet Subbase: To be separate and continuous (no cabinet body sides-to floor), water resistant exterior grade plywood with concealed fastening to cabinet bottom. Ladder-type construction, of front, back and intermediates, to form a secure and level platform to which cabinets attach.

2. Cabinet Top and Bottom:

- a. Base and tall cabinet bottoms to be Pressure Fused laminated particle board interior side, ¾ inch thick with phenolic neutral colored backer sheet on concealed side.
- b. Solid sub-top to be 3/4 inch, and furnished for all base and tall cabinets.
- c. Wall cabinet and library stack bottoms and tops are 1 inch thick.
- d. Exterior exposed wall cabinet bottoms to be Pressure Fused laminate both sides. Assembly devices to be concealed on bottom side of wall cabinets.

3. Cabinet Ends:

- a. Pressure Fused laminated particle board interior side; ¾ inch thick with phenolic neutral colored back sheet on concealed side.
- b. Exposed exterior cabinet ends to be laminated with plastic laminate.
- c. Exposed edges to be 1 mm edging.
- 4. Fixed and Adjustable Shelves:
 - a. Pressure Fused laminated particle board all sides.
 - b. Thickness: 34 inch standard shelving to 36 inches wide. One inch shelving 36 inches wide and over.
 - c. Shelf edges shall have 1 mm edging.

5. Cabinet Backs:

- a. Standard cabinet back to be 3/4 inch thick, Pressure Fused laminated particle board interior side for use on all cabinets with or without doors. Rear, unexposed, side of back to receive continuous bead of hot melt adhesive at joint between back and sides/top/bottom for sealing against moisture and vermin, and further contribute to case rigidity.
- b. 3/4 inch thick hang rails shall be glued to rear of cabinet back and screwed to cabinet sides. Provide minimum of 2 at base, 2 at wall, and 3 at tall cabinets.
- c. Exposed exterior backs to be ¾ inch particle board faced with high pressure plastic laminate.

6. Door and Drawer Fronts:

- a. Plastic laminated doors and drawer fronts to be 13/16 inch thick for all hinged and sliding doors. Core material to be 3/4 inch thick, 47 lb. density particle board bonded on exterior with high pressure plastic laminate and with colored heavy gauge balancing sheet on interior face. Drawer fronts and hinged doors are to overlay the cabinet body. Maintain a maximum χ " reveal between pairs of doors, between door and drawer front, or between multiple drawer fronts within the cabinet.
- b. Doors and drawer fronts shall have 3 mm edging.

7. Drawers:

a. Drawer fronts shall be applied to separate drawer body component sub-front.

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- b. Sides and back of drawers to be ½ inch thick Pressure Fused laminated fiberboard; sub-front same, to be 5/8 inch thick.
- c. Fiberboard to be of uniform density and meet the following minimum standards:

Screw Holding, Face 355 lbs.
Screw Holding, Edge 300 lbs.
Modulus of Rupture 4,500 psi.
Modulus of Elasticity 500,000 psi.
Internal Bond 100 psi.

- d. Drawer sides shall be dadoed to receive front and back, machine squared and held under pressure while hot melt glued and pinned together.
- e. Drawer bottom to be Pressure Fused laminate surface, ¼ inch thick, housed into front, sides and back. Underside of drawer to receive continuous hot melt adhesive at joint between bottom and back/sides/front for sealing and rigidity. Reinforce drawer bottoms as required with intermediate spreaders.

8. Countertops:

- a. Plastic Laminate:
 - 1. High pressure plastic laminate bonded to particle board core. Thickness as shown on plans and specifications. Underside to be properly balanced with heavy gauge backing sheet. Edges to be high pressure plastic laminate to match horizontal surface color. Furnish countertops in design as shown on drawings. Provide continuous tops for counter type cabinets fixed in a line.
- b. Solid Surface Material
 - 1. Grade: Custom
 - 2. Solid-Surface Material Thickness: 3/4 inch
 - 3. Colors, Patterns, and Finishes: As selected from manufacturer's full range.
 - 4. Fabricate tops in one piece, unless otherwise indicated. Comply with solid surface material manufacturer's written recommendations for adhesives, sealers, fabrication and finishing.
 - a. Fabricate tops with shop-applied edges of materials and configuration indicated on the contract documents.
 - b. Fabricate tops with backsplashes for field application.
 - 5. Install integral sink bowls in countertops in shop.
 - 6. Drill holes in countertops for plumbing fittings and soap dispensers in shop.

9. Workmanship:

- a. All exposed exterior cabinet surfaces to be V32 decorative high pressure plastic laminate, color as selected from manufacturer's stock colors consisting of complete range of colors and patterns. Laminate surface/backer to core under controlled conditions, by approved and regulated laminating methods to assure a premium lamination. Natural-setting adhesives that cure thru chemical reaction are required. Methods requiring heat are not allowed; "contact" methods of laminating are not allowed.
- b. Cabinet parts shall be accurately machined and bored for premium grade quality joinery construction utilizing automatic machinery to insure consistent sizing of modular components.
- c. End panels shall be doweled to receive bottom and top. Back panel shall be fully housed into, and recessed 1/2 inch from the back of cabinet sides, top and bottom to insure rigidity and a fully closed cabinet.
- d. Drawer bottom shall be fully housed into, and recessed up ½ inch from the bottom of sides, back and subfront. Sides of drawer shall be fully dadoed to receive drawer back, locked in fully to subfront, fastened with glue and mechanical fasteners.
- e. ¾ inch thick hang rails shall be glued to backside and screwed to end panels of all wall, base and tall cabinets for extra rigidity and to facilitate installation.

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- f. Rear of cabinet back, and underside of drawer bottom joints to receive a continuous bead of hot melt adhesive to add to unit body strength and develop moisture and vermin seal.
- g. All cases shall be square, plumb and true.

J. COORDINATION

- 1. Coordinate work of this section with related work of other Sections as necessary to obtain proper installation of all items.
- 2. Verify site dimensions of cabinet locations in building prior to fabrication.
- 3. Prior to installation of Architectural woodwork, examine shipped fabricated work for completion and work as required, including back priming and removal of packing.
- 4. Coordinate installation with Owner supplied appliances and/or devices.

K. INSTALLATION

- 1. Quality Standard: Install woodwork to comply with AWI Section 1700.
- 2. Storage and Protection: Casework shall be protected in transit. Store under cover in a ventilated building not exposed to extreme temperature and humidity changes. Do not store or install casework in building until concrete, masonry, and plaster work is dry.
- 3. Condition woodwork to average prevailing humidity conditions prior to installing.
- 4. Install the work plumb, level, true and straight with no distortions. Shim as required using concealed shims. Install to a tolerance of 1/8" in 8'-0" for plumb and level, including countertops, and with 1/16" maximum offsets in flush adjoining surfaces, 1/8" maximum offsets in revealed adjoining surfaces.
- 5. Scribe and cut work to fit adjoining work and refinish cut surfaces or repair damaged finish at cuts.
- 6. Anchor woodwork to anchors or blocking built in or directly attached to substrates. Secure to grounds, stripping and blocking with countersunk, concealed fasteners as required for complete installation.
- 7. Cabinets: Install without distortion so that doors and drawers fit openings properly, and are accurately aligned. Adjust hardware to center doors and drawers in openings, and to provide unencumbered operation. Complete installation of hardware and accessory items as indicated. Install cabinets with no more than 1/8-inch in 96-inch sag, bow, or other variation from a straight line.
- 8. Tops: Anchor securely to base units and other support systems as indicated. Caulk space between backsplash and wall with specified sealant.
 - a. Install countertops with no more than 1/8 inch in 96-inch sag, bow, or other variation from a straight line.
 - b. Secure backsplashes to tops with concealed metal brackets at 16-inches o. c.
 - c. Align adjacent solid-surfacing-material countertops and form seams to comply with manufacturer's written recommendations using adhesive in color to match countertop. Carefully dress joints smooth, remove surface scratches, and clean entire surface.
- 9. Install all items complete and adjust all moving parts to operate properly.
- 10. Install with minimum number of joints, using full-length pieces where possible. Stagger joints in adjacent and related members. Cope at returns, miter at corners, and comply with Quality Standards of Joinery.
- 11. Leave surface clean and free from defects at time of final acceptance.
- 12. Guarantee: All materials shall be guaranteed for a period of 1 year from manufacturer's defects and workmanship.
- 13. Clean Up: Remove all cartons, debris, sawdust, scraps, etc., and leave spaces clean and all casework ready for owner's use.

L. ADJUSTING AND CLEANING

1. Repair damaged and defective woodwork where possible to eliminate functional and visual defects; where not possible to repair, replace woodwork. Adjust joinery for uniform appearance.

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- 2. Clean, lubricate, and adjust hardware.
- 3. Clean woodwork on exposed and semi-exposed surfaces. Touch up shop-applied finishes to restore damaged or soiled areas.

M. PROTECTION

1. Provide final protection and maintain conditions, in a manner acceptable to Architect that ensures that casework is without damage or deterioration at time of Substantial Completion.

END OF SECTION 06 41 16

SECTION 07 21 00 - BUILDING INSULATION

A. SUMMARY

- 1. The work included in this section consists of furnishing all labor, materials, tools, and equipment necessary to furnish and install the following types of insulation:
 - a. Batt-type Fiberglass Thermal Insulation.
 - b. Batt-type Fiberglass Sound Insulation.
- 2. Related Sections:
 - a. Division 6 Section 06 16 43 Gypsum Sheathing.
 - b. Division 7 Section 07 92 00 Joint Sealants.
 - c. Division 9 Section 09 21 16 Gypsum Board Assemblies.
 - g. Division 9 Section 09 51 13 Acoustical Ceiling Systems.
 - h. Division 23 Section 23 07 13 Mechanical: Duct and equipment insulation, and pipe insulation.

B. REFERENCES

- 1. ASTM International:
 - a. ASTM C165 Standard Test Method for Measuring Compressive Properties of Thermal Insulations.
 - b. ASTM C356 Standard Test Method for Linear Shrinkage of Preformed High-Temperature Thermal Insulation Subjected to Soaking Heat.
 - c. ASTM C411 Standard Test Method for Hot-Surface Performance of High-Temperature Thermal Insulation.
 - d. ASTM C423 Standard Test Method for Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method.
 - e. ASTM C518 Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus.
 - f. ASTM C612 Standard Specification for Mineral Fiber Block and Board Thermal Insulation.
 - g. ASTM C1304 Standard Test Method for Assessing the Odor Emission of Thermal Insulation Materials.
 - h. ASTM C1320 Standard Practice for Installation of Mineral Fiber Batt and Blanket Thermal Insulation for Light Frame Construction.
 - i. ASTM C1338 Standard Test Method for Determining Fungi Resistance of Insulation Materials and Facings.
 - j. ASTM E84 Standard Test Method for Surface Burning Characteristics of Building Materials.
 - k. ASTM E90 Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements.
 - 1. ASTM E96 Standard Test Methods for Water Vapor Transmission of Materials.
 - m. ASTM E119 Standard Test Methods for Fire Tests of Building Construction and Materials.
- 2. Federal Specification HH-I-521F: Insulation Blankets, Thermal (Mineral Fiber, For Ambient Temperatures).

C. SUBMITTALS

- 1. General: Submit listed submittals in accordance with provisions of Section 01300 Administrative Requirements.
- 2. Product Data: Manufacturer's data sheets on each product to be used, including:
 - a. Preparation instructions and recommendations.
 - b. Storage and handling requirements and recommendations.
 - c. Installation methods.
- 3. Samples: Submit manufacturer's standard selection and verification samples.
- 4. Quality Assurance/Control Submittals: Submit the following:

- a. Test Reports: Upon request, submit test reports from recognized test laboratories.
- b. Certificates: Submit manufacturer's certificate that products meet or exceed specified requirements.

D. QUALITY ASSURANCE

- 1. Obtain each type of building insulation through a single source.
- 2. Manufacturer Qualifications: Manufacturer with a minimum of ten years experience manufacturing products in this section shall provide all products listed.
- 3. Installer Qualifications: Installer Qualifications: Products listed in this section shall be installed by a single organization with at least five years experience successfully installing insulation on projects of similar type and scope as specified in this section.

E. DELIVERY, STORAGE & HANDLING

- 1. General: Comply with Division 1 Product Requirement Section.
- 2. Delivery: Deliver materials in manufacturer's original, unopened, undamaged containers with identification labels intact.
- 3. Storage and Protection: Store materials protected from exposure to harmful environmental conditions and at temperature and humidity conditions recommended by the manufacturer.

F. PROJECT CONDITIONS

1. 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.

G. PRODUCTS

- 1. Insulating Materials General:
 - a. General: Provide insulating materials that comply with requirements and referenced standards.
 - 1. Preformed Units: Sizes to fit applications indicated; selected from manufacturer's standard thicknesses, widths and lengths.
- 2. Fiberglass Batt Thermal Insulation
 - a. Kraft-faced Batts: Fiber glass building insulation for walls, ceilings, attics and floors.
 - 1. Acceptable Manufacturer's:
 - a. Celotex Corporation
 - b. Certainteed Corporation
 - c. Owens Corning Fiberglass
 - b. Thermal Resistance (R-Value) (ASTM C518): See Drawings for specified thickness and corresponding R-value.
 - c. Thickness: See Drawings.
 - d. Material Standard: ASTM C665, Type II, Class C, Category 1, faced on one side with Kraft paper providing a vapor barrier of 1.0 or less.
 - e. Noncombustibility: ASTM E 136, passes.
- 3. Fiberglass Batt Acoustical Insulation
 - a. Unfaced glass fiber acoustical insulation complying with ASTM C 665, Type 1, Class A rating.
 - 1. Acceptable Manufacturer's:
 - a. Celotex Corporation
 - b. Certainteed Corporation
 - c. Owens Corning Fiberglass
 - b. Size shall be 3-1/2" thick x 16" wide.
 - c. Fire Resistance Ratings: Passes ASTM E 119 Test.
 - d. Sound Transmission Class: STC 50.
 - e. Dimensional Stability: Linear Shrinkage less than 0.1%.

H. EXAMINATION

- 1. Site Verification of Conditions:
 - a. Verify that site conditions are acceptable for installation of building insulation.
 - b. Do not proceed with installation of building insulation until unacceptable conditions are corrected.
- 2. Do not proceed with the installation of insulation until subsequent work which conceals the insulation is ready to be performed, unless directed otherwise.

I. PREPARATION

1. Protection: Protect adjacent work areas and finish surfaces from damage during product installation.

J. INSTALLATION

- 1. General: Comply with insulation manufacturer's written instructions applicable to products and application indicated.
 - a. Install insulation that is undamaged, dry and unsoiled and that has not been left exposed at any time to ice and snow.
 - b. Extend insulation in thickness indicated to envelop entire area to be insulated. Cut and fit tightly around obstructions and fill voids with insulation.
 - c. Water Piping Coordination: If water piping is located on inside of insulated exterior walls, coordinate location of piping to ensure that it is placed on warm side of insulation and insulation encapsulates piping.
- 2. Installation of General Building Insulation:
 - a. Set vapor-retarder-faced units with vapor retarder to warm side of construction, unless otherwise indicated. Do not obstruct ventilation spaces, except for firestopping.
 - 1. Tape ruptures in vapor retarder, and seal each continuous area of insulation to surrounding construction to ensure airtight installation.
 - b. Install glass-fiber blankets in cavities formed by framing members according to the following requirements:
 - 1. Use blanket widths and lengths that fill the cavities formed by framing members. If more than one length is required to fill cavity, provide lengths that will produce a snug fit between ends.
 - 2. Place blankets in cavities formed by framing members to produce a friction fit between edges of insulation and adjoining framing members.
 - 3. For metal-framed wall cavities where cavity heights exceed 96 inches, support unfaced blankets mechanically and support faced blankets by taping stapling flanges to flanges of metal studs.
 - d. Acoustical Insulation Installation: Install insulation where indicated in sound rated assemblies. Maintain acoustical rating of assembly.
 - e. Installation of Vapor Retarders:
 - a. General: Extend vapor retarder to extremities of areas to be protected from vapor transmission. Secure in place with adhesives or other anchorage system as indicated. Extend vapor retarder to cover miscellaneous voids in insulated substrates.
 - b. Firmly attach vapor retarders to substrates with mechanical fasteners or adhesives as recommended by vapor retarder manufacturer.
 - c. Seal joints caused by pipes, conduits, electrical boxes and similar items penetrating vapor retarders with vapor retarder tape to create an airtight seal between penetrating objects and vapor retarder.
 - d. Repair any tears or punctures in vapor retarders immediately before concealment by other work.

J. PROTECTION

1. Protect installed work from damage due to subsequent construction activity on the site, until completion of the project. Repair damage to installed products prior to installation of finish materials.

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SECTION 07 22 16 - ROOF DECK INSULATION

A. SUMMARY OF WORK

1. Furnish and installed tapered (where required) polyisocyanurate insulation as indicated on the drawings and as specified herein. Include crickets where required.

B. RELATED SECTIONS

- 1. Drawings and general provisions of the Contract, including General Supplementary Conditions and Division 1 Specification Sections apply to this section.
- 2. Related work specified elsewhere:
 - a. Section 05 31 13 Steel Deck
 - b. Section 06 10 00 Rough Carpentry
 - c. Section 07 53 23 EPDM Roof System

C. REFERENCES

	KEIEKENCES	
1.	ASTM A-653	Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-
•	A GET F G 1 65 05	Coated (Galvanized) by the Hot-Dip Process
	ASTM C-165-95	Test Method for Measuring Compressive Properties of Thermal Insulation
	ASTM C-209-92	Test Method for Cellulosic Fiber Insulating Board
4.	ASTM C-272-91	Test Method for Water Absorption of Core Materials for Structural Sandwich
		Constructions
5.	ASTM C-518-91	Test Method for Steady-State Heat Flux Measurements and Thermal
		Transmission Properties by Means of the Heat Flow Meter Apparatus
6.	ASTM C 1289	Standard Specification for Faced Rigid Cellular Polyisocyanurate Insulation
		Board.
	ASTM D-5	Test Method for Penetration of Bituminous Materials
8.	ASTM D-36	Test Method for Softening Point of Bitumen (Ring and Ball Apparatus)
9.	ASTM D-312	Specification for Asphalt Used in Roofing
10.	ASTM D-2178	Standard Specification for Asphalt Glass Felts used in Roofing and Waterproofing
11.	ASTM D-5147	Sampling and Testing Modified Bituminous Sheet Material
12.	ASTM E 108	Standard Test Methods for Fire Tests of Roof Coverings
13.	ASTM E 119	Standard Test Methods for Fire Tests of Building Construction and Materials.
14.	ASTM E 2114-01	Standard Terminology for Sustainability Relative to the Performance of
		Buildings
15.	ASTM E 2129 -01	Standard Practice for Data Collection for Sustainability Assessment of Building
		Products.
16.	FM 4450	Approval Standard - Class I Insulated Steel Roof Decks
17.	FM 4470	Approval Standard - Class I Roof Covers.
18.	NRCA	National Roofing Contractors Association, Chicago, IL
19.	SDI	Steel Deck Institute, St. Louis, Missouri
	UL 263	Fire Tests of Building Construction and Materials
	UL 790	Standard Test Methods for Fire Tests of Roof Coverings
	UL 1256	Fire Test of Roof Deck Constructions.
	LTTR	Long Term Thermal Resistance predicted by CAN/ULC-S770-03.
_5.		Zong Tolim Thomas Residence producted by Chill Che B. 1. 0 00.

D. DEFINITIONS

1. LTTR (Long Term Thermal Resistance) is defined as using techniques from ASTM C1303 or CAN/ULC-S770, the predicted R-Value that has been shown to be equivalent to the average performance of a permeably faced foam insulation product over 15 years. LTTR applies to ALL foam

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insulation products with blowing agents other than air, such as polyiso, extruded polystyrene and polyurethane. The new method is based on consensus standards in the US and Canada.

E. SUBMITTALS

- 1. Submit under provisions of Section 01 30 00 Submittal Procedures.
- 2. Product Data: Provide manufacturer's specification data sheets for each product in accordance with Section 01 30 00.
- 3. Provide approval letters from insulation manufacturer for use of their insulation within this particular roofing system type.
- 4. Samples:
 - a. Submit 6 by 6 inch (152 by 152 mm) samples of each board type required.
 - b. Submit samples of each fastener type required.
- 5. Shop Drawings: Roof plan showing layout of boards and fastening patterns.
- 6. Installation instructions for insulation board and fasteners.

F. **SHOP DRAWINGS**

- 1. Submit manufacturer's shop drawings indicating complete installation details of tapered insulation system, including identification of each insulation block, sequence of installation, layout, drain locations, roof slopes, thicknesses, crickets and saddles.
- 2. Shop drawing shall include: Outline of roof, location of drains, complete board layout of tapered insulation components, thickness and the average "R" value for the completed insulation system.

G. CERTIFICATION

- 1. Submit roof manufacturer's certification that insulation fasteners furnished are acceptable.
- 2. Submit roof manufacturer's certification that insulation furnished is acceptable, as a component of roofing system and is eligible for roof manufacturer's system warranty.
- 3. Submit certification that insulation and fastening system furnished is Tested and Approved by Factory Mutual for 1-90 Wind Up-Lift Requirements.

H. QUALITY ASSURANCE

- 1. Fire Classification, ASTM E-108
- 2. Submit certification that the roof system furnished is approved by Factory Mutual, Underwriters Laboratories or Warnock Hersey for external Fire E-108 Class 1A and that the roof system is adhered properly to meet or exceed 1-90.

I. DELIVERY, STORAGE AND HANDLING

- 1. Deliver products with seals and labels intact, in manufacturer's original containers, dry and undamaged.
- 2. Store all insulation materials protected from the wind, sun and moisture damage prior to and during installation. Any insulation that has been exposed to moisture shall be removed from the project site.
- 3. Keep materials enclosed in a watertight, ventilated enclosure (i.e. tarpaulins).
- 4. Store materials off the ground. Any warped, broken or wet insulation boards shall be discarded.

J. INSULATION MATERIALS

- 1. Closed-cell polyisocyanurate foam core manufactured using blowing agent and integrally laminated to heavy non-asphaltic fiber-reinforced felt facers.
- 2. Provide thicknesses of insulation as indicated, provide combination of types and thicknesses to provide a complete system.

K. POLYISOCYANURATE ROOF INSULATION

- 1. Flat or Factory Tapered, closed cell polyisocyanurate foam core bonded to heavy duty glass fiber mat facers.
- 2. Insulation: R-20
 - a. Insulation shall be installed in multiple layers (2" + 1-1/2"). The first and second layer of insulation shall be mechanically fastened to the substrate in accordance with the manufacturer's published specifications.
- 3. See drawings for locations requiring tapered.
 - a. Taper Thickness: Minimum ½ in. at low points.
 - b. Tapered Slope: 1/4 in. per foot.
 - c. Average R-Value: Minimum 10.00
- 4. Insulation board shall meet the following requirements:
 - a. UL, WH or FM listed under Roofing Systems
- 5. Physical Properties:

a.	Dimensional Stability	ASTM D-2126	2% max.
b.	Compressive Strength	ASTM D-1621	25 psi min.
c.	Vapor Permeability	ASTM E-96	1 perm max.
d.	Foam Core Density	ASTM D-1622	2.0 pcf min.
e.	Water Absorption	ASTM C-209	<1%

f. R-Factor HR per inch Thickness ASTM C-518 5.6 (Design Value)

L. RELATED MATERIALS

- 1. Fiber Cant and Tapered Edge Strips: Performed rigid insulation units of sizes/shapes indicated, matching insulation board.
- 2. Roof Board Joint Tape: 6" wide glass fiber mat with adhesive compatible with insulation board facers.
- 3. Asphalt: ASTM D-312, Type IV Steep Asphalt.
- 4. Fasteners:
 - a. Corrosion resistant screw fastener as recommended by roof membrane manufacturer.
 - b. Factory Mutual Tested and Approved with 3 in. coated disc for 1-90 rating, length required to penetrate metal deck one inch.
 - c. Minimum pull out resistance of 800 lbs.

N. INSPECTION

- 1. Roofing contractor shall be responsible for preparing an adequate substrate to receive insulation.
- 2. Verify that work that penetrates roof deck has been completed.
- 3. Verify that wood nailers are properly and securely installed.
- 4. Examine surfaces for defects or irregularities that would prohibit timely and correct installation.
- 5. Do not proceed until defects are corrected.
- 6. Do not apply insulation until substrate is sufficiently dry.
- 7. Broom clean substrate immediately prior to application.
- 8. Use additional insulation to fill depressions and low spots that would otherwise cause ponding water.

O. INSTALLATION

- 1. Attachment with Mechanical Fasteners
 - a. Install base course of 1" thickness polyisocyanurate insulation; and, subsequent courses of the same insulation to incorporate a ¼" per foot slope to drain. All polyisocyanurate insulation shall be fully attached to the deck with an approved mechanical fastening system, in accordance with manufacturer's recommendation for FM 1-90 approved system.
 - b. Filler pieces of insulation require at least two fasteners per piece if size of insulation is less than four square feet.

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- c. Spacing pattern of fasteners shall be as per manufacturer's recommendations to meet the FM requirements. Placement of any fastener from edge of insulation board shall be a minimum of three inches, and a maximum of six inches.
- d. Minimum penetration into deck shall be as recommended by the fastener manufacturer.

P. CLEANING AND PROTECTION

- 1. Remove trash and construction debris from insulation surface prior to application of roofing membrane.
- 2. Do not leave installed insulation exposed to weather. Cover and waterproof with completed roof system immediately after installation.
 - a. Temporarily seal exposed insulation edges at the end of each day.
 - b. Remove and replace installed insulation that has become wet or damaged with new insulation.
- 3. Protect installed insulation and roof cover from traffic by use of protective covering materials during and after installation.

END OF SECTION 07 22 16

SECTION 07 24 16 - EXTERIOR INSULATION AND FINISH SYSTEM

A. SECTION INCLUDES

1. Exterior insulation and finish system.

B. RELATED SECTIONS

- 1. Section 06 10 00 Rough Carpentry
- 2. Section 06 16 43 Gypsum Sheathing

C. REFERENCES

- 1. ASTM C 578 Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation; 1995.
- 2. ASTM C 1382 Standard Test Method for Determining Tensile Adhesion Properties of Sealants When Used in Exterior Insulation and Finish System (EIFS) Joints; 1997.
- 3. ASTM E 283 Standard Test Method for Determining the Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen; 1991.
- 4. ASTM E 330 Standard Test Method for Structural Performance of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference; 1997.
- 5. ASTM E 331 Standard Test Method for Water Penetration of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference; 1996.
- 6. EIMA Guideline Specification for Expanded Polystyrene (EPS) Insulation Board; EIFS Industry Manufacturers Association; 1992, Revised 1995.

D. SUBMITTALS

- 1. Submit under provisions of Division 1, and as specified herein.
- 2. Product Data: Manufacturer's specifications, details, installation instructions and product data.
- 3. Manufacturer's standard warranty.
- 4. Manufacturer's certificate of compliance with EIMA standards.
- 5. Color Samples: For selection of finish coat color(s).

E. QUALITY ASSURANCE

- 1. EIFS Manufacturer Qualifications:
 - a. Member in good standing of the EIFS Industry Members Association (EIMA).
 - b. System manufacturer for a minimum of twenty (20) years.
 - c. Manufacturing facilities ISO 9002 certified.
- 2. Installer Qualifications:
 - a. Engaged in application of EIFS for a minimum of three (3) years.
 - b. Knowledgeable in the proper use and handling of the materials specified and listed by the material manufacturer as having attended manufacturer-provided continuing education.
 - c. Employ skilled mechanics who are experienced and knowledgeable in EIFS application, and familiar with the requirements of the specified work.
 - d. Successful completion of minimum of three projects of similar characteristics to the specified project.
 - e. Provide the proper equipment, manpower and supervision on the job site to install the system in compliance with EIFS manufacturer's published specifications and details and the project plans and specifications.
- 3. Insulation Board Manufacturer Qualifications:
 - a. Recognized by EIFS manufacturer as capable of producing insulation board to meet system requirements and holding a valid licensing agreement with EIFS manufacturer.
 - b. Listed by an approved agency.
 - 1. Providing insulation board labeled with information required by EIFS manufacturer, the approved listing agency and the applicable building code.

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F. <u>DELIVERY</u>, STORAGE AND HANDLING

- 1. Deliver all materials in their original sealed containers bearing manufacturer's name and identification of product.
- 2. Protect coatings (pail products) from freezing and temperatures in excess of 90 degrees F (32 degrees C). Store away from direct sunlight.
- 3. Protect Portland cement based materials (bag products) from moisture and humidity. Store under cover off the ground in a dry location.

G. MANUFACTURERS

- 1. Provide EIFS materials and accessories from a single manufacturer or approved supplier.
- 2. Acceptable Manufacturers:
 - a. Dryvit
 - b. PAREX
 - c. Sto Corp.

H. MATERIALS

- 1. Standard Based on Sto Corp.
 - a. Insulation Board Adhesive: Sto BTS-Plus; one-component, polymer-modified, cement based high build adhesive.
 - b. Base Coat: Sto BTS-Plus; one-component polymer modified cement based high build base coat with less than 33 percent Portland cement content by weight and capable of achieving minimum 1/16 inch (1.6 mm) thickness in one pass.
 - c. Finish Coat: Stolit; acrylic based textured wall coating with graded marble aggregate.
 - 1. Colors shall be selected by Architect from manufacturer's standard range of colors.
- 2. Air and Moisture Barrier: Sto Gold Guard; fluid applied air/moisture barrier applied over exterior wall sheathing before installation of insulation board.
- 3. Insulation Board: Expanded polystyrene (EPS), of nominal density of 1.0 lb/cu ft (16 kg/cu m) complying with ASTM C 578 Type I and EIMA Guideline Specification for Expanded Polystyrene (EPS) Insulation Board.
- 4. Waterproof Base Coat: Sto Flexyl; two component fiber reinforced acrylic based waterproof base coat mixed with Portland cement.
- 5. Reinforcing Mesh: Sto Mesh; nominal 4.5 oz/cu yd, symmetrical, interlaced open-weave glass fiber fabric made with minimum 20 percent by weight alkaline resistant coating for compatibility with EIFS coating materials; capable of achieving EIMA Standard Impact Classification.
- 6. High Impact Reinforcing Mesh: Sto Armor Mat; nominal 15 oz/cu yd, ultra-high impact, double strand, interwoven, open-weave glass fiber fabric with alkaline resistant coating for compatibility with EIFS coating materials; capable of achieving EIMA Ultra-High Impact Classification when applied beneath standard mesh.
 - a. Install to minimum height of 6 feet above finished grade at all areas accessible to pedestrian traffic and other areas exposed to abnormal stress or impact.
- 7. Primer: Sto Primer; acrylic based tinted primer.
- 8. Water: Clean and potable.
- 9. Starter Track: Manufacturer's standard plastic track
- 10. Joint Sealant: Non-sag polyurethane sealant that has 50 percent elongation after conditioning, when tested in accordance with ASTM C 1382; compatible with EIFS materials and with compatible backer rod.

I. COORDINATION

- 1. EIFS installer shall provide coordination with installers of related and adjacent materials.
 - a. Finish grading of site is such that EIFS terminates above finished grade a minimum of 8 inches (203

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AND FINISH SYSTEM

- mm) or as required by code.
- b. Penetrations through wall are protected from weather prior to installation of windows, doors, and other closures.
- c. Sill flashing is provided at all openings.
- d. Head flashing is installed immediately after windows and doors are installed.
- e. Diverter flashings are installed wherever water can enter the wall assembly to direct water to the exterior.
- f. Copings and related sealant are installed immediately after installation of EIFS when EIFS coatings are dry.
- g. Penetrations are attached using fasteners through EIFS to structural support, with water tight seal.

J. <u>INSTALLATION</u>

- 1. Install in accordance with manufacturer's published instructions.
- Joints:
 - a. Provide minimum 3/4 inch wide expansion joints through EIFS where moving joints exist in the substrate or supporting construction, where EIFS adjoins dissimilar construction or materials, at changes in building height.
 - b. Provide minimum 1/2 inch wide sealant joints at all penetrations through the EIFS (windows, doors, etc.).
 - c. Provide joints with secondary moisture protection and drain to the exterior.

K. PROTECTION

- 1. Protect installed materials from water infiltration into or behind them.
- 2. Protect installed materials from dust, dirt, precipitation, freezing and continuous high humidity until they are fully dry.

END OF SECTION 07 24 16

SECTION 07 27 19 – AIR BARRIERS

A. SUMMARY:

- 1. Includes but not limited to:
 - a. Furnish and install air barrier/weather resistant barrier over exterior of wall sheathing at all locations regardless of whether or not indicated on drawings to protect exterior sheathing and interior walls.

B. RELATED SECTIONS

- 1. Section 06 10 00 Carpentry
- 2. Section 06 16 43 Gypsum Sheathing
- 3. Section 07 60 00 Flashing and Sheet Metal

C. REFERENCES

- 1. American Society for Testing and Materials
- 2. Technical Association of the Pulp and Paper Industry
- 3. American Association of Textile Chemists and Colorists

D. **SUBMITTALS**:

- 1. General: Submit each item in this Article according to the conditions of the Contract and Division I Specifications Sections.
- 2. Product Data: Submit product specifications, technical data and installation instructions of manufacturer equaling or exceeding those specified.

E. **QUALITY ASSURANCE**

1. Qualifications: Installer with successful experience in the installation of air barrier/secondary weather resistant barriers.

F. MANUFACTURERS

- 1. Acceptable manufacturer and product:
 - a. DuPont Weatherization Systems, DuPont Tyvek HomeWrap, or Equal.

G. MATERIALS

- 1. A flash spunbonded olefin, non-woven, non-perforated secondary weather resistant barrier.
- 2. Performance Characteristics
 - a. AATCC-127, Water Penetration Resistance, exceeded at 210
 - b. TAPPI T-460, Gurley Hill (sec/100cc) Air infiltration at 300 seconds
 - c. ASTM E 96 Method B(g/m2–24hr.)Water vapor transmission of 400
 - d. TAPPI T-41D, Basis weight of 1.8oz/yd
 - e. ASTM E96 Method B, Water Vapor Transmission, 58 perms
 - f. ASTM E1677, Air Retarder Material Standard Specification, Type I air barrier
- 3. Sealing Tape/Fasteners
 - a. Use manufacturers recommended products for type of construction intended.

H. INSTALLATION

- 1. Install Air Barrier over exterior side of exteriror wall sheathing.
 - a. Install Air Barrier after sheathing is installed and before windows and doors are installed. Install lower level barrier prior to upper layers to ensure proper shingling of layers.
 - b. Overlap Air Barrier at corners of building by a minimum of 12 inches.
 - c. Overlap Air Barrier vertical seams by a minimum of 6 inches.
 - d. Ensure barrier is plum and level with foundation, and unroll extending Air Barrier over window and door openings.

- e. Attach Air Barrier to wood, insulated sheathing board or exterior gypsum with plastic cap nails every 12" to 18" on vertical stud line with wood stud framing, and screws with washers to metal stud framing. When attaching to wood sheathing, a minimum 1.0 inch crown staple may be used. When attaching to masonry, use adhesive recommended by manufacturer.
- f. Prepare window and door rough openings as follows:
 - 1. Prepare each window rough opening by cutting a modified "I" pattern in the Air Barrier.
 - a. Horizontally cut Air Barrier along bottom of header.
 - b. Vertically cut Air Barrier down the center of window openings from the top of the window opening down to 2/3 of the way to the bottom of the window openings.
 - c. Diagonally cut Air Barrier from the bottom of the vertical cut to the left and right corners of opening.
 - d. Fold side and bottom flaps into window opening and fasten every 6 inches. Trim off excess.
 - 2. Prepare each rough door opening by cutting a standard "I" pattern in the Air Barrier.
 - a. Horizontally cut Air Barrier along bottom of door frame header and along top of sill.
 - b. Vertically cut Air Barrier down the center of door openings from the top of the door opening (header) down to the bottom of the door opening (sill).
 - c. Fold side flaps inside around door openings and fasten every 6 inches. Trim off excess.
 - 3. Tape all horizontal and vertical seam of Air Barrier.
 - 4. Seal all tears and cuts in Air Barrier.

END OF SECTION 07 27 19

SECTION 07 53 23 – EPDM ROOFING SYSTEM

A. **SUMMARY**

1. Description

a. The project consists of installing Fully Adhered EPDM Roofing System in conjunction with rigid roof insulation over new steel roof deck.

2. Extent of Work

- a. Provide all labor, material, tools, equipment, and supervision necessary to complete the installation of a 60-mil thick reinforced EPDM membrane Fully Adhered Roofing System including flashings and insulation as specified herein and as indicated on the drawings in accordance with the manufacturer's most current specifications and details.
- b. The roofing contractor shall be fully knowledgeable of all requirements of the contract documents and shall make themselves aware of all job site conditions that will affect their work.
- c. The roofing contractor shall confirm all given information and advise the Architect, prior to commencement of Work, of any conflicts that will affect their installation and weatherproof life of the roof.
- d. Any contractor who intends to submit a bid using a roofing system other than the approved manufacturer must submit for pre-qualification in writing ten (10) days prior to the bid date. Any contractor who fails to submit all information as requested will be subject to rejection.

B. RELATED WORK

- 1. The following listed work is included under other sections:
 - a. Section 06 10 00 Rough Carpentry
 - b. Section 07 22 16 Roof Insulation
 - c. Section 07 92 00 Joint Sealers

C. REFERENCES

- 1. American Society for Testing and Materials (ASTM)
- 2. Federal Specifications (FS)

D. SUBMITTALS

- 1. Shop Drawings: Submit drawing indicating roof size, location and type of penetrations, perimeter and penetration details, roof insulation make-up and layout that have been accepted by an authorized manufacturer's representative.
- 2. Sample of the manufacturer's Membrane System Warranty.
- 3. Submit a letter of certification from the manufacturer which certifies the roofing contractor is authorized to install the manufacturer's roofing system and lists foremen who have received training from the manufacturer along with the dates training was received.
- 4. Upon completion of the installed work, submit copies of the manufacturer's final inspection to the specifier prior to the issuance of the manufacturer's warranty.

E. PRODUCT DELIVERY, STORAGE AND HANDLING

- 1. Deliver materials to the job site in the manufacturer's original, unopened containers or wrappings with the manufacturer's name, brand name and installation instructions intact and legible. Deliver in sufficient quantity to permit work to continue without interruption.
- 2. Comply with the manufacturer's written instructions for proper material storage.
 - a. Store materials between 60 deg. F and 80 deg. F in dry areas protected from water and direct sunlight. If exposed to lower temperature, restore to 60 deg. F minimum temperature before using.
 - b. Store materials containing solvents in dry, well ventilated spaces with proper fire and safety precautions. Keep lids on tight. Use before expiration of their shelf life.

- 3. Insulation must be on pallets, off the ground and tightly covered with waterproof materials. Manufacturer's wrap does not provide sufficient waterproofing.
- 4. Any materials which are found to be damaged shall be removed and replaced at the applicator's expense.

F. WORK SEQUENCE

1. Schedule and execute work to prevent leaks and excessive traffic on completed roof sections. Care should be exercised to provide protection for the interior of the building and to ensure water does not flow beneath any completed sections of the membrane system.

G. PRE-INSTALLATION CONFERENCE

- 1. A pre-installation meeting shall be held at the job site, minimum of one (1) week prior to start of roof system installation. The roofing contractor shall observe actual conditions and verify all dimensions on the roof.
- 2. Any conditions which are not shown on the shop drawings should be indicated on a copy of the shop drawing and included with bid submittal if necessary to clarify any conditions not shown.

H. JOB SITE PROTECTION

- 1. The roofing contractor shall adequately protect building, paved areas, service drives, lawn, shrubs, trees, etc. from damage while performing the required work. Provide canvas, boards and sheet metal (properly secured) as necessary for protection and remove protection material at completion. The contractor shall repair or be responsible for costs to repair all property damaged during the roofing application.
- 2. During the roofing contractor's performance of the work, care shall be taken to prevent the spread of dust and debris, particularly where such material may sift into the building. The roofing contractor shall provide labor and materials to construct, maintain and remove necessary temporary enclosures to prevent dust or debris in the construction area(s) from entering the remainder of the building.
- 3. Do not overload any portion of the building, either by use of or placement of equipment, storage of debris, or storage of materials.
- 4. Protect against fire and flame spread. Maintain proper and adequate fire extinguishers.
- 5. Take precautions to prevent drains from clogging during the roofing application. Remove debris at the completion of each day's work and clean drains, if required. At completion, test drains to ensure the system is free running and drains are watertight. Remove strainers and plug drains in areas where work is in progress. Install flags or other telltales on plugs. Remove plugs each night and screen drain.
- 6. Store moisture susceptible materials above ground and protect with waterproof coverings.
- 7. Remove all evidence of piled bulk materials and return the job site to its original condition upon completion of the work.

I. SAFETY

1. The roofing contractor shall be responsible for all means and methods as they relate to safety and shall comply with all applicable local, state and federal requirements that are safety related. Safety shall be the responsibility of the roofing contractor. All related personnel shall be instructed daily to be mindful of the full time requirement to maintain a safe environment throughout the entire Project Site.

J. WORKMANSHIP

- 1. Applicators installing new roof, flashing and related work shall be factory trained and approved by the manufacturer they are representing.
- 2. All work shall be of highest quality and in strict accordance with the manufacturer's published specifications and to the building owner's satisfaction.
- 3. There shall be a supervisor on the job site at all times while work is in progress.

K. QUALITY ASSURANCE

1. The EPDM membrane roofing system must achieve a UL Class C and must have been successfully tested to

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meet or exceed the calculated uplift pressure required by the International Building Code (ASCE-7) or ANSI/SPRI WD-1.

- 2. The manufacturer must have a minimum of 20 years experience in the manufacturing of vulcanized thermal set sheeting.
- 3. Unless otherwise noted in this specification, the roofing contractor must strictly comply with the manufacturer's current specifications and details.
- 4. The roofing system must be installed by an applicator authorized and trained by the manufacturer in compliance with shop drawings as approved by the manufacturer. The roofing applicator shall be thoroughly experienced and upon request be able to provide evidence of having at least five (5) years successful experience installing single-ply EPDM roofing systems and having installed at least one (1) roofing application or several similar systems of equal or greater size within one year.
- 5. Provide adequate number of experienced workmen regularly engaged in this type of work who are skilled in the application techniques of the materials specified. Provide at least one thoroughly trained and experienced superintendent on the job at all times roofing work is in progress.
- 6. There shall be no deviations made from this specification or the approved shop drawings without the prior written approval of the Architect. Any deviation from the manufacturer's installation procedures must be supported by a written certification on the manufacturer's letterhead and presented for the specifier's consideration.
- 7. Upon completion of the installation, the applicator shall arrange for an inspection to be made by a technical representative of the membrane manufacturer in order to determine whether or not corrective work will be required before the warranty will be issued. Notify the Architect seventy-two (72) hours prior to the manufacturer's final inspection.

L. JOB CONDITIONS, CAUTIONS AND WARNINGS

- 1. Material Safety Data Sheets (MSDS) must be on location at all times during the transportation, storage and application of materials.
- 2. When positioning membrane sheets, exercise care to locate all field splices away from low spots and out of drain sumps. All field splices should be shingled to prevent bucking of water.
- 3. When loading materials onto the roof, the manufacturer's authorized Roofing Applicator must take all necessary care to prevent overloading and possible disturbance to the building structure.
- 4. Proceed with roofing work only when weather conditions are in compliance with the manufacturer's recommended limitations, and when conditions will permit the work to proceed in accordance with the manufacturer's requirements and recommendations.
- 5. Proceed with work so new roofing materials are not subject to construction traffic. When necessary, new roof sections shall be protected and inspected upon completion for possible damage.
- 6. Provide protection, such as 3/4 inch thick plywood, for all roof areas exposed to traffic during construction. Plywood must be smooth and free of fasteners and splinters.
- 7. The surface on which the insulation or roofing membrane is to be applied shall be clean, smooth, dry, and free of projections or contaminants that would prevent proper application of or be incompatible with the new installation, such as fins, sharp edges, foreign materials, oil and grease.
- 8. New roofing shall be complete and weathertight at the end of the work day.
- 9. Contaminants such as grease, fats and oils shall not be allowed to come in direct contact with the roofing membrane.

M. WARRANTY

1. Provide and execute, upon final acceptance by manufacturer, a twenty (20) year Manufacturer's Standard Total Systems Warranty.

N. PRODUCTS

1. General

- a. Unless otherwise approved by the specifier and accepted by the membrane manufacturer, all products (including insulation, fasteners, fastening plates and edgings) must be manufactured and supplied by the roofing system manufacturer and covered by the warranty.
- 2. Acceptable manufacturers:
 - a. Carlisle
 - b. Firestone
 - c. Johns Manville
 - d. Versico

3. Membrane

a. Furnish 60-mil thick Reinforced EPDM (Ethylene, Propylene, Diene Terpolymer) in the largest sheet possible. The membrane shall conform to the minimum physical properties of ASTM D4637. When a 10 foot wide membrane is to be used, the membrane shall be manufactured in a single panel with no factory splices to reduce splice intersections.

4. Insulation/Underlayment

- a. When applicable, insulation shall be installed in multiple layers. The first and second layer of insulation shall be mechanically fastened to the substrate in accordance with the manufacturer's published specifications.
- b. Insulation shall be factory tapered, closed cell polyisocyanurate foam core bonded to heavy duty glass fiber matt faces. See drawings for thickness and corresponding R-Value.

5. Adhesives, Cleaners and Sealants

a. Furnish and install all manufacturer's recommended products, specifically formulated for the intended purpose.

6. Fasteners and Plates

 Furnish and install all manufacturer's recommended products, specifically intended purpose for proper mechanical attachment of insulation and membrane.

7. Metal Edging and Membrane Terminations

- a. Parapet Locations: Manufacturer's standard system for termination as indicated; and, coping system consisting corrosion resistant fasteners and 0.040" aluminum snap-on coping cover. Metal coping color shall be as selected by Architect.
- b. Roof Edge Locations: metal fascia/edge system with a 22 gauge continuous anchor cleat and .032 inch thick aluminum fascia. Metal edge/fascia color shall be as selected by Architect.

8. Walkways

a. Protective surfacing for roof traffic shall be manufacturer's standard pressure-sensitive walkway pads (with factory-applied tape on the underside of the walkway) adhered to the membrane surface in conjunction with primer.

O. INSTALLATION

1. General

- a. Comply with the manufacturer's published instructions for the installation of the membrane roofing system including proper substrate preparation, jobsite considerations and weather restrictions.
- b. Position sheets to accommodate contours of the roof deck and shingle splices to avoid bucking water.

2. Insulation Placement

- a. Install insulation or membrane underlayment over the substrate with boards butted tightly together with no joints or gaps greater than 1/4 inch. Stagger joints both horizontally and vertically if multiple layers are provided.
- b. Secure insulation to the substrate with the required mechanical fasteners in accordance with the manufacturer's specifications.

3. Membrane Placement and Bonding

a. Unroll and position membrane without stretching. Allow the membrane to relax for approximately 1/2 hour before bonding. Fold the sheet back onto itself so half the underside of the membrane is exposed.

- b. Apply the Bonding Adhesive in accordance with the manufacturer's published instructions, to both the underside of the membrane and the substrate. Allow the adhesive to dry until it is tacky but will not string or stick to a dry finger touch.
 - 1. Roll the coated membrane into the coated substrate while avoiding wrinkles. Brush down the bonded half of the membrane sheet with a soft bristle push broom to achieve maximum contact.
 - 2. Fold back the unbonded half of the membrane sheet and repeat the bonding procedure.
- c. Install adjoining membrane sheets in the same manner, overlapping edges approximately 4 inches. Do not apply bonding adhesive to the splice area.

4. Membrane Splicing with Splicing Cement

- a. Adhesive splices must be a minimum of 3" wide. Field splices at roof drains must be located outside drain sump.
- b. Fold the top sheet back and clean the dry splice area (minimum 3" wide) of both membrane sheets by scrubbing with clean natural fiber rags saturated with membrane cleaner or primer.
- c. Apply Splicing Cement and In-Seam Sealant in accordance with the manufacturer's specifications and roll the top sheet onto the mating surface.
- d. Roll the splice with a 2 inch wide steel roller and wait at least 2 hours before applying lap sealant to the splice edge following the manufacturer's requirements.
- e. Field splices without in-seam sealant must be overlaid with uncured flashing.

5. Flashing

- a. Wall and curb flashing shall be cured EPDM membrane. Continue the deck membrane as wall flashing where practicable.
- b. Follow manufacturer's typical flashing procedures for all wall, curb, and penetration flashing including metal edging/coping and roof drain applications.

6. Walkways

- a. Install walkways at all traffic concentration points (such as roof hatches, access doors, rooftop ladders, etc.) and all locations as identified on the specifier's drawing.
- b. Adhere walkways pads to the EPDM membrane in accordance with the manufacturer's specifications.

7. Daily Seal

- a. When the completion of flashings and terminations is not achieved by the end of the work day, a daily seal must be performed to temporarily close the membrane to prevent water infiltration.
- b. Complete an acceptable membrane seal in accordance with the manufacturer's requirements.

8. Clean-up

- a. Perform daily clean-up to collect all wrappings, empty containers, paper, and other debris from the project site. Upon completion, all debris must be disposed of in a legally acceptable manner.
- b. Prior to the manufacturer's inspection for warranty, the applicator must perform a pre-inspection to review all work and to verify all flashing has been completed as well as the application of all caulking.

9. Manufacturer's Field Service

a. Upon completion of the roofing system, an authorized representative of the manufacturer will make an inspection of the installation prior to warranty issuance.

END OF SECTION 07 53 23

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SECTION 07 60 00 - FLASHING & SHEET METAL

A. SUMMARY OF WORK

- 1. The work included in this section consists of furnishing all labor, material, tools and equipment necessary to furnish and install all sheet metal flashing and trim, including, but not limited to the following:
 - a. Roof and Wall Flashings.
 - b. Prefabricated Reglets and Counterflashings.
 - c. Metal Copings.
 - d. Trim and Break Metal.
 - e. Sealants and bonding agents between components of this Section and between the roof and other materials

B. STANDARDS

- 1. American Society for Testing Materials (ASTM)
- 2. Ohio Building Code (OBC)
- 3. Architectural Aluminum Manufacturer's Assoc. (AAMA)
- 4. Sheet Metal and Air Conditioning Contractors National Association, Inc. (SMACNA)

C. PERFORMANCE REQUIREMENTS

- 1. General: Install sheet metal flashing and trim to withstand wind loads, structural movement, thermally induced movement, and exposure to weather without failing, ratting, leaking, and fastener disengagement.
- 2. Thermal Movements: Provide sheet metal flashing and trim that allows for thermal movements resulting from the following maximum change (range) in ambient and surface temperatures by preventing buckling, opening of joints, hole elongation, overstressing of components, failure of joint sealants, failure of connections, and other detrimental effects. Provide clips that resist rotation and avoid shear stress as a result of sheet metal and trim thermal movements. Base engineering calculation on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.
 - a. Temperature Change (Range): 120 degrees F., ambient; 180 degrees F., material surfaces.
- 3. Water Infiltration: Provide sheet metal flashing and trim that do not allow water infiltration to building interior.

D. SUBMITTALS

- 1. Product Data: Manufacturer's technical product data, installation instructions and general recommendations for each specified sheet material and fabricated product.
- 2. Shop Drawings: Show layouts of sheet metal flashing and trim, including plans and elevations. Distinguish between shop and field assembled work. Include the following:
 - a. Identify material, thickness, weight, and finish for each item and location in project.
 - b. Details for forming sheet metal flashing and trim, including profiles, shapes, seams, and dimensions.
 - c. Details for fastening, joining, supporting, and anchoring sheet metal flashing and trim, including fasteners, clips, cleats, and attachments to adjoining work.
 - d. Details of expansion joint covers, including showing direction of expansion and contraction.
- 3. Samples of Verification: For each type of exposed finish required, prepared on samples of size indicated below:
 - a. 8 inch square samples of specified sheet materials to be exposed as finished surfaces.
 - b. 12 inch long samples of factory fabricated products exposed as finish work. Provide complete with specified factory finish.
- 4. Shop drawings showing layout, profiles, methods of joining, and anchorage details, including major counterflashing, trim/fascia units, gutters, downspouts, and expansion joint systems.

E. QUALITY ASSURANCE

1. Except as otherwise indicated, the workmanship of sheet metal work, method for forming joints, anchoring,

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cleating and provisions for expansion shall conform to the standard details and recommendations of the "Architectural Sheet Metal Manual" published by SMACNA; and workmanship shall be of the best quality, in accordance with best trade practice and the recommendations and specifications of the Sheet Metal and Air Conditioning Contractors National Association, Inc.

2. Installer/Fabricator Qualifications: Not less than five (5) years documented successful experience with work comparable to Work of this Project, approved and acceptable to roofing manufacturer.

F. DELIVERY, STORAGE AND HANDLING

1. Deliver materials in manufacturer's unopened, labeled containers. Store materials to avoid damage, and store rolled goods on end. Comply with manufacturer's recommendations for job-site storage and protection.

G. MATERIALS

- 1. The type and locations of the various kinds, gauges, thickness, and finish of sheet metal to be used is specified hereinafter under the individual items. Where sheet metal is indicated on Drawings and kind or type of metal is not definitely specified, aluminum shall be provided.
- Aluminum Extrusions: Alloy and temper recommended by manufacturer for use intended and as required for proper application of finish indicated, but not less than the strength and durability properties specified in ASTM B221 for 6063-T5.
- 3. Aluminum Sheet: Alloy and temper recommended by manufacturer for use intended and as required for proper application of finish indicated, but with not less than the strength and durability properties specified in ASTM B209 for 5005-H15.

H. MISCELLANEOUS MATERIALS AND ACCESSORIES

- 1. General: Provide materials and types of fasteners, solder, welding rods, protective coatings, separators, sealants, and other miscellaneous items as required for complete sheet metal flashings and trim installation.
- 2. Fasteners: Same metal as flashing/sheet metal or other noncorrosive metal as recommended by sheet manufacturer. Match finish of exposed heads with material being fastened. Provide wood screws, annular threaded nails, self-tapping screws, self-locking rivets and bolts, and other suitable fasteners designed to withstand design loads.
 - a. Fasteners for Flashing and Trim: Blind fasteners or self-drilling screws, gasketed, with hex washer head.
 - 1. Blind Fasteners: High-strength aluminum or stainless steel rivets.
- 3. Bituminous Coating: SSPC-Paint 12, solvent type bituminous mastic, nominally free of sulfur, compounded for 15 mil dry film thickness per coat.
- 4. Mastic Sealant: Polyisobutylene; non-hardening, non-skinning, non-drying, non-migrating sealant.
- 5. Elastomeric Sealant: Provide per recommendations of metal manufacturer.
- 6. Epoxy Seam Sealer: Two-Part non-corrosive metal seam cementing compound, recommended by metal manufacturer for exterior non moving joints.
- 7. Roofing Cement: ASTM D4586, asbestos free, of consistency required for application.
- 8. Metal Accessories: Provide sheet metal clips, straps, anchoring devices, and similar accessory units as required for installation of work, matching or compatible with material being installed, noncorrosive, size and gauge required for performance.

I. PRODUCTS

- 1. Roof Flashings
 - a. Through-wall Flashing.
 - b. Counter Flashing.
 - c. Base and Counter Flashing.
 - d. Roof Penetration Flashing.
 - e. Miscellaneous flashing as shown on the drawings or referenced in standard details recommended in SMACNA "Architectural Sheet Metal Manual".
- 2. Pre-finished Metal Flashing

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- a. Flashing: .050 minimum thickness.
- 3. Pre-formed Metal Coping for Parapet Walls
 - a. Metal coping cap with galvanized steel anchor/support cleats for capping parapet wall. The system shall be maintenance free, and does not require exposed fasteners. Joints shall be a butt type with concealed splice plates. Furnish complete with joint accessories and miscellaneous accessories required for complete installation.
 - b. Metal: .050" aluminum with Kynar 500 coating. Color as selected by Architect.
 - c. Dimensions:
 - 1. Length: Longest length possible, minimum length of 12'-0"
 - 2. Width: as indicated on the drawings.
 - 3. Vertical face and back leg: minimum 6".
 - d. Attachment Accessories:
 - 1. Concealed splice plates: 8" wide. Finish to match finish of coping cap.
 - 2. Anchor/Support Cleats: 20 ga. Galvanized. Cleat anchors shall be stainless steel.
- 4. Prefabricated Reglets and Counterflashings:
 - a. 24 gauge galvanized steel.
 - b. Reglet shall have a 2 inch factory-formed end lap
 - c. Flashing shall have a 3 inch end lap.
 - d. Provide factory manufactured mitered and sealed corners.
 - e. Provide sealant at time of installation. Refer to Specification Section 07 90 00 Joint Sealants.

J. FINISHES

- 1. General: Apply coatings either before or after forming and fabricating panels, as required by coating process and as required for maximum coating performance capability. Protect coating either by application of strippable film or by packing plastic film or other suitable material between panels in a manner to properly protect the finish. Furnish air drying spray finish in matching color for touch-up.
- 2. High Performance Coating: AA-C12C42R1x. Apply in strict compliance with coating and resin manufacturer's instructions using a licensed applicator.
 - a. Fluoropolymer Coating: Manufacturer's standard two-coat, thermocured, full strength 70 percent "Kynar 500" coating consisting of a primer and a minimum of 0.75 mil dry film thickness with a total minimum dry film thickness of 0.9 mil and 30 percent reflective gloss when tested in accordance with ASTM D523.

K. FABRICATION

- 1. General: Shop fabricate work to greatest extent possible. Comply with details shown and with applicable requirements of SMACNA "Architectural Sheet Metal Manual" and other recognized industry practices. Fabricate for waterproof and weather resistant performance, with expansion provisions for running work, sufficient to permanently prevent leakage, damage, or deterioration of the work. Form work to fit substrates. Comply with material manufacturer instructions and recommendations for forming material. Form exposed sheet metal work without excessive oil-canning, buckling, and tool marks, true to line and levels indicated, with exposed edges folded back to form hems.
- 2. Seams: Fabricate nonmoving seams in sheet metal with flat-lock seams. For metal other than aluminum, fin edges to be seamed, form seams and solder. Form aluminum seams with epoxy seam sealer; rivet joints for additional strength where required.
- 3. Expansion Provisions: Where lapped or bayonet-type expansion provisions in work cannot be used or would not be sufficiently water/weatherproof, form expansion joints of intermeshing hooked flanges, not less than 1 inch deep, filled with mastic sealant (concealed within joints).
- 4. Sealant Joints: Where movable, non-expansion type joints are indicated or required for proper performance of work, form metal to provide for proper installation of elastomeric sealant, in compliance with SMACNA standards.
- 5. Separations: Provide for separation of metal from non-compatible metal or corrosive substrates by coating or other permanent separation as recommended by manufacturer/fabricator.

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L. WARRANTY

- 1. Special Warranty on Painted Finishes: Manufacturer's standard form in which manufacturer agrees to repair finish or replace manufactured roof specialties that show evidence of deterioration of factory applied finishes within specified warranty period.
 - a. Fluoropolymer Finish: Deterioration includes, but is not limited to toe following:
 - 1. Color fading more than 5 Hunter units when tested according to ASTM D 2244.
 - 2. Chalking in excess of a No. 8 rating when tested according to ASTM D 4214.
 - 3. Cracking, checking, peeling, or failure of paint to adhere to bare metal.
- 2. Finish Warranty Period: 10 year from date of Substantial Completion.

M. EXAMINATION

1. General: The installer must examine substrates and conditions under which metal flashings will be installed, and notify Contractor in writing of unsatisfactory conditions. Do not proceed with installation until unsatisfactory conditions have been corrected in a manner acceptable to Installer.

N. PREPARATION

1. Separate dissimilar metals from each other by painting each metal surface in area of contact with a heavy application of bituminous coating.

O. INSTALLATION:

- 1. <u>General</u>: Comply with published recommendations of sheet metal manufacturer details and recommendations of SMACNA "Architectural Sheet Metal Manual". Anchor units of work securely in place by methods indicated, providing for thermal expansion of metal units; conceal fasteners where possible, and set units true to line and level as indicated. Install work with laps, joints and seams that will be permanently watertight and weatherproof.
- 2. Bed flanges of work in a thick coat of bituminous roofing cement where required for waterproof performance.
- 3. Bituminous Coating: SSPC Paint 12, solvent type bituminous mastic, nominally free of sulfur. Compounded for 15-mil dry film thickness per coat.
- 4. Prefabricated reglets and counterflashings shall be installed in accordance with manufacturer's printed instructions. Coordinate reglets with work by others.
- 5. Roofing Expansion Joints: Installation shall be in accordance with the manufacturer's written instructions and as indicated.
- 6. Prefabricated Fascia
 - a. Install as recommended by manufacturer and as indicated.
 - b. Fasten with non-corrosive, non-rusting fasteners.
 - Cover joints with strips of same material, screwed and caulked in place with appropriate sealant of matching color.
- 7. Flashing at Roof Penetrations (Miscellaneous)
 - a. Work under this Section shall include the flashing of roof penetrations not otherwise specified under other Sections.
 - Flashing of roof penetrations not detailed shall be performed according to the recommendations and specifications of the Sheet Metal and Air Conditioning Contractors National Association, Inc. (SMACNA), subject to approval by the Architect.

P. CLEANING AND PROTECTION

- 1. Clean exposed metal surfaces in accordance with manufacturer's instructions. Touch-up damaged metal coatings.
- 2. Protection: Provide protective measures as required to ensure that work of this Section will be without damage or deterioration at time of Substantial Completion.

SECTION 07 84 13 - FIRESTOPPING

A. SUMMARY

- 1. Through penetration firestops and smoke-stops for all fire-rated bearing and non-bearing wall and floor assemblies, both blank (empty) and those accommodating penetrating items such as cables, conduits, pipes, ducts, etc.
- 2. Membrane penetration protection for fire-rated walls.
- 3. Architectural/Construction joint firestops within walls, floors, or the intersection of floors to exterior walls, or the intersection of top of walls to ceilings.
- 4. Top of wall firestopping in all fire-rated partitions.
- 5. Top of wall and construction joint smoke-stopping in all smoke partitions.

B. RELATED WORK

- 1. Proper execution of this work will maintain the hourly ratings of the walls and floors and ensure progress of work in other Sections. Coordinate work of this Section with the work of the following Sections:
 - a. Cast In Place Concrete
 - b. Unit Masonry
 - c. Joint Sealers
 - d. Gypsum Board
 - e. Fire Suppression and Supervisory Systems
 - h. Basic Mechanical Materials & Methods
 - i. Mechanical Insulation
 - j. Fire Protection
 - k. Plumbing
 - 1. Basic Electrical Materials & Methods

C. REFERENCES

- 1. American Society For Testing and Materials Standards (ASTM):
 - a. ASTM E84: Standard Test Method For Surface Burning Characteristics of Building Materials
 - b. ASTM E814: Standard Test method For Fire Tests of Through-Penetration Firestops
- 2. Underwriters Laboratories Inc.:
 - a. UL 723 Surface Burning Characteristics of Building Materials
 - b. UL 1479 Fire Tests of Through-Penetration Firestops
- 3. UL Fire Resistance Directory:
 - a. Through Penetration Firestop Devices (XHJI)
 - b. Fire Resistive Ratings (BXUV)
 - c. Through Penetration Firestop Systems (XHEZ)
 - d. Fill, Void, or Cavity Material (XHHW)

D. SUBMITTALS

- 1. Submit manufacturer's product literature for each type of firestop material to be installed. Literature shall indicate product characteristics, typical uses, performance and limitation criteria, and test data. Submittal should be in compliance with Section 01300.
- 2. Material Safety Data Sheets (MSDS): Submit MSDS for each firestop product.
- 3. UL Tested Systems: Submit drawings showing typical installation details for the methods of installation. Indicate which firestop materials will be used and thickness for different hourly ratings.
- 4. Submit manufacturer's installation procedures for each type of product.
- 5. Approved Applicator: Submit document from manufacturer wherein manufacturer recognizes the installer as qualified or submit a list of past projects to demonstrate capability to perform intended work.

E. QUALITY ASSURANCE

1. Firestopping systems (materials and design):

- a. Shall conform to both Flame (F) and Temperature (T) ratings as required by local building codes and as tested by nationally accepted test agencies per ASTM E814 or UL 1479 fire tests in a configuration that is representative of field conditions.
- b. The F rating must be a minimum of one (1) hour but not less than the fire resistance rating of the assembly being penetrated. T rating when required by code authority shall be based on measurement of the temperature rise on penetrating item(s). The fire test shall be conducted with a minimum positive pressure differential of 0.01 inches of water column.
- c. For joints, must be tested to UL 2079 with movement capabilities equal to those of the anticipated conditions.
- 2. Firestopping materials & systems must be capable of closing or filling through-openings created by 1) the burning or melting of combustible pipes, cable jacketing, or pipe insulation materials, or 2) deflection of sheet metal due to thermal expansion (electrical & mechanical duct work).
- 3. Firestopping material shall be asbestos and lead free and shall not incorporate nor require the use of hazardous solvents.
- 4. Firestopping sealants must be flexible, allowing for normal pipe movement.
- 5. Firestopping materials shall not shrink upon drying as evidenced by cracking or pulling back from contact surfaces
- 6. Firestopping materials shall be moisture resistant, and may not dissolve in water after curing.
- 7. All firestopping materials shall be manufactured by one manufacturer (to the maximum extent possible).
- 8. Installation of firestopping systems shall be performed by a contractor (or contractors) trained or approved by the firestop manufacturer.
- 9. Material used shall be in accordance with the manufacturer's written installation instructions.

F. PRODUCT DELIVERY, STORAGE, AND HANDLING

- 1. Deliver material in the manufacturer's original, unopened containers or packages with the manufacturer's name, product identification, lot number, UL label, and mixing and installation instructions as applicable.
- 2. Store materials in the original, unopened containers or packages, and under conditions recommended by the manufacturer.
- 3. All firestop materials shall be installed prior to expiration of shelf life.

G. PROJECT CONDITIONS

- 1. Conform to manufacturer's printed instructions for installation and when applicable, curing in accordance with temperature and humidity. Conform to ventilation and safety requirements.
- 2. Verify the condition of the substrates before starting work.
- 3. Weather Conditions: Do not proceed with installation of firestop materials when temperatures fall outside the manufacturer's suggested limits.
- 4. Care should be taken to ensure that firestopping materials are installed so as not to contaminate adjacent surfaces.

H. <u>SEQUENCING</u>

- 1. Schedule firestopping after installation of penetrants but prior to concealing the openings.
- 2. Firestopping shall precede gypsum board finishing.

I. PROTECTION

1. Where firestopping is installed at locations which will remain exposed in the completed work, provide protection as necessary to prevent damage to adjacent surfaces and finishes, and protect as necessary against damage from other construction activities.

J. GENERAL

- 1. Firestopping materials and systems shall meet the requirements specified herein.
- 2. Architect must approve in writing any alternates to the materials and systems specified herein.

- 3. All firestop products and systems shall be designed and installed so that the basic sealing system will allow the full restoration of the thermal and fire resistance properties of the barrier being penetrated with minimal repair if penetrants are subsequently removed.
- 4. For applications where combustible penetrants are involved, i.e., insulated and plastic pipe, a suitable intumescent material must be used.

K. ACCEPTABLE MANUFACTURERS

- 1. 3m Company
- 2. Hilti
- 3. Specified Technologies Inc.
- 4. United States Gypsum Co.

L. MATERIALS

- 1. Standard specified is that of Specified Technologies Inc.
 - a. Intumescent Firestop Sealants and Caulks: SpecSeal SSS100
 - b. Latex Firestop Sealant: SpecSeal LC150 Sealant
 - c. Acrylic Water-Based Sealant: SpecSeal ES100 Elastomeric Sealant
 - d. Silicone Firestop Sealants and Caulks: SpecSeal Pensil 300
 - e. Firestop Putty: SpecSeal SSP100 Firestop Putty Bars and Pads
 - f. Firestop Collars: SpecSeal SSC Firestop Collars
 - g. Wrap Strips: SpecSeal SSW Wrap Strip
 - h. 2-Part Silicone Firestop Foam: SpecSeal Pensil 200
 - i. Firestop Mortar: SpecSeal SSM Mortar
 - j. Firestop Pillows: STI SpecSeal SSB Pillows
 - k. Elastomeric Spray: SpecSeal AS Elastomeric Spray
 - 1. Accessories:
 - 1. Forming/Damming Materials: Mineral fiberboard or other type as per manufacturer recommendation.

M. CONDITIONS REQUIRING FIRESTOPPING

- 1. General: Provide firestopping for conditions specified whether or not firestopping is indicated, and if indicated, whether such material is designed as insulation, safing, or otherwise.
- 2. Through-Penetrations: Firestopping shall be installed in all open penetrations and in the annular space in all penetrations in any bearing or non-bearing fire-rated barrier.
- 3. Membrane-Penetrations: Where required by code, all membrane-penetrations in rated walls shall be protected with firestopping products that meet the requirements of third party time/temperature testing.
- 4. Construction Joints/Gaps: Firestopping shall be provided:
 - a. between the edges of floor slabs and exterior walls
 - b. between the tops of walls and the underside of floors
 - c. in the control joint in masonry walls and floors
 - d. in expansion joints
- 5. Smoke-Stopping: As required by the other Sections, Smoke-Stops shall be provided for Through-Penetrations, Membrane-Penetrations, and Construction Gaps with a material approved and tested for such application.

N. EXAMINATION

- 1. Examine the areas and conditions where firestops are to be installed and notify the architect of conditions detrimental to the proper and timely completion of the work. Do not proceed with work until unsatisfactory conditions have been corrected by the contractor in a manner acceptable to the architect and in accordance with Section 01039.
- 2. Verify that environmental conditions are safe and suitable for installation of firestop products.

3. Verify that all pipe, conduit, cable, and other items which penetrate fire-rated construction have been permanently installed prior to installation of firestops.

O. INSTALLATION

- 1. Installation of firestops shall be performed by an applicator/installer qualified and trained by the manufacturer. Installation shall be performed in strict accordance with manufacturer's detailed installation procedures.
- 2. Apply firestops in accordance with fire test reports, fire resistance requirements, acceptable sample installations, and manufacturer's recommendations.
- 3. Unless specified and approved, all insulation used in conjunction with through-penetrants shall remain intact and undamaged and may not be removed.
- 4. Seal holes and penetrations to ensure an effective smoke seal.
- 5. In areas of high traffic, protect firestopping materials from damage. If the opening is large, install firestopping materials capable of supporting the weight of a human.
- 6. Insulation types specified in other sections shall not be installed in lieu of firestopping material specified herein.
- 7. All combustible penetrants (e.g. non-metallic pipes or insulated metallic pipes) shall be firestopped using products and systems tested in a configuration representative of the field condition.

P. FIELD QUALITY CONTROL

- 1. Prepare and install firestopping systems in accordance with manufacturer's printed instructions and recommendations.
- 2. Follow safety procedures recommended in the Material Safety Data Sheets.
- 3. Finish surfaces of firestopping which are to remain exposed in the completed work to a uniform and level condition.
- 4. All areas of work must be accessible until inspection by the applicable Code Authorities.
- 5. Correct unacceptable firestops and provide additional inspection to verify compliance with this specification.

Q. CLEANING

- 1. Remove spilled and excess materials adjacent to firestopping without damaging adjacent surfaces.
- 2. Leave finished work in neat, clean condition with no evidence of spill overs or damage to adjacent surfaces.

END OF SECTION 07 84 13

SECTION 07 92 13 - JOINT SEALERS

A. SCOPE OF WORK

- 1. Include all materials, labor and equipment necessary for the complete caulking and sealant work as specified, indicated on the drawings, or as otherwise necessary. Include, but not limited to all joints both interior and exterior, as follows:
 - a. Joints in masonry walls.
 - b. Perimeter door frames, door sills, windows and other openings.
 - c. Building control joints.
 - d. All locations where casework and counters adjoins walls.
 - e. Necessary locations of joints requiring weathertight sealant.
- 2. Drawings and general conditions and other Division 1 Specification Sections apply to this Section.

B. <u>STANDARDS</u>

1. American Society of Testing and Materials (ASTM).

C. PRODUCT HANDLING

1. Deliver, store and handle material in a manner to prevent the entrance of foreign materials and damage of materials by water or breakage. Damaged materials shall not be installed. The name of manufacturer and trade name of each caulking shall be on each container.

D. SUBMITTALS

1. Submit samples per the requirements outlined in Division 1.

E. QUALITY ASSURANCE

- 1. Applicator shall have a minimum of two (2) years experience and must be approved by the manufacturer.
- 2. Obtain elastomeric materials only from single manufacturer.

F. PROJECT CONDITIONS

- 1. Preparation of joint surfaces, backing, and the conditions under which the sealant and caulking is to be installed shall conform to manufacturer's recommendations.
- 2. Environmental Conditions: Do not proceed with installation of joint sealants under the following conditions:
 - a. When ambient and substrate temperature conditions are outside the limits permitted by sealant manufacturer.
 - b. When joint substrates are wet.
 - c. Where joint widths are less than those allowed by joint sealant manufacturer for applications indicated.
 - d. Contaminants capable of interfering with adhesion have not yet been removed from joint substrate.

F. WARRANTY

- 1. Provide manufacturer's two (2) year guarantee on materials.
- 2. Workmanship must be guaranteed against leakage for minimum of two (2) years from date of Owner's acceptance of the building.

G. MANUFACTURERS

- 1. Subject to the compliance with the requirements, provide products by one of the following:
 - a. DAP, Inc.
 - b. Dow Corning Corp.
 - c. Hilti Construction Chemicals
 - d. General Electric Co., GE Silicones
 - e. Pecora Corp.

- f. Sonneborn Building Products
- g. Tremco, Inc.

H. MATERIALS

- 1. General
 - a. Provide type, grade, class, hardness and similar characteristics of material as indicated or, where not indicated, to comply with manufacturer's recommendations relative to exposures, traffic, weather conditions and other factors of the joint system for best possible overall performance. Except as otherwise indicated, joint sealers are required to permanently maintain airtight and waterproof seals, without failures in joint movement accommodation, cohesion, adhesion (where applicable), migration, staining, and other performances as specified.
 - b. Color shall be selected by Architect from manufacturer's full range of samples.
- 2. Caulking Compounds (Acrylic Latex Sealant)
 - a. Latex rubber modified, acrylic emulsion polymer sealant compound; manufacturer's standard one-part, non-sag, mildew resistant, acrylic emulsion sealant complying with ASTM C 834, formulated to be paintable, and recommended for exposed applications on interior locations involving joint movement of not more than +/- 5%.
 - 1. Acceptable Products:
 - a. Acrylic Latex Caulk with Silicone DAP, Inc.
 - b. AC-20 Pecora Corp.
 - c. Sonolac Sonneborn Building Products.
 - d. Acrylic Latex Caulk 834 Sonneborn Building Products.
- 3. One-Part Elastomeric Sealant (Silicone)
 - a. One component elastomeric sealant, complying with ASTM C 920, Class 25, Type NS (non-sag), unless Type S (self leveling) recommended by manufacturer for the application shown. Provide additional movement capability where indicated.
 - 1. Acceptable Products:
 - a. Dow Corning 790 Dow Corning Corp.
 - b. Silpruf GE
 - c. Pecora 864 Architectural Silicone Sealant Pecora Corp.
 - d. Omniseal Sonneborn Building Products.
 - e. Spectrum 1 Sonneborn Building Products.
 - b. One component mildew resistant silicone sealant: (Around countertops, and backsplashes, and other locations subject to moisture and wet conditions.)
 - 1. Acceptable Products:
 - a. Dow Corning 786 Dow Corning Corp.
 - b. Sanitary 1700 GE
 - c. Tremsil 600 Tremco, Inc.
 - d. 898 Silicone Sanitary Sealant Pecora Corp.
- 4. Elastomeric Sealant (Polyurethane)
 - a. One component polyurethane sealant complying with ASTM C 920, Type S, Grade NS, Class 25 (non-sag).
 - 1. Acceptable Products:
 - a. Dynatrol I Pecora Corp.
 - b. Sonolastic NP 1 Sonneborn Building Products.
 - c. Dymonic or Vulkem 921 Tremco, Inc.
 - b. Two component polyurethane sealant complying with ASTM C 920, Type M, Grade NS, Class 25 (non-sag).
 - 1. Acceptable Products:
 - a. Dynatrol II Pecora Corp.
 - b. Sonolastic NP 2 Sonneborn Building Products.
 - c. Dymeric 511 or Vulkem 922 Tremco, Inc.
- 5. One-Part Self-Leveling Polyurethane Sealant (for traffic areas)

- a. One component polyurethane self-leveling sealant, complying with ASTM C 920, Type S, Grade P, Class 25.
 - 1. Acceptable Products:
 - a. NR-201 Urexpan Pecora Corp.
 - b. Sonolastic SL 1 Sonneborn Building Products.
 - c. Vulkem 45 Tremco, Inc.
- b. Two component polyurethane self-leveling sealant, complying with ASTM C 920, Type M, Grade P, Class 25.
 - 1. Acceptable Products:
 - a. NR-200 Urexpan Pecora Corp.
 - b. Sonolastic SL 2 Sonneborn Building Products.
 - c. Vulkem 245 or THC900/THC901 Tremco, Inc.
- 6. Miscellaneous Materials:
 - a. Provide joint cleaner and joint primer sealer as recommended by sealant or caulking compound manufacturer.
 - b. Sealant backer rod shall be compressible rod stock polyethylene foam, polyethylene jacketed polyurethane foam, butyl rubber foam, neoprene foam, or other similar material as recommended by the manufacturer.
 - 1. Cylindrical Sealant Backings: ASTM C 1330, of type indicated below and of size and density to control sealant depth and otherwise contribute to producing optimum sealant performance.
 - a. Type C: Closed cell material with a surface skin.
 - 2. Where a 2 inch building expansion joint is indicated, provide an expanding foam secondary sealant, behind sealant, in lieu of backer rod.
 - c. Primer: Provide type recommended by joint sealer manufacturer where required for adhesion of sealant to joint substrates.
 - d. Cleaners for Non-Porous Surfaces: Provide non-staining, chemical cleaners of type which are acceptable to manufacturers of sealant and sealant backing materials, and do not harm or affect substrates or adjacent materials.

I. EXAMINATION, PREPARATION AND INSTALLATION

- 1. Examine joints indicated and/or required to receive sealants, for compliance with requirements for joint configuration, installation tolerances, and other conditions affecting joint sealant performance. If unsuitable conditions are present, notify Architect of items requiring correction. Do not proceed with installation of joint sealants until unsatisfactory conditions have been corrected.
- 2. All surfaces must be clean, dry, and free from loose aggregate, paint, corrosion, oil, grease, wax, tar, or other impurities. Joints must not be contaminated with bituminous materials.
- 3. Prime joints, if required, apply back-up material and sealants in strict accordance with manufacturer's directions.
- 4. Joints with wrinkles, sags, poor adhesion, or improperly cured, shall be cut out and replaced without additional cost to the owner.

J. SELECTION OF MATERIAL

- 1. Caulking compounds shall be used for interior non-moving joints and at locations indicated, including, but not limited to:
 - a. Perimeter joints of exterior openings, unless otherwise noted.
 - b. Perimeter joints between interior wall surfaces and frames of interior doors and windows.
 - c. Interior control joints, unless otherwise indicated.
- 2. One component elastomeric silicone sealants shall be used at exterior and interior joints where thermal or dynamic movement is anticipated, including, but not limited to:
 - a. Metal to metal joints.
 - b. Sheet metal flashing, coping, pre-formed metal caps, fascia and trim.
 - c. Glass to metal joints.
 - d. Exterior insulation and finish system. Provide at joints within system, and at joints where system abuts

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other materials.

- 3. One component mildew resistant silicone sealant at locations indicated, including, but not limited to:
 - a. Joints between plumbing fixtures and adjoining walls, floors and counters.
 - b. Joints between countertops and backsplashes and walls.
- 4. One or two part elastomeric polyurethane sealants shall be used at exterior and interior joints where weatherproofing or waterproofing is required, and at exterior and interior joints between dissimilar materials including, but not limited to:
 - a. Exterior and interior sides of building expansion joints.
 - b. Exterior side of frame of doors, windows, and louvers to adjacent dissimilar materials.
 - c. Lintels and shelf angles to masonry construction.
 - d. Exterior building control joints and masonry expansion joints.
 - e. Joints in concrete sitework (sidewalks, ramps, retaining walls, etc.), and the joint between concrete slabs and dissimilar materials.
 - f. Sealant in pipe sleeves where materials perforate floor slab (non-rated).
 - g. Perimeter of floor slabs and concrete curbs which abut vertical surfaces.
 - h. Tile control and expansion interior joints in vertical and horizontal non-traffic surfaces.
 - i. Exterior joints between dissimilar materials where the joining of two surfaces require a watertight seal.
- 5. One or two part self-leveling polyurethane sealant shall be used for exterior and interior horizontal joints subject to pedestrian and moderate vehicular traffic.

K. CLEANING

1. Clean off excess sealants or smears adjacent to joints as the work progresses, with materials recommended by joint sealer manufacturer.

L. PROTECTION

 Protect joint sealants during and after curing period from contact with contaminating substrates and from damage resulting from construction operations, or other causes, for acceptance at time of substantial completion. If damage occurs, cut out and remove damaged or deteriorated joint sealants, immediately so installations with repaired areas are indistinguishable from original work.

END OF SECTION 07 92 13

SECTION 08 12 13 - STEEL DOORS AND FRAMES

A. SUMMARY

- 1. Section Includes:
 - a. Steel doors and steel door frames.
 - b. Fire-rated door and frame assemblies.
- 2. Related Sections:
 - a. Section 06 10 00 Rough Carpentry.
 - b. Section 08 70 00 Door Hardware.
 - c. Section 08 81 00 Glass and Glazing
 - d. Section 09 91 23 Painting

B. SUBMITTALS

- 1. Furnish manufacturer's published details of standard stock items.
- 2. Furnish detailed Drawings of variations from standards, including those required to secure custom frame assemblies, if any.

C. STANDARDS AND MANUFACTURERS

- 1. <u>Standards</u>: Comply with the requirements of Steel Door Institute, "Recommended Specifications for Standard Steel Doors and Frames," (SDI-100), and as herein specified.
- 2. <u>Manufacturers</u>: A recognized producer of hollow metal work complying with the requirements, including any one of the following:

American Welding and Manufacturing Co.

Ceco Corp.

Fenestra

Mesker Brothers Industries, Inc.

Republic Steel Corp.

Steelcraft Manufacturing Co.

Virginia Metal Products

D. MATERIALS

1. Steel Doors and frames, and cold-rolled steel per ASTM A 366 and A 568.

Frames

- a. All frames shall be welded; formed of #16 U. S. Standard gauge steel. All labeled frames shall be furnished with a minimum of three, (3), adjustable underwriters labeled anchors per each jamb member and loose clip angle floor anchor.
- b. Frames shall be furnished with Underwriters Laboratory labels where called for on the Door Schedule.
- c. Frames shall be mortised, tapped, and reinforced for mortise finish hardware at the factory. Templates will be furnished by the finish hardware Subcontractor.
- d. Each frame shall be furnished punched and supplied with for three, (3), rubber silencers per each jamb member.
- e. Following fabrication, all frames shall be bonderized and shop painted on all surfaces with one coat of baked-on primer, manufacturer's standard.
- f. Back prime all hollow metal door frames that are to be installed in masonry walls with suitable product as recommended by manufacturer.

3. Doors:

- a. All doors shall be shop fabricated of #18 U. S. Standard gauge steel.
- b. Doors shall be flush seamless and of pan-type construction. Visible seams at edges only.
- c. Doors shall be reinforced, stiffened, sound deadened, and insulated with mineral rock wool or small honeycomb core which completely fills the inside of the door.
- d. Continuous 14 gauge channels extending full width of the door shall be spot welded to each face, and

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- top and bottom. Provide rigid vinyl top caps at all doors.
- e. For doors requiring Underwriter's labels, refer Door Schedule shown on the Drawings.
- f. Doors shall be mortised, drilled, tapped, and reinforced for mortise finish hardware. Hardware Subcontractor will furnish templates.
- g. Doors shall have flush smooth surfaces without warps, twists, and/or any other irregularities.
- h. After fabrication, all doors shall be bonderized and shop painted on all surfaces with one coat of baked-on primer, manufacturer's standard.

E. INSTALLATION

1. Install hollow-metal units in accordance with manufacturer's instructions and final shop drawings (if any). Fit doors to frames and floors with clearances specified in SDI-100.

F. PROTECTION

- 1. Doors and frame members shall be protected during shipment and at job site to prevent scratching of paint and denting of metal.
- 2. In the event metal should be dented, dents shall be sanded to bare metal, leaded, and painted, in such a manner that dents will not show. Should repair prove unsatisfactory to the Architect, the damaged material shall be replaced without additional cost to the Owner.

END OF SECTION 08 12 13

SECTION 08 14 29 – PRE-FINISHED WOOD DOORS

A. SUMMARY

1. Section Includes:

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- a. Prefinished standard and fire rated type wood doors with flush faces.
- b. Prefit and premachine pre-finished wood doors.
- 2. Related Sections:
 - a. Section 06 10 00 Rough Carpentry.
 - b. Section 08 12 13 Steel Doors and Frames.
 - c. Section 08 70 00 Door Hardware.
 - d. Section 08 81 00 Glass and Glazing

B. REFERENCES

- 1. WDMA Window and Door Manufacturers Association: IS 1-A 1997 Industry Standard for Architectural Flush Wood Doors.
- 2. NFPA-80 Standards for Fire Doors.
- 3. Uniform Building Code: UBC 7-2 1997, Fire Test of Door Assemblies.

C. SUBMITTALS

- 1. Shop Drawings and Product Data:
 - a. Submit in accordance with Section 01 30 00.
 - b. Indicate general construction, jointing methods, hardware and louver locations, and locations of cut-outs for glass. Indicate thickness of veneers.
- 2. Samples: Submit samples of wood veneer and factory finishing in accordance with WDMA Quality Standards I.S. 1-A 1997, sections G-18 and Guide Specifications 1.03 C.
- 3. Certification: Submit certification that doors and frames comply with UBC 7-2 1997.

D. QUALITY ASSURANCE

- 1. Fire-Rated Wood Doors: Provide wood doors which are identical in materials and construction to units tested in door and frame assemblies in accordance NFPA 252 and which are labeled and listed for ratings indicated by ITS Warnock Hersey, UL or other testing and inspection agency acceptable to authorities having jurisdiction.
 - a. Doors: Comply with UBC 7-2 1997 where required.
 - b. Provide intumescent requirements in compliance with UL-10C.
- 2. WDMA I.S. 1-A 1997 Quality Standard: Window and Door Manufacturers Association Quality Standards for grade of door, core, construction, finish, and other requirements.
- 3. Temperature Rise Rating: At stairwell enclosures, provide doors which have Temperature Rise Rating of 250 degrees F maximum in 30 minutes of fire exposure.

E. PRODUCT HANDLING

1. Plastic wrap and protect wood doors during transit, storage and handling to prevent damage, soiling or deterioration. Follow the Care and Installation guidelines as described in WDMA I.S. 1-A 1997.

F. GUARANTY/WARRANTY

1. Guarantee: Provide manufacturer's guarantee for all wood doors. Guarantee period: Lifetime of original installation. Doors exhibiting defects in materials or workmanship including warp and delamination within guarantee period shall be replaced (including hanging and finishing) with new doors. These terms shall be part of the manufacturer's standard warranty.

G. ACCEPTABLE MANUFACTURERS

- 1. Graham Manufacturing Corporation
- 2. Marshfield Door Systems
- 3. Weyerhaeuser Door Division
- 4. Vermont Industries

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H. MATERIALS

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1. Door Construction:

- a. Non-Fire Rated Doors: Thickness: 1-3/4 inches, interior flush wood, bonded, solid core conforming to WDMA I.S. 1-A 1997 and the following;
 - 1. Core: bonded particle core (PC) conforming to WDMA I.S. 1-A 1997.
 - 2. Door construction shall conform to WDMA I.S. 1-A 1997 Premium Grade requirements.
 - 3. Stiles: Hardwood to match face veneer over structural composite lumber (SCL), glued to core.
 - 4. Rails: Mill option hardwood or SCL. Top and bottom: 2 inches.
 - 5. Facing: Wood veneer as specified.
- b. Fire Rated Doors: Thickness: 1-3/4 inches, interior flush wood, bonded, solid core conforming to WDMA I.S. 1-A 1997 and the following;
 - 1. Core: bonded mineral core (FD) conforming to WDMA I.S. 1-A 1997.
 - 2. Door construction shall conform to WDMA I.S. 1-A 1997 Premium Grade requirements.
 - 3. Stiles: Hardwood to match face veneer over mineral composite, glued to core.
 - 4. Rails: Mineral composite as required by fire door authorities. Top and bottom: as required by manufacturer's fire door authorities.
 - 5. Facing: Wood veneer as specified.
- c. Acoustic Upgrade Doors: Pre-finished wood doors with manufacturer's sound resistant core material to achieve STC rating of 46 operable, including all perimeter gasketing and threshold.

2. Wood Veneer:

- a. Door face veneers shall meet HPVA "A" grade quality standards conforming to WDMA I.S. 1-A for transparent or semi-transparent finish. Minimum face veneer thickness shall be 1/50" at 12% moisture content after finish sanding.
- b. Species: White Birch.
- c. Face Cut: Plain Sliced.
- d. Face Assembly: Book Match.
- e. Face Symmetry: Running Match.
- 3. Adhesives: Face to core adhesives shall be Type I or Type II as appropriate for location in building. Adhesives must be classified Type I or Type II per WDMA TM-6 "Adhesive Bond Test Method." Type I adhesives shall be used for doors in exterior applications, Type II adhesives shall be used for doors in interior applications.
- 4. Core:
 - a. Non-rated and 20 minute doors: Solid particleboard.
 - b. Fire-rated doors: Non-combustible mineral core containing no asbestos.

I. FACTORY FINISHING

- 1. Comply with referenced WDMA Section G-15, "Factory Finishing.".
- 2. Pre-finish wood doors at factory.
- 3. Transparent Finish: Match finish indicated in WDMA Section G-17: WDMA System #6.

J. ACCESSORIES

- 1. Vision Frames:
 - a. Non-rated doors: Flush wood frames, hardwood to match facing.
 - b. 20 minute fire rated doors: Provide manufacturer's tested metal clip or comparable system with wood stop appearance.
 - c. Fire-rated doors: ITS Warnock Hersey or UL approved glazing system.
 - d. Glass: Refer to Section 08 81 00 for glass types.

K. FABRICATION

- 1. Fabricate wood doors in accordance with requirements of WDMA I.S. 1-A 1997 Quality Standards.
- 2. Fabricate fire rated doors in accordance with requirements of ITS Warnock Hersey or Underwriters' Laboratories, with metal label on each door including UL-10C.
- 3. Fabricate doors with WDMA Quality Standards hardware blocking options as follows:
 - a. Provide HB-1 head and HB-2 sill rails and HB-4 lockblock on all doors.
 - b. Provide HB-6 only when exit devices are specified for door.

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- c. Provide HB-8 for pivots or when floor bolts are specified under Section 08 70 00 Door Hardware.
- 4. Provide doors with minimum ¼ inch thick edge strips, of wood species to match face veneers except as required for fire rating.
- 5. Make cut-outs and provide stops for glass and louvers. Install metal door louvers. Seal cut-outs prior to installation of moldings.
 - a. For full light doors: Provide cut out from flush wood door, with vertical grain direction.
- 6. Bevel lock and hinge edges of single acting doors 3 degrees or 1/8 inch in 2 inches. Radius strike edge of double acting swing doors as required by pivot hinge manufacturer.
- 7. Prepare doors to receive hardware. Refer to Section 08 70 00 Door Hardware and NFPA 80 for hardware requirements including UL-10C.
 - a. Prefit and bevel to net opening size less approximately 1/4 inch in width on single swing doors 3/16 inch in width for paired doors. Provide 1/4 inch clearance above finished floor, unless otherwise indicated on drawings. Provide 1/8 inch clearance at top of door.
 - b. Slightly ease vertical edges.
- 8. Fire Rated Pair of Doors; greater than 20 minute: Supply overlapping astragals or metal edge sets only as required by NFPA 80 1999 or by door manufacturer's fire door authorities. If an astragal is required, to comply with fire rated labeling requirements for pairs of fire rated doors, provide door manufacturer's standard tested astragal.

L. EXAMINATION

- 1. Examine installed door frames before hanging doors.
- 2. Verify that frames comply with indicated requirements for type, size, location, and swing characteristics and have been installed with plumb jambs and level heads.
- 3. Proceed with installation only after unsatisfactory conditions have been corrected.

M. INSTALLATION

- 1. Handle doors in accordance with recommendations of WDMA I.S. 1-A, "Care and Installation at Job Site."
- 2. Condition doors to average temperature and humidity in area of installation for not less than 48 hours prior to installation. Store doors per recommendations of WDMA I.S. 1-A, "Care and Installation at Job Site."
- 3. Install in neat and workmanlike manner, free from hammer or tool marks, open joints or slivers.
- 4. Set plumb, level, square and true. Install work after building humidity is at acceptable level.
- 5. Remove and replace all doors found to be warped, twisted, bowed, or otherwise damaged. Do not install doors which cannot be properly fitted to frames.
- 6. Adjust prefinished doors and hardware and other moving or operating parts to function smoothly and correctly.
- 7. If doors are to be field finished, the process must follow the WDMA I.S. 1-A, "Care and Handling at Job Site" instructions for field applied finishes.
- 8. Ensure that smoke gaskets are in-place before prefinished door installation.

N. CLEANING AND PROTECTION

- 1. Clean prefinished doors and hardware.
- 2. At clear finished doors, do not partially cover door surfaces with paper, cardboard, or any other opaque covering that will create uneven aging of wood veneer.
- 3. Protect doors as necessary from damage until full occupancy by Owner.
- 4. Refinish or replace finished doors damaged during installation.

END OF SECTION 08 14 29

SECTION 08 31 13 - ACCESS PANELS

A. RELATED DOCUMENTS

1. Drawings and general provisions of the contract, including supplementary conditions and Division 1 specification sections, apply to this section.

B. SUMMARY

- 1. Section includes: access panels for the following types of installations:
 - a. Wall access panels
 - b. Ceiling access panels
 - c. Fire Rated access panels for walls and ceilings

C. REFERENCES

- 1. Insulated fire rated units shall bear Underwriters Laboratories, Inc. 1-1/2 hour "B" label with 250-temperature rise.
- 2. Uninsulated fire rated units for walls only shall bear the <u>Underwriters Laboratories</u>, <u>Inc.</u> label for 1-1/2 hour "B" label with NO temperature rise.

D. SUBMITTALS

- 1. General: In accordance with conditions of Division 1 specifications.
 - a. Shop drawings.
 - b. Manufacturer's literature and data.

E. QUALITY ASSURANCE

- 1. Provide all access panels for the project by the same source and the same manufacturer.
- 2. Fire Rated door assemblies that comply with NFPA 80 and are labeled by <u>Underwriters Laboratories</u>, or other testing facilities acceptable to authorities having jurisdiction.

F. COORDINATION

- 1. Determine specific locations and sizes for access panels needed to gain access to concealed equipment and indicate on schedule specified under "submittals" article.
- 2. Access panels to gain access to equipment specified in Division 22, 23 or 25 and where panels are not shown on drawings are to be provided by applicable subcontractor and in compliance with requirements listed in this section.

G. DELIVERY, STORAGE AND HANDLING

1. Package, ship and store in accordance to manufacturer's recommendations.

H. MANUFACTURER

- 1. Milcor
- 2. Nystrom Building Products
- 3. Williams Brothers Corporation

I. MATERIALS

1. Commercial quality, cold steel sheet with baked on rust inhibitive gray primer.

J. ACCESS PANELS

- 1. Non rated flush access doors
 - a. Door: Fabricate from 14-gauge cold rolled sheet steel.
 - b. Frame: Fabricate from 16-gauge cold rolled sheet steel of configuration to suit material application.
 - c. Hinge: Concealed pin type, spring loaded to allow for door removal, set to open 175 degrees.

- d. Latching/Locking Devices: Key operated cylinder lock with two (2) keys per lock, keyed alike.
- 2. Insulated fire rated access panels for walls and ceilings.
 - a. Door: Fabricate from 20-gauge cold rolled sheet steel, insulated sandwich type construction.
 - b. Frame: Fabricate from 16-gauge cold rolled steel of configuration to suit material application.
 - c. Hinge: Concealed pin hinge, spring loaded to allow for door removal, set to open 175 degrees.
 - d. Latching/Locking mechanism: Key operated cylinder lock with two (2) keys per lock, keyed alike.
 - e. Insulation: 2" thick fire rated mineral fiber.
 - f. Automatic closure device: Integral automatic spring closure device for each door.
 - g. Interior latch release: Mechanism to allow for panel to open from interior side standard on panels 18" and larger (safety feature).

K. FABRICATION

- 1. Manufacture each access panel assembly as an integral unit ready for installation.
- 2. Welded construction: Furnish with a sufficient quantity of 1/4" mounting holes to secure access panels to types of supports indicated.
- 3. Furnish number of latches required to hold door in flush smooth pane when closed.

L. EXAMINATION

1. Verify conditions are ideal for suitable installation.

M. PREPARATION

1. Advise installers of work relating to access panel installation including rough opening dimensions, locations of supports, and anchoring methods. Coordinate delivery with other work to avoid delay.

N. INSTALLATION

- 1. Follow manufacturer's instructions for installing access panels.
- 2. Set frames to proper alignment with the wall or ceiling.
- 3. Position access panels for proper access to concealed equipment requiring access.

O. ADJUST AND CLEAN

- 1. Adjust panel after installation for proper operation.
- 2. Remove and replace panels or frames that are warped, bowed, or damaged.

END OF SECTION 08 31 13

PAGE 08 33 00 - 1 SEC. 08 33 00 ROLLING COUNTER FIRE SHUTTERS

SECTION 08 33 00 - ROLLING COUNTER FIRE SHUTTERS

A. **SUMMARY**

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1. Section Includes: Manual automatic closing rolling counter fire doors.

B. SYSTEM DESCRIPTION

1. Performance Requirements: Provide doors with Underwriters' Laboratories, Inc. label for the fire rating classification, 1-1/2 hr.

C. SUBMITTALS

- 1. Reference Section 01 33 00 Submittal Procedures; submit the following items:
 - a. Product Data
 - b. Shop Drawings: Include special conditions not detailed in Product Data. Show interface with adjacent work
 - c. Quality Assurance/Control Submittals:
 - 1. Provide proof of manufacturer ISO 9001:2008 registration
 - 2. Provide proof of manufacturer and installer qualifications
 - 3. Provide manufacturer's installation instructions
 - d. Closeout Submittals:
 - 1. Operation and Maintenance Manual

D. QUALITY ASSURANCE

- 1. Qualifications:
 - a. Manufacturer Qualifications: ISO 9001:2008 registered and a minimum of five years experience in producing counter fire doors and smoke control units of the type specified.
 - b. Installer Qualifications: Manufacturer's approval.

E. DELIVERY STORAGE AND HANDLING

1. In accordance with manufacturer's printed instructions.

F. WARRANTY

1. Standard Warranty: Two years from date of substantial completion against defects in material and workmanship.

G. MANUFACTURER

- 1. Standard specified: Cornell Iron Works, Model ERC10.
- 2. Acceptable Manufacturers:
 - a. Cornell Iron Works
 - b. Clopay Building Products
 - c. Cookson

H. MATERIALS

- 1. Curtain:
 - a. Slat Configuration: Stainless Steel, No. 1F, interlocked flat-faced slats, 1-1/2 inches high by 1/2 inch deep, minimum 22 gauge AISI type 304 #4 finish stainless steel with stainless steel bottom bar and vinyl astragal.
 - 1. Finish: Stainless Steel type 304 #4 finish
- 2. Endlocks: Fabricate continuous interlocking slat sections with high strength galvanized steel endlocks riveted to slats per UL requirements.
- 3. Guides: Stainless Steel, minimum 12 gauge formed shapes, type 304 #4 finish.
- 4. Counterbalance Shaft Assembly:

PAGE 08 33 00 - 2 SEC. 08 33 00 ROLLING COUNTER FIRE SHUTTERS

- a. Barrel: Steel pipe capable of supporting curtain load with maximum deflection of 0.03 inches per foot of width
- b. Spring Balance: Oil-tempered, heat-treated steel helical torsion spring assembly designed for proper balance of door to ensure that maximum effort to operate will not exceed 25 lbs. Provide wheel for applying and adjusting spring torque.
- 5. Brackets: Fabricate from reinforced steel plate with permanently lubricated ball or roller bearings at rotating support points to support counterbalance shaft assembly and form end closures.
 - a. Finish: Zirconium treatment followed by a gray baked-on polyester powder coat; minimum 2.5 mils cured film thickness.
- 6. Hood and Mechanism Covers: 24 gauge stainless steel with reinforced top and bottom edges. Provide minimum 1/4 inch steel intermediate support brackets as required to prevent excessive sag.
 - a. Finish: Stainless steel type 304 #4 finish.

I. OPERATION

- 1. FireGard[™] Series Manual Crank Operation: Thermally activated, manually operated system with planetary gear reduction and internal release mechanism.
 - a. Provide an internal brake mechanism to hold the door at any position during normal door operation.
 - b. Thermally activate automatic closure by melting of a fusible link.
 - c. Control automatic closure speed with an internal, totally enclosed, variable rate centrifugal governor without the use of electrical pulsation, non-variable rate viscosity, oscillation type or other governing devices.
 - d. Maintain automatic closure speed at an average of 12" per second .
 - e. Reset door system by reconnecting fusible links or by re-engaging a failsafe release device from floor level.
 - f. Provide minimum #50 roller chain from operator output shaft to the door drive shaft.
 - g. Install system only with manufacturer supplied or specified fasteners.
 - h. Ensure that manual resetting of spring tension or mechanical components will not be required.
 - i. Drop test and reset door system twice by all means of activation and comply fully with NFPA 80 Section 5.

J. ACCESSORIES

1. Locking: Padlockable slide bolt on coil side of bottom bar at each jamb extending into slots in guides.

K. EXAMINATION

- 1. Examine substrates upon which work will be installed and verify conditions are in accordance with approved shop drawings.
- 2. Coordinate with responsible entity to perform corrective work on unsatisfactory substrates.
- 3. Commencement of work by installer is acceptance of substrate.

L. INSTALLATION

- 1. Install door and operating equipment with necessary hardware, anchors, inserts, hangers and supports.
- 2. Comply with NFPA 80 and follow manufacturer's installation instructions.

M. ADJUSTING

1. Following completion of installation, including related work by others, lubricate, test, and adjust doors for ease of operation, free from warp, twist, or distortion.

N. FIELD QUALITY CONTROL

1. Site Test: Test doors for normal operation and automatic closing. Coordinate with authorities having jurisdiction to witness test and sign Drop Test Form.

Appendix C CITY OF CANTON WATER DEPARTMENT BILLING CORNERSTONE PARKING GARAGE TENANT SPACE DECEMBER 3, 2018

PAGE 08 33 00 - 3 SEC. 08 33 00 ROLLING COUNTER FIRE SHUTTERS

O. CLEANING

- 1. Clean surfaces soiled by work as recommended by manufacturer.
- 2. Remove surplus materials and debris from the site.

P. <u>DEMONSTRATION</u>

- 1. Demonstrate proper operation to Owner's Representative(s).
- 2. Instruct Owner's Representative(s) in maintenance procedures.

END OF SECTION 08 33 00

SECTION 08 41 13 - ALUMINUM ENTRANCE AND STOREFRONT

A. WORK INCLUDED

1. Furnish and install aluminum entrance systems and storefront systems as shown on drawings and specified in this section.

B. RELATED WORK

- 1. Masonry Section 04 20 00
- 2. Joint Sealers Section 07 92 00
- 3. Finish Hardware Section 08 71 00
- 4. Glass and Glazing Section 08 80 00

C. SUBMITTALS

- 1. Contractor shall submit shop drawings, finish samples, test reports, and warranties per Division 1 General Requirements.
 - a. Samples of materials as may be requested without cost to owner, i.e., metal, glass, fasteners, anchors, frame sections, etc.
 - b. Design for windload of 30 PSF with maximum deflection in both vertical and horizontal mullions not to exceed 1/175 of span.

D. STANDARDS

- 1. American Society for Testing and Materials (ASTM)
- 2. Underwriter's Laboratories (UL)
- 3. American National Standards Institute (ANSI)
- 4. Aluminum Association (AA)

E. WARRANTY

1. Materials and workmanship furnished and installed shall be free from defects for a period of one (1) year from date of final acceptance. It is the responsibility of this contractor to provide a watertight installation.

F. PRODUCTS

- 1. Aluminum Entrance Systems:
 - a. Doors
 - 1. Manufacturer's standard "wide stile" units.
 - 2. Finish shall be manufacturer's standard anodized aluminum system.
 - 3. Provide acrylic pile weather stripping around door perimeter.
 - 4. Extrusions shall be 6063-T5 alloy and tempered.
 - 5. Anchors shall be aluminum or stainless steel.
 - 6. See Drawings for size and location.
 - 7. Acceptable Manufacturers:
 - a. Kawneer Co., Inc.
 - b. Vistawall Architectural Products
 - c. Wausau Window and Wall Systems
 - d. YKK

b. Door Hardware

- 1. Butt Hinges, 4-1/2" x 4" x .134 inches thickness. Finish US26D.
- 2. Closer: Manufacturer's standard heavy duty surface closer. Color to match door system.
- 3. Exit Devices:
 - a. Single Leaf locations: Manufacturer's standard or rim panic device with exterior trim with cylinder.
- 4. Standard Aluminum Door Manufacturer's threshold, sweeps and weatherstripping.

PAGE 08 41 13 - 2 SEC. 08 41 13 ALUMINUM ENTRANCE AND STOREFRONT

5. Pre-wire doors and frames for integrated locks and contact sensors.

c. Frames

- 1. Extrusions shall be 6063-T5 alloy and tempered.
- 2. Provide polypropylene backed wool pile weather stripping.
- 3. Frame type shall be Vistawall FG3000T thermally broken system, or equal.
 - a. Provide venting units where indicated.
- 4. Frames shall be constructed of extruded aluminum sections.
- 5. Corners shall be square cut and fastened using stainless steel screens and extruded corner brackets.
- 6. Hardware Preparation
 - a. Hinge and strike plates shall be mortised, drilled and tapped to comply with hardware.
 - b. Provide for overhead surface mounted closure.
- d. Break Metal: Where indicated on the Drawings, all break metal shall be .063 anodized aluminum. All break metal shall be broken to required shape at factory before final anodization.
- e. Fabrication: Accurately fit to surrounding work. Connections securing the aluminum framing to the building structure shall be so designed that the framing can be properly plumbed and aligned to compensate for variations in the building sub-structure.
- f. Finish: Class I, Anodic Finish: AA-M12C22A41 (Mechanical Finish: nonspecular as fabricated; Chemical Finish: etched, medium matte; Anodic Coating: Architectural Class I) complying with AAMA 607.1.

G. DELIVERY, STORAGE, AND HANDLING

- 1. Do not allow doors and frames to be delivered to project site until work has sufficiently progressed and preparations made that will enable new window installation to proceed upon delivery.
- 2. Comply with manufacturer's recommendations for handling, storage, and protection during installation.

H. WARRANTIES

- 1. Total System
 - a. The contractor shall assume full responsibility and warrant for one year the satisfactory performance of the total door and window installation which includes that of the doors, frames, windows, glass, glazing, anchorage and setting system, sealing, flashing, etc., as it relates to air, water and structural adequacy as called for in the specifications and approved shop drawings.
 - b. Any deficiencies due to such elements not meeting the specifications shall be corrected by the contractor at his expense during the warranty period.

I. EXECUTION

1. Inspection

a. Verify that openings are dimensionally within allowable tolerances, plumb, level, clean, provide a solid anchoring surface and are in accordance with approved shop drawings.

2. Installation

- a. Use only skilled tradesmen. Complete work in accordance with approved shop drawings and specifications.
- b. Plumb and align units in a single plane for each wall plane and erect materials square and true. Adequately anchor to maintain positions permanently when subjected to normal thermal movement, specified building movement, and specified wind loads.
- c. Furnish and apply sealants to provide a weathertight installation at all joints and inter-sections and at opening perimeters. Wipe off excess material and leave all exposed surfaces and joints clean and smooth.

3. Adjusting and Cleaning

a. After completion of installation, doors and windows shall be inspected, adjusted, put into working order and left clean, free of labels, dirt, etc.

SECTION 08 70 00 - FINISH HARDWARE

A. WORK INCLUDED

- 1. This work shall include the furnishing and delivery to the Contractor of all the finish hardware, including all screws, bolts and other devices required to complete the work.
- 2. Templates of all hardware shall be promptly furnished to the metal door frame manufacturer.

B. <u>DELIVERY OF HARDWARE</u>

1. All finish hardware will be installed under the Carpentry Division. The Contractor will issue instructions for the time and place of delivery.

C. SUBMITTALS

1. Submit electronic hardware schedule to Architect together with catalog-cuts of each item of hardware listed for approval. Submit prior to ordering material, in accordance with General Conditions.

D. INSTALLATION

1. Install all hardware per manufacturer's directions, a mounting heights recommended by the Door and Hardware Institute, and in compliance with the 2010 ADA Standards for Accessible Design.

E. FINISH HARDWARE SCHEDULE

- 1. All hardware shall be of the makes and models listed in the attached Hardware Schedule, or approved equals.
- 2. Furnish and deliver all finish hardware, complete with all necessary fasteners. Provide templates for all hardware to metal door manufacturer.

			SPECIFIED		APPROVED					
PRODUCT			MANUFACTURER		EQUAL					
·			Hager			Stanley, McKinney				
			Sargent		Schlage					
Closers			Sargent		LCN, Corbin/Russwin					
Stops			Hager		Burns, Ives, Rockwood					
•			Hager		Burns, Ives, Rockwood					
Electric Strikes Hand			Hanchett Entry	anchett Entry Systems						
HARDWARE SET 1 - Door: 103B										
3	Ea.	Hinges		BB1279 4.5 x 4.5 x US	26D	HA				
1	Ea.	Lever Locks	set	10G05 LL x 26D		SA				
1	Ea.	Closer		351CPS x EN		SA				
1	Ea.	Kick Plate		190S 8" x 34" x US32I)	HA				
1	Ea.	Electric Stri	ke	5200		HES				
HARDWARE SET 2 - Door: 105										
1	Ea.	Electric Stri	ke	5200		HES				
HARDWARE SET 3 - Door: 106										
3	Ea.	Hinges		BB1279 4.5 x 4.5 x US	26D	HA				
1	Ea.	Lever Locks	set	10G04 LL x 26D		SA				

PAGE 08 70 00 - 2 SEC. 08 70 00 FINISH HARDWARE

HARD	WARE SET	<u>r 4</u> - Door: 108, 111							
6	Ea.	Hinges	BB1279 4.5 x 4.5 x US26D	HA					
2	Ea.	Lever Lockset	10G04 LL x 26D	SA					
2	Ea.	Wall Stop	232W x US32D	HA					
1	Ea.	Kick Plate	190S 8" x 34" x US32D	HA					

		<u>75</u> - Door: 109							
3	Ea.	Hinges	BB1279 4.5 x 4.5 x US26D	HA					
1	Ea.	Lever Lockset	10U65 LL x 26D	SA					
1	Ea.	Wall Stop	232W x US32D	HA					
1	Ea.	Kick Plate	190S 8" x 34" x US32D	HA					
HARDWARE SET 6 - Door: 110									
	Ea.	Hinges	BB1279 4.5 x 4.5 x US26D	HA					
1	Ea.	Lever Lockset	10U15 LL x 26D	SA					
1	Ea.	Closer	351CPS x EN	SA					
1	Ea.	Wall Stop	232W x US32D	HA					
1	Ea.	Kick Plate	190S 8" x 34" x US32D	HA					
HARDWARE SET 7 - Door: 112									
			5200	HEC					
_	Ea.	Electric Strike		HES					
1	Ea.	Cylinder	72 x 26D	SA					
Balance of Hardware to be provided in Aluminum Entrance System Package									
<u>HARDWARE SET 8</u> - Door: 104, 113, 115, 116, 117									
	Ea.	Hinges	BB1279 4.5 x 4.5 x US26D	HA					
5	Ea.	Lever Lockset	10G05 LL x 26D	SA					
5	Ea.	Wall Stop	232W x US32D	HA					
_		r	- · · · · · · · · · · · · · · · · · · ·						

END OF SECTION 08 70 00

SECTION 08 80 00 - GLASS AND GLAZING

A. SCOPE OF WORK

- 1. Furnish and install float glass, of the types and at the locations indicated on the drawings, including but not limited to the following:
 - a. Insulated Glass for Aluminum Entrance Doors and Storefront See Section 08 41 13.
 - b. Interior glass for Interior Borrow Lights and Vision Panels.

B. STANDARDS

- 1. American National Standard Institute (ANSI).
- 2. American Society for Testing Materials (ASTM).
- 3. Flat Glass Marketing Association (FGMT).
- 4. Ohio Building Code (OBC).
- 5. Underwriters Laboratories (UL).
- 6. Manufacturer's published glazing recommendations.

C. REFERENCES

- 1. ANSI Z 97.1 Glazing Materials Used in Buildings, Safety Performance Specifications and Methods of Test.
- 2. ASTM C 1036 Standard Specification for Flat Glass.
- 3. ASTM C 1048 Standard Specification for Heat-Treated Flat Glass--Kind HS, Kind FT Coated and Uncoated Glass.
- 4. ASTM C 1376 Standard Specification for Pyrolytic and Vacuum Deposition Coatings on Glass.
- 5. ASTM E 773 Standard Test Method for Accelerated Weathering of Sealed Insulating Glass Units.
- 6. ASTM E 774 Standard Specification for the Classification of the Durability of Sealed Insulating Glass Units.
- 7. ASTM E 2188 Standard Test Method for Insulating Glass Unit Performance.
- 8. ASTM E 2190 Standard Specification for Insulating Glass Unit Performance and Evaluation.
- 9. CPSC 16CFR-1201 Safety Standard for Architectural Glazing Materials.
- 10. Glass Association of North America (GANA) Glazing Manual.

D. **DEFINITIONS**

- 1. Sealed Insulating Glass Unit Surfaces:
 - a. Surface No. 1: Exterior surface of outer lite.
 - b. Surface No. 2: Interior surface of outer lite.
 - c. Surface No. 3: Exterior surface of inner lite.
 - d. Surface No. 4: Interior surface of inner lite.
 - e. Airspace: Space between lites of an insulating glass unit that contains dehydrated air or other inert specified gas.

E. SUBMITTALS

- 1. Product Data: Manufacturer's specifications, including performance characteristics, and installation instructions for each type of glass and glazing material specified, and spacers and compressible filler rod.
- 2. Shop Drawings: Submit manufacturer's or fabricator's shop drawings, including plans, elevations, sections, and details, indicating glass dimensions, tolerances, types, thicknesses, and coatings.
- 3. Samples:
 - a. Glass: 12 x 12 inch pieces for each type of glass specified.
 - b. Setting blocks, full size.
 - c. Color Samples for Glazing Materials: Manufacturer's standard colors.
- 4. Fabricator's Certification: Submit fabricator's certification by manufacturer.
- 5. Quality Control Submittals:
 - a. Test Reports: Certified test data to sufficiently substantiate glass or glass assembly compliance with requirements specified.

PAGE 08 80 00 - 2 SEC. 08 80 00 GLASS AND GLAZING

6. Warranty: Submit manufacturer's standard warranty for sealed insulating glass units.

F. QUALITY ASSURANCE

- 1. Manufacturer's Qualifications: Minimum of 5 years experience manufacturing specified glass type(s).
- 2. Fabricator's Qualifications: Minimum of 5 years experience manufacturing insulating glass units meeting ASTM E 2190, Class CBA.
 - a. Certified by manufacturer.
- 3. Mock-Ups: Obtain acceptance of mock-ups by Architect before proceeding with work.

G. DELIVERY, STORAGE, AND HANDLING

- 1. Delivery:
 - a. Deliver glass to site in accordance with manufacturer's instructions.
 - b. Deliver glass in manufacturer's or fabricator's original containers and packaging, with labels clearly identifying product name and manufacturer.

2. Storage:

- a. Store glass in accordance with manufacturer's instructions.
- b. Store glass in clean, dry area indoors.
- c. Protect from exposure to direct sunlight and freezing temperatures.
- d. Apply temporary coverings loosely to allow adequate ventilation.
- e. Protect from contact with corrosive chemicals.
- f. Avoid placement of glass edge on concrete, metal, and other hard objects.
- g. Rest glass on clean, cushioned pads at 1/4-points.

Handling:

- a. Handle glass in accordance with manufacturer's instructions.
- b. Protect glass from damage during handling and installation.
- c. Do not slide 1 lite of glass against another.
- d. Do not use sharp objects near unprotected glass.

H. PRODUCTS AND MANUFACTURERS

- 1. Double-Glazed Sputter-Coated Insulating Glass Units: Standard Specified: Guardian Industries SN 68
 - a. Conformance: ASTM E 2190, Class CBA.
 - b. Outboard Lite: Sputter-coated clear float glass.
 - 1. Annealed Clear Float Glass: ASTM C 1036, Type 1, Class 1, Quality q3.
 - 2. Vacuum Deposition Sputtered Coating: ASTM C 1376.
 - 3. Coating on Surface No. 2: SunGuard SuperNeutral 68 (SN 68).
 - 4. Glass Thickness: 6 mm (1/4 inch).
 - 5. Heat Treatment:
 - a. Heat-strengthened, ASTM C 1048, Kind HS.
 - b. Tempered; ASTM C 1048, Kind FT; CPSC 16CFR-1201; ANSI Z 97.1.
 - c. Air Space: 12 mm (1/2 inch) wide, hermetically sealed, dehydrated air space.
 - d. Inboard Lite: Clear float glass.
 - 1. Annealed Clear Float Glass: ASTM C 1036, Type 1, Class 1, Quality q3.
 - 2. Glass Thickness: 6 mm (1/4 inch).
 - 3. Heat-Treatment:
 - a. Heat-strengthened, ASTM C 1048, Kind HS.
 - b. Tempered; ASTM C 1048, Kind FT; CPSC 16CFR-1201; ANSI Z 97.1.
 - e. Glass Unit Performance Characteristics:
 - 1. Visible Light Transmittance: 68 percent
 - 2. Visible Light Reflectance Outdoors: 11 percent
 - 3. Direct Solar Energy Transmittance: 33 percent
 - 4. Direct Solar Energy Reflectance Outdoors: 32 percent

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- 5. Winter U-Value Nighttime: 0.296. Summer U-Value Daytime: 0.28
- 7. Shading Coefficient: 0.43
- 8. Solar Heat Gain Coefficient: 0.389. Summer Relative Heat Gain: 90
- f. Edge Seals: ASTM E 773, with aluminum spacers and silicone sealant for glass-to-spacer seals.
- g. Sealant: Approved by glass manufacturer.
- 3. Interior glass at vision panels: 1/4" clear tempered plate safety glass.
- 4. Acceptable Manufacturers:
 - a. AFG
 - b. Ford Glass
 - c. Guardian Industries Corp.
 - d. Libby-Owens-Ford Co.
 - e. PPG
- 5. Glazing Materials:
 - a. <u>Silicone sealant</u>: FS FF-S001543, Class A; non-acid type, except acid type if channel surfaces are porous.

I. EXAMINATION

1. The glazing contractor shall examine the framing or glazing channel surfaces, backing, removable stop design, and the conditions under which the glazing is to be performed, and notify the Architect in writing, of any conditions detrimental to the proper and timely completion of the work. Do not proceed with the glazing until all unsatisfactory conditions have been corrected in a manner acceptable to the glazing contractor.

J. PREPARATION

- 1. Verify glazing openings are correct size and within tolerance.
- 2. Verify glazing channels, recesses, and weeps are clean and free of obstructions.

K. INSTALLATION OF GLASS

- 1. <u>General</u>: Except as otherwise indicated, comply with glass manufacturer's instructions, glazing materials manufacturer's instructions, and "Glazing Manual" by FGMA and other technical publications of recognized authorities in the industry. Install each piece to achieve watertight and airtight performance, and to minimize breakage.
 - a. Clean channel surfaces and prime as recommended by sealant manufacturer.
 - b. Cut glass to size required for measured opening; provide adequate edge clearance and glass bit all around. Cut prior to tempering or strengthening, if any, and prior to fabrication into insulating glass units, if any.
 - c. Do not install sheets which have significant edge damage or other defects.
 - d. Install setting blocks at quarter points. Set in a bed of sealant if heel-bead is used.
 - e. Install spacers inside and out, all around, wherever liquid or plastic/mastic compounds are used.
 - f. Do not leave voids in the glazing channel.
 - g. Replace glass which is broken or damaged prior to the time of acceptance.
 - h. <u>Required Performance</u>: Each piece of exterior glass must be airtight and watertight, and without glass breakage through normal weather/temperature cycles and through normal door/window operations.

L. FIELD QUALITY CONTROL

- 1. Coated glass, when viewed from minimum of 10 feet, exhibiting slightly different hue or color not apparent in hand samples, will not be cause of rejection of glass units, as determined by Architect.
- 2. Verify glass is free of chips, cracks, and other inclusions that could inhibit structural or aesthetic integrity.

L. CLEANING

1. Clean glazing in accordance with manufacturer's instructions. Use only procedures and cleaning agents approved by glazing manufacturer.

PAGE 08 80 00 - 4 SEC. 08 80 00 GLASS AND GLAZING

- 2. Remove excess glazing compounds.
- 3. Remove labels and protective masking paper.
- 4. Wash both faces of glazing.
- 5. Remove debris from the premises.

M. PROTECTION

- 1. Protect installed glass from damage during construction.
- 2. Protect installed glass from contact with contaminating substances resulting from construction operations.
- 3. Remove and replace glass that is broken, chipped, cracked, abraded, or damaged in other ways during construction period, including natural causes, accidents, and vandalism.

END OF SECTION 08 80 00

PAGE 09 21 16 - 1 SEC. 09 21 16 GYPSUM BOARD ASSEMBLIES

DIVISION 9 – FINISHES

- 1. The General Conditions and the other Contract Documents as set forth in the foregoing pages are hereby incorporated into and become a part of the Specifications for the work under this division insofar as they apply hereto.
- 2. All Contractors performing work under this division must furnish a guarantee which shall cover a period of one (1) year from and after the completion of the building, and its acceptance by the Owner.

SECTION 09 21 16 - GYPSUM BOARD ASSEMBLIES

A. DESCRIPTION OF WORK

- 1. The extent of the gypsum drywall is shown on the Drawings and in schedules and is hereby defined to include gypsum board work with a tape-and-compound joint treatment system known as "drywall finishing" work.
- 2. The types of work required include the following:
 - a. Gypsum drywall including screw-type metal support system.
 - b. Drywall finishing (joint tape-and-compound treatment).
 - c. See drawings for limits of drywall installation and limits of other installations of finishes.

B. QUALITY ASSURANCE

- 1. Where work is indicated for fire-resistance ratings, including those required to comply with governing regulations, provide materials and installations identical with applicable assemblies which have been tested and listed to be recognized authorities.
- 2. Comply with applicable requirements of GA-216 "Application and Finishing of Gypsum Board" by the Gypsum Association, except where more detailed or more stringent requirements are indicated, including the recommendations of the manufacturer.
- 3. 1/8" offsets between planes of board faces and 1/4" in 8'-0" for plumb, level, warp, and bow.
- 4. Obtain gypsum boards, trim accessories, adhesives, and joint treatment products from a single manufacturer or from manufacturers recommended by the prime manufacturer of gypsum boards.

C. SUBMITTALS

1. For information only, submit two copies of manufacturer's product Specifications and installation instructions for each gypsum drywall component, including other data as may be required to show compliance with these Specifications. Distribute an additional copy of each installation instruction to the installer.

D. PRODUCT HANDLING

1. Deliver gypsum drywall materials in sealed containers and bundles, fully identified with manufacturer's name, brand, type, and grade. Store in a dry, well ventilated space, protected from the weather, under cover and off the ground.

E. JOB CONDITIONS

- 1. Installer must examine the substrates and the spaces to receive gypsum drywall and the conditions under which gypsum drywall is to be installed and shall notify the Contractor, in writing, of conditions detrimental to the proper and timely completion of the work. Do not proceed with the installation until unsatisfactory conditions have been corrected in a manner acceptable to the installer.
- 2. Maintain ambient temperatures at not less than 55 degrees F for the period of 24 hours before drywall finishing, during installation, and until compounds are dry.

PAGE 09 21 16 - 2 SEC. 09 21 16 GYPSUM BOARD ASSEMBLIES

F. PRODUCTS

1. Metal Support Materials:

- a. To the extent not otherwise indicated, comply with Gypsum Association Specification GA 203 "Installation of Screw-Type Steel Framing." Members to receive gypsum board (as specified and recommended), for metal system supporting gypsum drywall work.
- b. Drywall Suspension System: Armstrong Contract Interiors Drywall System.
 - 1. Hangers shall be 3/8" threaded steel rods. Include all fasteners and accessories.
- c. Studs: 1-1/2 x 3-5/8 steel as furnished under Carpentry, except as otherwise indicated.
- d. <u>Runners</u>: Match studs, type recommended by stud manufacturer for floor and ceiling support of studs and for vertical abutment of drywall work at other work.
- e. <u>Stud System Accessories</u>: Provide stud manufacturer's standard clips, shoes, ties, reinforcements, fasteners, and other accessories as needed for a complete stud system. Horizontal reinforcement shall be provided as per manufacturer's published recommendations for height of various assemblies.
- f. <u>Fasteners:</u> Type and size recommended by furring manufacturer for the substrate and application indicated.
- g. Screw-type metal stud framing is to be designed to support all dead and live loads.
- 2. <u>Gypsum Board Products</u>: To the extent not otherwise indicated, comply with GA-216 as specified and recommended:
 - a. Fiber Reinforced Gypsum Board Provide at all locations except where noted otherwise.
 - 1. Manufacturer: Standard Specified: Abuse Resistant VHI Firecode X, as manufactured by USG.
 - a. Acceptable Manufacturers:
 - 1. BPB America, Inc.
 - 2. Georgia Pacific Gypsum
 - 3. National Gypsum Co.
 - 4. U.S. Gypsum
 - 2. Provide products that meet or exceed the requirements of ASTM C1278 and physical properties of ASTM C36.
 - 3. Panel Thickness: 5/8" with tapered edges.
 - b. Gypsum Wall Board: Type "X" (fire-resistive) gypsum drywall with tapered long edges.
 - 1. Sheet Size: Maximum length available which will minimize end joints.
 - 2. Thickness: 5/8" except where otherwise indicated.
 - 3. Manufacturers:
 - a. BPB America, Inc.
 - b. Georgia Pacific Gypsum
 - c. National Gypsum Co.
 - d. U.S. Gypsum

3. Trim Accessories:

a. Manufacturer's standard galvanized steel beaded units with flanges for concealment in joint compound, including corner beads, edge trim, and control joints; except provide semi-finishing type (flange not concealed) where indicated.

4. Joint Treatment Materials:

- a. ASTM C475, type recommended by the manufacturer for the application indicated, except as otherwise indicated.
- b. <u>Joint Tape</u>: Perforated type.
- c. Joint Compound: Ready-mixed vinyl type for interior use.

5. Miscellaneous Material:

- a. Provide auxiliary materials for gypsum drywall work of the type and grade recommended by the manufacturer of the gypsum board.
- b. Gypsum Board Fasteners: Comply with GA-216.
- c. <u>Concealed Acoustical Sealant</u>: Mastic type, non-shrinking, non-drying, non-migrating, and non-staining.

PAGE 09 21 16 - 3 SEC. 09 21 16 GYPSUM BOARD ASSEMBLIES

- d. Exposed Acoustical Sealant: Latex, acrylic, or acrylic-latex type, permanently elastic and paintable.
- e. Sound Insulation: See Division 7 Insulation.

G. EXECUTION

- 1. Installation of metal support systems:
 - a. To the extent not otherwise indicated, comply with GA-216 and manufacturer's instructions.
 - b. Install supplementary framing, runners, furring, blocking, and bracing at opening and terminations in the work and at locations required to support fixtures, equipment, services, heavy trim, furnishings, and similar work which cannot be adequately supported directly on gypsum board alone.
- 2. General Gypsum Board Installation Requirements:
 - a. Meet at the project site with the installers of related work and review the coordination and sequencing of work to ensure that everything to be concealed by gypsum drywall has been accomplished and that chases, access panels, openings, supplementary framing and blocking, and similar provisions have been completed.
 - b. Install sound insulation if indicated, prior to gypsum board.
 - c. Install wall/partition boards vertically to avoid end-butt joints wherever possible. At high walls, install boards horizontally with end joints staggered over studs.
 - d. Space fasteners in gypsum boards in accordance with GA-216 and manufacturer's recommendations, except as otherwise indicated.
- 3. Installation of Drywall Trim Accessories:
 - a. Where feasible, use the same fasteners to anchor trim accessory flanges as required to fasten gypsum board to the supports. Otherwise, fasten flanges by nailing or stapling in accordance with manufacturer's instructions and recommendations.
 - b. Install metal corner beads to external corners of drywall work.
 - c. Install metal edge trim whenever edge of gypsum board would otherwise be exposed or semi-exposed.
- 4. Installation of Drywall Finishing: Comply with ASTM C 840 and GA-216 for Level 5 finish for all gypsum board exposed to view.
 - a. Apply treatment at gypsum board joints (both directions, flanges, of trim accessories, penetration, fastener heads, surface defects, and elsewhere as required to prepare work for decoration). Prefill open joints and rounded or beveled edges, using type of compound recommended by manufacturer.
 - b. Apply joint tape at between gypsum boards, except where a trim accessory is indicated.
 - c. Apply joint compound in three coats (not including prefill of openings in base) and sand between last two coats and after last coat.
 - d. Refer to other section for decorative finishes to be applied to drywall work.

H. PROTECTION OF WORK

1. Installer shall advise contractor of required procedures for protection of the gypsum drywall work from damage and deterioration during the remainder of the construction period.

END OF SECTION 09 21 16

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SECTION 09 22 16 - NON-STRUCTURAL METAL FRAMING

A. RELATED DOCUMENTS

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

B. SUMMARY

- 1. This Section includes the following:
 - a. Wall Studs.
 - b. Bracing, fasteners, and related accessories for light-gauge, non-load-bearing metal elements.

2. Related Sections include the following:

- a. Division 5 Section "Structural Steel" for masonry shelf angles and connections.
- b. Division 5 Section "Steel Deck" for metal decking.
- c. Division 6 Section "Carpentry" for wall sheathing or roof sheathing using wood-based products.
- d. Division 7 for insulation, roof deck assemblies, shingles, and metal roofing.

C. <u>DEFINI</u>TIONS

- 1. Minimum Uncoated Steel Thickness: Minimum uncoated thickness of cold-formed framing delivered to the Project site shall be not less than 95 percent of the thickness used in the cold-formed framing design. Lesser thicknesses shall be permitted at bends due to cold forming.
- 2. Producer: Entity that produces steel sheet coil fabricated into cold-formed members.

D. PERFORMANCE REQUIREMENTS

- Structural Performance: Where cold-formed metal framing sizes are not indicated on drawings, provide cold-formed metal framing capable of withstanding design loads within limits and under conditions indicated.
 - a. Design framing systems to provide for movement of framing members without damage or overstressing, sheathing failure, connection failure, undue strain on fasteners and anchors, or other detrimental effects when subject to a maximum ambient temperature change of 120 deg F (67 deg C).
 - 1. Upward and downward movement of 1/2 inch.

E. SUBMITTALS

- 1. Product Data: For each type of cold-formed metal framing product and accessory indicated.
- 2. Shop Drawings: Show layout, spacings, sizes, thicknesses, and types of cold-formed metal framing; fabrication; and fastening and anchorage details, including mechanical fasteners. Show reinforcing channels, opening framing, supplemental framing, strapping, bracing, bridging, splices, accessories, connection details, and attachment to adjoining Work.
 - a. For cold-formed metal framing indicated to comply with design loads, include structural analysis data signed and sealed by the qualified professional engineer responsible for their preparation.
- 3. Mill certificates signed by steel sheet producer [or test reports from a qualified independent testing agency] indicating steel sheet complies with requirements.
- 4. Welding Certificates: Copies of certificates for welding procedures and personnel.
- 5. Qualification Data: For firms and persons specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include lists of completed projects with project names and addresses, names and addresses of architects and owners, and other information specified.
- 6. Product Test Reports: From a qualified testing agency indicating that each of the following complies with requirements, based on comprehensive testing of current products:
 - a. Power-actuated anchors.

- b. Mechanical fasteners.
- c. Vertical deflection clips.
- d. Miscellaneous structural clips and accessories.
- 7. Research/Evaluation Reports: Evidence of cold-formed metal framing's compliance with The Ohio Building Code.

F. QUALITY ASSURANCE

- 1. Installer Qualifications: An experienced installer who has completed cold-formed metal framing 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.
- 2. AISI Specifications: Comply with AISI's "Specification for the Design of Cold-Formed Steel Structural Members" for calculating structural characteristics of cold-formed metal framing.
 - a. CCFSS Technical Bulletin: "AISI Specification Provisions for Screw Connections."

G. <u>DELIVERY</u>, <u>STORAGE</u>, <u>AND HANDLING</u>

- 1. Protect cold-formed metal framing from corrosion, deformation, and other damage during delivery, storage, and handling.
- 2. Store cold-formed metal framing, protect with a waterproof covering, and ventilate to avoid condensation.

H. MANUFACTURERS

- 1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering coldformed metal framing that may be incorporated into the Work include, but are not limited to, the following:
 - a. Allied American Studco, Inc.
 - b. Angeles Metal Systems.
 - c. California Expanded Metal Products Co.
 - d. California Metal Systems, Inc.
 - e. Clark Steel Framing Industries.
 - f. Consolidated Fabricators Corp.
 - g. Consolidated Systems, Inc.
 - h. Dale Industries, Inc.
 - i. Design Shapes in Steel.
 - j. Dietrich Industries, Inc.
 - k. Knorr Steel Framing Systems.
 - 1. MarinoWare; Div. of Ware Industries, Inc.
 - m. Steel Construction Systems.
 - n. Unimast, Inc.
 - o. United Metal Products, Inc.

I. MATERIALS

- 1. Comply with ASTM C955-00.
- 2. Steel Sheet: ASTM A 653/A 653M, structural steel, zinc coated, of grade and coating as follows:
 - a. Grade: 40 (yield point 40,000 psi) for units 16-gauge and heavier. Grade: 33 (yield point 33,000 psi) for units 18-gauge and lighter.
 - b. Coating: Galvanized ASTM A525 [G60].

J. WALL STUDS

1. Steel Studs: Manufacturer's standard C-shaped steel sections, of web depths indicated, with stiffened flanges, complying with ASTM C 955, and as follows:

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- a. Minimum Uncoated-Steel Thickness: As indicated on drawings.
- b. Flange Width: As indicated on drawings.
- c. Section Properties: As indicated on drawings.

K. FRAMING ACCESSORIES

- 1. Fabricate steel-framing accessories of the same material and finish used for framing members, with a minimum yield strength of 33,000 psi (230 MPa).
- 2. Provide accessories of manufacturer's standard thickness and configuration, unless otherwise indicated, as follows:
 - a. Supplementary framing.
 - b. Bracing, bridging, and solid blocking.
 - c. Web stiffeners.
 - d. End clips.
 - e. Gusset plates.
 - f. Stud kickers, knee braces, and girts.
 - g. Joist hangers and end closures.
 - h. Hole reinforcing plates.
 - i. Backer plates.

L. ANCHORS, CLIPS, AND FASTENERS

- 1. Steel Shapes and Clips: ASTM A 36/A 36M, zinc coated by hot-dip process according to ASTM A 123.
- 2. Anchor Bolts: ASTM F 1554, Grade 36, threaded carbon-steel headless, hooked bolts and carbon-steel nuts; and flat, hardened-steel washers; zinc coated by hot-dip process according to ASTM A 153/A 153M, Class C.
- 3. Power-Actuated Anchors: Fastener system of type suitable for application indicated, fabricated from corrosion-resistant materials, with capability to sustain, without failure, a load equal to 10 times design load, as determined by testing per ASTM E 1190 conducted by a qualified independent testing agency.
- 4. Mechanical Fasteners: Corrosion-resistant-coated, self-drilling, self-threading steel drill screws.
 - a. Head Type: Low-profile head beneath sheathing, manufacturer's standard elsewhere.
- 5. Welding Electrodes: Comply with AWS standards.

M. MISCELLANEOUS MATERIALS

1. Galvanizing Repair Paint: SSPC-Paint 20 or DOD-P-21035.

N. FABRICATION

- 1. Fabricate cold-formed metal framing and accessories plumb, square, and true to line, and with connections securely fastened, according to manufacturer's written recommendations and requirements in this Section.
 - a. Fabricate framing assemblies using jigs or templates.
 - b. Cut framing members by sawing or shearing; do not torch cut.
 - c. Fasten cold-formed metal framing members by screw fastening, as standard with fabricator. Wire tying of framing members is not permitted.
 - 1. Locate mechanical fasteners and install according to Shop Drawings, with screw penetrating joined members by not less than three exposed screw threads.
 - d. Fasten other materials to cold-formed metal framing by screw fastening, according to Shop Drawings.
- 2. Reinforce, stiffen, and brace framing assemblies to withstand handling, delivery, and erection stresses. Lift fabricated assemblies to prevent damage or permanent distortion.
- 3. Fabrication Tolerances: Fabricate assemblies level, plumb, and true to line to a maximum allowable tolerance variation of 1/8 inch in 10 feet (1:960) and as follows:

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- a. Spacing: Space individual framing members no more than plus or minus 1/8 inch (3 mm) from plan location. Cumulative error shall not exceed minimum fastening requirements of sheathing or other finishing materials.
- b. Squareness: Fabricate each cold-formed metal framing assembly to a maximum out-of-square tolerance of 1/8 inch (3 mm).

O. EXAMINATION

1. Examine supporting substrates and abutting structural framing for compliance with requirements for installation tolerances and other conditions affecting performance. Proceed with installation only after unsatisfactory conditions have been corrected.

P. INSTALLATION, GENERAL

- 1. Cold-formed metal framing may be shop or field fabricated for installation, or it may be field assembled.
- 2. Install cold-formed metal framing according to ASTM C 1007, unless more stringent requirements are indicated.
- 3. Install shop- or field-fabricated, cold-formed framing and securely anchor to supporting structure.
- 4. Install cold-formed metal framing and accessories plumb, square, and true to line, and with connections securely fastened, according to manufacturer's written recommendations and requirements in this Section.
 - a. Cut framing members by sawing or shearing; do not torch cut.
 - b. Fasten cold-formed metal framing members by screw fastening, as standard with fabricator. Wire tying of framing members is not permitted.
 - 1. Locate mechanical fasteners and install according to Shop Drawings, with screw penetrating joined members by not less than three exposed screw threads.
 - 2. Reinforce connections and attachments with fasteners in direct tension (pull out) with minimum 0.0538 inch 16-gauge cover plates.
- 5. Install framing members in one-piece lengths, unless splice connections are indicated for track or tension members.
- 6. Install temporary bracing and supports to secure framing and support loads comparable in intensity to those for which structure was designed. Maintain braces and supports in place, undisturbed, until entire integrated supporting structure has been completed and permanent connections to framing are secured.
- 7. Do not bridge building expansion and control joints with cold-formed metal framing. Independently frame both sides of joints.
- 8. Fasten hole reinforcing plate over web penetrations that exceed size of manufacturer's standard punched openings.
- 9. Erection Tolerances: Install cold-formed metal framing level, plumb, and true to line to a maximum allowable tolerance variation of 1/8 inch in 10 feet (1:960) and as follows:
 - a. Space individual framing members no more than plus or minus 1/8 inch (3 mm) from plan location.

R. FIELD QUALITY CONTROL

1. Remove and replace Work that does not comply with specified requirements.

S. REPAIRS AND PROTECTION

- 1. Galvanizing Repairs: Prepare and repair damaged galvanized coatings on fabricated and installed cold-formed metal framing with galvanized repair paint according to ASTM A 780 and manufacturer's written instructions.
- 2. Protect paper-surfaced gypsum sheathing that will be exposed to weather for more than 30 days by covering exposed exterior surface of sheathing with a securely fastened air-infiltration barrier. Apply covering immediately after sheathing is installed.

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- 3. Protect cutouts, corners, and joints in sheathing by filling with a flexible sealant or by applying tape recommended by sheathing manufacturer at time sheathing is applied.
- 4. Provide final protection and maintain conditions, in a manner acceptable to manufacturer and Installer, that ensure cold-formed metal framing is without damage or deterioration at time of Substantial Completion.

END OF SECTION 09 22 16

SECTION 09 32 13 - TILE WORK

A. DESCRIPTION OF WORK

1. The extent of tile work is shown on the Drawings and in schedules. The work generally includes all floor paving and wall tile work, including preparation and accessories.

B. RELATED SECTIONS

1. Section 07 92 00 – Joint Sealants

C. <u>REFERENCES</u>

- 1. ANSI A108.1A, 1999 Specifications for Installation of Ceramic Tile in the Wet-Set Method with Portland Cement Mortar.
- 2. ANSI A108.1B, 1999 Specifications for Installation of Ceramic Tile on a Cured Portland Cement Mortar Setting Bed with Dry-Set or Latex Portland Cement Mortar.
- 3. ANSI A108.1C, 1999 Specifications for Contractors Option: Installation of Ceramic Tile in the Wet-Set Method with Portland Cement Mortar -or- Installation of Ceramic Tile on a Cured Portland Cement Mortar Setting Bed with Dry-Set or Latex Portland Cement Mortar.
- 4. ANSI A108.4, 1999 Specifications for Ceramic Tile Installed with Organic Adhesives or Water-Cleanable Tile Setting Epoxy Adhesive.
- 5. ANSI A108.5, 1999 Specifications for Ceramic Tile Installed with Dry-Set Portland Cement Mortar or Latex-Portland Cement Mortar.
- 6. ANSI A108.6, 1999 Specifications for Ceramic Tile Installed with Chemical-Resistant, Water-Cleanable Tile-Setting and -Grouting Epoxy.
- 7. ANSI A108.9, 1999 Specifications for Ceramic Tile Installed with Modified Epoxy Emulsion Mortar/Grout.
- 8. ANSI A108.10, 1999 Specifications for Installation of Grout in Tilework.
- 9. ANSI A118.1, 1999 Standard Specification for Dry-Set Portland Cement Mortar.
- 10. ANSI A118.3, 1999 Chemical-Resistant, Water-Cleanable, Tile-Setting and -Grouting Epoxy and Water-Cleanable Tile-Setting Epoxy Adhesive.
- 11. ANSI A118.4, 1999 Latex-Portland Cement Mortar.
- 12. ANSI A118.6, 1999 Standard Ceramic Tile Grouts.
- 13. ANSI A118.7, 1999 Polymer Modified Cement Grouts.
- 14. ANSI A118.8, 1999 Modified Epoxy Emulsion Mortar/Grout.
- 15. ANSI A118.9, 1999 Test Methods and Specifications for Cementitious Backer Units
- 16. ANSI A118.10, 1999 Load bearing, Bonded, Waterproof Membranes for Thinset Ceramic Tile and Dimensional Stone.
- 17. ANSI A136.1, 1999 Organic Adhesives for Installation of Ceramic Tile.
- 18. ANSI A137.1, 1988 Specifications for Ceramic Tile.
- 19. ASTM C50 Standard Specification for Portland Cement.
- 20. ASTM C144 Standard Specification for Aggregate for Masonry Mortar.
- 21. ASTM C207 Standard Specification for Hydrated Lime for Masonry Purposes.
- 22. ASTM C847 Standard Specification for Metal Lath.
- 23. ASTM C1028 Test method for Determining the Static Coefficient of Friction or Ceramic Tile and Other Like Surfaces by the Horizontal Dynamometer Pull meter Method.
- 24. ASTM D4397 Specification for Polyethylene Sheeting for Construction, Industrial, and Agricultural Applications.
- 25. TCA (HB) Handbook for Ceramic Tile Installation; Tile Council of America, Inc.

D. SUBMITTALS

- 1. Submit under provisions of Section 01 33 00.
- 2. Manufacturer's data sheets on each product to be used, including:

- a. Preparation instructions and recommendations.
- b. Storage and handling requirements and recommendations.
- c. Installation methods.
- 3. Shop Drawings: Indicate tile layout, patterns, color arrangement, perimeter conditions, junctions with dissimilar materials, control and expansion joints, thresholds, ceramic accessories, and setting details.
- 4. Selection Samples: Samples of actual tiles for selection.
- 5. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.
- 6. Maintenance Data: Include recommended cleaning methods, cleaning materials, stain removal methods, and polishes and waxes.

E. QUALITY ASSURANCE

- 1. Furnish tile conforming with Standard Grade requirements of ANSI A 137.1.
- 2. When using setting and grouting material manufactured under TCA license, include identification together with formula on each container.
- 3. Provide materials obtained from only one source for each type and color of tile, mortar, adhesive and grout.
- 4. Handle, store, mix, and apply all materials in compliance with manufacturer's instructions.
- 5. Installer Qualifications: Company specializing in performing the work of this section with minimum 10 years experience.

F. PERFORMANCE REQUIREMENTS

- 1. Static Coefficient of Friction: Tile on walkway surfaces shall be provided with the following values as determined by testing in conformance with ASTM C 1028.
 - a. Level Surfaces: Minimum of 0.6 (Wet).
 - b. Step Treads: Minimum of 0.6 (Wet).
 - c. Ramp Surfaces: Minimum of 0.8 (Wet).

F. <u>DELIVERY AND STORAGE</u>

- 1. Deliver packaged materials and store in original containers with seals unbroken and labels intact until time of use, in accordance with manufacturer's instructions.
- 2. Protect adhesives and liquid additives from freezing or overheating in accordance with manufacturer's instructions.
- 3. Store tile and setting materials on elevated platforms, under cover and in a dry location and protect from contamination, dampness, freezing or overheating.

G. ENVIRONMENTAL REQUIREMENTS

- 1. Do not install adhesives in an unventilated environment.
- 2. Maintain ambient and substrate temperature of 50 degrees F (10 degrees C) during installation of mortar materials.

H. MATERIALS

- 1. General: Provide tile that complies with ANSI A137.1 for types, compositions and other characteristics indicated. Provide tile in the locations and of the types colors and pattern indicated on the Drawings, and specified herein. Tile shall also be provided in accordance with the following:
 - a. Factory Blending: For tile exhibiting color variations within the ranges selected under Submittal of samples, blend tile in the factory and package so tile taken from one package shows the same range of colors as those taken from other packages.
 - b. Mounting: For factory mounted tile, provide back or edge mounted tile assemblies as standard with the manufacturer, unless otherwise specified.
 - c. Factory Applied Temporary Protective Coatings: Where indicated under tile type, protect exposed surfaces of tile against adherence of mortar and grout by precoating with a continuous film of

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petroleum paraffin wax applied hot. Do not coat unexposed tile surfaces.

- 2. Floor Tile: Crossville "Basalt" 12" x 12" Porcelain Tile. See Drawings for tile and grout colors.
- 3. <u>Ceramic Wall Tile</u>: See Drawings for tile and grout colors.
 - a. <u>Tile Base</u>: Daltile Semi-Gloss Ceramic Wall Tile, 6" x 6" Coved Base Ceramic Tile.
 - b. Wall Tile: Semi-Gloss Ceramic Wall Tile, 6" x 6" Field Ceramic Tile.
 - c. Wall Tile Trim: Semi-Gloss Ceramic Wall Tile, 2" x 6" Bullnose Ceramic Tile.

4. <u>Setting Materials</u>:

- a. Epoxy Adhesive: ANSI A118.3, thinset bond type.
- b. Epoxy Grout: ANSI A118.8, 100 percent solids epoxy grout; color as selected.
- 5. <u>Grout sealer</u>: Provide and apply grout manufacturer's recommended standard water-based penetrating sealer for all grout surfaces. Sealant shall be resistant to all water based stains.

I. EXAMINATION

- 1. Installer must examine the areas and conditions under which tile work is to be installed and notify the Contractor in writing of conditions detrimental to the proper and timely completion of the work. Do not proceed with the work until unsatisfactory conditions have been corrected.
- 2. Verify that wall surfaces are free of substances which would impair bonding of setting materials, smooth and flat within tolerances specified in ANSI A137.1, and are ready to receive tile.
- 3. Verify that sub-floor surfaces are dust-free, and free of substances which would impair bonding of setting materials to sub-floor surfaces, and are smooth and flat within tolerances specified in ANSI A137.1.
- 4. Verify that concrete sub-floor surfaces are ready for tile installation by testing for moisture emission rate and alkalinity; obtain instructions if test results are not within limits recommended by tile manufacturer and setting materials manufacturer.
- 5. Verify that required floor-mounted utilities are in correct location.

J. PREPARATION

- 1. Protect surrounding work from damage.
- 2. Remove any curing compounds or other contaminates.
- 3. Vacuum clean surfaces and damp clean.
- 4. Seal substrate surface cracks with filler. Level existing substrate surfaces to acceptable flatness tolerances.
- 5. Install cementitious backer board in accordance with ANSI A108.11 and board manufacturer's instructions. Tape joints and corners, cover with skim coat of dry-set mortar to a feather edge.
- 6. Prepare substrate surfaces for adhesive installation in accordance with adhesive manufacturer's instructions.

K. INSTALLATION

1. General

- a. Install tile and grout in accordance with applicable requirements of ANSI A108.1 through A108.13, manufacturer's instructions, and TCA Handbook recommendations. Maintain minimum temperature limits and installation practices as recommended by proprietary mortar and grout materials manufacturer.
- b. Lay tile to pattern indicated. Arrange pattern so that a full tile or joint is centered on each wall and that no tile less than 1/2 width is used. Do not interrupt tile pattern through openings.
- c. Extend tile work into recesses and under equipment and fixtures to form a complete covering without interruptions, except as otherwise shown. Terminate work neatly at obstructions, edges, and corners without disruption of pattern or joint alignments. Cut and fit tile to penetrations through tile, leaving sealant joint space. Form corners and bases neatly. Align floor joints.
- d. Place tile joints uniform in width, subject to variance in tolerance allowed in tile size. Make joints watertight, without voids, cracks, excess mortar, or excess grout.
- e. Form internal angles square and external angles bullnosed.
- f. Install thresholds where indicated, or where intended for material transitions.

- g. Sound tile after setting. Replace hollow sounding units.
- h. Keep expansion joints free of adhesive or grout. Apply sealant to joints.
- i. Allow tile to set for a minimum of 48 hours prior to grouting.
- j. Grout tile joints. Use standard grout unless otherwise indicated.
- k. Apply sealant to junction of tile and dissimilar materials and junction of dissimilar planes.
- 2. Installation Floors, Thin-set Method
 - a. Over interior concrete substrates, install in accordance with TCA Handbook Method F113, dry-set or latex-portland cement bond coat, with standard grout, unless otherwise indicated.
- 3. Installation Wall Tile
 - a. Over cementitious backer units on studs, install in accordance with TCA Handbook Method W244, using membrane at toilet rooms.
 - b. Over cementitious backer units install in accordance with TCA Handbook Method W223, organic adhesive.
 - c. Over gypsum wallboard on metal studs install in accordance with TCA Handbook Method W243, thin-set with dry-set or latex-portland cement bond coat, unless otherwise indicated.
 - d. Over interior concrete and masonry install in accordance with TCA Handbook Method W202, thin-set with dry-set or latex-portland cement bond coat.

L. CLEANING AND PROTECTION OF FINISHED WORK

- 1. Clean all tile and grout surfaces in accordance with manufacturer's written instructions. Use only products recommended by manufacturer for types of surfaces to be cleaned.
- 2. Do not permit traffic over finished floor surface for 72 hours after installation.
- 3. Cover floors with kraft paper and protect from dirt and residue from other trades.
- 4. Where floor will be exposed for prolonged periods cover with plywood or other similar type walkways.
- 5. Leave finished installation clean and free of cracked shipped, broken, unbonded, or otherwise defective tile work.

END OF SECTION 09 32 13

PAGE 09 51 13 - 1 SEC. 09 51 13 ACOUSTICAL CEILING SYSTEM

SECTION 09 51 13 - ACOUSTICAL CEILING SYSTEM

A. SUMMARY

- 1. Section Includes:
 - a. Acoustical ceiling panels.
 - b. Exposed grid suspension system.
 - c. Aluminum custom trim.
 - d. Wire hangers, fasteners, main runners, cross tees, wall angle moldings, and hold-down clips.
- 2. Related Sections:
 - a. Section 09 21 16 Gypsum Board Assemblies
 - b. Divisions 22 and 24 Mechanical Work
 - c. Division 26 Sections Electrical Work
- 3. Substitutions
 - a. Requests shall be in accordance with Division 1.

B. REFERENCES

- 1. American Society for Testing and Materials (ASTM):
 - a. ASTM A 1008 Standard Specification for Steel, Sheet, Cold Rolled, Carbon, Structural, High-Strength Low-Alloy and High-Strength Low-Alloy with Improved Formability.
 - b. ASTM A 641 Standard Specification for Zinc-Coated (Galvanized) Carbon Steel Wire.
 - c. ASTM A 653 Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) by the Hot-Dip Process.
 - d. ASTM C 423 Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method.
 - e. ASTM C 635 Standard Specification for Metal Suspension Systems for Acoustical Tile and Lay-in Panel Ceilings.
 - f. ASTM C 636 Recommended Practice for Installation of Metal Ceiling Suspension Systems for Acoustical Tile and Lay-in Panels.
 - g. ASTM E 84 Standard Test Method for Surface Burning Characteristics of Building Materials.
 - h. ASTM E 1414 Standard Test Method for Airborne Sound Attenuation Between Rooms Sharing a Common Ceiling Plenum.
 - i. ASTM E 1111 Standard Test Method for Measuring the Interzone Attenuation of Ceilings Systems.
 - j. ASTM E 1264 Classification for Acoustical Ceiling Products.
 - k. ASTM E 1477 Standard Test Method for Luminous Reflectance Factor of Acoustical Materials by Use of Integrating-Sphere Reflectometers.
 - 1. ASTM D 3273 Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber.
 - m. ASTM E 119 Standard Test Methods for Fire Tests of Building Construction and Material.
- 2. ASHRAE Standard 62.1-2004, "Ventilation for Acceptable Indoor Air Quality"

C. SUBMITTALS

- 1. Product Data: Submit manufacturer's technical data for each type of acoustical ceiling unit and suspension system required.
- 2. Samples: Minimum 6 inch x 6 inch samples of specified acoustical panel; 8 inch long samples of exposed wall molding and suspension system, including main runner and 4 foot cross tees.
- 3. Shop Drawings: Layout and details of acoustical ceilings. Show locations of items which are to be coordinated with, or supported by the ceilings.
- 4. Certifications: Manufacturer's certifications that products comply with specified requirements, including laboratory reports showing compliance with specified tests and standards. For acoustical performance, each carton of material must carry an approved independent laboratory classification of NRC, CAC, and AC.

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5. If the material supplied by the acoustical subcontractor does not have an Underwriter's Laboratory classification of acoustical performance on every carton, subcontractor shall be required to send material from every production run appearing on the job to an independent or NVLAP approved laboratory for testing, at the architect's or owner's discretion. All products not conforming to manufacturer's current published values must be removed, disposed of and replaced with complying product at the expense of the Contractor performing the work.

D. QUALITY ASSURANCE

- 1. Single-Source Responsibility: Provide acoustical panel units and grid components by a single manufacturer.
- 2. Fire Performance Characteristics: Identify acoustical ceiling components with appropriate markings of applicable testing and inspecting organization.
 - a. Surface Burning Characteristics: As follows, tested per ASTM E 84 and complying with ASTM E 1264 for Class A products.
 - 1. Flame Spread: 25 or less
 - 2. Smoke Developed: 50 or less
 - b. Fire Resistance Ratings: As indicated by reference to design designations in UL Fire Resistance Directory, for types of assemblies in which acoustical ceilings function as a fire protective membrane and tested per ASTM E 119.
 - 1. Protect lighting fixtures and air ducts to comply with requirements indicated for rated assembly.

E. DELIVERY, STORAGE, AND HANDLING

- 1. Deliver acoustical ceiling units to project site in original, unopened packages and store them in a fully enclosed space where they will be protected against damage from moisture, direct sunlight, surface contamination, and other causes.
- 2. Before installing acoustical ceiling units, permit them to reach room temperature and a stabilized moisture content.
- 3. Handle acoustical ceiling units carefully to avoid chipping edges or damaged units in any way.

F. PROJECT CONDITIONS

- 1. Space Enclosure:
 - a. All ceiling products and suspension systems must be installed and maintained in accordance with manufacturer's written installation instructions for that product in effect at the time of installation and best industry practice. Prior to installation, the ceiling product must be kept clean and dry, in an environment that is between 32oF (0o C) and 120oF (49o C) and not subject to abnormal conditions. Abnormal conditions include exposure to chemical fumes, vibrations, moisture from conditions such as building leaks or condensation, excessive humidity, or excessive dirt or dust buildup.
 - b. <u>Standard Ceilings</u>: Do not install interior ceilings until space is enclosed and weatherproof; wet work in place is completed and nominally dry; work above ceilings is complete; and ambient conditions of temperature and humidity are continuously maintained at values near those intended for final occupancy. Building areas to receive ceilings shall be free of construction dust and debris.

G. WARRANTY

- 1. Acoustical Panel: Submit a written warranty executed by the manufacturer, agreeing to repair or replace acoustical panels that fail within the warranty period. Failures include, but are not limited to:
 - a. Acoustical Panels: Sagging and warping as a result of defects in materials or factory workmanship.
 - b. Grid System: Rusting and manufacturer's defects
 - c. Acoustical Panels designated as inherently resistive to the growth of micro-organisms: Visible sag and will resist the growth of mold/mildew and gram positive and gram negative odor and stain causing bacteria.
- 2. Warranty Period:

PAGE 09 51 13 - 3 SEC. 09 51 13 ACOUSTICAL CEILING SYSTEM

- a. Acoustical panels: Ten (10) years from date of substantial completion.
- b. Grid: Ten years from date of substantial completion.
- c. Acoustical panels and grid systems with HumiGuard Plus or HumiGuard Max performance supplied by one source manufacturer is thirty (30) years from date of substantial completion.
- 3. The Warranty shall not deprive the Owner of other rights the Owner may have under other provisions of the Contract Documents and will be in addition to and run concurrent with other warranties made by the Contractor under the requirements of the Contract Documents.

H. MAINTENANCE

- 1. Extra Materials: Deliver extra materials to Owner. Furnish extra materials described below that match products installed. Packaged with protective covering for storage and identified with appropriate labels.
 - a. Acoustical Ceiling Units: Furnish quality of full-size units equal to 5.0 percent of amount installed.
 - b. Exposed Suspension System Components: Furnish quantity of each exposed suspension component equal to 5.0 percent of amount installed.

I. MANUFACTURERS / PRODUCTS

- 1. Acoustical Panels 2 x 4
 - a. Surface Texture: Mediumb. Composition: Mineral Fiber
 - c. Color: Whited. Size: 48in X 24in
 - e. Noise Reduction Coefficient (NRC): ASTM C 423; Classified with UL label on product carton, 0.55.
 - f. Ceiling Attenuation Class (CAC): ASTM C 1414; Classified with UL label on product carton, 35
 - g. Flame Spread: ASTM E 1264; Class A (UL)
 - h. Light Reflectance (LR): ASTM E 1477; White Panel: Light Reflectance: 0.84.
 - i. Dimensional Stability: Temperature is between 32°F (0° C) and 120°F (49° C). It is not necessary for the area to be enclosed or for HVAC systems to be functioning. All wet work (plastering, concrete, etc) must be complete and dry.
 - j. Antimicrobial Protection: Resistance against the growth of mold/mildew and gram positive and gram negative odor and stain causing bacteria.
 - k. Acceptable Products:
 - 1. Armstrong Contract Interiors Angled Tegular Lay-in "Fine Fissured" #1733 with "Prelude XL" 15/16" Exposed Tee Grid.
- 2. Aluminum Custom Trim Extruded
 - a. Product/Manufacturer: Axiom Trim Channel: Axiom Knife Edge 5" Straight Armstrong World Industries, Incorporated
 - b. Commercial quality extruded aluminum alloy 6063 trim channel, factory finished in baked polyester paint. Commercial quality galvanizedsteel unfinished T-bar connection clips; galvanized steel splice plates.
 - c. Color: White
 - d. Include all manufacturer's accessories, trim channels, and finished inside and outside corner components for complete system.

J. EXAMINATION

1. Do not proceed with installation until all wet work such as concrete, terrazzo, plastering and painting has been completed and thoroughly dried out, unless expressly permitted by manufacturer's printed recommendations.

K. PREPARATION

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- 1. Measure each ceiling area and establish layout of acoustical units to balance border widths at opposite edges of each ceiling. Avoid use of less than half width units at borders, and comply with reflected ceiling plans. Coordinate panel layout with mechanical and electrical fixtures.
- 2. Coordination: Furnish layouts for preset inserts, clips, and other ceiling anchors whose installation is specified in other sections.
 - a. Furnish concrete inserts and similar devices to other trades for installation well in advance of time needed for coordination of other work.

L. INSTALLATION

- 1. Install suspension system and panels in accordance with the manufacturer's instructions, and in compliance with ASTM C 636 and with the authorities having jurisdiction.
- 2. Suspend main beam from overhead construction with hanger wires spaced 4'-0" on center along the length of the main runner. Install hanger wires plumb and straight.
- 3. Install wall moldings at intersection of suspended ceiling and vertical surfaces. Miter corners where wall moldings intersect or install corner caps.
- 4. For reveal edge panels: Cut and reveal or rabbet edges of ceiling panels at border areas and vertical surfaces.
- 5. Install acoustical panels in coordination with suspended system, with edges resting on flanges of main runner and cross tees. Cut and fit panels neatly against abutting surfaces. Support edges by wall moldings.

M. ADJUSTING AND CLEANING

- 1. Replace damaged and broken panels.
- Clean exposed surfaces of acoustical ceilings, including trim, edge moldings, and suspension members.
 Comply with manufacturer's instructions for cleaning and touch up of minor finish damage. Remove and
 replace work that cannot be successfully cleaned and repaired to permanently eliminate evidence of
 damage.

END OF SECTION 09 51 13

SECTION 09 65 13 - RESILIENT RUBBER STAIR TREADS WITH RISERS

A. **SUMMARY**

1. Section includes: Resilient Rubber Stair Tread with Riser.

B. RELATED DOCUMENTS

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

C. SUBMITTALS

- 1. Product Data: For each type of product indicated.
- 2. Samples for Initial Selection: For each type of product indicated.
- 3. Samples for Verification: For each type of product indicated, in manufacturer's standard-size samples of each resilient product color, texture, and pattern required.

D. <u>DELIVERY</u>, <u>STORAGE</u>, <u>AND HANDLING</u>

1. Store resilient products and installation materials in dry spaces protected from the weather, with ambient temperatures maintained within range recommended by Johnsonite, but not less than 55 deg F or more than 85 deg F.

E. PROJECT CONDITIONS

- 1. Install resilient products after other finishing operations, including painting, have been completed.
- 2. Maintain ambient temperatures within range recommended by Johnsonite, but not less than 65 deg F or more than 85 deg F in spaces to receive resilient products during the following time periods:
 - a. 48 hours before installation.
 - b. During installation.
 - c. 48 hours after installation.
- 3. Maintain the ambient relative humidity between 40% and 60% during installation.
- 4. Until Substantial Completion, maintain ambient temperatures within range recommended by manufacturer, but not less than 55 deg F or more than 85 deg F.

F. PRODUCTS

- 1. Resilient Rubber Stair Treads with Risers.
 - a. Standard Specified: Johnsonite Rubber Integrated Stair Tread with Riser with the following physical characteristics:
 - 1. Manufactured from a homogeneous composition of 100% synthetic rubber.
 - 2. Complies with requirements for ASTM F 2169 Standard Specification for Resilient Stair Treads, Type TS, Class 1 and 2, Group 1 and 2.
 - 3. Hardness: ASTM D 2240 Not less than 85 Shore A.
 - 4. Abrasion Resistance: ASTM D 3389 less than 1 gram weight loss.
 - 5. ASTM D 2047, Standard Test Method for Static Coefficient of Friction of Polish- Coated Flooring of 0.6 or greater.
 - 6. ASTM E 648, Standard Test Method for Critical Radiant Flux of 0.45 watts/cm² or greater, Class I.
 - 7. Integrated tread and riser.
 - b. Solid Color Rubber Integrated Stair Tread and Riser:
 - 1. Raised Round surface, solid color integrated stair tread and riser, 2" height hinged Square Nose, tapering .210" to .113", 20" overall width including 13" tread depth with 7" integrated riser, full length of tread.
 - 2. Color as selected by Architect from manufacturer's full range of colors.

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G. INSTALLATION MATERIALS

- 1. Trowelable Leveling and Patching Compounds: Latex-modified, Portland cement based formulation manufactured and warranted by a reputable manufacturer.
- 2. Adhesives: as recommended by manufacturer to meet site conditions.
- 3. Stair Tread and Nose Filler: as recommended by manufacturer to fill nosing substrates that do not conform to tread contours.

H. EXAMINATION

- 1. Examine substrates, with Installer present, for compliance with requirements for maximum moisture content and other conditions affecting performance of the work.
- 2. 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.
- 3. Proceed with installation only after unsatisfactory conditions have been corrected.

I. PREPARATION

- 1. Prepare substrates according to manufacturer's written instructions to ensure adhesion of resilient products.
 - a. Verify that substrates are dry and free of curing compounds, sealers, and hardeners.
 - b. Remove substrate coatings and other substances that are incompatible with adhesives and that contain soap, wax, oil, or silicone, using mechanical methods recommended by manufacturer. Do not use solvents.
 - c. Mechanically remove contamination on the substrate that may cause damage to the resilient flooring material. Permanent and non-permanent markers, pens, crayons, paint, etc., must not be used to write on the back of the flooring material or used to mark the substrate as they could bleed through and stain the flooring material.
 - d. Prepare Substrates according to ASTM F 710 including the following:
 - 1. Moisture Testing: Perform tests recommended by manufacturer. Proceed with installation only after substrates pass testing.
 - a. Perform anhydrous calcium chloride test, ASTM F 1869. Results must not exceed 5 lbs. Moisture Vapor Emission Rate per 1,000 sq. ft. in 24 hours.
 - b. or Perform relative humidity test using in situ probes, ASTM F 2170. Must not exceed 80%.
 - 2. A pH test for alkalinity must be conducted. Results should range between 7 and 9. If the test results are not within the acceptable range of 7 to 9, the installation must not proceed until the problem has been corrected.
 - 3. Alkalinity and Adhesion Testing: Perform tests recommended by manufacturer.
- 2. Fill cracks, holes, depressions and irregularities in the substrate with good quality Portland cement based underlayment leveling and patching compound and remove bumps and ridges to produce a uniform and smooth substrate.
- 3. Floor covering shall not be installed over expansion joints.
- 4. Do not install resilient products until they are same temperature as the space where they are to be installed.
 - a. Move resilient products and installation materials into spaces where they will be installed at least 48 hours in advance of installation.
- 5. Sweep and vacuum clean substrates to be covered by resilient products immediately before installation.

J. RESILIENT STAIR TREAD AND RISER INSTALLATION

- 1. Comply with manufacturer's written instructions for installing resilient accessories.
- 2. Resilient Stair Tread and Nosing:
 - a. Use manufacturer's recommended product to strengthen nosing and fill irregularities in substrates to conform to tread nosing.
 - b. Tightly adhere to substrates throughout length of each piece.

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3. For treads installed as separate, equal-length units, install to produce a flush joint between units.

K. CLEANING AND PROTECTION

- 1. Comply with manufacturer's written instructions for cleaning and protection of resilient products.
- 2. Perform the following operations immediately after completing resilient product installation:
 - a. Remove adhesive and other blemishes from exposed surfaces.
 - b. Sweep and vacuum surfaces thoroughly.
 - c. Damp-mop surfaces to remove marks and soil.
- 3. Protect resilient products from mars, marks, indentations, and other damage from construction operations and placement of equipment and fixtures during remainder of construction period.

END OF SECTION 09 65 13

SECTION 09 65 16 - RUBBER WALL BASE

A. **SUMMARY**

1. Section Includes: Resilient Rubber Wall Base.

B. RELATED DOCUMENTS

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

C. SUBMITTALS

- 1. Product Data: For each type of product indicated.
- 2. Samples for Initial Selection: For each type of product indicated.
- 3. Samples for Verification: For each type of product indicated, in manufacturer's standard-size samples of each resilient product color, texture, and pattern required.

D. DELIVERY, STORAGE, AND HANDLING

1. Store resilient products and installation materials in dry spaces protected from the weather, with ambient temperatures maintained within range recommended by Johnsonite, but not less than 55 deg F or more than 85 deg F.

E. PROJECT CONDITIONS

- 1. Install resilient products after other finishing operations, including painting, have been completed.
- 2. Maintain ambient temperatures within range recommended by Johnsonite, but not less than 65 deg F or more than 85 deg F in spaces to receive resilient products during the following time periods:
 - a. 48 hours before installation.
 - b. During installation.
 - c. 48 hours after installation.
- 3. Maintain the ambient relative humidity between 40% and 60% during installation.
- 4. Until Substantial Completion, maintain ambient temperatures within range recommended by manufacturer, but not less than 55 deg F or more than 85 deg F.

F. RESILIENT WALL BASE

- 1. Traditional Rubber Wall Base, 1/8" thick, as manufactured by Johnsonite.
 - a. Style DC (with toe).
 - b. Height See Drawings.
 - c. Length Coils for seamless installation.
 - d. Color as selected by Architect.
- 2. Manufactured from a proprietary thermoplastic rubber formulation.
- 3. Meets performance requirements for ASTM F 1861 Standard Specification for Resilient Wall Base, Type TP, Group 1.
- 4. ASTM E 648, Standard Test Method for Critical Radiant Flux of 0.45 watts/cm² or greater, Class I.
- 5. ASTM E 84, Standard Test Method for Surface Burning Characteristics of Building Materials, Class A, Smoke <450.
- 6. Flexibility: Does not crack, break, or show any signs of fatigue when bent around a 1 1/4" diameter cylinder when tested according to ASTM F 137 Standard Test Method for Flexibility of Resilient Flooring Materials protocols.
- 7. Color Stability: Meets or exceeds ASTM F 1861 requirements for color stability when tested to ASTM F 1515 Standard Test Method for Measuring Light Stability of Resilient Flooring protocols.

G. INSTALLATION MATERIALS

- 1. Trowelable Leveling and Patching Compounds: Latex-modified, portland cement based formulation manufactured and warranted by a reputable manufacturer.
- 2. Adhesives: as recommended by manufacturer to meet site and substrate conditions.

H. EXAMINATION

- 1. Examine substrates, with Installer present, for compliance with requirements for maximum moisture content and other conditions affecting performance of the work.
- 2. 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.
- 3. Proceed with installation only after unsatisfactory conditions have been corrected.

I. PREPARATION

- 1. Prepare substrates according to manufacturer's written instructions to ensure adhesion of resilient wall base.
- 2. Fill cracks, holes, and depressions in substrates with trowelable leveling and patching compound and remove bumps and ridges to produce a uniform and smooth substrate.
- 3. Move resilient products and installation materials into spaces where they will be installed at least 48 hours in advance of installation.
- 4. Vacuum clean substrates to be covered by resilient products immediately before installation.

I. INSTALLATION

- 1. Comply with manufacturer's written instructions for installing resilient base.
- 2. Apply resilient base to walls, columns, pilasters, casework and cabinets in toe spaces, and other permanent fixtures in rooms and areas where base is required.
- 3. Install resilient base in lengths as long as practicable without gaps at seams and with tops of adjacent pieces aligned.
- 4. Tightly adhere resilient base to substrate throughout length of each piece, with base in continuous contact with horizontal and vertical substrates.
- 5. Do not stretch resilient base during installation.
- 6. Job-formed corners:
 - a. Outside corners: Form by bending without producing discoloration (whitening) at bends.
 - b. Inside corners: Butt one piece to corner then scribe next piece to fit.

J. CLEANING AND PROTECTION

- 1. Comply with manufacturer's written instructions for cleaning and protection of resilient products.
- 2. Perform the following operations immediately after completing resilient product installation:
 - a. Remove adhesive and other blemishes from exposed surfaces.
 - b. Damp-mop surfaces to remove marks and soil.
- 3. Protect resilient products from mars, marks, indentations, and other damage from construction operations and placement of equipment and fixtures during remainder of construction period.

M. MAINTENANCE

- 1. Do not perform manufacturer's recommended maintenance procedures until adhesive has fully cured, no sooner than 72 hours after installation.
- 2. Use only cleaning products recommended by the manufacturer.
- 3. Protect installed product from damage and construction operations and inspect immediately before final acceptance of project.

PAGE 09 65 19- 1 SEC. 09 65 19 RESILIENT RUBBER TILE FLOORING

SECTION 09 65 19 - RESILIENT RUBBER TILE FLOORING

A. SUMMARY OF WORK

1. Furnish and install resilient rubber tile flooring.

B. RELATED SECTIONS:

- 1. Other Specification Sections which directly relate to the work of the section include, but are not limited to, the following:
 - a. Concrete: Refer to Division 3 Concrete sections for cast-in-place concrete, concrete underlayments, slab surface tolerances, vapor barrier for applications on or below grade.

C. <u>REFERENCES</u> (Industry Standards)

- 1. American Society for Testing and Materials (ASTM)
 - a. ASTM D-2047 Static coefficient of friction.
 - b. ASTM D-2240 Material hardness.
 - c. ASTM D-2859 Test method for flammability of finished textile floor covering materials.
 - d. ASTM D-3389 Resistance to tabor abrasion using H-18 wheels, 500 gram load, at 1,000 cycles.
 - e. ASTM E-492 Test method for noise reduction (impact insulation class).
 - f. ASTM E-662 Test method for specific density of smoke generated by solid materials.
 - g. ASTM F-710 Practice for preparing concrete floors and other monolithic floors to receive resilient flooring.
 - h. ASTM F-925 Test method for resistance to chemicals.
 - i. ASTM F-970 Test method for static load limit.
 - j. ASTM F-1344 Standard specification for rubber floor tile.
 - k. ASTM F-1514 Test method for measuring heat stability.
 - 1. ASTM F-1515 Test method for measuring light stability.
 - m. ASTM F-1860 Standard specification for rubber sheet flooring with backing.
 - n. ASTM F-1861 Standard specification for resilient wall base.
 - o. ASTM F-1914 Test method for measuring residual indentation.
- 2. National Fire Protection Association (NFPA)
 - a. NFPA 253 Test method for critical radiant flux of floor covering systems using a radiant energy source.
 - b. NFPA 255 Test method of surface burning characteristics of building materials (Steiner Tunnel Test).
 - c. NFPA 258 Test method for specific density of smoke generated by solid materials.
- 3. Other references
 - a. Americans with Disabilities Act ADA.
 - b. American National Standards Institute ANSI
 - c. ANSI A117.1-1986 Tactile Surface.

D. SUBMITTALS

- 1. Product Data: Submit manufacturer's product data, installation instructions, and maintenance recommendations for each material proposed for use.
- 2. Samples: Submit verification samples of each product specified in color selected for use.
- 3. Certificates: Attesting fire rated materials tested by independent testing agency and comply with specifications.
- 4. Material Safety Data Sheets (MSDS): Submit MSDS for each manufacturer's recommended adhesive proposed for use.

E. QUALITY ASSURANCE

1. Manufacturer: Provide resilient flooring manufactured by a firm with a minimum of 10 years experience in the production of resilient flooring of types equivalent to those specified. Manufacturers proposed for

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use, which are not named in the Section, shall submit evidence of ability to meet performance requirements specified not less than 10 days prior to bid date.

- a. Color Matching: Provide resilient flooring products, including wall base and accessories, from one manufacturer to ensure color matching.
- b. Manufacturer capable of providing field service representation.
- 2. Installer's Qualifications: Installer experienced (minimum of 5 years) to perform work of this Section, who has specialized in the installation of work similar to that required for this project and who is acceptable to the product manufacturer.
- 3. Materials: For each type of material required for the work of this Section, provide primary materials, which are the products of one manufacturer. Provide secondary materials, which are acceptable to the manufacturer of the primary materials. Comply with applicable regulations regarding VOC (volatile organic compound) content of the adhesives.

F. DELIVERY, STORAGE AND HANDLING

- 1. Deliver materials in labeled packages. Store and handle in strict compliance with manufacturer's recommendations. Protect from damage due to weather, excessive temperatures, and construction operations.
- 2. Deliver materials sufficiently in advance of installation to condition materials to room temperature prior to installation.

G. PROJECT CONDITIONS

- 1. Install resilient products after other finishing operations, including painting, have been completed.
- 2. Maintain ambient temperatures within range recommended by manufacturer, but not less than 65 deg F or more than 85 deg F in spaces to receive resilient products during 48 hours prior to, during, and 48 hours after installation.
- 3. Maintain the ambient relative humidity between 40% and 60% during installation.
- 4. Until Substantial Completion, maintain ambient temperatures within range recommended by the manufacturer.

H. WARRANTY

1. Provide manufacturer's standard one-year warranty against defects in manufacturing and workmanship of resilient flooring products. Warranty shall commence at time of building substantial completion.

I. PRODUCTS

- 1. Resilient Rubber Tile Flooring: Standard Specified: MICROTONE Hammered Texture Speckled Rubber Tile, as manufactured by Johnsonite.
 - a. Complies with requirements for ASTM F 1344 Standard Specification for Rubber Floor Tile, Class 1-B
 - b. Manufactured from a homogeneous composition of 100% synthetic rubber.
 - c. Overall thickness: .080" (2.0 mm)
 - d. Tile size: 24" x 24".
 - e. ASTM D 2240 Standard Test Method for Rubber Property—Durometer Hardness: Not less than 85 Shore A.
 - f. ASTM D 3389 Standard Test Method for Coated Fabrics Abrasion Resistance: < 1.00 gram weight loss.
 - g. ASTM D 2047, Standard Test Method for Static Coefficient of Friction of Polish-Coated Flooring: Exceeds Federal Standards and A.D.A. requirements for slip-resistant.
 - h. ASTM F 970, Standard Test Method for Static Load Limit passes at 250 PSI.
 - i. ASTM E 648, Standard Test method for Critical Radiant Flux of Floor-Covering Systems Using a Radiant Heat Energy Source Class 1.
 - j. Phthalate, chlorine and halogen free.

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- k. NSF-332 Gold Certified.
- 1. Manufacturer's facilities are ISO 9001 and ISO 14001 Certified.

J. INSTALLATION MATERIALS

- 1. Trowelable Leveling and Patching Compounds: Latex-modified, Portland cement based or blended hydraulic-cement-based formulation.
- 2. Adhesives: As recommended by manufacturer to meet site conditions.

K. EXAMINATION

- 1. Examine substrates, with Installer present, for compliance with requirements for maximum moisture content and other conditions affecting performance of the work.
- 2. 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.
- 3. Proceed with installation only after unsatisfactory conditions have been corrected.

L. PREPARATION

- 1. Prepare substrates according to manufacturer's written instructions to ensure adhesion of Resilient Tile Flooring.
- 2. Verify that substrates are dry and free of curing compounds, sealers, and hardeners.
- 3. Remove substrate paint, coatings and other substances that are incompatible with adhesives or contain soap, wax, oil, solvents, or silicone, using mechanical methods recommended by manufacturer. Do not use solvents.
- 4. Mechanically remove contamination on the substrate that may cause damage to the resilient flooring material. Permanent and non-permanent markers, pens, crayons, paint, etc., must not be used to write on the back of the flooring material or used to mark the substrate as they could bleed through and stain the flooring material.
- 5. Prepare Substrates according to ASTM F 710 including the following:
 - a. Moisture Testing: Perform tests recommended by manufacturer. Proceed with installation only after substrates pass testing.
 - 1. Perform anhydrous calcium chloride test, ASTM F 1869. Results must not exceed 5 lbs. Moisture Vapor Emission Rate per 1,000 sq. ft. in 24 hours. –OR-
 - 2. Perform relative humidity test using in situ probes, ASTM F 2170. Must not exceed 80%.
 - b. A pH test for alkalinity must be conducted. Results should range between 7 and 9. If the test results are not within the acceptable range of 7 to 9, the installation must not proceed until the problem has been corrected.
 - c. Alkalinity and Adhesion Testing: Perform tests recommended by manufacturer.
 - d. The floor must be rigid, free of movement.
- 6. Fill cracks, holes, depressions and irregularities in the substrate with good quality Portland cement based underlayment leveling and patching compound and remove bumps and ridges to produce a uniform and smooth substrate.
- 7. Do not install resilient products until they are same temperature as the space where they are to be installed. Move resilient products and installation materials into spaces where they will be installed at least 48 hours in advance of installation.
- 8. Sweep and vacuum clean substrates to be covered by resilient products immediately before installation.

M. INSTALLATION

- 1. Install resilient flooring in accordance with manufacturer's printed installation instructions. Comply with the following:
 - a. Dry lay resilient flooring to provide equal size at perimeter. Adjust layout as necessary to eliminate resilient flooring which is cut to less than half full width.

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- b. Dry lay resilient flooring with arrows in same direction and running parallel.
- c. Inspect dry laid installation and verify color match and any defects present. If color match is not correct or defects are present, do not proceed with the installation.
- d. Install resilient flooring without cracks or voids at seams. Lay seams together without stress.
- e. Extend resilient flooring into closets, alcoves, and similar openings.
- f. Install reducer mouldings at exposed edges.
- g. Do not install resilient flooring over building expansion joints.
- h. Do not install damaged or defective resilient flooring.
- i. Remove adhesive residue immediately, before it dries.

N. MAINTENANCE

- 1. Do not perform manufacturer's recommended maintenance procedures until adhesive has fully cured, no sooner than 72 hours after installation.
- 2. Use only cleaning products recommended by the manufacturer.
- 3. Protect installed product from damage and construction operations and inspect immediately before final acceptance of project.

O. CLEANING AND PROTECTION

- 1. Comply with manufacturer's written instructions for cleaning and protection of resilient products.
- 2. Perform the following operations immediately after completing resilient product installation:
 - a. Remove adhesive and other blemishes from exposed surfaces.
 - b. Sweep and vacuum surfaces thoroughly.
 - c. Damp-mop surfaces to remove marks and soil.
- 3. Protect resilient products from mars, marks, indentations, and other damage from construction operations and placement of equipment and fixtures during remainder of construction period.
- 4. No traffic for 24 hours after installation.
- 5. No heavy traffic, rolling loads, or furniture placement for 72 hours after installation.
- 6. Wait 72 hours after installation before performing initial cleaning.

END OF SECTION 09 65 19

SECTION 09 68 13 - TILE CARPETING

A. WORK INCLUDED

- 1. The work under this section includes the furnishing of all labor, material, equipment, appliances and tools to perform the work indicated on the Drawing or specified herein. The work shall include, but not be limited to the following:
 - a. Preparation
 - b. Floor Sealer
 - c. Carpeting
 - d. Adhesives
 - e. Edge Strips
- 2. Installation of material under this division shall produce a complete carpet installation on concrete subfloor
- 3. Ordinary cleaning and nominal surface preparation.
- 4. Clean floors and apply leveling compound and substrate primer in accordance with manufacturer's instructions. It is this Contractor's responsibility to determine the condition of the existing floor and determine the amount of labor and materials required to meet requirements and include same in bid.

B. MATERIALS

- 1. Carpet Tile
 - a. <u>Field Carpet Tiles</u>: Mannington "Quadrant" 24" x 24" Modular Carpet Tiles; Style: "Align". Color shall be selected by Architect from manufacturer's complete color range.
 - 1. Construction: Textured Patterned Loop
 - 2. Face Fiber: Invista Antron Legacy Type 6,6 Four Hole, Hollow Filament Nylon, with Permanent Stain and Bleach Protection, Static Control, and Duratech Soil Resistant Treatment and a Fiber Modification Ratio of less than 1.5.
 - 3. Dye Method: Yarn / Solution
 - 4. Gauge: 5/64
 - 5. Tufted Yarn Weight: 21 oz.
 - 6. Stitches per Inch: 10.33
 - 7. Primary Backing: 100% Synthetic
 - 8. Secondary Backing: Infinity Modular Reinforced Composite Closed Cell Polymer
 - b. Adhesive: Manufacturer's recommended pressure sensitive odor-free carpet tile installation system.
 - c. <u>Filler</u>: Latex emulsion type compatible with carpet adhesive.
 - d. Installation Pattern: Non-Directional

C. SAMPLES

- 1. Three (3) full samples of carpet tile selected shall be submitted for approval, after original color selection is made.
- 2. Sample pieces of carpet reducers, edging, joiners, etc. 1'-0" in length shall be submitted by carpet subcontractor for approval prior to installation of any of the material.

D. LOCATION AND MEASUREMENT

- 1. Carpeted areas are indicated on drawings.
- 2. Dimensions indicated on the drawings are from the best available data. The carpet contractor shall verify all dimensions and other conditions affecting his work prior to submitting his bid. The contractor shall be responsible for proper installation of carpet in areas designated.

E. <u>INSPECTION AND PREPARATION OF SUBFLOORS</u>

1. The Carpet Contractor shall inspect the subflooring before starting work, and shall notify the Architect in writing of any condition which will prevent him from satisfactorily completing his work. Do not proceed

- with any work until such defects are entirely corrected.
- 2. The Carpet Contractor shall perform such preparation as necessary and noted herein and on Drawings to provide a satisfactory substrate for installation of carpet. The application of carpet by the Carpet Contractor shall be an indication of his acceptance of the subfloor.
- 3. Preparation shall include filling of cracks in concrete subfloors with filler and other operations necessary to obtain a satisfactory base for carpet installation.
- 4. The Carpet Contractor shall broom clean, treat and damp mop floors prior to application of adhesive. Floors shall be thoroughly dry before any adhesive is applied.

F. DELIVERY AND STORAGE

- 1. The Carpet Contractor shall be held responsible for the scheduling, receiving and placement of goods where directed by Architect.
- 2. Goods shall be delivered to the job site in the manufacturer's bundles and shall be clearly marked as to size, dye lot and materials.
- 3. Carpet shall be covered and protected from soiling and damage.

G. **INSTALLATION**

- Recommended procedures for installation shall be furnished by the Carpet manufacturer. Unsatisfactory
 installation resulting from work performed not in accordance with the manufacturer's recommendation
 shall be the responsibility of the Carpet Contractor and may result in removal and relaying of carpet at the
 expense of the Contractor or installer. Particular attention should be paid to recommendations for
 application of adhesives.
- 2. The Carpet Contractor shall carefully check all dimensions and other conditions in the field and shall be responsible for proper fitting of carpet in areas designated.
- 3. Edge Trim, if any, shall be secured to floor so there is no possibility of them coming loose.
- 4. Upon completion of any one area carpeting shall be cleaned of all foreign material, with a commercial type vacuum and neatly trimmed of all protruding fibers, loops, etc.
- 5. Extra Stock: Furnish to Owner minimum of 10% extra stock of carpet tiles in un-open cartons.

I. CLEAN-UP

1. Spots and smears of floor and seam cement shall be removed immediately with solvent recommended by carpet manufacturer. After installation is completed remove any spots with suitable spot remover, remove all cuttings, vacuum carpet and leave clean and perfect.

J. GUARANTEES

- 1. The Manufacturer shall unconditionally guarantee that the carpet samples registered and the carpet he proposes to furnish meet or exceed the Specifications for material herein specified in every detail.
- 2. Furnish a written guarantee, in duplicate, which guarantee shall cover a period of one (1) year from and after the completion of the carpet installation and its acceptance by the Owner.

END OF SECTION 09 68 13

SECTION 09 91 23 - PAINTING

A WORK INCLUDED

- The work under this section includes the furnishing of all labor, material, equipment, appliances, and tools
 to perform the work indicated on the Drawings or specified herein including, but not limited to the
 following:
 - a. Painting
 - b. Preparation of surfaces for painting.

B. WORK EXCLUDED

- 1. The following listed work is included under other sections:
 - a. Shop coat on miscellaneous iron and steel.
 - b. Factory finish on exterior metal.
 - c. Prime coat on new hollow metal work shall be furnished under the Hollow Metal Section.

C. REFERENCES

- 1. Society for Protective Coatings (SSPC)
 - a. SSPC-SP 1 Solvent Cleaning
 - b. SSPC-SP 2 Hand Tool Cleaning
 - c. SSPC-SP 3 Power Tool Cleaning
 - d. SSPC-SP 7 Brush-off Blast Cleaning
- 2. Environmental Protective Agency (EPA)
 - a. EPA-Method 24
- 3. American Society of Testing and Materials (ASTM)
 - a. ASTM D3960-04 Standard Practice for Determining Volatile Organic Compound (VOC) Content of Paints and Related Coatings
 - b. ASTM D6886 Test Method for Speciation of the Volatile Organic Compounds (VOCs) in Low VOC Content Waterborne Air-Dry Coatings by Gas Chromatography.

D. SUBMITTALS

- 1. Submit under provisions of General Conditions and Division 1.
- 2. Product Data: Manufacturer's data sheets on each paint and coating product to be used, including:
 - a. Product characteristics.
 - b. Preparation instructions and recommendations.
 - c. Primer requirements and recommendations.
 - d. Storage and handling requirements and recommendations.
 - e. Application methods.
 - f. Cautions, VOC's.
- 3. Selection Samples: For each finish product specified, two complete sets of color chips representing manufacturer's full range of available colors and sheens.

E. QUALTIY ASSURANCE

1. VOC Content: Determine VOC (Volatile Organic Compound) content of solvent borne and waterborne paints and related coatings in accordance with EPA Method 24 or ASTM D3960.

F. DELIVERY, STORAGE AND HANDLING

- 1. Delivery: Deliver manufacturer's unopened containers to the work site. Packaging shall bear the manufacturer's name, label, and the following list of information:
 - a. Product name, and type (description)
 - b. Application & use instructions
 - c. Surface preparation

- d. VOC content
- e. Environmental issues
- f. Batch date
- g. Color number/name
- 2. 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.
- 3. Handling: Maintain a clean, dry storage area, to prevent contamination or damage to the coatings.

G. MATERIALS

- 1. All finished materials, thinners, etc., shall be the best quality, first line materials as manufactured by:
 - a. Benjamin Moore
 - b. The Glidden Company
 - c. Harrison Paint Co.
 - d. ICI Dulux
 - e. Pittsburgh Paints PPG
 - f. Pratt and Lambert, Inc.
 - g. The Sherwin-Williams Company
- 2. All paint materials shall be delivered to the job in the manufacturer's original unopened labeled containers, and they shall be used strictly in accordance with the manufacturer's directions.
- 3. 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. VOC numbers used in this document need to be confirmed by using the products MSDS sheets.

H. APPLICATIONS/SCOPE

- 1. Scope: Use products specified in this section to finish ALL interior and exterior surfaces exposed to view, unless otherwise indicated; DO NOT PAINT THE FOLLOWING:
 - a. Items specified or provided with factory finish; materials and products having factory-applied primer are not considered factory finished.
 - b. Items indicated to receive other finishes.
 - c. Items indicated to remain unfinished.
 - d. Marble, granite, slate, and other natural stones.
 - e. Brick, concrete, cast stone.
 - f. Glass.
 - g. Stainless steel, anodized aluminum, bronze.
 - h. Equipment nameplates, fire rating labels, and operating parts of equipment.
 - i. Concealed pipes, ducts, and conduits.
- 2. Exterior Surfaces to be Painted:
 - a. Hollow metal doors and frames.
 - b. Steel columns and exposed structure.
 - c. Exposed Steel Lintels.
- 3. Interior Surfaces to be Painted:
 - a. Hollow metal doors and frames.
 - b. Gypsum board, plaster, concrete, and concrete masonry walls, ceilings, soffits, bulkheads, and columns.
 - c. Bare metal, primed metal, and galvanized metal all metal exposed to view, regardless of location.
 - d. Pipes, ducts, conduits, hangers and supports, equipment, and equipment enclosures exposed to view in all rooms and spaces.
 - e. Access panels and equipment cabinets.

4. Colors: To be selected by Architect from manufacturer's full range of available colors. See item J below.

I. EXTERIOR AND INTERIOR PAINT SPECIFICATIONS

- 1. If these Specifications conflict with the recommendations of the manufacturer, this discrepancy shall be brought to the attention of the Architect, to decide which method shall be followed.
- 2. Raw linseed oil, turpentine, benzine, gloss oil, or coal oil shall not be used in any of the materials for interior work. Any thinner used shall be subject to the provisions stated above.
- 3. All Surfaces To Be Painted, Unless Otherwise Specified:
 - a. Concrete Masonry Surfaces (Semi-Gloss): (Lower Odor/Low VOC Vinyl Acrylic Latex System)
 - 1. Primer: Waterborne Vinyl Acrylic Block Filler (16 mils wet, 8 mils dry)
 - 2. Two (2) Finish Coats: Waterborne Vinyl Acrylic Semi-Gloss (4 mils wet, 1.6 mils dry per coat)
 - b. Concrete Masonry Surfaces (Semi-Gloss): (Lower Odor/Low VOC Epoxy System)
 - 1. Primer: Waterborne Epoxy Block Filler (16 mils wet, 8 mils dry)
 - 2. Two (2) Finish Coats: Waterborne Semi-Gloss Catalyzed Epoxy (2.5 3 mils dry per coat)
 - c. Exterior Concrete Masonry Surfaces
 - 1. Primer: Vinyl Acrylic Block Filler New CMU walls shall have two (2) coats of block filler.
 - 2. Two (2) Finish Coats: Exterior 100% Acrylic Latex Flat (0-5 units at 85 degrees F.), 1.2 mils DFT/coat.
 - d. Metal Ferrous (Semi-Gloss): (Lower Odor/Low VOC Waterborne Acrylic Latex System)
 - 1. Primer: Waterborne Acrylic Metal Primer (5-10 mils wet, 2-4 mils dry)
 - 2. Two (2) Finish Coats: Waterborne Acrylic Latex, Semi-Gloss (4 mils wet, 1.4 mils dry per coat)
 - 3. Surfaces: Structural Steel Columns, Joists, Trusses, Beams, Miscellaneous & Ornamental Iron, Structural Iron, Ferrous Metal.
 - e. Gypsum Board (Egg-Shell): (Lower Odor/Low VOC Acrylic Latex System)
 - 1. Primer: Vinyl Acrylic Latex (4 mils wet, 1.3 mils dry per coat)
 - 2. Two (2) Finish Coats: Modified Alkyd Egg-Shell (4 mils wet, 1.6 mils dry per coat)
 - 3. Surfaces: Ceilings and bulkheads.
 - f. Gypsum Board (Semi-Gloss): (Lower Odor/Low VOC Acrylic Latex System)
 - 1. Primer: Vinyl Acrylic Latex (4 mils wet, 1.5 mils dry per coat)
 - 2. Two (2) Finish Coats: Vinyl Acrylic Semi-Gloss (4 mils wet, 1.6 mils dry per coat)
 - 3. Surfaces: Gypsum Wallboard Walls
 - g. Gypsum Board (Semi-Gloss): (Lower Odor/Low VOC Epoxy System)
 - 1. Primer: Waterborne Epoxy Primer (4 mils wet, 1.5 mils dry per coat)
 - 2. Two (2) Finish Coats: Waterborne Catalyzed Epoxy Semi-Gloss (2.5 3 mils dry per coat)

J. COLOR SAMPLES

- 1. Colors will be selected by the Architect from the manufacturer's standard colors. Final colors must match exactly with the approved sample.
- 2. Colors shall be chosen by Architect for each of the following surfaces:
 - a. Exterior steel doors and frames.
 - b. Interior steel doors and frames.
 - c. Interior steel frames for wood doors and borrowlights.
 - d. Interior exposed structural steel and deck.
 - e. Interior C.M.U.

- f. Gypsum drywall walls, ceilings, bulkheads and soffits.
- g. Louvers and Vents
- h. Handrails, guards and steel stair components
- i. Plumbing, Mechanical and Electrical equipment and access panels.
- 3. Contractor shall include in his Base Bid, the following sample paint areas:
 - a. Four (4) wall sample paint colors 50 square feet each. Colors shall be selected by Architect.
 - b. Three (3) ceiling sample paint colors 50 square feet each. Colors shall be selected by Architect.

K. STORAGE

- 1. Store materials where directed by the Architect. Oily rags, waste and empty cans shall be removed from the building each night. They shall not be kept in unventilated rooms, and they shall not be permitted to accumulate.
- 2. Proper fire extinguishers shall be placed near storage area.

L. PROJECT CONDITIONS

1. 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. This specification does not take into consideration wet areas or areas needing high performance coatings.

M. EXAMINATION

- 1. Do not begin application of coatings until substrates have been properly prepared. Notify Architect of unsatisfactory conditions before proceeding.
- 2. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.
- 3. 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.

N. PROTECTIONS

- 1. Before applying any paint, cover and protect all finished surfaces and equipment with clean drop cloths or with heavy gauge visqueen as directed. All surfaces or equipment discolored or otherwise damaged under this section, shall be repaired or replaced at no expense to the Owner.
- 2. Place "fresh paint" signs in conspicuous places at all unguarded points where fresh or undried paint occurs.
- 3. Use no plumbing fixture or pipe whatsoever for disposing of waste or mixed materials.

O. PREPARATION

- 1. Painting Contractor shall provide adequate light in all areas of painting.
- 2. All coats to be applied at proper temperature, in accordance with coating manufacturer's printed recommendations.
- 3. All surfaces to receive finish coatings shall be prepared in accordance with coating manufacturer's printed recommendations, including methods of cleaning and acceptable surface conditions.
- 4. Do not apply to wet or damp surfaces.
 - a. 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.
- 5. Unpainted and shop coated steel and iron shall be washed clean with Pratt and Lambert Duosol Reducer. Remove any rust which may have formed and spot prime.
- 6. Galvanized metal shall be cleaned thoroughly with Pratt and Lambert Duosol.
- 7. Drywall imperfections shall be spackled and sanded smooth. Nail holes, splits or scratches shall be puttied or spackled smooth after the prime coat.
- 8. The Painting Contractor is completely responsible for the satisfactory condition of his finished work. He

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shall notify the Architect if he considers any surface unsuitable for a proper finish. The starting of work by this Contractor will be considered as evidence that all surfaces are acceptable to him.

P. INSTALLATION/WORKMANSHIP

- 1. No exterior painting shall be done in rainy or freezing weather and no painting shall be done in dirty or dusty surrounding.
- 2. Mix and thin coatings according to manufacturer's printed recommendations.
- 3. All work shall be done by skilled mechanics. Paint shall be brushed, rolled or sprayed, then immediately rolled on walls.
- 4. All materials shall be applied and cut in neatly so as to dry uniformly to the color and sheen specified, free from runs, sags, wrinkles, shiners, streaks, and brush marks.
- 5. All materials shall be applied in accordance with the manufacturer's printed directions. Minimum drying time between coats shall be as specified by the manufacturer.
- 6. Paint top and bottom edges of all doors the same as the vertical surfaces after hardware and doors are fitted.
- 7. Dark Colors: Regardless of number of coats specified, apply as many coats as necessary for complete hide.
- 8. Protect finished coatings from damage until completion of project.
- 9. Touch-up damaged coatings after substantial completion, following manufacture's recommendation for touch up or repair of damaged coatings. Repair any defects that will hinder the performance of the coatings.
- 10. This Contractor shall remove all paint spots, rags, and discarded material from the areas in which he has been conducting his work and shall leave these spaces clean and orderly.

END OF SECTION 09 91 23

SECTION 10 11 16 - VISUAL DISPLAY BOARDS

A. SUMMARY

- 1. Provide all labor, tools, equipment, materials and all other means necessary to provide and install all Visual Display Products as indicated on the Drawings and as specified herein. The following visual display components shall be furnished and installed:
 - a. Porcelain enamel steel markerboards with accessories.

B. <u>REFERENCED STANDARDS</u>

- 1. Workmanship and materials shall meet the requirements of the applicable portions of the following standards:
 - a. Porcelain Enamel Institute (PEI).
 - 1. PEI 1002 Manual and Performance Specifications for Porcelain Enamel Writing Surfaces
 - b. American Society of Testing and Materials (ASTM).
 - 1. ASTM E84 Standard Test Method for Surface Burning Characteristics for Building Materials
 - 2. ASTM B221 Standard Specification for Aluminum and Aluminum Alloy Extruded Bars, Rods, Wires Profiles and Tubes

C. RELATED SECTIONS

1. Section 06 10 00 - Carpentry: Wood grounds for support of visual display boards.

D. SUBMITTALS

- 1. Submit under provisions of Division 1 and General Conditions.
- 2. Product Data: Provide technical data for products specified. Include Material Safety Data Sheets, when applicable.
- 3. Shop Drawings: Provide shop drawings for each type of visual display board specified.
- 4. Selection Samples: Submit set of color chips displaying manufacturer's full range of colors and finishes.
- 5. Verification Samples: Submit samples not less than six inches square and framed on two adjacent sides, to illustrate materials, finish, color, and texture of each type of visual display board required.
- 6. Maintenance Data: Provide data on cleaning requirements, stain removal, and recommended maintenance precautions.

E. QUALITY ASSURANCE

1. Manufacturer shall be a firm engaged in the manufacture of visual display boards for a minimum of 10 years.

F. <u>DELIVERY</u>, <u>STORAGE</u>, <u>AND HANDLING</u>

1. Comply with manufacturer's instructions for handling and storage of units.

G. PROJECT CONDITIONS

- 1. Field measure prior to preparation of shop drawings and fabrication, to ensure proper fit.
- 2. Do not begin installation of visual display boards until environmental conditions approximate normal occupied conditions.

H. WARRANTY

- 1. Submit manufacturer's "Life of the Building" warranty, stating that under normal usage and maintenance, and when installed in accordance with manufacturer's instructions and recommendations, porcelain enamel steel markerboards are guaranteed for the life of the building.
- 2. Warranty shall cover replacement of defective boards including cost of removal or reinstallation.

I. MANUFACTURERS

DECEMBER 3, 2018

- 1. Provide visual display boards as manufactured by one of the following:
 - a. Claridge Products and Equipment, Inc.
 - b. Educational Equipment, Inc.
 - c. Marsh Industries, Inc.
 - d. Newline Products Inc.
 - e. Platinum Visual Systems.

J. MATERIALS FOR MARKERBOARD PANELS

- 1. Writing Surface Face Sheets manufactured in accordance with Porcelain Enamel Institute's specification.
 - a. Enameling grade cold-rolled steel.
 - b. Enameling steel shall be coated with porcelain enamel in three-coat process:
 - 1. Bottom Ground Coat: 1.5 to 2.2 mils
 - 2. Top Ground Coat: 2.0 to 2.8 mils
 - 3. Top Cover (writing surface) Coat: 3.0 to 4.0 mils
 - c. Firing Temperature: Enamel shall be fired at lowest possible temperatures to reduce steel and porcelain stresses and achieve superior enamel and hardness.
 - d. Colors: As selected by Architect from manufacturer's standard colors.
- 2. Core Material: 7/16 inch MDF.
- 3. Backing Material: 0.005 inch aluminum foil.
- 4. Factory Framed Metal Trim and Accessories: ASTM B 221 aluminum alloy.
- 5. Laminations: Hot-type neoprene contact adhesive applied to both surfaces automatically.
 - a. Each substrate shall have minimum 80 percent covering with 1.5-2.0 dry mils of adhesive.
 - b. Panel components shall have uniform pressure applied mechanically over entire area.
 - c. Laminations shall be made by manufacturer of face sheet.
- 6. Adhesive: As recommended by manufacturer for project conditions.

K. ALUMINUM TRIM

1. Trim shall be 6063 alloy grade aluminum with T5 tempering in accordance with ASTM B221, and shall have 201-R1 satin anodized finish.

L. ACCESSORIES

- 1. Manufacturer's standard continuous tray, full width of markerboard.
- 2. Manufacturer's standard map rail with 2" continuous cork tack strip and two (2) map hooks with flexible paper holder clips per each 10 feet of map rail, or fraction thereof.

M. FABRICATION

- 1. Laminate facing sheet and backing sheet to core material under pressure, using manufacturer's recommended adhesive.
- 2. Provide factory-assembled visual display boards, except where sizes demand partial field assembly.
- 3. Assemble units in one piece without joints, wherever possible. Where required dimensions exceed maximum panel size available, provide 2 or more pieces of equal length, as indicated on approved shop drawings. Assemble to verify fit at factory, then disassemble for delivery and final assembly at project site.

N. EXAMINATION

- 1. Verify that substrates are properly prepared to receive visual display boards. Do not begin installation until unsatisfactory conditions have been corrected.
- 2. Field measure each location where installation is planned.

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O. <u>INSTALLATION</u>

- 1. Comply with manufacturer's installation instructions.
- 2. Where visual display boards must be partly assembled at project site, use factory-supplied H-bar to maintain proper alignment.
- 3. Install visual display boards level and plumb, keeping perimeter trim aligned in accordance with manufacturer's recommendations.

P. ADJUSTING AND CLEANING

- 1. Verify that all accessories are installed as required for each unit.
- 2. Upon completion of installation, clean surfaces and trim in accordance with manufacturer's recommendations, leaving all materials ready for use.

END OF SECTION 10 11 16

SECTION 10 14 13 – INTERIOR SIGNAGE

A. SCOPE

1. Provide all labor, tools, equipment, materials and all other means necessary to provide and install all Room Identification Signage, as indicated on the Drawings and as specified herein.

B. REFERENCES

1. ADAAG - Americans with Disabilities Act Accessibility Guidelines; U.S. Architectural and Transportation Barriers Compliance Board.

C. SUBMITTALS

- 1. Submit under provisions of Division 1 and General Conditions.
- 2. Product Data: Manufacturer's literature for sign types specified, including components and accessories.
- 3. Shop Drawings: Indicate location of each individual sign in the project.
- 4. Selection Samples: Architect shall select a custom paint color for application on signs.
- 5. Verification Samples: Two samples, minimum size 6 inches square, for each color combination specified; include sample graphic and letters in specified typeface.

D. QUALITY ASSURANCE

1. Regulatory Requirements: Sign types to comply with ADAAG requirements.

E. <u>DELIVERY</u>, STORAGE, AND HANDLING

- 1. Store products of this section in manufacturer's unopened packaging until installation.
- 2. Maintain dry, heated storage area for products of this section until installation of products.

F. MANUFACTURED UNITS

- 1. Interior Signage See Schedule
 - a. Provide and install sign with text indicating each room name and number, with letters and/or graphics engraved through the first layer to expose the contrasting color of the inner core of the engraving stock. All tactile characters shall be raised from sign face to meet the requirements of ADA.
 - 1. Colors: Signs shall be fabricated with custom paint color applied, as selected by Architect.
 - 2. All signs shall all be 8" x 8", and shall include 8" x 8" <u>acrylic frames</u>, to be installed with magnetic tape for future replacement.
 - 3. Signs will have raised room number, braille and subsurface room I.D.
 - 4. Lettering style: Helvetica.
 - b. Accessories: Installation accessories specified in manufacturer's instructions.

G. EXAMINATION

1. Verify that surfaces to receive signs have been finished, and that finishes are dry and correctly cured.

H. INSTALLATION

- 1. Install all signs in accordance with manufacturer's printed installation instructions.
- 2. Locate signs in accordance with approved shop drawings and ADA requirements.

I. INTERIOR ROOM SIGN SCHEDULE

8 x 8 Room Identification Signs: 9
8 x 8 Women's Restroom Sign with Pictogram: 1
8 x 8 Men's Restroom Sign with Pictogram: 1

SECTION 10 21 13 - TOILET PARTITIONS

A. SUMMARY

1. Furnish, deliver and install all Toilet Partitions as indicated on the drawings and as required by actual conditions at the building. The Toilet Partitions shall include the furnishing of all necessary screws, special screws, bolts, special bolts, expansion shields and all other devices necessary for the proper installation and application of the Toilet Partitions.

B. REFERENCES

- 1. All toilet partitions must be scheduled, supplied and installed in accordance with:
 - a. Ohio Building Code
 - b. ANSI (American National Standards Institute)
 - c. ADA (Americans with Disabilities Act)
- 2. In all cases the above references shall be taken to mean the latest edition of that particular standard including all revisions.

C. SUBMITTALS

- 1. Provide all submittals in accordance with Section 01 30 00.
- 2. Shop Drawings: Submit PDF files of detailed shop drawings for the Architect's review.
- 3. Product Data: Submit product sheets and/or catalogue cuts, of all products listed in the shop drawings.
- 4. Samples: Submit (3) sets of actual samples of metal and finish colors for Architect's selection and verification. Include all samples in manufacturer's complete range of colors.
- 5. Operations and Maintenance Data: At completion of the job, furnish to the General Trades Prime Contractor, complete Owners Operation and Maintenance Manual information, in quantities specified for inclusion in Project Manual, to be provided to the Owner.

D. QUALITY ASSURANCE

1. Supplier Qualifications: Toilet Partition shop drawings and Toilet Partitions shall be procured from a single source. Supplier is responsible for the complete Toilet Partition subcontract.

E. DELIVERY, STORAGE AND HANDLING

- 1. Toilet Partitions shall be delivered to the job site in the manufacturers' original packages and marked to correspond with the approved shop drawings.
- 2. Toilet Partitions shall be delivered at appropriate time, in proper sequence of construction activities, as coordinated with the General Trades Prime Contractor.

F. WARRANTY

- 1. Written Guarantee
 - a. The Toilet Partition manufacturer shall guarantee all Toilet Partitions by written certification, for a period of (3) years from date of substantial completion of the Project, against any defects in design, materials and workmanship.
 - b. Warranty is for manufacturer's material only and does not include installation errors, improper usage or vandalism. Any defects as described will be replaced by the manufacturer at no additional cost to the owner.

G. MAINTENANCE

1. Upon request, at completion of the project, the Toilet Partition supplier may be required to brief Owner's maintenance staff regarding proper care of Toilet Partitions, such as: required lubrications, adjustments, cleaning, etc.

PAGE 10 21 13 - 2 SEC. 10 21 13 TOILET PARTITIONS

H. MANUFACTURERS

- 1. Provide solid plastic toilet partitions as manufactured by one of the following:
 - a. ASI Global Partitions
 - b. General Partitions Manufacturing Company
 - c. Hadrian Inc.
 - d. Metpar Corporation
 - e. The Mills Company

I. PRODUCTS

- Construction: Doors, Panels and Pilasters shall be constructed of two sheets of panel flatness zinc-coated steel, Galvanneal ASTM A653 GR33, laminated under pressure to a honeycomb core for sound deadening and rigidity. Formed edges to be welded together and inter-locked under tension with a roll-formed oval crown locking bar, mitred, welded and ground smooth at the corners. Honeycomb to have a maximum 1" cell size.
- 2. Doors: Shall be 1" thick with cover sheets not less than 22-gauge.
- 3. Panels: Shall be 1" thick with cover sheets not less than 22-gauge.
- 4. Pilasters: Shall be 1.25" thick with cover sheets not less than 22-gauge. Pilaster tops shall be reinforced with a 20-gauge channel to create extra strength and twist-free rigidity along with minimizing damage by handling and/or shipping.
- 5. Headrail: Shall be 1" by 1.625" extruded anodized aluminum with double-ridge anti-grip design. Wall thickness to be 0.060" and shall be securely attached to wall and pilasters with manufacturer's fittings in such a way as to make a strong and rigid installation. All joints in headrails shall be made at pilaster.
- 6. Hardware and Fittings: All panel and pilaster brackets and all door hardware shall be chrome plated zinc die castings. Fasteners are zinc plated 12 x 1-3/4" and 12 x 5/8" TR-27 6-lobe security screws. Doors shall be equipped with a gravity type hinge mounted on the lower pilaster hinge bracket. Door hinges shall be fully concealed within the thickness of the door and adjustable to permit the door to come to rest at any position when not latched. Each door to be fitted with a combined coat hook and bumper and a concealed latch, with face mortised flush with edge strip of door. Barrier-free doors shall include thumbturn lever to activate latch without fingertip grip application. Both standard and barrier-free latches shall have a turn slot designed to allow emergency access from exterior. The combined stop and keeper shall have a 0.75" diameter bumper locked in place. Threaded upper hinge pin shall have a metal core and self-lubricating nylon sleeve to ensure smooth, quiet operation. Pilaster shoes shall be a welded one-piece design made from polished stainless steel. Two-piece shoes that can disassemble when kicked are unacceptable.

J. FINISH

1. All sheet metal to be thoroughly cleaned, phosphated and finished with a high performance powder coating, electrostatically applied and oven cured to provide a uniform, smooth protective finish. Color shall be as selected from manufacturer's complete range of standard colors.

K. EXAMINATION

1. The contractor must examine all site conditions that would prevent the proper application and installation of Toilet Partitions. Any defect must be immediately identified and corrected, prior to the installation of the Toilet Partitions.

L. <u>INSTALLATION</u>

- 1. Install partitions rigid, straight, plumb and level in accordance with manufacturer's printed instructions. Set units with not more than 1/2" between pilasters and panels, and not more than 1" clearances between panels and walls.
- 2. Adjust and lubricate hardware for proper operation after installation.
 - a. Set hinges on in-swing doors to hold open approx. 30 deg. from the closed position when unlatched.
 - b. Set hinges on out-swing doors to return to fully closed position.

PAGE 10 21 13 - 3 SEC. 10 21 13 TOILET PARTITIONS

3. After installation has been completed, inspect all Toilet Partitions to determine that all items have been supplied and installed in accordance with the drawings and specifications. Verify the operation and adjustment of all Toilet Partitions. Any discrepancies, or malfunctioning product, must be reported to the Architect immediately.

M. ADJUSTMENT AND CLEANING

1. At final completion, Toilet Partitions shall be left clean and free from disfigurement. Make all final adjustments. Where Toilet Partitions are found defective, repair or replace or otherwise correct as directed.

N. PROTECTION

1. The Contractor must provide for the proper protection of all Toilet Partitions until the owner accepts the project as complete.

END OF SECTION 10 21 13

SECTION 10 26 13 – ALUMINUM CORNER GUARD

A. **SUMMARY**

1. Furnish and install aluminum corner guard system for wall protection at all exposed corners of gypsum wallboard construction walls.

B. SUBMITTALS

- 1. Product data for each type of corner guard specified.
- 2. Detail drawings indicating mounting details with the appropriate adhesives for specific project substrates.
- 3. Samples for verification purposes of corner guard, 6" long, in full size profiles of each type indicated.
- 4. Cleaning and maintenance instructions for door and wall protection systems.

C. <u>DELIVERY</u>, STORAGE AND HANDLING

1. Deliver materials in unopened factory packaging to the jobsite and store in original packaging in a climate controlled location away from direct sunlight.

D. **QUALITY ASSURANCE**

1. Provide all corner guards and wall protection from a single source.

E. PROJECT CONDITIONS

1. Products must be installed in an interior climate controlled environment.

F. WARRANTY

1. Standard manufacturer's Limited Lifetime Warranty against material and manufacturing defects.

G. PRODUCT

- 1. Standard Specified: DW-ALUM-3496 Aluminum Corner Guard, as manufactured by IPC Door and Wall Protection Systems.
- 2. Aluminum Corner Guards
 - a. Size: 3/4" x 3/4" x .080" thick;
 - b. Length: 96"
 - c. Attachment: Field –applied heavy duty adhesive, as recommended by manufacturer.
 - d. Materials: Aluminum Corner Guards shall be manufactured from 5005-H34 Aluminum.
 - e. Finish: Clear anodized finish. Finish shall be to 204R1 specification.

H. EXAMINATION

1. Examine areas and conditions in which the corner guard systems will be installed. Complete all finishing operations, including painting, before beginning installation of corner guards. Wall surface shall be dry and free from dirt, grease and loose paint.

I. PREPARATION

1. General: Prior to installation, clean substrate to remove dust, debris and loose particles.

J. INSTALLATION

- 1. General: Locate the corner guard as indicated on the approved detail drawing for the appropriate substrate and in compliance with the IPC installation instructions.
- 2. Install corner guard level and plumb at the height indicated on the drawings.
- 3. Installation of Aluminum Corner Guards:
 - a. Surface must be dry, clean and properly sealed.

PAGE 10 26 13 - 2 SEC. 10 26 13 ALUMINUM CORNER GUARD

- b. Apply a bead of premium heavy duty adhesive in a zigzag pattern over the back of each wing of the corner guard. Position corner guard on the wall and apply pressure until a tight fit is achieved.
- c. Remove the protective plastic covering from the exposed surface of the corner guard.

K. CLEANING

1. At completion of the installation, clean surfaces in accordance with the manufacturer's clean-up and maintenance instructions.

END OF SECTION 10 26 13

SECTION 10 28 13 - TOILET ACCESSORIES

A **SUMMARY**

DECEMBER 3, 2018

- 1. The work included under this section consists of furnishing all labor, material, tools, and equipment necessary to furnish and install all toilet accessories in accordance with the Contract Documents. The Work of this Section shall include but not be limited to the following:
 - a. Toilet Tissue Dispensers.
 - b. Paper Towel Dispensers.
 - c. Soap Dispensers.
 - d. Grab Bars.
 - e. Mirrors.

B. RELATED SECTIONS

- 1. Section 09 21 16 Gypsum Drywall
- 2. Section 09 31 13 Tile Work

C. SUBMITTALS

- 1. Product Data: Provide product data for each toilet accessory item specified, including details of construction relative to materials, dimensions, gauges, profiles, method of mounting, specified options, and finishes.
- 2. Schedule: Indicating types, quantities, sizes, and installation locations (by room) for each toilet and bath accessory item to be provided for the Project.
- 3. Setting Drawings: Where cutouts are required in other work, provide substrate preparation instructions, and directions for preparing cutouts and for installation of anchorage devices.

D. REFERENCES

- 1. ANSI A117- 1986 Specifications for Making Buildings and Facilities Accessible to and Usable by Physically Handicapped People.
- 2. OBC Chapter 11, Accessibility.
- 3. ADA, Accessibility Guidelines for Buildings and Facilities

E. QUALITY ASSURANCE

- 1. Manufacturers
 - a. Model numbers for toilet room accessories manufactured by Bobrick Washroom Equipment, Inc. are listed to establish a standard of quality for design, function, materials, workmanship, and appearance.
 - b. The following manufacturers may be submitted for evaluation by the architect by following the conditions of the substitutions clause. Unless approval is obtained, all bids shall be based on the standard of quality. The architect shall be the sole judge as to the acceptability of all products submitted for substitution.
 - 1. American Specialties, Inc.
 - 2. Bobrick Washroom Equipment, Inc.
 - 3. Bradley Corporation
- 2. Accessories shall be the products of a single manufacturer.
- 3. Submittals
 - 1. Comply with requirements of Section regarding submittals.
 - 2. Manufacturer's Data Provide required number copies of the following:
 - a. Product data sheets.
 - b. Installation instructions.
 - c. Service and parts manual
 - 3. Samples: Upon request submit one sample of each item specified. If more than one manufacturer is specified, submit one sample of each item for architect's review.

F. PRODUCT DELIVERY, STORAGE AND HANDLING

- 1. Deliver items in manufacturer's original unopened protective packaging.
- 2. Store materials in original protective packaging to prevent physical damage or wetting.
- 3. Handle so as to prevent damage to accessories.

G. WARRANTY

- 1. Furnish one year guarantee against defects in material and workmanship on all accessories.
- 2. In addition to the above the following shall apply: Welded stainless steel framed mirrors shall have a fifteen-year guarantee against silver spoilage.

H. ACCESSORY SCHEDULE

- 1. Toilet Tissue Dispensers: Bobrick B-2888 Surface Mounted Multi-roll Toilet Tissue Dispenser, or equal.
- 2. Paper Towel Dispensers: Bobrick B-262 Surface Mounted Paper Towel Dispenser, or equal.
- 3. Soap Dipensers: Bobrick 818615 Surface Mounted Soap Dispenser, or equal.
- 4. Grab Bars: Bobrick Back Wall: B5806x36; Side Wall: B5806x42 and B5806x18, or equal.
- 5. Mirrors: Bobrick B-165 Series Channel Frame Mirror, or equal. See Drawings for sizes and locations.

I. MATERIALS - GENERAL

- 1. Stainless Steel: AISI, type 302/304, Provide #4 polished finish, unless otherwise specified.
- 2. Galvanized Steel Mounting Devices: Hot-dip galvanized after fabrications, ASTM A 386.

J. INSPECTION

- Check wall open for dimensions, plumbness of blocking or frames that would affect installation of recessed accessories. For surface mounted accessories check condition of wall and confirm installation of backing within wall.
- 2. Verify spacing of plumbing fixtures and toilet compartments that affect installation of toilet room accessories.

K. INSTALLATION

- 1. Install accessories at locations and heights indicated, straight, plumb and level and in accordance with manufacturer's installation instructions.
- 2. Install items with non-corrosive anchoring devices.
- 3. Installation methods shall conform to manufacturers recommendations for backing and proper support.
- 4. Conceal evidence of drilling, cutting, and fitting to room finish.
- 5. Fit flanges of accessories snugly to wall surfaces.

L. ADJUSTMENT AND CLEANING

- 1. Upon completion of the work, or when directed, remove all traces of protective coatings or paper.
- 2. Adjust accessories for proper operation. Test mechanisms, hinges, locks and latches and where necessary adjust and lubricate.
- 3. Clean and polish exposed surfaces prior to final installation.
- 4. Deliver accessories schedule, keys, and parts manual as part of project closeout documents. For owner's permanent records, provide two sets of the following items of manufacturer's literature:
 - a. Technical data sheets of each item used for the project.
 - b. Service and parts manuals.
 - c. Name of local representative to be contacted in the event of need of field service or consultation.

END OF SECTION 10 28 13

PAGE 12 24 13 - 1 SEC. 12 24 13 WINDOW SHADES

SECTION 12 24 13 - WINDOW SHADES

A. SUMMARY

1. Section includes Single-Roller, Manually Operated, Bottom-Up Window Shade System: Roll-up fabric window shade system including 2 head boxes (one at window head and one at window sill) and mounting hardware.

B. RELATED SECTIONS

- 1. Section 06 10 0 Rough Carpentry: Blocking for support of window shade hardware.
- 2. Section 07 92 00 Joint Sealants
- 3. Section 08 41 13 Aluminum-Framed Entrances and Storefronts
- 4. Section 09 21 16 Gypsum Board Assemblies
- 5. Section 09 51 13 Acoustical Ceiling Systems

C. REFERENCES

1. NFPA 701-99 - Fire Tests for Flame-Resistant Textiles and Films.

D. SUBMITTALS

- 1. General: Submit under provisions of Section 01 33 00 Submittal Procedures.
- 2. Product Data: Manufacturer's data sheets on each product specified, including:
 - a. Preparation instructions and recommendations.
 - b. Installation and maintenance instructions.
 - c. Styles, material descriptions, dimensions of individual components, profiles, features, finishes and operating instructions.
 - d. Storage and handling requirements and recommendations.
 - e. Mounting details and installation methods.
- 3. Shop Drawings: Plans, elevations, sections, product details, installation details, operational clearances and relationship to adjacent work.
- 4. Window Treatment Schedule: For all roller shades. Use same room designations as indicated on the Drawings, field verified window dimensions, quantities, type of shade, controls, fabric, and color, and include opening sizes and key to typical mounting details.
- 5. Selection Samples: For each finish product specified, two complete sets of shade cloth options and aluminum finish color samples representing manufacturer's full range of available colors and patterns.
- 6. Verification Samples: For each finish product specified, two complete sets of shade components, unassembled, demonstrating compliance with specified requirements. Shade fabric sample and aluminum finish sample as selected, representing actual product, color, and patterns. Mark face of material to indicate interior faces.
- 7. Maintenance Data: Methods for maintaining roller shades, precautions regarding cleaning materials and methods, instructions for operating hardware and controls.
- 8. Manufacturer's Certificates: Certify products meet or exceed specified requirements.

E. QUALITY ASSURANCE

- 1. Manufacturer Qualifications: Obtain roller shades through one source from a single manufacturer with a minimum of twenty years experience in manufacturing products comparable to those specified in this section.
- 2. NFPA Flame-Test: Passes NFPA 701. Materials tested shall be identical to products proposed for use.

F. <u>DELIVERY</u>, <u>STORAGE</u>, <u>AND HANDLING</u>

- 1. Do not deliver window shades until building is enclosed and construction within spaces where shades will be installed is substantially complete.
- 2. Deliver products in manufacturer's original, unopened, undamaged containers with labels intact.

- 3. Label containers and shades according to Window Shade Schedule.
- 4. Store products in manufacturer's unopened packaging until ready for installation.

G. **SEQUENCING**

- 1. Ensure that locating templates and other information required for installation of products of this section are furnished to affected trades in time to prevent interruption of construction progress.
- 2. Ensure that products of this section are supplied to affected trades in time to prevent interruption of construction progress.

H. PROJECT CONDITIONS

1. Install roller shades after finish work and ambient temperature, humidity and ventilation conditions are maintained at levels recommended for project upon completion.

I. WARRANTY

1. Hardware and Shade Fabric: Manufacturer's standard twenty-five year limited warranty.

J. PRODUCTS

- 1. Standard Specified: Bottom-up FlexShade, as manufactured by Draper, Inc.
 - a. System Description:
 - 1. Operation: Manual.
 - 2. Rollers: Single roller at top and bottom.
 - a. Spring assist in top roller
 - b. Constant force spring in bottom roller.
 - 3. Brackets, Fascia or Headbox.
 - b. Basis of Design Product: Bottom-Up FlexShadeTM with XD Clutch.
 - c. Roller Tubes: Fabricated from steel or extruded aluminum.
 - 1. Diameter, Wall Thickness, and Material: As determined by manufacturer to accommodate shade size.
 - 2. Fabric Attachment: Manufacturer's standard double sided adhesive specifically developed to attach coated textiles to metal and to eliminate horizontal impressions in fabric.
 - d. Headboxes: Consists of aluminum fabrication with removable closure, endcaps, and back and top cover piece.
 - 1. Finish: Clear anodized.
 - e. End Caps: Stamped steel with universal design suitable for mounting to ceiling or jamb. Provide size compatible with headbox size.
 - 1. Covers: Match fascia/headbox finish.
 - f. Fascia: L shaped aluminum extrusion to conceal shade roller and hardware.
 - 1. Attachment: Snaps onto end caps without requiring exposed fasteners of any kind.
 - 2. Mounting: Continuously across two or more shade bands as indicated on the Drawings.
 - 3. Profile: Square
 - a. Finish: Clear anodized.
 - g. Hem Bars: Extruded aluminum hem bar attached to bottom of shade.
 - 1. Hem bars do not retract into headbox.
 - 2. Pulleys: Provided to facilitate correct tracking of the lifting cable.
 - h. Lifting Cable: 0.046 inch OD 7x19 strand low-stretch high fatigue nylon-coated cable.
 - i. Idle End Assembly: Plastic idle end insert into roller will fit over steel pin and rotate on pin with use of sealed bearing.
 - 1. Steel pin is attached to plastic bracket mounted inside the headbox. Systems not using sealed bearings are not acceptable.

Fabric

a. Light Filtering Fabric: 500 denier fiberglass, vinyl coated and woven into a 2 by 2 basketweave.

- 1. Product Name: Phifer SheerWeave® SW2400.
- 2. Fire Classification:
 - a. NFPA 701 TM#1 (small-scale tests), pass.
 - b. NFPA 701 TM#2 (large-scale tests), pass.
- 3. Treatment: Bacteria and Fungal Resistance, ASTM G 21 and ASTM G 22.
- 4. Approximate Openness Factor: 3 percent.
- 5. Average Fabric Thickness: 0.019 inch.
- 6. Color and pattern: As selected by Architect from manufacturer's full range of standard colors and patterns.

3. Controls, Manual

- a. Clutch Operator: Thermoplastic with welded 0.354 inches primary steel post with rotational bearing to ensure smooth and quiet operation.
 - 1. Overrunning design.
 - 2. Positive mechanical engagement of drive mechanism to tube.
 - 3. Color: White
 - 4. Bead Chain: Stainless steel.

K. EXAMINATION

- 1. Do not begin installation until substrates have been properly prepared.
- 2. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

L. PREPARATION

1. Coordinate requirements for blocking and structural supports to ensure adequate means for installation of window shades.

M. INSTALLATION

- 2. Install in accordance with manufacturer's instructions.
- 3. Install window shades level, plumb, square, and true.
 - a. Allow proper clearances for window operation hardware.
- 4. Position shades level, plumb, and at proper height relative to adjacent construction.
 - a. Secure with fasteners recommended by manufacturer.
- 5. Install headbox, side channels, and sill channel with sealant specified in Section 079200 "Joint Sealants" to eliminate light leaks at perimeter of shade system.

N. TESTING AND DEMONSTRATION

- 1. Test window shades to verify that operating mechanism, fabric retainer, and other operating components are functional. Correct any operational deficiencies.
- 2. Demonstrate operation of shades to Owner's designated representatives.

O. PROTECTION

- 1. Protect installed products until completion of project.
- 2. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION 12 24 13

TENANT SPACE RENOVATIONS CITY OF CANTON WATER DEPARTMENT BILLING CORNERSTONE PARKING GARAGE

306 SECOND STREET S.E.

CANTON, OH 44702

ISSUED FOR BID: DECEMBER 3, 2018

PREPARED BY:

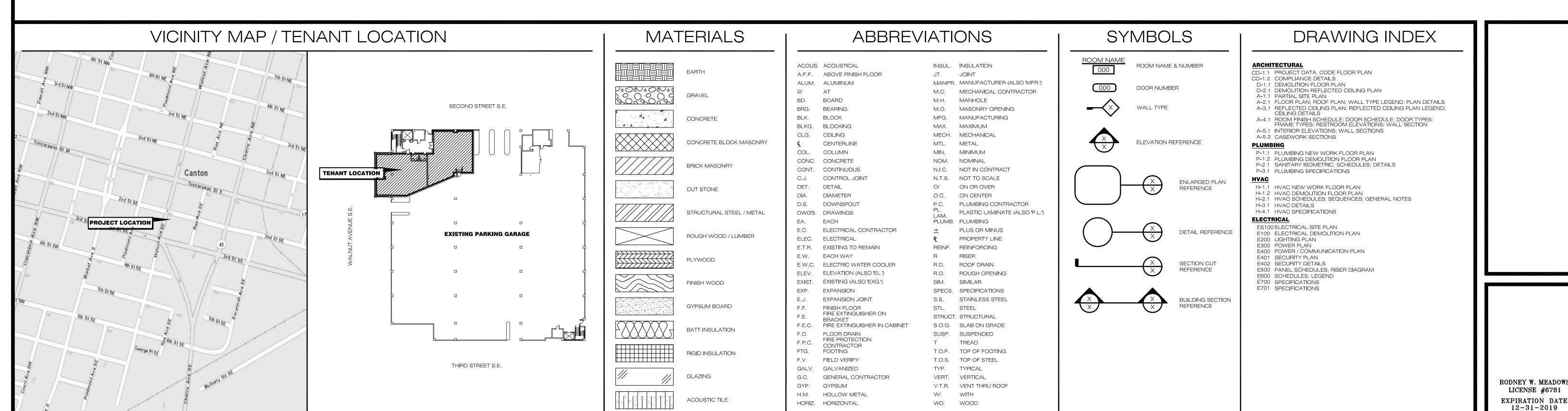
ARCHITECT:

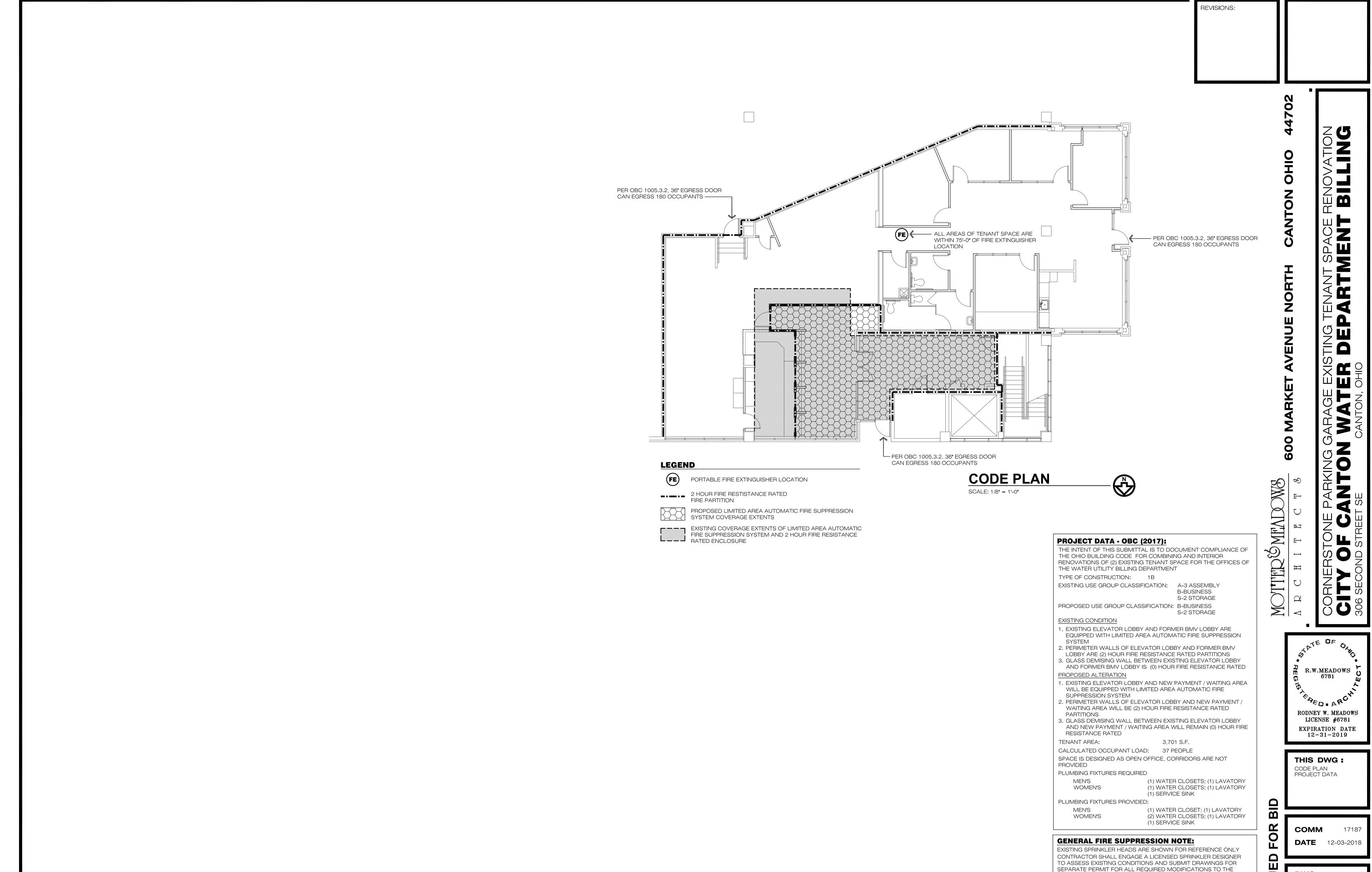
MOTTEREMENDOWS

A R C H I T E C T 8

600 MARKET AVENUE NORTH CANTON, OHIO 44702 PHONE: (330) 454-6165 FAX: (330) 454-6789

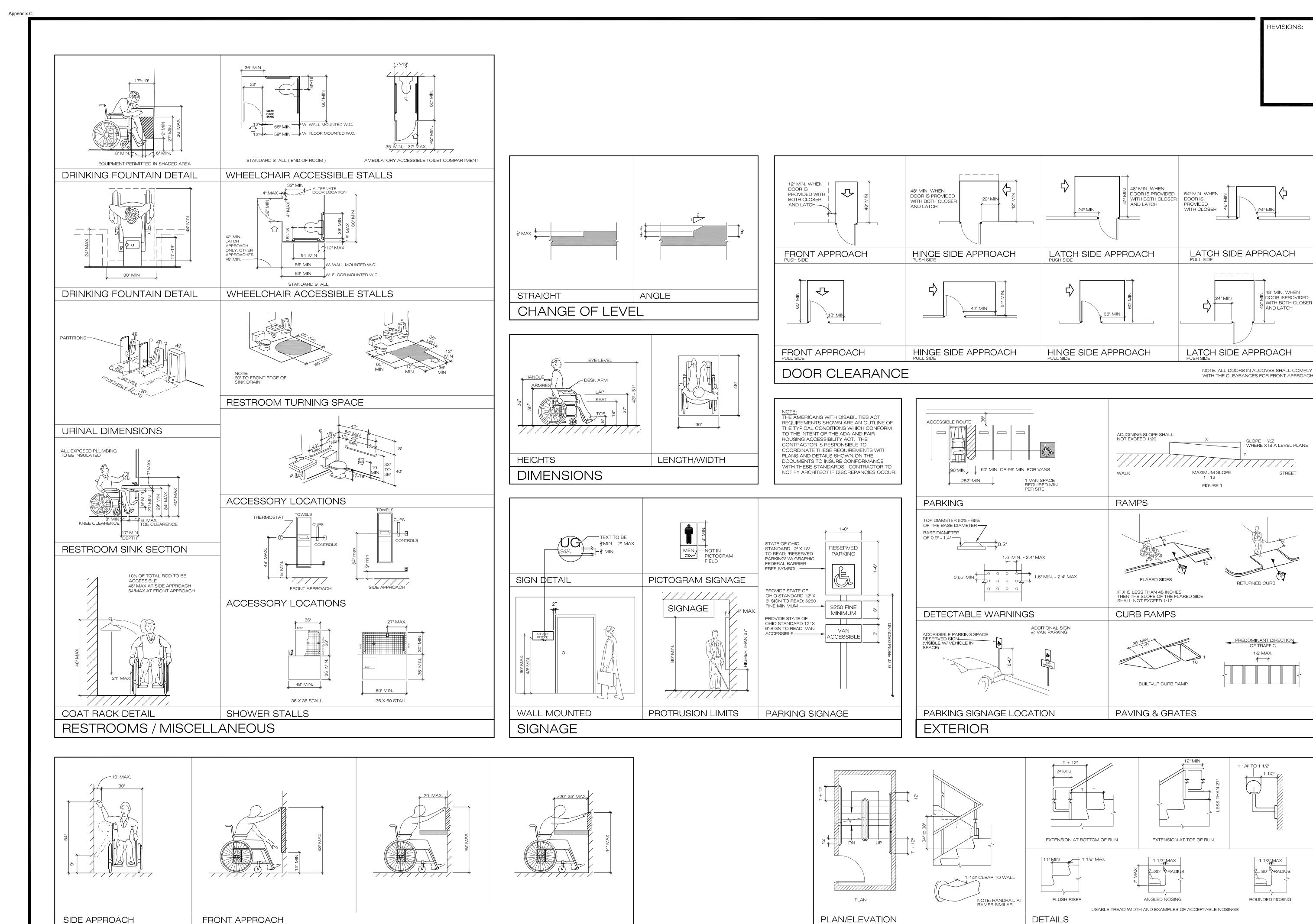
MECHANICAL ENGINEER: HEI ENGINEERING GROUP, INC ELECTRICAL ENGINEER: STATE ELECTRICAL ENGINEERING





DWG

EXISTING FIRE SUPPRESSION SYSTEM.



REACH DIMENSIONS

STAIRS

STONE PARKING GARAGE EXISTING TENANT SPACE RENOVA-OF CANTON WATER DEPARTMENT BILLI

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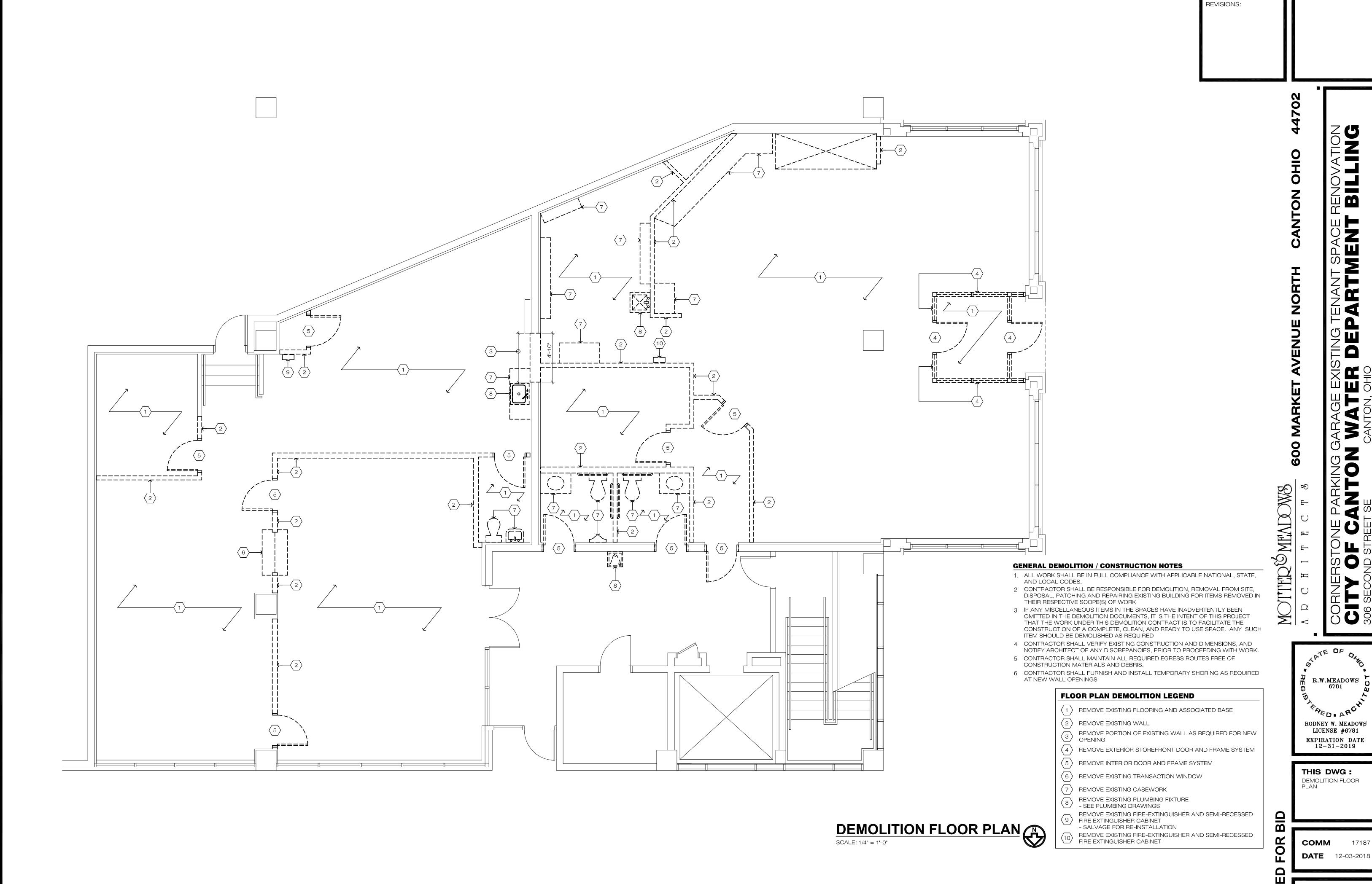
RODNEY W. MEADOWS LICENSE #6781

EXPIRATION DATE 12-31-2019

THIS DWG:
COMPLIANCE DETAILS

COMM 17187 **DATE** 12-03-2018

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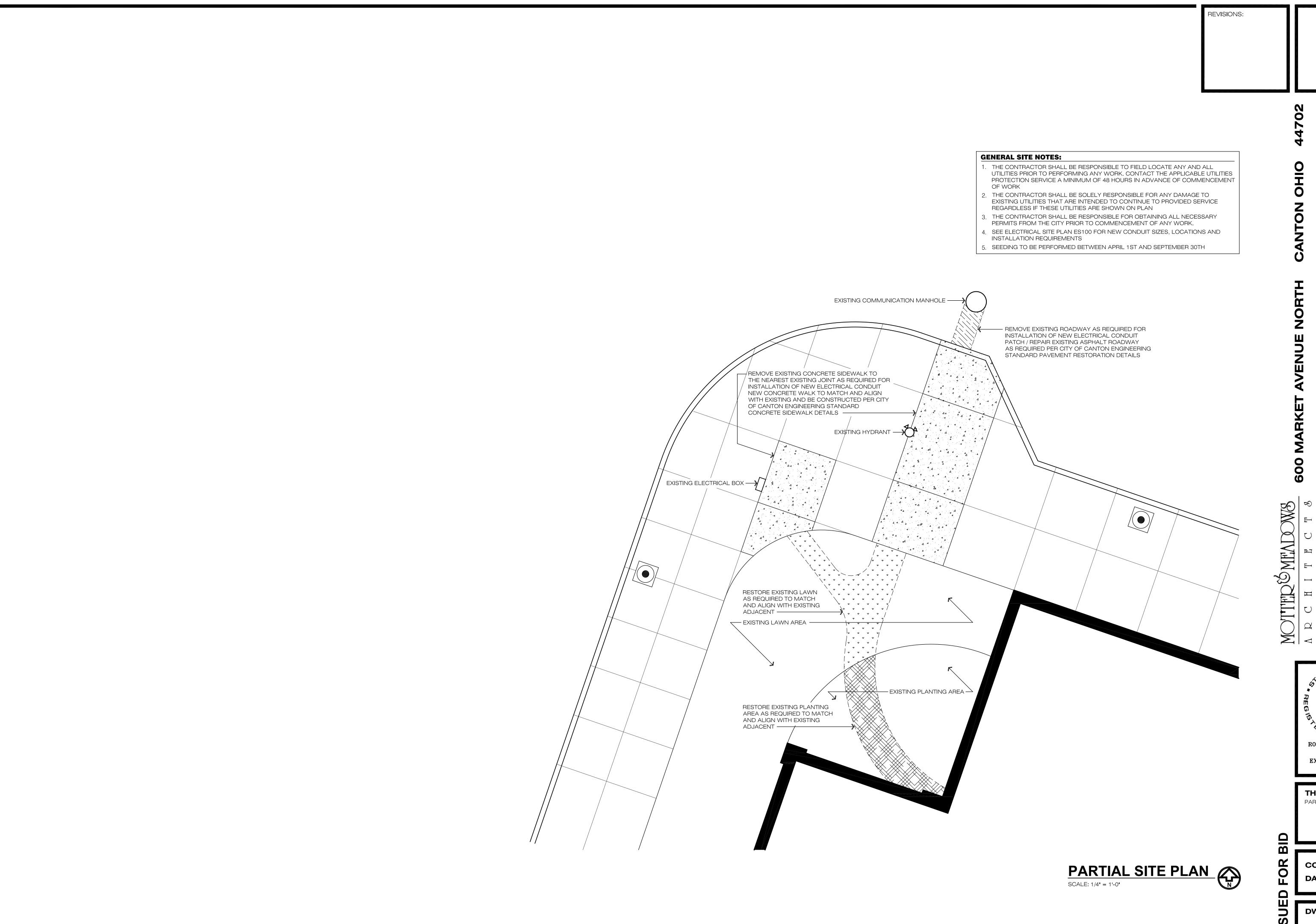


DWG



RODNEY W. MEADOWS LICENSE #6781

DWG



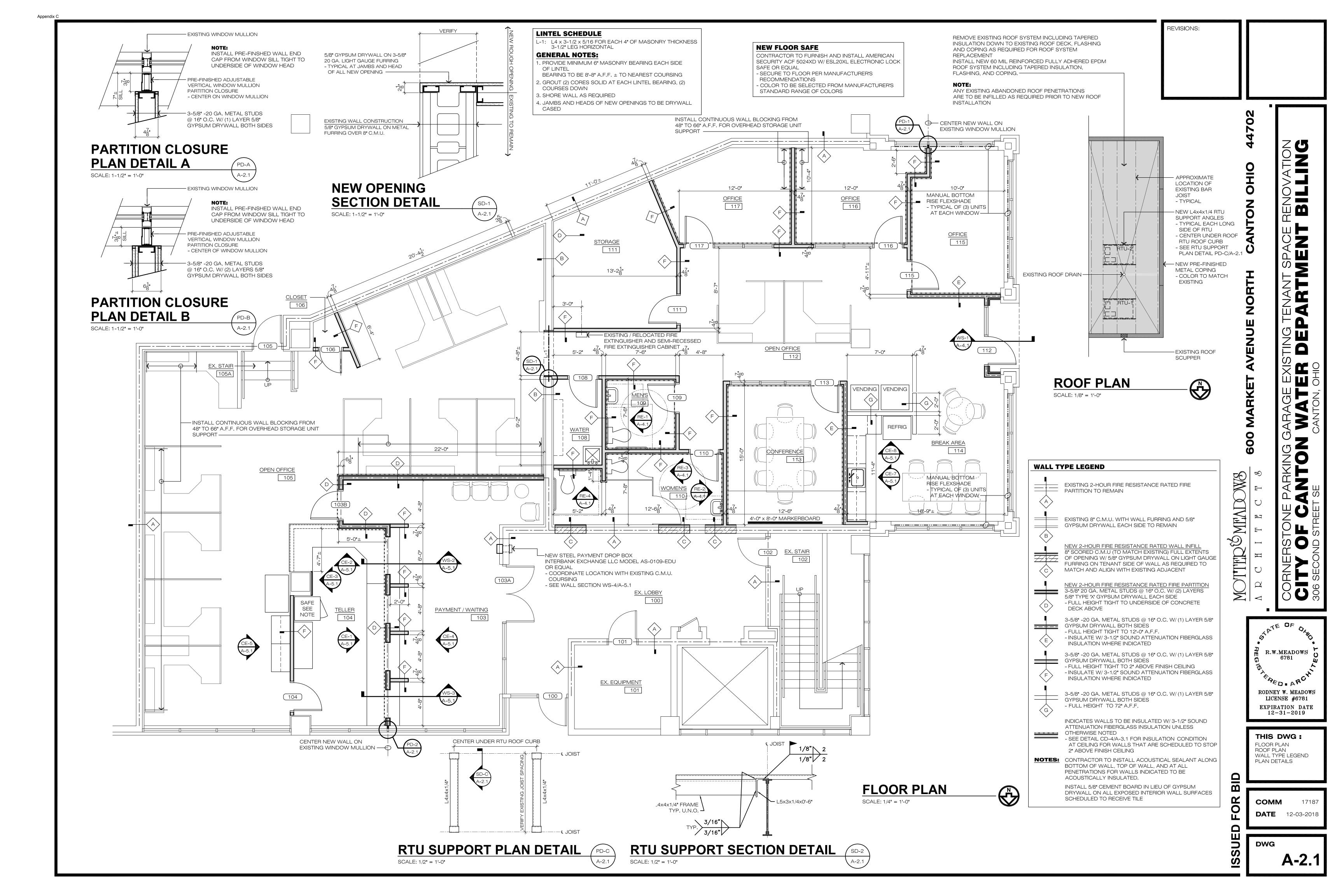
R.W.MEADOWS 6781 RODNEY W. MEADOWS LICENSE #6781 EXPIRATION DATE 12-31-2019

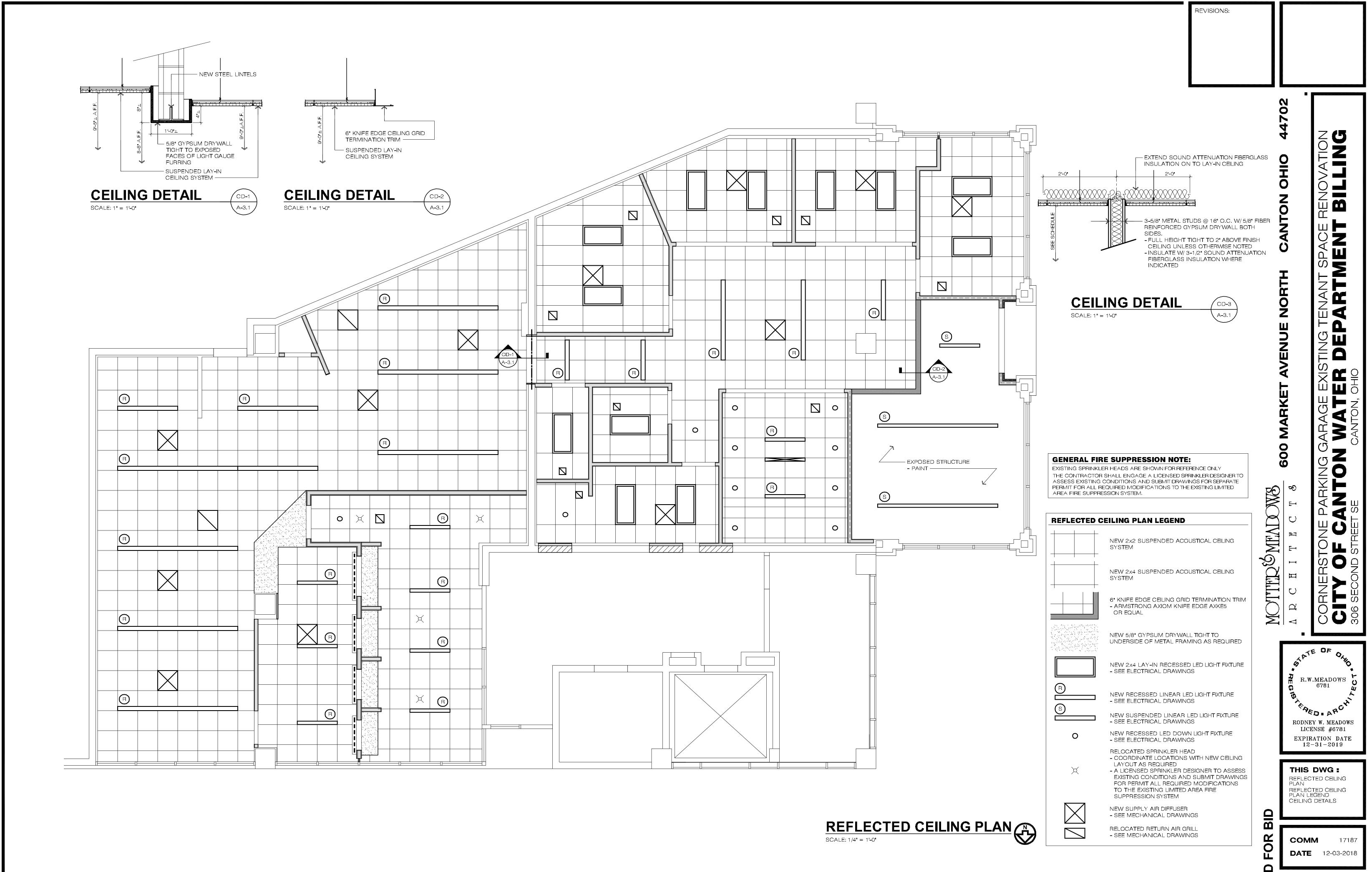
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COMM **DATE** 12-03-2018

DWG

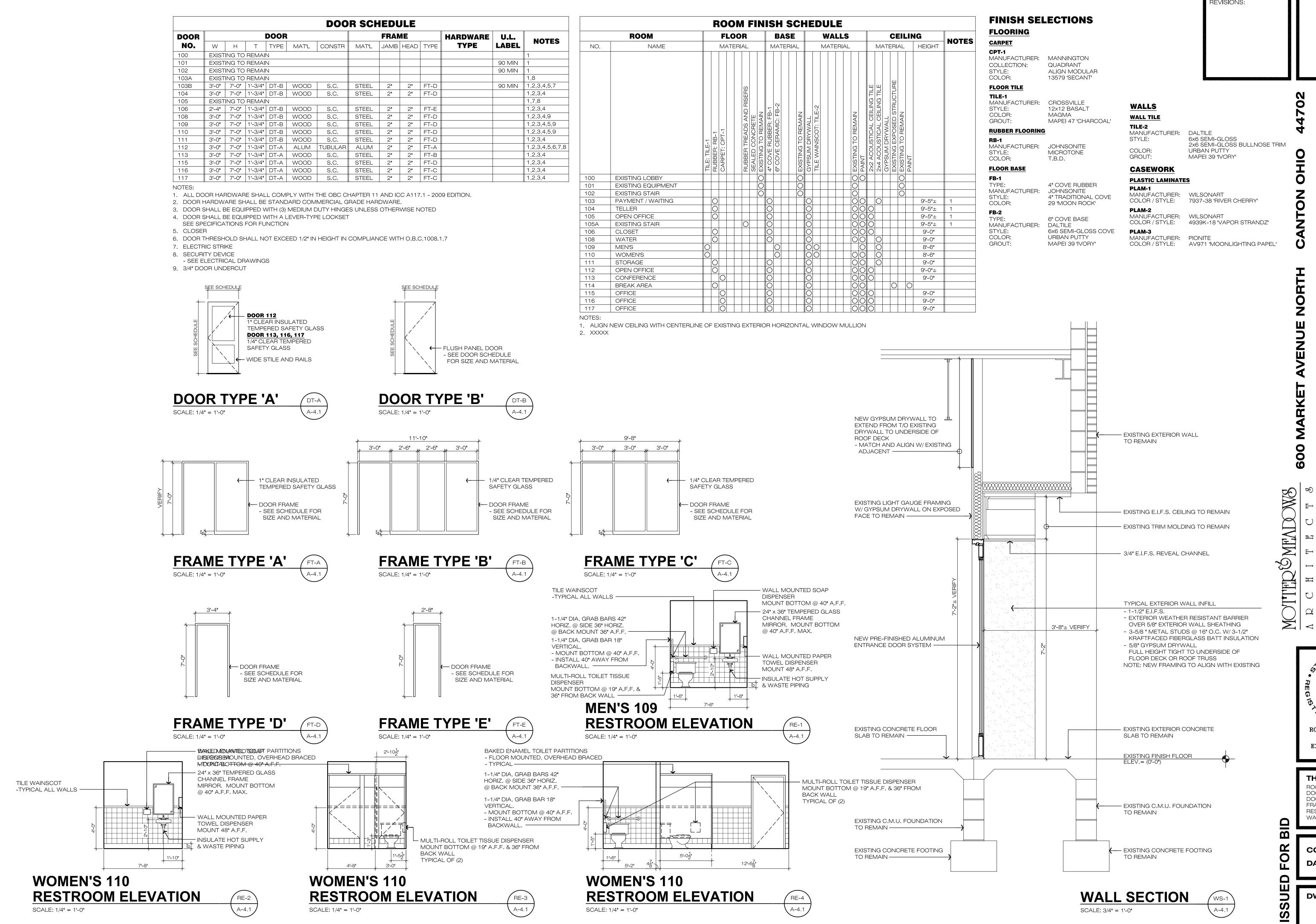
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DWG

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REVISIONS:

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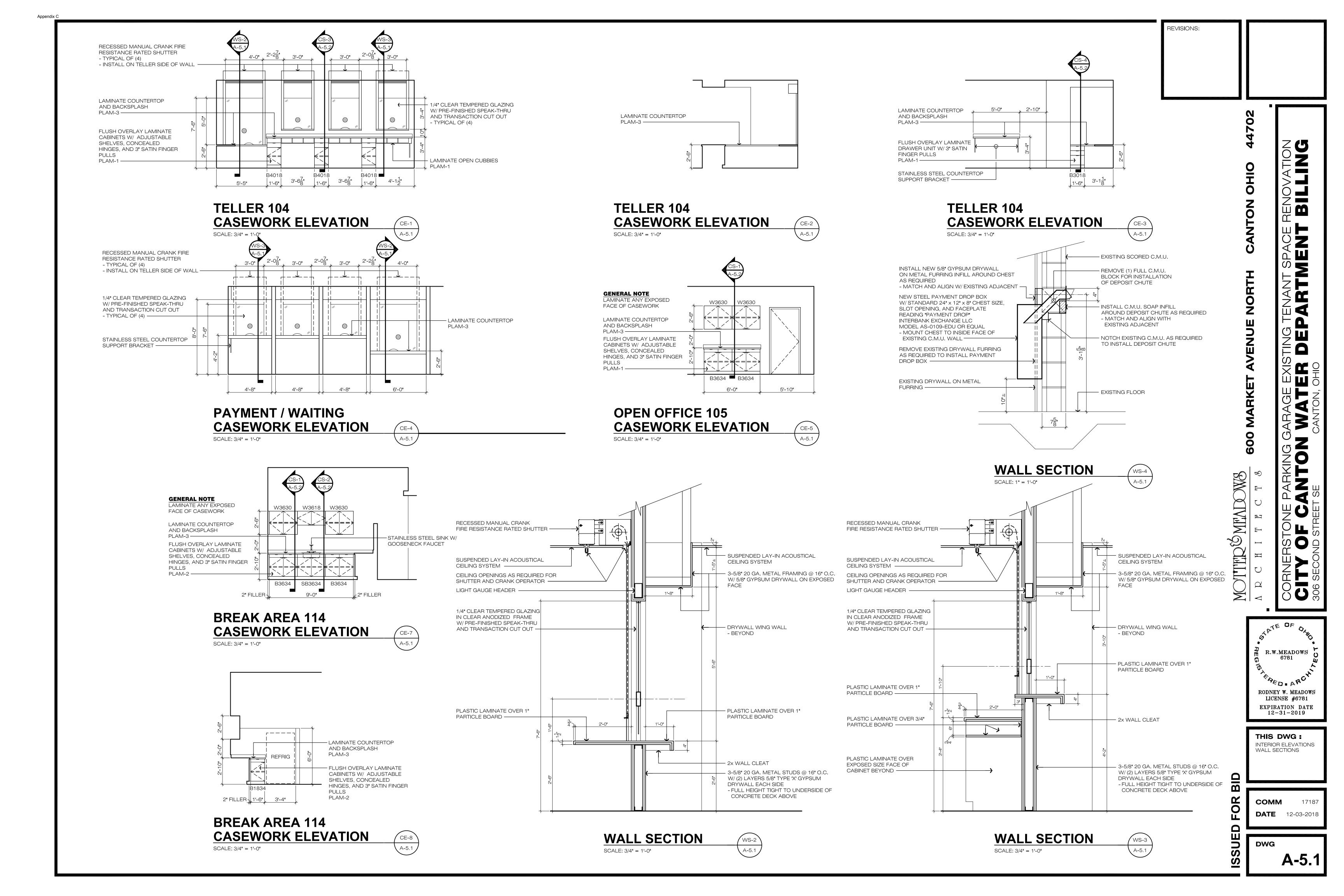
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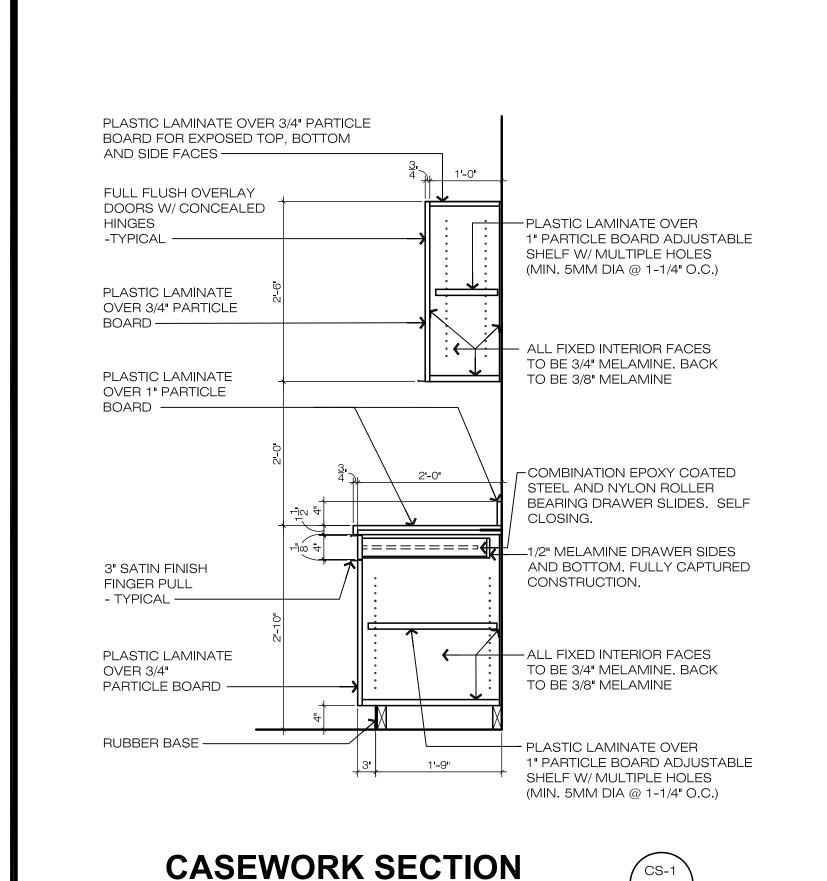
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WALL SECTION COMM

DATE 12-03-2018

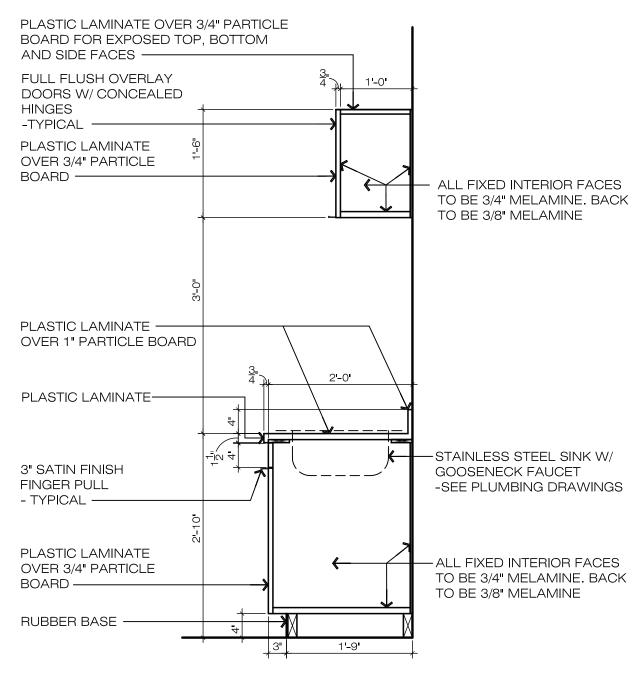
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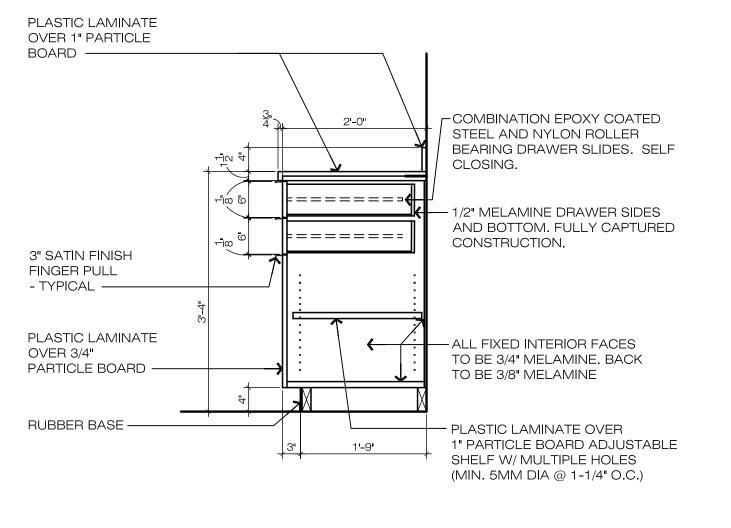


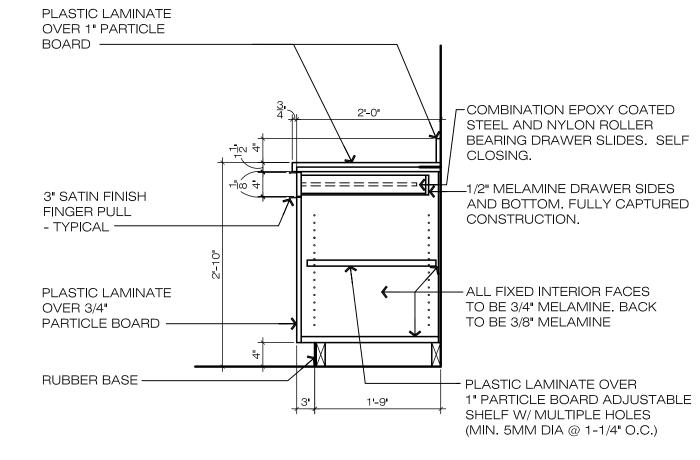


SCALE: 3/4" = 1'-0"

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CASEWORK SECTION SCALE: 3/4" = 1'-0"

CASEWORK SECTION SCALE: 3/4" = 1'-0"

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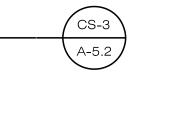
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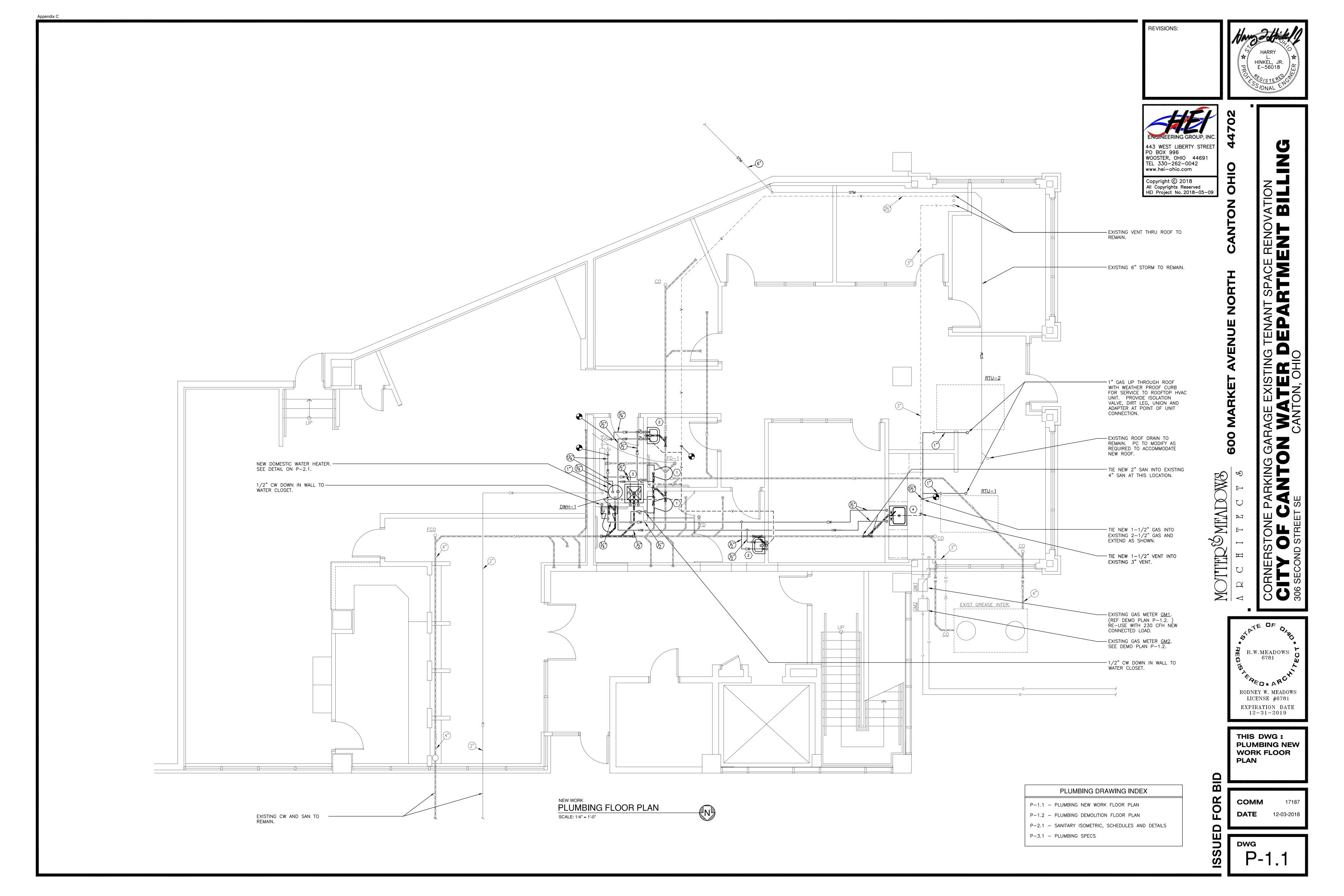
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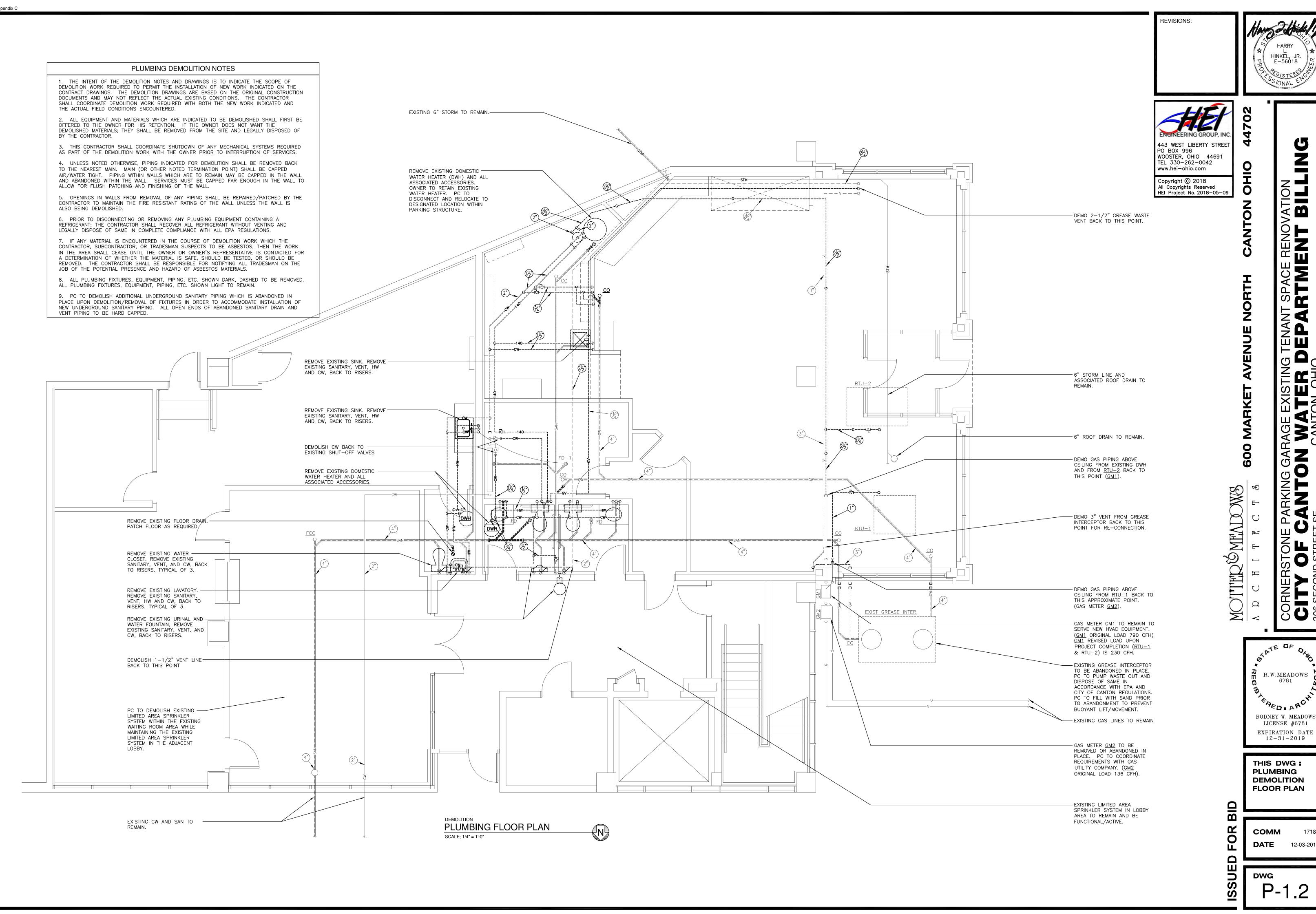
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E-56018

JE OF R.W.MEADOWS 6781 EAED. AR' RODNEY W. MEADOWS LICENSE #6781

THIS DWG: **PLUMBING DEMOLITION FLOOR PLAN**

> 17187 12-03-2018

		PLUMBING EQ	UIPMENT AND DRAIN SCHEDULE
SYM	TYPE	MAKE, MODEL	DESCRIPTION
)WH — 1	DOMESTIC WATER HEATER	A.O. SMITH PROMAX #DEL-10S-3	ELECTRIC TANK TYPE WATER HEATER WITH 3.0 KW INPUT RATING FOR 15.0 GPH RECOVERY RATE AT 80 DEG F. TEMPERATURE RISE. WATER HEATER SHALL HAVE A STORAGE CAPACITY OF 10 GALLONS AND A SINGLE ELEMENT REQUIRING 120V-1PH ELECTRIC. HEATER SHALL INCLUDE A WALL MOUNT INSTALLATION KIT AND AN ASME TEMPERATURE AND PRESSURE RELIEF VALVE SELECTED FOR CAPACITY BASED ON THE AGA TEMPERATURE STEAM RATING. WATER HEATERS SHALL BE IN COMPLIANCE WITH CURRENT EDITION OF ASHRAE STD. 90.1.
EXT-1	EXPANSION TANK	AMTROL THERM—X—TROL #ST—5	NON-ASME STEEL TANK WITH A RIGID POLYPROPYLENE LINER AND A HEAVY-DUTY BUTYL DIAPHRAGM TO SEPARATE THE WATER FROM THE PRE-CHARGED (40 PSIG) AIR CHAMBER. TOTAL TANK VOLUME EQUALS 2.0 GALLONS, MAXIMUM ACCEPTANCE FACTOR OF 0.45 AND MAXIMUM ACCEPTANCE VOLUME EQUALS 0.9 GALLONS. SYSTEM CONNECTION OF 3/4".
WB-1	ICE MAKER WALL BOX	GUY GRAY #BIM875	ALL WELDED WATERTIGHT STEEL RECESSED WALL BOX. UNIT COMPLETE WITH 1/2" FIP INLET X 1/4" OD OUTLET COMPRESSION ANGLE VALVE.
ΓP-1	TRAP PRIMER	PRECISION PLUMBING PRODUCTS PRIME—RITE #PR—500	AUTOMATIC TRAP PRIMER VALVE WITH CORROSION RESISTANT BRASS BODY AND 1/2" PIPE THREAD CONNECTIONS. PROVIDE DISTRIBUTION UNITS SERIES DU WHEN TRAP PRIMER VALVE IS SERVING MORE THAN ONE FLOOR DRAIN.

NOTE: ITEMS SCHEDULED ARE BASIS OF DESIGN. OTHER MANUFACTURERS MAY BE SUBSTITUTED IN ACCORDANCE WITH THE FOLLOWING LIST:

> DRAINS, CLEANOUTS AND CARRIERS - JAY R. SMITH, JOSAM, MIFAB, WADE, WATTS, ZURN EXPANSION TANKS - AMTROL, TACO, WATTS, WILKENS

FLUSH VALVES - DELANEY, HYDROTEK, MOEN, SLOAN, ZURN

SHOCK STOPS - JAY R. SMITH, JOSAM, MIFAB, PPP, SIOUX CHIEF, WADE, WATTS, ZURN TRAP PRIMER VALVES - JAY R. SMITH, JOSAM, MIFAB, PPP, SIOUX CHIEF, WATTS

WATER HEATERS AND STORAGE TANKS - A.O. SMITH, BRADFORD WHITE, LOCHINVAR, RHEEM, STATE

		PLUMBING F	PIPE AND INSULA	TION SCHEDULE		
TYPE	SIZE	PIPE	FITTINGS	JOINTS	INSULATION	NOTES
					THICKNESS	
CW	UP TO 2"	TYPE "L" COPPER	WROUGHT COPPER	SOLDER	1/2"	
CW	UP TO 2"	CTS CPVC	CTS CPVC	SOLVENT CEMENT	1/2"	
HW	UP TO 2"	TYPE "L" COPPER	WROUGHT COPPER	SOLDER	1"	
HW	UP TO 2"	CTS CPVC	CTS CPVC	SOLVENT CEMENT	1/2"	
GAS	UP TO 2"	SCH 40 BLACK STL	125# MAL. IRON	SCREWED	N/A	
GAS	2-1/2" TO 10"	SCH 40 BLACK STL	BLACK STEEL	WELDED	N/A	
GAS	BELOW GRADE	POLYETHYLENE	POLYETHYLENE	FUSION WELDED	N/A	SEE NOTE 6
DWV	UP TO 1-1/2"	SCH 40 GALV. STL.	CAST IRON	SCREWED	N/A	
DWV	UP TO 1-1/2"	PVC	PVC	SOLVENT CEMENT	N/A	SEE NOTE 5
DWV	2" & LARGER	CAST IRON	CAST IRON	NO-HUB	N/A	SEE NOTE 4
DWV	2" & LARGER	PVC	PVC	SOLVENT CEMENT	N/A	SEE NOTE 5
	-			-		-

COPPER PIPE SHALL BE IN ACCORDANCE WITH ASTM B88.

STEEL PIPE 1-1/2" AND SMALLER SHALL BE ASTM A120 BUTT WELDED CARBON STEEL. STEEL PIPE 2" AND LARGER SHALL BE ASTM A53 GRADE B SEAMLESS CARBON STEEL OR ELECTRIC

RESISTANCE WELDED. CAST IRON PIPE SHALL BE IN ACCORDANCE WITH ASTM A74.

PVC PIPE AND FITTINGS SHALL BE SOLID WALL SCHEDULE 40 IN ACCORDANCE WITH ASTM D2665.

POLYETHYLENE PIPE SHALL BE IN ACCORDANCE WITH ASTM D2513. CTS (COPPER TUBE SIZE) CPVC PIPE SHALL BE IN ACCORDANCE WITH ASTM D2846.

PEX TUBING SHALL BE IN ACCORDANCE WITH ASTM F877. 9. PIPE INSULATION SHALL BE EITHER FIBERGLASS OR FLEXIBLE UNICELLULAR TYPE WITH A MAXIMUM THERMAL CONDUCTIVITY "k" FACTOR OF 0.24 AT 75°F MEAN TEMPERATURE. FIBERGLASS PIPE INSULATION SHALL HAVE AN ALL SERVICE JACKET.

NOTE 1. SEE PLUMBING SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

NOTE 2. WHERE MORE THAN ONE TYPE OF PIPE OR INSULATION IS INDICATED THE INSTALLING CONTRACTOR MAY SELECT FROM THE OPTIONS ACCORDING TO HIS PREFERENCE.

NOTE 3. HORIZONTAL RAIN WATER CONDUCTORS SHALL BE INSULATED WITH 1" THICK FIBERGLASS PIPE INSULATION. NOTE 4. BURIED CAST IRON SOIL PIPE SHALL BE HUB AND SPIGOT TYPE WITH COMPRESSION GASKET JOINTS. NOTE 5. PVC DWV PIPE SHALL NOT BE INSTALLED IN ANY CEILING SPACES WHICH ARE USED FOR AN AIR PLENUM.

NOTE 6. INSTALL POLYETHYLENE GAS PIPING MINIMUM 18" BELOW GRADE. NOTE 7. PEX TUBING TO BE USED FOR INTERIOR UNDERGROUND/UNDERFLOOR INSTALLATIONS ONLY AND HAVE A MAXIMUM OPERATING TEMPERATURE OF 180°F AT 100 PSI.

NOTE 8. CPVC PIPE SHALL HAVE A MAXIMUM OPERATING TEMPERATURE OF 180°F AT 100 PSI.

			PLUMBING FIXTURE SCHEDULE						
SYM	TYPE	MAKE, MODEL	DESCRIPTION		CC	NNECTIO	NS		MTG.
J I WI	1176	AND SIZE	DESCRIPTION	CW	HW	TRAP	DRAIN	VENT	HT.
1	WATER CLOSET ADA	AMERICAN STANDARD CADET PRO RIGHT HEIGHT #215AB.004 (#4188B.005)	VITREOUS CHINA ELONGATED BOWL FLOOR MOUNT (12" ROUGH-IN) TANK TYPE WATER CLOSET FOR LOW WATER CONSUMPTION (1.60 GPF). INSTALLATION SHALL BE COMPLETE WITH A 1/2" ANGLE STOP VALVE WITH A WHEEL HANDLE, 12" LONG 3/8" O.D. FLEXIBLE RISER AND WALL FLANGE AND CHURCH #293SS WHITE OPEN FRONT ELONGATED SEAT WITH COVER. INSTALLATION SHALL BE IN COMPLIANCE WITH ACCESSIBLE AND USABLE BUILDINGS AND FACILITIES ICC A117.1-2009 AND FLUSH LEVER SHALL BE ON THE WIDE SIDE OF THE WATER CLOSET.	1/2"	NONE	INT.	4"	2"	FLOOR
2	LAVATORY ADA	AMERICAN STANDARD LUCERNE #0355.012 20.50" X 18.25" OVERALL 15" X 10" X 6.5" BASIN	VITREOUS CHINA WALL HUNG LAVATORY WITH FAUCET HOLES 4" ON CENTER. INSTALLATION SHALL BE COMPLETE WITH J.R. SMITH #0700 CONCEALED ARM CARRIER WITH FLOOR MOUNTED SUPPORT, DELTA #511LF—HGMHDF CHROME FINISH FAUCET WITH SINGLE LEVER TYPE HANDLE AND AERATOR FOR 0.5 GPM MAX FLOW REGARDLESS OF PRESSURE AND POWERS HYDROGUARD #e480 ASSE 1070 TEMPERING VALVE SET FOR 100°F DISCHARGE TEMPERATURE. ADDITIONAL TRIM SHALL INCLUDE A PERFORATED GRID STRAINER WITH 1-1/4" TAIL PIECE, 1-1/4" CHROME PLATED P-TRAP WITH INTEGRAL CLEANOUT, ANGLE STOP AND 12" LONG 3/8" OD FLEXIBLE RISERS AND WALL FLANGE. INSTALLATION SHALL BE IN COMPLIANCE WITH ACCESSIBLE AND USABLE BUILDINGS AND FACILITIES ICC A117.1-2009 AND HAVE ALL EXPOSED PIPING BENEATH THE LAVATORY SHALL BE INSULATED WITH ADA APPROVED TRAP, VALVES AND PIPING PROTECTION PRODUCTS.	1/2"	1/2"	1-1/4"	1-1/2"	1-1/2"	34" RIM TO FLOOR
3	MOP BASIN	FIAT #MSB-2424 24" X 24" X 10"	MOP SERVICE BASIN MOLDED OF A COMPOSITE MATERIAL OF FUSED CRUSHED STONE AND POLYESTER RESIN. BASIN SHALL INCLUDE AN INTEGRAL 3" DRAIN WITH SEAL AND A REMOVABLE STAINLESS STEEL STRAINER. INSTALLATION SHALL INCLUDE STAINLESS STEEL WALL GUARD #MSG 2424, HOSE AND HOLDER #832-AA AND DELTA #28T9 ROUGH CHROME SERVICE SINK FAUCET WITH INTEGRAL VACUUM BREAKER, STOPS, 3/4" HOSE END SPOUT AND PAIL HOOK.	1/2"	1/2"	3"	3"	1-1/2"	FLOOR
4	COUNTER SINK	JUST STYLIST-A #SL-2017-A-GR 17" X 20" OVERALL 14" X 14" X 7.5" BASIN	SINGLE COMPARTMENT 18 GAUGE TYPE 304 STAINLESS STEEL SELF-RIMMING, UNDERCOATED COUNTERTOP SINK COMPLETE WITH J-35 STAINLESS STEEL CUP STRAINER WITH REMOVABLE BASKET AND 1-1/2" CHROME PLATED BRASS TAILPIECE AND DELTA #100LF-HDF DECK MOUNTED SINGLE LEVER WASHERLESS MIXING FAUCET WITH 8" SPOUT AND AERATOR. ADDITIONAL TRIM SHALL INCLUDE A 1-1/2" CHROME PLATED CAST BRASS P-TRAP WITH INTEGRAL CLEANOUT, ANGLE STOPS AND 12" LONG 3/8" O.D. FLEXIBLE RISERS AND WALL FLANGES. CONTRACTOR TO VERIFY SINK FIT WITH COUNTERTOP PRIOR TO PROCUREMENT AND INSTALLATION.	1/2"	1/2"	1-1/2"	1-1/2"	1-1/2"	C'TOP

FAUCETS - AMERICAN STANDARD, CHICAGO FAUCET, DELTA, ELJER, KOHLER, MOEN, SPEAKMAN, T&S BRASS FIXTURES - AMERICAN STANDARD, CRANE, ELJER, KOHLER

FLUSH VALVES - DELANEY, HYDROTEK, MOEN, SLOAN, ZURN MOP BASINS AND UTILITY SINKS - E.L. MUSTEE, FIAT, STERN-WILLIAMS, SWAN

> 1. DRAWINGS ARE DIAGRAMMATIC AND INDICATE GENERAL ARRANGEMENT OF THE PLUMBING SYSTEMS. ACTUAL FIELD

MAY REQUIRE MINOR DEVIATIONS.

WITH ALL OTHER TRADES.

CONDITIONS AND WORK OF OTHER TRADES

2. THIS CONTRACTOR TO BE AWARE OF LIMITED SPACE ABOVE CEILING FOR NEW WORK AND SHOULD COORDINATE HIS WORK

INSTALLED IN ACCORDANCE WITH THE OHIO

5. PLUMBING AND HVAC INSTALLATION SHALL BE COORDINATED SO AS TO MAINTAIN AT LEAST TEN FEET OF CLEARANCE FROM ALL

EXHAUST AIR OUTLETS OR OTHER NOXIOUS

THROUGH FIRE/SMOKE RATED ASSEMBLIES SHALL BE SEALED WITH FIRE AND SMOKE STOPPING COMPOUND SO AS TO MAINTAIN

THE FIRE RESISTANCE RATING OF THE WALL PENETRATED. FIRESTOPPING COMPOUND, PIPE

SLEEVES, AND PIPING INSTALLATION SHALL BE

ASSEMBLY IS CLASSIFIED BY UL AS LISTED IN THE UL BUILDING MATERIALS DIRECTORY.

ALL EXCAVATING AND TRENCHING AS WELL AS ALL CUTTING AND PATCHING OF EXISTING

PLUMBING SYSTEMS. ANY EXISTING ROOF

CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVAL, STORAGE AND REINSTALLATION

ACCOMPLISH HIS SCOPE OF WORK. UPON

9. SEE SANITARY ISOMETRIC FOR DRAIN AND

VENT PIPE SIZES. SEE PLUMBING FIXTURE

SCHEDULE FOR WATER, DRAIN AND VENT

10. GAS PIPING SHALL BE INSTALLED IN

11. UPON COMPLETION OF THE DOMESTIC

COMPLETION OF THE DISINFECTION PROCESS;

WATER PIPING INSTALLATION, THE ENTIRE SYSTEM SHALL BE FLUSHED, DISINFECTED, AND FLUSHED AGAIN IN ACCORDANCE WITH THE LATEST AWWA STANDARDS. UPON

BACTERIOLOGICAL TESTS SHALL BE PERFORMED IN ACCORDANCE WITH AWWA

STANDARDS AND THE LOCAL HEALTH

DEPARTMENT TO VERIFY SATISFACTORY

ACCORDANCE WITH THE INTERNATIONAL FUEL

GAS CODE. ALL EXTERIOR EXPOSED PIPING

SHALL BE PAINTED WITH WEATHER RESISTANT

SIZES TO INDIVIDUAL FIXTURES.

GLOSS YELLOW PAINT.

POTABLE WATER QUALITY.

WARRANTIES SHALL BE MAINTAINED. NO STRUCTURAL OR REINFORCING MEMBERS

8. UNLESS NOTED OTHERWISE, THIS

7. UNLESS NOTED OTHERWISE, THIS CONTRACTOR SHALL BE RESPONSIBLE FOR

PLUMBING AND MECHANICAL CODES.

ALLOW 8" MINIMUM CLEAR TO TOP OF

CEILING. NO BULLHEAD TEES WILL BE

OUTDOOR AIR INTAKES AND BUILDING

CONDITIONS.

SHALL BE CUT.

GENERAL PLUMBING NOTES

STAINLESS STEEL SINKS - ADVANCE TABCO, AMERICAN STANDARD, AMTEKCO, ELJER, ELKAY, JUST, KOHLER

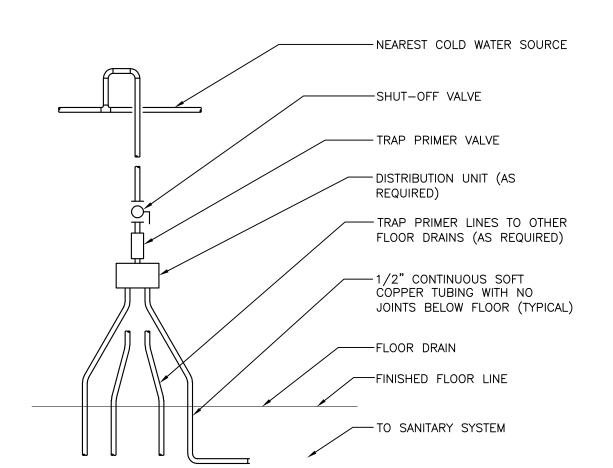
EXISTING 3" VENT THRU ROOF TO REMAIN (TYP OF 2)
TIE NEW 1-1/2" VENT INTO EXISTING 3" VENT AT THIS LOCATION.
TIE NEW 2" VENT INTO EXISTING 2" VENT AT THIS LOCATION.
2" VENT AT THIS ECCATION. (2")
E-FCO (2) (2)
4" SAN AT THIS LOCATION.
$\begin{array}{c c} & & & \\ \hline \end{array}$
$\begin{array}{c c} & & & \\ \hline & & \\ \hline & & \\ \hline & & \\ \hline \end{array}$
TIE NEW 2" SAN INTO EXISTING
TIE NEW 2" SAN INTO EXISTING 4" SAN AT THIS LOCATION.

SANITARY ISOMETRIC

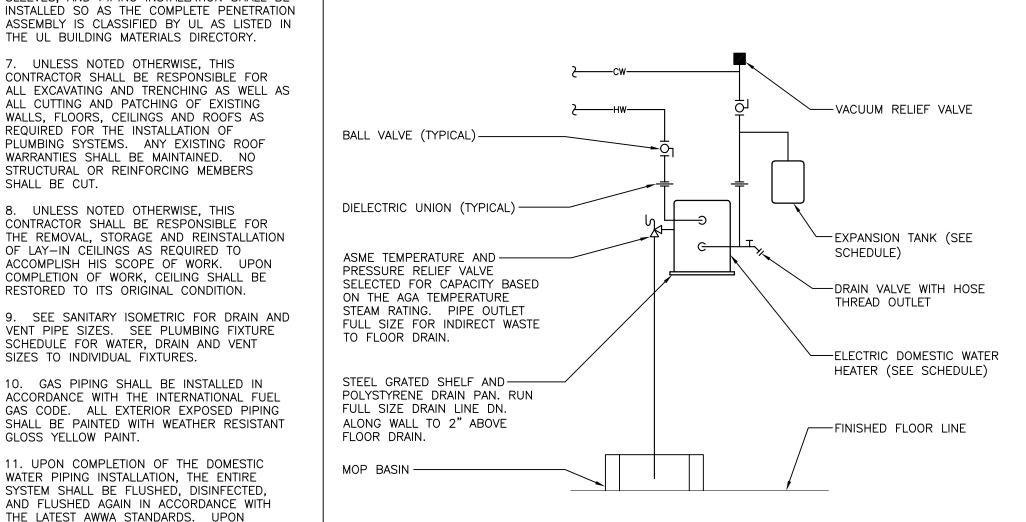
SCALE: NONE

PLUN	MBING SYMBOLS LEGEND
DWH-1	EQUIPMENT IDENTITY TAG
100	ROOM NUMBER
(10)	PLUMBING FIXTURE
SAN	SANITARY WASTE BELOW FLOOR OR GRADE
——————————————————————————————————————	SANITARY WASTE ABOVE FLOOR
	SANITARY VENT
GW	GREASE WASTE BELOW FLOOR OR GRADE
———GW———	GREASE WASTE ABOVE FLOOR
GV	GREASE VENT
STM	STORM DRAIN BELOW FLOOR OR GRADE
——STM——	STORM DRAIN ABOVE FLOOR
CW	COLD WATER
——НW——	HOT WATER (120°F)
G	NATURAL GAS
——ō——	BALL VALVE
——	GAS VALVE
− \$ ↑	SAFETY OR RELIEF VALVE
	PIPING UNION
	PIPING CONNECTION
\longrightarrow	PIPING INCREASER/REDUCER
0	PIPE RISER SECTION
с	PIPE DROP
FD 🛇===	FLOOR DRAIN
FCO \bigcirc	FLOOR CLEANOUT: FLUSH WITH FINISH FLOOR
GC	GENERAL CONTRACTOR
PC	PLUMBING CONTRACTOR
FPC	FIRE PROTECTION CONTRACTOR
MC	MECHANICAL CONTRACTOR (HVAC)
EC	ELECTRICAL CONTRACTOR

3. ALL PLUMBING SYSTEMS SHALL BE 4. ALL PIPING TO BE INSTALLED GENERALLY BENEATH DUCTWORK FOR ACCESS TO VALVING. PERMITTED IN THE PIPING. OPENINGS; TO ANY PLUMBING VENTS, 6. ALL PLUMBING SYSTEM PENETRATIONS WALLS, FLOORS, CEILINGS AND ROOFS AS REQUIRED FOR THE INSTALLATION OF OF LAY-IN CEILINGS AS REQUIRED TO COMPLETION OF WORK, CEILING SHALL BE RESTORED TO ITS ORIGINAL CONDITION.



TRAP PRIMER DETAIL NOT TO SCALE



ELECTRIC DOMESTIC WATER HEATER DETAIL NOT TO SCALE

E-56018

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REVISIONS:

HEI Project No. 2018-05-09

MEALO

TE OF R.W.MEADOWS 6781 ERED. AR RODNEY W. MEADOWS LICENSE #6781 EXPIRATION DATE 12-31-2019

THIS DWG: **PLUMBING** SCHEDULES, DETAILS, SANITARY **ISOMETRIC**

COMM DATE

17187 12-03-2018

DWG

- A. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING A COMPLETE PLUMBING SYSTEM INSTALLATION AS INDICATED ON THE DRAWINGS AND WITHIN THESE SPECIFICATIONS. THE INSTALLING CONTRACTOR SHALL BE RESPONSIBLE FOR ALL MEANS AND METHODS OF THE PLUMBING SYSTEM DESIGN IMPLEMENTATION
- B. DRAWINGS ARE BASICALLY DIAGRAMMATIC AND INDICATE THE GENERAL ARRANGEMENT OF SYSTEMS AND COMPONENTS. INSTALLING CONTRACTOR SHALL COORDINATE THE DESIGN INTENT OF THE DRAWINGS WITH THE ACTUAL FIELD CONDITIONS MAKING MINOR DEVIATIONS AND ADJUSTMENTS AS REQUIRED FOR A COMPLETE OPERATIONAL SYSTEM. EXACT LOCATIONS OF PLUMBING SYSTEM OMPONENTS SHALL BE DETERMINED BY THE CONTRACTOR. SUCH DETERMINATION SHAL CONSIDERATION TO THE BUILDING STRUCTURAL AND SPATIAL LIMITATIONS. TO COORDINATION WITH WORK OF OTHER TRADES AND DISCIPLINES, AND TO THE NECESSARY CLEARANCE REQUIREMENTS (BOTH OF THE ITEM BEING INSTALLED AND OF ALL ADJACENT ITEMS) TO ACCOMMODATE MANUFACTURER'S INSTALLATION REQUIREMENTS, TO SATISFY CODE CLEARANCE REQUIREMENTS AND TO FACILITATE SYSTEM OPERATION AND MAINTENANCE. UNLESS NOTED OTHERWISE PLUMBING SYSTEMS SHALL BE INSTALLED TO PROVIDE MAXIMUM CLEARANCE ABOVE THE
- C. THE PLUMBING SYSTEM INSTALLATION SHALL BE IN FULL COMPLIANCE WITH THE FOLLOWING CODES
- THE OHIO BUILDING CODE THE OHIO PLUMBING CODE
 - THE OHIO MECHANICAL CODE NFPA (APPLICABLE SECTIONS)
 - MUNICIPAL AND COUNTY CODES AND ORDINANCES STATE, MUNICIPAL AND COUNTY HEALTH AGENCIES

OTHERS AS INDICATED WITHIN THESE SPECIFICATIONS

- D. EVERY EFFORT IS MADE ON THE PART OF THE ENGINEER TO COMPLY WITH THE LISTED CODES AND STANDARDS. WHERE THE DESIGN EXCEEDS THE REQUIREMENTS OF THE APPLICABLE CODES AND STANDARDS; THE INSTALLATION SHALL BE PER THE DESIGN REQUIREMENTS. NO WORK SHALL BE INSTALLED CONTRARY TO OR BELOW MINIMUM REQUIREMENTS OF THE CODES AND
- E. THE SCHEDULED MANUFACTURER FOR EACH ITEM SHALL BE CONSIDERED AS BASIS OF DESIGN. PERFORMANCE CHARACTERISTICS, ELECTRICAL CHARACTERISTICS, AND DIMENSIONAL AND SPATIAL REQUIREMENTS FOR THIS ITEM HAVE ALREADY BEEN CONSIDERED IN THE DESIGN. OTHER CCEPTABLE MANUFACTURERS HAVE NOT BEEN CHECKED FOR SUCH DETAIL AND MUST MEET ALL THE SCHEDULED PERFORMANCE REQUIREMENTS AND POSSESS FEATURES SIMILAR TO THOSE WHICH ARE STANDARD ON THE ITEMS WHICH ARE BASIS OF DESIGN.
- F. UNLESS NOTED OTHERWISE, EACH PLUMBING SYSTEM COMPONENT SHALL BE INDEPENDENTLY SUPPORTED FROM THE BUILDING STRUCTURE.
- G. UNLESS NOTED OTHERWISE, CONTRACTOR(S) SHALL COORDINATE PLUMBING AND HVAC INSTALLATION SO AS TO MAINTAIN AT LEAST TEN FEET OF CLEARANCE FROM ALL OUTDOOR AIR INTAKES AND BUILDING OPENINGS TO ANY PLUMBING VENTS (EXISTING AND NEW) EXHAUST AIR OUTLETS OR OTHER NOXIOUS CONDITIONS.
- H. THIS CONTRACTOR SHALL OBTAIN AND PAY FOR ALL PERMITS AND LICENSES, BOTH TEMPORARY AND PERMANENT, REQUIRED BY LAW AS PART OF THE INSTALLATION WORK INDICATED ON THE
- I. THE CONTRACTOR SHALL SUBMIT FOR REVIEW BY THE ARCHITECT-ENGINEER; 6 COPIES OF MANUFACTURER'S DRAWINGS, CUT SHEETS, AND APPLICATION SPECIFIC PERFORMANCE DATA FOR
- J. SHOP DRAWING SUBMITTALS SHALL INCLUDE THE PROJECT NAME, THE ARCHITECT-ENGINEER'S PROJECT NUMBER. THE APPLICABLE SPECIFICATION SECTION AND OR DRAWING NUMBER AS WELL AS THE CONTRACTOR'S APPROVAL STAMP. SHOP DRAWINGS SHALL BE SUBMITTED TO ARCHITECT-ENGINEER WITHIN THIRTY WORKING DAYS OF AWARD OF CONTRACT. CONTRACTOR SHALL NOT INSTALL ANY APPLICABLE MATERIALS AND/OR EQUIPMENT WITHOUT PRIOR REVIEW AS INDICATED ON THE ARCHITECT-ENGINEER'S REVIEW STAMP. REVIEW BY THE ENGINEER DOES NOT RELIEVE THE CONTRACTOR OF RESPONSIBILITY TO COMPLY WITH THE REQUIREMENTS OF
- K. THE CONTRACTOR SHALL GUARANTEE THE COMPLETE PLUMBING SYSTEM INSTALLATION AS INSTALLED BY HIM OR HIS SUB-CONTRACTORS TO BE FREE FROM DEFECTS IN MATERIALS AND WORKMANSHIP FOR A PERIOD OF ONE YEAR FROM THE DATE OF FINAL ACCEPTANCE (UNLESS A LONGER PERIOD IS SPECIFIED FOR SPECIFIC ITEMS ELSEWHERE). DEVIATIONS FROM THIS MAY OCCUR ON LARGER ITEMS OF EQUIPMENT USED DURING BENEFICIÁL OCCUPANCY BEFORE THE TOTAL SYSTEM IS ACCEPTED. SUCH A MATTER MUST HAVE PRIOR APPROVAL AND BE MADE A MATTER OF WRITTEN RECORD BY THE ARCHITECT-ENGINEER'S REPRESENTATIVE
- L. THE CONTRACTOR SHALL REPAIR OR REPLACE AT HIS OWN EXPENSE ANY MATERIALS OR EQUIPMENT FOUND TO BE DEFECTIVE WITHIN THE WARRANTEE PERIOD AND SHALL BE HELD FINANCIALL' RESPONSIBLE FOR ANY PROPERTY DAMAGES ARISING FROM SUCH DEFECTS OR THE CORRECTION
- M. THE CONTRACTOR SHALL GUARANTEE THAT ALL PLUMBING EQUIPMENT SUPPLIED BY HIM OR HIS SUB-CONTRACTORS SHALL DEVELOP CAPACITIES AND HAVE CHARACTERISTICS AS SCHEDULED OR
- N. THE CONTRACTOR SHALL SUBMIT WRITTEN WARRANTEE CERTIFICATES FOR HIS INSTALLATION WORK AND FROM EACH MANUFACTURER OF EQUIPMENT SUPPLIED ON THE PROJECT TO THE ENGINEER.
- O. THE CONTRACTOR MAY USE PERMANENT PLUMBING EQUIPMENT FOR TEMPORARY SERVICES WHEN APPROVED BY THE ARCHITECT-ENGINEER. SUCH APPROVAL IS CONDITIONED BY THE FOLLOWING THE CONTRACTOR SHALL MAINTAIN THE EQUIPMENT FOR RELEASE TO OWNER AT TIME OF FINAL ACCEPTANCE IN "NEW" CONDITION. WARRANTY PERIOD FOR THE OWNER SHALL NOT BEGIN UNTIL THE DATE OF FINAL
- P. THE CONTRACTOR SHALL BE HELD RESPONSIBLE FOR ANY DAMAGES INCURRED DURING THE INSTALLATION OF HIS WORK TO THE EXISTING GROUNDS, WALKS, ROADS, BUILDING, PLUMBING SYSTEMS, HVAC SYSTEMS, AND ELECTRIC SYSTEMS AS WELL AS ALL NEW CONSTRUCTION WORK OTHER TRADES. HE SHALL REPAIR AT HIS EXPENSE ALL SUCH DAMAGES FOR RESTORATION O THE ORIGINAL CONDITIONS TO THE SATISFACTION OF THE ARCHITECT-ENGINEER AND OWNER.
- Q. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING THE MATERIALS, EQUIPMENT AND INSTALLATION OF HIS WORK FROM DAMAGE DUE TO WEATHER AND CONSTRUCTION JOB SITE
- R. THE CONTRACTOR SHALL MAINTAIN A SET OF PRINTS AT THE CONSTRUCTION SITE TO RECORD IN RED ANY DEVIATIONS IN THE ACTUAL MECHANICAL SYSTEM INSTALLATION FROM THE DESIGN DRAWINGS. IN ADDITION, ACTUAL INSTALLED INVERTS SHALL BE RECORDED FOR EACH UNDERGROUND SANITARY, STORM, WATER, AND GAS SERVICE. THESE RECORD DRAWINGS SHALL BE SUBMITTED TO THE ARCHITECT-ENGINEER UPON COMPLETION OF THE PROJECT.
- S. THE CONTRACTOR SHALL PROVIDE PERSONAL INSTRUCTION TO THE OWNER'S OPERATING STAFF ON THE PROPER OPERATION AND MAINTENANCE OF THE PLUMBING SYSTEMS.
- T. THE CONTRACTOR SHALL PROVIDE THREE (3) SETS OF OPERATION AND MAINTENANCE MANUALS FOR THE OWNER'S USE UPON COMPLETION OF THE PROJECT. OPERATION AND MAINTENANCE MANUALS SHALL BE SUBMITTED TO THE ARCHITECT—ENGINEER FOR APPROVAL. OPERATION AND MAINTENANCE MANUALS SHALL INCLUDE THE FOLLOWING:
 - NAME AND SERVICE TELEPHONE NUMBER OF THE INSTALLING COMPANY. GENERAL DESCRIPTION OF HOW THE SYSTEM SHOULD OPERATE MANUFACTURER'S OPERATION AND MAINTENANCE INSTRUCTIONS
 - COPY OF APPROVED SHOP DRAWINGS LUBRICATION SCHEDULE

WARRANTY CERTIFICATES

VALVE CHART

PLUMBING MATERIALS AND METHODS

- A. UNLESS NOTED OTHERWISE, THE CONTRACTOR SHALL PROVIDE AND INSTALL ALL NEW MATERIALS, EQUIPMENT, COMPONENTS, AND FIXTURES AS INDICATED. OTHER MANUFACTURERS OF PLUMBING EQUIPMENT MAY BE SUBSTITUTED FOR THOSE INDICATED AS LONG AS THE QUALITY OF CONSTRUCTION AND OPERATING CHARACTERISTICS ARE EQUIVALENT.
- B. PIPE SLEEVES SHALL BE PROVIDED AND INSTALLED WHERE PIPES PASS THROUGH WALLS, FLOORS, AND CEILINGS. SLEEVES SHALL BE SUFFICIENTLY LARGE ENOUGH TO ALLOW FOR FIRE AND SOUND STOPPING BETWEEN THE INSIDE SLEEVE WALL AND THE PIPE OR INSULATION SURFACE AS WELL AS ALLOW FOR THERMAL EXPANSION AND CONTRACTION OF PIPING. (SLEEVES SHALL BE LARGE ENOUGH TO ALLOW PIPE INSULATION TO BE CONTINUOUS THROUGH THE WALL.) LENGTH OF SLEEVES SHALL BE EQUAL TO THE THICKNESS OF THE BUILDING CONSTRUCTION ELEMENT PENETRATED FOR A FLUSH FINISH ON BOTH SIDES EXCEPT FOR FLOOR SLEEVES WHICH SHALL EXTEND 2" ABOVE THE FINISH FLOOR. INSTALL IRON PIPE SLEEVES IN EXTERIOR WALL PENETRATIONS AND STEEL PIPE SLEEVES ELSEWHERE UNLESS NOTED OTHERWISE
- C. THE CONTRACTOR SHALL PROVIDE AND INSTALL SEALING MATERIALS FOR PLUMBING SYSTEM PENETRATIONS THROUGH BUILDING WALLS, FLOORS, CEILINGS, AND ROOFS. EXTERIOR PENETRATIONS SHALL BE WEATHER PROOF AND VERMIN PROOF; INTERIOR PENETRATIONS SHALL HAVE SOUND STOPPING. PENETRATIONS THROUGH FIRE AND SMOKE BARRIERS SHALL HAVE FIRESTOPPING. THE CONTRACTOR SHALL SEAL ALL FIRE/SMOKE RATED WALL AND FLOOR PENETRATIONS FOR MECHANICAL SYSTEM COMPONENTS WITH FIRE AND SMOKE STOPPING COMPOUND SO AS TO MAINTAIN THE FIRE RESISTANCE RATING OF THE WALL OR FLOOR PENETRATED. FIRESTOPPING COMPOUND, PIPE SLEEVES, AND PIPING AND INSULATION SHALL BE INSTALLED SO AS THE COMPLETE PENETRATION ASSEMBLY IS CLASSIFIED BY UL AS LISTED IN HE UL BUILDING MATERIALS DIRECTORY.
- D. ESCUTCHEON PLATES SHALL BE INSTALLED ON ALL PIPE PENETRATIONS THROUGH WALLS, FLOORS, AND CEILINGS WHERE EXPOSED TO VIEW AND ON THE BUILDING EXTERIOR. ESCUTCHEON PLATE SHALL BE SECURED TO PIPE OR INSULATION AND COMPLETELY COVER THE HOLE PENETRATION.
- E. ACCESS DOORS SHALL BE PROVIDED AND INSTALLED BY THIS CONTRACTOR IN NON-ACCESSIBLE WALLS AND CEILINGS WHICH CONCEAL PLUMBING ITEMS WHICH REQUIRE SERVICE OR INSPECTION SUCH AS VALVES. THE DOORS SHALL BE OF ADEQUATE SIZE TO SERVICE THE CONCEALED ITEM. DOOR SHALL BE OF PAINTED STEEL CONSTRUCTION WITH CONCEALED HINGE AND KEYED LOCK. ALL DOORS SHALL BE KEYED ALIKE WITH A MINIMUM OF TWO KEYS PROVIDED TO OWNER. ACCESS DOORS IN CEILINGS SHALL HAVE A RECESSED FACE FOR FIELD INSTALLATION OF FINISHED CEILING MATERIAL. DOORS INSTALLED IN FIRE RATED WALLS AND CEILINGS SHALL BE UL LISTED AND LABELED WITH APPLICABLE FIRE RESISTANCE RATING.
- F. EXISTING BUILDING SURFACES AND AUXILIARY EQUIPMENT AND FINISHES MARRED DURING INSTALLATION OF PLUMBING WORK SHALL BE REPAINTED BY THIS CONTRACTOR.

- G. THE CONTRACTOR SHALL PAINT ALL IRON PIPE FITTINGS AND VALVE BODIES. ALL SUPPORTSTEEL INSTALLED AS PART OF HIS SCOPE OF WORK AND ALL EXPOSED PIPING AND DUCTWORK ON THE EXTERIOR OF THE BUILDING. ALL PAINTING SHALL BE DONE IN ACCORDANCE WITH THE PAINT MANUFACTURER'S NSTRUCTIONS INCLUDING SURFACE PREPARATION AND CONDITIONS OF AMBIENT TEMPERATURE A HUMIDITY. ENVIRONMENTAL CONDITIONS IN THE AREA OF PAINTING WORK SHALL COMPLY WITH THE PAINT MANUFACTURER'S RECOMMENDATIONS AND ALL GOVERNING REGULATIONS.
- H. THE APPROXIMATE LOCATION OF ALL KNOWN UNDERGROUND UTILITIES WITHIN THE PROJECT AREA SHALL BE DETERMINED AND MARKED PRIOR TO PERFORMING ANY EXCAVATION. THE PROPER AUTHORITIES SHAL CONTACTED TO AID IN LOCATING ALL UNDERGROUND UTILITIES AND TO NOTIFY THEM OF INTENTION
- I. EXISTING UNDERGROUND UTILITIES SHALL BE PROPERLY SUPPORTED AND PROTECTED DURING EXCAVATION. SHOULD ANY UTILITIES BE DAMAGED DURING CONSTRUCTION, THE RESPECTIVE UTILITY SHALL BE CONTACTED IMMEDIATELY
- J. EXISTING UTILITIES SHALL NOT BE INTERRUPTED WITHOUT PRIOR APPROVAL OF THE ARCHITECT—ENGINEER OR THE OWNER. INTERRUPTIONS SHALL BE COORDINATED SO AS TO MINIMIZE THE FREQUENCY OF
- OCCURRENCE AND THE LENGTH OF DOWNTIME. K. ALL NEW UTILITIES AND PIPING CONTAINING WATER SHALL HAVE A 42" MINIMUM DEPTH OF BURIAL
- L. ALL TRENCH EXCAVATION AND BACKFILL FOR LAYOUT AND INSTALLATION OF INTERIOR UNDERGROUND ANITARY, STORM, VENT, GAS, AND WATER PIPING; AS WELL AS EXTERIOR WATER SERVICE, FIRE SERVICE, GAS SERVICE, SANITARY AND STORM SEWERS SHOWN OR INDICATED ON THE DRAWINGS SHALL BE THE RESPONSIBILITY OF THE THIS CONTRACTOR.
- M. EXCAVATIONS SHALL HAVE SIDES SLOPED, SHORED, AND BRACED IN ACCORDANCE WITH LOCAL CODES AND ORDINANCES AND AS REQUIRED FOR SAFETY OF WORKERS.
- N. CONTRACTOR SHALL PROTECT EXCAVATIONS FROM RAIN, SURFACE AND GROUND WATER AS MUCH AS POSSIBLE. ALL WATER SHALL BE REMOVED FROM THE EXCAVATIONS PRIOR TO LAYING OF THE
- O. UNLESS NOTED OTHERWISE, ALL TRENCHES FOR UNDERGROUND PIPING SHALL BE BACKFILLED SO THAT THE RUN OF PIPE SHALL BE LAID ON 4" OF SAND AND BACKFILLED TO 6" ABOVE CROWN OF PIPE WITH THEREAFTER, BACKFILL SHALL BE COMPACTED WITH MECHANICAL TAMPERS IN NO GREATER THAN 6" LAYERS OF SUITABLE EXCAVATED MATERIAL FREE OF LARGE STONES UNTIL PROPER GRADE IS
- P. TRENCHES PARALLEL TO FOOTERS OR OUTSIDE BEARING WALLS SHALL MAINTAIN THREE FEET OF CLEARANCE FROM THE FOOTERS OR WALLS. EXCAVATION FOR SUCH TRENCHES BELOW THE ELEVATION OF THE OTTOM OF A FOOTER SHALL MAINTAIN A HORIZONTAL SEPARATION DISTANCE SO AS NOT TO DISTURB SOIL WITHIN A ZONE 45 DEGREES OFF OF THE BOTTOM EDGE OF THE FOOTER.
- Q. ALL EXCAVATION FOR TRENCHES WITHIN PAVED AREAS, SIDEWALKS, ETC., SHALL BE BACKFILLED THE WIDTH OF THE TRENCH PLUS FIVE FEET BEYOND EACH SIDE WITH GOOD FILL SAND TO THE UNDERSIDE OF HE BASE COURSE OF THE PAVING MATERIAL.
- R. ANY AND ALL EXCAVATED MATERIALS WHICH ARE NOT USED FOR BACKFILL SHALL BECOME THE PROPERTY OF THIS CONTRACTOR AND SHALL BE REMOVED FROM THE SITE AT HIS EXPENSE. (IF EXCESS EXCAVATION MATERIALS ARE SUITABLE, ARCHITECT-ENGINEER MAY ALLOW FOR THE MATERIALS TO BE
- S. TRENCHES SHALL NOT BE BACKFILLED UNTIL ALL PIPING WITHIN THE TRENCH HAS BEEN TESTED AND/OR INSPECTED AND APPROVED BY THE LOCAL AUTHORITIES HAVING JURISDICTION.
- T. WHERE TRENCHES CROSS STREETS, WALKS, OR PUBLIC THOROUGHFARES, THE CONTRACTOR SHALL BE RESPONSIBLE FOR AND PROVIDE SUITABLE BARRICADES AND BRIDGES, ADEQUATELY PROTECTED BY SIGNS OR RED FLAGS DURING THE DAY AND BY LIGHTS AT NIGHT.
- U. ALL STREETS, PARKING LOTS, SIDEWALKS, SOD, ETC., WHICH ARE DISTURBED BY THE EXCAVATION PROCESS SHALL BE RESTORED BY THE CONTRACTOR AT HIS EXPENSE TO THE ORIGINAL SITE CONDITION TO THE SATISFACTION OF THE ARCHITECT—ENGINEER, THE OWNER AND THE AUTHORITIES HAVING
- V. IF OBSERVABLE SUBSIDENCE IS NOTED IN THE AREAS OF EXCAVATION FOR PLUMBING WORK DURING THE PROJECT WARRANTY PERIOD, THE CONTRACTOR SHALL REMOVE THE SURFACE FINISH, FILL IN THE SUBSIDENCE AND RESTORE THE SURFACE FINISH TO THE INTENDED CONDITION.
- PLUMBING PIPING AND ACCESSORIES
- A. REFER TO THE "PIPE AND INSULATION SCHEDULE" FOR SPECIFIC PIPING APPLICATION AND MATERIAL
- B. PIPING INSTALLATION SHALL NOT REQUIRE SPRINGING OR FORCING. PIPING OFFSETS, LOOPS AND/OR EXPANSION JOINTS SHALL BE PROVIDED (WHETHER SHOWN OR NOT) TO LIMIT STRESS DUE TO
- C. PIPING MATERIALS SHALL BE CLEAN PRIOR TO AND DURING INSTALLATION. UPON COMPLETION OF PIPING NSTALLATION; BUT PRIOR TO FINAL CONNECTIONS, THE ENTIRE SYSTEM SHALL BE FLUSHED WITH A
- CLEANING SOLUTION WHICH WILL NOT HARM EITHER THE PIPING, EQUIPMENT OR USERS. D. DRAIN VALVES SHALL BE PROVIDED AT ALL LOW POINTS AND MANUAL AIR VENTS AT ALL HIGH POINTS
- E. EQUIPMENT CONNECTIONS SHALL INCLUDE UNIONS PROVIDED BETWEEN A PIPING SERVICE SHUT-OFF VALVE AND EACH EQUIPMENT CONNECTION. PIPING OFFSETS SHALL BE PROVIDED TO PERMIT REMOVAL OF
- F. COPPER PIPING CONNECTIONS TO STEEL OR IRON PIPE SHALL BE MADE WITH DIELECTRIC UNIONS.
- G. STANDARD INCREASER AND REDUCER PIPE FITTINGS SHALL BE USED TO JOIN PIPES OF DIFFERENT SIZES.
- H DOMESTIC WATER PIPING SHALL RE INSTALLED IN ACCORDANCE WITH THE FOLLOWING REGULEREMENTS 1. SOLDER JOINTS SHALL BE LEAD-FREE USING 95-5 TIN-ANTIMONY SOLDER AND APPROPRIATE
 - PIPE NIPPLES BETWEEN COPPER PIPING AND FIXTURE FITTINGS SHALL BE BRASS. UPON COMPLETION OF THE DOMESTIC WATER PIPING INSTALLATION, THE ENTIRE SYSTEM SHALL BE FLUSHED, DISINFECTED, AND FLUSHED AGAIN IN ACCORDANCE WITH THE LATEST AWWA STANDARDS. UPON COMPLETION OF THE DISINFECTION PROCESS; BACTERIOLOGICAL TESTS SHALL BE PERFORMED IN ACCORDANCE WITH AWWA STANDARDS AND THE LOCAL HEALTH DEPARTMENT TO VERIFY SATISFACTORY WATER QUALITY.
- I. NATURAL GAS PIPING SHALL BE INSTALLED IN ACCORDANCE WITH THE FOLLOWING REQUIREMENTS: ALL GAS PIPING SHALL BE INSTALLED IN ACCORDANCE WITH THE INTERNATIONAL FUEL GAS CODE. ANY GAS PIPING IN A NON-ACCESSIBLE SPACE SHALL BE OF ALL WELDED CONSTRUCTION. THE ENTIRE EXISTING GAS PIPING SYSTEM SHALL BE PURGED PRIOR TO EXTENSION OF OR CONNECTION TO NEW WORK. UPON COMPLETION OF INSTALLATION, INSPECTIONS, AND
 - TESTS ALL EXISTING AND NEW PILOT LIGHTS SHALL BE LIT BY THIS CONTRACTOR.

 COMPLY WITH THE LOCAL UTILITY COMPANY FOR ANY ADDITIONAL REQUIREMENTS. CONTRACTOR IS TO MAKE FINAL GAS CONNECTIONS TO ALL PLUMBING, HVAC, AND OWNER SUPPLIED EQUIPMENT NOTED ON THE DRAWINGS. GAS CONNECTION PIPING SHALL INCLUDE AN ACCESSIBLE AGA APPROVED SHUT-OFF VALVE, A FULL SIZE TEE WITH A 6" DIRT LEG, AND A UNION. THE UNION SHALL BE BETWEEN THE SHUT-OFF VALVE AND THE EQUIPMENT. PIPE REDUCER/INCREASER FITTINGS SHALL BE INSTALLED AT POINT OF
 - EQUIPMENT CONNECTION AS REQUIRED. 6. ALL EXPOSED GAS PIPING ON THE EXTERIOR OF THE BUILDING SHALL BE PAINTED BY THE INSTALLING CONTRACTOR WITH A PRIME COAT AND TWO FINISH COATS OF WEATHER

PLUMBING VALVES

- A. ALL VALVES OF THE SAME TYPE SHALL BE OF THE SAME MANUFACTURER WITH VALVE BODIES CLEARLY MARKED WITH THE MANUFACTURERS NAME OR TRADEMARK AND THE PRESSURE RATING. VALVES SHALL COMPLY WITH ANSI B16.10 "FACE-TO-FACE AND END TO END DIMENSIONS OF FERROUS
- B. VALVES SHALL BE SUPPLIED AS MANUFACTURED BY ONE OF THE FOLLOWING: APOLLO, CRANE, JAMESBURY, JENKINS, NIBCO, AND WATTS.
- C. ISOLATION, SHUT-OFF, OR SERVICE VALVES SHALL BE BALL VALVES FOR PIPE SIZES 2" AND SMALLER AND BE GATE OR BUTTERFLY VALVES FOR PIPE SIZES 2-1/2" AND LARGER UNLESS NOTED OTHERWISE.
- D. BALANCE VALVES SHALL BE OF THE FLOW MEASURING AND BALANCE TYPE FOR PIPE SIZES 2" AND SMALLER AND SHALL BE OF THE PLUG TYPE FOR PIPE SIZES 2-1/2" AND LARGER. WHERE MORE THAN ONE TYPE OF VALVE IS INDICATED THE INSTALLING CONTRACTOR SHALL SELECT FROM THE INDICATED OPTIONS ACCORDING TO HIS PREFERENCE. (UNLESS NOTED OTHERWISE ON THE CONTRACT
- E. MANUAL AIR VENTS AND DRAIN VALVES FOR WATER PIPING MAINS AND ELSEWHERE AS INDICATED ON THE CONTRACT DRAWINGS SHALL BE 3/4" BALL VALVES WITH MALE HOSE THREAD ADAPTER AND CAP UNLESS NOTED OTHERWISE.
- F. VALVE SIZE SHALL BE SAME SIZE AS THE PIPE IN WHICH IT IS INSTALLED UNLESS NOTED OTHERWISE.
- G. STANDARD VALVES 2" AND SMALLER: GATE VALVE: 125 WSP; BRONZE BODY WITH RISING STEM, UNION BONNET, SINGLE WEDGE DISC
 - FOR SOLDER JOINT PIPE CONNECTIONS. VALVES SHALL CONFORM TO ASTM SPECIFICATION WW-V-54D, CLASS A, TYPE II. (NIBCO #S-134) 2. GLOBE VALVE: 125 WSP; BRONZE BODY WITH RISING STEM, UNION BONNET, AND ANSI 420-S STAINLESS STEEL TAPERED PLUG AND SEAT FOR SOLDER JOINT PIPE CON
 - WW-V-51, CLASS A, TYPE I AND II. (NIBCO S-211-Y)
 3. CHECK VALVE: 125 WSP; BRONZE, SWING CHECK FOR SOLDER JOINT PIPE CONNECTIONS. VALVES SHALL CONFORM TO ASTM SPECIFICATION B-62 AND FEDERAL SPECIFICATION
 - WW-V-51D, TYPE IV, CLASS C. (NIBCO #S-413-Y) 4. BALL VALVE: 150 PSI SWP AND 600 PSI NON SHOCK WOG; TWO PIECE BRONZE BODY WITH CHROME PLATED BALL, TFE SEATS, FULL PORT, STEM PACKING, ANTI-BLOW-OUT STEMS FOR SOLDER JOINT PIPE CONNECTIONS. (NIBCO #S-585-70)

VALVES SHALL CONFORM TO ASTM SPECIFICATION B-62 AND FEDERAL SPECIFICATION

- H. STEEL WATER PIPING 2-1/2" AND GREATER: GATE VALVE: 125 WSP; CAST IRON BODY WITH BRONZE TRIM, OUTSIDE SCREW AND YOKE. RISING STEM, BOLTED BONNET FOR FLANGED JOINT PIPE CONNECTIONS. VALVES SHALL CONFORM TO ASTM SPECIFICATION A-126 CLASS B. (NIBCO #F-617-0)
 - GLOBE VALVE: 125 WSP; CAST IRON BODY WITH BRONZE TRIM, OUTSIDE SCREW AND YOKE, RISING STEM, BOLTED BONNET FOR FLANGED JOINT PIPE CONNECTIONS. VALVES SHALL CONFORM TO ASTM SPECIFICATION A-126 CLASS B. (NIBCO #F-718-B)
 3. CHECK VALVE: 125 WSP; CAST IRON BODY WITH BRONZE TRIM FOR FLANGED JOINT PIPE

CONNECTIONS. VALVES SHALL CONFORM TO ASTM SPECIFICATION A-126. (NIBCO

4. BUTTERFLY VALVE: 200 PSI NON SHOCK COLD WATER WORKING PRESSURE; LUG TYPE DUCTILE OR CAST IRON BODY WITH EXTENDED NECK FOR INSULATING, ALUMINUM BRONZE ALLOY DISC, EPDM RUBBER SEATS AND SEALS, A 400 SERIES STAINLESS STEEL STEM AND A TEN POSITION LEVER LOCK HANDLE. (NIBCO #LD-2000 SERIES)

- 1. 2" AND SMALLER: 175# WOG CAST IRON BODY FOR SCREWED JOINT PIPE CONNECTIONS. VALVES SHALL BE UL LISTED FOR GAS SERVICE. (DEZURICK SERIES 425 WITH RS-49
 - PLUG SEALS AND LEVER HANDLE) 2. 2-1/2" TO 4": 175# WOG CAST IRON BODY FOR FLANGED JOINT PIPE CONNECTIONS. VALVES SHALL BE UL LISTED FOR GAS SERVICE. (DEZURICK SERIES 425 WITH RS-49 PLUG SEALS AND LEVER HANDLE)
 - 3. 6" AND GREATER: 175# WOG CAST IRON BODY FOR FLANGED JOINT PIPE CONNECTIONS. VALVES SHALL BE UL LISTED FOR GAS SERVICE. (DEZURICK SERIES 100 WITH RS-49 PLUG SEALS AND LEVER HANDLE).

PLUMBING HANGERS AND SUPPORTS

- A. LL PIPING SHALL BE INSTALLED WITH FACTORY FABRICATED PIPING CLAMPS. HANGERS AND SUPPORTS ATTACHED TO THE BUILDING SUBSTRATE WITH SUITABLE EXPANSION SHELLS, INSERTS, OR BEAM HANGERS SHALL BE SELECTED TO EXACTLY FIT PIPE SIZE FOR BARE PIPING AND TO EXACTLY FIT AROUND PIPING INSULATION WITH SADDLE OR SHIELD FOR INSULATED PIPING COPPER PLATED HANGERS AND SUPPORTS SHALL BE UTILIZED FOR ALL COPPER PIPING SYSTEMS. PERFORATED STRAP HANGERS AND "C" CLAMP ATTACHMENTS ARE PROHIBITED
 - 1. UNLESS NOTED OTHERWISE, ALL HORIZONTAL PIPE 3" AND SMALLER SHALL BE SUPPORTED BY INDIVIDUAL ADJUSTABLE STEEL CLEVIS HANGERS. 2. UNLESS NOTED OTHERWISE, ALL HORIZONTAL PIPE 4" AND LARGER (AND ALL HORIZONTAL PIPE 2" AND LARGER WHICH CONVEYS A FLUID ABOVE 150' F) SHALL BE SUPPORTED BY ADJUSTABLE ROLLER TYPE HANGERS
 - ALL PIPING IS ADEQUATELY SUPPORTED AND INDIVIDUAL THERMAL PIPE MOVEMENT IS ACCOUNTED FOR. 4. HORIZONTAL PIPE SUPPORT SPACING AND HANGER ROD SIZING SHALL BE AS FOLLOWS EXCEPT FOR CAST IRON PIPE WHICH SHALL BE SUPPORTED AT A MAXIMUM INTERVAL OF 5'-0" ON CENTER AND PVC PIPING WHICH SHALL BE SUPPORTED AT A

3. PARALLEL HORIZONTAL PIPING MAY ALSO BE SUPPORTED TOGETHER ON A TRAPEZE TYPE

MAXIMUM INTERVAL OF 4'-0" ON CENTER: MAX SPACING SIZE ON CENTER 1-1/2" TO 2" 2-1/2" TO 3" 11'-0"

12'-0"

- B. HANGERS FOR PLUMBING EQUIPMENT SHALL CONSIST OF STRUCTURAL STEEL SHAPES OR STEEL RODS
 ATTACHED TO THE BUILDING SUBSTRATE WITH SUITABLE EXPANSION SHELLS, INSERTS, OR BEAM CLAMPS. HANGERS SHALL BE SELECTED TO ADEQUATELY SUPPORT THE STATIC AND DYNAMIC LOADS OF THE EQUIPMENT AS INDICATED BY THE EQUIPMENT MANUFACTURER. ISOLATION TYPE HANGERS SHALL BE USED TO SUPPORT ALL OVERHEAD PLUMBING EQUIPMENT WITH ROTATING PARTS. ISOLATORS SHALL BE INSTALLED AS CLOSE TO THE OVERHEAD STRUCTURE AS
- C. PREFABRICATED ROOF PIPE SUPPORTS SHALL BE UTILIZED TO SUPPORT ALL ROOFTOP PIPING 12"
 ABOVE ROOF AND BE AS MANUFACTURED BY ONE OF THE FOLLOWING: COOPER B-LINE, ERICO INTERNATIONAL, MIRO INDUSTRIES, PATE COMPANY, AND ROOF PRODUCTS AND SYSTEMS.

PLUMBING IDENTIFICATION

- A. THE CONTRACTOR SHALL PROVIDE AND INSTALL PERMANENT IDENTIFICATION MARKERS FOR THE PLUMBING SYSTEM COMPONENTS; EQUIPMENT, PIPING, AND VALVES.
- B. IDENTIFICATION MARKERS SHALL COMPLY WITH ANSI A13.1 REQUIREMENTS FOR LETTERING SIZE, LENGTH C. INSTALL PIPE MARKERS WHEREVER PIPING IS EXPOSED TO VIEW IN ACCESSIBLE SPACES. LOCATE
- PENETRATION. IN ADDITION LOCATE MARKERS NEAR POINTS OF PIPING ORIGIN, POINTS OF PIPING TERMINATION AND POINTS OF PIPING CONNECTION TO MAJOR EQUIPMENT. D. UNDERGROUND PIPING SHALL BE IDENTIFIED WITH BRIGHT COLORED CONTINUOUSLY PRINTED PLASTIC

MARKERS APPROXIMATELY 25 FEET ON CENTER AND NEAR EACH WALL, FLOOR, AND

- RIBBON TAPE MANUFACTURED FOR DIRECT BURIAL SERVICE AND LOCATED 6" TO 8" BELOW GRADE, DIRECTLY ABOVE BURIED PIPE
- E. A TYPE WRITTEN VALVE CHART SHALL BE INSTALLED IN AN EQUIPMENT ROOM IN A WOOD OR ALUMINUM FRAME WITH A PLEXIGLASS COVER.

- A. THE MATERIALS AND METHODS FOR THE COMPLETE INSULATION SYSTEM INSTALLATION SHALL BE TESTED, RATED, AND INSTALLED IN ACCORDANCE WITH THE FOLLOWING CODES AND STANDARDS:
 - 2. NFPA 90A 3. ASTM E-84 (NFPA 255)
- B. THE COMPOSITE INSULATION SYSTEM INSTALLATION INCLUDING ALL INSULATION MATERIALS. ADHESIVES. SEALERS, COVERINGS, ETC. SHALL HAVE FLAME-SPREAD AND SMOKE-DEVELOPED INDEXES AS INDOOR INSTALLATIONS SHALL HAVE FLAME—SPREAD INDEX OF 25 OR LESS, AND A
 - SMOKE-DEVELOPED INDEX OF 50 OR LESS. 2. OUTDOOR INSTALLATIONS SHALL HAVE FLAME-SPREAD INDEX OF 75 OR LESS, AND A SMOKE-DEVELOPED INDEX OF 150 OR LESS.
- C. INSULATION WORK SHALL INCLUDE BUT NOT BE LIMITED TO THE FOLLOWING TYPES OF SYSTEMS: PIPING AND EQUIPMENT
- D. PIPING SHALL BE INSULATED PER THE "PIPE AND INSULATION SCHEDULE" ON THE DRAWING AND IN ACCORDANCE WITH THE FOLLOWING MATERIAL STANDARDS . FIBER GLASS PIPE INSULATION WITH AN ALL SERVICE JACKET. INSULATION SHALL BE OF THICKNESS INDICATED WITH A THERMAL CONDUCTIVITY "K" FACTOR OF 0.24 AT 7 DEGREE F MEAN TEMPERATURE SUITABLE FOR APPLICATIONS UP TO 350 DEGREES F INSULATION SHALL BE OWENS-CORNING TYPE ASJ/SSL-II OR EQUIVALENT
- 2. FLEXIBLE UNICELLULAR ELASTOMERIC PIPE AND EQUIPMENT INSULATION. INSULATION SHALL BE OF THICKNESS AS INDICATED WITH A THERMAL CONDUCTIVITY "K" FACTOR OF 0.28
 AT 75 DEGREE F MEAN TEMPERATURE SUITABLE FOR APPLICATIONS BETWEEN -40 DEGREE F AND 200 DEGREE F. INSULATION SHALL BE ARMSTRONG ARMAFLEX SS/SA 3. SEMI-RIGID FIBERGLASS BATTS OR ROLLS WITH A FIELD APPLIED GLASS CLOTH LAGGING. INSULATION SHALL BE THICKNESS AS INDICATED ON THE DRAWINGS. WITH A THERMAL CONDUCTIVITY "K" FACTOR OF 0.27 AT 75 DEGREE F MEAN TEMPERATURE SUITABLE
- TYPE TIW (THERMAL INSULATING WOOL) OR EQUIVALENT. E. ALL INSULATION SYSTEMS SHALL BE CONTINUOUS THROUGH WALL OPENINGS, CEILING OPENINGS, FLOOR

OR APPLICATIONS UP TO 1000 DEGREES F. INSULATION SHALL BE OWENS-CORNING

- F. INSULATION MATERIALS SHALL BE INSTALLED IN COMPLETE ACCORDANCE WITH THE MANUFACTURER'S
- G. INSTALLATION PERSONNEL SHALL TAKE ALL SAFETY PRECAUTIONS TO PROPERLY PROTECT THEMSELVES DURING INSTALLATION OF INSULATION SYSTEMS.

DOMESTIC WATER HEATING

- A. TYPE, QUANTITY, PERFORMANCE AND OPERATING CHARACTERISTICS OF WATER HEATERS AND ASSOCIATED
- EQUIPMENT SHALL BE AS INDICATED ON THE CONTRACT DRAWINGS. B. ALL SIMILAR TYPES OF WATER HEATERS SHALL BE SUPPLIED BY THE SAME MANUFACTURER.
- C. WATER HEATERS SHALL BE IN COMPLIANCE WITH THE FOLLOWING APPLICABLE CODES AND STANDARDS: ELECTRIC WATER HEATERS SHALL BE UL LISTED AND LABELED
- GAS FIRED WATER HEATERS SHALL BE AGA APPROVED WATER HEATERS WITH A HEAT INPUT IN EXCESS 200 MBH OR A STORAGE CAPACITY
- GREATER THAN 120 GALLONS SHALL BE IN COMPLIANCE WITH THE ASME BOILER AND PRESSURE VESSEL CODE 4. WATER HEATERS SHALL MEET OR EXCEED THE MINIMUM EFFICIENCY REQUIREMENTS OF
- 5. TEMPERATURE AND PRESSURE RELIEF VALVES SHALL BE IN COMPLIANCE WITH THE ASME BOILER AND PRESSURE VESSEL CODE AND SELECTED FOR CAPACITY BASED ON THE AGA TEMPERATURE STEAM RATING
- WATER HEATER SHALL CONSIST OF AN ELECTRIC IMMERSION TYPE HEATER AND AN INTEGRAL HEAVY GAUGE STEEL GLASS LINED STORAGE TANK WITH FIBER GLASS OR POLYURETHANE FOAM INSULATION AND A OUTER STEEL JACKET WITH A BAKED ENAMEL FINISH.
 - 2. THE WATER HEATER ELEMENTS SHALL BE OF THE LOW WATT DENSITY (75 WATT PER SQUARE INCH) COPPER SHEATH, TIN COATED IMMERSION TYPE. THE ELEMENTS SHALL BE FUSED IN ACCORDANCE WITH UL. 3. THE STORAGE TANK SHALL BE RATED FOR A WORKING PRESSURE OF 150 PSIG AND BE
 - COMPLETE WITH MAGNESIUM ANODES FOR PROTECTION AGAINST ELECTROLYTIC 4. THE CONTROL CIRCUIT SHALL BE POWERED BY A FUSED INTEGRAL CONTROL TRANSFORMER.
 THE CONTROL CIRCUIT SHALL INCLUDE A MAGNETIC CONTACTOR FOR EACH 18 KW
 INCREMENT OF HEATER CAPACITY, AN ADJUSTABLE IMMERSION THERMOSTAT, AND A
 - ACTORY SET HIGH LIMIT TEMPERATURE CUTOUT SWITCH 5. THE FOLLOWING ACCESSORIES SHALL BE INCLUDED WITH THE WATER HEATER: TEMPERATURE & PRESSURE RELIEF VALVE AND MANUAL DRAIN VALVE.
- E. DOMESTIC HOT WATER EXPANSION TANKS DOMESTIC HOT WATER EXPANSION TANKS SHALL BE CONSTRUCTED IN ACCORDANCE WITH ASME AND BE RATED FOR A WORKING PRESSURE OF 125 PSI. THE TANK SHALL BE OF STEEL CONSTRUCTION WITH A PRE-CHARGED AIR CHAMBER. THE EXTERIOR OF E TANK SHALL HAVE A BAKED ENAMEL FINISH.
 - FROM AIR WITH EITHER A HEAVY DUTY BUTYL DIAPHRAGM AND A RIGID POLYPROPYLENE TANK LINER OR WITH A HEAVY DUTY BUTYL WATER HOLDING 3. THE EXPANSION TANK SHALL BE SIZED TO ACCOMMODATE FOR THERMAL EXPANSION OF THE STORED WATER AND THUS MAINTAIN HEATED WATER PRESSURE BELOW THE RELIEF

2. THE TANK SHALL BE CONSTRUCTED TO ACCEPT AND STORE EXPANDED WATER SEPARATE

- F. DOMESTIC HOT WATER CIRCULATING PUMPS SHALL BE OF THE IN-LINE TYPE WITH FLANGED PIPING
- CONNECTIONS OF ALL BRONZE CONSTRUCTION. G. CONTRACTOR SHALL INSTALL THE DOMESTIC WATER HEATERS AND ACCESSORY COMPONENTS PLUMB AND LEVEL IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS. MANUFACTURER'S RECOMMENDED OPERATING AND SERVICE CLEARANCES SHALL BE MAINTAINED.

- H. CONTRACTOR SHALL INSTALL WATER PIPING FOR THE DOMESTIC WATER HEATER CONNECTIONS TO INCLUDE THE FOLLOWING DEVICES AS WELL AS ANY ADDITIONAL REQUIREMENTS AS INDICATED ON INLET AND OUTLIFT ISOLATION VALVES DIELECTRIC PIPE UNIONS AT POINT OF HEATER CONNECTION
- THERMOMETERS IN THE INLET AND OUTLET PIPING CONNECTIONS I. DOMESTIC HOT WATER CIRCULATING PUMPS SHALL BE INSTALLED WITH ISOLATION VALVES UP AND DOWNSTREAM AND WITH A SWING CHECK VALVE AT THE PUMP DISCHARGE.

PLUMBING FIXTURES, DRAINS AND CLEANOUTS

- A. CONTRACTOR SHALL PROVIDE AND INSTALL ALL PLUMBING FIXTURES AND EQUIPMENT AS SHOWN ON THE CONTRACT DRAWINGS AND LISTED IN THE FIXTURE SCHEDULE.
- B. CONTRACTOR SHALL PROVIDE AND INSTALL FLOOR DRAINS, SHOWER DRAINS, FIXTURE CARRIERS, CLEANOUTS AND ROOF DRAINS AS INDICATED ON THE CONTRACT DRAWINGS AND IN THESE
- C. ALL SIMILAR TYPES OF PLUMBING FIXTURES AND DRAINS SHALL BE SUPPLIED BY THE SAME MANUFACTURER
- D. FLOOR CLEANOUTS SHALL BE INSTALLED FLUSH WITH THE FINISH FLOOR.
- E. CLEANOUTS ON VERTICAL DOWNSPOUTS AND SANITARY STACKS CONCEALED WITHIN WALLS SHALL BE MADE ACCESSIBLE WITH A WALL CLEANOUT COVER PLATE.
- F. EXTERIOR CLEANOUTS TO BE ROUND HEAVY DUTY CAST IRON FLANGED HOUSING WITH HEAVY DUTY SECURED SCORIATED CAST IRON.
- G. ALL EXPOSED PIPING AND STOP VALVES FOR PLUMBING FIXTURES SHALL BE CHROME PLATED. WATER STOP VALVES AND SANITARY DRAIN PIPING SHALL BE CHROME PLATED BRASS OR BRONZE. SANITARY TRAPS SHALL HAVE INTEGRAL CLEANOUT PLUGS.
- H. CONTRACTOR SHALL INSTALL PLUMBING FIXTURES TO HEIGHT AND LOCATION AS SHOWN ON THE ARCHITECTURAL DETAIL DRAWINGS. INSTALLED FIXTURES SHALL BE LEVEL AND PLUMB. THIS CONTRACTOR SHALL SEAL ALL FIXTURES TO THE WALLS WITH WHITE WATERPROOF AND MILDEW ESISTANT CAULK. A STOP VALVE SHALL BE INSTALLED IN AN ACCESSIBLE LOCATION IN EACH WATER SUPPLY FOR EACH INDIVIDUAL FIXTURE. IMMEDIATELY AFTER THE SETTING OF ANY FIXTURE, FITTING, OR PIPING, THIS CONTRACTOR SHALL TAKE APPROPRIATE ACTION AND BE RESPONSIBLE FOR THE PROTECTION OF THESE ITEMS THROUGHOUT CONSTRUCTION UNTIL ACCEPTANCE BY THE OWNER.
- I. ALL PLUMBING FIXTURES DESIGNATED AS "ADA" OR HANDI-CAP ACCESSIBLE SHALL BE SUPPLIED AND INSTALLED IN COMPLIANCE WITH THE AMERICAN WITH DISABILITIES ACT ACCESSIBILITY GUIDELINES FOR BUILDINGS AND FACILITIES (ADAAG) AND WITH ANSI STANDARD A117.1-1992.
- J. CLEANOUTS SHALL BE PROVIDED AT THE BASE OF EACH INTERIOR DOWNSPOUT, SANITARY STACK, AND MAIN VENT STACK. IN ADDITION, UNLESS NOTED OTHERWISE, CLEANOUTS SHALL BE INSTALLED IN THE BUILDING DRAINS AT ONE HUNDRED FOOT MAXIMUM INTERVALS AND AT ALL CHANGES IN DIRECTION GREATER THAN FORTY FIVE DEGREES.
- K. ALL FLOOR DRAINS WHICH ARE NOT LOCATED ON GRADE SHALL HAVE A SHEET LEAD OR PVC
- WATERPROOF MEMBRANE 24" IN DIAMETER SECURED TO THE DRAIN FLASHING RING. L PLUMBING FIXTURES AND DRAINS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS, ADAPTED TO THE APPLICABLE CONSTRUCTION AND MADE WATERTIGHT.

- A. CONTRACTOR SHALL PROVIDE AND INSTALL ALL PLUMBING SPECIALTIES AS SHOWN ON THE CONTRACT DRAWINGS AND LISTED IN THE EQUIPMENT SCHEDULE.
- B. ALL SIMILAR TYPES OF PLUMBING SPECIALTIES SHALL BE SUPPLIED BY THE SAME MANUFACTURER. C. ATMOSPHERIC VACUUM BREAKER SHALL HAVE BRASS BODY, STAINLESS STEEL WORKING PARTS,

INTEGRAL STRAINER, RUBBER DISCS, UNIONS.

- D. REDUCED PRESSURE BACKFLOW PREVENTER ASSEMBLIES: ASSEMBLY SHALL CONSIST OF AN INLET STRAINER, TWO ISOLATION VALVES, TWO POSITIVE SEATING CHECK VALVES WITH AN INTERMEDIATE PRESSURE DIFFERENTIAL RELIEF AND
- TEST COCKS. SEE CONTRACT DRAWINGS AND PLUMBING SCHEDULES FOR ADDITIONAL REQUIREMENTS. 2. ASSEMBLY SHALL BE RATED FOR 33 DEGREE F TO 110 DEGREE F CONTINUOUS TEMPERATURE AND 140 DEGREE F INTERMITTENT TEMPERATURE.
- 3. ASSEMBLY SHALL BE RATED FOR A MAXIMUM WORKING PRESSURE OF 175 PSI. 4. 3/4" THRU 2" ASSEMBLIES SHALL HAVE A BRONZE BODY WITH BRONZE BALL VALVE SHUTOFFS AND BRONZE TEST COCKS. ASSEMBLY SHALL HAVE THREADED PIPE CONNECTIONS
- E. DUAL CHECK VALVES SHALL HAVE A STRAIGHT LINE POPPET TYPE CHECK MODULES, REPLACEABLE SEATS, AND BRASS CONSTRUCTION.
- F. SHOCK STOPS SHALL BE OF THE COPPER TUBE WITH PISTON TYPE OR THE STAINLESS STEEL BELLOW G. DOMESTIC HOT WATER ANTI-SCALD THERMOSTATIC MIXING CONTROL VALVE SHALL BE OF BRONZE BODY
- CONSTRUCTION WITH CORROSION RESISTANT INTERIOR COMPONENTS, CHECK STOPS, FAIL TO THE COLD WATER SIDE. AND RATED FOR 125 PSIG WORKING. H. STRAINERS SHALL BE OF 125 WSP ALL BRONZE BODY Y-PATTERN WITH 20 MESH STAINLESS STEE SCREENS. STRAINERS SHALL CONFORM TO FEDERAL SPECIFICATION WW-V-51D CLASS A, TYPE IV AND BE SUPPLIED AS MANUFACTURED BY ONE OF THE FOLLOWING: APPOLLO VALVES,
- ARMSTRONG LIMITED, CRANE COMPANY, MUESSCO, AND SPIRAX/SARCO.
- I. INTERIOR HOSE BIBBS SHALL BE OF COPPER/BRONZE CONSTRUCTION WITH ANTI-SIPHON VACUUM BREAKER, 3/4" HOSE THREAD AND WHEEL HANDLE J. TRAP PRIMER VALVES SHALL BE OF BRONZE BODY CONSTRUCTION WITH THREADED OR SOLDER JOINT
- CONNECTIONS, AND RATED FOR 125 PSIG WORKING PRESSURE K. THERMOMETERS SHALL CONSIST OF A 9" LONG DIE CAST ALUMINUM CASE WITH A BAKED EPOXY ENAMEL FINISH, A MERCURY FILLED TUBE AND CAPILLARY WITH 1% SCALE RANGE ACCURACY, A SATIN FACED NON-REFLECTIVE PERMANENTLY ETCHED ALUMINUM SCALE. A CLEAR ACRYLIC PLASTIC LENS A SWIVEL JOINT (180 DEGREE ADJUSTMENT IN VERTICAL PLAN AND 360 DEGREE ROTATION IN THE HORIZONTAL PLANE) AND A COPPER-PLATED STEEL OR BRASS STEM FOR SEPARABLE SOCKET OF LENGTH TO SUIT INSTALLATION. SCALE SHALL HAVE DIVISIONS OF $^{\prime}$ DEGREE F WITH A RANGE OF 30 DEGREES TO 240 DEGREES F. THERMOMETERS SHALL BE A
- 3M, TRERICE, AND WEISS INSTRUMENTS. L. CONTRACTOR SHALL INSTALL PLUMBING SPECIALTIES TO HEIGHT AND LOCATION AS SHOWN ON THE CONTRACT DRAWINGS. INSTALL PLUMBING SPECIALTIES LEVEL AND PLUMB WHERE APPLICABLE AND PER MANUFACTURERS RECOMMENDATIONS. IMMEDIATELY AFTER THE SETTING OF ANY PLUMBING SPECIALTY, THIS CONTRACTOR SHALL TAKE APPROPRIATE ACTION AND BE

MANUFACTURED BY ONE OF THE FOLLOWING: ASHCROFT, MARSHALLTOWN INSTRUMENTS, TAYLOR,

- RESPONSIBLE FOR THE PROTECTION OF THESE ITEMS THROUGHOUT CONSTRUCTION UNTIL
- M. PROVIDE VACUUM BREAKERS ON ALL THREADED HOSE BIBB CONNECTIONS. N. INSTALL REDUCED PRESSURE PRINCIPLE BACKFLOW PREVENTER IN INCOMING DOMESTIC WATER SERVICE.
- O. BACKFLOW PREVENTERS SHALL BE INSTALLED IN STRICT ACCORDANCE WITH THE MANUFACTURER'S WRITTEN INSTRUCTIONS AND IN COMPLIANCE WITH THE REQUIREMENTS OF THE AUTHORITIES HAVING JURISDICTION.
- P. TEST EACH BACKFLOW DEVICE AND SUBMIT TEST DATA. Q. PROVIDE THERMOSTATIC MIXING VALVES TO REGULATE THE HOT WATER TEMPERATURE TO A TEMPERED
- R. PROVIDE A STRAINER UPSTREAM OF BACKFLOW PREVENTERS.
- S. WALL HYDRANTS WITH HOSE CONNECTIONS SHALL BE PROVIDED IN THE WATER ROOM. T. PROVIDE A WATER HAMMER ARRESTOR AT EACH SOLENOID VALVE OR PIECE OF EQUIPMENT THAT HAS A QUICK CLOSING TYPE VALVE. WATER HAMMER ARRESTOR FOR DOWN—FFED RISERS TO BE AT TOP OF RISER. SIZE SHOCK ABSORBER ACCORDING TO FIXTURE UNIT COUNT. PROVIDE SHOCK ABSORBERS AT EACH GROUP OF WATER CLOSETS AND URINALS. SHOCK ABSORBER SHALL BE
- EASILY ACCESSIBLE FOR REPAIR OR REPLACEMENT. U. PROVIDE TRAP SEAL PRIMERS ON ALL FLOOR DRAINS TO PREVENT TRAP SEALS FROM DRYING UP.
- V. PROVIDE THERMOMETERS AT DOMESTIC WATER HEATER INLETS AND OUTLETS, HOT WATER OUTLET AT THE MAIN THERMOSTATIC MIXING VALVE, AND THE DOMESTIC CIRCULATION PUMP OUTLET.
- W. WASTE DISPOSER SHALL BE COUNTER SINK DRAIN OUTLET MOUNTING TYPE OF GALVANIZED STEEL CONSTRUCTION WITH MINIMUM 1/2 HORSEPOWER 120 VOLT ELECTRIC MOTOR FOR ON/OFF CONTROL THRU A WALL SWITCH BY OTHERS. THE MOTOR SHALL HAVE MANUAL RESET OVERLOAD PROTECTION. THE DISPOSER SHALL HAVE PERMANENTLY LUBRICATED BEARINGS AND THE DRAIN CONNECTION SHALL BE 1-1/2" SLIP JOINT. THE DISPOSER SHALL HAVE A TWO YEAR WARRANTY.

NOTE: THIS SPECIFICATION HAS NOT BEEN EDITED FOR THIS PROJECT. NOT ALL SECTIONS INCLUDED ARE APPLICABLE TO THIS PROJECT

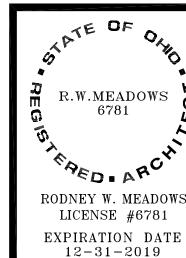
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REVISIONS:

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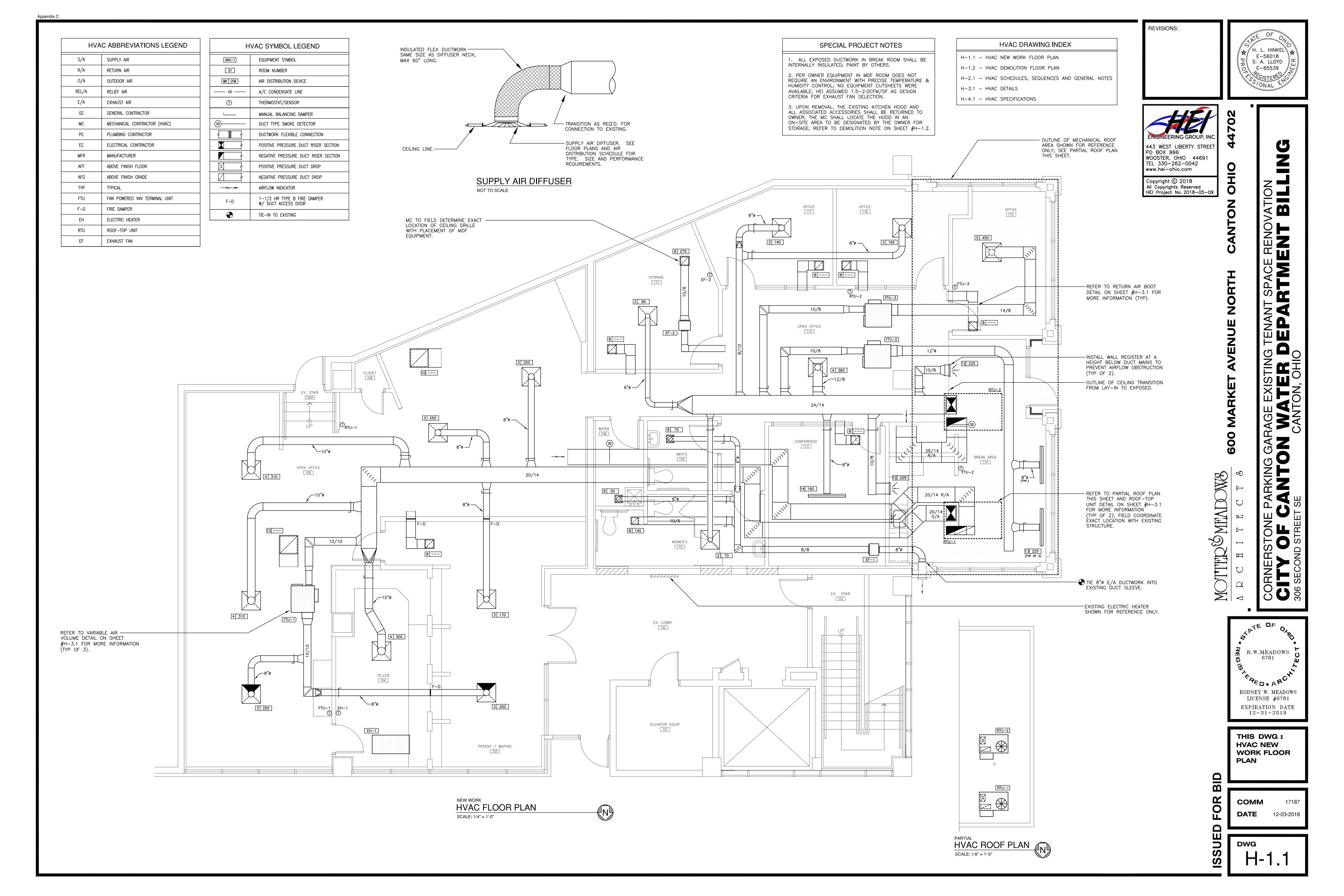
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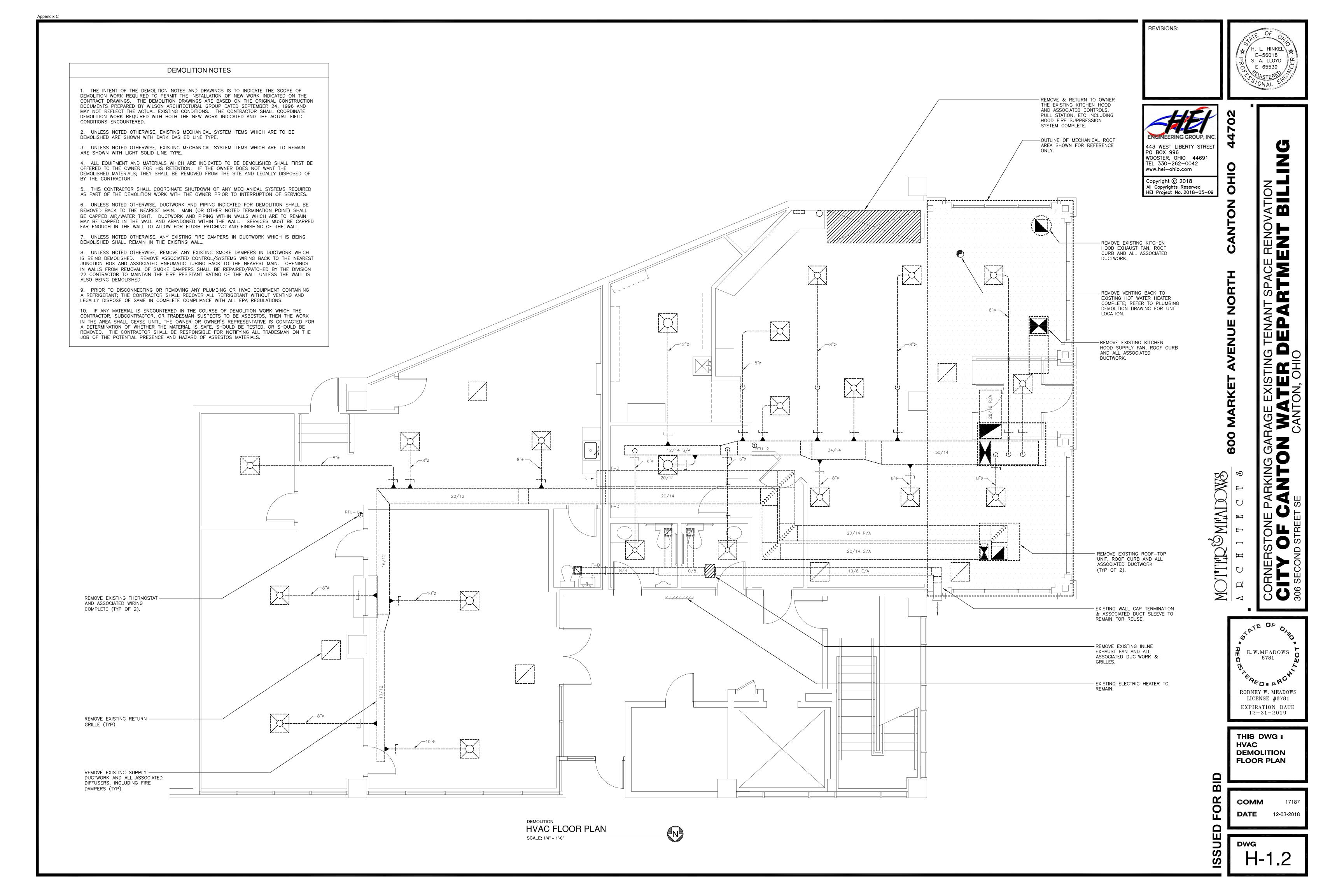
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12-03-2018





2. FLEXIBLE DUCTWORK SHALL BE LISTED AND TESTED IN ACCORDANCE WITH UL 181 AND RATED FOR THE SMACNA PRESSURE CLASSIFICATION IN WHICH IT IS APPLIED. FLEXIBLE DUCTWORK SHALL NOT EXCEED FIVE FEET IN LENGTH.

3. ALL DUCTWORK SHALL HAVE TRANSVERSE JOINTS AND LONGITUDINAL SEAMS SEALED WITH A UL LISTED DUCT SEALANT. UNLESS NOTED OTHERWISE, DUCTWORK SHALL BE INSULATED IN ACCORDANCE WITH THE FOLLOWING NOTATION WITH 1-1/2" THICK FLEXIBLE FIBER GLASS DUCT WRAP INSULATION WITH A FOIL FACED KRAFT PAPER VAPOR SEAL AND HAVE A "k" FACTOR OF 0.30 AT 75°F MEAN TEMPERATURE.

RETURN AIR:.....NOT INSULATED OUTDOOR AIR:.....INSULATED RELIEF AIR:.....NOT INSULATED EXHAUST AIR:.....NOT INSULATED

4. WHEN NOTED, HVAC DUCTWORK SHALL BE INTERNALLY INSULATED FOR PROTECTIVE OR ACOUSTICAL CONSIDERATIONS WITH FIBER GLASS DUCT LINER INSULATION FACED WITH A BLACK FIRE-RESISTANT COATING AGAINST THE AIRSTREAM. HVAC DUCTWORK THAT IS INTERNALLY INSULATED DOES NOT NEED TO BE EXTERNALLY INSULATED. DUCTWORK SIZES NOTED INDICATE FREE AREA DIMENSIONS. ACTUAL DUCT SIZE MUST BE INCREASED TO ACCOUNT FOR THE INSULATION LINER.

THE RETURN AIR DUCT MAIN FOR EACH RTU SHALL BE INTERNALLY INSULATED FROM THE POINT OF UNIT CONNECTION UPSTREAM FOR TWENTY FEET FOR ACOUSTICAL CONSIDERATIONS WITH 1/2" THICK DUCT LINER INSULATION.

6. RETURN AIR DUCTWORK IN PLENUM RETURN SYSTEMS SHALL BE INTERNALLY INSULATED FOR ACOUSTICAL CONSIDERATIONS WITH 1/2" THICK DUCT LINER INSULATION.

7. THE FIRST TEN FEET OF SUPPLY AIR DUCTWORK DOWNSTREAM OF EACH FAN POWERED TERMINAL UNIT AND ANY RETURN AIR DUCTWORK DIRECTLY ASSOCIATED WITH THE TERMINAL UNIT SHALL BE INTERNALLY INSULATED FOR ACOUSTICAL CONSIDERATIONS WITH 1" THICK DUCT LINER INSULATION.

8. ALL EXHAUST AIR AND RELIEF AIR DUCTWORK WITHIN THE BUILDING FROM THE POINT OF TERMINATION AT THE BUILDING ENVELOPE TO A POINT TEN FEET UPSTREAM SHALL BE INSULATED WITH 1-1/2" THICK FLEXIBLE FIBER GLASS DUCT WRAP INSULATION.

9. DUCTWORK PENETRATIONS THROUGH FIRE RESISTANT RATED ASSEMBLIES SHALL BE MADE WITH UL LABELED FIRE DAMPERS. DAMPER RATING SHALL BE 1-1/2 HOURS FOR 1 OR 2 HOUR RATED ASSEMBLIES AND 3 HOURS FOR 3 HOUR RATED ASSEMBLIES. A DUCT ACCESS DOOR SHALL BE INSTALLED FOR FUSIBLE LINK REPAIR FOR EACH FIRE

10. THE AIR DISTRIBUTION DESIGN IS BASED ON LIMITED INFORMATION REGARDING SHAPES AND DEPTHS OF STRUCTURAL ELEMENTS AND CEILING HEIGHTS AND LAYOUTS. INSTALLING CONTRACTOR TO FIELD COORDINATE FOR ADEQUATE CLEARANCE WITH MINOR DEVIATIONS IN LAYOUT AND DUCT SIZES AS REQUIRED. REVISED DUCT SIZES SHALL PROVIDE EQUIVALENT DUCT FREE AREA AS INDICATED. MAXIMUM AIR FLOW FOR ROUND DUCTWORK

> 4" DIA. 40 CFM 6" DIA. 100 CFM 8" DIA. 230 CFM 10" DIA. 400 CFM 12" DIA. 700 CFM 14" DIA. 1000 CFM

SHALL BE AS FOLLOWS:

16" DIA. 1500 CFM 11. AIR DISTRIBUTION SYSTEMS SHALL BE BALANCED IN ACCORDANCE WITH AABC OR NEBB STANDARDS.

GENERAL HVAC NOTES

1. DRAWINGS ARE DIAGRAMMATIC AND INDICATE GENERAL ARRANGEMENT OF THE MECHANICAL SYSTEMS BASED UPON THE ORIGINAL CONSTRUCTION DOCUMENTS PREPARED BY WILSON ARCHITECTURAL GROUP DATED SEPTEMBER 24, 1996. ACTUAL FIELD CONDITIONS AND WORK OF OTHER TRADES MAY REQUIRE MINOR DEVIATIONS.

2. ALL MECHANICAL SYSTEMS SHALL BE INSTALLED IN ACCORDANCE WITH THE OHIO PLUMBING AND MECHANICAL CODES.

3. ALL MECHANICAL EQUIPMENT AND APPLIANCES SHALL BEAR THE LABEL OF AN APPROVED AGENCY IN ACCORDANCE WITH THE OHIO MECHANICAL CODE. ALL MECHANICAL EQUIPMENT AND APPLIANCES SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS.

4. UNLESS NOTED OTHERWISE, EACH MECHANICAL SYSTEM COMPONENT SHALL BE INDEPENDENTLY SUPPORTED FROM THE BUILDING STRUCTURE.

5. PLUMBING AND HVAC INSTALLATION SHALL BE COORDINATED SO AS TO MAINTAIN AT LEAST TEN FEET OF CLEARANCE FROM ALL OUTDOOR AIR INTAKES AND BUILDING OPENINGS, ANY PLUMBING VENTS (EXISTING OR NEW), EXHAUST AIR OUTLETS OR OTHER NOXIOUS CONDITIONS.

6. UNLESS NOTED OTHERWISE, ALL ROOFTOP EQUIPMENT SHALL BE LOCATED SO AS TO MAINTAIN AT LEAST TEN FEET OF CLEARANCE FROM ANY ROOF EDGE WITH A DROP OF 24" OR MORE.

7. ALL MECHANICAL SYSTEM PENETRATIONS THROUGH FIRE / SMOKE RATED ASSEMBLIES SHALL BE SEALÉD WITH FIRE AND SMOKE STOPPING COMPOUND SO AS TO MAINTAIN THE FIRE RESISTANCE RATING OF THE WALL PENETRATED. FIRESTOPPING COMPOUND, PIPE SLEEVES, AND PIPING INSTALLATION SHALL BE INSTALLED SO AS THE COMPLETE PENETRATION ASSEMBLY IS CLASSIFIED BY UL AS LISTED IN THE UL BUILDING MATERIALS DIRECTORY.

8. UNLESS NOTED OTHERWISE, THIS CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CUTTING AND PATCHING OF EXISTING WALLS, FLOORS, CEILINGS AND ROOFS AS REQUIRED FOR THE INSTALLATION OF HVAC SYSTEMS. ANY EXISTING ROOF WARRANTIES SHALL BE MAINTAINED. NO STRUCTURAL OR REINFORCING MEMBERS SHALL BE CUT.

9. UNLESS NOTED OTHERWISE, THIS CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVAL, STORAGE AND INSTALLATION OF LAY-IN CEILINGS AS REQUIRED TO ACCOMPLISH HIS SCOPE OF WORK. UPON COMPLETION OF WORK, CEILING SHALL BE RESTORED TO ITS ORIGINAL CONDITION.

10. THE ENGINEERING ANALYSIS AND DESIGN OF THE ROOF STRUCTURE FOR ROOFTOP HVAC EQUIPMENT IS OUTSIDE THE SCOPE OF HVAC DESIGN AND SHALL BE THE RESPONSIBILITY OF OTHERS. STRUCTURAL SUPPORT SHALL BE ADEQUATE FOR THE EQUIPMENT AND ADDITIONAL STRUCTURAL MEMBERS SHALL BE ADDED AS REQUIRED TO PROPERLY DISTRIBUTE THE EQUIPMENT WEIGHT AND TO MAINTAIN EQUIPMENT LEVEL AND WITHOUT SAG. FQUIPMENT SHALL NOT BE INSTALLED UNTIL ADEQUATE SUPPORT IS

11. OTHER MANUFACTURER'S OF MECHANICAL EQUIPMENT MAY BE SUBSTITUTED FOR THOSE INDICATED AS LONG AS THE QUALITY OF CONSTRUCTION AND OPERATING CHARACTERISTICS ARE EQUIVALENT.

12. CONTRACTOR SHALL VERIFY/COORDINATE EQUIPMENT ELECTRICAL REQUIREMENTS PRIOR TO UNIT PROCUREMENT.

NOTE: SPACE ABOVE LAY-IN CEILING TO BE USED AS A RETURN AIR PLENUM. MC SHALL FIELD VERIFY THAT ROOM WALLS DO NOT EXTEND UP BEYOND CEILING IN SUCH A MANNER SO AS TO BLOCK THE RETURN AIR PATH. MC SHALL ALSO VERIFY THAT NO PVC PIPING OR COMBUSTIBLES ARE EXPOSED

WITHIN THE PLENUM.

FAN SCHEDULE DRIVE CFM SP BHP RPM MHP SONES ELECTRIC WEIGHT (LBS) MAKE

J. NEMA 3R DISCONNECT SWITCH

2. SOUND DATA SHALL BE OBTAINED FROM TESTS CONDUCTED IN ACCORDANCE WITH ARI STANDARD 885-98. NC SHALL BE LESS THAN 35, UNLESS NOTED OTHERWISE.

4. UNIT SHALL BE COMPLETE WITH 24V CONTROL TRANSFORMER, MOTOR STARTER, DISCONNECT SWITCH, 1" LINER & FLOW RING. UNIT SHALL HAVE EXPOSED DAMPER SHAFT.

5. MC SHALL BE RESPONSIBLE FOR PROVIDING AND FIELD MOUNTING OF TERMINAL UNIT DDC CONTROLLER AND INTERLOCK WITH RESPECTIVE RTU; REFER TO SEQUENCE OF OPERATION.

M. WFATHERHOOD

N. INLET VANES

K. HINGED BASE WITH DRAIN PIPE AND GREASE TERMINATOR

L. VARIABLE SPEED CONTROLLER (UNIT MOUNTED)

NOTES OPTIONS
 DIRECT
 260
 .625"
 1290
 110W
 4.0
 115-1-60
 25
 INTER-LOCK WITH RTU-2 GREENHECK CSP-A390 INLINE CABINET EF-2 GREENHECK CSP-A390 THERMOSTAT | DIRECT | 275 | .30" | - | 1084 | 71W | 2.0 | 115-1-60 | 25 INLINE CABINET B, D & L

FAN-POWERED VAV TERMINAL UNIT W/ ELECTRIC HEAT SCHEDULE

FTU-3 20 08 PRICE FDV8 450 150 1 0.25 .03 <20 20 250 1/8 400 3.0 10.2 66.3/90.4 F - 120-1-60 34.9 35.0 100

COOLING CFM STATIC PRESSURE NC LEVELS FAN (HEATING)

OPTIONS (SEE SCHEDULE ABOVE FOR APPLICABLE OPTIONS FROM LIST BELOW)

A. BIRD SCREEN B. DISCONNECT SWITCH . MOTOR OPERATED DAMPER

GENERAL NOTES

). GRAVITY BACKDRAFT DAMPER

12" HIGH GALVANIZED STEEL ROOF CURB F. WALL CAP G. ROOF JACK

O. OSHA APPROVED BELT GUARD & MOTOR COVER P. EXPLOSION PROOF MOTOR H. BRICK VENT Q. SPARK RESISTANT CONSTRUCTION; AMCA "__" I. CEILING RADIATION DAMPER R. OPTIONAL WIRE GUARD

MODEL

5. DUCT DIMENSIONS ARE APPROXIMATE. CHECK SUBMITTAL DRAWING FOR EXACT DIMENSIONS.

ROOM NC LEVEL SHOWN INCLUDES ATTENUATION TRANSFER FUNCTIONS OBTAINED FROM TABLES IN ARI STANDARD 885.

S. 120V MANUAL ON/OFF WALL SWITCH

T. ROOF CURB WITH CAP U. 120-277V CONTROL TRANSFORMER

MAX MIN INLET DOWN MIN. RAD. DISCH. CFM HP CFM KW MBH COIL EAT/LAT APD VOLTAGE MCA MOCP

08 PRICE FDV8 500 175 1 0.25 .03 <20 21 325 1/8 500 3.7 12.6 66.5/90.3 F - 120-1-60 42.2 45.0 100

08 | PRICE | FDV8 | 450 | 150 | 1 | 0.25 | .03 | <20 | 20 | 250 | 1/8 | 400 | 3.0 | 10.2 | 66.3/90.4°F | - | 120-1-60 | 34.9 | 35.0 | 100

V. HINGED BASE

W. EXTENDED CURB

EQUIVALENT

MAKE

GREENHECK

JENN FAN

COOK

EQUIVALENT

MAKE

TITUS

KRUEGER

PRICE

ENVIRO-TEC

			Al	R DISTR	IBUTION	SCHED	OULE
					DES	SCRIPTION	
NO	MAKE	MODEL	FACE	NECK	MAX CFM	MAX. APD	NOTES
1	PRICE	SCD	12" X 12"	6" DIA	150	0.10	W/ OPPOSED BLADE DAMPER
2	PRICE	SCD	24" X 24"	6" DIA	200	0.10	W/ OPPOSED BLADE DAMPER
3	PRICE	SCD	24" X 24"	8" DIA	350	0.10	W/ OPPOSED BLADE DAMPER
4	PRICE	SCD	24" X 24"	10" DIA	425	0.10	W/ OPPOSED BLADE DAMPER
5	PRICE	SCD	24" X 24"	12" DIA	650	0.10	W/ OPPOSED BLADE DAMPER
6	PRICE	SCD	24" X 24"	14" DIA	850	0.10	W/ OPPOSED BLADE DAMPER
7	PRICE	SCD	24" X 24"	15" DIA	1000	0.10	W/ OPPOSED BLADE DAMPER
8	PRICE	80	12" X 12"	10" X 10"	475	0.10	W/ OPPOSED BLADE DAMPER
9	PRICE	80	12" X 24"	10" X 22"	1100	0.10	W/ OPPOSED BLADE DAMPER
10	PRICE	80	24" X 24"	22" X 22"	2200	0.10	W/ OPPOSED BLADE DAMPER
11	PRICE	530	20" X 16"	18" X 14"	960	0.10	W/ OPPOSED BLADE DAMPER
12	PRICE	520	20" X 8"	18" X 6"	360	0.10	W/ OPPOSED BLADE DAMPER; 45°F DEFLECTION
13	PRICE	SDAI100	4'-0" L	7" DIA.	225	0.10	2-SLOT, 1" WIDTH WITH PLENUM
14	PRICE	SDAI100	4'-0" L	7" DIA.	225	0.10	2-SLOT, 1" WIDTH WITH PLENUM (T-BAR MTD)

GENERAL NOTES FOR ALL APPLICABLE AIR DISTRIBUTION DEVICES

1. NOT ALL DEVICES IN THE SCHEDULE ARE UTILIZED FOR THIS SPECIFIC PROJECT. DEVICES REQUIRED AND QUANTITIES OF SAME ARE AS INDICATED ON THE DRAWINGS. 2. THE SYMBOLS ON THE DRAWING INDICATE TYPE OF DEVICE AND AIR VOLUME IN CFM.

UNLESS NOTED OTHERWISE: - DEVICE SHALL BE RATED FOR A MAXIMUM NC LEVEL OF 30. - DEVICE SHALL BE PROVIDED WITH A STANDARD WHITE FINISH.

4. FRAME TYPES PROVIDED SHALL BE IN ACCORDANCE WITH THE CEILING TYPE APPLICABLE. 5. ALL RA & EA GRILLES USED IN A BOOT/PLENUM APPLICATION SHALL INCLUDE AN OBD. 6. RUNOUT DUCT SIZE TO S/A DIFFUSER SHALL BE SAME SIZE AS DIFFUSER NECK UNLESS NOTED OTHERWISE.

3. UNLESS NOTED OTHERWISE, ALL AIR DISTRIBUTION DEVICES TO BE BY SAME MANUFACTURER.

FQUIVALEN

PRICE KRUEGER

MARKEL

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HEI Project No. 2018-05-09

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SINGLE ZONE ROOF-TOP UNIT SEQUENCE OF OPERATION

6. HEATING COIL PERFORMANCE BASED ON AN "OCCUPIED MODE" PLENUM AIR TEMPERATURE OF 70°F AND PRIMARY AIR TEMPERATURE OF 60°F.

GENERAL: A SEVEN DAY ELECTRONIC PROGRAMMABLE AUTO-CHANGEOVER THERMOSTAT WITH A MANUAL SETPOINT OVER-RIDE FEATURE FOR A 2-HOUR (ADJUSTABLE) TIME PERIOD SHALL SET OCCUPIED AND UNOCCUPIED SCHEDULES, DETERMINE HEATING OR COOLING MODE OF OPERATION AND SET THE DESIRED SPACE TEMPERATURE.

STANDARD UNIT PACKAGED CONTROLS SHOULD INCLUDE MINIMUM OUTDOOR AIR DAMPER POSITIONER, ECONOMIZER MIXING DAMPER CONTROLS, DX COOLING SYSTEM CONTROLS, GAS BURNER CONTROLS, TEMPERATURE HIGH LIMIT AND LOW LIMIT SAFETIES, REFRIGERATION SAFETIES AND GAS BURNER SAFETIES. SPRING RETURN ON THE MIXING DAMPER ACTUATORS SHALL CLOSE THE OUTDOOR AIR DAMPER AND OPEN THE RETURN AIR DAMPER WHENEVER THE UNIT IS SHUT DOWN.

A DUCT TYPE SMOKE DETECTOR SUPPLIED BY THE EC FOR INSTALLATION IN THE RETURN AIR DUCT BY THE MC SHALL BE WIRED TO A REMOTE AUDIBLE AND VISIBLE ALARM AND MONITORING STATION BY THE EC AND SHALL SHUTDOWN THE UNIT WHENEVER PARTICLES OF COMBUSTION ARE SENSED.

IN THE OCCUPIED MODE AND SHALL CYCLE ON/OFF IN THE UNOCCUPIED MODE SO AS TO MAINTAIN NIGHT SETBACK AND NIGHT SETUP TEMPERATURES. THE THERMOSTAT SHALL PROVIDE AN ELECTRONIC SIGNAL TO THE RTU INTEGRAL PACKAGED CONTROL SYSTEM TO SEQUENCE THE DX COOLING OR GAS HEATING AND

OPEN/CLOSE THE OUTDOOR AIR DAMPER. THE THERMOSTAT SHALL BE COMPLETE WITH

OCCUPIED/UNOCCUPIED MODE: THE UNIT SUPPLY FAN SHALL OPERATE CONTINUOUSLY

MINIMUM OUTDOOR AIR IN THE OCCUPIED MODE. WHERE ECONOMIZER IS PRESENT, THE MINIMUM OUTDOOR AIR POSITION SHALL BE OVER-RIDDEN WHEN OUTDOOR AIR CONDITIONS ARE SUITABLE. RELIEF AIR SHALL BE DISCHARGED FROM THE BUILDING VIA THE INTEGRAL BAROMETRIC DAMPER AND/OR POWERED EXHAUST.

THE OUTDOOR AIR DAMPER SHALL REMAIN CLOSED IN THE UNOCCUPIED MODE.

A CONTROL RELAY FOR INTERLOCK WITH THE RESPECTIVE TOILET EXHAUST FAN.

FAN-POWERED VAV TERMINAL UNITS: WHENEVER THE ASSOCIATED ROOF-TOP UNIT IS ON", THE VOLUME DAMPER SHALL MODULATE BETWEEN MINIMUM AND MAXIMUM SETTINGS TO MAINTAIN THE SPACE COOLING TEMPERATURE SETPOINT OF 78°F (ADJUSTABLE).

FOR UNITS WITH REHEAT COILS, THE DDC CONTROLLER SHALL STAGE THE ELECTRIC REHEAT COIL WHILE BLENDING WARM AIR FROM THE RETURN AIR PLENUM WITH THE MINIMUM PRIMARY AIR TO MAINTAIN THE SPACE HEATING TEMPERATURE SETPOINT OF 70'F (ADJUSTABLE). THE VOLUME DAMPER SHALL BE AT MINIMUM POSITION BEFORE THE ELECTRIC REHEAT COIL IS ENERGIZED. THE SPACE HEATING/COOLING TEMPERATURE DIFFERENTIAL SETPOINT SHALL BE 2°F. A TEMPERATURE SENSOR AND RELAY MODULE SHALL SWITCH THE CONTROL FROM DIRECT ACTING FOR COOLING TO REVERSE ACTING FOR HEATING AND VICE VERSA DEPENDING UPON THE TEMPERATURE OF THE DUCTED SUPPLY AIR.

IN THE UNOCCUPIED MODE, WITH THE VOLUME DAMPER CLOSED, THE RESPECTIVE TERMINAL UNIT FAN SHALL START/STOP AND THE ELECTRIC REHEAT COIL SHALL STAGE TO MAINTAIN NIGHT SETBACK TEMPERATURE OF 60°F (ADJUSTABLE).

S/A FROM RTU

CONTROLLER, DAMPER -

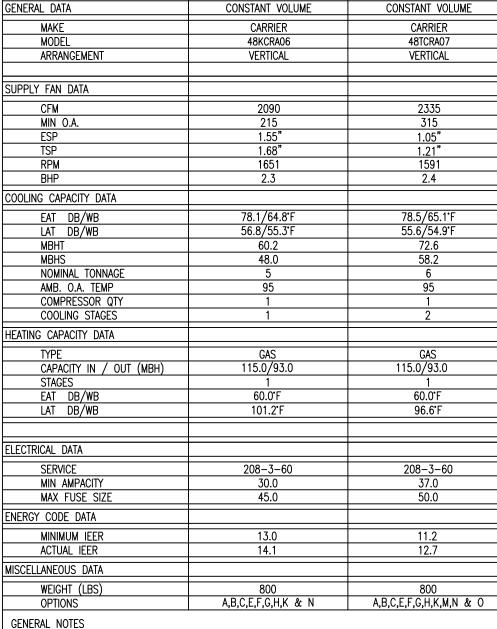
TEMPERATURE SENSOR BY

ACTUATOR, VELOCITY

SENSOR AND ZONE

UNIT MFR.

PLENUM R/A → ►



ROOF-TOP UNIT SCHEDULE

COORDINATE WITH SEQUENCE OF OPERATIONS FOR ADDITIONAL REQUIREMENTS. 2. ALL ROOFTOP UNITS SHALL BE SUPPLIED BY THE SAME MANUFACTURER.

OPTIONS (SEE SCHEDULE ABOVE FOR APPLICABLE OPTIONS FROM LIST BELOW)

A. ROOF CURB B. ECONOMIZER

S/A TO ZONE

BAROMETRIC RELIEF

). POWER EXHAUST FAN HAIL GUARDS

ELECTRICAL DISCONNECT SWITCH G. 7-DAY PROGRAMMABLE AUTOMATIC CHANGEOVER THERMOSTAT

. ELECTRICAL CONVENIENCE OUTLET (UNPOWERED)

TWO-POSITION O/A DAMPER DIRECT DRIVE SUPPLY FAN

K. ANTI-CYCLE TIMER CONTROLS

L. ENERGY X HEAT WHEEL M. CONTROL INTER-LOCK RELAY FOR EXHAUST FAN

N. HIGH STATIC FAN MOTOR/BELT DRIVE O. 2-SPEED FAN (VFD)

EQUIVALENT MAKE CARRIER TRANE

NO MAKE MODEL TYPE HEAT CAPACITY BLOWER ELECTRICAL WATTS BTUH CFM HP VOLT/PH/HZ AMPS EH-1 MARKEL CP127 RADIANT CEILING PANEL 750W 2560 - - 120-1-60 6.3	WT LBS	OPTIO
EH-1 MARKEL CP127 RADIANT CEILING PANEL 750W 2560 120-1-60 6.3		
	20	В
OPTIONS (SEE SCHEDULE ABOVE FOR APPLICABLE OPTIONS FROM LIST BELOW)		UIVALEN MAKE

MISCELLANEOUS ELECTRIC HEAT SEQUENCE OF OPERATION

H. BLANK COVER SECTIONS FOR CONTINUOUS WALL-TO-WALL

TERMINAL ELECTRIC HEAT - BASEBOARD & RADIANT CEILING PANELS

THE ELECTRICAL CONTRACTOR SHALL PROVIDE ELECTRICAL POWER TO EACH ELECTRIC HEAT DEVICE. A REMOTE LINE VOLTAGE THERMOSTAT PROVIDED BY THE HEATER MANUFACTURER LOOSE FOR FIELD INSTALLATION AND WIRING BY THE ELECTRICAL CONTRACTOR SHALL CYCLE

MISCELLANEOUS FANS SEQUENCE OF OPERATION

GENERAL EXHAUST FAN (EF-1)

D. HANGING BRACKET

THE EXHAUST FAN SHALL START/STOP VIA CONTROL INTER-LOCK RELAY WITH THE RESPECTIVE ROOF-TOP UNIT PROGRAMMABLE THERMOSTAT. THE EXHAUST FAN SHALL BE "ON" AND RUN CONTINUOUSLY IN THE OCCUPIED MODE AND "OFF" IN THE UNOCCUPIED MODE.

MDF/STORAGE ROOM EXHAUST FAN (EF-2)

THE EXHAUST FAN SHALL BE CONTROLLED BY A SPACE SENSOR. ON A RISE IN SPACE TEMPERATURE ABOVE 80°F (ADJUSTABLE) THE FAN SHALL START. WHEN THE SPACE TEMPERATURE FALLS BELOW THE THERMOSTAT SETPOINT THE FAN SHALL STOP. IF THE SPACE RISES ABOVE 85°F (ADJUSTABLE), SOUND AUDIBLE OR SIGNAL VISUAL ALARM.

THED COMEAN

THIS DWG: HVAC SCHEDULES. NOTES & CONTROLS

TE OF

R.W.MEADOWS

6781

RODNEY W. MEADOWS LICENSE #6781

EXPIRATION DATE 12-31-2019

ERED AR'

COMM DATE

17187 12-03-2018

DWG

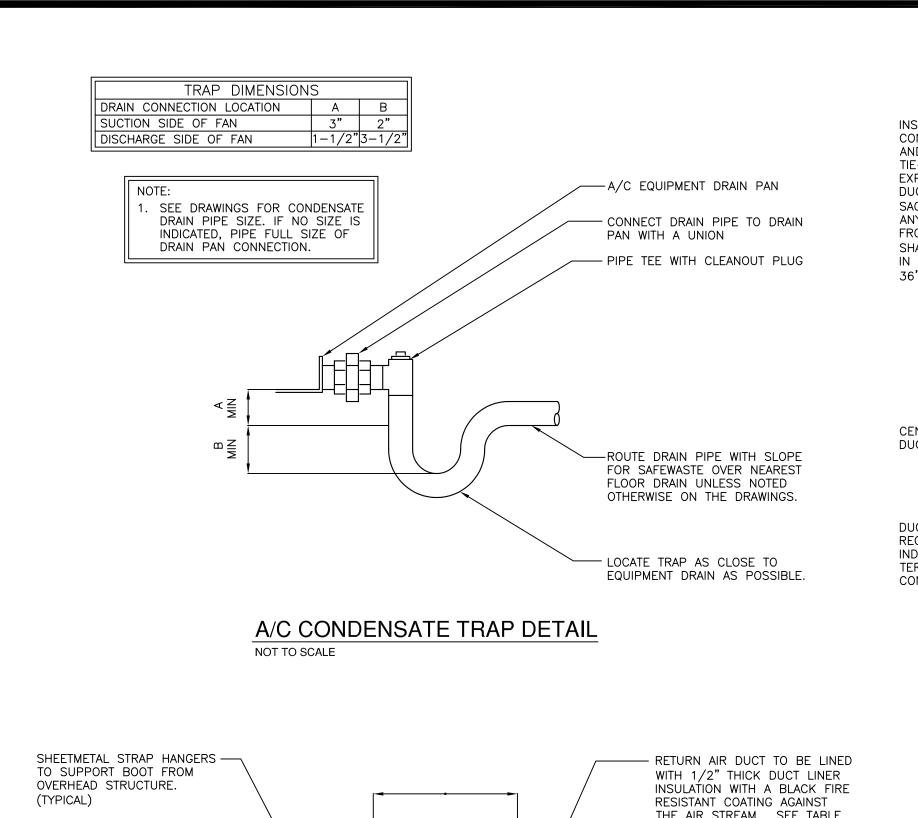
MEP COORDINATION SCHEDULE TOTAL TOTAL TOTAL DISCONNECT BY MOTOR STARTER TYPE / B VOLT/PH/HZ WATTS AMPS MOCP DIV. 23 DIV. 26 MANUAL MAGNETIC HOA VFD NONE DIV. 23 DIV. 26 208-3-60 - 30.0 45.0 X SMOKE DETECTOR BY EC (SEE NOTE 1); UNIT COMPLETE W/ NON-POWERED OUTLET 37.0 50.0 X 208-3-60 SMOKE DETECTOR BY EC (SEE NOTE 1); UNIT COMPLETE W/ NON-POWERED OUTLET FAN-POWERED TERMINAL UNIT WITH 1/8HP FAN MOTOR + ELECTRIC HEAT (SINGLE PT) | 120-1-60 | 3700W | 42.2 | 45.0 | X
 120-1-60
 3000W
 34.9
 35.0
 X

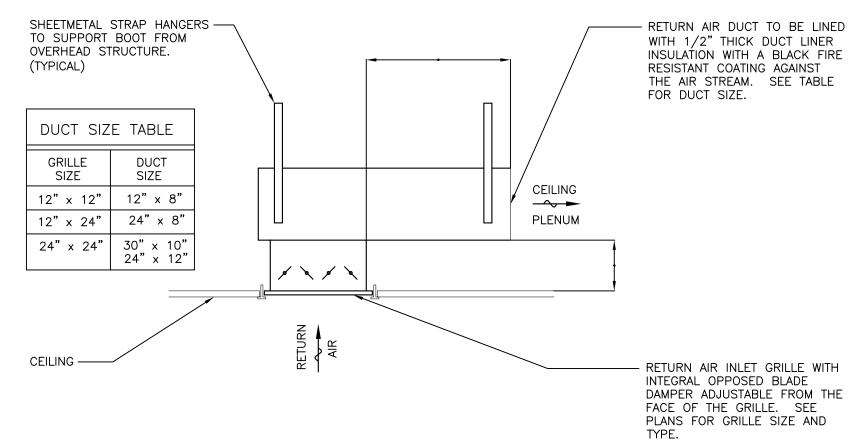
 120-1-60
 3000W
 34.9
 35.0
 X
 FAN-POWERED TERMINAL UNIT WITH 1/8HP FAN MOTOR + ELECTRIC HEAT (SINGLE PT) FTU-2 FAN-POWERED TERMINAL UNIT WITH 1/8HP FAN MOTOR + ELECTRIC HEAT (SINGLE PT) CONTROL RELAY INTERLOCK WITH RTU-2 BY MC 120-1-60 110W THERMOSTAT CONTROL BY MC 120-1-60 71W RADIANT CEILING PANEL; 120V BY EC FOR THERMOSTAT

1) SMOKE DETECTORS SHALL BE PROVIDED BY THE EC FOR INSTALLATION IN THE DUCTWORK BY THE MC; THE EC SHALL WIRE TO THE UNIT FAN FOR SHUTDOWN.

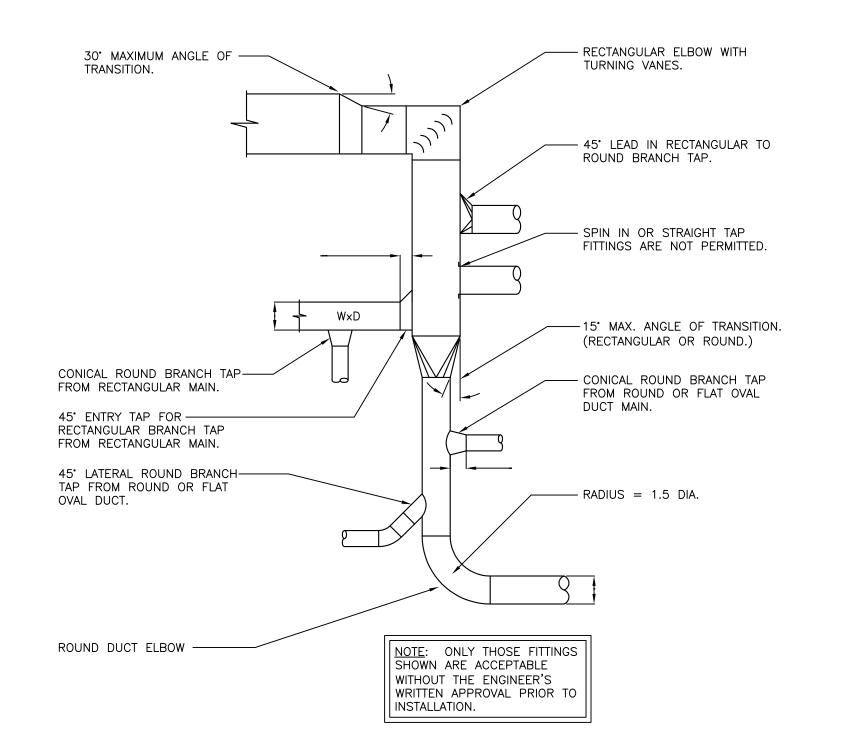
SINGLE ZONE ROOF-TOP UNIT (RTU-1 & RTU-2) TEMPERATURE CONTROL DIAGRAM NOT TO SCALE

EH-1 | 120-1-60 | 750W | 6.3



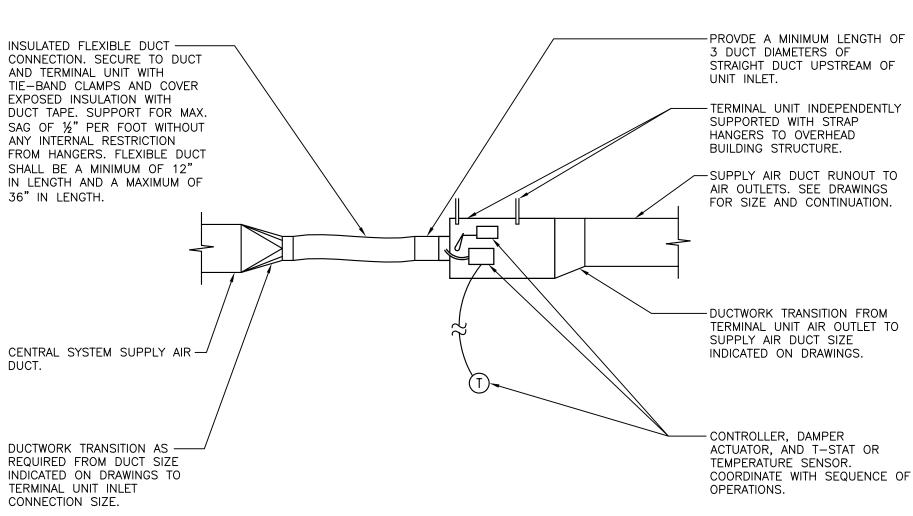


RETURN AIR BOOT DETAIL NOT TO SCALE



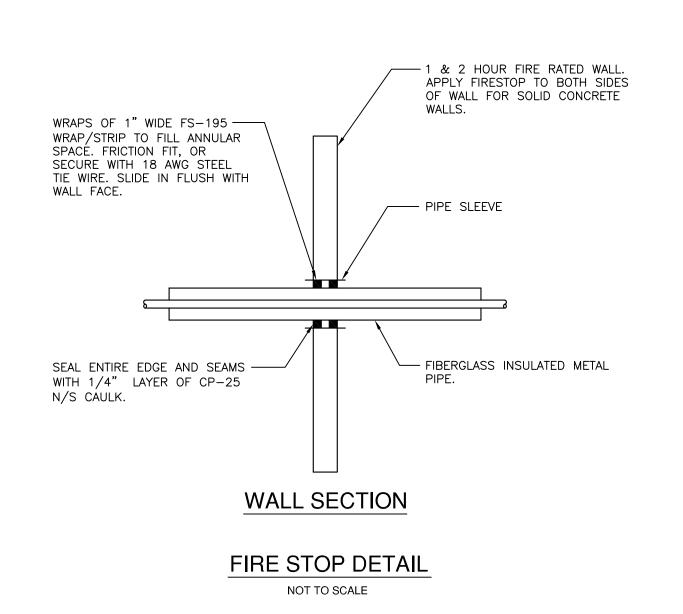
TYPICAL LOW PRESSURE (2" w.c. + LESS) DUCT FITTINGS

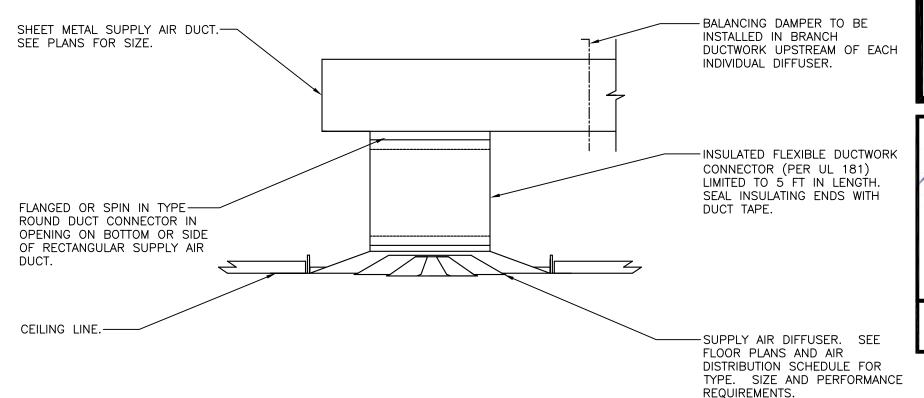
NOT TO SCALE



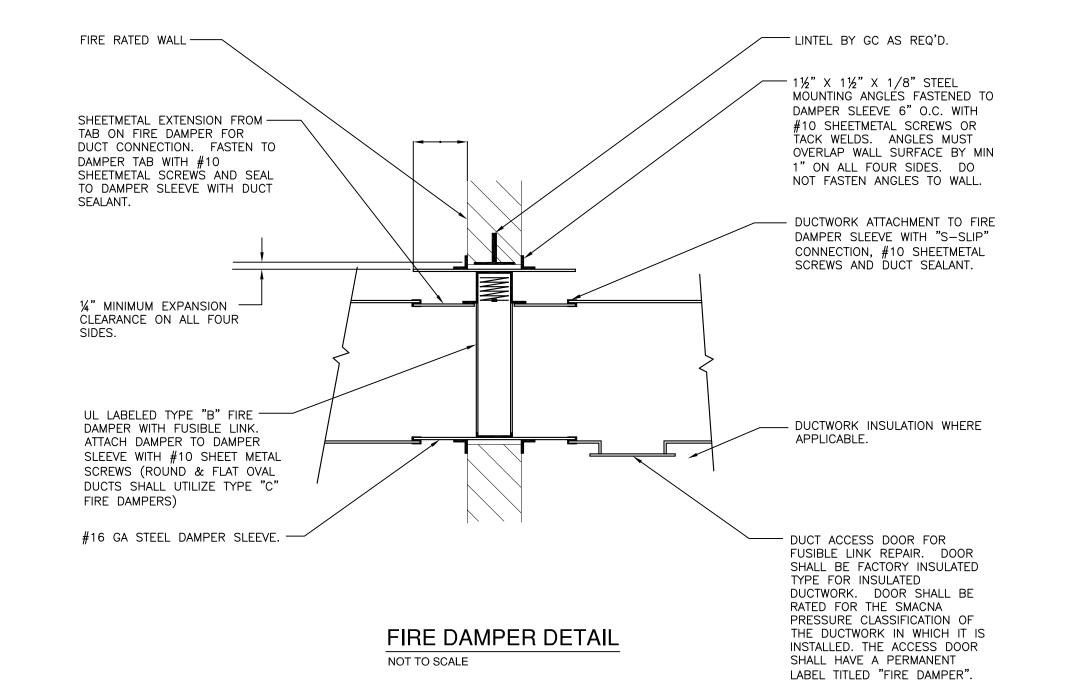
(APPLIES TO FAN-POWERED VAV TERMINAL UNITS) VARIABLE VOLUME AIR TERMINAL UNIT DETAIL NOT TO SCALE

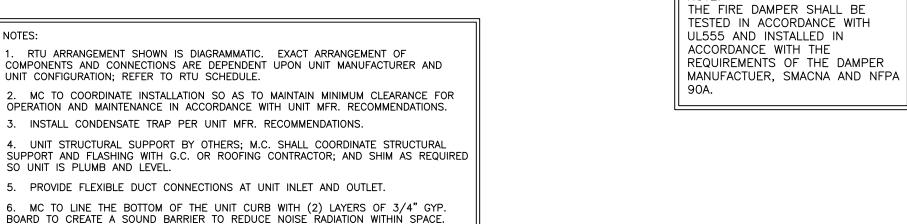
TYPE OF	WALL	ASSEMBLY	FLO	OR ASSEMBLY		
PENETRANT	MASONRY	GYPSUM BOARD	CONCRETE	WOOD		
STEEL, CAST IRON OR COPPER PIPE (SEE NOTE #1)	C-AJ-1226	W-L-1054	C-AJ-1226	F-C-1009 F-C-1059		
PVC, CPVC, ABS OR FRPP NON-METALLIC PIPE (SEE NOTE #2)	C-AJ-2109	W-L-2078	C-AJ-2109 C-BJ-2021	F-C-2232 (1-HR ONL F-C-2029 (2-HR ONL F-C-2030		
INSULATED STEEL PIPE, COPPER PIPE OR COPPER TUBING (SEE NOTE #3)	C-AJ-5091	W-L-5029	C-AJ-5091	F-C-5004 F-C-5037		
NON-INSULATED DUCTWORK W/O FIRE DAMPERS	C-AJ-7046 W-J-7022	W-L-7040 W-L-7042	C-AJ-7046	F-C-7013 (1-HR ONL N/A (2-HR ONLY)		
INSULATED DUCTWORK W/O FIRE DAMPERS	W-J-7029	W-L-7059 W-L-7153	SEE NOTE 7	SEE NOTE 7		
SHALL BE MAX 6" DIAMETER. FOR A WOOD FLOOR ASSEMBLY, STEEL AND COPPER PIPE SHALL NOT EXCEED 6" DIA. 2. ALL PIPING SHALL BE MAX 6" DIAMETER. FOR A WOOD FLOOR ASSEMBLY, PIPING SHALL BE MAX 2" OR 4" DIAMETER. 3. STEEL PIPING SHALL BE MAX 12" DIAMETER AND COPPER PIPING MAX 6" DIAMETER. FOR A WOOD FLOOR ASSEMBLY, BOTH COPPER AND STEEL PIPING SHALL BE MAX 2" DIAMETER.						
SHALL BE MAX 2" DIAMETER. 4. U.L. SYSTEM NUMBERS LISTED ABOVE ARE BASED ON ANTICIPATED CONSTRUCTION METHODS						
4. U.L. SYSTEM NUMBERS LISTED ABOVE ARE BASED ON ANTICIPATED CONSTRUCTION METHODS. 5. IF JOBSITE CONDITIONS DO NOT MATCH THE U.L. CLASSIFIED SYSTEM NUMBERS LISTED ABOVE, THE INSTALLING CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING THE AUTHORITY HAVING JURISDICTION TO DETERMINE U.L. SYSTEM NUMBER APPROPRIATE FOR THE TYPE OF PENETRANT AND CONSTRUCTION METHOD.						
		HALL BE PERMITTE ALANTS, WHERE DE		IN-PLACE FIRESTOP		
7. CONTA	CT ENGINEER	IF PENETRATION T	YPE IS APPLICABL	E.		
8. SEE A	RCHITECTURAL	AND/OR LIFE SA	FETY DOCUMENTS	FOR WALL AND FLOOR		
	FIRE RATINGS	•				

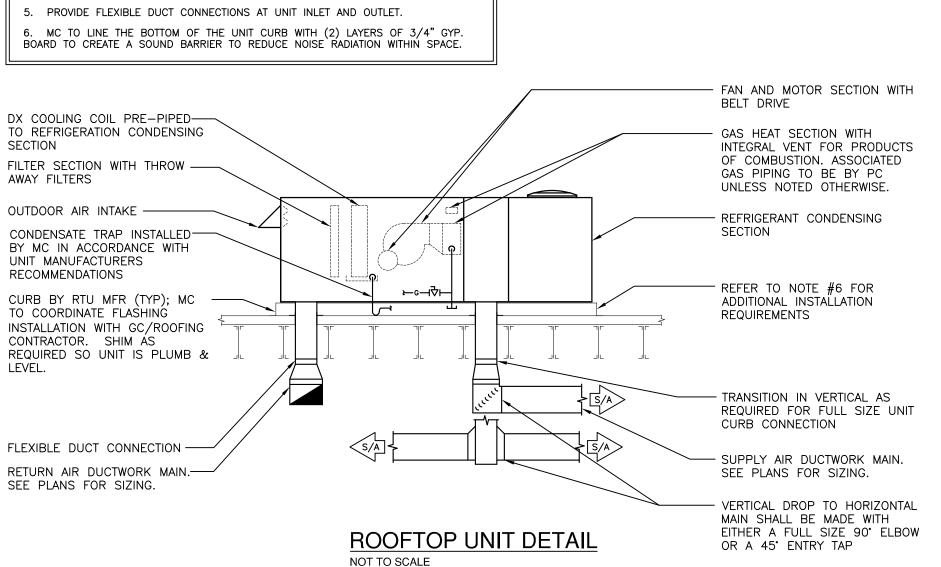




SUPPLY AIR DIFFUSER







E-56018 S. A. LLOYD E-65539 ,ONAL

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> THIS DWG: **HVAC DETAILS**

12-31-2019

COMM

17187 DATE 12-03-2018

DWG

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HVAC SPECIFICATIONS

BASIC HVAC REQUIREMENTS

A. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING A COMPLETE HVAC SYSTEM INSTALLATION AS INDICATED ON THE DRAWINGS AND WITHIN THESE SPECIFICATIONS. THE ENGINEERS RESPONSIBILITY IS LIMITED TO DESIGN SERVICES ONLY (NO CONSTRUCTION PHASE ADMINISTRATION SERVICES OR INSTALLATION SUPERVISION). THE INSTALLING CONTRACTOR SHALL BE RESPONSIBLE FOR ALL MEANS AND METHODS OF THE MECHANICAL SYSTEM DESIGN IMPLEMENTATION.

B. DRAWINGS ARE BASICALLY DIAGRAMMATIC AND INDICATE THE GENERAL ARRANGEMENT OF SYSTEMS AND COMPONENTS. INSTALLING CONTRACTOR SHALL COORDINATE THE DESIGN INTENT OF THE DRAWINGS WITH THE ACTUAL FIELD CONDITIONS MAKING MINOR DEVIATIONS AND ADJUSTMENTS AS REQUIRED FOR A COMPLETE OPERATIONAL SYSTEM. EXACT LOCATIONS OF MECHANICAL SYSTEM COMPONENTS SHALL BE DETERMINED BY THE CONTRACTOR. SUCH DETERMINATION SHALL GIVE CONSIDERATION TO THE BUILDING STRUCTURAL AND SPATIAL LIMITATIONS, TO COORDINATION WITH WORK OF OTHER TRADES OF THE CONTRACTOR OF THE PROPERTY OF AND DISCIPLINES. AND TO THE NECESSARY CLEARANCE REQUIREMENTS (BOTH OF THE ITEM BEING INSTALLED AND OF ALL ADJACENT ITEMS) TO ACCOMMODATE MANUFACTURER'S INSTALLATION REQUIREMENTS, TO SATISFY CODE CLEARANCE REQUIREMENTS AND TO FACILITATE SYSTEM OPERATION AND MAINTENANCE. UNLESS NOTED OTHERWISE, MECHANICAL SYSTEMS SHALL BE INSTALLED TO PROVIDE MAXIMUM CLEARANCE ABOVE THE FINISHED FLOOR.

C. THE MECHANICAL SYSTEM INSTALLATION SHALL BE IN FULL COMPLIANCE WITH THE FOLLOWING CODES AND STANDARDS

THE OHIO BUILDING CODE THE OHIO PLUMBING CODE THE OHIO MECHANICAL CODE NFPA (APPLICABLE SECTIONS)
NATIONAL ELECTRIC CODE
MUNICIPAL AND COUNTY CODES AND ORDINANCES
STATE, MUNICIPAL AND COUNTY HEALTH AGENCIES

D. DRAWINGS AND SPECIFICATIONS SHALL BE CONSIDERED COOPERATIVE. ANYTHING APPEARING IN THIS SPECIFICATION BUT NOT ON THE DRAWINGS, OR VICE VERSA, SHALL BE CONSIDERED PART OF THE CONTRACT.

E. EVERY EFFORT IS MADE ON THE PART OF THE ENGINEER TO COMPLY WITH THE LISTED CODES AND STANDARDS. WHERE THE DESIGN EXCEEDS THE REQUIREMENTS OF THE APPLICABLE CODES AND STANDARDS; THE INSTALLATION SHALL BE PER THE DESIGN REQUIREMENTS. NO WORK SHALL BE INSTALLED CONTRARY TO OR BELOW MINIMUM DESIGNEED FOR THE CODES AND STANDARDS.

F. THE CONTRACTOR SHALL OBTAIN AND PAY FOR ALL PERMITS AND LICENSES, BOTH TEMPORARY AND PERMANENT, REQUIRED BY LAW AS PART OF THE INSTALLATION WORK INDICATED ON THE DRAWINGS AND WITHIN THIS SPECIFICATION.

DRAWINGS, CUT SHEETS, AND APPLICATION SPECIFIC PERFORMANCE DATA.

HVAC SYSTEM EQUIPMENT AND SYSTEM COMPONENTS HVAC DUCTWORK LAYOUTS HVAC CONTROLS AND SEQUENCES OF OPERATIONS HVAC TEST AND BALANCE REPORTS

H. SHOP DRAWING SUBMITTALS SHALL INCLUDE THE PROJECT NAME. THE ARCHITECT-ENGINEER'S PROJECT NUMBER. THE APPLICABLE SPECIFICATION SECTION AND OR DRAWING NUMBER AS WELL THE CONTRACTOR'S APPROVAL STAMP. SHOP DRAWINGS SHALL BE SUBMITTED TO ARCHITECT—ENGINEER WITHIN THIRTY WORKING DAYS OF AWARD OF CONTRACT. CONTRACTOR SHALL NOT INSTALL ANY APPLICABLE MATERIALS AND/OR EQUIPMENT WITHOUT PRIOR REVIEW AS INDICATED ON THE ARCHITECT-ENGINEER'S REVIEW STAMP. REVIEW BY THE ENGINEER DOES NOT RELIEVE THE CONTRACTOR OF RESPONSIBILITY TO COMPLY WITH THE REQUIREMENTS OF THE CONTRACT DOCUMENTS.

THE CONTRACTOR SHALL GUARANTEE THE COMPLETE MECHANICAL SYSTEM INSTALLATION AS INSTALLED BY HIM OR HIS SUB-CONTRACTORS TO BE FREE FROM DEFECTS IN MATERIALS AND WORKMANSHIP FOR A PERIOD OF ONE YEAR FROM THE DATE OF FINAL ACCEPTANCE (UNLESS A LONGER PERIOD IS SPECIFIED FOR SPECIFIC ITEMS ELSEWHERE). DEVIATIONS FROM THIS MAY OCCUR ON LARGER ITEMS OF EQUIPMENT USED DURING BENEFICIAL OCCUPANCY BEFORE THE TOTAL SYSTEM IS ACCEPTED. SUCH A MATTER MUST HAVE PRIOR APPROVAL AND BE MADE A MATTER OF WRITTEN RECORD BY

J. THE CONTRACTOR SHALL REPAIR OR REPLACE AT HIS OWN EXPENSE ANY MATERIALS OR EQUIPMENT FOUND TO BE DEFECTIVE WITHIN THE WARRANTEE PERIOD AND SHALL BE HELD FINANCIALLY RESPONSIBLE FOR ANY PROPERTY DAMAGES ARISING FROM SUCH DEFECTS OR THE CORRECTION OF SUCH DEFECTS.

K. THE CONTRACTOR SHALL GUARANTEE THAT ALL MECHANICAL EQUIPMENT SUPPLIED BY HIM OR HIS SUB-CONTRACTORS SHALL DEVELOP CAPACITIES AND HAVE CHARACTERISTICS AS SCHEDULED OR SPECIFIED.

L. THE CONTRACTOR SHALL SUBMIT WRITTEN WARRANTEE CERTIFICATES FOR HIS INSTALLATION WORK AND FROM EACH MANUFACTURER OF EQUIPMENT SUPPLIED ON THE PROJECT TO THE ENGINEER.

M. CONTRACTOR MAY USE PERMANENT MECHANICAL EQUIPMENT FOR TEMPORARY SERVICES WHEN APPROVED BY THE ARCHITECT—ENGINEER. SUCH APPROVAL IS CONDITIONED BY THE FOLLOWING REQUIREMENTS: 1. THE CONTRACTOR SHALL MAINTAIN THE EQUIPMENT FOR RELEASE TO OWNER AT TIME OF FINAL ACCEPTANCE

IN "NEW" CONDITION. 2. WARRANTY PERIOD FOR THE OWNER SHALL NOT BEGIN UNTIL THE DATE OF FINAL SYSTEM ACCEPTANCE.

N. THE CONTRACTOR SHALL BE HELD RESPONSIBLE FOR ANY DAMAGES INCURRED DURING THE INSTALLATION OF HIS WORK TO THE EXISTING GROUNDS, WALKS, ROADS, BUILDING, PLUMBING SYSTEMS, HVAC SYSTEMS, AND ELECTRIC SYSTEMS AS WELL AS ALL NEW CONSTRUCTION WORK BY OTHER TRADES. HE SHALL REPAIR AT HIS EXPENSE ALL SUCH DAMAGES FOR RESTORATION TO THE ORIGINAL CONDITIONS TO THE SATISFACTION OF THE ARCHITECT—ENGINEER AND OWNER.

O. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING THE MATERIALS, EQUIPMENT AND INSTALLATION OF HIS WORK P. THE CONTRACTOR SHALL MAINTAIN A SET OF PRINTS AT THE CONSTRUCTION SITE TO RECORD IN RED ANY DEVIATIONS IN THE ACTUAL MECHANICAL SYSTEM INSTALLATION FROM THE DESIGN DRAWINGS. THESE RECORD DRAWINGS SHALL BE SUBMITTED TO THE ARCHITECT—ENGINEER UPON COMPLETION OF THE PROJECT.

Q. THE CONTRACTOR SHALL PROVIDE THREE (3) SETS OF OPERATION AND MAINTENANCE MANUALS FOR THE OWNER'S USE UPON COMPLETION OF THE PROJECT. OPERATION AND MAINTENANCE MANUALS SHALL BE SUBMITTED TO THE ARCHITECT-ENGINEER FOR APPROVAL. OPERATION AND MAINTENANCE MANUALS SHALL INCLUDE THE FOLLOWING:

NAME AND SERVICE TELEPHONE NUMBER OF THE INSTALLING COMPANY GENERAL DESCRIPTION OF HOW THE SYSTEM SHOULD OPERATION

MANUFACTURER'S OPERATION AND MAINTENANCE INSTRUCTIONS

. COPY OF APPROVED SHOP DRAWIF 6. COPY OF FINAL BALANCE REPORT 6. LUBRICATION SCHEDULE 7. VALVE CHART 8. SPARE PARTS LIST 9. WARRANTY CERTIFICATES

R. THE CONTRACTOR SHALL INSTRUCT THE OWNER'S MAINTENANCE PERSONNEL IN THE PROPER OPERATION AND MAINTENANCE OF THE ENTIRE MECHANICAL SYSTEM INSTALLATION INCLUDING ALL ASSOCIATED EQUIPMENT ITEMS. S. THE SCHEDULED MANUFACTURER FOR EACH ITEM SHALL BE CONSIDERED AS BASIS OF DESIGN. PERFORMANCE CHARACTERISTICS, ELECTRICAL CHARACTERISTICS, AND DIMENSIONAL AND SPATIAL REQUIREMENTS FOR THIS ITEM HAVE ALREADY BEEN CONSIDERED IN THE DESIGN. OTHER ACCEPTABLE MANUFACTURERS HAVE NOT BEEN CHECKED FOR SUCH DETAIL AND MUST MEET ALL THE SCHEDULED PERFORMANCE REQUIREMENTS AND POSSESS FEATURES SIMILAR TO THOSE WHICH ARE STANDARD ON THE ITEMS WHICH ARE BASIS OF DESIGN.

T. UNLESS NOTED OTHERWISE, EACH MECHANICAL SYSTEM COMPONENT SHALL BE INDEPENDENTLY SUPPORTED FROM THE BUILDING STRUCTURE.

U. UNLESS NOTED OTHERWISE, CONTRACTOR(S) SHALL COORDINATE PLUMBING AND HVAC INSTALLATION SO AS TO MAINTAIN AT LEAST TEN FEET OF CLEARANCE FROM ALL OUTDOOR AIR INTAKES AND BUILDING OPENINGS TO ANY PLUMBING VENTS (EXISTING AND NEW) EXHAUST AIR OUTLETS OR OTHER NOXIOUS CONDITIONS.

V. UNLESS NOTED OTHERWISE, ALL ROOFTOP EQUIPMENT SHALL BE LOCATED SO AS TO MAINTAIN AT LEAST TEN FEET OF CLEARANCE FROM ANY ROOF EDGE WITH A DROP OF 24" OR MORE.

BASIC HVAC MATERIALS AND METHODS

A. UNLESS NOTED OTHERWISE, THE CONTRACTOR SHALL PROVIDE AND INSTALL ALL NEW MATERIALS, EQUIPMENT, COMPONENTS, AND FIXTURES AS INDICATED. OTHER MANUFACTURERS OF MECHANICAL EQUIPMENT MAY BE SUBSTITUTED FOR THOSE INDICATED AS LONG AS THE QUALITY OF CONSTRUCTION AND OPERATING CHARACTERISTICS ARE EQUIVALENT.

B. PIPE SLEEVES SHALL BE PROVIDED AND INSTALLED WHERE PIPES PASS THROUGH WALLS, FLOORS, AND CEILINGS.
SLEEVES SHALL BE SUFFICIENTLY LARGE ENOUGH TO ALLOW FOR FIRE AND SOUND STOPPING BETWEEN THE INSIDE SLEEVE WALL AND THE PIPE OR INSULATION SURFACE AS WELL AS ALLOW FOR THERMAL EXPANSION AND CONTRACTION OF PIPING. (SLEEVES SHALL BE LARGE ENOUGH TO ALLOW PIPE INSULATION TO BE CONTINUOUS THROUGH THE WALL.) LENGTH OF SLEEVES SHALL BE EQUAL TO THE THICKNESS OF THE BUILDING CONSTRUCTION ELEMENT PENETRATED FOR A FLUSH FINISH ON BOTH SIDES EXCEPT FOR FLOOR SLEEVES WHICH SHALL EXTEND 2" ABOVE THE FINISH FLOOR. INSTALL IRON-PIPE SLEEVES IN EXTERIOR WALL PENETRATIONS AND STEEL-PIPE SLEEVES ELSEWHERE UNLESS NOTED OTHERWISE

C. THE CONTRACTOR SHALL PROVIDE AND INSTALL SEALING MATERIALS FOR MECHANICAL SYSTEM PENETRATIONS THROUGH BUILDING WALLS, FLOORS, CEILINGS, AND ROOFS. EXTERIOR PENETRATIONS SHALL BE WEATHER PROOF AND VERMIN PROOF; INTERIOR PENETRATIONS SHALL HAVE SOUND STOPPING. PENETRATIONS THROUGH FIRE AND SMOKE BARRIERS SHALL HAVE EXPERTED FOR THE PROVIDED OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROVIDED OF THE PROPERTY OF THE

1. THE CONTRACTOR SHALL SEAL ALL FIRE/SMOKE RATED WALL AND FLOOR PENETRATIONS FOR MECHANICAL SYSTEM COMPONENTS WITH FIRE AND SMOKE STOPPING COMPOUND SO AS TO MAINTAIN THE FIRE RESISTANCE RATING OF THE WALL OR FLOOR PENETRATED. FIRESTOPPING COMPOUND, PIPE SLEEVES, AND PIPING AND INSULATION SHALL BE INSTALLED SO AS THE COMPLETE PENETRATION ASSEMBLY IS CLASSIFIED BY UL AS LISTED IN THE UL BUILDING MATERIALS DIRECTORY.

D. ESCUTCHEON PLATES SHALL BE INSTALLED ON ALL PIPE PENETRATIONS THROUGH WALLS, FLOORS, AND CEILINGS WHERE EXPOSED TO VIEW AND ON THE BUILDING EXTERIOR. ESCUTCHEON PLATE SHALL BE SECURED TO PIPE OR INSULATION AND COMPLETELY COVER THE HOLE PENETRATION.

E. ACCESS DOORS SHALL BE PROVIDED AND INSTALLED BY THE M.C. IN NON-ACCESSIBLE WALLS, AND CEILINGS WHICH CONCEAL HVAC ITEMS WHICH REQUIRE SERVICE OR INSPECTION SUCH AS VALVES AND DAMPERS. THE DOORS SHALL BE OF ADEQUATE SIZE TO SERVICE THE CONCEALED ITEM. DOOR SHALL BE OF PAINTED STEEL CONSTRUCTION WITH CONCEALED HINGE AND KEYED LOCK. ALL DOORS SHALL BE KEYED ALIKE WITH A MINIMUM OF TWO KEYS PROVIDED TO OWNER. ACCESS DOORS IN CEILINGS SHALL HAVE A RECESSED FACE FOR FIELD INSTALLATION OF FINISHED CEILING MATERIAL. DOORS INSTALLED IN FIRE RATED WALLS AND CEILINGS SHALL BE UL LISTED AND LABELED WITH APPLICABLE FIRE RESISTANCE RATING.

F. EXISTING BUILDING SURFACES AND AUXILIARY EQUIPMENT AND FINISHES MARRED DURING INSTALLATION OF HVAC WORK SHALL BE REPAINTED BY THE M.C. FACTORY APPLIED PAINT FINISHES ON HVAC EQUIPMENT MARRED DURING INSTALLATION SHALL ALSO BE REPAINTED BY THE M.C.

G. THE CONTRACTOR SHALL PAINT ALL IRON PIPE FITTINGS AND VALVE BODIES, ALL SUPPORT STEEL INSTALLED AS PART OF HIS SCOPE OF WORK AND ALL EXPOSED PIPING AND DUCTWORK ON THE EXTERIOR OF THE BUILDING. ALL PAINTING SHALL BE DONE IN ACCORDANCE WITH THE PAINT MANUFACTURER'S INSTRUCTIONS INCLUDING SURFACE PREPARATION AND CONDITIONS OF AMBIENT TEMPERATURE AND HUMIDITY. ENVIRONMENTAL CONDITIONS IN THE AREA OF PAINTING WORK SHALL COMPLY WITH THE PAINT MANUFACTURER'S RECOMMENDATIONS AND ALL GOVERNING REGULATIONS.

HVAC PIPING AND ACCESSORIES

A. REFER TO THE "PIPE AND INSULATION SCHEDULE" FOR SPECIFIC PIPING APPLICATION AND MATERIAL REQUIREMENTS. ALL PIPING SHALL BE RUN AS DIRECT AS POSSIBLE WITHIN THE ACTUAL BUILDING CONDITIONS. INSTALLATION SHALL BE PARALLEL WITH OR AT RIGHT ANGLES TO THE BUILDING STRUCTURE. COORDINATE INSTALLATION WITH ALL OTHER TRADES TO BEST UTILIZE AVAILABLE SPACE.

PIPING INSTALLATION SHALL BE SLOPED IN THE DIRECTION OF FLOW AT A PITCH OF AT LEAST 0.2% FOR WATER PIPING, AND 1.0% FOR CONDENSATE PIPING UNLESS NOTED OTHERWISE.

JOINTS SHALL BE PROVIDED (WHETHER SHOWN OR NOT) TO LIMIT STRESS DUE TO THERMAL EXPANSION. PIPING MATERIALS SHALL BE CLEAN PRIOR TO AND DURING INSTALLATION. UPON COMPLETION OF PIPING INSTALLATION; BUT PRIOR TO FINAL CONNECTIONS, THE ENTIRE SYSTEM SHALL BE FLUSHED WITH A CLEANING SOLUTION WHICH WILL NOT HARM EITHER THE PIPING, EQUIPMENT OR USERS.

THREADED PIPE SHALL BE REAMED AFTER THREADING. PIPE THREAD COMPOUND SHALL BE APPLIED TO MALE THREADS ONLY. SOLDERED JOINTS ON COPPER PIPING SHALL BE MADE WITH 95-5 TIN-ANTIMONY SOLDER. SURFACES SHALL BE CLEANED AND FLUXED IN PREPARATION TO RECEIVE SOLDER.

DRAIN VALVES SHALL BE PROVIDED AT ALL LOW POINTS AND AT ALL COIL/EQUIPMENT CONNECTIONS. MANUAL AIR VENTS SHALL BE PROVIDED AT ALL HIGH POINTS.

EQUIPMENT CONNECTIONS SHALL INCLUDE UNIONS PROVIDED BETWEEN A PIPING SERVICE SHUT-OFF VALVE AND EACH EQUIPMENT CONNECTION. PIPING OFFSETS SHALL BE PROVIDED TO PERMIT REMOVAL OF ALL EQUIPMENT. COPPER PIPING CONNECTIONS TO STEEL OR IRON PIPE SHALL BE MADE WITH DIELECTRIC UNIONS J. INSTALLED PIPING SHALL NOT BE IN DIRECT CONTACT WITH ANY PART OF THE BUILDING STRUCTURE SO AS TO AVOID

K. FILLED PIPING INSTALLATION SHALL BE PROTECTED FROM FREEZING UNTIL ACCEPTANCE FROM THE OWNER OF THE ENTIRE CONSTRUCTION PROJECT.

STANDARD PIPE FITTINGS SUCH AS ELBOWS, TEES, COUPLINGS, AND INCREASERS OR REDUCERS SHALL BE USED TO JOIN PIPES OF DIFFERENT SIZES. HALF COUPLINGS OR TEES SHALL BE PROVIDED FOR THERMOMETERS, GAUGES, AIR VENTS, DRAINS AND TEMPERATURE CONTROL DEVICES.

UPON COMPLETION OF THE PIPING INSTALLATION AND PRIOR TO INSULATING OR CONCEALMENT, EACH PIPING SYSTEM SHALL BE PRESSURE TESTED WITH WATER AT 125 PSIG MINIMUM PRESSURE FOR SIX HOURS WITHOUT ANY

HYDRONIC PIPING SYSTEMS SHALL BE CLEANED PRIOR TO START-UP BY FILLING THE ENTIRE SYSTEM WITH WATER AND THEN ADDING A CHEMICAL CLEANING COMPOUND AT A MINIMUM CONCENTRATION OF TWO POUNDS PER 100 GALLON OF WATER. CLEANING SOLUTION SHALL THEN BE CIRCULATED THROUGH THE SYSTEM BY SYSTEM PUMPS FOR SIX HOURS. CLEANING SOLUTION SHALL THEN BE FLUSHED AND DRAINED, AND ALL PIPING STRAINERS SHALL BE REMOVED, CLEANED AND REINSTALLED. UPON CLEANING, THE SYSTEM SHALL BE FILLED WITH CLEAN WATER, A WATER ANALYSIS MADE, AND CHEMICAL TREATMENT, INCLUDING GLYCOL AS INDICATED ON THE DRAWINGS, SHALL BE ADDED.

A. ALL PIPING SHALL BE INSTALLED WITH FACTORY FABRICATED PIPING CLAMPS, HANGERS AND SUPPORTS ATTACHED TO THE BUILDING SUBSTRATE WITH SUITABLE EXPANSION SHELLS, INSERTS, OR BEAM CLAMPS. HANGERS SHALL BE SELECTED TO EXACTLY FIT PIPE SIZE FOR BARE PIPING AND TO EXACTLY FIT AROUND PIPING INSULATION WITH SADDLE OR SHIELD FOR INSULATED PIPING. COPPER PLATED HANGERS AND SUPPORTS SHALL BE UTILIZED FOR ALL COPPER PIPING SYSTEMS.

UNLESS NOTED OTHERWISE, ALL HORIZONTAL PIPE 3" AND SMALLER SHALL BE SUPPORTED BY INDIVIDUAL ADJUSTABLE STEEL CLEVIS HANGERS.

UNLESS NOTED OTHERWISE. ALL HORIZONTAL PIPE 4" AND LARGER (AND ALL HORIZONTAL PIPE 2" AND LARGER

WHICH CONVEYS A FLUID ABOVE 150° F) SHALL BE SUPPORTED BY ADJUSTABLE ROLLER TYPE HANGERS. PARALLEL HORIZONTAL PIPING MAY ALSO BE SUPPORTED TOGETHER ON A TRAPEZE TYPE HANGER AS LONG AS ALL PIPING IS ADEQUATELY SUPPORTED AND INDIVIDUAL THERMAL PIPE MOVEMENT IS ACCOUNTED FOR.

HORIZONTAL PIPE SUPPORT SPACING AND HANGER ROD SIZING SHALL BE AS FOLLOWS EXCEPT FOR CAST IRON IPE WHICH SHALL BE SUPPORTED AT A MAXIMUM INTERVAL OF 5'-0" ON CENTER AND PVC PIPING WHICH SHALL BE SUPPORTED AT A MAXIMUM INTERVAL OF 4'-0" ON CENTER:

ON CENTER ½" TO 1-1/4" 3/8" 3/8" 1/2" 3/4"

HANGERS FOR MECHANICAL EQUIPMENT SHALL CONSIST OF STRUCTURAL STEEL SHAPES OR STEEL RODS ATTACHED TO THE BUILDING SUBSTRATE WITH SUITABLE EXPANSION SHELLS, INSERTS, OR BEAM CLAMPS. HANGERS SHALL BE SELECTED TO ADEQUATELY SUPPORT THE STATIC AND DYNAMIC LOADS OF THE EQUIPMENT AS INDICATED BY THE EQUIPMENT MANUFACTURER. ISOLATION TYPE HANGERS SHALL BE USED TO SUPPORT ALL OVERHEAD MECHANICAL EQUIPMENT WITH ROTATING PARTS. ISOLATORS SHALL BE INSTALLED AS CLOSE TO THE OVERHEAD STRUCTURE AS

ROOFTOP EQUIPMENT SUPPORTS AND CURBS SHALL BE AS AVAILABLE FROM THE HVAC EQUIPMENT MANUFACTURER OR AS MANAUFACTURED BY ONE OF THE FOLLOWING MANUF.: PATE, ROOF PRODUCTS AND SYSTEMS OR THYCURB DIVISION OF THYBAR CORPORATION.

D. SUPPORT FROM STEEL JOIST PANEL POINT IS REQUIRED. E. SUPPORTS FROM ROOF DECKING SYSTEMS ARE NOT PERMITTED.

HVAC IDENTIFICATION

A. THE CONTRACTOR SHALL PROVIDE AND INSTALL PERMANENT IDENTIFICATION MARKERS FOR THE MECHANICAL SYSTEM COMPONENTS AS INDICATED BELOW: 1. EACH SCHEDULED ITEM OF EQUIPMENT, MECHANICAL (PLUMBING AND HVAC), PIPING, AND VALVES IDENTIFICATION MARKERS SHALL BE AS MANUFACTURED BY SETON, BRADY, ALLEN OR MARKING SYSTEMS INC.

B. IDENTIFICATION MARKERS SHALL COMPLY WITH ANSI A13.1 REQUIREMENTS FOR LETTERING SIZE, LENGTH OF C. INSTALL PIPE MARKERS WHEREVER PIPING IS EXPOSED TO VIEW IN ACCESSIBLE SPACES. LOCATE MARKERS APPROXIMATELY 25 FEET ON CENTER AND NEAR EACH WALL, FLOOR AND CEILING PENETRATION. IN ADDITION, LOCATE MARKERS NEAR CONNECTION TO MAJOR EQUIPMENT.

TESTING, ADJUSTING, AND BALANCING TESTING ADJUSTING AND BALANCING SHALL BE THE RESPONSIBILITY OF A TEST AND BALANCE CONTRACTOR WHICH IS

TESTING ADJUSTING AND BALANCING WORK SHALL BE DONE IN ACCORDANCE WITH THE LATEST REVISION OF THE

1. "AABC NATIONAL STANDARDS" OR "NEBB PROCEDURAL STANDARDS"

2. ASHRAE SYSTEMS VOLUME RECOMMENDATIONS FOR TESTING, ADJUSTING AND BALANCING

A COMPLETE TEST AND BALANCE REPORT ON STANDARD AABC OR NEBB FORMS SHALL BE SUBMITTED TO THE ENGINEER. WHEN THE REPORT INDICATES INADEQUATE SYSTEM PERFORMANCE IN COMPARISON TO THE DESIGN REQUIREMENTS AN EXPLANATION SHALL ACCOMPANY THE REPORT INDICATING THE PROBABLE CAUSE.

THE TEST AND BALANCE CONTRACTOR SHALL CHECK THE MECHANICAL INSTALLATION WORK IN COMPARISON WITH THE DESIGN TO VERIFY CORRECT INSTALLATION AND OPERATING CONDITIONS THE TEST AND BALANCE CONTRACTOR SHALL EXAMINE THE AUTOMATIC TEMPERATURE CONTROL SYSTEM TO VERIFY THAT THE CONTROLLED DEVICES AND THEIR RESPECTIVE CONTROLLERS ARE FUNCTIONING PROPERLY IN ACCORDANCE WITH THE SEQUENCE OF OPERATIONS AS INDICATED.

1. VERIFY THAT CONTROL VALVES AND DAMPERS MODULATE/OPERATE FREELY BETWEEN THE SET MINIMUM AND

2. VERIFY THAT ACTUAL POSITION OF CONTROL VALVE AND DAMPER IS AS INDICATED BY THE CONTROLLER. 3. VERIFY THAT THREE WAY CONTROL VALVES FOR MIXING OR DIVERTING FLUIDS ARE INSTALLED PROPERLY.

4. VERIFY THAT HVAC EQUIPMENT / SYSTEM INTERLOCKS ARE FUNCTIONING PROPERLY (BOTH HARDWARE AND SOFTWARE INTERLOCKS). VERIFY PROPER HEATING AND COOLING CHANGEOVER OPERATION OF SYSTEM. THE TEST AND BALANCE CONTRACTOR SHALL PERFORM TESTS AND MAKE ALL ADJUSTMENTS AS REQUIRED TO BALANCE THE HVAC SYSTEMS TO THE FOLLOWING CRITERIA:

1. ALL FANS SHALL PERFORM "EQUAL TO" OR "10% IN EXCESS OF" THE DESIGN VOLUME.

2. MINIMUM OUTDOOR AIR REQUIREMENTS SHALL BE WITHIN 5% ABOVE OR BELOW THE DESIGN VOLUME. 3. SUPPLY DIFFUSERS AND REGISTERS SHALL BE WITHIN 10% ABOVE OR 5% BELOW THE DESIGN VOLUME.

4. RETURN AND EXHAUST GRILLES SHALL BE WITHIN 5% ABOVE OR 10% BELOW THE DESIGN VOLUME. THE BALANCE CONTRACTOR SHALL NOTIFY THE MECHANICAL CONTRACTOR OF ANY INCOMPLETE WORK, ANY ADDITIONAL WORK, OR ANY REWORK WHICH NEEDS TO BE COMPLETED IN ORDER TO BALANCE THE SYSTEMS TO WITHIN THE ACCEPTABLE CRITERIA. THIS WORK SHALL BE COMPLETED AND ACCOMPANYING TESTS AND ADJUSTMENTS MADE PRIOR TO THE REPORT SUBMISSION.

WHEN EXISTING HVAC SYSTEMS ARE BEING MODIFIED, THE TEST AND BALANCE CONTRACTOR SHALL MEASURE AND RECORD EXISTING FLOWS TO THE REMAINDER OF THE SYSTEM PRIOR TO ANY SYSTEM MODIFICATIONS. UPON COMPLETION OF NEW INSTALLATION MODIFICATIONS, THE TEST AND BALANCE CONTRACTOR SHALL RESTORE THE ORIGINAL BALANCE OF THE UNALTERED SYSTEM PORTIONS AS WELL AS BALANCE THE NEW WORK TO THE INDICATED DESIGN REQUIREMENTS. THE TEST AND BALANCE CONTRACTOR SHALL PATCH ALL HOLES IN DUCTWORK AND INSULATION WHICH WERE MADE FOR THE AFOREMENTIONED TESTING AND BALANCING PROCEDURES. J. THE BALANCE CONTRACTOR SHALL PERMANENTLY MARK ALL FINAL BALANCE SETTINGS ON EQUIPMENT AND COMPONENTS FOR FUTURE REFERENCE.

A. THE MATERIALS AND METHODS FOR THE COMPLETE INSULATION SYSTEM INSTALLATION SHALL BE TESTED, RATED, AND INSTALLED IN ACCORDANCE WITH THE FOLLOWING CODES AND STANDARDS. ASTM E-84 (NFPA 255)

B. THE COMPOSITE INSULATION SYSTEM INSTALLATION INCLUDING ALL INSULATION MATERIALS, ADHESIVES, SEALERS, COVERINGS, ETC... SHALL HAVE FLAME-SPREAD AND SMOKE-DEVELOPED INDICES AS INDICATED BELOW: INDOOR INSTALLATIONS SHALL HAVE FLAME—SPREAD INDEX OF 25 OR LESS, AND A SMOKE—DEVELOPED INDEX OF 50 OR LESS. 2.OUTDOOR INSTALLATIONS SHALL HAVE FLAME-SPREAD INDEX OF 75 OR LESS, AND A SMOKE-DEVELOPED INDEX OF 150 OR LESS. (EXCEPT FOR INSULATION PRODUCTS IN CONTACT WITH THE AIRSTREAM WHICH

C. INSULATION WORK SHALL INCLUDE BUT NOT BE LIMITED TO THE FOLLOWING TYPES OF SYSTEMS.

MUST HAVE THE SAME RATINGS AS THE INDOOR INSTALLATIONS.)

METAL FURNACE FLUES IN UNCONDITIONED ATTIC SPACE

D. PIPING SHALL BE INSULATED PER THE "PIPE & INSULATION SCHEDULE" ON THE DRAWING AND IN ACCORDANCE WITH THE 1. FIBER GLASS PIPE INSULATION WITH AN ALL SERVICE JACKET. INSULATION SHALL BE OF THICKNESS AS INDICATED WITH A THERMAL CONDUCTIVITY "K" FACTOR OF 0.24 AT 75 DEGREE F MEAN TEMPERATURE SUITABLE FOR APPLICATIONS UP TO 350 DEGREES F. INSULATION SHALL BE OWENS—CORNING TYPE

FLEXIBLE UNICELLULAR ELASTOMERIC PIPE AND EQUIPMENT INSULATION. INSULATION SHALL BE OF THICKNESS
AS INDICATED WITH A THERMAL CONDUCTIVITY "K" FACTOR OF 0.24 AT 75 DEGREE F MEAN TEMPERATURE
SUITABLE FOR APPLICATIONS BETWEEN -40 DEGREE F AND 200 DEGREE F.

E. HVAC DUCTWORK SHALL BE INSULATED IN ACCORDANCE WITH THE NOTES ON THE DRAWING. FLEXIBLE FIBER GLASS DUCT WRAP INSULATION WITH FOIL FACED KRAFT PAPER VAPOR SEAL FACING. INSULATION SHALL BE OF THICKNESS AS INDICATED IN THIS SPECIFICATION OR ON THE DRAWINGS, 0.75 PCF

2. RIGID FIBER GLASS DUCT BOARD WITH ALL—SERVICE JACKET FACING INSULATION SHALL BE OF THICKNESS AS INDICATED IN THIS SPECIFICATION OR ON THE DRAWINGS, 6.0 PCF DENSITY, WITH A THERMAL CONDUCTIVITY "K" FACTOR OF 0.24 AT 75 DEGREE F MEAN TEMPERATURE SUITABLE FOR APPLICATIONS UP TO 450 DEGREES F. INSULATION SHALL BE OWENS CORNING TYPE 705 OR EQUIVALENT.

DENSITY, WITH A THERMAL CONDUCTIVITY "K" FACTOR OF 0.30 AT 75 DEGREE F MEAN TEMPERATURE SUITABLE FOR APPLICATIONS UP TO 250 DEGREES F. INSULATION SHALL BE OWENS-CORNING TYPE 75 OR EQUIVALENT.

FIBERGLASS DUCT LINER INSULATION FACED WITH BLACK FIRE—RESISTANT COATING AGAINST THE AIRSTREAM. THE COATING SHALL BE MICROBIAL GROWTH RESISTANT IN COMPLIANCE WITH ASTM C1071 AND THE LINER MATERIAL SHALL BE IN ACCORDANCE WITH ASTM C518. INSULATION SHALL HAVE A THERMAL CONDUCTIVITY "K" FACTOR OF 0.25 AT 75'F MEAN TEMPERATURE SUITABLE FOR APPLICATION UP TO 250'F. INSULAT SHALL BE OWENS—CORNING AEROFLEX OR EQUIVALENT AS LISTED BY OTHER LISTED MANUFACTURERS.

F. ALL INSULATION SYSTEMS SHALL BE CONTINUOUS THROUGH WALL OPENINGS, CEILING OPENINGS, FLOOR OPENINGS, AND PIPE HANGERS.

G. INSULATION MATERIALS SHALL BE INSTALLED IN COMPLETE ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS. H. INSTALLATION PERSONNEL SHALL TAKE ALL SAFETY PRECAUTIONS TO PROPERLY PROTECT THEMSELVES DURING INSTALLATION OF INSULATION SYSTEMS.

INSULATION CAN BE OMITTED ON FACTORY INSULATED PLENUMS, TERMINAL BOXES, FILTER BOXES, ACCESS PANELS, TESTING LAB LABELS AND STAMPS, FACTORY INSULATED EQUIPMENT, FACTORY INSULATED EQUIPMENT, METAL DUCTS W/ DUCT LINER AND FACTORY INSULATED FLEXIBLE DUCTS.

ABOVE THE SPECIFIED CAPACITY.

NFPA 211 (GAS VENTS AND CHIMNEYS)

MANUFACTURED BY RUSKIN, CESCO, SEMCO OR UNITED MCGILL

A. THE COMPLETE REFRIGERANT PIPING SYSTEM AND ASSOCIATED EQUIPMENT SHALL BE INSTALLED IN COMPLETE ACCORDANCE WITH THE APPLICABLE REQUIREMENTS OF THE FOLLOWING CODES AND STANDARDS: OHIO MECHANICAL CODE CHAPTER 13 (OAC 4101:2-47) "MECHANICAL REFRIGERATION OHIO PRESSURE PIPING SYSTEMS RULES (OAC 4101:8) ALL PIPE BRAZING SHALL BE DONE IN ACCORDANCE WITH ASME BOILER AND PRESSURE VESSEL CODE, SECTION IX, FOR BRAZING WORK DONE IN A SHOP ENVIRONMENT AND AT THE PROJECT SITE. ASHRAE STANDARD 15 "SAFETY CODE FOR MECHANICAL REFRIGERATION."

B. PIPING SHALL BE ASTM B280 REFRIGERANT GRADE ACR TYPE HARD DRAWN COPPER TUBE. PRE-CHARGED REFRIGERANT GRADE SOFT ANNEALED COPPER TUBE MAY BE USED WHERE MAXIMUM LENGTH DOES NOT EXCEED

C. REFRIGERANT PIPING LAYOUT AND ARRANGEMENT SHALL BE PER THE HVAC EQUIPMENT MANUFACTURER'S RECOMMENDATIONS TO ASSURE PROPER OIL AND REFRIGERANT FLOW THROUGH THE SYSTEM. INSTALLER SHALL COORDINATE REQUIREMENTS FOR PIPE SIZES, PIPE SLOPES, LOCATIONS OF TRAPS, INVERTED TRAPS, DOUBLE SUCTION RISERS ETC. WITH THE EQUIPMENT MANUFACTURER. OF PIPE SIZES SHALL BE PER THE EQUIPMENT MANUFACTURER'S RECOMMENDATIONS. THE REFRIGERANT PIPING SYSTEM AND ASSOCIATED SPECIALTIES SHALL BE SIZED AND SELECTED TO PREVENT EXCESSIVE PRESSURE DROPS SO THAT THE COMPRESSOR AND EVAPORATOR PERFORM WITH BALANCE POINTS AT OR

D. UNLESS NOTED OTHERWISE, REFRIGERANT LIQUID LINES SHALL BE INSTALLED WITH A FILTER DRIER, A SIGHT GLASS, A SOLENOID VALVE AND A THERMAL EXPANSION VALVE. THE FILTER-DRIER SHALL BE INSTALLED WITH A THREE VALVE BY-F COPPER TO COPPER PIPE JOINTS SHALL BE BRAZED WITHOUT FLUX USING A PHOSPHORUS BEARING ALLOY SUCH AS "SIL-PHOS." COPPER TO BRASS OR STEEL PIPE JOINTS SHALL BE BRAZED WITH FLUX USING A 45% SILVER ALLOY SUCH AS "EASY-FLO." INERT NITROGEN SHALL BE PASSED THROUGH THE PIPING DURING BRAZING TO PREVENT

F. UPON COMPLETION OF THE REFRIGERANT PIPING SYSTEM INSTALLATION, THE ENTIRE SYSTEM SHALL BE LEAK TESTED WITH DRY NITROGEN TO THE MAXIMUM OPERATING PRESSURE OF THE SYSTEM. TEST SHALL BE MAINTAINED FOR A PERIOD OF TWELVE HOURS WITHOUT ANY APPRECIABLE LOSS OF PRESSURE. PIPING INSULATION SHALL NOT BE INSTALLED UNTIL THE SYSTEM SATISFACTORILY PASSES THE LEAK TEST.

UPON SATISFACTORY COMPLETION OF THE LEAK TESTING, THE ENTIRE PIPING SYSTEM SHALL BE EVACUATED WITH A TRIPLE EVACUATION METHOD OR OTHER MEANS WHEN SPECIFICALLY RECOMMENDED BY THE EQUIPMENT MANUFACTURER. VACUAL BE DRAWN TO 1500 MICRONS, 1500 MICRONS, AND 500 MICRONS SUCCESSIVELY AND RECOMMENDED BY THE WITH DRY NATIONALL BE DRAWN TO AND TO SECOND FACILITIES WITH DRY NATIONAL BROWN FACILITIES WITH BROWN FACILITI

H. UPON COMPLETION OF THE SYSTEM EVACUATION, THE ENTIRE SYSTEM SHALL BE CHARGED WITH THE PROPER AMOUNT AND TYPE OF REFRIGERANT FOR SYSTEM OPERATION.

HVAC DUCTWORK A. REGULATORY AGENCIES: THE WORK DESCRIBED IN THIS SECTION SHALL BE IN COMPLIANCE WITH ALL CODES AND STANDARDS LISTED BELOW:

B. ALL DUCT SIZES ON DRAWINGS INDICATE FREE INTERNAL DIMENSIONS. ACTUAL SHEETMETAL SIZES SHALL INCLUDE AN ALLOWANCE FOR INTERNAL DUCTLINER.

C. UNLESS NOTED OTHERWISE, DUCTWORK SHALL BE FABRICATED OF PRIME GRADE MATERIALS FREE FROM ANY IMPERFECTIONS. GALVANIZED SHEET STEEL SHALL BE G 90 ZINC COATED AND MILL PHOSPHATIZED FOR PAINTED APPLICATIONS ON EXPOSED DUCTWORK IN CONDITIONED SPACES.

D. ALL DUCTWORK AND FITTINGS SHALL BE FABRICATED, ASSEMBLED AND INSTALLED IN ACCORDANCE WITH THE LATEST REVISION OF SMACNA HVAC DUCT CONSTRUCTIONS STANDARDS FOR THE DESIGNATED PRESSURE CLASSIFICATION. ELBOWS OR TURNS IN THE DUCTWORK SHALL BE FABRICATED WITH A CENTER LINE RADIUS OF NOT LESS THAN 1.5 TIMES THE DUCT WIDTH OR WITH ELBOWS WITH INTEGRAL TURNING VANES, TRANSITIONS ND OFFSETS SHALL BE FABRICATED WITH A MAX. ANGULAR TAPER OF 30 DEGREES UNLESS SPACE

E. GENERAL SUPPLY AIR, RETURN AIR, EXHAUST AIR, RELIEF AIR AND OUTSIDE AIR DUCTWORK WITHIN THE BUILDING SHALL

BE 2" SMACNA PRESSURE CLASSIFICATION GALVANIZED STEEL UNLESS NOTED OTHERWISE ON THE DRAWINGS F. REFER TO FLOOR PLANS FOR GAS VENT CONSTRUCTION. TOTAL VENT SYSTEM SHALL INCLUDE ELBOWS, TEES, THIMBLES, ADJUSTABLE ROOF FLASHING, STORM COLLAR, METAL CAP WITH BIRD BARRIER, FIRE STOP SPACERS, SUPPORT ASSEMBLIES AND FASTENERS AS WELL AS STRAIGHT PIPE SECTIONS. GAS VENTS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS. INSTALLATION SHALL MAINTAIN MINIMUM CLEARANCES FROM COMBUSTIBLE

MATERIALS IN ACCORDANCE WITH THE UL LISTING AND THE OBC. G. SHEETMETAL ACCESSORIES SHALL INCLUDE DEFLECTORS, TURNING VANES, ELBOWS, Y-BRANCH FITTINGS, TEE FITTINGS, TAP IN FITTINGS, TRANSITIONS AND PLENUMS ETC...AS INDICATED ON THE DRAWINGS AND OF THE SAME MATERIAL AS THE DUCTWORK SYSTEM IN WHICH THEY ARE INSTALLED. ALL ACCESSORIES SHALL BE FABRICATED AND INSTALLED IN ACCORDANCE WITH THE LATEST REVISION OF SMACNA "HVAC DUCT CONSTRUCTION STANDARDS".

H. FIRE DAMPERS SHALL BE INSTALLED FOR DUCTWORK PENETRATIONS AND AIR OPENINGS THROUGH ALL FIRE RATED BUILDING ASSEMBLIES. FIRE DAMPERS SHALL COMPLY WITH THE REQUIREMENTS OF UL555S. DAMPERS SHALL BE UL LABELED FRAME STYLE "B" FOR RECTANGULAR DUCTWORK AND OPENINGS AND FRAME STYLE "C" FOR ROUND AND FLAT OVAL DUCTWORK. DAMPERS SHALL BE CURTAIN TYPE WITH INTERLOCKING BLADES OUTSIDE OF THE AIRSTREAM AND A 165'F FUSIBLE LINK. DAMPER RATING SHALL BE 1-1/2 HOUR FOR 1 OR 2 HOUR RATED ASSEMBLIES. DAMPERS SHALL BE AS MANUFACTURED BY RUSKIN, GREENHECK, AIR BALANCE INC. OR PREFCO.

ACCESS DOORS SHALL BE INSTALLED FOR FUSIBLE LINK REPAIR FOR EACH FIRE DAMPER AND AS INDICATED ON THE DRAWINGS. ACCESS DOORS SHALL HAVE EXTENDED FRAMES FOR EXTERNALLY INSULATED DUCTWORK. ACCESS DOORS SHALL BE FACTORY INSULATED FOR ALL INSULATED DUCTWORK APPLICATIONS. ACCESS DOORS SHALL BE OF THE CAM LOCK TYPE FITTED OR AIR TIGHT CLOSURE AND SHALL BE RATED FOR THE SMACNA PRESSURE CLASSIFICATION IN WHICH IT WILL BE APPLIED. ACCESS DOORS SHALL BE PERMANENTLY IDENTIFIED ON THE EXTERIOR BY A LABEL WITH LETTERS NOT LESS THAN 1/2" HIGH TITLED "FIRE DAMPER" OR "SMOKE DAMPER". ACCESS DOORS SHALL BE AS

HVAC INSULATION

SMOKE DAMPERS SHALL BE OPPOSED BLADE, LEAKAGE CLASS II, AND SHALL MEET THE REQUIREMENTS OF NFPA 90A, 92A & 92B. DAMPERS SHALL BE CLASSIFIED IN ACCORDANCE WITH THE LATEST VERSION OF UL555S. MAXIMUM LEAKAGE RATE SHALL NOT EXCEED 20 CFM AT A DIFFERENTIAL PRESSURE OF 4.0" W.C. THE ENTIRE SMOKE DAMPER ASSEMBLY SHALL BE U.L. LISTED & LABELED PER UL555S. DAMPER SEALS SHALL BE STAINLESS STEEL COMPRESSION TYPE JAMB SEALS. & SILICONE RUBBER BLADE EDGE SEALS. SEALS SHALL BE SUITABLE FOR TEMPERATURE APPLICATIONS UP TO 450°F. THE SMOKE DAMPER ASSEMBLY (DAMPER & ACTUATOR) SHALL BE RATED FOR OPERATION AT ELEVATED TEMPERATURES UP TO 250°F. THE SMOKE DAMPER ACTUATOR SHALL BE TWO-POSITION AND HAVE A SPRING RETURN FOR NORMALL CLOSED (NC) APPLICATIONS

NOTE: SPECIFICATION HAS NOT BEEN EDITTED

FOR THIS PROJECT; NOT ALL SECTIONS INCLUDED ARE APPLICABLE TO THIS PROJECT.

K. DUCT SYSTEMS SHALL BE INSTALLED WITH A MINIMUM NUMBER OF JOINTS AND BE AIR-TIGHT (2% MAXIMUM ALLOWABLE AIR LEAKAGE) DUCTS SHALL BE RIGIDLY SUPPORTED TO PREVENT BUCKLING WITH BRACES, TIES, AND HANGERS OF THE SAME MATERIAL AS THE DUCTWORK ITSELF.

L. ALL SUPPLY, RETURN, OUTSIDE, EXHAUST AND RELIEF AIR DUCTWORK SHALL HAVE ITS TRANSVERSE JOINTS AND LONGITUDINAL SEAMS SEALED WITH UL LISTED DUCT SEALANT.

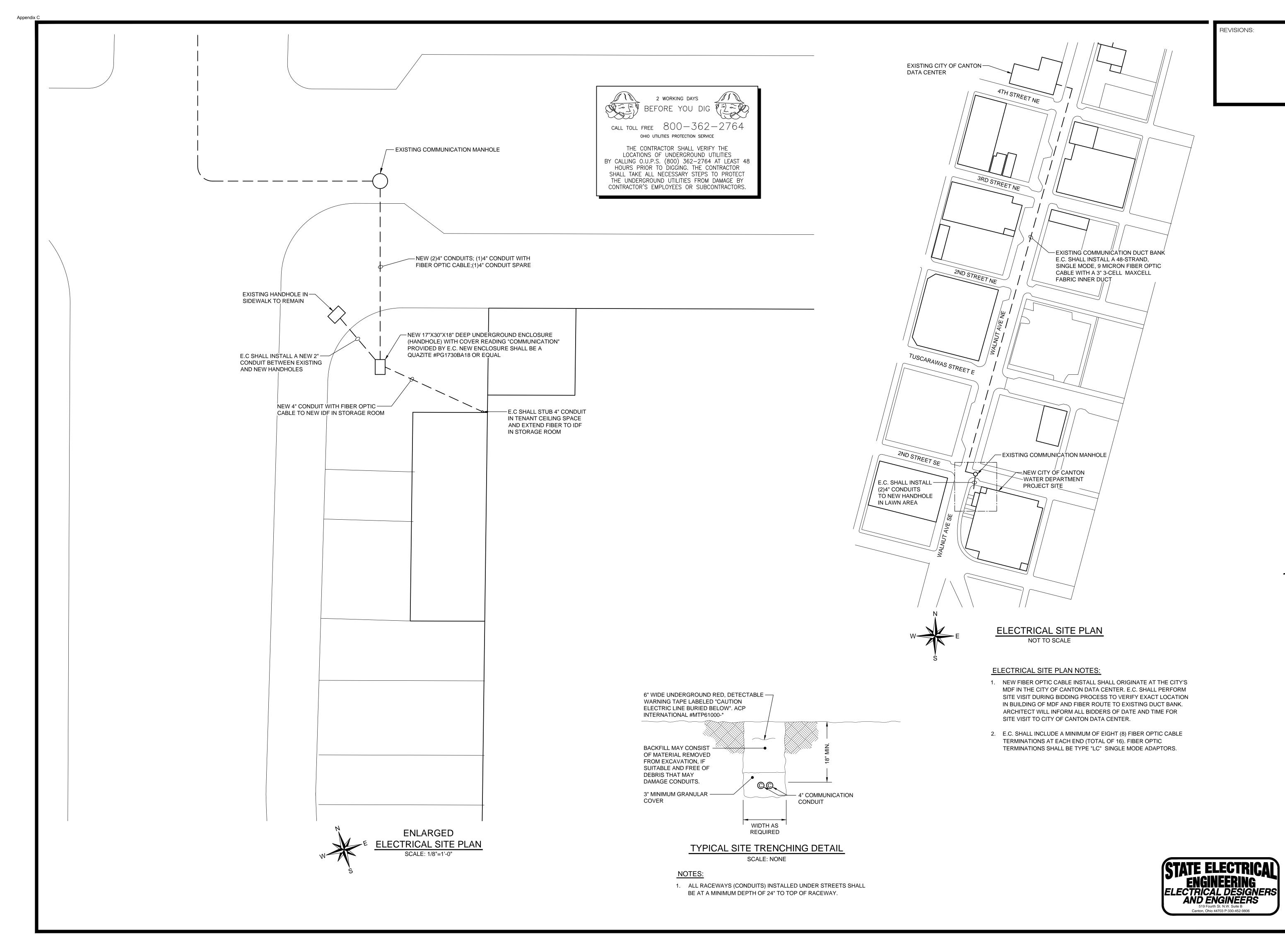
M. DUCTWORK SHALL BE ROUTED IN THE MOST DIRECT PATH PROVIDING THE GREATEST HEADROOM POSSIBLE WHICH DOES NOT INTERFERE WITH CLEARANCE REQUIREMENTS AND BE VERTICALLY, HORIZONTALLY AND PARALLEL TO THE BUILDING CONFINES WHENEVER POSSIBLE UNLESS NOTED OTHERWISE.

N. DUCTWORK BRANCHES OFF OF MAINS SHALL GENERALLY BE ARRANGED AS FOLLOWS:

. RECTANGULAR BRANCHES OFF OF RECTANGULAR MAINS SHALL BE WITH 45 DEGREE SHOE ENTRY TYPE TAP 2. ROUND BRANCHES OFF OF RECTANGULAR MAINS SHALL BE MADE WITH CONICAL TYPE TAP IN FITTINGS IF THE MAIN IS 4" OR GREATER IN DEPTH THAN THE BRANCH DIAMETER. OTHERWISE, A 45 DEGREE SHOE ENTRY TYPE TAP IN FITTING WITH RECTANGULAR DIMENSIONS OF EQUIVALENT CROSS SECTIONAL AREA TO

3. ROUND BRANCHES OFF OF ROUND MAINS SHALL BE MADE WITH Y-BRANCH, CONICAL TAP, 45 DEGREE SHOE ENTRY TAP, OR TEE FITTINGS AS INDICATED ON THE DRAWINGS. O. FLEXIBLE DUCTWORK SHALL BE MAXIMUM 5'-O" LENGTH. THE INSULATING ENDS OF ALL DUCTWORK SHALL BE SEALED WITH DUCT TAPE. ISTALLATION SHALL BE PER SECTION III OF SMACNA'S "HVAC DUCT CONSTRUCTION STANDARDS, METAL

THE ROUND BRANCH DIAMETER SHALL BE USED IMMEDIATELY FOLLOWED BY A RECTANGULAR TO ROUND



RUSS E-58998

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TE OF R.W.MEADOWS 6781 RODNEY W. MEADOWS LICENSE #6781

EXPIRATION DATE

12-31-2019

THIS DWG:

ELECTRICAL SITE PLAN

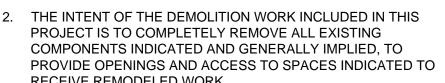
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DATE 12-03-2018

DWG

ES100

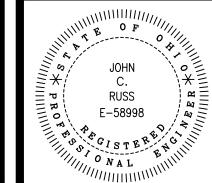
1. ALL DEVICES SHOWN DASHED ON THIS PLAN SHALL BE



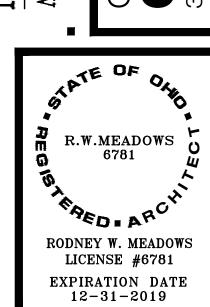
3. ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR DEMOLITION, REMOVAL FROM SITE, DISPOSAL, PATCHING AND REPAIRING EXISTING BUILDING FOR ITEMS REMOVED IN THEIR RESPECTIVE SCOPE(S) OF WORK.

- 4. IF ANY MISCELLANEOUS ITEMS IN THE SPACES HAVE INADVERTENTLY BEEN OMITTED IN THE DEMOLITION DOCUMENTS, IT IS THE INTENT OF THIS PROJECT THAT THE WORK UNDER THIS DEMOLITION CONTRACT IS TO FACILITATE THE CONSTRUCTION OF A COMPLETE, CLEAN AND READY TO USE SPACE. ANY SUCH ITEM SHOULD BE DEMOLISHED AS
- 5. ALL WORK SHALL BE IN FULL COMPLIANCE WITH APPLICABLE NATIONAL, STATE AND LOCAL CODES.

REVISIONS:



MOTTED & MEALDOWS



THIS DWG:

DEMOLITION PLAN

COMM

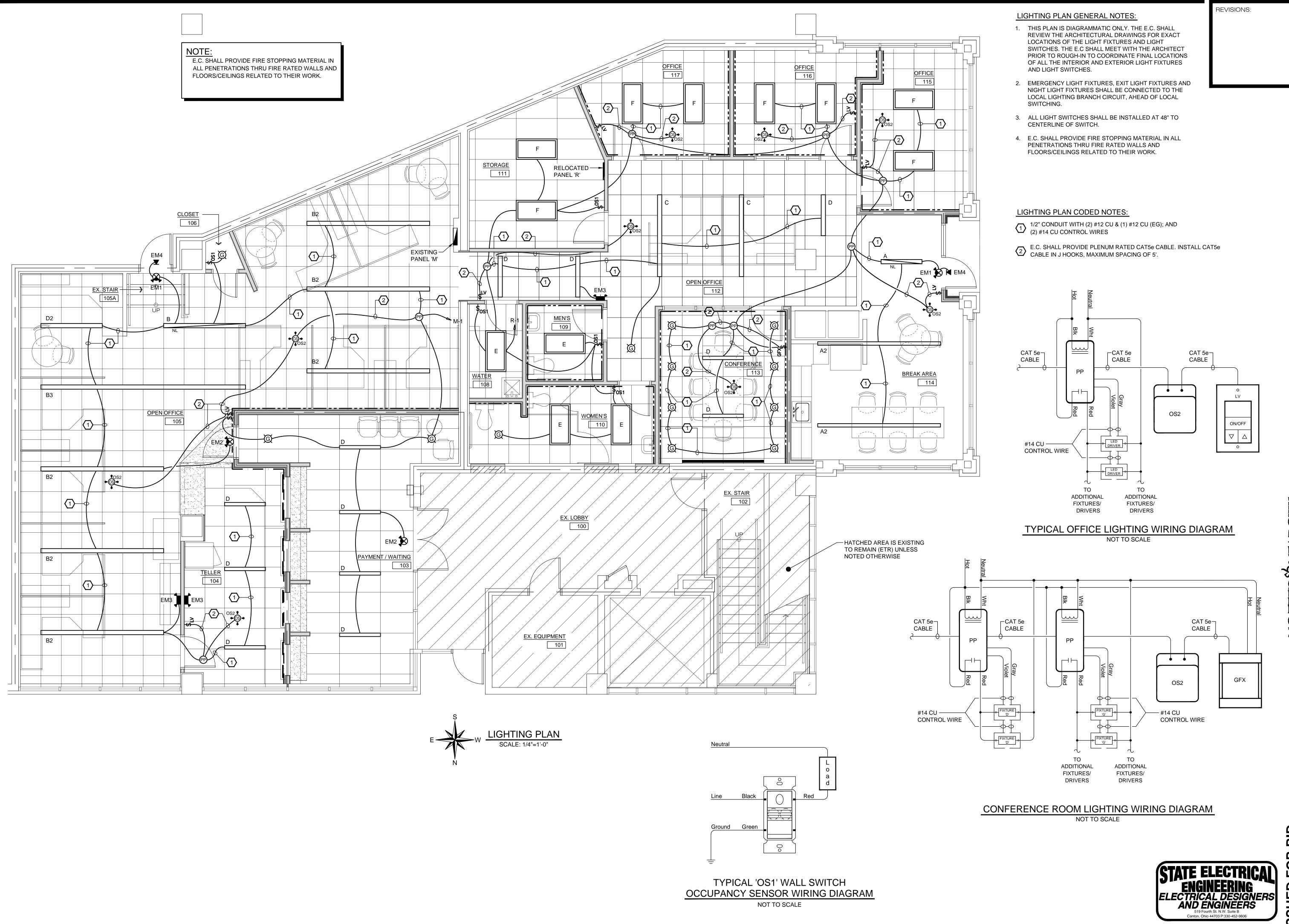
DATE 12-03-2018

DWG

E100

STATE ELECTRICAL ENGINEERING ELECTRICAL DESIGNERS AND ENGINEERS

519 Fourth St. N.W. Suite B
Canton, Ohio 44703 P:330-452-9806



RUSS E-58998

MOTTED & MEALDOWS

LATE OF ON R.W.MEADOWS 6781 RODNEY W. MEADOWS LICENSE #6781 EXPIRATION DATE 12-31-2019

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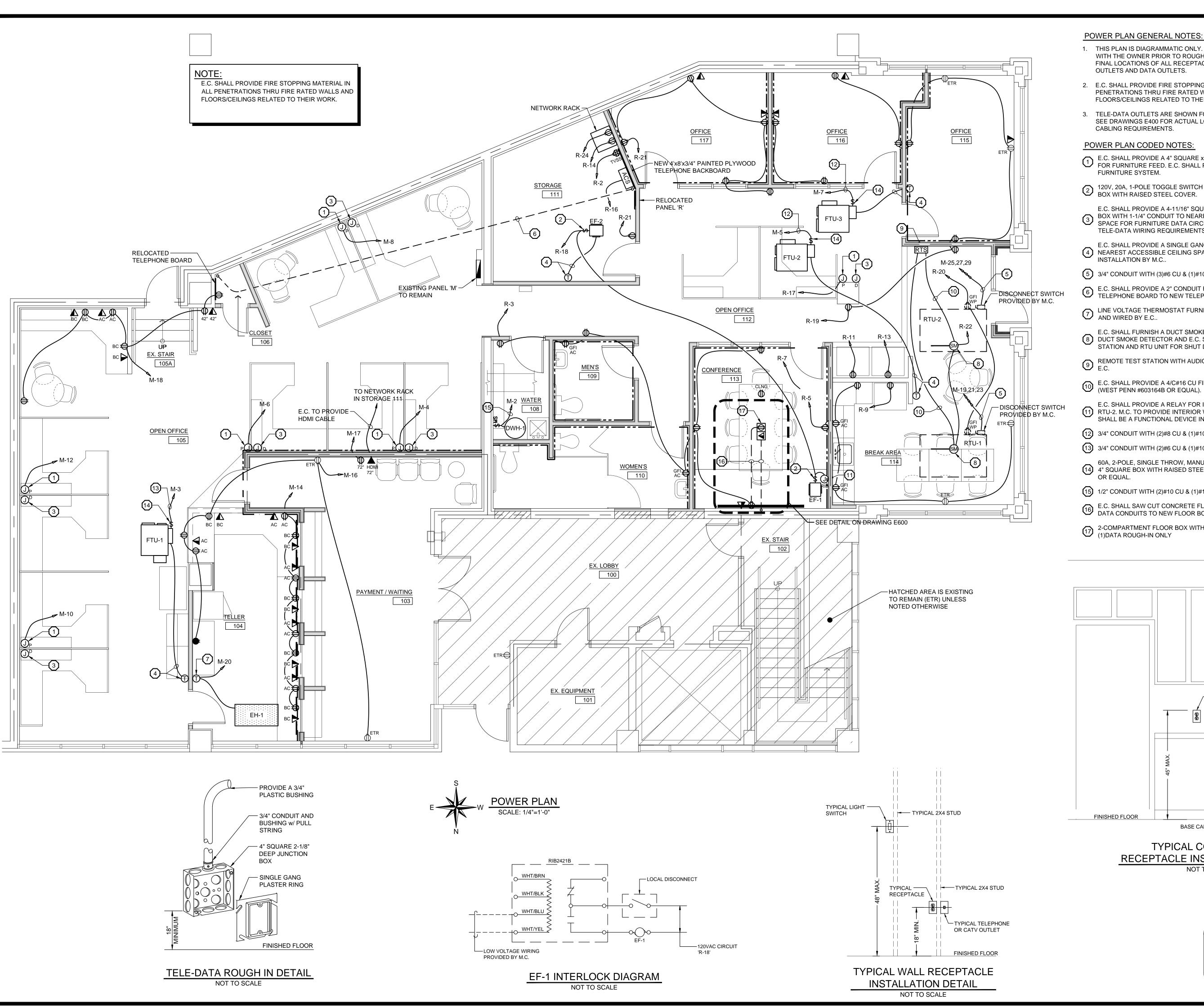
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LIGHTING PLAN

COMM **DATE** 12-03-2018

DWG

E200



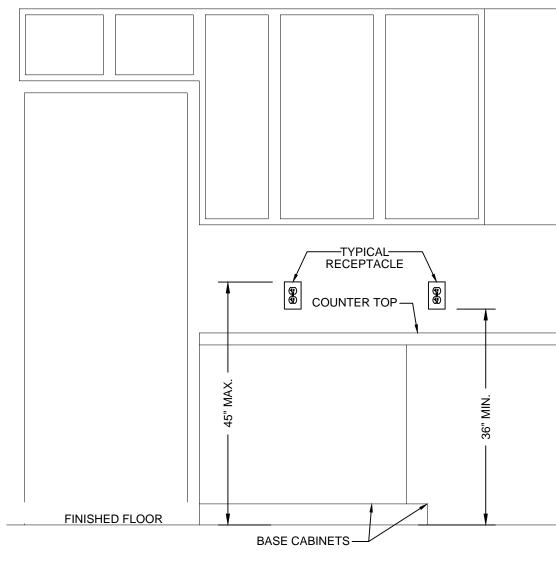
REVISIONS:

E-58998

- THIS PLAN IS DIAGRAMMATIC ONLY. THE E.C SHALL MEET WITH THE OWNER PRIOR TO ROUGH-IN TO COORDINATE FINAL LOCATIONS OF ALL RECEPTACLES, TELEPHONE OUTLETS AND DATA OUTLETS.
- 2. E.C. SHALL PROVIDE FIRE STOPPING MATERIAL IN ALL PENETRATIONS THRU FIRE RATED WALLS AND FLOORS/CEILINGS RELATED TO THEIR WORK.
- TELE-DATA OUTLETS ARE SHOWN FOR REFERENCE ONLY. SEE DRAWINGS E400 FOR ACTUAL LOCATIONS AND

POWER PLAN CODED NOTES:

- E.C. SHALL PROVIDE A 4" SQUARE x 2-1/8" DEEP JUNCTION BOX FOR FURNITURE FEED. E.C. SHALL PROVIDE CONNECTION TO FURNITURE SYSTEM.
- 2 120V, 20A, 1-POLE TOGGLE SWITCH IN 4" SQUARE x 2-1/8" DEEP BOX WITH RAISED STEEL COVER.
- E.C. SHALL PROVIDE A 4-11/16" SQUARE x 2-1/2" DEEP JUNCTION BOX WITH 1-1/4" CONDUIT TO NEAREST ACCESSIBLE CEILING SPACE FOR FURNITURE DATA CIRCUITS. SEE DRAWING E400 FOR TELE-DATA WIRING REQUIREMENTS.
- E.C. SHALL PROVIDE A SINGLE GANG BOX WITH 1/2" CONDUIT TO 4) NEAREST ACCESSIBLE CEILING SPACE FOR THERMOSTAT INSTALLATION BY M.C..
- (5) 3/4" CONDUIT WITH (3)#6 CU & (1)#10 CU (EG).
- 6 E.C. SHALL PROVIDE A 2" CONDUIT FROM RELOCATED TELEPHONE BOARD TO NEW TELEPHONE BOARD IN MDF ROOM.
- T LINE VOLTAGE THERMOSTAT FURNISHED BY M.C.; INSTALLED AND WIRED BY E.C..
- E.C. SHALL FURNISH A DUCT SMOKE DETECTOR; M.C. TO INSTALL (8) DUCT SMOKE DETECTOR AND E.C. SHALL WIRE TO REMOTE TEST STATION AND RTU UNIT FOR SHUT DOWN.
- 9 REMOTE TEST STATION WITH AUDIO VISUAL ALARM PROVIDED BY E.C.
- E.C. SHALL PROVIDE A 4/C#16 CU FIRE ALARM CABLE (WEST PENN #603164B OR EQUAL).
- E.C. SHALL PROVIDE A RELAY FOR INTERLOCKED CONTROL WITH RTU-2. M.C. TO PROVIDE INTERIOR WIRING WITH RTU-2. RELAY SHALL BE A FUNCTIONAL DEVICE INC. #RIB2421B OR EQUAL.
- (12) 3/4" CONDUIT WITH (2)#8 CU & (1)#10 CU (EG)
- (13) 3/4" CONDUIT WITH (2)#6 CU & (1)#10 CU (EG)
- 60A, 2-POLE, SINGLE THROW, MANUAL MOTOR CONTROLLER IN A 4" SQUARE BOX WITH RAISED STEEL COVER. COOPER #AHMC260L OR EQUAL.
- 15) 1/2" CONDUIT WITH (2)#10 CU & (1)#10 CU (EG)
- E.C. SHALL SAW CUT CONCRETE FLOOR TO INSTALL POWER AND DATA CONDUITS TO NEW FLOOR BOX.
- 2-COMPARTMENT FLOOR BOX WITH (1)DUPLEX RECEPTACLE, & (1)DATA ROUGH-IN ONLY



TYPICAL COUNTER TOP RECEPTACLE INSTALLATION DETAIL

NOT TO SCALE

ENGINEERING
ELECTRICAL DESIGNERS
AND ENGINEERS Canton, Ohio 44703 P:330-452-980

THIS DWG:

ATE OF

R.W.MEADOWS 6781

RODNEY W. MEADOWS

LICENSE #6781

EXPIRATION DATE

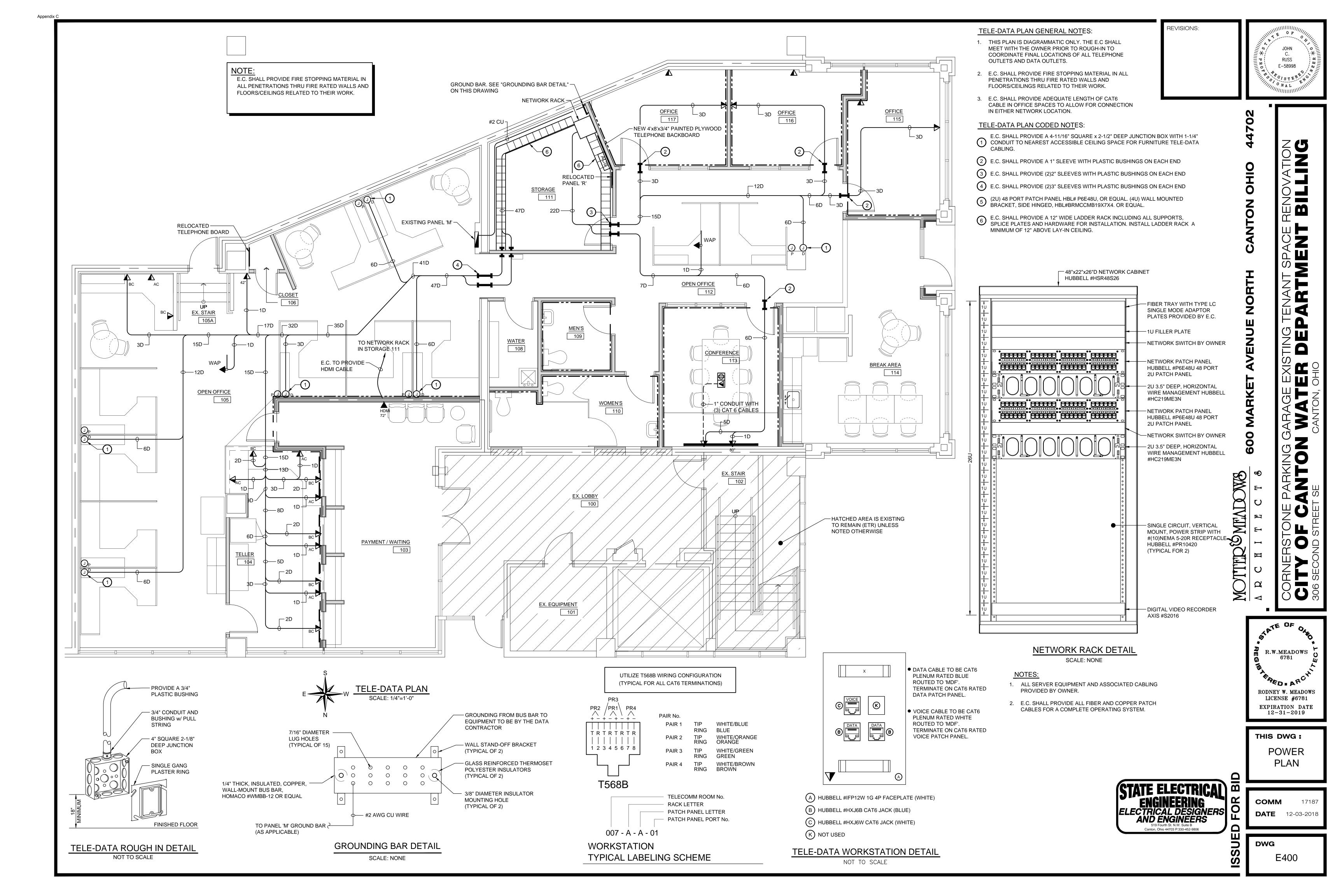
12-31-2019

POWER PLAN

COMM **DATE** 12-03-2018

DWG

E300



SECURITY PLAN GENERAL NOTES:

- 1. E.C. SHALL PROVIDE A COMPLETE OPERATING SECURITY SYSTEM INCLUDING BUT NOT LIMITED
- 2. ELECTRONIC STRIKE SHALL BE PROVIDED BY DOOR HARDWARE SUPPLIER.
- 3. E.C. SHALL PROVIDE FIRE STOPPING MATERIAL IN ALL PENETRATIONS THRU FIRE RATED WALLS AND FLOORS/CEILINGS RELATED TO THEIR WORK.
- 4. E.C. SHALL VERIFY LOCATION OF ALL SECURITY DEVICES WITH OWNER PRIOR TO ROUGH-IN.

REVISIONS:

SECURITY PLAN CODED NOTES:

- 1 1/2" CONDUIT WITH 1-4/C #16 CU SHIELDED CABLE
- 2 1/2" CONDUIT WITH 1-6/C #16 CU SHIELDED CABLE
- 3 1/2" CONDUIT WITH 1-2/C #16 CABLE
- E.C. SHALL PROVIDE PLENUM RATED CAT6 CABLE. INSTALL CAT6 CABLE IN J HOOKS, MAXIMUM SPACING OF 5'.
- 5 DVR SHALL BE A RACK MOUNTED UNIT. E.C. SHALL INSTALL IN NETWORK RACK.
- 6 E.C. SHALL PROVIDE MULLION STYLE CARD READER AT THIS LOCATION.

SECURITY SYMBOL LEGEND

DOOR CONTROLLER - NETWORK DOOR CONTROLLER

REQUEST TO EXIT PASSIVE INFRARED SENSOR

SYMBOL

MAG

DOOR CONTACT

KEY PAD - E READER

ELECTRONIC STRIKE

MAG LOCK

DURESS ALARM

180° IP CAMERA

360° IP CAMERA

CARD READER - E READER

REQUEST TO EXIT PUSH BUTTON

DESCRIPTION

OTTED & MEALDOWS

LATE OF ONE R.W.MEADOWS 6781 RODNEY W. MEADOWS LICENSE #6781 EXPIRATION DATE

SECURITY PLAN

COMM **DATE** 12-03-2018

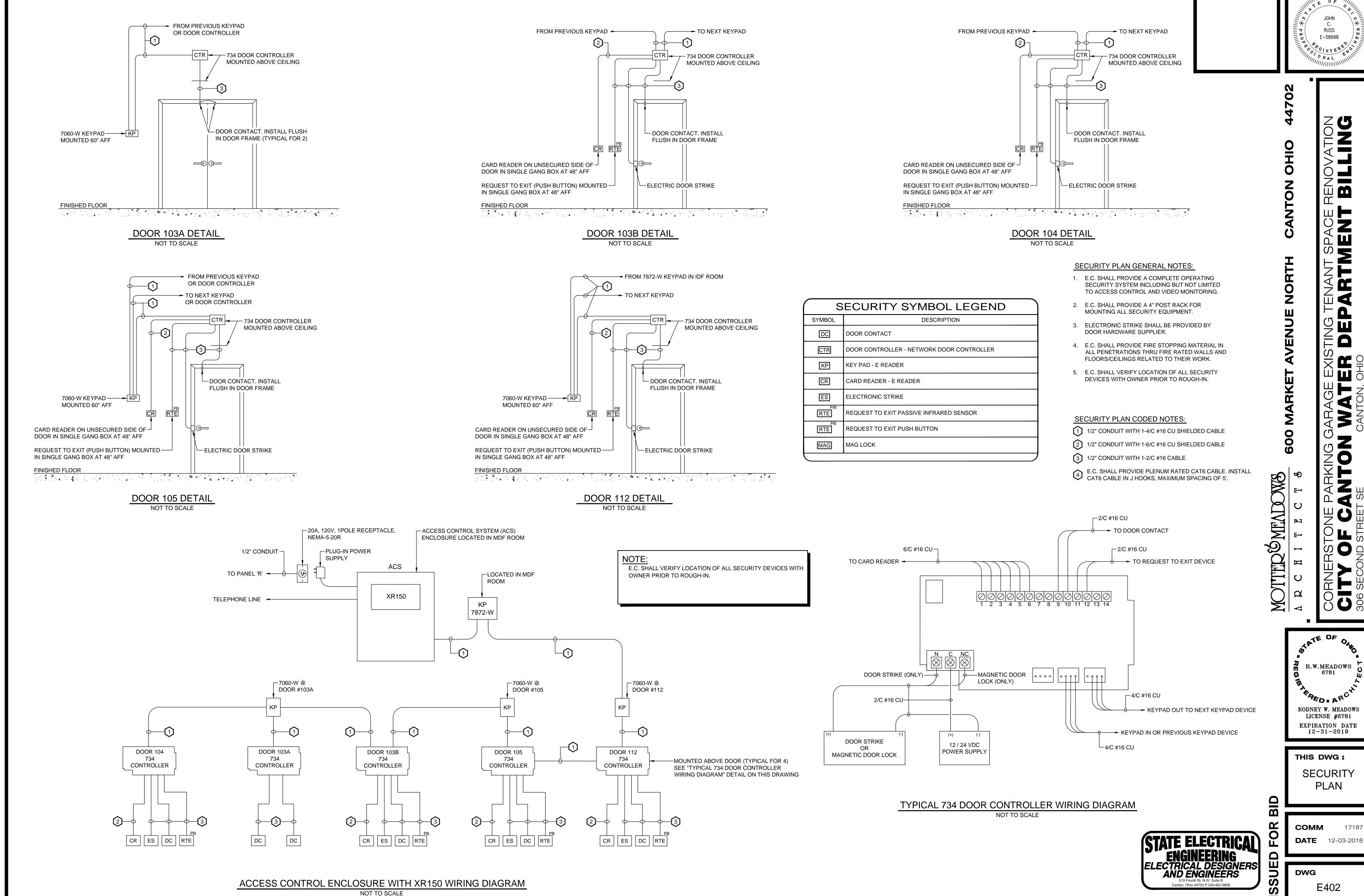
E401

12-31-2019 THIS DWG:

STATE ELECTRICAL ENGINEERING ELECTRICAL DESIGNERS AND ENGINEERS
519 Fourth St. N.W. Suite B

DWG

TO ACCESS CONTROL AND VIDEO MONITORING.



REVISIONS:

E402

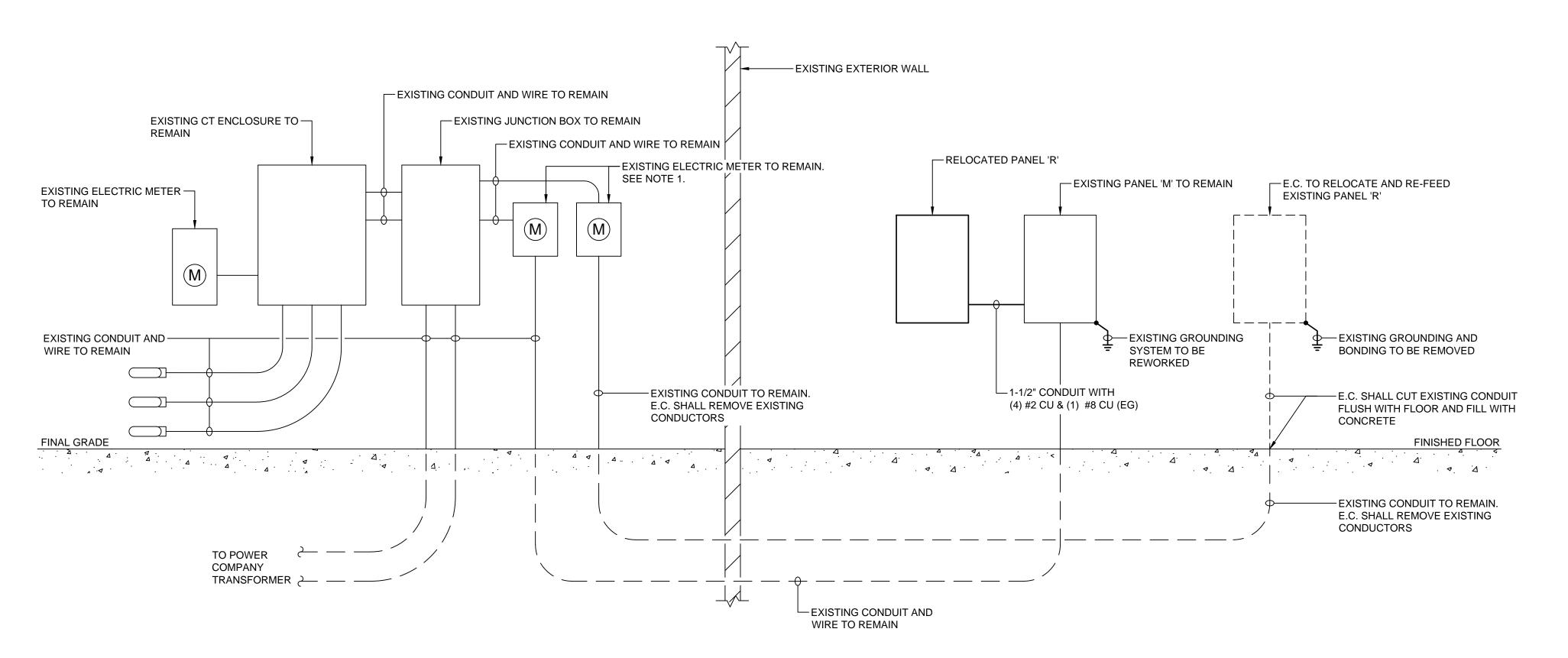
LIGHTING LOAD APPLIED TO SERVICE

GENERAL PURPOSE RECEPTACLE LOAD CALC	CULATION
LOAD DESCRIPTION	LOAD VA
(75)RECEPTACLES EACH @ 180VA	13,500
BUILDING ADDITION AREA SQUARE FOOTAGE	2,084
VA PER SQUARE FOOT MULTIPLIER	1.0
SQUARE FOOT LIGHTING LOAD CALCULATION	2,084
RECEPTACLE LOAD APPLIED TO SERVICE	13,500

HVAC LOAD CALCULATION	
LOAD DESCRIPTION	LOAD VA
(1)FURNACE 'F-1' @ 1,788VA	1,788
(1)FURNACE 'F-2' @ 1,224VA	1,224
(1)CONDENSING UNIT CU-1 @ 6,003VA	6,003
(1)CONDENSING UNIT CU-2 @ 4,163VA	4,163
(2)UNIT HEATERS EACH @ 1800VA	3,600
(1)WALL HEATER @ 400VA	400
(3)CEILING FANS EACH @ 37VA	111
(1)EXHAUST FAN @ 253VA	253
RECEPTACLE LOAD APPLIED TO SERVICE	15,178

MISCELLANEOUS LOAD CALCULATIO	N
LOAD DESCRIPTION	LOAD VA
(1)WASHING MACHINE @ 1500 VA	1,500
(1)LAUNDRY DRYER @ 5000 VA	5,000
(1)COFFEE MACHINE @ 1000 VA	1,000
(2)UNDERCOUNTER REFRIGERATOR EACH @ 600 VA	1,200
(1)FREEZER @ 1500VA	1,500
(1)MONITOR @ 600VA	600
*	-
*	-
MISCELLANEOUS LOAD APPLIED TO SERVICE	10,800

TOTAL LOAD CALCULATIONS APPLIED TO S	ERVICE
LOAD DESCRIPTION	LOAD VA
LIGHTING LOAD APPLIED TO SERVICE	7,294
RECEPTACLE LOAD APPLIED TO SERVICE	13,500
HVAC LOAD APPLIED TO SERVICE	15,178
MISCELLANEOUS LOAD APPLIED TO SERVICE	10,800
TOTAL LOAD APPLIED TO SERVICE	46,772
TOTAL LOAD APPLIED TO SERVICE IN AMPS	194.88



EXISTING / NEW POWER RISER DIAGRAM NOT TO SCALE

NOTE:

- 1. E.C. SHALL IDENTIFY EXISTING METER SERVING PANEL 'M' AND PROVIDE LAMACOID TAG IDENTIFYING 'LOAD'.
- 2. ELECTRIC METERS ARE LOCATED TO EAST OF PROPOSED WORK SPACE ADJACENT TO PARKING GARAGE ENTRANCE RAMP.

	RELOCATED PANEL "R"													
	120/208V, 3Ø, 4W., 225A MCB, 10kAIC, FULL CAPACITY NEUTRAL													
	SEPARATE GROUND BUS, RECESSED, NEMA 1 ENCLOSURE.													
NO. CIRCUIT DESCRIPTION WATTS C/B				C/B	Α	E	3	С	C/B	WATTS	CIRCUIT DESCRIPTION	NO.		
	1	LTG- 107/108/109/110/111	1268	20/1	•				20/1	360	REC- TELEPHONE BOARD	2		
	3	REC- RR'S/WATER/CONF RM	1440	20/1		ŀ			30/2		SPARE	4]	
	5	REC- CONF RM/BREAK AREA	1080	20/1				•	•			6		
	7	REC- CONF MONITOR	600	20/1	•				60/3	•	SPARE	8		
	9	REC- REFRIGERATOR	1200	20/1		T						10		
- 1	11	REC- VENDIND	1200	20/1G		Τ		$\overline{\bullet}$	v		•	12		
- 1	13	REC- VENDING	1200	20/1G	•	Τ		\prod	20/1	600	NETWORK RACK	14		
	15	SPARE		15/1		Ţ	•	\prod	20/1	600	SECURITY ACCESS CONTROL SYSTEM	16		
	17 REC- OPEN OFFICE 112 FURN 19 REC- OPEN OFFICE 115/116 21 REC- OPEN OFFICE 116/117 23 SPARE 25 SPARE		1440	20/1		T		•	20/1	181	EF-1 / EF-2	18		
			1440	20/1	•	T		\prod	20/1G	360	REC- RTU MAINT.	20		
			1260	20/1		Ŧ	M	\prod	20/1	100	DUCT SMOKE DETECTORS	22		
2				20/1	П	T		$\overline{\bullet}$	20/1	600	NETWORK RACK	24		
2				20/1	•	T		\Box	20/1		SPARE	26		
	27	SPARE		20/1	П	Ť٠	• 1	\prod	20/1		SPARE	28		
	29	SPARE		20/1	П	T		\dagger	20/1		SPARE	30		
[3	31	SPARE		20/1	•	T		\Box	20/1		SPARE	32		
[3	33	SPARE		20/1		Ť٠	•	\Box	20/1		SPARE	34		
[3	35	SPARE		20/1	П	T		+	20/1		SPARE	36		
		SPARE	38											
[3	39	SPARE		20/1		Ť٠		\forall	V	.	•	40	1	
	11	SPACE		20/1		T		•	20/1	·	SPARE	42		
		SUBTOTAL	12128		T	T		\forall		2801	SUBTOTAL			
\vdash			TOTA	L LOA	D -	· 1	4.9	_ }k\	N (41.	4A)		$\overline{}$	}	

E.C. SHALL REPLACE A 20A, 1P CIRCUIT BREAKER WITH A 20A, 1P GFCI CIRCUIT BREAKER. ☐ E.C. SHALL RELOCATE 60A, 3P CIRCUIT BREAKER IN PANEL 'M' WITH A 100A, 3P CIRCUIT BREAKER IN PANEL 'R'.

i		E	XIS	NT6	1G	;	P	A	NE	L "N	1"		1
		· · · · · · · · · · · · · · · · · · ·	-						•		ACITY NEUTRAL ENCLOSURE.		
	NO.	CIRCUIT DESCRIPTION	WATT	S C/E	B A	E	3 C	ा	C/B	WATTS	CIRCUIT DESCRIPTION	NO.	
	1	LTG - TELLER/WAITING/OPEN	1252	20/	1 •	Т	Т		30/1	3000	WATER HEATER DWH-1	2	
*	3	FTU-1	5064	50/	1	•	·T	T	20/1	1440	OPEN OFFICE FURN SYSTEM #1	4	
0	5	FTU-2	4013	35/	1		1 •	·T	20/1	720	OPEN OFFICE FURN SYSTEM #2	6	
\bigcirc	7	FTU-3	4013	35/	1 •				20/1	1440	OPEN OFFICE FURN SYSTEM #3	8	
	9	SPARE		20/	1	Τ•	· []		20/1	1440	OPEN OFFICE FURN SYSTEM #4	10	
	11	SPARE		20/	1		1 •	·T	20/1	1440	OPEN OFFICE FURN SYSTEM #5	12	
	13	SPARE		20/	1 •				20/1	1260	REC- TELLER	14	
	15	SPARE		20/	1	•	• 🔲		20/1	1080	REC- WAITING / TELLER	16	
	17 WAITING VIDEO DISPLAY			20/	1		•	•	20/1	1080	REC- OPEN OFFICE SW OFFICE/CLOSET	18	
\supset	19	RTU-1	13329	50/	3 •				20/1	750	EH-1	20	
	21					•	• 📗				SPACE	22	
	23		•	•			•				SPACE	24	
	25	RTU-2	10807	7 45/	3 •			ŀ	100/3	13269	PANEL 'R'	26	
	27					•	·II					28	
	29		•				1		•	•		30	
		SUBTOTAL	38478	3						26919	SUBTOTAL		
	abla		TO	TAL LO	DAD	- 6	35.4	4k\	W (18	1.5A)	-		•

- E.C. SHALL REMOVE EXISTING 20A, 2P CIRCUIT BREAKER AND PROVIDE A NEW 50A, 3P CIRCUIT BREAKER.
- ☐ E.C. SHALL PROVIDE A 45A, 3P CIRCUIT BREAKER.
- * \pm E.C. SHALL REPLACE EXISTING 20A, 1P CIRCUIT BREAKER WITH A 50A, 1P CIRCUIT BREAKER. ○ E.C. SHALL REPLACE EXISTING 20A, 1P CIRCUIT BREAKER WITH A 35A, 1P CIRCUIT BREAKER.
- ☐ E.C. SHALL RELOCATE 60A, 3P CIRCUIT BREAKER IN PANEL 'M' WITH A 100A, 3P CIRCUIT BREAKER IN PANEL 'R'.

REVISIONS:

TE OF R.W.MEADOWS RODNEY W. MEADOWS LICENSE #6781 EXPIRATION DATE

THIS DWG: SCHEDULES LEGENDS

12-31-2019

COMM **DATE** 12-03-2018

DWG

STATE ELECTRICAL ENGINEERING ELECTRICAL DESIGNERS AND ENGINEERS
519 Fourth St. N.W. Suite B



ш	RECESSED OR SURFACE MOUNTED LIGHTING FIXTURE SEE LIGHTING FIXTURE SCHEDULE FOR DETAILS
	RECESSED DOWNLIGHT FIXTURE SEE LIGHTING FIXTURE SCHEDULE FOR DETAILS
	CEILING MOUNTED EXIT SIGN LIGHTING FIXTURE SEE LIGHTING FIXTURE SCHEDULE FOR DETAILS
	CEILING MOUNTED COMBINATION EXIT/EMERGENCY LIGHTING FIXTURE

⊗	CEILING MOUNTED EXIT SIGN LIGHTING FIXTURE SEE LIGHTING FIXTURE SCHEDULE FOR DETAILS
*	CEILING MOUNTED COMBINATION EXIT/EMERGENCY LIGHTING FIXTURE SEE LIGHTING FIXTURE SCHEDULE FOR DETAILS
—	CEILING OR WALL MOUNTED EMERGENCY LIGHTING FIXTURE SEE LIGHTING FIXTURE SCHEDULE FOR DETAILS
▼	EMERGENCY REMOTE HEAD LIGHTING FIXTURE SEE LIGHTING FIXTURE SCHEDULE FOR DETAILS
\$	SINGLE POLE SWITCH ASSEMBLY

T I	SINGLE POLE SWITCH ASSEMBLY 20A, 120/277V, SPECIFICATION GRADE, NYLON COVER, COLOR BY ARCHITECT
*	DUAL TECHNOLOGY WALL SWITCH SENSOR SEE OCCUPANCY SCHEDULE FOR DETAILS
\mathbf{T}_{\GammaA}	3-BUTTON LOW VOLTAGE ON/OFF SWITCH

\$	SEE OCCUPANCY SCHEDULE FOR DETAILS
\$ ^{GFX}	3.5" FULL COLOR TOUCH SCREEN SEE OCCUPANCY SCHEDULE FOR DETAILS
CS2	DUAL TECHNOLOGY LINE VOLTAGE CELLING MOUNT SENSOR

ı	SEE OCCUPANCY SCHEDULE FOR DETAILS
	DUAL TECHNOLOGY LINE VOLTAGE CEILING MOUNT SENSOR SEE OCCUPANCY SCHEDULE FOR DETAILS
_	DUAL VOLTAGE DOWED DACK

•	
	DUAL VOLTAGE POWER PACK SEE OCCUPANCY SCHEDULE FOR DETAILS

$\mathbf{\Phi}$	DUPLEX RECEPTACLE ASSEMBLY 20A, 125V, SPECIFICATION GRADE, NYLON COVER, COLOR BY ARCHITECT
0.51	

Ψ	20A, 125V, SPECIFICATION GRADE, NYLON COVER, COLOR BY ARCHITECT
	GROUND FAULT CIRCUIT INTERRUPTING RECEPTACLE ASSEMBLY 20A, 125V, SPECIFICATION GRADE, NYLON COVER, COLOR BY ARCHITECT
₼ ^{AC}	DUPLEX RECEPTACLE ASSEMBLY - MOUNTED ABOVE COUNTER

	DUPLEX RECEPTACLE ASSEMBLY - MOUNTED ABOVE COUNTER 20A, 125V, SPECIFICATION GRADE, NYLON COVER, COLOR BY ARCHITECT
₩ BC	DUPLEX RECEPTACLE ASSEMBLY - MOUNTED BELOW COUNTER

Ф	20A, 125V, SPECIFICATION GRADE, NYLON COVER, COLOR BY ARCHITECT
	DUPLEX RECEPTACLE ASSEMBLY - MOUNTED 80" ABOVE FINISHED FLOOR (AFF),
1117	LOGAL AGENT ODEOLEIGATION ODADE NIVLON GOVED, GOLOD DV ADQUITEGT

	20A, 125V, SPECIFICATION GRADE, NYLON COVER, COLOR BY ARCHITECT
GFI AC	GROUND FAULT CIRCUIT INTERRUPTING RECEPTACLE ASSEMBLY - MOUNTED ABOVE COUNTERTOP,
D _{AC}	20A 125V SPECIFICATION GRADE NYLON COVER COLOR BY ARCHITECT

W GFI	IN-USE COVER, 20A, 125V, SPECIFICATION GRADE, COLOR BY ARCHITECT
₩ TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSION DOUBLE DUPLEX RECEPTACLE ASSEMBLY
⊕ ````	20A 425V CDECIFICATION CDADE NVI ON COVED COLOD BY ADCLITECT

	20A, 125V, SPECIFICATION GRADE, NYLON COVER, COLOR BY ARCHITECT
171131311	FLOOR BOX WITH 20A, 125V DUPLEX RECEPTACLE, (4) COMMUNICATIONS KEY STONES, (6) 1-1/4" HUBS HUBBELL #PFBRG2 FLOOR BOX, HUBBELL #PFBRFXX2 FLANGE, HUBBELL #S1CFCBL-COVER OR EQUAL
	DISCONNECT SWITCH

	SEE SCHEDULE DRAWINGS FOR DETAILS
\ominus	JUNCTION BOX
(3)	

9	SIZE AS REQUIRED BY NEC
(J) ^P	JUNCTION BOX FOR FURNITURE POWER

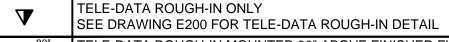
BRANCH CIRCUIT HOMERUN TO PANELBOARD. NUMBER OF ARROWS INDICATE NUMBER OF CIRCUITS
RACEWAY WITH CONDUCTORS (HOT, NEUTRAL, GROUND RESPECTIVELY)

SEE SPECIFICATIONS FOR TYPES, SIZES, ETC.
120/208V OR 120/240V PANELBOARD/DISTRIBUTION PANEL

120/208V OR 120/240V PANELBOARD/DISTRIBUTION PANEL SEE SCHEDULE FOR DETAILS

MISCELLANEOUS SYSTEM PANEL SEE SCHEDULE FOR DETAILS

MOTOR MOTOR



- TELE-DATA ROUGH-IN MOUNTED 80" ABOVE FINISHED FLOOR (AFF)
 SEE DRAWING E200 FOR TELE-DATA ROUGH-IN DETAIL
- DATA/TELEPHONE OUTLET SEE DRAWING FOR DETAILS
 - TELE-DATA ROUGH-IN MOUNTED ABOVE COUNTER
 SEE DRAWING E400 FOR TELE-DATA ROUGH-IN DETAIL
- SEE DRAWING E400 FOR TELE-DATA ROUGH-IN DETAIL

 TELE-DATA ROUGH-IN MOUNTED BELOW COUNTER

 TELE-DATA ROUGH-IN MOUNTED BELOW COUNTER
- VAP

 WIRELESS ACCESS POINT
 SEE DRAWING E400 FOR TELE-DATA ROUGH-IN DETAIL

 WAP
 SEE DRAWING E400 FOR TELE-DATA ROUGH-IN DETAIL
- TELE-DATA PIPE SLEEVE SEE DRAWING FOR DETAILS
 - REMOTE TEST STATION
 SYSTEM SENSOR #RTS2-AOS
- THERMOSTAT

 FIRE ALARM DUCT SMOKE DETECTOR
 SEE FIRE ALARM SPECIFICATIONS FOR DETAILS
- DC DOOR CONTACT
- CTR DOOR CONTROLLER NETWORK DOOR CONTROLLER

 KP KEY PAD READER
- CR CARD READER READER
- ES ELECTRONIC STRIKE

 PIR REQUEST TO EXIT PASSIVE INFRARED SENSOR
- RTE REQUEST TO EXIT PUSH BUTTON
- MAG LOCK

 90° IP CAMERA
- 180° IP CAMERA
- 360° IP CAMERA

 ACCESS CONTROL SYSTEM

LIGHTING FIXTURE SCHEDULE						
TYPE	MANUFACTURER	CATALOG NUMBER	DESCRIPTION	VOLT		
	NEO-RAV	S124DP-240-SC48-	6' LINEAR PENDANT LED FIXTURE			

Α	NEO-RAY (EATON)	XXX-0072-1D-UDD-1-W		120-277V	58	INTEGRAL LED
A2	NEO-RAY (EATON)	S124DP-240-SC48- XXX-0144-1D-UDD-1-W	12' LINEAR PENDANT LED FIXTURE	120-277V	116	INTEGRAL LED
В	NEO-RAY (EATON)	S124DR-H575D-840 XXX-8F0-IUDD-F-W	8' LINEAR RECESSED LED FIXTURE	120-277V	76	INTEGRAL LED
B2	NEO-RAY (EATON)	S124DR-H575D-840 XXX-12F0-IUDD-F-W	12' LINEAR RECESSED LED FIXTURE	120-277V	114	INTEGRAL LED
В3	NEO-RAY (EATON)	S124DR-H575D-840 XXX-20F0-IUDD-F-W	20' LINEAR RECESSED LED FIXTURE	120-277V	190	INTEGRAL LED
С	NEO-RAY (EATON)	S124DR-H795D-840 XXX-8F0-IUDD-F-W	8' LINEAR PENDANT LED FIXTURE	120-277V	48	INTEGRAL LED
D	NEO-RAY (EATON)	S124DR-H1020D-840 XXX-4F0-IUDD-F-W	4' LINEAR PENDANT LED FIXTURE	120-277V	32	INTEGRAL LED
D2	NEO-RAY (EATON)	S124DR-H1020D-840 XXX-6F0-IUDD-F-W	6' LINEAR PENDANT LED FIXTURE	120-277V	48	INTEGRAL LED
Е	METALUX (EATON)	24RTC-48-UNV-L840- CD-U	2'X4' LED TROFFER	120-277V	38	INTEGRAL LED
F	METALUX (EATON)	24RTC-68-UNV-L840- CD-U	2'X4' LED TROFFER	120-277V	58	INTEGRAL LED

XXX - COLOR BY ARCHITECT

120-277V

10

INTEGRAL LED

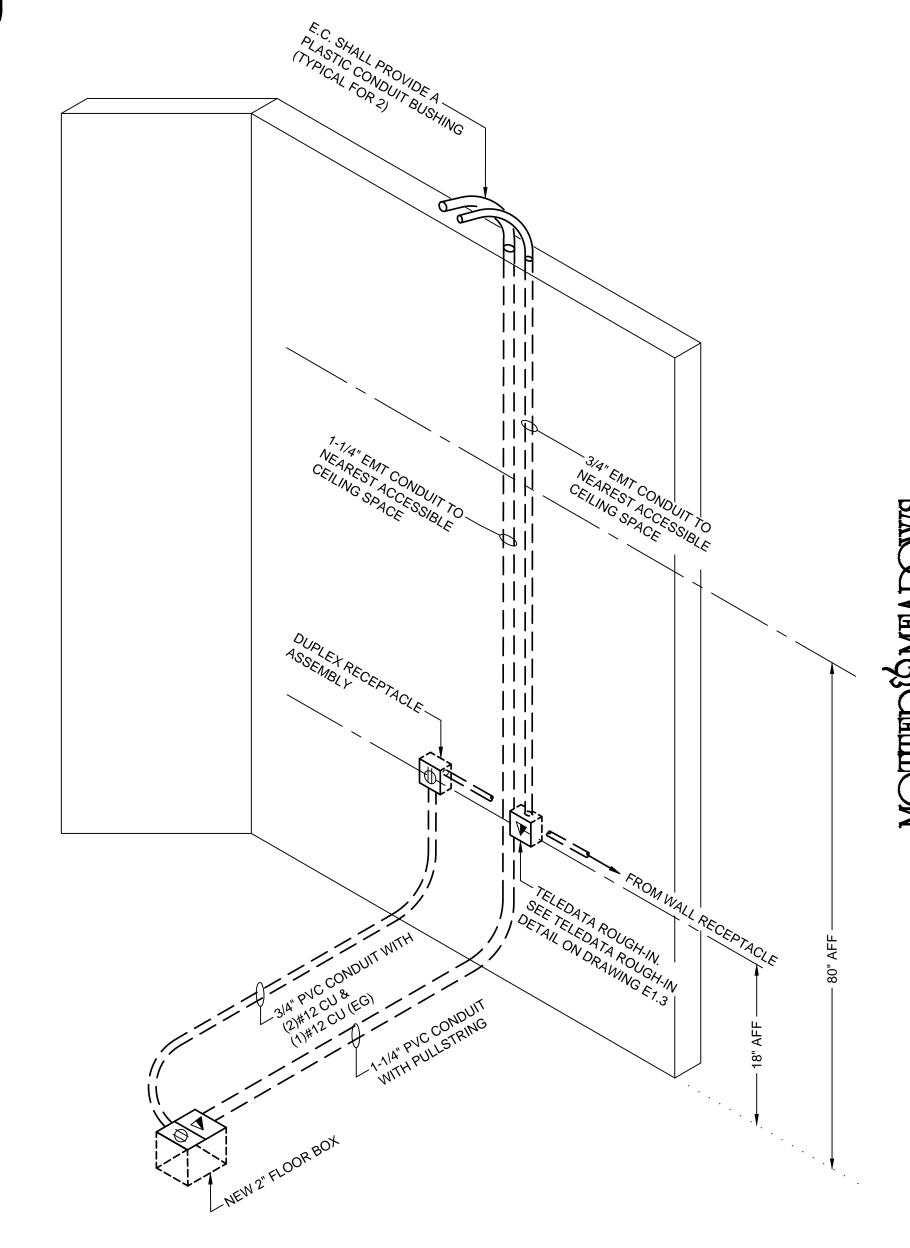
PD610D010B-PDM6B 6" RECESSED LED DOWNLIGHT

840-61VC-HB128APK

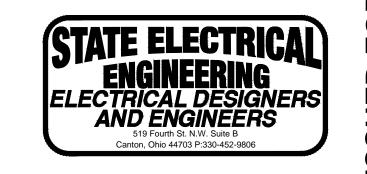
HALO

(EATON)

OCCUPANCY SENSOR SCHEDULE					
SYMBOL	MANUFACTURER	CATALOG NUMBER	VOLTAGE	MOUNTING	REMARKS
OS1	SENSOR SWITCH	WSD PDT	120/277V	WALL MOUNT	PASSIVE INFRARED/ULTRASONIC DUAL VOLTAGE 120V/277V, SINGLE POLE, AUTO ON, MANUAL OVERRIDE SENSOR, COLOR BY ARCHITECT
OS2	nLIGHT	nCM PDT9	12-24V AC/DC	CEILING MOUNT	360° PASSIVE INFRARED/ ULTRASONIC LOW VOLTAGE, AUTO ON SENSOR, (2) RJ-45 PORTS, MOUNT TO 4" SQUARE JUNCTION BOX, COLOR BY ARCHITECT
PP	nLIGHT	nPP16 DS	120/277V	MOUNTS TO JUNCTION BOX	DUAL VOLTAGE INPUT (120V/277V), 24VAC OUTPUT, 0-10V DIMMING CAPABLE, (2)RJ-45 PORTS, 1/2" KNOCKOUT MOUNTING, PLENUM RATED
LV	nLIGHT	nPODM-X	12-24V AC/DC	WALL MOUNT	3-BUTTON LOW VOLTAGE SWITCH, ON/OFF/ RAISE/LOWER, (2)RJ45 PORTS, 5mA POWER CONSUMPTION, COLOR BY ARCHITECT
GFX	nLIGHT	nPOD GFX	15-24V DC	WALL MOUNT	3.5" FULL COLOR TOUCH SCREEN, (16) SCENE CONTROLS, (16) ON/OFF/DIM CONTROLS, PS-150 POWER SUPPLY INCLUDED, (2)RJ-45 PORTS, MOUNTS TO A SINGLE GANG SWITCH BOX, COLOR BY ARCHITECT



CONFERENCE ROOM
MONITOR WALL ROUGH-IN
NOT TO SCALE



RODNEY W. MEADOWS

RODNEY W. MEADOWS

RODNEY W. MEADOWS

THIS DWG: SCHEDULES AND LEGENDS

LICENSE #6781

EXPIRATION DATE 12-31-2019

COMM 17187 **DATE** 12-03-2018

DWG

E600

- 2. ALL ITEMS OF LABOR, MATERIALS AND EQUIPMENT NOT SPECIFICALLY MENTIONED HEREIN OR SHOWN ON THE PLANS, BUT INCIDENTAL TO OR REQUIRED FOR, THE COMPLETE INSTALLATION AND PROPER OPERATION OF THE WORK, SHALL BE FURNISHED AS IF CALLED IN DETAIL BY THE SPECIFICATION OR DRAWINGS. WHEREVER THE WORD "PROVIDE" IS USED HEREIN, IT SHALL BE INTERPRETED AS "FURNISH
- 3. THE WORK OF THIS SECTION IS TO INCLUDE BUT IS NOT LIMITED TO THE FOLLOWING:
- A. LIGHTING AND CONVENIENCE OUTLET SYSTEM INCLUDING BRANCH CIRCUITS, LIGHTING FIXTURES, SWITCHES, RECEPTACLES, ETC.
- B. POWER DISTRIBUTION SYSTEM INCLUDING METERING, PANEL BOARDS, FEEDERS, BRANCH CIRCUITS,
- C. ALL STRUCTURAL MEMBERS REQUIRED, IN ADDITION TO ANY SHOWN ON THE STRUCTURAL DRAWINGS FOR PROPER SUPPORT OF EQUIPMENT UNDER THIS SECTION.
- D. TELEPHONE / DATA CABLING AND TERMINATIONS.
- E. SECURITY / ACCESS CONTROL SYSTEM INCLUDING WIRING DEVICES PROGRAMMING ETC.
- 4. WORK NOT INCLUDED:
- A. HEATING, VENTILATING AND AIR CONDITIONING CONTROL WIRING, EXCEPT AS INDICATED.
- B. WORK SPECIFIED OR NOTED AS BEING DONE OR FURNISHED BY OTHERS.

REFERENCE STANDARDS:

- . IT IS THE INTENT OF THESE PLANS AND SPECIFICATIONS TO RESULT IN A COMPLETE ELECTRICAL INSTALLATION IN FULL ACCORDANCE WITH ALL REQUIREMENTS OF THE MOST CURRENT NATIONAL ELECTRICAL CODE, THE NATIONAL ELECTRICAL SAFETY CODE, THE STANDARDS OF THE NATIONAL BUREAU OF FIRE UNDERWRITERS, THE STATE OF OHIO BUILDING CODE, AND ALL LOCAL CODES AND ORDINANCES. IN THE EVENT ANY PORTIONS OF THE INSTALLATION SHOWN OR SPECIFIED FAIL TO MEET THESE REQUIREMENTS, IT SHALL BE THE ELECTRICAL CONTRACTOR'S RESPONSIBILITY TO ALTER THE LAYOUT TO MEET THE REQUIREMENTS OF THE GOVERNING CODE AND TO NOTIFY THE ARCHITECT OF SUCH CHANGES. IN THOSE PORTIONS OF THE PLANS AND SPECIFICATIONS WHERE INSTALLATION, SHOWN OR DESCRIBED, EXCEEDS THE REQUIREMENTS OF THE STATE AND LOCAL CODES, THE SPECIFICATIONS AND PLANS SHALL GOVERN
- THE ENTIRE INSTALLATION THEREFORE SHALL COMPLY WITH ALL LAWS AND REQUIREMENTS APPLYING TO ELECTRICAL INSTALLATION IN EFFECT IN THE CITY OF CANTON, OHIO. CHANGES REQUIRED BY THE INSPECTING AUTHORITIES TO MEET THESE CODES AND STANDARDS SHALL BE MADE BY THE ELECTRICAL CONTRACTOR AT HIS OWN EXPENSE.
- 3. ALL MATERIAL AND EQUIPMENT BUILT INTO THE SCOPE OF WORK SHALL BEAR UNDERWRITER'S LABEL.

GENERAL REQUIREMENTS:

- THE GENERAL CONTRACT DRAWINGS SHALL BE USED FOR ALL BUILDING DIMENSIONS, STRUCTURAL MATERIALS, ETC., AND FOR ALL PERTINENT DETAILS.
- PROVIDE OSHA SAFETY SIGN ON EACH PANEL BOARD DESCRIBING ARC FLASH HAZARDS AND NECESSARY WORKING CLEARANCE IN FRONT OF PANEL BOARDS.
- THE ELECTRICAL DRAWINGS, WHICH CONSTITUTE A PART OF THE CONTRACT, INDICATE THE GENERAL ARRANGEMENT OF CIRCUITS AND OUTLETS, LOCATION OF SWITCHES, PANEL BOARDS, CONDUIT AND OTHER WORK. THE ELECTRICAL CONTRACTOR SHALL OBTAIN EXACT LOCATIONS FROM THE OWNER

PRIOR TO INSTALLATION AND ARRANGE HIS WORK ACCORDINGLY.

- THE ELECTRICAL CONTRACTOR SHALL ALSO REVIEW SITE, ARCHITECTURAL, STRUCTURAL, PLUMBING, FIRE PROTECTION, HEATING AND VENTILATING PLANS, AND SHALL ADJUST HIS WORK TO CONFORM TO ALL CONDITIONS SHOWN THEREON. DISCREPANCIES SHOWN ON DIFFERENT PLANS AND SPECIFICATIONS SHALL BE PROMPTLY BROUGHT TO THE ATTENTION OF THE ARCHITECT FOR A DECISION. THESE DRAWINGS MAY BE SUPERSEDED BY LATER DETAILED DRAWINGS OR ADDENDA TO THESE SPECIFICATIONS PREPARED BY THE ARCHITECT: THE CONTRACTOR SHALL CONFORM TO ALL REASONABLE CHANGES WITHOUT EXTRA COST TO THE OWNER. ALL ITEMS NOT SPECIFICALLY MENTIONED HEREIN WHICH OBVIOUSLY ARE NECESSARY TO MAKE A COMPLETE WORKING INSTALLATION SHALL BE
- THE ELECTRICAL CONTRACTOR SHALL VISIT THE SITE OF THE WORK AND FAMILIARIZE HIMSELF WITH ALL CONDITIONS AFFECTING THE WORK, AND THE SUBMISSION OF HIS PROPOSAL SHALL PRESUPPOSE HIS KNOWLEDGE OF ALL SUCH CONDITIONS AND PERFORMANCE OF ALL WORK REQUIRED FOR A COMPLETE AND CODE COMPLYING INSTALLATION.
- ELECTRICAL CONTRACTOR SHALL OBTAIN ALL PERMITS REQUIRED FOR THE COMPLETION OF THE WORK AND SHALL FURNISH TO THE OWNER, UPON COMPLETION, A CERTIFICATE OF FINAL INSPECTION.
- 7. NO WORK SHALL START UNTIL WORKING DRAWINGS AND OTHER REQUIRED DOCUMENTS HAVE BEEN SUBMITTED TO THE DEPARTMENT HAVING AUTHORITY TO ISSUE CERTIFICATES OF APPROVAL AND HAVE BEEN SIGNED AND APPROVED.
- ALL WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE BEST PRACTICES OF THE TRADE. ELECTRICAL WORK SHALL BE INSTALLED BY JOURNEYMEN ELECTRICIANS UNDER THE DIRECT SUPERVISION OF A COMPETENT FOREMAN.
- 9. ALL PENETRATIONS OF FIRE RATED WALLS, FLOORS, CEILINGS OR ROOFS SHALL BE SEALED WITH UL LISTED FIRE STOP MATERIAL TO MAINTAIN THE ORIGINAL INTEGRITY OF THE SAID CONSTRUCTION. INSTALL AS PER MANUFACTURER'S INSTRUCTIONS AND LEAVE AREA ACCESSIBLE UNTIL APPROVED BY THE ARCHITECT AND THE LOCAL AUTHORITY HAVING JURISDICTION. USE 3M FIRE STOP MATERIALS OR APPROVED EQUAL.
- 10. ANY DEVICES OR MATERIALS OBVIOUSLY A PART OF THE EQUIPMENT AND/OR NECESSARY TO ITS SATISFACTORY PERFORMANCE AND/OR LABOR NECESSARY TO ACCOMPLISH THE INTENT OF THE CONSTRUCTION, ALTHOUGH NOT SPECIFICALLY MENTIONED HEREIN NOR SHOWN ON THE DRAWINGS, SHALL BE FURNISHED WITHOUT EXTRA COST TO THE OWNER.
- 11. THE WORK SHALL COMPRISE, BUT IS NOT NECESSARILY LIMITED TO THE FOLLOWING:
- A. ELECTRICAL DEMOLITION.
- a. THE ELECTRICAL CONTRACTOR SHALL DE-ENERGIZE ALL ELECTRICAL BRANCH CIRCUITS IN THE AREAS SLATED FOR RENOVATION. THE ELECTRICAL CONTRACTOR WILL BE RESPONSIBLE FOR DEMOLITION & REMOVAL OF ALL ELECTRICAL DEVICES, CONDUIT, AND WIRE IN AND ON EXISTING WALLS THAT ARE BEING REMOVED TO ALLOW FOR THE NEW CONSTRUCTION.
- b. ALL ELECTRICAL CONDUITS, JUNCTION BOXES, WIRE, ETC THAT IS NOT REUSED FOR THE NEW ELECTRICAL CONSTRUCTION SHALL BE REMOVED AND DISPOSED OF BY THE ELECTRICAL CONTRACTOR. THE ELECTRICAL CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR THE DISCONNECTION, REMOVAL, AND RETURN TO OWNER AND/OR DISPOSAL OF ALL EXISTING LIGHT
- c. THE ELECTRICAL CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR MAINTAINING EXISTING ELECTRICAL LIGHTING AND POWER BRANCH CIRCUITS THAT PASS THROUGH THE RENOVATED AREAS TO ADJACENT AREAS.
- B. POWER DISTRIBUTION SYSTEM INCLUDING PANELBOARDS, FEEDERS, DRY TYPE TRANSFORMERS, MOTOR CONTROL, AND CONNECTIONS TO MECHANICAL EQUIPMENT.
- C. INTERIOR AND EXTERIOR LIGHTING SYSTEMS. RECEIVING, STORING, UNPACKING AND INSTALLING.
- D. EMERGENCY SYSTEMS INCLUDING EXIT LIGHTING, EMERGENCY LIGHTING AND SECURITY LIGHTING. RECEIVING, STORING, UNPACKING AND INSTALLING.
- E. GROUNDING.
- F. DISTRIBUTION SYSTEM FOR CONVENIENCE OUTLETS, SPECIAL PURPOSE OUTLETS AND CONTROL **EQUIPMENT**
- G. TELE-DATA.
- H. SECURITY / ACCESS CONTROL SYSTEM

12. DEFINITIONS

- A. "PROVIDE" IS DEFINED AS "FURNISH, INSTALL AND MAKE OPERATIONAL."
- B. "RELOCATE" IS DEFINED AS "REMOVE EXISTING, INSTALL EXISTING IN DIFFERENT LOCATION AND MAKE
- C. "REPLACE" IS DEFINED AS "REMOVE EXISTING AND PROVIDE NEW IN SAME LOCATION."
- D. "REINSTALL" IS DEFINED AS "REMOVE EXISTING, INSTALL EXISTING IN SAME LOCATION AND MAKE
- E. "REMOVE" IS DEFINED AS "REMOVE EXISTING INCLUDING CONDUIT AND WIRE BACK TO SOURCE".

FOR RECORD DRAWINGS:

THE E.C. SHALL KEEP ONE SET OF THE CONTRACT WORKING DRAWINGS ON WHICH ANY CHANGES OR DEVIATIONS FROM THE CONTRACT DRAWINGS ARE RECORDED. AFTER COMPLETION OF THE PROJECT A COMPLETE SET OF RECORD DRAWINGS SHALL BE TURNED OVER TO THE ARCHITECT IN GOOD AND LEGIBLE CONDITION. THESE DRAWINGS SHALL BECOME A PERMANENT RECORD OF THE INSTALLATION AS

SHOP DRAWINGS

- 1. ANY DEVIATIONS FROM THE CONTRACT REQUIREMENTS SHALL BE SHOWN ON SHOP DRAWINGS. A TYPE WRITTEN JUSTIFICATION FOR ANY DEVIATION MUST BE INCLUDED FOR THE DRAWINGS TO BE
- 2. APPROVAL BY THE ARCHITECT DOES NOT RELIEVE THE CONTRACTORS RESPONSIBILITY TO PROVIDE A COMPLETE INSTALLATION AS SPECIFIED IN THE CONTRACT DOCUMENTS.
- 3. SHOP DRAWINGS ARE REQUIRED FOR THE FOLLOWING ITEMS:
- A. LIGHT FIXTURES
- B. DISTRIBUTION EQUIPMENT & MOTOR CONTROLS
- C. WIRING DEVICES & PLATES
- D. EQUIPMENT IDENTIFICATION
- F. SECURITY / ACCESS CONTROL SYSTEM

RMC (RIGID METAL CONDUIT)

- MINIMUM SIZE SHALL BE 1/2".
- 2. RMC SHALL BE USED IN THE FOLLOWING LOCATIONS:
 - A. EXPOSED (OUTDOORS)
 - B. CONDUITS RISING FROM BELOW GRADE TO SURFACE MOUNTED ENCLOSURES

EMT (ELECTRICAL METALLIC TUBING):

- MINIMUM SIZE SHALL BE 1/2".
- 2. STEEL SET SCREW COUPLINGS AND CONNECTORS ARE REQUIRED. DIE CAST FITTINGS ARE PROHIBITED.
- 3. EMT SHALL BE USED IN THE FOLLOWING LOCATIONS:
 - A. INTERIOR PARTITIONS
- B. ABOVE ACCESSIBLE CEILING
- C. EXPOSED IN ELECTRICAL/MECHANICAL ROOMS
- 4. EMT SHALL NOT BE USED IN THE FOLLOWING LOCATIONS:

 - B. EXPOSED OUTDOORS
- C. BELOW GRADE

SCH40/SCH80 PVC (POLY VINYL CHLORIDE):

- MINIMUM SIZE SHALL BE 3/4".
- 2. PVC SHALL BE USED IN THE FOLLOWING LOCATIONS:
 - A. BELOW GRADE
- B. UNDER SLAB
- 3. PVC SHALL NOT BE USED IN THE FOLLOWING LOCATIONS:
 - A. ABOVE FINISHED GRADE, UNLESS NOTED OTHERWISE.

PULL AND JUNCTION BOXES:

- 1. SMALL SURFACE BOXES, EXCEPT AS SPECIFICALLY DESIGNED OTHERWISE, SHALL BE OF THE STAMPED STEEL TYPE USING THE SAME BASE METAL AS THE CONDUIT SYSTEM IN WHICH IT IS TO BE USED. THE BOXES SHALL BE AS MANUFACTURED BY RACO OR STEEL CITY.
- 2. LARGER BOXES USED FOR PULLING OR SPLICING PURPOSES SHALL BE CONSTRUCTED OF HEAVY GAUGE STEEL AND SHALL BE PROVIDED WITH FLANGED EDGES PROVIDED FOR SCREW MOUNTED COVER.
- 3. STAMPED STEEL JUNCTION BOXES OF THE APPROPRIATE TYPE MAY BE USED FOR FIXTURES, RECESSED WIRING DEVICES AND WHERE SPECIFICALLY DESIGNATED FOR SOME SURFACE WORK. WHERE USED FOR SPLICING, CHANGE OF CONDUIT RUN, ETC., THEY SHALL BE PROVIDED WITH BLANK COVERS.
- 4. ALL UNUSED OR FUTURE SYSTEM BOXES SHALL BE COVERED WITH BLANK METAL COVERS, OR AS INDICATED ON THE DRAWINGS.

LIGHTING FIXTURES AND WIRING:

- 1. INSTALL LIGHTING FIXTURES TO TYPES INDICATED, WHERE SHOWN AND AT INDICATED HEIGHTS, IN ACCORDANCE WITH LIGHTING FIXTURE MANUFACTURER'S WRITTEN INSTRUCTIONS AND WITH RECOGNIZED INDUSTRY PRACTICES, TO ENSURE THAT FIXTURES COMPLY WITH REQUIREMENTS AND SERVE INTENDED PURPOSES. COMPLY WITH NEMA STANDARDS AND REQUIREMENTS OF NATIONAL ELECTRICAL CODE PERTAINING TO INSTALLATION OF INTERIOR LIGHTING FIXTURES AND WITH APPLICABLE PORTIONS OF NECA'S "STANDARD OF INSTALLATION".
- 2. FASTEN FIXTURES SECURELY TO STRUCTURAL SUPPORT MEMBERS OF BUILDING AND CHECK TO ENSURE THAT SOLID PENDENT FIXTURES ARE PLUMB.
- 3. PROVIDE SUPPORT WIRES FROM THE STRUCTURAL SYSTEM TO OPPOSING CORNERS OF LAY-IN TYPE FIXTURES RECESSED IN LAY-IN TYPE CEILINGS. PROVIDE ADDITIONAL CEILING SUPPORTS AS REQUIRED TO INSURE THAT OTHER TYPES OF FIXTURE INSTALLED IN OR ON THE CEILING ARE PROPERLY SUPPORTED.
- 4. WIRING TO LAY-IN TYPE FIXTURES SHALL BE ARRANGED TO FACILITATE RELOCATION OF THE FIXTURE TO THE ADJACENT CEILING TILE IN ANY DIRECTION.
- 5. CLEAN INTERIOR LIGHTING FIXTURES OF DIRT AND DEBRIS UPON COMPLETION OF INSTALLATION. 6. PROTECT INSTALLED FIXTURES FROM DAMAGE DURING REMAINDER OF CONSTRUCTION PERIOD.
- 7. UPON COMPLETION OF INSTALLATION OF INTERIOR LIGHTING FIXTURES. AND AFTER BUILDING CIRCUITRY HAS BEEN ENERGIZED, APPLY ELECTRICAL ENERGY TO DEMONSTRATE CAPABILITY AND COMPLIANCE WITH REQUIREMENTS. WHERE POSSIBLE, CORRECT MALFUNCTIONING UNITS AT SITE, THEN RETEST TO DEMONSTRATE COMPLIANCE, OTHERWISE, REMOVE AND REPLACE WITH NEW UNITS AND PROCEED WITH RETESTING.

CABLE AND WIRE:

- 1. EXCEPT AS SPECIFICALLY DESIGNATED, OTHERWISE, NO WIRE SMALLER THAN NO. 12 AWG COPPER, 600 VOLT INSULATION UNLESS OTHER WISE NOTED ON DRAWINGS, SHALL BE USED. IN THE EVENT THAT SIZE IS NOT INDICATED FOR A FEEDER OR MOTOR RUN WHICH, OBVIOUSLY COULD NOT BE INTERPRETED AS NO. 12, THE WIRE SIZE SHALL CONFORM TO THE NATIONAL ELECTRICAL CODE SIZING FOR THE TYPE OR SERVICE INDICATED. SINGLE CIRCUIT MC CABLE MAY BE USED IN LIEU OF CONDUIT AND WIRE IF ALLOWED BY THE LOCAL AUTHORITY HAVING JURISDICTION. BRANCH CIRCUIT HOMERUNS SHALL BE EMT AS SPECIFIED HEREIN. TRANSITION TO MC CABLE SHALL BE WITHIN 10' OF THE FIRST UTILIZATION DEVICE.
- 2. EXCEPT AS SPECIFIED OTHERWISE, INTERIOR & EXTERIOR WIRE FOR GENERAL BUILDING SERVICE FEEDERS SHALL BE XHHW-2. BRANCH CIRCUIT WIRE MAY BE TYPE THHN / THWN, 90° C.
- 3. ALL HOMERUN BRANCH CIRCUITS EXCEEDING 100' IN LENGTH SHALL BE INCREASED IN SIZE TO NO. 10
- 4. ALL CONNECTORS OF CABLE OR WIRE TO EQUIPMENT SHALL BE BY MEANS OF APPROVED SOLDER LESS TYPE CONNECTORS. SPLICES AND TERMINATIONS FOR WIRE #6 AND LARGER SHALL BE MADE WITH MECHANICAL SPLICING DEVICES AND LUGS.
- 5. PRESSURE CONNECTORS, CONSISTING OF CONE SHAPED COILED SPRINGS WITH INSULATED COVERS, CAN BE USED FOR CONDUCTORS #8 AND SMALLER.
- 6. ALL CABLE SPLICES AND TERMINATION'S SHALL BE MADE IN ACCORDANCE WITH THE LATEST APPROPRIATE 3M COMPANY RECOMMENDATIONS AND SPECIFICATIONS FOR TYPE, SIZE, AND VOLTAGE RATING OF THE SPECIFIED CABLES.

WIRING DEVICES:

- 1. SWITCHES, RECEPTACLES, PLATES, PLUGS, ETC. SHALL BE OF SPECIFICATION GRADE QUALITY.
- 2. ALL COVER PLATES SHALL BE RAISED STEEL IN UNFINISHED AREAS AND NYLON IN FINISHED AREAS (COLOR AS SELECTED BY ARCHITECT).
- 3. SPECIAL WIRING DEVICES WILL BE INDICATED ON THE DRAWINGS
- 4. ACCEPTABLE MANUFACTURERS SHALL BE LEVITON, HUBBELL, COOPER AND P&S.

EXISTING PANEL BOARDS:

1. EACH EXISTING PANEL DOOR SHALL HAVE A TYPEWRITTEN UPDATED DIRECTORY CARD OF THE CIRCUITS. EXISTING CIRCUITS TO REMAIN SHALL BE TRACED OUT AND LOADS VERIFIED. THE DIRECTORY SHALL INCLUDE ALL NEW AND EXISTING LOADS.

INTRUSION/ACCESS CONTROL SYSTEM:

- 1. THIS SPECIFICATION DOCUMENT PROVIDES THE REQUIREMENTS FOR THE INTRUSION DETECTION/ACESS CONTROL PANEL AND PERIPHERAL DEVICES. THE SYSTEM SHALL INCLUDE CONTROL CABINET, BASIC SYSTEM MODULE, ASSOCIATED PERIPHERAL DEVICES, PROGRAMMING, WIRING, AND OTHER RELEVANT COMPONENTS. THE CONTROL PANEL SHALL BE AVAILABLE IN CONFIGURATIONS TO ACCEPT 120VAC 50/60 HZ, OR 240VAC 50/60 HZ INPUT. INTRUSION/ACCESS CONTROL SYSTEM SHOWN ON DRAWINGS IS BASED ON A DIGITAL MONITORING PRODUCTS SYSTEM. OTHER MANUFACTURER'S SYSTEMS COMPLYING WITH THE SPECIFICATIONS ARE ACCEPTABLE.
- 2. THE CONTRACTOR SHALL FURNISH AND INSTALL A COMPLETE INTRUSION DETECTION/ACCESS CONTROL SYSTEM SYSTEM AS SPECIFIED HEREIN. THE SYSTEM SHALL INCLUDE, BUT NOT BE LIMITED TO, CONTROL PANEL, SYSTEM CABINET, POWER SUPPLY, DIGITAL SIGNALING LINE CIRCUITS, NOTIFIACTION APPLIANCE CIRCUITS, ANNUNCITAOR/KEY PAD BUS, BATTERIES, CONDUIT, WIRING, FITTINGS, AND ALL OTHER ACCESSORIES NECESSARY TO PROVIDE A COMPLETE AND OPERABLE SYSTEM.
- 3. THE INTRUSION/ACCESS CONTROL SYSTEM SHALL COMPLY WITH THE FOLLOWING STANDARDS:
- A. UL1023 HOUSEHOLD BURGLAR ALARM SYSTEM UNITS
- B. UL1076 PROPRIETARY BURGLAR
- C. UL1610 CENTRAL STATION BURGLAR ALARM UNITS
- D. UL1635 DIGITAL BURGLAR ALARM COMMUNICATOR SYSTEM UNITS
- E. NFPA 70 NATIONAL ELECTRICAL CODE
- F. NFPA 72 NATIONAL FIRE ALARM CODE
- G. ICD 705 CHAPTER 7 INTRUSION DETECTION SYSTEMS (IDS)
- H. DOD/NIST SCIF STANDARDS
- XR550E ENCRYPTED PANEL
- 3. WIRE AND CABLE SHALL BE INSTALLED IN COMPLIANCE WITH THE NEC CURRENT EDITION.
- 4. THE INTRUSION DETECTION/ACCESS CONTROL SYSTEM SHOWN ON THESE DRAWINGS IS BASED ON A DMP SYSTEM. E.C. TO VERIFY CABLE REQUIREMENTS FOR ALTERNATE SYSTEMS WITH MANUFACTURER PRIOR

AND OTHER COMPONENT HOUSINGS COLLECTIVELY. THE ENCLOSURE SHALL BE 20 GAUGE SHEET STEEL

WITH A 18 GAUGE STEEL DOOR, DOOR SHALL BE SECURED TO ENCLOSURE WITH THREE (3) PIN TYPE HINGES, TACK WELDED TO BOX TO PREVENT REMOVAL. DOOR SHALL HAVE A THREE POINT LATCHING SYSTEM OR TWO (2) LOCKS ON OPPOSITE ENDS OF DOOR. 6. ALL ELECTRICAL COMPONENTS SHALL BE SOLID STATE TYPE, MOUNTED ON PRINTED CIRCUIT BOARDS.

5. THE COMPONENT ENCLOSURE SHALL HOUSE POWER SUPPLIES, TERMINAL CABINETS, CONTROL UNITS

- LIGHT DUTY RELAYS AND SIMILAR SWITCHING DEVICES SHALL BE SOLID STATE TYPE OR ELECTROMECHANICAL. PANEL SHALL HAVE AN OVERCURRENT NOTIFICATION LED THAT LIGHTS WHEN DEVICES CONNECTED TO KEY BUS AND LOOP EXPANSION BUS DRAW MORE CURRENT THAN THE PANEL IS RATED. DURING OVERCURRENT CONDITIONS LED LIGHT WILL ILLUMINATE AND KEY BUS AND LOOP BUS WILL SHUTDOWN TO PROTECT THE SYSTEM BOARD.
- 7. THE CONTROL UNIT SHALL BE CAPABLE OF THE FOLLOWING FUNCTIONS:
- A. AUTOMATICALLY PERFORM A BATTERY TEST TO DETERMINE INTEGRITY OF STANDBY BATTERY. BATTERY TEST SHALL DISCONNECT THE BATTERY FROM THE CHARGING CIRCUIT AND PLACE A LOAD ON THE BATTERY. DURATION OF BATTERY TEST SHALL NOT EXCEED 180 SECONDS.
- B. CONTROL UNITS SHALL BE CAPABLE OF OPERATING AND SUPERVISING NOTIFICATION APPLIANCES AS WELL AS INITIATING DETECTION DEVICES AND INTEGRATED SUPERVISED DUAL LINE COMMUNICATOR. C. CONTROL UNIT SHALL BE CAPABLE OF PERFORMING A "FLASH ROM" UPDATE AND PROGRAM MUST BE

HELD IN NON-VOLATILE RAM. PANEL WILL BE CAPABLE OF MAINTAINING OPERATIONS WHILE

- D. CONTROL UNIT SHALL BE CAPABLE OF OPERATING USING AN OPTIONAL ENCRYPTED ALARM ROUTER FOR SCIF (SENSITIVE COMPARTMENTED INFORMATION FACILITY) APPLICATIONS THAT IS CERTIFIED BY NIST (NATIONAL INSTITUTE OF STANDARDS FOR TECHNOLOGY) FOR 128 & 256 BIT AES (ADVANCED ENCRYPTION STANDARD) ENCRYPTION COMMUNICATION.
- E. OPTIONAL ENCRYPTION ALARM ROUTER SHALL BE COMPLIANT WITH ICD 705 CHAPTER 7 INTRUSION DETECTION SYSTEM (IDS) AND UL2050 STANDARDS.
- 8. THE SYSTEM SHALL BE CAPABLE OF SUPPORTING SIXTEEN (16) SUPERVISED REMOTE ANNUNCIATORS WITH IDENTICAL CAPABILITIES, FUNCTIONS AND DISPLAY LAYOUT. REMOTE ANNUNCIATORS SHALL BE LIMITED TO AUTHORIZED USERS BY USE OF KEY CODE. SYSTEM SHALL BE CAPABLE OF SUPPORTING REMOTE ANNUNCIATORS AT A MAXIMUM WIRE DISTANCE OF 15,000 FEET FROM CONTROL UNIT WITH UNSHIELD, NON-TWISTED CABLE.
- 9. THE SYSTEM SHALL INCLUDE PROVISIONS TO PERMIT TESTING FROM AN ALPA-NUMERICAL KEYPAD. THE TEST SHALL INCLUDE STANDBY BATTERY, ALARM BELL OR SIREN, AND COMMUNICATION TO CENTRAL STATION. SYSTEM SHALL HAVE PROVISIONS FOR AUTOMATIC, HOURLY, DAILY, WEEKLY, 30 DAY OR 60 DAY COMMUNICATION LINK TEST TO THE CENTRAL STATION. THE SYSTEM SHALL INCLUDE PROVISIONS FOR DISPLAYING INTERNAL POWER CONDITIONS. INTERNAL MONITOR SHALL INCLUDE BELL CIRCUIT, AC POWER, BATTERY VOLTAGE LEVEL, CHARGING VOLTAGE, PANEL BOX TAMPER, PHONE TROUBLE LINE #1 AND LINE #2, AND NETWORK TROUBLE.
- 10. POWER SUPPLIES FOR THE CONTROL UNIT SHALL BE 120VAC WITH A 120VAC-12VDC TRANSFORMER AND STANDBY BATTERY POWER. POWER SUPPLIES SHALL HAVE THE FOLLOWING FEATURES:
- A. POWER SUPPLIES SHALL BE SOLID STATE.

PERFORMING PROGRAM UPDATES.

B. THE SYSTEM SHALL AUTOMATICALLY TRANSFER TO BATTERY POWER UPON LOSS OF UTILITY POWER AND RETURN TO NORMAL POWER SOURCE UPON RESTORATION OF SAID SOURCE. INTRUSION ALARMS SHALL NOT BE INITIATED DURING TRANSFER OF POWER SOURCES.

- C. THE SYSTEM SHALL INITIATE A SIGNAL TO INDICATE FAILURE OF NORMAL OR BATTERY POWER.
- D. BATTERY SHALL BE SIZE TO PROVIDE 105% CAPACITY FOR EIGHT (8) HOURS.
- E. BATTERIES SHALL BE SEALED LEAD-ACID TYPE.
- F. BATTERIES SHALL BE CAPABLE OF BEING CHARGED TO 85% CAPACITY WITHIN 24 HOURS OF BATTERY
- 11. THE SYSTEM SHALL INTERFACE WITH COMPUTER SOFTWARE VIA DIRECT CABLE CONNECTION, RECEIVER TELEPHONE LINE CONNECTION, STANDARD TELEPHONE LINE CONNECTION, ETHERNET NETWORK CONNECTION OR NETWORK CONNECTION ACROSS THE INTERNET. THE COMPUTER SOFTWARE SHALL HAVE THE FOLLOWING CAPABILITIES:
- A. LOCKING DOWN ALL CONTROLLED DOORS
- B. MONITORING AND LOGGING ALL EVENTS
- C. EXPORTING REPORTS TO MULTIPLE TEXT FILE FORMATS
- D. PRINTNG CUSTOM, FILTERED REPORTS INCLUDING:
- a. ALL EVENTS
- b. ZONE ACTION
- c. ARMING/DISARMING d. AREA LATE TO CLOSE
- e. USER CODE CHANGES
- f. DOOR ACCESS GRANTED
- g. DOOR ACCESS DENIED
- 1. OPENING/CLOSING SCHEDULE CHANGES
- i. SYSTEM MONITORS j. SYSTEM EVENTS
- 12. THE ACCESS AND SECURITY MANAGEMENT SOFTWARE SHALL HAVE THE FOLLOWING FEATURES:
 - A. CAPABLE OF SECURING SIXTEEN (16) DOORS, SUPPORTING FOUR (4) CONTROL PANELS, PERSONNEL MANAGEMENT, FULL REPORTS AND EVENT MANAGEMENT.
- B. SIMPLE USER MANAGEMENT WITH THE ABILITY TO IMPORT EXISTING DATABASES
- C. ASSIGN USER ACCESS BY GROUP, FACILITY OR OTHER PARAMETERS D. PROVIDED DROP DOWN LISTS FOR DEVICES, USER DATA AND OTHER INFORMATION TO FACILITATE
- FAST AND ACCURATE SEARCHES E. VIEW SYSTEM STATUS IN ONE VARIETY OF VIEWS FOR SIMPLIFIED ALARM MONITORING MANAGEMENT
- F. CAPABLE OF CUSTOMIZED REPORTS
- G. USER MANAGEMENT SHALL BE CAPABLE OF IMPORTING EXISTING SYSTEMS VIA COMMA SEPARATE VALUE FILES. FACILITATE ADDING NEW USERS, CAPTURING PHOTOS FOR BADGES OR VISUAL VERIFICATION FROM WITHIN THE APPLICATION.
- H. USER MANAGEMENT SHALL BE FULLY CUSTOMIZABLE AND CAPABLE OF ASSIGNING SPECIFIC RIGHTS OR EVENTS BY USER OR GROUP. THE SOFTWARE SHALL BE TO CREATE EFFECTIVE/EXPIRATION TIME FOR USERS, LIMITING ACCESS FOR A DEFINED PERIOD OF TIME.
- I. AES ENCRYPTION FOR STRONG DATA SECURITY FOR SENSITIVE PERSONNEL AND FACILITY DATA.
- J. THE SOFTWARE SHALL BE HIGHLY CUSTOMIZABLE TO ACHIEVE THE END USER'S APPLICATION INCLUDING BUT NOT LIMITED TO:
- a. DEFINE WHICH EVENTS SHALL BE "ALARMS" INCLUDING SYSTEM OPERATOR REQUIRED RESPONSE b. DEFINE USER DATA WITH UP TO TWENTY (20) AVAILABLE USER-DEFINED FIELDS
- K. THE SOFTWARE SHARE HAVE THE ABILITY TO SELECT FROM FOUR (4) DIFFERENT SYSTEM VIEWS AND THE ABILITY TO HAVE MULTIPLE VIEWS OPENED AT ONE TIME.
- L. SOFTWARE SHALL EMPLOY SQL DATABASE FOR QUICK AND EASY SEARCH.
- M. SINGLE SYSTEM CONTROL EMPLOYABLE TO A NETWORK FOR A SINGLE UNIFIED DATABASE N. SOFTWARE SHALL BE CAPABLE OF CONNECTING QUICKLY TO A DVR SYSTEM TO REVIEW DATA BASED
- ON A RECEIVED ALARM FROM A CONTROL PANEL. O. SOFTWARE SHALL BE CAPABLE OF BADGE IMAGE CAPTURE AND CREATING CUSTOMIZABLE BADGES
- AND SHALL POPULATE DATA READY FOR PRINTING BASED ON A TEMPLATE. 13. THE CONTROL PANEL SHALL BE CAPABLE OF THE FOLLOWING:
- A. 10,000 USER CODES WITH 99 USER PROFILES

B. TEMPORARY USER CODES WITH FINITE DATE AND SPECIFIC EXPIRATION DATE

- C. SIXTEEN (16) DOOR/KEYPAD ADDRESSES D. DOOR ACCESS GRANTED EVENT BUFFER OF AT LEAST 10,000 EVENTS
- E. ANTI-BACKPACK ACCESS CONTROL SELECTABLE BY AREA AND USER
- F. TOTAL OF 99 PROGRAMMABLE SCHEDULES FOR OUTPUT RELAY SCHEDULES, AREA SCHEDULES, DOOR SCHEDULES. HOLIDAY SCHEDULES AND USER PROFILES

KEYPAD DEVICES.

- G. EIGHT (8) INDIVIDUAL REPORT AREAS H. BUILT-IN BELL AND TELEPHONE LINE SUPERVISION
- 14. THE SYSTEM SHALL BE CAPABLE OF DOOR SCHEDULES TO FACILITATE THE UNLOCKING AND LOCKING OF DOORS AT SPECIFIC TIMES. THIS FUNCTIONS SHALL BE OVERRIDDEN IF THE AREA REMAINS IN THE ARMED STATUS TO PREVENT ACCESS.
- BEING TESTED WITHOUT SENDING ALARM SIGNAL TO CENTRAL STATION RECEIVER. 16. SYSTEM SHALL BE CAPABLE OF EMERGENCY LOCK DOWNS. LOCK DOWNS SHALL BE INITIATED FROM

15. THE SYSTEM SHALL BE CAPABLE OF UTILIZING PANIC BUTTONS. PANIC BUTTONS SHALL BE CAPABLE OF

REVISIONS:

THIS DWG:

SPECIFICATIONS

COMM

DATE 12-03-2018

DWG E700

LECTRICAL DESIGNERS

AND ENGINEERS

Canton, Ohio 44703 P:330-452-9806

DIGITAL VIDEO RECORDING (DVR) SYSTEM:

2. THE CONTRACTOR SHALL FURNISH AND INSTALL A COMPLETE DIGITAL VIDEO RECORDING SYSTEM AS SPECIFIED HEREIN. THE SYSTEM SHALL INCLUDE, BUT NOT BE LIMITED TO, RECORDING EQUIPMENT, POWER SUPPLY, VIDEO LINE CIRCUITS, CAMERAS, CONDUIT, WIRING, FITTINGS, AND ALL OTHER ACCESSORIES NECESSARY TO PROVIDE A COMPLETE AND OPERABLE SYSTEM.

- 3. WIRE AND CABLE SHALL BE INSTALLED IN COMPLIANCE WITH THE NEC CURRENT EDITION.
- 4. THE DIGITAL VIDEO RECORDING SYSTEM SHOWN ON THESE DRAWINGS IS BASED ON A AXIS SYSTEM. E.C. TO VERIFY CABLE REQUIREMENTS FOR ALTERNATE SYSTEMS WITH MANUFACTURER PRIOR TO
- 5. THE DIGITAL VIDEO RECORDING EQUIPMENT SHALL HAVE THE FOLLOWING CAPABILITIES AND FEATURES:
- A. SIXTEEN (16) AXIS CAMERA STATION LICENSES
- B. INTEL I5-4590S, 3.0GZ, 6MB CACHE 4C/4T TURBO PROCESSOR
- C. UDIMM 8GB, 1600MHZ DDR3, NON ECC MEMORY
- D. 8 TERABYTE, (2X4TB) SURVEILLANCE CLASS HDD SATA 6GB/S STORAGE WITH OPTIONAL 2 HDD
- E. 120GB MSATA BOOT DRIVE
- F. 16 PORT INTEGRATED SWITCH WITH 277W TOTAL POWER BUDGET, POWER OVER ETHERNET POE IEEE 802.3AF/802.3AT TYPE 2 UP TO CLASS 4.
- G. INTEL HD GRAPHICS 4600 GRAPHICS CARD
- H. LIVE VIDEO STREAMING CAPABLE OF 25 CAMERA SPLIT VIEWS OR 1 X 4K CAMERA VIEW
- I. VIDEO PLAYBACK 4 X1080P CAMERA SPLIT VIEW OR 1 X 4K CAMERA VIEW.
- J. TWO (2) SCREEN VIDEO SUPPORTED.
- K. QUALIFIED FOR RECORDING RATING OF 256 MBIT PER SECOND
- L. 100VAC-240VAC, 500W WITH DEDICATED 277W POE
- M. UNIT SHALL HAVE THE FOLLOWING CONNECTORS:
- a. (16) POE, RJ45, 10/100 MBPS PORTS
- b. (2) RJ45/SFP UPLINKS 10/100/1000MBPS
- c. (2)USB 2.0,
- d. (2)USB 3.0,
- e. (1) VGA, f. (1) HDMI 1.4B
- g. (1) ESATA
- N. UNIT PROVIDED WITH RACK MOUNTING HARDWARE
- 8. THE SYSTEM CAMERAS SHALL HAVE THE FOLLOWING FEATURES AND CAPABILITIES:
 - A. IP66/NEMA-4X RATED. IK10 IMPACT RESISTANT ALUMINUM CASING WITH TRANSPARENT. POLYCARBONATE COVER, DEHUMIDIFYING MEMBRANE, ENCAPSULATED ELECTRONICS, CAPTIVE
 - B. 512MB RAM, 128 MB FLASH MEMORY
 - C. POWER OVER ETHERNET POE IEEE 802.3AF/802.3AT AT 4.5W MAXIMUM
 - D. (1)RJ-45 10BASE-T/100BASE-T POE CONNECTOR
 - E. TERMINAL BLOCK FOR (1) ALARM INPUT AND (1) ALARM OUTPUT
 - F. 2592X1944 (5MP) TO 160X120 RESOLUTION
 - G. HORIZONTAL FIELD OF VIEW 187 DEGREES, VERTICAL FIELD OF VIEW 168 DEGREES
 - H. LIGHT SENSITIVITY 0.3-200,000 LUX
 - I. FRAME RATE OF 12FPS IN 360 DEGREE OVERVIEW AND PANARAMIC VIEWS
- J. DIGITAL PAN/TILT/ZOOM OF VIEWING AREA
- K. 3-YEAR MANUFACTURER WARRANTY
- L. NETWORK SECURITY PASSWORD PROTECTED, IP ADDRESS FILTERING, HTTPS ENCRYPTION, IEEE 802.1X NETWORK ACCESS CONTROL, DIGEST AUTHENICATION, USER ACCESS LOG, CENTRALIZED CERTIFICATE MANAGEMENT.
- THE SYSTEM SHALL INCLUDE PROVISIONS TO PERMIT TESTING FROM AN ALPA-NUMERICAL KEYPAD. THE TEST SHALL INCLUDE STANDBY BATTERY, ALARM BELL OR SIREN, AND COMMUNICATION TO CENTRAL STATION. SYSTEM SHALL HAVE PROVISIONS FOR AUTOMATIC, HOURLY, DAILY, WEEKLY, 30 DAY OR 60 DAY COMMUNICATION LINK TEST TO THE CENTRAL STATION. THE SYSTEM SHALL INCLUDE PROVISIONS FOR DISPLAYING INTERNAL POWER CONDITIONS. INTERNAL MONITOR SHALL INCLUDE BELL CIRCUIT, AC POWER, BATTERY VOLTAGE LEVEL, CHARGING VOLTAGE, PANEL BOX TAMPER, PHONE TROUBLE LINE #1 AND LINE #2, AND NETWORK TROUBLE.

GROUNDING:

- SIZES AND TYPES OF GROUNDING CONDUCTORS, GROUNDING CLAMPS, BONDING JUMPERS, CONDUIT FITTINGS, AND METHODS OF SECURING SAME TO OBTAIN ELECTRICAL CONTINUITY AND EFFECTIVE CONTINUITY TO BE IN ACCORDANCE WITH ARTICLE 250 OF THE NATIONAL ELECTRICAL CODE.
- 2. ALL CONDUITS SHALL INCLUDE AN EQUIPMENT GROUNDING CONDUCTOR SIZED IN ACCORDANCE WITH THE MOST CURRENT NATIONAL ELECTRICAL CODE, TABLE 250.122.
- METAL ENCLOSURES AND RACEWAYS FOR SERVICE CONDUCTORS AND EQUIPMENT SHALL BE GROUNDED PER ART. 250.80.

EQUIPMENT IDENTIFICATION:

- 1. PROVIDE NAMEPLATES ON ALL EQUIPMENT OF THE TYPE LISTED IN THE FOLLOWING SCHEDULE:
- A. EXISTING PANEL BOARDS

B. DISCONNECTS

PANEL "x" FED FROM "x" VIA "x" PHASE A = xPHASE B = x

PHASE C = x

TYPICAL NAMEPLATE -

- 2. LETTERING SHALL INCLUDE EQUIPMENT NAME, THE SPECIFIC UNIT NUMBER, ANY REFERENCE TO ON-OFF OR OTHER INSTRUCTIONS THAT ARE APPLICABLE.
- 3. NAME PLATES SHALL BE LAMINATED PHENOLIC WITH A WHITE SURFACE AND BLACK CORE.

EQUIPMENT CONNECTIONS:

- 1. THE ELECTRICAL CONTRACTOR SHALL MAKE ALL POWER CONNECTIONS TO MOTORS, STARTERS, EXHAUST FANS, WATER HEATERS, ETC. INCLUDING ALL THE ONES INSTALLED BY THE HVAC AND PLUMBING CONTRACTORS. ALL CONTROL WIRING NOT INDICATED ON THE ELECTRICAL PLANS WILL BE THE RESPONSIBILITY OF OTHER TRADES.
- 2. THE ELECTRICAL CONTRACTOR MUST OBTAIN ROUGH-IN INFORMATION FROM OTHER CONTRACTORS AND VERIFY ACTUAL PURCHASED EQUIPMENT PRIOR TO INSTALLATION.
- 3. VERIFY THE THERMAL CONDITIONS OF THE EQUIPMENT BASED ON NAMEPLATE DATA AND CONNECT AS THE LISTING REQUIREMENTS ARE STATED USING THE SPECIFIED MATERIALS.
- 4. THE ELECTRICAL CONTRACTOR SHALL FURNISH AND INSTALL ALL MANUAL AND MAGNETIC STARTERS AS REQUIRED EXCEPT STARTERS INTEGRAL TO EQUIPMENT FURNISHED UNDER OTHER DIVISIONS.
- 5. ALL POWER AND CONTROL CIRCUITS FOR ELECTRICAL EQUIPMENT REQUIRING ELECTRICAL CONNECTIONS ARE BASED ON THE DESIGN AS INDICATED WITHIN THE CONTRACT DOCUMENTS. THE DIVISION 16 TRADESMAN SHALL VERIFY ALL PURCHASED EQUIPMENT THAT REQUIRES ELECTRICAL CONNECTION WITH THE RESPONSIBLE CONTRACTOR OR VENDOR PRIOR TO ELECTRICAL ROUGH-IN. ANY DEVIATIONS FROM EQUIPMENT ROUGH-IN REQUIREMENTS FROM THE CONTRACT DOCUMENTS SHALL BE CONSIDERED A COORDINATION ITEM THAT THE ELECTRICAL TRADESMAN SHALL DISCUSS WITH THE OTHER TRADES INVOLVED.

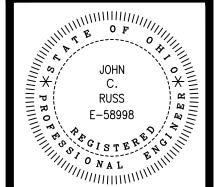
EQUALS:

1. WHERE A SPECIFIC CATALOG NUMBER IS CALLED OUT ON THE DRAWINGS THE CONTRACTORS BID SHALL BE BASED ON PROVIDING THAT EXACT MODEL. NO EQUALS WILL BE CONSIDERED UNLESS NOTED ON THE DRAWINGS.

WARRANTY:

1. MATERIALS, EQUIPMENT, AND INSTALLATION SHALL BE GUARANTEED FOR A PERIOD OF ONE YEAR FROM THE DATE OF ACCEPTANCE.

REVISIONS:



TE OF R.W.MEADOWS 6781 RODNEY W. MEADOWS LICENSE #6781 EXPIRATION DATE 12-31-2019

THIS DWG:

SPECIFICATIONS

COMM **DATE** 12-03-2018

DWG



PROJECT LABOR AGREEMENT FOR THE 2018 CORNERSTONE PARKING DECK RENOVATION PROJECT ENTERED INTO BETWEEN

CITY OF CANTON AND

EAST CENTRAL OHIO BUILDING AND CONSTRUCTION
TRADES COUNCIL AFL-CIO
AND
SIGNATORY LOCAL UNIONS

Effective	

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ARTICLE I

Section 1. Intent And Duration. This Project Labor Agreement (the "Agreement") is entered into between the City of Canton (collectively the "Owner"); the East Central Ohio Building and Construction Trades Council, AFL-CIO ("ECOB & CTC" or "Council"); and the Signatory Unions (the "Unions"), and applies exclusively to the construction work within the scope of this Agreement to be performed on the 2018 Cornerstone Parking Deck Renovation Project (the "Project"). The purpose of this Agreement is to promote efficiency and cost-savings in the construction and renovation that is a part of the Project and to provide for the peaceful settlement of any and all labor disputes and grievances without strikes or lockouts, thereby promoting the public interest in assuring the timely and economical completion of the Project. This Agreement shall expire and be of no further force or effect upon the completion of the Project.

Upon execution of this Agreement by all parties, all construction, refurbishing and renovation work covered by this Agreement on the Project shall be contracted exclusively to Contractors, of whatever tier, who agree to execute and be bound by the terms of this Agreement. The Unions agree that Contractors may execute the Agreement, or the Letter of Assent attached as Appendix I, for purposes of performing such work. The Owner (or its permitted designee) shall monitor compliance with this Agreement by all contractors and subcontractors. For purposes of the Agreement, the term "Contractor" shall be deemed to include all construction contractors and subcontractors of whatever tier engaged in on-site construction, refurbishment and renovation work on the Project. The Owner, the Unions and all signatory Contractors agree to abide by the terms and conditions contained in the Agreement. This Agreement represents the complete understanding of all parties, and no Contractor is or will be required to sign any other agreement with a signatory union as a condition of performing work coming within the scope of this Agreement. No practice, understanding or agreement between a Contractor and a Union, which conflicts with any provisions in this Agreement, will be binding on any other party unless endorsed in writing by the Owner.

Section 2. Limitation Of Agreement To Project. The Unions agree that this Agreement will be made available to, and will fully apply to, any successful bidder for work on the Project, without regard to whether that successful bidder performs work at other sites on either a union or a non-union basis, and without regard to whether employees of such bidder are or are not members of any union. The Unions further agree that this Agreement applies only to this Project. Nothing in this agreement is intended to, or shall, interfere with, or negate, any existing contractual relationship or collective bargaining agreement between the Union and any contractor or subcontractor that may execute this Agreement.

ARTICLE II PURPOSE

Section 1. Purpose. The parties to this Agreement understand and acknowledge that the timely construction and completion of the Project is significant to the economic stability and development of the City of Canton and is in the interests of Canton residents. The City of Canton has decided to relocate its current Utility Billing Offices to the Cornerstone facility in downtown Canton. Since parking in the City's downtown area can be challenging, it will be necessary to renovate the Cornerstone Parking Deck in order to accommodate the many City residents that will be paying their utility bills at the relocated Utility Billing Office. The proposed renovations to the Cornerstone Parking Deck will also make the City's collection and processing of utility payments more efficient. The estimated cost of the Project is \$530 thousand dollars. The parties signatory to this Agreement accordingly pledge their complete good faith and trust to work towards an on-time and efficient completion of the Project.

Section 2. Time Is Of The Essence. The parties to this Agreement understand and agree that time is of the essence for this Project. The parties understand and agree that the Owner has a critical need for timely completion of the Project and that timely completion of the Project is therefore vital. The parties understand and agree that timely completion of the Project will require the use of substantial numbers of employees from construction and supporting crafts possessing skills and qualifications that are essential to the Project. The Unions pledge that they have members who are competent, skilled, and qualified to perform the required construction work. The parties also understand that on-budget completion of the Project is most critical; it is therefore essential that construction work on the Project be done in an efficient, economical manner with optimum productivity and with no delays. In recognition of those special needs of the

Project, the Unions signatory hereto and their members agree not to initiate, authorize, sanction, participate in or condone, or permit their members to engage in, any strike, sympathy strike, jurisdictional strike, recognitional strike, slowdown, sabotage, work to rule, sickout, sit down, picketing of any type (including informational picketing), handbilling, boycott, interruption of work or any disruptive activity that interferes with or interrupts in any way work on the Project or other operations of the City of Canton. Contractors agree not to engage in any lockouts.

Section 3. Nothing in this Article II is intended to reliever or excuse the Owner, or an Employer, from fully and fairly participating in any pre-job conference required under this Agreement. Provided further, nothing in this Article II is intended to deny any contractor or subcontractor the opportunity to fully and fairly participate in the bid process for work under this Agreement.

ARTICLE III

BENEFITS OF THE AGREEMENT

<u>Section 1. Benefits Of The Agreement.</u> This Agreement is intended to foster the achievement of a timely and on-budget completion of the Project by, among other things:

- (a) reducing and/or eliminating the tension and potential disagreements that might otherwise exist between Union and non-union workers on the Project;
- (b) avoiding the costly delays of strikes, sympathy strikes, jurisdictional strikes, slowdowns, walkouts, picketing, handbilling and any other disruptions or interference with work, and promoting labor harmony and peace for the duration of the Project;
- (c) standardizing terms and conditions governing the employment of labor on the Project;
- (d) permitting flexibility in work scheduling and shift hours and times;
- (e) achieving negotiated adjustments as to work rules and staffing requirements from those which otherwise might obtain;
- (f) providing comprehensive and standardized mechanisms for the settlement of work disputes;
- (g) ensuring a reliable source of skilled and experienced labor; and
- (h) furthering public policy objectives, to the extent lawful, as to improved

employment opportunities for minorities, women and the economically disadvantaged in the construction industry. Mindful of the economic condition and unemployment rate in Stark County, the Owner anticipates and expects that all construction workers and employees on this Project will be residents of Stark County. In view of the very technical and specialized work that is inherent in the construction industry, all parties acknowledge that this expectation by the Owner is a goal, not a mandate. To this end, all Contractors working under this Agreement pledge that they will make a good-faith effort to reach this goal expressed by the Owner.

ARTICLE IV

SCOPE OF AGREEMENT

<u>Section 1. The Work.</u> This Agreement is specifically defined and limited to onsite construction and renovation work required to construct the Project.

<u>Section 2. Exclusions From Scope.</u> Items specifically excluded from the scope of this Agreement, even if performed in connection with the Project, include the following:

- (a) Work of non-manual employees, including but not limited to, superintendents, supervisors, staff engineers, inspectors, quality control and quality assurance personnel, timekeepers, mail carriers, clerks, office workers, including messengers, guards, safety personnel, emergency medical and first aid technicians, and other professional, engineering, administrative, supervisory and management employees.
- (b) Equipment and machinery owned or controlled and operated by the Owner.
- (c) All off-site manufacture, fabrication or handling of materials, equipment or machinery (except at dedicated lay-down or storage areas and except as provided in Article IV, Section 10), and all deliveries of any type to and from the Project site (except on-site pouring of concrete).
- (d) All employees of the Owner, the Construction Supervisor, design team or any environmental, engineering or other consultant when such employees do not perform labor coming within the scope of this Agreement.
- (e) Any work performed on or near or leading to or onto the site of work on

- the Project and undertaken by state, county, city or other governmental bodies, or their contractors; or by public utilities or their contractors.
- (f) Off-site maintenance of leased equipment and on-site supervision of all such maintenance work.
- (g) Work by employees of a manufacturer or vendor necessary to maintain such manufacturer's or vendor's warranty or guarantee, or work performed by supervisors or technicians employed by the manufacturer or vendor to oversee the testing of equipment once installed to insure that the equipment is fully operational.
- (h) Laboratory work for specialty testing or inspections not ordinarily done by the signatory local unions.
- (i) All work done by employees of any State agency, authority or entity or employees of any municipality or other public employer.

The Unions agree that there shall be no interference with or disruption of work, of those contractors, employers, and employees exempted from coverage of this Agreement by subparagraph (a) through (i) above.

Section 3. Contract Award and Consent to Agreement.

- (a) The Owner, and/or Contractors, as appropriate, have the absolute right to award contracts or subcontracts on the Project notwithstanding the existence or nonexistence of any agreements between such Contractor and any Union party provided only that such Contractor is willing, ready and able to execute and comply with this Agreement or a Letter of Assent thereto, should such Contractor be awarded work covered by this Agreement.
- (b) All subcontractors of a Contractor, of whatever tier, who have been awarded contracts of work covered by this Agreement, on or after the effective date of this Agreement, shall also be required to accept and to be bound by the terms and conditions of this Agreement, and shall evidence their acceptance by the execution of this Agreement or a Letter of Assent thereto, prior to the commencement of work. A copy of this Agreement or Letter of Assent executed by each Contractor shall be immediately provided to the Union upon execution.

Section 4. Stand-Alone Agreement. This Agreement is a stand-alone Agreement. While this Agreement expressly does not incorporate any local area collective bargaining agreements, such local area collective bargaining agreements may be referenced for the limited purposes as hereinafter set forth in this Agreement. However, to the extent, if any, that any provisions of this Agreement conflict with any provision of a local area collective bargaining agreement, the provisions of this Agreement shall control, except for all work performed under the NTL Articles of Agreement, the National Stack/Chimney Agreement, the National Cooling Tower Agreement, all instrument calibration work and loop checking shall be performed under the terms of the UA/IBEW Joint National Agreement for Instrument and Control Systems Technicians, and the National Agreement of the International Union of Elevator Constructors, with the exception of Articles VII, VIII and X of this Agreement, which shall apply to such work.

Section 5. Craft Jurisdiction. This Agreement shall recognize the traditional craft jurisdictions of the signatory unions. Any and all jurisdictional disputes shall be settled in accordance with Article VIII below. While this Agreement is a stand-alone Agreement, the Agreement will utilize the local area collective bargaining agreements of signatory locals, not state-wide agreements or other special project agreements, as a reference to define the signatory local unions' craft jurisdiction. Again, jurisdictional disputes shall be settled in accordance with Article VIII.

Section 6. Subcontracting. The Owner agrees that neither it nor any of its contractors or subcontractors will subcontract any work covered by this Agreement to be done on the Project except to a person, firm or corporation who is or agrees to become party to this Agreement. Any contractor or subcontractor working on the Project shall, as a condition to working on said Project, become signatory to and perform all work under the terms of this Agreement. Contractors who are signatory to local collective bargaining agreements shall be bound by the terms of their respective local collective bargaining agreements on subcontracting to the extent such terms are consistent with Article IV, Section 2 of this Agreement. Disputes concerning compliance with such local subcontracting provisions for this Project shall be subject to all of the dispute resolution provisions of this Agreement.

Section 7. Security. All employees covered by this Agreement in the employ of the Contractors shall remain members in the applicable signatory Union during the term

of this Agreement, and all workers hereinafter employed by the Contractors shall become members of the applicable signatory Union seven (7) days after the date of their employment and shall remain members of the Union during the term of this Agreement. (This clause shall be applied to the extent permitted by law). A Contractor shall not discharge any employee for non-membership in the Union if: (a) he has reasonable grounds for believing that such membership was not available to the employee on the same terms and conditions generally applicable to other members, or (b) he has reasonable grounds for believing that membership was denied or terminated for reasons other than the failure of the employee to tender the periodic dues and initiation fee uniformly required as a condition of acquiring or retaining membership.

Section 8. Liability. It is understood that the liability of the Contractor and the liability of the separate Unions under this Agreement shall be several and not joint. The Unions agree that this Agreement does not have the effect of creating any joint employer status between or among the Owner, Construction Supervisor and/or any Contractor, and neither the Owner nor Construction Supervisor shall assume any liabilities of the Contractors.

<u>Section 9. Abatement of Agreement.</u> As areas of covered work on the Project are accepted by the Owner, this Agreement shall have no further force or effect on such areas except where the Contractor is directed by the Owner to engage in repairs or punch list modifications.

Section 10. Miscellaneous. Notwithstanding any other provision of this Agreement, this Agreement applies and is limited to the recognized and accepted historical definition of demolition and new construction work under the direction of and performed by the contractor(s), of whatever tier who have contracts awarded for such work on the project. Such work shall include site preparation work and dedicated off-site work except for the contractors and subcontractors specifically excluded in the agreement. Any off-site prefabrication of any building materials, systems and/or components traditionally performed on site shall be performed by the appropriate craft signatory to this agreement and approved by the Owner.

ARTICLE V LABOR/MANAGEMENT COOPERATION JOINT ADMINISTRATIVE COMMITTEE

Section 1. The parties to this Agreement shall establish a Project Joint Administrative Committee ("Committee"). This Committee will be a two-person committee comprised of one member each appointed by the Owner (or its designee) and the Unions, with an alternate appointee Union member available to replace the regular appointee when a problem or grievance concerns the regular appointee's Union. Each member of the Committee shall designate an alternate who shall serve in the absence of the member for any purpose contemplated by this Agreement.

Section 2. The Committee shall meet at least bi-monthly, or more often if special circumstances warrant, to discuss the administration of the Agreement, the progress of the Project, labor/management problems that may arise, and any other relevant matters. Any need for interpretation which might arise from the application of the terms and conditions of the Agreement shall be referred directly to the Committee for resolution.

ARTICLE VI

UNION RECOGNITION AND EMPLOYMENT

<u>Section 1. Pre-Hire Recognition.</u> Each Contractor and subcontractor recognizes the Unions as the sole and exclusive bargaining representatives of all craft and trade employees within their respective jurisdictions working on the Project under the Agreement.

Section 2. Contractor's Right of Selection. Each Contractor shall have the right to determine the competency of all employees, the number of employees required and shall have the sole responsibility for selecting employees to be laid off. To the extent any training or vendor education is required to fill any position, said training shall be undertaken at no cost or expense to Owner.

Section 3. Union Referral. For local Unions having a job referral system, each Contractor agrees to comply with such system, and the referral system shall be used exclusively by such Contractor, except as modified by this Article. Such job referral system will be operated in a non-discriminatory manner and in full compliance with Federal, state, and local laws and regulations requiring equal employment opportunities

and nondiscrimination, and referrals shall not be affected in any way by the rules, regulations, bylaws, constitutional provisions or any other aspects or obligations of union membership, policies or requirements. The Union shall indemnify and hold each Contractor harmless with respect to any claim arising out of how the Union operates and administers its referral system. All hiring procedures, including related practices affecting apprenticeship and training, will be operated so as to facilitate the ability of the contractors to meet any and all equal employment opportunity/affirmative action obligations. The Contractor may reject any referral and request another, different referral; provided, however, the Contractor shall furnish, upon request from the Union, a written explanation for the rejection.

Section 4. Lack of Job Referral System. In the event that a signatory Local Union does not have a job referral system as set forth in Section 3 above, the Contractor shall give the Union a forty-eight (48) hour opportunity to refer applicants. The Contractor shall notify the Union of employees hired from any source other than referral by the Union.

Section 5. Unavailability of Union Referrals. In the event that local Unions are unable to fill any requisitions for qualified employees within forty-eight hours (48) after such requisition is made by the Contractor (Saturdays, Sundays, and Holidays excepted), the Contractor may employ applicants from any other available source. The Contractor shall inform the Union of the name, address and telephone number of any applicants hired from other sources and refer the applicant for the Local Union for dispatch to the Project.

Section 6. Union Best Efforts. The Local Unions will exert their utmost efforts to recruit sufficient numbers of skilled craft workers to fulfill the manpower requirements of each Contractor, including calls to local unions in other geographic areas when its referral lists have been exhausted. The parties to this Agreement support the development of increased numbers of skilled construction workers from the residents of the area of the Project. Toward that end, the Unions agree to encourage the referral and utilization, to the extent permitted by law and the hiring hall procedures, of qualified residents as journeymen, apprentices and trainees on the Project.

ARTICLE VII

GRIEVANCE ARBITRATION PROCEDURE

Section 1. This Agreement is intended to provide close cooperation between

management and labor. Each of the Unions will assign a representative to this Project for the purpose of completing the construction of the Project economically, efficiently, continuously, and without interruptions, delays, or work stoppages.

<u>Section 2.</u> The Contractors, Unions, and the employees, collectively and individually, realize the importance to all parties to maintain continuous and uninterrupted performance of the work of the Project, and agree to resolve disputes in accordance with the grievance-arbitration provisions set forth in this Article.

<u>Section 3.</u> Any question or dispute arising out of and during the term of this Agreement (other than trade jurisdictional disputes) shall be considered a grievance and subject to resolution under the following procedures:

> Step 1. (a) When any employee subject to the provisions of this Agreement feels he or she is aggrieved by a violation of this Agreement, he or she, through his or her local union business representative or job steward, shall, within five (5) working days after the occurrence of the violation, give notice to the work-site representative of the involved Contractor stating the provision(s) alleged to have been violated. The business representative of the local union or the job steward and the work-site representative of the involved Contractor shall meet and endeavor to adjust the matter within three (3) working days after timely notice has been given. The representative of the Contractor shall keep the meeting minutes and shall respond to the Union representative in writing at the conclusion of the meeting but not later than twenty-four (24) hours thereafter. If they fail to resolve the matter within the prescribed period, the Local Union may, within forty-eight (48) hours thereafter, pursue Step 2 of the Grievance Procedure, provided the grievance is reduced to writing, setting forth the relevant information concerning the alleged grievance, including a short description hereof, the date on which the grievance occurred, and the provisions of the Agreement alleged to have been violated.

- (a) Should the Local Union(s) or the Project Contractor or any Contractor have a dispute with the other party and if, after conferring, a settlement is not reached within three (3) working days, the dispute may be reduced to writing and proceed to Step 2 in the same manner as outlined herein for the adjustment of an employee complaint.
 - Step 2. The International Union Representative and the involved Contractor shall meet within seven (7) working days of the referral of a dispute to this second step to arrive at a satisfactory settlement thereof. Meeting minutes shall be kept by the Contractor. If the parties fail to reach an agreement, the dispute may be appealed by the Union, in writing, in accordance with the provisions of Step 3.
 - Step 3. (a) If the grievance has been submitted but not adjusted under Step 2, either party may request in writing, within seven (7) calendar days thereafter, that the grievance be submitted to an Arbitrator mutually agreed upon by them. The Contractor and the involved Union shall attempt mutually to select an arbitrator, but if they are unable to do so, they shall request the Federal Mediation and Conciliation Services (FMCS) to provide them with a list of arbitrators from which the Arbitrator shall be selected. The rules of FMCS shall govern the conduct of the arbitration hearing. The decision of the Arbitrator shall be final and binding on all parties. The fee and expenses of such Arbitration shall be borne equally be the Contractor and the involved Local Union(s).

Section 4. Failure of the grieving party to adhere to the time limits established herein shall render the grievance null and void. Failure of the Contractor to adhere to the time limits established herein shall result in the grievance being sustained. The time limits established herein may be extended only by written consent of the parties involved at the particular step where the extension is agreed upon. The Arbitrator shall have the authority to make decisions only on issues presented to him or her, and he or she shall not have authority to change, amend, add to or detract from any of the provisions of this Agreement.

Section 5. The Owner shall be notified of all actions at Steps 2 and 3 and shall, upon their request, be permitted to participate in all proceedings at these steps.

ARTICLE VIII

JURISDICTIONAL DISPUTES

<u>Section 1.</u> The assignment of work will be the responsibility of the Contractor performing the work involved and such work assignments will be in accordance with decisions issued under the Plan for the Settlement of Jurisdictional Disputes in the Construction Industry (the "Plan"), or any successor Plan, adopted by the National Building and Construction Trades Department.

Section 2. All jurisdictional disputes on this Project, between or among Building and Construction Trades Unions and employers, parties to this Agreement, shall be settled and adjusted according to the present Plan established by the Building and Construction Trades Department or any other plan or method of procedure that may be adopted in the future by the Building and Construction Trades Department. Decisions rendered shall be final, binding and conclusive on the Contractors and Unions parties to this Agreement.

<u>Section 3.</u> All jurisdictional disputes shall be resolved without the occurrence of any strike, work stoppage, or slow-down of any nature, and the Contractor's assignment shall be adhered to until the dispute is resolved. Individuals violating this section shall be subject to immediate discharge.

<u>Section 4.</u> Each Contractor will conduct a pre job conference with the appropriate Council prior to commencing work. The Owner will be advised in advance of all such conferences and may participate in the conference.

ARTICLE IX

MANAGEMENT'S RIGHTS

<u>Section 1. Exclusive Owner - Workforce.</u> Except as otherwise provided in this Agreement, the Owner (or its designee) and the Contractors retain the authority for the management of their operations and workforces.

Section 2. Materials, Design, Machinery, Equipment. There shall be no limitation or restriction by a signatory Union upon a Contractor's choice of materials or design, nor, regardless of source or location, upon the full use and utilization of equipment, machinery packaging, pre-cast, pre-fabricated, pre-finish, or pre-assembled

materials, tools or other labor saving devices. The on-site installation or application of all items shall be performed by the craft having jurisdiction of such work; provided, however, that installation of specialty items may be performed by employees employed under this Agreement who may be directed by other personnel in a supervisory role, in circumstances requiring special knowledge of the particular items.

<u>Section 3. New Technology, Equipment.</u> The use of new technology, equipment, machinery, tools and/or labor saving devices and methods of performing work may be initiated by any Contractor from time to time during the Project. The Union agrees that it will not in any way restrict the implementation of such new devices or work methods.

Section 4. Disputes. If there is any disagreement between any Contractor and the Union concerning the manner or implementation of such device or method of work, the implementation shall proceed as directed by the Contractor, and the Union shall have the right to grieve and/or arbitrate the dispute as set forth in Article VII of this Agreement.

ARTICLE X WORK STOPPAGES

Section 1. No Strikes or Work Disruptions. There shall be no strike, sympathy strike, jurisdictional strike, recognitional strike, slowdown, sabotage, work to rule, sickout, sit down, picketing of any type (including informational picketing), handbilling, boycott, interruption of work or any disruptive activity that interferes with or interrupts in any way work on the Project. The applicable local union shall not sanction, aid or abet, encourage or continue any work stoppage, strike, picketing or other disruptive activity which violates this Article and shall undertake all reasonable means to prevent or to terminate any such activity. No employee shall engage in activity which violates this Article. Any employee who participates in or encourages any activity which violates this Article shall be subject to disciplinary action, including discharge, and if justifiably discharged for the above reasons, shall not be eligible for rehire on the same project for a period of not less than ninety (90) days. Further, if the Local Union is unable to provide qualified replacements for those employees who are in violation of this Article by the beginning of the next shift, the Employer is free to hire from any source.

Section 2. Union Responsibilities. The Local Union shall not be liable for acts

of employees for which it has no responsibility. The principal officers of the Local Union will immediately instruct, order and use their best efforts to cause the members of the Local Union they represent to cease any violations of this Article. If it complies with this obligation, the Local Union shall not be responsible for unauthorized acts of employees it represents.

ARTICLE XI WAGES AND BENEFITS

Section 1(A). Wages. All employees covered by this Agreement shall be classified in accordance with work performed and paid 100% of the wages and 100% of the benefits as established in the respective Craft's Collective Bargaining Agreement and any subsequent modifications thereto. The Contractor, upon request, shall provide the Unions and Owner with substantiation that wages and benefits are being paid on the Project. The Unions shall provide the Owner, and any Contractor or subcontractor that is party to this Agreement, with wage, fringe benefit and dues reporting forms.

Section 1(B). Wage Premiums and Additives. The Council and the signatory unions agree that no PLA-specific wage increases, premiums or additives appearing in any local collective bargaining agreement shall have any application to the wage rates appearing in Section 1(A) above.

Section 2. Payment of Benefits/Contributions. Each Contractor will also pay all required contributions in the amounts required by Section 1 of this Article to the established employee benefit funds that accrue to the direct benefit of the employees (such as pension and annuity, health and welfare, vacation, apprenticeship, training funds). With respect to contributions required in this Section to Employer-Union jointly trusted funds, the Contractor adopts and agrees to be bound by the written terms of the legally established trust agreement specifying the detailed basis on which payments are to be made into, and benefits paid out of, such Trust Funds. The Contractor authorizes the parties to such Trust Funds to appoint Trustees and successor Trustees to administer the Trust Funds and hereby ratifies and accepts the Trustees so appointed as if made by Contractor.

Section 3. Non-Affiliated Labor Organizations. The Contractor shall deduct from each employee's wages all uniform dues and working assessments set forth in the Employee's Local Collective Bargaining Agreement. If a labor organization is not

affiliated with the Council, and supplies its members or referrals for work on the Project, such labor organization shall pay to the Council the dues and assessments it would owe the Council if affiliated, for all periods during which the labor organization has members or referrals working on the Project. Any disputes under this paragraph shall be resolved exclusively between the labor organization and the Council by using the grievance procedure appearing in Article VII, as provided herein. All grievances shall be reduced to writing within thirty (30) days of the date on which the aggrieved party discovered the dispute. The grievance shall be initiated at Article VII, Section 3, Step 3.

ARTICLE XII LOCAL UNION NEGOTIATIONS DURING THE PENDENCY OF THE AGREEMENT

Section 1. All parties to this Agreement understand and acknowledge that some crafts who will be working on the Project are covered by local collective bargaining agreements that will expire prior to the projected completion of the Project. All parties understand and agree that irrespective of whether such local collective bargaining agreement negotiations are successful or unsuccessful, there shall be no strike, sympathy strike, jurisdictional strike, recognitional strike, slowdown, sabotage, work to rule, sickout, sit down, picketing of any type (including informational picketing), handbilling, boycott, interruption of work or any disruptive activity that interferes with or interrupts in any way work on the Project by any Union involved in such local negotiations, or by any of its members, nor shall there be any lockout by a Contractor on the Project affecting such union or its members during the course of such negotiations. Irrespective of the status of any such local collective bargaining agreement negotiations, the affected Union and all of its members will observe and fully comply with the provisions of this Agreement. Should any Local Union fail or refuse to provide and/or refer qualified employees for work on the Project during an economic strike, any affected Contractor shall be permitted to utilize the procedures appearing in Article VI, Section 5 of this Agreement.

Section 2. Wage/Benefit Increases. Should a craft covered by this Agreement negotiate an increase in wages or an increase in benefits with any Contractor to become effective during the term of the Project, those wage and/or benefit increases shall be paid by the affected Contractor, as of the effective date of those increases, to those employees in that craft performing work covered by this Agreement.

ARTICLE XIII

HOURS OF WORK, OVERTIME, SHIFTS AND HOLIDAY

Section 1. Work Day and Work Week. Except as provided in Section 4, the first shift shall consist of eight (8) or ten (10) hours per day between the hours of 6:00 a.m. and 5:30 p.m., plus one-half (1/2) hour unpaid for lunch, approximately mid-way through the shift. Forty (40) hours per week shall constitute a regular week's work, whether consisting of five (5) eight (8) eight hours days, or four (4) ten (10) hour days. The work week will start on Monday and conclude on Sunday. A uniform starting time will be established for all crafts on each project or segment of the work. Nothing herein shall be construed as guaranteeing any employee eight (8) or ten (10) hours per day or forty (40) hours per week. The Union(s) shall be informed of the work starting time set by the contractor at the pre job conference which may be changed thereafter upon three (3) days' notice to the Union(s) and the employees. A second shift, if used, shall consist of eight hours between 3:00 p.m. and 1:00 a.m.; a third shift, if used, shall begin between 10:00 p.m. and 1:00 a.m. For purposes of Section 3, the third shift shall be considered as part of the prior day's work.

Section 2. Starting Times. Employees shall be at their place of work at the starting time and shall remain at their place of work (as designated by the Contractor) performing their assigned functions until quitting time, which is defined as the scheduled end of the shift. The parties reaffirm their policy of a fair day's work for a fair day's wage. There shall be no pay for time not worked unless the employee is otherwise engaged at the direction of the Contractor.

Section 3. Overtime. Overtime shall be defined as all hours worked in excess of forty (40) hours in a work week or, for 8 hour shifts, in excess of eight (8) hours per day; or for 10 (ten) hour shifts for work in excess of 10 hours per day; such work and work performed on Saturdays shall be paid at one and one-half times the straight time rate of pay. However, in scheduled four (4) day/ten hour shift work weeks, Friday may be scheduled as a "makeup" day at straight time to make up for a day lost (Monday through Thursday) due to inclement weather. In addition, if a "make-up" day is scheduled, all employees directed to work on such day will be guaranteed a minimum of four (4) hours work or pay. In any week in which employees on the Project are scheduled on four/ten hour shifts, an employee whose first day of work on the Project begins on Wednesday

or later day of the schedule shall be paid, during the first week of his employment only, time-and-one-half for all hours worked in excess of eight in a day or each day he works during said week. Work on Sundays and holidays shall be at double time. There shall be no restriction on any contractor's scheduling of overtime or the non-discriminatory designation of employees who will work. The contractor shall have the right to schedule work so as to minimize overtime. There shall be no pyramiding of overtime pay under any circumstances.

Section 4. Shifts.

- (a) Shift work may be performed at the option of the Contractor(s) upon three (3) days' prior notice to the Union and shall continue for a period of not less than five (5) working days. Saturdays and Sundays, if worked, may be used for establishing the five (5) day minimum work shift. If two shifts are worked, each shall consist of eight (8) hours of continuous work exclusive of a one-half (½) hour non-paid lunch period. Any third shift shall consist of seven (7) hours of continuous work exclusive of one-half (½) hour non-paid lunch period for eight (8) hours pay. A premium of \$.25 per hour shall be paid for work on the second shift and \$.50 per hour for work on the third shift.
- (b) The Contractor may establish a work week of four (4) consecutive ten (10) hour work days (exclusive of one-half (½) hour unpaid lunch, approximately midway through the shift) between Monday through Thursday.

Section 5. Minimum Pay. An employee who reports for work at the regular starting time and for whom no work is provided shall receive pay equivalent to two (2) hours at the applicable hourly rate, provided the employee at the employer's discretion remains available for work. Any employee who reports for work and for whom work is provided shall be paid for actual time worked but not less than two (2) hours. It will not be a violation of this agreement when the employer considers it necessary to shut down to avoid the possible loss of human life, because of an emergency situation that could endanger the life and safety of an employee. In such cases, employees will be compensated only for the actual time worked. In the case of a situation described above where the employer requests employees to remain available for work, the employees will be compensation for such time. If a project is shut down because of weather, employees, who report for work, shall be paid actual time worked but not less than two

(2) hours. Procedures for prior notification of work cancellation shall be determined at the pre-job conference. The provisions of this section are not applicable where the employee voluntarily quits or lays off.

Section 6. Holidays. Holidays shall be New Year's Day, Good Friday, Memorial Day, Independence Day, Labor Day, Veteran's Day, Thanksgiving Day, the Day after Thanksgiving Day, and Christmas Day. A holiday falling on Saturday shall be observed on the preceding Friday. A holiday falling on Sunday shall be observed on the following Monday.

Section 7. Meal Period. The Contractor will schedule a meal period of not more than one-half hour duration at the work location at approximately the mid-point of the scheduled work shift (4 hours in a five day work week, 5 hours in a four-day work week), consistent with Section 1; provided, however, that the Contractor may, for efficiency of the operation, establish a schedule which coordinates the meal periods of two or more crafts. If an employee is required to work through his meal period, he shall be compensated for the time worked at the applicable overtime rate and the employee shall, when work permits, eat his lunch "on the fly".

<u>Section 8. No Organized Work Breaks.</u> There will be one (1) break during the first four (4) hours of a shift which shall be taken at the employee's work station. Individual nonalcoholic beverage containers will be permitted at the employee's work station.

Section 9. Helmets to Hardhats.

- (a) The Employers and the Unions recognize a desire to facilitate the entry into the building and construction trades of veterans who are interested in careers in*the building and construction industry. The Employers and Unions agree to utilize the services of the Center for Military Recruitment, Assessment and Veterans Employment (hereinafter "Center") and the Center's "Helmets to Hardhats" program to serve as a resource for preliminary orientation, assessment of construction aptitude, referral to apprenticeship programs or hiring halls, counseling and mentoring, support network, employment opportunities and other needs as identified by the parties.
- (b) The Unions and Employers agree to coordinate with the Center to create and maintain an integrated database of veterans interested in working on this

Project and of apprenticeship and employment opportunities for this Project.

To the extent permitted by law, the Unions will give credit to such veterans for bona fide, provable past experience.

ARTICLE XIV APPRENTICES

Section 1. Need For. The parties recognize the need to maintain continuing support of programs designed to develop adequate numbers of competent workers in the construction industry. The Contractor(s) will accordingly employ apprentices in their respective crafts to perform work on the Project within the apprentice's capabilities.

Section 2. Ratios. The Union agrees to cooperate with the Contractor in furnishing qualified apprentices as requested and if available. Apprentices shall perform the work of their craft in accordance with the ratios and terms in their governing collective bargaining agreements. To the extent requested by Owner, the Contractor(s) may use the maximum number of apprentices permitted by local collective bargaining agreements.

ARTICLE XV DRUG AND ALCOHOL POLICY

Section 1. Drug and Alcohol Policy. All parties understand and agree that a drug and alcohol policy, approved by the Council, will be in force for all work performed under the Agreement. The drug and alcohol policy will prohibit the use, sale, transfer, purchase and/or possession of a controlled substance, alcohol and/or firearms while on the Project's premises and will require testing of employees. The drug and alcohol policy, attached hereto as Appendix 2, is incorporated into and made part of this Agreement and is implemented for all Contractors and employees working on the Project.

ARTICLE XVI NON-DISCRIMINATION

Section 1. Policy. It is the continuing policy of the Owner, the Contractors and the Unions that the provisions of this Agreement shall be applied without discrimination because of age, race, sex, color, religion, creed, national origin, sexual orientation or any other basis prohibited by applicable law.

ARTICLE XVII

SOLE AND COMPLETE AGREEMENT

Section 1. The parties agree that this Agreement constitutes the sole and complete agreement between them governing the rates of pay and working conditions of the construction employees working on the Project. This Agreement settles all demands and issues on the matters subject to collective bargaining and that it shall not be modified or supplemented in any way except by written agreement executed by the Owner and all parties.

ARTICLE XVIII

SEPARABILITY AND SAVINGS CLAUSE

Section 1. Intent of Parties. If any article or section of this Agreement shall be held invalid by law or by a tribunal of competent jurisdiction, or if compliance with or enforcement of any article should be restrained pending a final determination as to its validity, the remainder of this Agreement shall not be affected and shall remain in full force and effect. In the event that any article or section is held invalid, the parties hereto shall, upon the request of the Unions, enter into collective bargaining negotiations for the purpose of arriving at a mutually satisfactory replacement for such article during the period of invalidity or restraint. If the Owner and the Council cannot agree on a mutually satisfactory replacement, either party shall be permitted to submit its demand to formal interest arbitration.

Section 2. Force of Agreement. The parties recognize the right of the Owner to withdraw, at its absolute discretion, the utilization of this Agreement as part of any bid specification should a court of competent jurisdiction issue any order which could result, temporarily or permanently, in delay of the bidding, awarding, and/or construction work on the Project. Notwithstanding such an action by the Owner, or such court order, the parties agree that the Agreement shall remain in full force and effect on the Project, to the maximum extent legally possible. It is hereby agreed that this Agreement covers all of the signatory local unions listed below.

Section 3. Delegation. The Owner, in its sole and absolute discretion has the right to delegate its duties hereunder to a representative and/or designee who may be either an employee of Owner or a third party with whom Owner has contracted for contractor services.

OWNER CITY OF CANTON	EAST CENTRAL OHIO BUILDING & CONSTRUCTION TRADES COUNCIL, AFL-CIO
Direct of Public Service	PRESIDENT
	BRICKLAYERS LOCAL 6
	By: Just: 91 Des
	Name: Justia M. Gastell
	Title: Field Reg.
	Date:
	ELECTRICIANS LOCAL NO. 540
	By: On B
	Name: AAROH M. Brown
	Title: Business MANAGER /F.S.
	Date: 8 15 18
	GENERAL TRUCK DRIVERS & HELPERS UNION LOCAL NO. 92
	By: War Brit
	Name: Warren Brustoski
	Title: B-A
	Date: 8 [15 [18

GLAZIERS LOCAL NO. 1162
By: Sett Hacter
Name: Scott Harter
Title: B, A,
Date: 8-15-18
HEAT & FROST INSULATORS AND ASBESTOS WORKERS LOCAL NO. 84
10
By: franchis
Name: JASON PENIX
Title: BUS-NESS MANAGER
Date: 8/15/18
INDIANA/KENTUCKY/OHIO REGIONAL COUNCIL OF CARPENTERS
By: M-M J-II Name: Kevin M. Ennis II
Title: Senior Rep

IRONWORKERS LOCAL NO. 550
By: Will y 80
Name: William V- Sherer I
Title: Business Manager
Date: 8-15-18
LABORERS LOCAL NO. 1015
By: Jake Croston, en
Many Cake / Tactor

	h \ . \ \ . \ \ \ .
Ву:	Dreg Daniels, and
Name:_	Greg Daniels
Title:	Duriness Manager
Date: _	9/20/2018

PAINTERS LOCAL NO. 603

ву:
Name:
Title:
Date:
PLUMBERS, PIPEFITTERS AND REFRIGERATION LOCAL NO. 94
By: Dave Kinn
Name: DAVE KIRVEN
Title: BUSINESS MANAGER
Date: 8/15/18
ROOFERS, LOCAL UNION NO. 88
By: Barbarale Don
Name: Barbara A. DIXON
Title: Bugnies Marager
Date: 8 13 2018

BY: TERRY DURIEN	
Name: Wix Numing	
Title: BUSINESS AGENT	
Date: 8/15/18	
SPRINKLER FITTERS LOCAL NO. 669	
Ву:	
Name:	_
Title	

Date: _____

SHEET METAL WORKERS LOCAL

NO. 33

Kusten Bak a Gward

APPENDIX 1 LETTER OF ASSENT TO THE PROJECT LABOR AGREEMENT

FOR THE 2018 CORNERSTONE PARKING DECK RENOVATION PROJECT

Pursuant to Article I, Section 1 of the Project Labor Agreement (the "Agreement") for the 2018 Cornerstone Parking Deck Renovation Project, the undersigned party hereby agrees that it will comply with and be bound by all of the terms and conditions of the Agreement and agrees to all approved amendments or revisions thereto.

This Letter of Assent shall ONLY apply to the above-referenced Project and shall remain in effect for the duration of the above-referenced Project, after which this understanding will automatically terminate without further notice.

For the Contractor (or	Subcontractor of whatever tier):
Name of Contractor/S	ubcontractor:
Name and Signature o	f Authorized Person:
(Print Name)	
(Title)	
(Signature)	
(Phone #)	
(Date)	

APPENDIX 2

EMPLOYEE DRUG AND ALCOHOL TESTING POLICY

SPECIFICATIONS

The Owner is committed to providing a safe workplace for the workers assigned the Project, promoting high standards of employment health, and fostering productivity that satisfies its quality expectations. Consistent with the intent and spirit of this commitment, the Owner and ECOB & CTC have established a substance abuse testing specification for the Project with the goal of maintaining a work environment that is free from the effects of the use of illegal drugs and alcohol. The Owner will implement the terms of this policy.

This specification is not intended as a substitute for the Contractors' complete written substance abuse policy. Normally, such policies include other important features, including, but not limited to, an employee education and awareness Program, a supervisor training program and an employee assistance program.

The policy for this Project requires that any construction employee entering the project site will comply with the substance abuse testing requirements as outlined in this section. The Owner reserves the right to amend this specification upon written notice to the Contractor and the Unions on the Project. The parties to this agreement shall recognize the Drug Free Work Site Program as implemented through participating Unions and/or Contractors as administered by the contractor, or for contractors who are not signatory to agreements with signatory unions belonging to ECOB & CTC, and their core employees, an equivalent program that meets the specifications, contractual requirements, and testing requirements as set forth in this Appendix 1.

CONTRACTUAL REQUIREMENTS

All Contractors must have and enforce a written Substance Abuse Program incorporating the testing requirements, term, and conditions set forth in this specification. This specification is applicable to all employees, current and prospective, in order to be eligible to perform work at the Project. The Contractors must comply with the specification. Supplies, vendors, and visitors are subject to confirmation of their abstinence from the possession or use of substances indicated in this specification. A copy of each contractor's substance abuse program must be submitted to the Owner for approval prior to commencement of any work on the Project site.

The substance abuse program must apply to all employees working on the Project and subcontractors' of any of tier working on the Project site. This includes workers, new hires, replacement workers, and supervisory personnel. No employee or prospective employee of a Contractor shall be permitted to work on the Project site unless such employee has submitted to testing by this specification and unless the results of such testing are negative as hereinafter defined. The Contractor must provide the Owner with a Monthly Summary Report of the Substance Abuse Program compliance.

All Contractors must train their respective employees in methods that will allow them to recognize substance abusers. Supervisory Employees of the Owner or its subcontractor shall be trained to take action, and to confront a substance abuser in a manner consistent with generally accepted safety-training procedures.

The cost of implementing the Substance Abuse program shall be borne by each respective Contractor affected by this specification.

Suppliers, vendors, and visitors must become signatory to the terms of this specification and their abstinence from substance abuse, and their continued avoidance of violations of the specification at the project site. Furthermore, in the event of an incident and/or accident occurrences involving suppliers, vendors, and/or visitors, the same agrees to submit to the substance abuse testing when requested. Refusal to comply would be grounds to have the supplier, vendor, or visitor permanently barred from the Project site by regulators.

TESTING REQUIREMENTS

The Project requires:

- Post-offer/Pre-engagement drug and alcohol testing.
- Testing for reasonable suspicion of illegal drug use or alcohol use.
- Post accident and post incident drug and alcohol testing upon reasonable suspicion.
- Drug testing following discovery of illegal or unauthorized drugs or paraphernalia as creating reasonable suspicion.

All Prime Contractors must perform post-offer/pre-engagement, and post accident/incident testing upon reasonable suspicion, as follows:

a. All drug testing must be conducted by a National Institute of Drug Abuse (NIDA)

- certified laboratory with test results interpreted by a licensed medical review officer (MRO).
- b. The initial screen tests for alcohol shall be performed by using either a saliva test or breathalyzer test comparable to the type used by state or local law enforcement officials. Furthermore, alcohol confirmatory tests shall be performed by using either blood alcohol test or a Breathalyzer test comparable to the type used by state or local law enforcement officials.
- c. Evidence of the negative test results of individual employees required by this specification shall be furnished to the Owner prior to the commencement of work by the individual employee and promptly after performance of any subsequent testing required by this specification. Acceptable negative test result format.
 - A certificate signed by the testing laboratory, setting forth the nature and results of performed; or
 - An identification card signed by the respective Prime Contractor and issued
 to the individual employee, setting forth as reported on a certificate issued by
 the testing laboratory. The name of the testing laboratory shall also appear
 on the identification card; provided the affected employee authorizes the
 issuance of such identification card.

COMPLIANCE PROCEDURE

The Owner reserves the right to audit any substance abuse program required by this specification to verify compliance results within twenty-four (24) hours of notification of the intent to audit. The Owner shall have free right of access to all relevant records of the Prime Contractor and their subcontractors and supplies for this purpose, provided such record disclosures are within the scope of the States guidelines pertaining to confidentiality of employee records.

The Contractor's pre-engagement employees who receive a positive test result shall immediately leave the Project Site. Transportation of employees receiving the positive test result is the direct responsibility of the employing Prime Contractor, including employees of its subcontractors. Furthermore, pre-engagement employees receiving a positive test shall not be permitted to return to the Project Site earlier than 90 days from the date of the positive test. At this time the employee may begin the process outlined by this specification again.

DEFINITIONS/ CONFIDENTIALITY/RULES- DISCIPLANARY ACTIONS-GRIEVANCE PROCEDURES

1. DEFINITIONS:

- (a) <u>Company Premises</u> the term "Company Premises" as used in this policy includes all property, facilities, land, building, structures, automobiles, trucks and other vehicles owned, leased or used by the Contractor on the Project. Construction job sites for which the Contractor has responsibility are included.
- (b) <u>Prohibited Items & Substances</u> Prohibited substances include illegal drugs (including controlled substances, look alike drugs and designer drugs, alcoholic beverages, and drug paraphernalia in the possession of or being used by an employee on the job.
- (c) <u>Employee</u> Individuals, who perform work for the Contractor, including, but not limited to management, supervision, engineering, craft workers and clerical personnel.
- (d) <u>Accident</u> Any event resulting in injury to a person or property to which an employee, or contractor/contractor's employee, contributed as a direct or indirect cause.
- (e) <u>Incident</u> An event which has all the attributes of an accident, except that no harm was caused to person or property.
- (f) <u>Reasonable Cause</u> Reasonable cause shall be defined as tardiness, excessive absenteeism, and erratic behavior such as noticeable imbalance, incoherence, and disorientation.

2. CONFIDENTIALITY

- (a) All parties to this policy and program have only the interests of employees in mind; therefore, encourage any employee with a substance abuse problem to come forward and voluntarily accept our assistance in dealing with the illness. An employee assistance program will provide guidance and direction for you during your recovery period. If you volunteer for help, the Contractor will make every reasonable effort to return you to work upon your recovery. The Contractor will also take action to assure that your illness is handled in a confidential manner.
- (b) All actions taken under this policy and program will be confidential and

- disclosed only to those with a "need to know."
- (c) When a test is required, the specimen will be identified with a code number, not by name, to insure confidentiality of the donor. Each specimen container will be properly label and made tamper proof. The donor must witness this procedure.
- (d) Unless an initial positive result is confirmed as positive, it shall be deemed negative and reported by the laboratory as such.
- (e) The handling and transportation of each specimen will be properly documented through the strict chain of custody procedures.
- 3. <u>RULES</u> all employees must report to work in a physical condition that will enable them to perform their jobs in a safe and efficient manner. Employees shall not:
 - (a) Use, possess, dispense or receive prohibited substances on or at the Project job site; or
 - (b) Report to work at or on the Project with any measurable amount of prohibited substances in their system.
- 4. <u>DISCIPLINE</u> When the Contractor has reasonable cause to believe an employee is under the influence of a prohibited substance, for reasons of safety, the employee may be suspended until test results are available. If no test results are received after three (3) working days, the employee, if available, shall return to work with back pay. If the test results prove negative, the employee shall be reinstated with back pay. In all other cases:
 - (a) Applicants testing positive for drug use will not be hired.
 - (b) Employees who have not voluntarily come forward, and who test positive for a drug use, will be terminated.
 - (c) Employees who refuse to cooperate with testing procedures will be terminated.
 - (d) Employees found in possession of drugs or drug paraphernalia will be terminated.
 - (e) Employees found under the influence of alcohol while on duty, or while operating a company vehicle, will be subject to termination.
- PRESCRIPTION DRUGS Employees using a prescribed medication which, in their physician's opinion, may impair the performance of their duties, either mental or motor

functions, must immediately inform the supervisor of such prescription drug use if instructed by their physician to do so. For the safety of all employees, the Contractor will consult with you and your physician to determine if a reassignment of duties is necessary. The Contractor will attempt to accommodate your needs by making an appropriate reassignment. However, if a reassignment is not possible, you will be placed on temporary medical leave until released as fit for duty by the prescribing physician.