

HOME-ARP NCS

PROJECT

City of Athens

Non-Congregate Emergency Shelter Renovation

HOCKING ATHENS PERRY COMMUNITY ACTION AGENCY
(HAPCAP)

3 Cardaras Dr.

P.O. BOX 220

Glouster, Ohio 45732

740.767.4500

1.800.686.1093

COMPETITIVE SEALED BID DOCUMENTS PREPARED BY:

HOCKING ATHENS PERRY COMMUNITY ACTION AGENCY

3 Cardaras Dr.

P.O. BOX 220

Glouster, Ohio 45732

740.767.4500

1.800.686.1093

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NOTICE TO CONTRACTORS

SECTION A

NOTICE TO CONTRACTORS

Sealed proposals for the **Non-Congregate Emergency Shelter Renovation** project will be received at the office of the **Hocking Athens Perry Community Action (HAPCAP), 3 Cardaras Drive, Glouster Ohio, 45732** until **Monday, November 24th at 10:00am, 2025**. Plans, specifications and bid forms may be secured by contacting the Community Development Division at the office of Hocking Athens Perry Community Action, 3 Cardaras Dr., Glouster, OH 45732, (740)-767-4500, for a non-refundable fee of \$20.00. Plans, specifications, and bid forms may also be downloaded from www.hapcap.org at no charge.

Each bid must be accompanied by either a bid bond, in an amount of 100% of the bid amount with a surety satisfactory to the aforesaid Hocking Athens Perry Community Action (HAPCAP), or by certified check, cashier's check, or irrevocable letter of credit from a solvent bank in the amount of not less than 10% of the bid amount in favor of the aforesaid Hocking Athens Perry Community Action (HAPCAP). Bid bonds shall be accompanied by Proof of Authority of the official or agent signing the bond.

Bids shall be sealed and marked as **Non-Congregate Emergency Shelter Renovation** and mailed or hand-delivered to:

**HOCKING ATHENS PERRY COMMUNITY ACTION AGENCY
(HAPCAP)
3 Cardaras Dr.
P.O. BOX 220
Glouster, Ohio 45732
740.767.4500
1.800.686.1093**

A pre-bid meeting will be held on Thursday, November 13th at 10:00am. The meeting will be on-site at

135 Columbus Road, Athens, Ohio 45701

Attention of bidders is called to all of the requirements contained in this bid packet, particularly to the Federal Davis-Bacon Wages, various insurance requirements, certain equal opportunity provisions, and the requirement for a payment bond and performance bond for 100% of the contract price.

No bidder may withdraw their bid within ninety (90) days after the actual date of the bid opening thereof. The **Hocking Athens Perry Community Action (HAPCAP)** reserves the right to waive any informality or to reject any or all bids.

INSTRUCTIONS TO BIDDERS

SECTION B

- RECEIPT AND OPENING OF BIDS:** The **Hocking Athens Perry Community Action (HAPCAP)** (herein called the “Owner”), invites bids (this “Invitation to Bid”) on the forms attached hereto, all blanks of which must be appropriately filled in. Bids will be received by the Owner at the office of **Hocking Athens Perry Community Action (HAPCAP), at 3 Cardaras Drive, Glouster Ohio, 45732** until **Monday, November 24th at 10:00am, 2025.** at which time they will be publicly opened and read aloud. The envelopes containing the bids must be sealed and addressed to **Hocking Athens Perry Community Action (HAPCAP), at 3 Cardaras Drive, Glouster Ohio, 45732** . Envelopes must be clearly designated for the **Non-Congregate Emergency Shelter Renovation.** **The Owner may consider informal any bid not prepared and submitted in accordance with the provisions hereof and may waive any informalities or reject any and all bids.** Any bid may be withdrawn prior to the above scheduled time for the opening of bids or authorized postponement thereof. Any bid received after the time and date specified shall not be considered. No bidder may withdraw a bid within ninety (90) days after the actual date of the opening thereof. The term “Contract” means the agreement entered into between the Owner and the successful bidder (the “Contractor”) as a result of this Invitation to Bid.
- PREPARATION OF BID:** Each bid must be submitted on the prescribed form and accompanied by the required form in Section F including a bid bond or certified check, the Non-Collusion Affidavit, Certification Regarding Debarment, Suspension, and Other Responsibility Matters Primary Covered Transactions, Experience Statement, Bonding and Insurance Requirements and the Statement on Delinquent Taxes. All blank spaces for bid prices must be filled in, in ink or typewritten, in both words and figures, and foregoing Certifications must be fully completed and executed when submitted. The bidder’s total is his/her/its total bid based on his/her/its unit prices and lump sum prices and the estimated quantities shown on the plans. This figure is for information only at the time of opening bids. The Owner will make the tabulation from the unit prices and lump sum prices bid. If there is an error in the total by the bidder, it shall be changed as only the unit prices and lump sum prices shall govern. Each bid must be submitted in a sealed envelope, bearing on the outside, the name of the bidder, his/her/its address, and the name of the project for which the bid is submitted. If forwarded by mail, the sealed envelope containing the bid must be enclosed in another envelope addressed as specified in the bid form.
- TELEGRAPHIC MODIFICATION:** Any bidder may modify his/her/its bid by telegraphic communication at any time prior to the scheduled closing time for receipt of bids, provided such telegraphic communication is received prior to the closing time, and provided further, the Owner is satisfied that a written confirmation of the telegraphic modification over the signature of the bidder was mailed prior to closing time. The telegraphic communication should not reveal the bid price, but should provide the addition or subtraction or other modification so that the final prices or terms will not be known by the Owner until the sealed bid is opened. If written confirmation is not received within two (2) days from the closing time, no consideration will be given to the telegraphic modification.
- METHOD OF BIDDING:** The Owner invites unit price/lump sum price bids as indicated in the bid form. If the lowest responsive bid received exceeds the amount of funds available to finance the Contract, the Owner may:

- a) Reject all bids;
- b) Augment the funds available in an amount sufficient to enable award to the lowest responsive bidder or bidders; and
- c) Take the base bid less a number of items as listed on the proposal form as to produce a net amount which is within available funds.

See page Part 2: Alternates/Allowances for information on

The estimate on this project is: **\$2,325,000** Alternates

5. **QUALIFICATIONS OF BIDDER:** The Owner may make such investigations as he/she/it deems necessary to determine the ability of the bidder to perform the work, and the bidder shall furnish to the Owner all such information and data for this purpose as the Owner may request. The Owner reserves the right to reject any bid if the evidence submitted by, or investigation of, such bidder fails to satisfy the Owner that such bidder is properly qualified to carry out the obligations of the Contract and to complete the work contemplated therein. Conditional bids will not be accepted. Past performance will be an evaluation criterion. Attention is called to Attachment A: QUALITATIVE and RESPONSIBLE CONTRACTOR CRITERIA
6. **BID SECURITY:** Each bid must be accompanied by cash, certified check of the bidder in the amount of 10% of the bid, or a bid bond prepared on the form titled Bid Guaranty and Contract Bond attached hereto, duly executed by the bidder as principal and having as surety thereon as approved by the Owner.

Such cash, checks or bid bonds will be returned to all except the three lowest bidders within three (3) days after the opening of the bids, and the remaining cash, checks or bid bonds will be returned promptly after the Owner and the accepted bidder have executed the Contract, or, if no award has been made within ninety (90) days after the date of the opening of bids, upon demand of the bidder at any time thereafter, so long as he/she/it has not been notified of the acceptance of his/her/its bid. Attorneys-in-fact who sign bonds must file with each bond a certified and effectively dated copy of their power of attorney.
7. **LIQUIDATED DAMAGES FOR FAILURE TO ENTER INTO CONTRACT:** The successful bidder, upon his/her/its failure or refusal to execute and deliver the Contract and bonds required within ten (10) days after he/she/it has received acceptance of his/her/its bid, shall forfeit to the Owner, as liquidated damages for such failure or refusal, the security deposited with his/her/its bid.
8. **CONDITIONS OF WORK:** Each bidder must inform himself/herself/itself fully to the conditions relating to the construction of the project and the employment of labor thereon. Failure to do so will not relieve a successful bidder of his/her/its obligation to furnish all material and labor necessary to carry out the provisions of the Contract. Insofar as possible, the Contractor in carrying out the work, must employ such methods or means as will not cause any interruption of or interference with the work of any other contractor.
9. **OBLIGATION OF BIDDER:** At the time of the opening of bids, each bidder will be presumed to have inspected the site and to have read and to be thoroughly familiar with the plans and Contract Documents (including all addenda). The failure or omission of any bidder to examine any form, instrument, or document shall in no way relieve any bidder from any obligation in respect of his/her/its bid.
10. **EXAMINATION OF SITE:** Each bidder shall, and is hereby directed to inspect the entire site of the proposed work and judge for himself/herself/itself as to all the circumstances affecting the cost and progress of the work and shall assume all patent and latent risks in connection herewith.
11. **SOIL CONDITIONS:** Subject to the convenience of the Owners, prospective bidders will be permitted to explore the site by making borings or digging test pits. In such event, the work shall be done at the sole

expense and risk of the bidder, and he/she/it shall maintain and restore the site to original condition. The Owner does not guarantee the accuracy of any information or samples which it may have obtained from test borings or otherwise as to the kind or condition of the soil that may be encountered in the prosecution of the proposed work, neither does the Owner represent that the plans and specifications drawn are based upon any data so obtained. The Owner does not make any representation as to the soil which may be encountered or of soil or water which underlies the work or is adjacent thereto, including any difficulties that may be due to quicksand, or other unfavorable conditions that may be encountered in the work, whether apparent upon surface inspection or disclosed in the process of carrying forward the work.

12. **WORKING FACILITIES:** The plans/work specifications show, in the general manner, the existing structures and land available for construction purposes. The bidders must satisfy themselves of the conditions and difficulties that may be encountered in the execution of the work at this site.
13. **ADDENDA AND INTERPRETATIONS:** No official interpretation of the meaning of the plans, specifications or other pre-bid documents will be made to any bidder orally. Every request for such interpretation should be in writing addressed to Hocking Athens Perry Community Action and to be given consideration, must be received at least five (5) days prior to the date fixed for the opening of the bids. Any and all such interpretations, any supplemental instructions, and any revisions, amendments, modification, or other changes, to this Invitation to Bid, will be in the form of written addenda to the specifications which, if issued, will be mailed by certified mail or faxed with return receipt requested in both instances to all prospective bidders (at the respective addresses furnished for such purposes), not later than three (3) days prior to the date fixed for the opening of bids. Failure of any bidder to receive any such addendum or interpretation shall not relieve such bidder from any obligation under his/her/its bid as submitted. All addenda so issued shall become part of the Contract Documents. HAPCAP reserves the right to request additional information from any bidder, whether or not such bidder was a recipient of this Invitation to Bid, and to solicit independent third-party confirmation of information submitted by a bidder hereby.
14. **WATER SUPPLY:** All water for construction purposes, as well as the expense of having water conveyed about the work, must be provided by the Contractor and the cost of this work shall be included in the unit prices stipulated for the various items of the work to be done under this Contract. The source, quality and quantity of water furnished shall, at all times, be satisfactory to the engineer and/or Owner or their representatives.
15. **SIGNATURE OF BIDDERS:** The firm, corporate or individual name of the bidder must be signed in ink in the space provided for the signatures on the proposed blanks. In the case of a corporation, the title of the officer signing must be stated and such officer must be thereunto duly authorized and the seal of said corporation duly affixed. In the case of a partnership, the signature of at least one of the partners must follow the firm name, using the term "member of the firm". In the case of an individual, use the terms "doing business as", or "sole owner". The bidder shall further state, in his/her/its proposal, the name and address of each person or corporation interested therein.
16. **NOTICE OF SPECIAL CONDITIONS:** Attention of the bidder is particularly called to those parts of the General Contract Conditions (Section C) and other Contract Documents and specifications which deal with the following:
 - a) Insurance requirements
 - b) Federal Labor Standards Provisions, including Davis-Bacon wage rates
 - c) Requirement for a payment bond and performance bond for 100% of the contract price
 - d) Requirement that all subcontractors be approved by the Owner
 - e) Time-for-completion and liquidated damages requirements
 - f) Safety standards

- g) Contractor's responsibility to obtain permits
- h) Equal Opportunity provisions

17. **ADDITIONAL OBLIGATIONS UPON CONTRACT AWARD:** Upon award of the Contract, but prior to execution of the final agreement and notice to proceed, the Contractor shall submit, in addition to any other actions, agreements, instruments, certificates and certifications, and any other documents, as required by applicable law and/or deemed advisable and/or appropriate by HAPCAP's legal advisor, all of the following documents, completed as required or requested:

- a) Acceptance of Notice of Award
- b) Contract
- c) Insurance certificate(s) and/or policy(ies), including Bureau of Workers' Compensation documentation
- d) Performance bond
- e) Certification of Bidder Regarding Section 3 and Segregated Facilities
- f) Certification(s) of (all) Proposed Subcontractors Regarding Section 3 and Segregated Facilities
- g) Contractor's Certification concerning Labor Standards and Prevailing Wage Requirements
- h) (All) Subcontractor's Certification(s) concerning Labor Standards and Prevailing Wage Requirements.
- i) ALL OF THE FOLLOWING IF CONTRACT EXCEEDS \$10,000.00:
 - Contractor's Section 3 Plan
 - Certification of Bidder Regarding Equal Employment Opportunity
 - Certification(s) by (all) Proposed Subcontractors regarding Equal Employment Opportunity
 - Certification by Contractor and Subcontractors of Compliance with Air and Water Acts

18. **FOREIGN CORPORATIONS AND CONTRACTORS**

A. Foreign Corporations

Definition: "Foreign Corporation" means a corporation incorporated under the laws of another state. No contract shall be entered into with a foreign corporation until the Secretary of State has certified that such corporation is authorized to do business in Ohio; and until, if the bidder so awarded the Contract is a person or partnership, it has filed with the Secretary of State a Power of Attorney designating the Secretary of State as its agent for the purpose of accepting service of summons in any action brought under Section 153.05 of the Ohio Revised Code or under Sections 4123.01 to 4123.94, inclusive of the Revised Code.

19. **CONFIDENTIAL AND PROPRIETARY INFORMATION**

This Invitation to Bid contains confidential and proprietary information that is the property of HAPCAP, which is provided for the sole purpose of permitting the recipient to respond to the Invitation to Bid. The recipient agrees to maintain this Invitation to Bid and any portion of the information contained herein or provided in connection herewith in confidence and not to copy nor disclose such information to any person outside the group directly responsible for responding to its contents. The contents of this document may not be used for any purpose other than preparation of a response to this Invitation to Bid. This Invitation to Bid is furnished for evaluation purposes only.

Any information contained in the bid that the bidder considers confidential or proprietary must be clearly identified as such (if identified as such, "Proprietary Information"). HAPCAP will respect requests for non-disclosure of proprietary information to the extent that such information is properly identified as "Proprietary Information," except as such disclosure, use, or publication is necessary, advisable, and/or appropriate, in connection with the Invitation to Bid process, or unless the bidder expressly authorizes

such disclosure in writing, or disclosure is required or requested by applicable law, regulation, or in a judicial or administrative proceeding; provided, however, that if a third party requests any such information in connection with the subject matter hereof, HAPCAP shall notify the bidder of such request before it provides such Proprietary Information and the bidder shall contact the applicable third party or parties who shall then inform HAPCAP of what information shall be treated as Proprietary Information and the terms under which such information may be disclosed.

Notwithstanding the foregoing, it is understood that, at all such times, HAPCAP and HAPCAP's members, managers, officers, employees, advisors, affiliates, funders, agents, and other representatives (those who actually receive Proprietary Information, "Representatives") are free to use such information which is generally known in the trade or industry, and/or which was already known or becomes known to HAPCAP or its Representatives through another source, and/or which was independently developed by HAPCAP or its Representatives without reliance on such Proprietary Information.

By submitting a bid, (i) the bidder acknowledges that, unless otherwise stated in a Contract or other written agreement, HAPCAP and its Representatives has not made nor shall it make any representation or warranty, express or implied, as to the accuracy or completeness of the information contained herein or provided hereunder, (ii) the bidder represents that HAPCAP considers the bid content and all of the bidder's written commitments, correspondence, and responses to questions regarding matters related to this Invitation to Bid, and (iii) the bidder further waives, in advance, and shall hold HAPCAP harmless, from any liability, claims, or expenses whatsoever (including, without limitation, breach of contract) incurred by or on behalf of any person or organization responding to this Invitation to Bid and/or in connection with any transaction unless and until the bidder and HAPCAP shall have executed and delivered a Contract with regard to the subject matter hereof.

Attachment A

ADDING “QUALITATIVE and RESPONSIBLE” CONTRACTOR CRITERIA TO THE HOCKING ATHENS PERRY COMMUNITY ACTION (HAPCAP) INVITATION TO BID ON ALL CONSTRUCTION PROJECTS SUBJECT TO PREVAILING WAGE THRESHOLD STANDARDS

WHEREAS, HAPCAP wishes to add “Qualitative and Responsible” contractor criteria to the Invitation to Bid for HAPCAP construction projects.

WHEREAS, HAPCAP desires to further ensure that Athens County’s contractors are compliant with the law, financially stable, and capable of executing construction contracts in a competent and professional manner.

WHEREAS, HAPCAP desires to help ensure the opportunity for workers in Athens County to obtain health insurance and pension benefits so desperately needed in today’s society as well as the proper training to maintain a quality workforce.

WHEREAS, the “Qualitative and Responsible” criteria enumerated in the attached document will be appropriately included in the HAPCAP Invitation to Bid for construction projects.

That the “Qualitative and Responsible” criteria enumerated are hereby approved and will be added to the HAPCAP Invitation to Bid for construction projects managed by the HAPCAP:

1. Before any contracts are awarded for any construction work within the jurisdiction of HAPCAP they shall, or their agent shall, hold with the apparent “Low” bidder a “Compliance of Scope Review”. This review is to verify that the bidder is in compliance with this resolution and that all required work under contract is included in bid.
2. The “Low” bidder whose bid is more than twenty percent (20%) below the next lowest bidder shall list three (3) projects that are each within seventy-five percent (75%) of the bid project estimate for similar projects and that were successfully completed by the bidder not more than five (5) years ago. This information shall be provided, if necessary, at the post-bid “Compliance of Scope Review”.
3. Any low bidder shall also be prepared to substantiate their cost over-run and job completion timeliness record. This information shall be provided at the post-bid “Compliance of Scope Review”.
4. The successful bidder shall certify that it will employ “qualified craft workers” with the experience and continuity befitting the wages they will be paid and hired from the labor pool, and that it possesses and maintains any appropriate state licenses.
5. The successful bidder must certify that it has not been penalized or debarred from any contract for falsified certified payroll records or any other violation of the Fair Labor Standards Act in the last five (5) years.
6. The successful bidder must not be debarred from any public contracts or found by the state (after all appeals) to have violated prevailing wage laws in the last five (5) years.
7. The successful bidder must certify that it has implemented a drug free workplace policy.
8. The successful bidder must certify it will secure any required bonds from a surety, licensed to do business in the State of Ohio with an A.M. Best Company rating of at least “A”.
9. The successful bidder must certify that it has complied with unemployment and worker’s compensation laws for at least the nine months preceding the date of bid submittal.
10. The successful bidder must certify that it provides a minimum health care plan for those employees that will be working on the proposed project.
11. The successful bidder must certify that it provides a pension or retirement program for those employees that will be working on the proposed project.
12. The successful bidder must submit a list of sub-contractors to be used on the project or before notice to proceed is issued.
13. The successful bidder must certify that its construction license has not been revoked in any state or municipality.

GENERAL CONTRACT CONDITIONS

SECTION C

ARTICLE 1 - CONTRACT AND CONTRACT DOCUMENTS

- A. The project to be constructed pursuant to this Contract will be financed with assistance from the Department of Housing and Urban Development and is subject to all applicable laws and regulations.
- B. All applicable State laws, municipal ordinances, and the rules and regulations of all authorities having jurisdiction over construction of the project shall apply to the Contract throughout, and they will be deemed to be included in the Contract the same as though herein written out in full. The term "Contract Documents" shall mean the full set of documents forming the Contract as provided or accepted by the Owner, including this Invitation to Bid and all of its Sections and attached forms.
- C. The Plans, Specifications and Addenda, hereinafter enumerated in Paragraph 1 of the Supplemental General Conditions shall form part of the Contract and provisions thereof shall be as binding upon the parties hereto as if they were herein fully set forth. The table of contents, titles, headings, running headlines and marginal notes contained herein and in said documents are solely to facilitate reference to various provisions of the Contract Documents and in no way affect, limit or cast light on the interpretation of the provisions to which they refer.

ARTICLE 2 - PERFORMANCE AND PAYMENT BONDS

Simultaneously with his/her/its delivery of the executed Contract, the Contractor shall furnish a surety bond or bonds as security for faithful performance of this Contract and for the payment of all persons performing labor on the project under the Contract and furnishing materials in connection with this Contract, as specified in the General Conditions included herein. The surety on such bond or bonds shall be a duly authorized surety company satisfactory to the Owner. The bond shall be for 100 percent of the contract price. A Payment Bond and Performance Bond are required per regulations below:

A state or local unit of government receiving a grant from the Federal government which requires contracting for construction of facility improvement shall follow its own requirement relating to bid guarantees, performance bonds, and payment bonds, except for contracts or subcontracts exceeding \$100,000.00. For contracts or subcontracts exceeding \$100,000.00, the Federal agency may accept the bonding policy requirement of the grantee provided the Federal agency has made a determination that the Government's interest is adequately protected. If such a determination has not been made, the minimum requirements shall be as follows:

- A. *A bid guaranty from each bidder equivalent to ten percent of the proposal price. The "bid guarantee" shall consist of a firm commitment such as a bid bond, certified check, or other negotiable instrument accompanying a proposal as assurance that the bidder will, upon acceptance of his/her/its proposal, execute such contractual documents as may be required within the time specified.*
- B. *A performance bond on the part of the contractor for 100 percent of the contract price. A "performance bond" is one executed in connection with a contract to secure fulfillment of all the contractor's obligations under such contract.*
- C. *A payment bond on the part of the contractor for 100 percent of the contract price. A "payment bond" is one executed in connection with a contract to assure payment as required by law of all persons supplying labor and material in the execution of the work provided for in the contract.*

Attorneys-in-fact who sign bid bonds or contract bonds must file with each bond a certified and effectively dated copy of their power of attorney. Under certain conditions, and within the limits of State and local laws and regulations, the Owner may waive the requirement that the Payment and Performance Bond be underwritten by a surety company and may authorize in lieu thereof, a personal bond backed by a letter of credit from a local lending institution for the full value of the Contract.

ARTICLE 3 - WAGE RATES

In the event that the rates of wages paid for any trade or occupant in the locality where such work is being performed are under current collective agreements or understandings between bona fide organizations of labor and employer, then the wages to be paid shall be not less than such agreed wage rates, nor less than the minimum rates compiled by the Federal Labor Standard Provision. A copy of these prevailing rates of wages has been included in the specifications.

Every Contractor and subcontractor who is subject to this Contract (the "Subcontractor" or "Subcontractors") shall, as soon as he/she/it begins performance under his/her/its Contract with the Owner, supply the Owner a schedule of dates on which he/she/it is required to pay wages to employees. He/she shall also deliver to the prevailing wage coordinator within three weeks after each pay date, a certified copy of his/her/its payroll which shall exhibit for each employee paid any wages, name, current address, social security number, number of hours worked each day of the pay period and total for each week, hourly rate of pay, job classification, fringe payments, and deductions from wages. The certification of each payroll shall be executed by the Contractor, Subcontractor, or duly executed by the Contractor, Subcontractor, or duly appointed agent thereof and shall recite that the payroll is correct and complete and that the wage rate shown is not less than those required by the Contract. **Insofar as possible, local labor shall be employed on this work.**

ARTICLE 4 - INSURANCE

- A. The Contractor shall not commence work under the Contract until he/she/it has obtained all the insurance required hereunder and such insurance has been approved by the Owner, nor shall the Contractor allow any Subcontractor to commence work on his/her/its subcontract until all similar insurance required of the Subcontractor has been so obtained and approved. Approval of the insurance by the Owner shall not relieve or decrease the liability of the Contractor hereunder.
- B. The Contractor shall file with the Owner all Certificate(s) of Insurance as are necessary to document the insurance coverage required hereunder, subject to the approval of the Owner and receipt of any additional forms/documentation requested, prior to execution of the Contract and issuance of the Notice to Proceed.
- C. Worker's Compensation
 - a) All Contractors and Subcontractors shall acquire and maintain, during the term of the Contract, Worker's Compensation insurance in full compliance with the laws of the State of Ohio.
- D. Contractor's Liability Insurance
 - a) The Contractor shall acquire and maintain during the term of the Contract Bodily Injury and Property Damage Liability Insurance under a standard Comprehensive General/Automobile Liability Policy which shall provide and include coverage on all Contractor's Operations, Contractor's Protective (Sublet) Liability, Contractual Liability, Completed Operations Liability, Owned Automobiles and Non-owned and Hired Automobiles.

- b) Property Damage Liability Insurance shall be provided on any demolition, blasting, excavating, shoring or similar operation on an “if any” basis.
- c) Bodily Injury Liability limits shall be for an amount of no less than Two Hundred Fifty Thousand (\$250,000) Dollars for injuries, including wrongful death to any one person and subject to the same limit for each person, in an amount of not less than Five Hundred Thousand (\$500,000) Dollars on the account of any one occurrence.
- d) Property Damage Liability insurance shall be in an amount of not less than One Hundred Thousand (\$100,000) per occurrence. General Liability shall be extended to provide “Broad Form Property Damage Liability,” and in an amount of not less than One Million (\$1,000,000) Dollars aggregate for damage on account of all occurrences.
- e) Any combination of underlying Comprehensive General/Automobile Liability coverage with Umbrella/Excess Liability coverage which provides no less than One Million (\$1,000,000) Dollars Single Limit Bodily Injury and Property Damage Liability Insurance for the Contractor will also be acceptable.
- f) The Owner may adjust the liability limits to coincide with local government procurement policies and practice within the limits of state and local law.

E. Builder’s Risk Insurance

- a) Each Contractor shall maintain insurance from loss incurred by fire, lightning, extended coverage hazards, vandalism, theft, explosion and malicious mischief in the full amount of the Contract and such insurance shall cover all labor and material connected with the work, including materials delivered to the site, but not yet installed. This insurance shall be project specific and valued in the full amount of the Contract’s value.

F. Installation Floater Insurance

- a) When a Contractor is involved solely in the installation of materials and not in the construction of a building (i.e. plumbing), an Installation Floater is required in lieu of a Builder’s Risk Policy with the same general conditions applying as set forth in Paragraph E.

G. The policies as listed above shall all contain all the following special provisions:

- a) The Company agrees that thirty (30) days prior to cancellation or reduction of the insurance afforded by this policy with respect to the Contract involved, written notice will be mailed to HOCKING ATHENS PERRY COMMUNITY ACTION AGENCY.
- b) The maintaining of such insurance as outlined herein shall in no way constitute a waiver of legal liability for damage to any adjoining buildings or their contents or the work and property of others on the site beyond the limits of insurance thus maintained. The Contractor shall hold the Owner free and harmless from any injury and damage resulting from the negligent or faulty performance of the Contract by the Contractor or by his/her/its Subcontractors.
- c) Each Contractor shall hold the Owner harmless from all payments for patents, either as royalty or otherwise, in the use of materials, methods, appliances, etc., that he/she/it may be any way involved in or connected with any part of his/her/its work or the work of his/her/its Subcontractors.
- d) Prior to commencement of any work under the Contract, the Contractor shall furnish one (1) copy of Declaration of Insurance as evidence of coverage.

ARTICLE 5 - SAFETY

- A. The Contractor will be responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the work. He/she/it will take all necessary precautions for the safety of, and will provide the necessary protection to prevent damage, injury, or loss to all employees on the work and other persons who may be affected thereby, and all the work and all materials or equipment to be incorporated therein, whether in storage on or off the site, and other property at the site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, and utilities not designated for removal, relocation, or replacement in the course of construction.
- B. The Contractor will erect and maintain, as required by the conditions and progress of the work, all necessary safeguards for safety protection. He/she/it will notify owners of adjacent utilities when prosecution of the work may affect them.
- C. The Contractor shall comply with the safety standards guidelines provisions of applicable laws, building and construction codes as well as the requirements of the Occupational Safety and Health Act of 1970, as amended through January 1, 2004, and the requirements of Title 29 of the Code of Federal Regulations. The Contractor shall also comply with Chapter 4104.9-2 of the Ohio Revised Code prohibiting the Employment of Minors in Occupations Hazardous or Detrimental to their health and OSHA Part 1926, Safety and Health Regulations for Construction.
- D. The Contractor shall maintain at his/her/its office or other well-known place at the job site, all articles necessary for giving first aid to the injured, and shall make standing arrangements for the immediate removal to a hospital or a doctor's car of persons (including employees) who may be injured at the job site. In no case shall employees be permitted to work at a job site before the employer has made a standing arrangement for removal of injured persons to a hospital or a doctor's care.
- E. Lights, signs and barricades shall be used to maintain traffic and safety for vehicular and pedestrian traffic during the course of the Contract in accordance with the specifications.

ARTICLE 6 - PERMITS

The Owner is responsible for obtaining and paying for the following permits: _____
_____. (If blank, Contractor is responsible for all permitting necessary.)

The Contractor is responsible for obtaining and paying for all other necessary permits and licenses from the proper authorities. The Contractor shall give all notices and comply with all laws, ordinances, rules, and regulations bearing on the conduct of the work as drawn and specified. If the Contractor observes that the Contract Documents are at variance therewith, he/she/it shall promptly notify the Owner in writing.

ARTICLE 7 - SUPERVISION

- A. The Contractor will supervise and direct the work. He/she/it will be solely responsible for the means, methods, techniques, sequences, and procedures of construction. The Contractor will employ and maintain on the work site a qualified supervisor or superintendent who shall have been designated in writing by the Contractor at the pre-construction meeting as the Contractor's representative at the site. The Supervisor shall have full authority to act on behalf of the Contractor and communications given to the supervisor shall be as binding as if given to the Contractor. The supervisor shall be present and on the site at all times as required to perform adequate supervision and coordination of the work.
- B. The Owner and its representative will, at all times, have access to the work. In addition, authorized

representatives and agents of any participating federal or state agency shall be permitted to inspect all work, materials, and payrolls, records of personnel, invoices of materials, and other relevant data and records. The Contractor will provide proper facilities for such access and observation of the work and also for any inspection or testing thereof.

- C. The Contractor shall submit a proposed program of operation, showing clearly how he/she/it proposes to conduct the work as to bring about the completion of his/her/its work within the time limit specified. This program shall outline the proposed sequence of operations, the rates of progress and the dates when his/her/its work will be sufficiently advanced to permit the installation of the work under other contract, and the estimated progress payments due under the Contract. The work under this Contract shall be so scheduled that as structures are completed, they can be placed into useful operation with a minimum of delay. The program shall be subject to the approval of the Owner.
- D. All construction as proposed along all City, Township, County, State and Federal roads including storage and stockpiling of materials, is to be conducted within the limits of the public right-of-way. Bracing, sheeting and shoring shall be used to keep all construction work within the construction limits unless work agreements are secured from the adjacent property owners. It is the Contractor's responsibility to secure these work agreements, if deemed necessary. Copies of the work agreements shall be delivered to the Engineer and the Owner prior to any work beginning on the affected property.

ARTICLE 8 - CLAIMS AGAINST CONTRACTOR

The Contractor shall indemnify and save the Owner or the Owner's agents harmless from all claims growing out of the lawful demands of Subcontractor's laborers, workmen, mechanics, materialmen, and furnishers of machinery and parts thereof, equipment, tools, and all supplies, incurred in the furtherance of the performance of the work. The Contractor shall, at the Owner's request, furnish satisfactory evidence that all obligations of the nature designated above have been paid, discharged, or waived. If the Contractor fails to do so, the Owner, may, after having notified the Contractor, wither pay unpaid bills or withhold from the Contractor's unpaid compensation a sum of money deemed reasonably sufficient to pay any all such lawful claims until satisfactory evidence is furnished that all liabilities have been fully discharged whereupon payment to the Contractor shall be resumed, in accordance with the terms of the Contract Documents, but in no event shall the provisions of this sentence be construed to impose any obligations upon the Owner to either the Contractor, his/her/its Surety, or any third party. In paying any unpaid bills of the Contractor, any payment so made by the Owner shall be considered as a payment made under the Contract Documents by the Owner to the Contractor and the Owner shall not be liable to the Contractor for any such payments in good faith.

ARTICLE 9 - SUBCONTRACTING

- A. Neither the Contractor nor the Owner shall sell, transfer, assign, or otherwise dispose of his/her/its right, title, or interest therein, or his/her/its obligations thereunder.
- B. The Contractor shall not sublet, sell, transfer or assign any portion of the Contract without written consent of the Owner or his/her/its designated agent. When such consent is given, the Contractor will be permitted to sublet a portion thereof, but shall perform with his/her/its own organization, work amounting to no less than fifty percent of the total contract cost, except that any item designated in the Contract before computing the amount of work that is required to be performed by the Contractor with his/her/its own organization. No subcontract or transfer shall in any way release the Contractor of his/her/its liability under the Contract and bonds.
- C. The Contractor shall not award work to Subcontractor(s) without prior written approval of the Owner, after verification by the Ohio Department of Development of the subcontractor's current eligibility status, and after submission of all certifications as required in INSTRUCTIONS TO BIDDERS. The Contractor shall be fully responsible to the Owner for the acts and omissions of the Subcontractor(s), and of the

persons either directly or indirectly employed by them, as he/she/it is for the acts and omissions of persons directly employed by him/her.

ARTICLE 10 - CHANGE OF WORK

- A. The Owner reserves the right to make, at any time during the progress of the work, such increases or decreases in quantities and such alterations in details of the work as may be deemed necessary or desirable. Such increases or decreases and alterations shall not invalidate the Contract nor release the surety; the Contractor agrees to perform the work as altered, the same as if it had been a part of the original contract. The Contractor has no right to make increases or decreases in quantities in details or alterations of the work without the prior written approval of the Owner.
- B. Authorized alterations in plans or quantities of work involving work not covered by unit prices in the proposal are paid for as stipulated in the change order authorizing such work.
- C. No changes in work covered by the approved Contract shall be made without having prior written approval of the Owner. No changes to the provisions in the Contract Documents shall be made without the prior written approval of the Owner.

ARTICLE 11 - TIME

- A. The date of beginning and time for completion of the work are essential conditions of the Contract Documents and work embraced shall be commenced on a date specified in the Notice to Proceed.
- B. The Contractor will proceed with the work at such rate of progress to ensure full completion by the completion date of the work (the "Contract Time"). It is expressly understood and agreed, by and between the Contractor and the Owner, that the Contract Time for the completion of the work described herein is a reasonable time, taking into consideration the average climatic and economic conditions and other factors prevailing in the locality of the work.
- C. The Contract Time to fully complete the project shall be approx. 416 consecutive calendar days following the date of commencement of work to be specified in a written "Notice to Proceed".
- D. If the Contractor shall fail to complete the work within the Contract Time, and an extension of time is not granted by the Owner, the Contractor will pay the Owner for liquidated damages \$100.00 for each calendar day that the Contractor shall be in default after the time stipulated in the Contract Documents.

ARTICLE 12 - COMPLETION OF WORK

- A. The Contractor shall guarantee all materials and equipment furnished and work performed for a period of one year from the date of Substantial Completion. The Contractor warrants and guarantees for a period of one year from the date of Substantial Completion of the improvement that it is free from all defects due to faulty materials or workmanship, and the Contractor shall promptly make corrections as may be necessary by reason of such defects. The Owner will give notice of observed defects with reasonable promptness. In the event that the Contractor fails to make repairs, adjustments, or other work which may be made necessary by such defects, the Owner may do so and charge the Contractor the cost thereby incurred. The Contract Bond shall remain in full force and effect through the guarantee period.
- B. When the work, including that performed by Subcontractors, is completed, the site shall be cleaned of all rubbish and debris caused by the construction. All sheds or other temporary structures, surplus materials, and equipment shall be removed and the project left in a neat and presentable condition.

ARTICLE 13 - TERMINATION

After ten (10) days from delivery of a written notice to the Contractor, the Owner may, without cause and without prejudice to any other right or remedy, elect to terminate the Contract. In such case, the Contractor shall be paid for all work executed and any expense sustained plus reasonable profit, unless such termination was due to the act or conduct of the Contractor.

ARTICLE 14 - PAYMENT

Payment to the Contractor shall be made by the Owner as follows: **100% upon completion or in draws of approximately 50%. Payment will be made only on work that is complete.** The Owner's Representative shall certify on the pay request that he/she/it approved the completed work prior to the Owner making payment. Upon receipt of an approved invoice from the Contractor, the Owner shall submit a drawdown request to the Ohio Department of Development for CDBG funds to pay the Contractor. A turnaround time of 45 - 60 days is expected before said funds are forwarded to the Owner.

ARTICLE 15 - MISCELLANEOUS

Payment to the Contractor shall be made by the Owner as follows: **100% upon completion or in draws of approximately 50%. Payment will be made only on work that is complete, or at payment intervals, such as monthly or deemed agreeable by all parties in a pre-construction meeting prior to work commencing.** The Owner's Representative shall certify on the pay request that he/she/it approved the completed work prior to the Owner making payment. Upon receipt of an approved invoice from the Contractor, the Owner shall submit a drawdown request to the Ohio Department of Development for CDBG funds to pay the Contractor. A turnaround time of 45 - 60 days is expected before said funds are forwarded to the Owner.

SUPPLEMENTAL GENERAL CONDITIONS

1. ENUMERATION OF PLANS, SPECIFICATIONS AND ADDENDA

Following are the Plans, Specifications and an Addenda which will form a part of the Contract, as set forth in Article I of the General Contract Conditions, "Contract and Contract Document".

Drawings	Number	Date

Specifications

Addenda	Number	Date

2. STATED ALLOWANCES

The Contractor shall include the following cash allowances in his/her/its proposal:

3. SPECIAL HAZARDS: _____

4. CONTRACTOR’S AND SUBCONTRACTOR’S PUBLIC LIABILITY, VEHICLE LIABILITY, AND PROPERTY DAMAGE INSURANCE

- a. As required under Article 5 of the General Contract Conditions, the Contractor’s Public Liability Insurance and Vehicle Liability Insurance shall be in an amount not less than \$1,000,000 for injuries, including accidental death, to any one person, and subject to the same limit for each person in an amount not less than \$500,000 on account of one accident, and Contractor’s Property Damage Insurance in an amount not less than \$1,000,000.
- b. The Contractor shall either (1) require each of his/her/its subcontractors to procure and to maintain during the life of his/her/its subcontract, Subcontractor’s Public Liability and Property Damage of the type and in the same amount as specified in the preceding paragraph, or (2) insure the activities of his/her/its subcontractors in his/her/its own policy.

5. PHOTOGRAPHS OF THE PROJECT

The Contractor will furnish photographs in the number, type and state as enumerated: _____

6. SCHEDULE OF FEDERAL OCCUPATIONAL CLASSIFICATIONS AND DAVIS-BACON MINIMUM HOURLY WAGE RATES

Refer to Section E

WORK SPECIFICATIONS

SECTION D

SECTION 01 11 11
GENERAL REQUIREMENTS

PART 1: GENERAL

- 1.01 Nothing in this Division shall be intended to amend or modify the stipulations of the General Conditions of the contract for Construction.

- 1.02 SCOPE OF WORK
 - A. The Project consists of the renovation of an existing motel into a shelter for homeless people.

 - B. Work includes, but is not limited to:
 - 1. Sitework.
 - 2. General Construction.
 - 3. Plumbing Construction.
 - 4. HVAC Construction.
 - 5. Electrical Construction.

 - C. Miscellaneous furnishings and equipment except as shown and specified, will be furnished by the Owner, and installed by the Contractor. Contractor advised not to construe this paragraph as releasing any obligation on his part to provide complete systems for all work shown or specified.

- 1.03 REQUEST FOR INFORMATION/ SUBSTITUTIONS
 - A. Substitutions: All substitutions shall be submitted in writing on later than (7) seven days prior to bid opening. Substitution request shall be reviewed by Architect. Substitutions shall not be permitted unless approved by Architect by addendum. Substitution requests shall include product data, color charts, color samples, and all other pertinent data required for Architect's review. It shall be the bidder's responsibility to prove exact proof that the substitution is equal to the specified product. Do not submit generic data, unreadable data and/or any data that is not clear and precise to the requested substitution.

 - B. Request of Information: All bidders who are required to review and understand the specifications and Drawings prior to bidding the project. Bidders shall be responsible for visiting and becoming familiar with the existing conditions. Any questions or discrepancies noticed by the bidder shall be submitted in writing to Jon Stevison at stevison@rvcarchitects.com no later than (5) days prior to bid opening, no exceptions. No question shall be recognized or acknowledged (5) days prior to bid opening and bidders shall responsible for any unanswered questions without monetary compensation

- 1.04 PERMITS
 - A. If required, the State Building permits for Structural, HVAC, Electrical and Plumbing will be obtained by the Architect and paid for by the Owner.

 - B. All other permits, fees, tap fees, sign approvals, etc., including local permits shall be obtained by the Contractor in each appropriate trade.

 - C. The Contractor is to coordinate the state inspections involved with all the above permits.

- 1.05 APPLICABLE CODES

All work to be performed on this Project shall conform to all applicable building and safety codes. Codes to apply are as follows, in their latest edition:

 - A. The Ohio Building Code (O.B.C.).
 - B. The National Electrical Code.
 - C. The Ohio Department of Health, Plumbing Division, regulations.

- D. The Life Safety Code and related codes.
- E. All Ohio and applicable National Environmental Protection Agency regulations and all other applicable national, state and local codes and regulations.

1.06 WORK HOURS

- A. Normal job working hours shall be established by the General Contractor, in conjunction with the Owner's special requirements.

1.07 SECTIONS OF THE WORK

- A. The Specifications for the work are arranged in various trade Sections as a convenience to the Contractor to more clearly show the extent of work involved. These Sections are not intended to define any complete Subcontract. Contractor shall verify proposals and shall furnish all labor, materials, appliances and services necessary to provide any missing work to coordinate the various sections. The Architect's position is that all work is performed by the Contractor and questions concerning work included under any Subcontractor is entirely between the Contractor and his /her Subcontractors.

1.08 OWNER-FURNISHED

- A. Miscellaneous furnishings and equipment, except as shown and specified, will be furnished and installed by the Owner. Contractor advised not to construe this paragraph as releasing any obligation on his part to provide complete systems for all work shown or specified.
- B. See Section 01 64 00 a list of Owner furnished and Contractor installed materials.

1.09 CONTRACT/PROJECT COORDINATION (SINGLE PRIME CONTRACT)

- A. Single Prime Contract: Provide work under a single prime contract.
 - 1. General Contractor shall be fully responsible for all work for all trades required to successfully complete the project.
- B. General Contractor shall coordinate the work of all Contractors including all Work that is not in contract. General Contractor's work includes, but is not limited to:
 - 1. Prepare Project Construction Schedule which incorporates all Contractors' work into one document. Project Construction Schedule to comply with PART 4: CONSTRUCTION SCHEDULES (below).
 - 2. Reconcile conflicts. The final schedule should reflect reasonable compromise, where required, and best solution for the overall Project; all within the capabilities of the various Contractors.
 - 3. Obtain approval from each Contractor of the Project Construction Schedule by signature on the Schedule.
- C. General Contractor shall supervise all work. Work shall be performed within the time limits indicated on the Project Schedule.
- D. Coordination Drawings:
 - 1. The General Contractor shall prepare coordination drawings and indicate how work shown by separate shop drawings will interface and indicated installation sequence.
 - 2. Coordination drawings shall be turned over to the Architect for review within ten days of final completion. General Contractor shall be considered liable for information that is incomplete, incorrect, not comprehensible and/or omitted from the coordination set. Architect shall not be responsible for any information that is incorrect, incomplete, not comprehensible, and/or omitted from the coordination drawings.

1.10 CONTRACTORS' USE OF PREMISES

- A. On-site storage of materials or equipment is permitted with the Architect's/Owner's approval in designated locations. Contractor shall assume full responsibility for protection and safekeeping of

materials and equipment stored on the site and within buildings.

- B. Do not unreasonably encumber building with materials and equipment.
- C. Relocation of stored materials or equipment required by job progress will be performed at the sole expense of the Contractor that placed, or caused to be placed, such materials or equipment on the job site.
- D. Do not load structures with weight that will endanger structure.
- E. Assume full responsibility for protection and safekeeping of materials and equipment stored on site and within buildings.
- F. Confine operations to areas permitted by Owner and Architect and generally within contract limits. Adjacent buildings and areas will be occupied and in use during construction operations.
- G. General Contractor shall fix any damage that occurs at the designated equipment storage locations, this shall include but not be limited to the following:
 - 1. Re-planting and re-sodding greenspace,
 - 2. Repair damaged concrete curbs, walkways, and patio areas,
 - 3. Repair damage asphalt areas and repaint parking lines.

1.11 CUTTING/PATCHING AND SLEEVES

- A. General Contractor shall provide all chases and openings, cutting and patching required to complete installation of all work, including all Divisions, but with the following exceptions:
 - 1. All cutting of holes required for installation work and which are to be drilled or bored shall be done by the respective Division Contractor whose trade is involved.
 - 2. All cutting and replacement of lines and systems including piping, ductwork, conduit, wiring, etc. shall be performed by applicable Contractor.
 - 3. Each Contractor shall furnish the General Contractor with, and be responsible for, exact location and size of all holes and openings required to be cut or necessary for his work. Unless specifically called for on the Architectural or Structural Drawings, the cost of forming them shall be borne by the Contractor requiring them.
- B. Sleeves/Opening
 - 1. Where pipes, conduit, ductwork or other materials pass through new walls, partitions, floors, roof or ceilings, the Contractor requiring same shall provide suitable sleeves in these elements or have the General Contractor provide opening where sleeves are not practical. Where sleeves or openings are not placed, the applicable Contractor is responsible for all cutting and patching required for the installation of his work, or he shall pay other trades for doing this work as specified herein.
 - 2. Sleeves and openings shall be closed to prevent passage of fire or smoke using approved methods and materials to maintain the fire rating of the Construction being penetrated.
 - a. Floor Sleeves
 - 1. Extend 3" above floor in mechanical equipment rooms and shafts; 1/8" elsewhere.
 - 2. Bottom of sleeves to be flush with floor bottom.
 - b. Wall Sleeves
 - 1. Sleeves to be flush with wall surfaces.
 - 3. Where pipes, conduit, ductwork, etc., pass through, behind, or above, existing construction the Contractor requiring same is responsible for all cutting, patching, and refinishing or he shall pay other trades for doing this work as specified herein.
- C. Roof Penetrations

1. Qualified roofer to be present when roof membrane is penetrated to complete the necessary repair or provide temporary seal until permanent patch is completed. Roof penetrations shall not be left unprotected overnight or exposed to moisture.

1.12 FIELD ENGINEERING

A. Elevations and Reference Points

Grades and elevations indicated in the Contract Documents are based upon data as noted on drawings. Before commencing work, Contractor shall employ surveyor to locate all general reference points and elevations.

- B. Contractor to provide layout for work according to plans and reference points provided and be responsible for damage or corrective measures required by reason of his inaccuracy. Coordinate work with all trades and advise Architect in case of conflict or discrepancies in plans.

PART 2: ALTERNATES/ALLOWANCES

2.01 ALTERNATES

A. Definition

An alternate is an amount proposed by Bidders and stated on the Bid Form that will be added to or deducted from Base Bid amount if the Owner decides to accept a corresponding change in either scope of work or in products, materials, equipment, systems or installation methods described in Contract Documents.

B. Coordination

The Contractor will coordinate related work and modify or adjust adjacent work as required to ensure that work affected by each accepted alternate is complete and fully integrated into the project.

C. Schedule

A "Schedule of Alternates" is included (below). Specification section reference in the Schedule contain requirements for materials and methods necessary to achieve the work described under each alternate.

1. Include as part of each alternate, miscellaneous devices, appurtenances and similar items incidental to or required for a complete installation whether or not mentioned as part of the alternate.

D. Schedule of Alternates:

1. General Contract Alternates

Alternate G-1: Solar Panel Deduct Alternate

1. If accepted, Contractors shall deduct all Work required and associated with installing solar panels as indicated on Drawings.

Alternate G-2: Playground Deduct Alternate

1. If accepted, Contractors shall deduct all Work required and associated with installing playground equipment and associated site work as indicated on Drawings.

2.02 ALLOWANCES

A. Cost included in Allowance unless noted otherwise:

1. Contractor's cost, less any applicable trade discount, for materials and equipment required under the allowance, delivered to site, and all applicable taxes.
2. Cost for unloading and handling, on site, labor, installation costs, off-site disposal when required, accessories and other incidentals.
3. Overhead and profit.

- B. Whenever the cost is more than or less than the allowance, the Contract Sum shall be adjusted accordingly by Change Order, the amount of which will recognize changes, if any, in handling costs on the site, labor, installation costs, overhead, profit and other expenses.
- C. The Architect reserves the right to take competitive bids for any or all work described under this Section, award such contract(s) separately and assign those contract(s) to the Contractor. The Contract Sum shall be adjusted accordingly by Change Order.
- D. Contractor will not be required to employ persons against whom he makes a reasonable objection.
- E. There are no allowances.

PART 3: PROJECT MEETINGS

3.01 PRECONSTRUCTION MEETINGS

- A. Successful Contractors shall plan to attend a preconstruction conference within three (3) work days of notification that their bids are successful.
- B. At the preconstruction conference, the General Contractor shall have all of the required documents (insurance forms, schedules, etc.) ready to present to the Architect.

3.02 JOB MEETINGS

The General Contractor shall schedule a weekly job progress meeting between himself/ herself, major Subcontractors, and notify the Architect and the Owner the time and place of the meeting which shall be then scheduled for the same day and hour of the week for the duration of the work.

PART 4: CONSTRUCTION SCHEDULES

4.01 FORM OF SCHEDULE

- A. Prepare in form of horizontal bar chart:
 - 1. Provide separate horizontal bar column for each trade or operation.
 - 2. Order: Chronological order of beginning of each item of work.
 - 3. Identify each column by the following:
 - a. Major division of work.
 - b. Distinct graphic delineation.
 - 4. Horizontal Time Scale: Identify first day of work of each week.
 - 5. Scale and Spacing: Allow for updating.
- B. Submittals
 - 1. Submit initial schedule immediately following the Contract award.
 - 2. Final schedule shall bear approval signature of Contractor.
 - 3. Submit two (2) copies to the Architect.

PART 5: SHOP DRAWINGS, PRODUCT DATA AND SAMPLES

5.01 GENERAL REQUIREMENTS

- A. Submit all shop drawings, product data and samples required by Specifications Section; requested by the Architect and any items required by Contract Documents that are not fully described in the Contract Document, unless waived in writing by the Architect. Items shall include but not be limited to the following:
 - 1. Construction of the various parts, method of joinery, type of materials, grade, quality of material, thickness of material, alloy of material, profile of all sections, reinforcements, installation of material, and material anchoring.
 - 2. Capacities, types of materials and performance charts that are pertinent to material or equipment.

3. wiring diagrams, control diagrams, schematic diagrams, working and erection dimensions, arrangement, and specification.

- B. Submittals to be complete for each assembly or system. Partial or incomplete submittals will not be reviewed. Submittals relating to interior or exterior color schemes to be submitted together.
- C. Contractor shall identify in transmittal all items with specific specification numbers when submitting shop drawings, product data and samples. Product data shall be submitted either during or prior to shop drawing submittal. Shop drawings shall not be reviewed before product data is submitted.

5.02 CONTRACTOR RESPONSIBILITIES

- A. Verify field measurements, field construction criteria and catalog numbers and similar data.
- B. Begin no work which requires submittals until return of submittals with Architect's stamp and initials or signature indicating review.

5.03 SUBMISSION REQUIREMENTS

- A. Schedule submissions to be received by the Architect at least 7 business days (excluding holidays and weekends) prior to the dates reviewed submittals will be needed by the Contractor for standard items requiring brief review and at least 14 days for complex items requiring extensive review, review by Architect's Consultants or possible resubmissions.
 - 1. Contractor shall make corrections required by the Architect and resubmit until approved, which Architect shall act upon within 14 days from receiving resubmission.
 - 2. Contractor shall pay all reasonable costs of Architect, Owner, and Contracting Authority for attendant, delay, interference, hindrance or disruption of Work due to excessive resubmittals without fault of Architect, Owner and Contracting Authority. Resubmittal in excess of two submittals shall be considered excessive.
 - 3. Architect review shall not extend to means, methods, manners, techniques, sequence, or procedures of construction, or safety precautions or incident programs.
- B. Samples: Provide physical samples and/or professionally produced color charts directly from the product manufacturer for samples. Computer printed color charts shall not be acceptable.
 - 1. Samples shall not be reviewed, nor selected by Architect until all submittals required to coordinate finishes, colors, patterns, textures, or other characteristics have been submitted.
 - a. For example, carpet tile shall not be selected until paint, wallcovering, counter surface samples and base board stains have all been submitted.
 - b. It shall be understood that it is in the Contractor's best interest to submit all interior finish samples at the same time. Failure of the Contractor to submit samples at the same time, shall delay selection of finishes, colors, patterns, textures, or other characteristics and be considered the fault of the Contractor solely.
 - b. It shall be understood that it is in the Contractor's best interest to submit all exterior finish samples at the same time. Failure of the Contractor to submit samples at the same time, shall delay selection of finishes, colors, patterns, textures, or other characteristics and be considered the fault of the Contractor solely.
- A. Shop Drawings: Provide either 3 computer printed physical shop drawings or pdf formatted (unsecured) electronic file of shop drawings. Shop Drawings shall be non-pixelated, readable and in English. Shop Drawing shall clearly indicate dimensions, profiles, and clearly label all material components. In complete shop drawings shall be returned as rejected.
- B. Product Data: Provide either 3 computer printed physical product data or pdf formatted (unsecured) electronic file of product data. Product data shall be non-pixelated, readable and in English. Product data shall clearly indicate dimensions, profiles, and clearly label all material components. In complete shop drawings shall be returned as rejected.

PART 6: TEMPORARY FACILITIES AND UTILITIES

6.01 INSTALLATION

- A. Installation of all temporary facilities and utilities shall be in conformance with all applicable codes as defined in this section.
- B. All required applications, permits and inspections shall be obtained and paid for by the Contractor requiring the temporary utility, unless otherwise indicated in Part 1.04 of this section. Temporary facilities and utilities shall be maintained in a safe, proper operating conditions.

6.02 TEMPORARY HEATING AND VENTILATING AND PROTECTION

- A. Prior to building being permanently enclosed, temporary heat and fuel necessary to complete the work shall be the responsibility of the General Contractor.
- B. The General Contractor shall provide at his own expense all weather protection as required to carry on the work expeditiously during inclement weather and to protect all work and materials from damage by the weather.
- C. After the building is permanently enclosed provide, operate and maintain until substantial completion, approved temporary heating and ventilating units as required to maintain an adequately heated and ventilated environment to successfully complete the work.
- D. Temporary heating and ventilating standards
 - 1. Minimum 50 degrees during working hours.
 - 2. Minimum 50 degrees during placing, setting and curing of concrete.
 - 3. For a period of ten (10) days previous to the placing of this and other interior finishing, varnishing, painting, etc., and until final acceptance of the work or until full occupancy by the Owner, provide sufficient heat to produce a temperature of not less than 70 degrees F.
 - 4. Heat and air shall be supplied in a manner which shall avoid the rapid drying of material but thoroughly dry to such an extent that no remaining moisture will affect finish material.
 - 5. The General Contractor shall operate the heating and ventilating systems each day, including Saturdays, Sundays and holidays; operating shall include necessary labor and approved operating personnel in attendance as required by agencies having jurisdiction.
 - 6. Supply all material, labor and fuel required for temporary heating and ventilating.
- E. Use of permanent systems
Shall be only as directed by the Architect. The General Contractor shall properly operate and maintain systems and shall be responsible for all costs of operation, maintenance and fuel.
- F. Use of permanent systems shall not affect warranties which will take effect at time of project acceptance by Owner.

6.03 TEMPORARY LIGHT AND POWER

- A. Provide necessary temporary light and power for all trades as required by the Project needs for the duration of the Project.
- B. All temporary light and power work shall conform to Federal, State, and Local safety requirements, and the National Electrical Code.
- C. Extend temporary service from existing public utility service or as required.
- D. Remove temporary service system when permanent system is available for use. No temporary system shall form part of the permanent system.
- E. Installation, maintenance, operation and supervision for temporary lighting and power shall be paid by the General Contractor.

6.04 COST OF UTILITIES

The cost of all utilities (water, gas, electricity) shall be borne by the General Contractor until substantial completion unless otherwise specified herein.

6.05 TIME LIMITATIONS

Should the project extend beyond the scheduled completion date, the Architect shall make a determination as to cause. The party or parties responsible for the extension shall assume the cost of the required temporary utilities service (water, gas and electric billings).

6.06 PARTIAL OCCUPANCY

If the Owner takes beneficial occupancy of a portion of the project, cost of temporary and permanent systems shall be negotiated between the Owner and General Contractor.

PART 7: PROJECT CLOSEOUT

7.01 GENERAL

- A. When General Contractor is satisfied that the entire work required by plans and specifications has been completed, (s)he shall notify the Architect by letter that the entire project is substantially correct. The Contractor will be notified immediately as to acceptance or rejection of his notification.
- B. Upon acceptance of this notification, the Owner, the Owner's Representatives, and the Architect will conduct a final inspection to determine what items remain in an unacceptable condition (Punch List). A report of this inspection will be delivered to the Contractor within fifteen (15) working days following acceptance of the General Contractor's letter of completion.
- C. On receipt of the final punch list items, the General Contractor shall take immediate corrective action on all items. When all items on the list have been corrected satisfactorily, the Architect shall execute a Release of Liens and a Payment of Debts and Claims Certificate. Previously, Substantial Completion Certificates may have been issued by the Contractor and approved by the Architect and Owner for "beneficial occupancy" of certain specified areas.

7.02 OPERATION AND MAINTENANCE MANUALS

- A. General Contractor shall furnish finished "Operation and Maintenance Manuals" for all work as indicated below.
- B. Physical Copies:
 - 1. Two copies required.
 - 2. Format /Assembly: 8-1/2" x 11" hard-back binder. All material bound in binder
- C. Electronic Copy:
 - 1. PDF formatted files on an USB flash drive or CD.
 - 2. Files shall be stored in electronic folders. Folders shall be labeled with six-digit specification section. Files shall be label product and submittal type (Example: Casework_Warranty.pdf)
- D. Contents

Each manual shall contain operation and maintenance instructions, maintenance data, complete parts lists, warranties, shop drawings or catalog cuts, and other data listed herein as furnished by the manufacturer, for all systems and equipment provided in the Contract, unless otherwise approved.

 - 1. When necessary, furnish supplemental drawings and/or diagrams to show system operation and servicing or maintenance points.
 - 2. Furnish data in clean, neat, legible copies with all drawings accordion folded; do not include inapplicable information and advertising.

- E Delivery
 - 1. Deliver completed manuals to Architect not more than 14 days prior to scheduled completion of the Work.
 - 2. The Architect will then transmit the manuals to the Owner after review and approval.

END OF SECTION-01 11 11

1. Deliver completed manuals to Architect not more than 14 days prior to scheduled completion of the Work.
2. The Architect will then transmit the manuals to the Owner after review and approval.

END OF SECTION-01 11 11

SECTION 01 64 00
OWNER FURNISHED PRODUCTS

PART 1: GENERAL

1.01 SUMMARY

- A. Miscellaneous furnishings and equipment, except as shown and specified, will be furnished and/or installed by the Owner.
- B. Contractor advised not to construe this paragraph as releasing any obligation on his part to provide complete systems for all work shown or specified.

1.02 OWNER FURNISHED, CONTRACTOR INSTALLED PRODUCTS

- A. Coordinate time and date for requested delivery of Owner supplied product(s) with Owner; provide Owner not less than 10 days written notice and 24 hour notice by telephone for equipment currently in use.
- B. Contractor is responsible for removal, loading, unloading, uncrating, storage, protection, and installation of product.
 - 1. Owner's supplier shall coordinate with Contractor for proper pipe, wiring, dimensions, and all other requirements for proper installation of Owner supplied products.
- C. Products
 - 1. None

1.03 OWNER FURNISHED AND INSTALLED

- A. Coordinate time and date for requested delivery of Owner supplied product(s) with Owner; provide Owner not less than 10 days written notice and 24 hour notice by telephone for equipment currently in use.
- B. Contractor is responsible for protection of product.
 - 1. Owner's supplier shall coordinate with Contractor for proper pipe, wiring, dimensions, and all other requirements for proper installation of Owner supplied products.
- C. Products
 - 1. Electronic Locksets for all doors
 - 2. Security Cameras.
 - a. Contractor shall be required to install conduit and cabling as indicated in the Drawings.
 - b. Contractor shall coordinate with Architect and Owner for final location of camera.
 - 3. Callbox
 - a. Contractor shall be required to install conduit and cabling as indicated in the Drawings.
 - b. Contractor shall coordinate with Architect and Owner for final location of callbox.
 - 4. Range, Refrigerators, washers, dryers and dishwasher.
 - a. Contractor shall be required to install receptacle outlets and associated wiring and conduit as indicated in the Drawings.
 - b. Contractor shall coordinate with Architect and Owner for final location and dimensions of appliances prior to fabrication of casework.
 - 5. Lockers.
 - 6. Basketball backer board and hoop. General Contractor shall supply required blocking for future installation.

END OF SECTION-01 64 00

SECTION 02 40 00
DEMOLITION

PART 1: GENERAL

- 1.01 RELATED DOCUMENTS
Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specifications Section, apply to work specified in this Section.
- 1.02 DESCRIPTION OF WORK
 - A. Scope
Includes the furnishings of all labor, materials, equipment, etc., necessary to perform Demolition and Removal Work in accordance with Specifications and Drawings.
- 1.03 GENERAL REQUIREMENTS
 - A. All alteration work shall be performed as indicated on the drawings and in the Specifications.
 - B. The Contractor shall do all required demolition and removal of existing work, including shoring, bracing and temporary protection of existing work as required and approved by the Architect, and shall remove such temporary protection and supports when no longer required.
 - C. The Contractor is referred to the Drawings and details for the notes and instructions regarding removal, replacement, patching, finishing etc.
 - D. Asbestos
If any material suspected of bearing asbestos is encountered, stop work in this area and immediately notify the Architect or Owner's Representative. Do not continue work in this area until a determination has been made.
- 1.04 CONTRACTOR'S RESPONSIBILITY
 - A. Familiarity with Existing Conditions
Prior to commencement of the work, the Contractor shall have inspected the job site, and become familiar with existing conditions, and cognizant of the nature of equipment facilities necessary to perform the Work.
 - 1. Commencement of demolition and removal work will be construed as indicating the Contractor has met the above requirements. Subsequent claims, arising from difficulties which could have been foreseen, will not be recognized.
 - B. Coordination
The Contractor shall be responsible for coordination of all demolition and removal work with the work of other trades so as not to delay job progress.
 - C. Damage
Particular attention shall be given to shoring and bracing requirements in order to prevent any damage to existing construction. The Contractor will be held responsible and shall make good at his own expense any damage resulting from his operations or the inadequacy of his methods.
- 1.05 APPLICABLE CODES
 - A. All demolition and removal work shall be performed in strict accordance with the rules and regulations of the Codes and Ordinances of Local, State Authorities, as applicable.

PART 3: EXECUTION

- 3.01 MANNER OF OPERATION
 - A. Demolition and removal work shall be performed in a careful and orderly manner, with the least possible disturbance to the occupants and functions of the neighboring buildings.

- B. Concrete and masonry shall be broken into small sections. No materials shall be thrown or dropped from any height. Framing members shall be removed individually and carefully lowered.
- C. Cutting of Masonry or Concrete
Where masonry or concrete must be cut to allow installation of new work, cutting shall be in straight lines with reasonably even edges and shall be an approved geometric pattern.
- D. Accumulation of Debris
No accumulation of debris resulting from demolition operations shall be allowed on the floors of the existing Building. Such debris shall be promptly removed and disposed of away from the premises.
- E. Access and Traffic
All work shall be performed so as to avoid hazards to pedestrian traffic, personnel, visitors and workmen, and vehicular traffic.
- F. Pollution Controls
Water sprinkling, temporary enclosures, and other suitable methods to limit dust and dirt rising shall be used. The Contractor shall take precaution against, and be responsible for any water damage to adjacent areas resulting from this operation.
- G. Weather Protection
Temporary protection, to shield temporary openings in exterior walls and to protect the interior of the building from inclement weather and heat loss shall be provided. Exterior grade plywood shall be used for this purpose.
- H. Shoring
Provide temporary shoring, studs and bracing and all necessary precautions to prevent settlement, movement or collapse of the existing construction. Remove temporary shoring, struts and bracing when in the opinion of the Architect, they are no longer necessary.
- I. Alterations
In alterations where new and old work join, the adjacent surfaces shall be cut, removed, patched, repaired and/or refinished as required and to the complete satisfaction of the Architect.
- J. Salvageable Material
All salvageable materials resulting from the work demolished and removed under this Contract shall become the property of the Contractor and shall be removed from the premises, unless otherwise indicated.
- K. Cutting and Cleaning
Demolition and alteration work shall include the cutting away and/or cleaning of existing surfaces as required to provide clearance and/or adhesion for new work.

3.02 SCHEDULING OF DEMOLITION WORK

- A. Contractor shall prepare and submit for approval by the Architect a schedule indicating commencement date, order and completion date of the various parts of this work.

3.03 CLEANING UP

- A. Removal of Tools and Equipment
Upon completion of demolition work, remove all tools and apparatus from the premises.
- B. Removal of Debris and Temporary Construction
Remove all demolished materials not designated for reuse, and all temporary construction and protection, leaving the premises clean, neat and orderly, to the complete satisfaction of the Architect.

- C. Burning of Debris
Burning of removed materials will not be permitted on the site.

3.04 PROTECTION

- A. Coordinate with Subcontractors for materials to be removed by them for their reuse, and for materials to remain.
- B. Provide protection for existing floors, walls, ceilings, and doors for the duration of the project.

END OF SECTION-02 40 00

SECTION 03 30 00
CAST-IN-PLACE CONCRETE

PART 1: GENERAL

1.01 RELATED DOCUMENTS

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

1.02 DESCRIPTION

A. Basic Specification

Perform work of this Section according to ACI 301-96, "Specifications for Structural Concrete", except as specifically modified herein.

B. Work Included

All cast-in-place concrete work shown on the Drawings and required by these Specifications. Allow for the installation of cast-in items furnished under other Sections. Install anchor bolts for structural steel. Provide and install grout under steel column base plates and beam bearing areas.

- C. Provide concrete pads, piers, curbs, and bases required for equipment of all trades. Coordinate dimensions and details with requirements of equipment being supplied, prior to placing concrete.

- D. Cooperate with other trades who will provide and install items of work (sleeves, piping, conduit, inserts, etc.) to be cast in the concrete. Place no concrete until all such items are in place.

- E. Inspection and testing services required by this Section are to be performed by an agency retained by the Contractor. This includes not only the services required to establish mix designs, but also includes all field sampling and testing required.

1.03 REQUIRED INSPECTIONS AND TESTS

The following are inspection services and tests required for the Inspection and Testing Agencies.

- A. Inspection and testing services required by this Section are to be performed by an agency retained by the Contractor. This includes not only the services required to establish a mix design, but also all field sampling and testing required, and all necessary soils testing.

B. Sitework Inspection and Testing:

1. Compaction and bearing:
 - a. Test and verify bearing capacity of all load-bearing earth.
 - b. Test compacted fills for compliance with required densities.

C. Concrete Work Inspection and Testing:

1. Perform the following services as required to ensure compliance with requirements of Division 2 of the Specifications.
2. Obtain concrete for required samples at point of placement.
3. Cast-in-place conventional concrete:
 - a. Check and verify batch consistency.
4. Slump tests: ASTM C 143.
 - a. Rate: Make slump test for each batch delivered or at least 1 test per hour during continuous pours whichever is greater.
5. Strength Tests: Make, cure and test cylinders in accordance with ASTM C 31.
 - a. Quantity: At least four test cylinders of each class of concrete for each 50 cubic yards placed, or for each day's placement, whichever is greater.
 - b. Information Required: Include exact mix tested, minimum size aggregate, location of placement in project, cylinder identified, date of receipt of cylinder in laboratory, slump, temperature of concrete when cylinders made, date, cement brand and type, admixtures used, dates and records of test cylinders, names of inspectors and laboratory testing

personnel, and evaluation of analysis of cause in case of test failure, and recommendations for remedial action.

- c. Special Requirements: Specimens shall be:
 1. Taken after any addition of water to the concrete mix on the job.
 2. Stored while on the job in a moist box as specified under Section 01 52 00: Construction Facilities.
 3. Placed in moist box within 10 minutes of molding.
 4. Not transported to testing laboratory until initial cure is obtained, not sooner than 16 hours after molding.
- d. Testing cylinders:
 1. Cap: ASTM C 617.
 2. Test: ASTM C 39
 3. Sequence: Of the 4 specimens taken from each sample:
 - a. One Cylinder: Break at 7 days.
 - b. Two Cylinders: Break at 28 days.
 - c. Reserve Cylinder: Break as directed by Architect. Typically, this cylinder will not be broken unless 28 day breaks indicate insufficient strength.
6. Air Content Testing: Provide for concrete mixes requiring air content.
 - a. Rates:
 1. Air Indicator Test: One test for each set of strength test cylinders.
 2. Air Meter Test: Not less than one test for each day's placement beginning with first set of required tests.
 - b. Test: Air indicator test with a "chase" AW-35 or equal device in strict accordance with manufacturer's printed instructions for initial check of air content.
 1. Verify results with Air meter test by air pressure test method (ASTM C 231) or volumetric (ASTM C 173).
 2. Placement of concrete may proceed if air indicator test is satisfactory due to the extended time requirements of air meter testing.
 3. Check air content of placed flatwork after floating using "chase" indicator. Advise Contractor to revise finishing procedures if air content of slab is more than 1/2 percent lower than reading obtained from truck.
7. Temperature: Determine concrete temperature for each strength test when air temperature is greater than 90 degrees F or less than 40 degrees F or may be within 24 hours.
8. Test results shall be reported in writing to Architect, within 24 hours after tests. Reports of compressive strength tests shall contain the project identification name and number, date of concrete placement, name of concrete testing service, concrete type and class, location of concrete batch in structure, design compressive strength at 28 days, concrete mix proportions and materials: compressive breaking strength and type of break for both 7-day tests and 28-day tests.
9. Additional Tests
The testing service shall make additional tests of in-place concrete when test results indicate specified concrete strengths and other characteristics have not been attained in the structure, as directed by Architect. Testing service may conduct tests to determine adequacy of concrete by cored cylinders complying with ASTM C 42, or by other methods as directed. Contractor shall pay for such tests when unacceptable concrete is verified.

1.04 QUALITY ASSURANCE

A. Reference Standards

1. ACI 318-14, Building Code Requirements for Reinforced Concrete.
2. ACI 315-99, Manual of Standard Practice for Detailing Reinforced Concrete Structures.
3. ACI 347R-14 Recommended Practice for Concrete Formwork.
4. ACI 305.1-14 Guide to Hot Weather Concreting.
5. ACI 306R-16 Guide to Cold Weather Concreting.
6. ACI 301-16 Specifications for Structural Concrete.
7. CRSI Manual of Standard Practice, 28th Edition.
8. ACI 304R-2000 Guide to Measuring, Mixing & Placing Concrete

- B. Newer Additions of references 1 thru 8 above may be used if requested in writing and approved by the Architect of Record.

1.05 SUBMITTALS

- A. Submit for approval the name of the agency proposed for the required inspection and testing services. If some or all of the required testing is to be performed by personnel not employed by the proposed agency, submit letter from the agency stating that those personnel are qualified to perform the tests.
- B. Submit a mix design for each class of concrete required. Concrete proportions shall be established on the basis of previous field experience or trial mixtures.
- C. Submit shop drawings for all reinforcing. Indicate strength, size, and details of all bar reinforcing, and style and specification of all welded wire fabric.
- D. Submit product literature for admixtures and curing compounds proposed for use.
- E. Submit reports of all required testing and inspection.

1.06 FIELD REFERENCE MANUALS

- A. Provide at least one copy of the ACI Field Reference Manual, SP-15, and one copy of CRSI's "Placing Reinforcing Bars", in the field office at all times.

PART 2: PRODUCTS

2.01 MATERIALS

Comply with the latest revision of each of the standards cited.

- A. Cement: Portland Cement, ASTM C150, Type I. Type II or III (high early strength) may be used with written approval and at the Contractor's expense.
- B. Water: Potable.
- C. Aggregates
ASTM C33. Use size no. 8 for coarse aggregate in toppings. For all other classes, use size no. 57.
- D. Admixtures (where required or permitted):
1. Water-reducing: ASTM C494, Type A or D.
 2. Air-entraining: ASTM C260.
 3. High range water reducing admixture (superplasticizer): ASTM C-494, Type F or G.
 4. Non-chloride, non-corrosive accelerator: ASTM C494, Type C or E.
 5. Fly ash or pozzolans: ASTM C618.
 6. Calcium chloride is NOT permitted.
 7. Use of admixtures other than those listed will be permitted only when approved prior to bid.
- E. Reinforcing:
1. Deformed bars: ASTM A615, A616, A617, or A706. Minimum yield strength to be 60 ksi.
 2. Provide 5% additional reinforcing bars to be used as directed by the Architect.
 3. Welded wire fabric: ASTM A185. Provide in sheet form for all uses other than slabs-on-grade.
- F. Pre-molded expansion joint filler: ASTM D1751.
- G. Curing compound and Sealer
Federal Specification TT-C-800A. The compound shall be a styrene butadiene type, 30% solids content minimum. The following are acceptable:
1. Super Floor Coat, by Euclid.

- 2. Super Ploicure, by Euclid.
- 3. Masterseal 66, by Master Builders.

H. Grout for masonry core fill: ASTM C476, coarse type.

I. Grout under steel base plates and bearing plates: Non-shrinking, metallic or non-metallic, with minimum 28-day strength of 5000 p.s.i., when mixed to a fluid consistency. The following are acceptable:

- 1. Embecco 636, by Master Builders.
- 2. Ferrolith G, by Sonneborn.
- 3. Crystex, by L and M Construction Chemicals.

J. Vapor Retarder

Provide vapor retarder cover over prepared base material where indicated below slabs on grade. Use only materials which are resistant to decay when tested in accordance with ASTM E 154, as follows:

- 1. Polyethylene sheet not less than 6 mils thick.

2.02 MIXES

The following classes of concrete are required:

Type	F'c (28 day)	Min. Cementitious Content	Maximum Water Cement Ratio	Air Content
Class I footings and all other below grade concrete	3000 PSI	470#/yd.	----	optional
Class II interior slabs on grade	3500 PSI	517#/yd.	----	optional
Class III exterior flat work, and any concrete exposed to weather	5000 PSI	564#/yd.	.45	5% +/- 1%
Class IV lean concrete	1500 PSI	376#/yd.	----	optional

ADDITIONAL REQUIREMENTS

- (1) Slump: Maximum 3" for slabs, 4" for other members. If a superplasticizer is used, initial slump to be 2" to 3", increased to 8" maximum after addition (at the job site) of the superplasticizer.
- (2) Pozzolans permitted only in Classes I and IV.
- (3) Concrete used for floors is to have 1800 psi, 3 day strength.
- (4) Mixes to be pumped are to be so identified on the mix design submittal.
- (5) All admixtures (other than superplasticizer) are to be added at the batch plant.

PART 3: EXECUTION

3.01 SURFACE CONDITIONS

A. Verify that excavations are free of water and ice, are of the required dimensions, and have been approved by the Soils Engineer, prior to placing concrete.

- B. Determine field conditions by actual measurement.
- C. Notify Architect not less than 24 hours in advance of placing concrete. Place concrete only when Architect is present, unless this requirement is specifically waived.

3.02 FORMWORK

- A. Footings may be cast against earth cuts when soil conditions permit.
- B. Removal of Forms
 - 1. Remove no forms within 24 hours after placement.

3.03 VAPOR RETARDER INSTALLATION

- A. Following leveling and tamping of granular base for slabs on grade, place vapor retarder sheeting with longest dimension parallel with direction of pour.
- B. Lap joints 6" and seal with appropriate tape.

3.04 PLACING REINFORCEMENT

- A. Comply with Concrete Reinforcing Steel Institute's recommended practice for "Placing Reinforcing Bars", for details and methods of reinforcement placement and supports, and as herein specified.
 - 1. Avoid cutting or puncturing vapor retarder during reinforcement placement and concreting operations.
- B. Clean reinforcement of loose rust and mill scale, earth, ice, and other materials which reduce or destroy bond with concrete.
- C. Accurately position, support and secure reinforcement against displacement by formwork, construction, or concrete placement operations. Locate and support reinforcing by metal chairs, runners, bolsters, spacers, and hangers, as required.
- D. Place reinforcement to obtain at least minimum coverages for concrete protection. Arrange, space and securely tie bars and bar supports to hold reinforcement in position during concrete placement operations. Set wire ties so ends are directed into concrete, not toward exposed concrete surfaces.
- E. Install welded wire fabric in as long lengths as practicable. Lap adjoining pieces at least one full mesh and lace splices with wire. Offset end laps in adjacent widths to prevent continuous laps in either direction.

3.05 CONCRETE PLACEMENT

- A. Preplacement Inspection

Before placing concrete, inspect and complete formwork installation, reinforcing steel, and items to be embedded or cast-in. Notify other crafts to permit installation of their work; cooperate with other trades in setting such work. Moisten wood forms immediately before placing concrete where form coating are not used.
- B. Apply temporary protective covering to lower 2' of finished walls adjacent to poured floor slabs and similar conditions, and guard against splattering during placement.
- C. General

Comply with ACI 304 "Recommended Practice for Measuring, Mixing, Transporting, and Placing Concrete", and as herein specified.

 - 1. Deposit concrete continuously or in layers of such thickness that no concrete will be placed on concrete which has hardened sufficiently to cause the formation of seams or planes of weakness. If a section cannot be placed continuously, provide construction joints as herein specified. Deposit concrete as nearly as practicable to its final location to avoid segregation.

- D. Placing Concrete in Forms
Deposit concrete in forms in horizontal layers not deeper than 24" and in a manner to avoid inclined construction joints. Where placement consists of several layers, place each layer while preceding layer is still plastic to avoid cold joints.
- E. Consolidate placed concrete by mechanical vibrating equipment supplemented by hand-spading, rodding or tamping. Use procedures for consolidation of concrete in accordance with ACI recommended practices.
- F. Do not use vibrators to transport concrete inside forms. Insert and withdraw vibrators vertically at uniformly spaced locations not farther than visible effectiveness of machine. Place vibrators to rapidly penetrate placed layer and at least 6" into preceding layer. Do not insert vibrators into lower layers of concrete that have begun to set. At each insertion limit duration of vibration to time necessary to consolidate concrete and complete embedment of reinforcement and other embedded items without causing segregation of mix.
- G. Placing Concrete Slabs
Deposit and consolidate concrete slabs in a continuous operation, within limits of construction joints, until the placing of a panel or section is completed.
- H. Consolidate concrete during placing operations so that concrete is thoroughly worked around reinforcement and other embedded items and into corners.
- I. Bring slab surfaces to correct level with straightedge and strikeoff. Use bull floats or darbies to smooth surface, free of humps or hollows. Do not disturb slab surfaces prior to beginning finishing operations.
- J. Maintain reinforcing in proper position during concrete placement.

3.06 JOINTS

- A. Isolation Joints
1. Isolate the floor slab from all walls, building columns, and other penetrations with premolded foam 1/2" thick.
 2. Do not use diamond or round blockouts at columns; simply wrap the column with the specified foam joint filler.
 3. Make sure the joint filler extends through the full depth of the slab.
- B. Construction Joints
1. Location: Locate construction joints in strict accordance with the drawings. Do not add or delete construction joints without the Architect's approval.
 2. Shape: Make all construction joints as plain, vertical butt joints with sharp, square edges. Do not tool. When making the second pour, do not let mortar build up on the first pour.
 3. Dowels: See Item 3.07.
 4. Filling: See Item 3.08.
- C. Sawcut Control Joints
1. Location:
 - a. Place sawcut control joint in strict accordance with the drawings.
 - b. Do not add or delete sawcut control joints without the Architect's approval.
 2. Method of Sawing:
Saw joints with a Soff-Cut saw.
 3. Timing:
 - a. Saw joints as soon as the concrete can stand sawing without dislodging particles of coarse aggregate.
 - b. Sawing after normal working hours may be required.
 4. Depth: Cut at least 1" deep.

5. Filling: See Item 3.08.

D. Exterior Slabs on Grade

Locate joints as shown on Drawings. In the absence of information on Drawings, provide as indicated.

E. Sidewalks - See Section 32 16 00: Curbs and Gutters.

3.07 DOWELS

A. Location

1. Install smooth dowels at construction joints where shown on the drawings.

B. Dowel Size and Position

1. Use 1/2" x 16" dowels placed 12" on center at the slab's mid-depth.
2. Keep each dowel horizontal and perpendicular to the joint, with a maximum deviation of 1/4" in 8".

C. Method of Installation

1. Insert the dowels through the forms and align while the concrete is still soft.

3.08 FILLING

A. Method

1. Wait at least 90 days.
2. Chase the joint with a concrete saw. At construction joints, cut 1" deep. At sawcut control joints, cut as deep as the original joint.
3. Blow the joint clean with compressed air.
4. Use backer rod to make a vertical dam at each end of the length to be filled. Do not use backer rod at the bottom of the joint.
5. Fill the joint with semi-rigid epoxy, MD80 or equal. Leave the surface slightly crowned.
6. If there is a problem with the epoxy leaking out the bottom of the joint, line the joint with a hard plastic rod driven down to the bottom of the sawcut.
7. After the epoxy has hardened, sand it flush with a belt sander.

B. Filling of cracks in defective areas. See 3.11 below.

3.09 FINISHES

A. Finish of Formed Surfaces

1. Rough Form Finish

For formed concrete surfaces not exposed-to-view in the finish work or by other construction, unless otherwise indicated. This is the concrete surface having texture imparted by form facing material used, with tie holes and defective areas repaired and patched and fins and other projections exceeding 1/4" in height rubbed down or chipped off.

B. Monolithic Slab Finishes

1. Float Finish

Apply float finish to monolithic slab surfaces to receive trowel finish and other finishes as hereinafter specified, and slab surfaces which are to be covered with membrane or elastic waterproofing, membrane or elastic roofing, or sand-bed terrazzo, and as otherwise indicated.

2. After screeding, consolidating, and leveling concrete slabs, do not work surface until ready for floating. Begin floating when surface water has disappeared or when concrete has stiffened sufficiently to permit operation of power-driven floats, or both. Consolidate surface with power-driven floats, or by hand-floating if area is small or inaccessible to power units. Check and level surface plane to tolerances of FF 25 (Flatness) - FL 17 (Levelness). Cut down high spots and fill low spots. Uniformly slope surfaces to drains. Immediately after leveling, refloat surface to a uniform, smooth, granular texture.

3. Trowel Finish

Apply trowel finish to monolithic slab surfaces to be exposed-to-view, and slab surfaces to be covered with carpet, resilient flooring, paint, or other thin film finish coating system.

- a. After floating, begin first trowel finish operation using a power-driven trowel. Begin final troweling when surface produces a ringing sound as trowel is moved over surface.

Consolidate concrete surface by final hand-troweling operation, free of trowel marks, uniform in texture and appearance, and with surface leveled. Grind smooth surface defects which would telegraph through applied floor covering system.

4. Non-Slip Broom Finish

Apply non-slip broom finish to exterior concrete and elsewhere as indicated.

1. Immediately after float finishing, slightly roughen concrete surface by brooming with fiber bristle broom perpendicular to main traffic route. Coordinate required final finish with Architect before application.

3.10 CURING AND PROTECTION

A. Temperature

1. When air temperature during placement is less than 40 degrees, or will be within 24 hours, temperature of concrete as placed is to be between 50 and 90 degrees (55 and 90 degrees for sections less than 12 inches thick). Maintain concrete temperature within these limits for the full curing period of 7 days.

B. Curing

1. Interior slab areas which will receive special flooring, ceramic tile, quarry tile, waterproofing, or special coatings, are to be moist-cured, without the use of a curing compound.
2. All other slab areas may be either moist-cured or receive an application of curing compound, except that when concrete above grade is placed in the open, and the air temperature exceeds 60 degrees, the concrete is to be moist-cured for the first 24 hours.
3. Whichever curing method is used; it is to commence immediately after disappearance of water sheen and continue for at least 7 days. Do not allow curing to be delayed overnight.
4. Prevent excessive moisture loss from formed surfaces. If forms are removed before 7 days have elapsed, cure the formed surfaces by moist-curing or application of curing compound for the remainder of the curing period.

3.11 CONCRETE SURFACE REPAIRS/CRACK REPAIRS

- A. Inspect the floor after 90 days and repair any crack that is more than 1/32" wide.

- B. Repair cracks by filling with Crack-Fill 4. Follow the manufacturer's recommendations.

C. Patching Defective Areas

Repair and patch defective areas with cement mortar immediately after removal of forms, when acceptable to Architect.

1. Cut out honeycomb, rock pockets, voids over 1/4" in any dimension, and holes left by tie rods and bolts, down to solid concrete but, in no case to a depth of less than 1". Make edges of cuts perpendicular to the concrete surface. Thoroughly clean, dampen with water, and brush-coat the area to be patched with specified bonding agent. Place patching mortar after bonding compound has dried.

- D. Correct high areas in unformed surfaces by grinding, after concrete has cured at least 14 days.

- E. Correct low areas in unformed surfaces during or immediately after completion of surface finishing operations by cutting out low areas and replacing with fresh concrete. Finish repaired areas to blend into adjacent concrete. Proprietary patching compounds may be used when acceptable to Architect.

END OF SECTION-03 30 00

SECTION 04 00 00
MASONRY

PART 1: GENERAL

- 1.01 The General and Supplementary Conditions, Special Conditions, and the applicable portions of Division 1 of these Specifications are a part of this Section.

- 1.02 STANDARDS AND REFERENCES
 - A. "Specification for the Design and Construction of Load-Bearing Concrete Masonry" of the National Concrete Masonry Association.

 - B. Applicable parts of the ASTM Standards.

 - C. "Specifications for Cut Indiana Limestone" of the Indiana Limestone Institute.

- 1.03 SCOPE OF WORK
 - A. Description
 - 1. Concrete Masonry Units.
 - 2. Facing Brick.

- 1.04 SUBMITTALS
 - A. Provide submittals on all products listed under this section.

 - B. Provide samples on all brick, including test panel with mortar color.

- 1.05 COLD WEATHER PROTECTION
 - A. Do not lay masonry units which are wet or frozen.

 - B. Remove any ice or snow formed on masonry bed by carefully applying heat until top surface is dry to the touch.

 - C. Remove masonry damaged by freezing conditions.

 - D. For clay masonry units with initial rated of absorption (suction) which require them to be wetted before laying, comply with the following requirements.
 - 1. For units with surface temperature above 32 degrees F (0 degrees C), wet with water heated to above 70 degrees F (21 degrees C).
 - 2. For units with surface temperature below 32 degrees F (0 degrees C), wet with water heated to above 130 degrees F (54 degrees C).

 - E. Perform the following construction procedures while masonry work is progressing. Temperature ranges indicated below apply to air temperatures existing at time of installation except for grout. For grout, temperature ranges apply to anticipated minimum night temperatures. In heating mortar and grout materials, maintain mixing temperature selected within 10 degrees F (6 degrees C).
 - 40 degrees F (4 degrees C) to 32 degrees F (0 degrees C):
 - Mortar: Heat mixing water to produce mortar temperature between 40 degrees F (4 degrees C) and 120 degrees F (49 degrees C).
 - Grout: Follow normal masonry procedures.

 - 32 degrees F (0 degrees C) to 25 degrees F (-4 degrees C):

Mortar: Heat mixing water and sand to produce mortar temperatures between 40 degrees F (4 degrees C) and 120 degrees F (49 degrees C); maintain temperature of mortar on boards above freezing.

Grout: Heat grout materials to 90 degrees F (32 degrees C) to produce in-place grout temperature of 70 degrees F (21 degrees C) at end of work day.

25 degrees F (-4 degrees C) to 20 degrees F (-7 degrees C):

Mortar: Heat mixing water and sand to produce mortar temperatures between 40 degrees F (4 degrees C) and 120 degrees F (49 degrees C); maintain temperature of mortar on boards above freezing.

Grout: Heat grout materials to 90 degrees F (32 degrees C) to produce in-place grout temperature of 70 degrees F (21 degrees C) at end of work day.

Heat both sides of walls under construction using salamanders or other heat sources.

Use windbreaks or enclosures when wind is in excess of 15 mph.

20 degrees F (-7 degrees C) and below:

Mortar: Heat mixing water and sand to produce mortar temperatures between 40 degrees F (4 degrees C) and 120 degrees F (49 degrees C).

Grout: Heat grout materials to 90 degrees F (32 degrees C) to produce in-place grout temperature of 70 degrees F (21 degrees C) at end of work day.

Masonry Units: Heat masonry units so that they are above 20 degrees F (-7 degrees C) at time of laying.

Provide enclosure auxiliary heat to maintain an air temperature of at least 40 degrees (4 degrees C) for 24 hours after laying units.

Do not heat water for mortar and grout to above 160 degrees F (71 degrees C).

- F. Protect completed masonry and masonry not being worked on in the following manner. Temperature ranges indicated apply to mean daily air temperatures except for grouted masonry. For grouted masonry, temperature ranges apply to anticipated minimum night temperatures.

40 degrees F (4 degrees C) to 32 degrees F (0 degrees C):

Protect masonry from rain or snow for at least 24 hours by covering with weather-resistive membrane.

32 degrees F (0 degrees C) to 25 degrees F (-4 degrees C):

Completely cover masonry with weather-resistive membrane for at least 24 hours.

25 degrees F (-4 degrees C) to 20 degrees F (-7 degrees C):

Completely cover masonry with weather-resistive insulating blankets or similar protection for at least 24 hours, 48 hours for grouted masonry.

20 degrees F (-7 degrees C) and below:

Except as otherwise indicated, maintain masonry temperature above 32 degrees F (0 degrees C) for 24 hours using enclosures and supplementary heat, electric heating blankets, infrared lamps or other methods proven to be satisfactory. For grouted masonry maintain heated enclosure to 40 degrees F (4 degrees C) for 48 hours.

PART 2: PRODUCTS

2.01 MORTAR MATERIALS

A. Portland Cement

1. Brick and Concrete Unit Masonry: Comply with requirements of ASTM C 150, Type I. Cement associated with brick paving to meet the non-staining requirements of ASTM C 91.

B. Aggregates ASTM C 144

1. Typical: 5 to 15 percent shall pass No. 100 sieve.
2. Pointing Mortar: White or light colored silica sand as approved; fine, pure silica, 100 percent passing the No. 16 sieve, not over 40 percent passing the No. 50 sieve.
3. Setting Bed Sand for Paving: 100 percent passing the No. 4 sieve.

D. Limes

1. Lime Putty: ASTM C 5; high calcium lime, completely slaked.
2. Hydrated Lime: ASTM C 207, Type S.

E. Water

1. Clean, potable water free from oil, acid, alkali, organic matter, and other deleterious substances.

F. Additives ('Antifreeze' or accelerators not permitted.)

1. Retarder: Master Builders "Pozzolith Retarder", Sika "Plastiment", Sonneborn "Sonnotard", or approved plasticizing agent designed for use with cement mortars.
2. Color: SGS Colors by Solomon Grind Chem Service, Springfield, IL or approved equal. Inorganic pigments as required to produce colored mortar as selected by Associate.
 - a. Resistant to alkali, light and weather.
 - b. Unaffected by cement and free of water soluble salts.

G. Mortar Mixes

1. Mortar strengths and proportions of masonry in general: ASTM C 270; types as follows.
 - a. Type N: Exterior non-bearing masonry (face brick and stone).
 - b. Type N: Interior non-bearing masonry.
 - c. Type S: All load-bearing masonry.
 - d. Type M: For exterior paving.
2. Pointing Mortars:
 - a. For brick and block: Use same type of mortar as specified for setting mortar or grout as applicable.
 - b. For Indiana Limestone: use one of the following, as approved after test sample:
 1. 1-part (by volume) non-staining white Portland cement, 1-part hydrated lime, 6-parts clean, sharp sand.
 2. 1-part (by volume) non-staining Portland cement, 1-part hydrated lime, 6 - parts clean, sharp white sand.Notes: Where necessary, mix white with standard Portland cement, or mix white with standard sand, to achieve the desired color. Regardless of mix, maintain Type N rating. Wet stone as necessary to avoid staining at joints.
3. Mixing Masonry Mortars and Grouts: Unless otherwise specified, provide mortars and grouts mixed in accordance with requirements of applicable ASTM reference standard. Measure materials accurately and mix mechanically for not less than five minutes or until mixture is a unified mass.
 - a. Measuring: Provide positive methods of measure by volume or weight. Measuring by shovel not permitted.
 - b. Retempering not permitted after mortar taken initial set.
 1. Discard unused mortar and grout materials after initial set occurs.
 2. Discard mortars not containing retarders after 2-1/2 hours regardless of set.

2.02 MASONRY ACCESSORIES AND REINFORCEMENT

A. Manufacturers

1. Provide products by Hohmann & Bernard, Heckman Building Products, Dur-O-Wall or AA Wire Products.

B. Materials

1. Carbon Steel: ASTM A 606 for sheet and plate, ASTM A 82 for wire, ASTM A 615 for deformed bars.
2. Hot-Dipped Galvanized Finish: Typical for all carbon steel devices except reinforcing bars. Provide galvanized finish after fabrication.
 - a. Two-Component Devices: ASTM A 153 for Class B-2 material.
 - b. One Piece Devices: ASTM A 123.
3. Stainless Steel: Typical for all stonework - Type 302 or 304.

C. Reinforcing

1. Reinforcing Bars: ASTM A 615, Grade 60, unless otherwise noted. Provide bars free of rust and loose scale at time of delivery.
 - a. Tie Wire: 16 gage double annealed steel.
 - b. Rebar Positioners: 9 gage steel devices by AA Wire Products or equal.
2. Joint Reinforcement: Standard steel truss type reinforcement fabricated from cold drawn steel wire, ASTM A 82; 9 gage deformed side bars; 9 gage continuous cross rods welded to side bars at 16 inch intervals to form truss design. Hot-dip galvanized finish. Include prefabricated corner and "T" sections of same design.
 - a. Size: Size to center in bed joints; maximum of 2 inches less than nominal concrete unit masonry wall width.
 - b. Double Cavity Truss: For cavity construction with CMU on both sides, provide single truss reinforcement with two side bars for bed joint of each wythe, total 4, and common continuous cross rods. "Cavity Truss Double" by Dur-O-Wall or approved equal.
 - c. Veneer Anchor/Reinforcement: "Dur-O-Eye" by Dur-O-Wall or equal. Joint reinforcement as specified above with double eyes of 3/16 inch diameter wire welded to side bar at 16 inch centers. Eyes to project beyond exterior wythe of CMU to allow pintle to clear cavity insulation. Pintles to be 4 inch wide box anchors of same material as eyes and meeting requirements specified in "Anchor Length" under BRICK AND CONCRETE UNIT MASONRY ANCHORS below.
 - d. Joint reinforcement side bars not to include brick veneer facing.

D. Brick and Concrete Unit Masonry Anchors

1. Anchor Length: Verify anchor lengths suitable for actual conditions; anchors to engage masonry 2 inches, minimum, yet remain no closer than 5/8 inches from exposed face of wall.
2. Veneer Anchors:
 - a. Adjustable Stud Anchors: DW-10HS, 12 gage, by Hohmann & Barnard. Hot-dipped zinc-coated (galvanized) device to accommodate positive and negative wind loading. 3/16 inch diameter wire vee tie with adjustable 1-1/4 inch by 6 inch by 12 gage strap anchors, punched top and bottom for screw attachment to metal studs. Screw attachment holes in anchor shall be larger than screw size and be formed before galvanizing.
 - b. Wire Box Anchors: #D/A 511 by Dur-O-Wall or #BWT by Hohmann & Barnard. Hot-dipped galvanized, 3/16 inch diameter cavity wall anchors, box shaped, 4 inches wide, without drip.
 - c. Eye and Pintle Anchors: See "Veneer/Anchor Reinforcement" under REINFORCING above.
3. Wire Mesh Wall Tie: 1/2 inch mesh by 16 gage hot dip galvanized steel wire, 18 inches long by width of wall less 1 inch.
4. Strap Anchor: Rigid "Z" shape, 1/4 inch x 1 inch x length required, between 3 inch bends, hot dip galvanized steel.
5. Structural Steel Anchors: Products by Heckman or equal. Hot dipped galvanized steel.
 - a. Channel Slot: #130, weld on type, 8 inches long x 1-3/8 inches wide x 11 gauge, with 1/2 inch inside flanges.

- b. Anchor: #129 Triangular wire tie, 3/16 inch diameter steel wire attached to slotted plate 12 gauge steel x 1-1/4 inches wide.

E. Flashing

Concealed Flashing and Mastic: Products by York Manufacturing, Inc., as follows:

1. Flexible Flashing (Typical): "Copper Fabric", Wasco/York Flashings, Specification Bulletin 201. 5 ounce copper sheet with asphalt coated glass fabric laminated to both sides.
2. Mastic: "Copper-R-Tite", fibrated, asphaltic mastic.
3. Weeps: Clear plastic tubes not less than 5/16 inch diameter. Weeps @ 24" o.c., at bottom and top of wall.

F. Cavity Wall Insulation

1. Extruded polystyrene, rigid board as specified under Section 07 21 00; 1-1/2 inches thick typical. Provide in 16 inch heights.

G. Accessories

1. Fasteners:
 - a. Expansion Anchors: All steel devices by Wej-It, Red Head, Liebig, or Hilti; galvanized finish, minimum 3/8 inch diameter by length required for minimum 2 inch embedment into solid masonry or concrete; devices to be suitable for application and of sufficient strength to carry intended loads with safety factor of 4.
 - b. Screws: Carbon steel with zinc plating at least 0.0005 inches thick and "Climaseal" post coating by Buildex; no substitution; #10 self-tapping, length as required.
 - c. Bolts: Galvanized steel; minimum 1/4 inch diameter, length as required; include nuts and washers of same material.
2. Shear Keys: Factory-extruded solid rubber "+" shaped product designed to be used in conjunction with sash block to form control joints. Rapid control joint-regular, by Dur-O-Wall. Shear section of 5/8 inch and shear strength of 540 psi minimum.
3. Flashing Support: Rigid extruded polystyrene insulation with average compressive strength of 40 psi. Products by Dow, Amoco, or UC Industries.
4. Weeps: 2.5" x 3.5" x 5" Weep Vents by "Mortar Net" (800-644-6638) or approved equal, or plastic tubes as described below. Pea gravel is not acceptable.
5. Weep Protection: High Density Polyethylene Nylon mesh similar to "Mortar Net" (800-664-6638). Mesh to have dovetail cut, be of thickness required for the given cavity detail and shall be installed following manufacturer's recommendations.
6. Grout for Reinforced Masonry: Specified under Division 3.
7. Precast Concrete Lintels: Nominal 4 inches x 8 inches high x length as required; minimum 4,000 psi concrete; reinforced with minimum 1 #4 bar top and bottom; conform to applicable portions of ACI 318. Provide minimum 4 inches bearing each end.
8. Steel Lintels: Specified elsewhere.
9. Reglets: Furnished under Division 7 for installation under Division 3.

2.03 CONCRETE MASONRY UNITS

A. Hollow Units

ASTM C 90, two-core type where required for vertical reinforcing.

B. Solid Units

ASTM C 145.

C. Special Units

1. 45 degree corner: Conard-Lang type 79 or equal.
2. Bullnose Corner: 1" radius.
3. Bond Beam Units.
4. Lightweight Units: "Solite" or approved equal.

- D. Provide joint units at windows, bond beam units and other special units as required.

2.04 BRICK UNITS

A. Manufacturers

1. Brick to match existing or approved equal by Belden or Glen Gery Corporation.

B. Bricks

Unglazed clay or shale units. Complying with requirements of ASTM C 216; Grade SW; Type FBS. Provide brick showing no efflorescence when tested in accordance with ASTM C 67.

1. Face Brick: ASTM C 216. Grade SW; Type FBS. Number of holes in standard size face brick shall not exceed three (3). Thickness of face shell shall not be less than 1-1/8".
2. Paving Brick:

C. Size, Face Brick

1. Modular, 2-1/4 inch x 7-5/8 inch face x 3-5/8 inches deep.
2. Standard, 2-1/4 inch x 8 inch face x 3-5/8 inches deep.

D. Colors

As selected by Architect from manufacturer's full line of bricks

E. Special Shapes

Provide special molded shapes, with good faces at all exposed edges. Do not cut brick to make special shapes. Color and texture to match typical unit. Bond to match wall pattern with no head joint at corner. Provide for the following conditions:

1. Corner conditions different than standard 90 degrees.
2. Rabetted unit at steel shelf support angles; include handed corner units.
3. Others: As required.

F. Cleaning Materials

Not harmful to masonry work or adjacent materials. Products by ProSoCo, Inc. (no substitution). Follow manufacturer's recommendations for specific brick and mortar types and colors.

1. Plastic weep tubes, shall be placed in joints where moisture may accumulate and/or as shown on drawings.

PART 3: EXECUTION3.01 A. General

1. Neatly cut masonry units as required where special shapes are not available.
2. All work shall be laid true to dimensions, plumb, square and in bond, or properly anchored. All courses shall be level with joints of uniform width. No joints shall exceed specified size and, if necessary, clipped courses shall be provided to level off.
3. All required cutting of all masonry units shall be done with power equipment which will produce true edges, free of chipping and with undamaged surfaces.
4. All units shall be cut accurately to fit around all pipes, ducts, opening, etc., and all such voids shall be slushed full with mortar.
5. Corners and intersections shall be bonded.
6. Set beams, lintels, bearing plates, etc., on solid masonry. All joist and beams shall have a bearing on filled concrete block, laid common bond at least 16" high and 8" beyond bearing surface, unless otherwise indicated on the Drawings. Carefully check structural drawings and notes for more stringent requirements.
7. Carefully cover all walls during the cessation of work at night and during inclement weather with canvas tarps, polyethylene sheets of building paper, all weighted in position.
8. All steel door frames set in masonry walls shall be slushed full of mortar. Build frame anchors into wall.
9. Keep finished floor free of mortar droppings.

10. Install masonry flashing as detailed. Seal top of flashing to back-up where top is not turned into wall or reglet.
11. Provide weeps at 24" on center.
12. Unless otherwise indicated, provide vertical joints (C.J.) for concrete masonry unit (C.M.U.) walls at the following maximum spacing for wall height:

CMU WALL HEIGHT	C.J. MAX SPACING
Up to 8' -0"	20' to 25'
8' -1" to 12' -0"	25' to 35'
12' -1" to 16' -0"	35' to 45'
Above 16' -0"	45' to 50'
13. Unless otherwise indicated, provide vertical control joints in brick masonry walls at a maximum spacing of 20' to 25', aligned with CMU control joints.

3.02 FLASHING OF MASONRY WORK

A. General

Provide concealed flashing in masonry work at, or above, shelf angles, lintels, ledges and other obstructions to the downward flow of water in the wall so as to divert such water to the exterior. Provide continuous concealed flashing at or near grade unless specifically shown otherwise. Prepare masonry surfaces smooth and free from projections which could puncture flashing. Place through-wall flashing on sloping bed of mortar and cover with mortar. Seal penetrations in flashing with mastic before covering with mortar. Extend flashing through exterior face of masonry and turn down to form drip.

B. Flash all window sills and all door and window heads.

C. Extend flashing the full length of lintels and shelf angles and minimum of 4" into masonry each end. Extend flashing from exterior face of outer wythe of masonry, through the outer wythe, turned up a minimum of 4", and through the inner wythe, if any to within 1/2" of the interior face of the wall in exposed work. Where interior surface of inner wythe is concealed by furring, carry flashing completely through the inner wythe and turn up approximately 2". Turn up 4" at face of sheathing seal to sheathing. At heads and sills turn up ends not less than 2" to form a pan.

D. Install flashing to comply with manufacturer's instructions.

E. Provide weep holes in the head joints of the first course of masonry immediately above concealed flashing. Space 24 inches on center unless otherwise indicated.

F. Install reglets and nailers for flashing and other related work where shown to be built into masonry work.

G. Weep Protection

1. Above flashing course, install dovetail "Mortar Net" weep protection to prevent mortar droppings from clogging weeps.

H. Expansion Joints

1. Continue flashings through joint.
2. At Exposed Terminations: Provide 6 inch lap joint in rigid flashing and flexible flashing at expansion joint.

3.03 TIES, ANCHORS AND SUPPORTS

A. See 3.01 - General, above.

B. Concrete Unit Masonry Ties and Anchors

1. Wall-to-Wall: Provide for "T" intersections if walls are laid up separately.
 - a. Concrete Unit Masonry to Concrete: Dovetail anchors at 16 inches center to center vertically.

- b. Bearing Walls: Strap anchors at 16 inches center to center vertically; grout hooks solid.
- c. Non-bearing Walls: Wire mesh ties at 16 inches vertically; lay in full bed of mortar.
- 2. Wall-to-Structural Steel:
 - a. Provide anchors to structural steel only where:
 - 1. Attachment required for lateral support of masonry wall.
 - 2. Masonry encloses steel beam.
 - 3. Where specifically detailed on drawings.
 - b. Except for beam enclosures, orient anchor to permit differential movement occur between wall and steel structure; vertical orientation typical, consult Architect for questionable conditions.
 - c. Install at 16 inches center to center horizontally, typical for beam conditions.

C. Brick Anchors

- 1. Metal Stud Back-up: Provide steel veneer anchors at 16 inches on center vertically and at each stud horizontally and on both sides of control joints. Minimum 1 anchor per 1.77 square foot wall area. Attach adjustable anchors to metal studs with specified screws.
- 2. Concrete Unit Masonry Walls: Contractor's Option; provide one of the systems described below. Provide at 16 inches on center horizontally and vertically and on both sides of control joints,
 - a. Wire Box Anchors: Lay straight across bed joint.
 - b. Eye and Pintle Anchors: Install pintle at each eye location. Pintle leg to assist in retaining cavity insulation in place.

D. Shear Keys

- 1. Install in sash block as shown, full height of control joint.

E. Lintels

- 1. Steel lintels, specified under Division 5, are typical unless otherwise shown.
- 2. Provide precast lintels where shown.

3.04 CONCRETE MASONRY UNITS

- A. See 3.01 - General, above.

B. Laying Concrete Masonry Units

- 1. Lay units in straight level courses with vertical joints broken to true, evenly spaced lines. Unless otherwise specified or indicated, lay with cells vertical and in true alignment with unobstructed cells. Provide solid units only where required or the conditions of the installation make hollow units impractical. Install all reinforcing, control joints and other accessory items where indicated on drawings or where specified.

C. Mortar Joints

- 1. Lay units in beds of mortar, types and strengths as noted on drawings or specified. Form joints to uniform sizes, approximately 3/8 inch wide; all vertical joints to be made full by placing excess mortar on end of unit and the unit shoved into place. Tool mortar to finish joints as follows:
 - 1. Exposed Masonry: Concave tooled joints.
 - 2. Concealed or Covered Masonry:
 - a. Interior Faces: Struck flush joints.
 - b. Exterior Faces (including cavity walls and below grade walls): Concave tooled joints.

3.05 BRICK MASONRY

- A. See 3.01 - General, above.

B. Preparation

1. Dampen brick before laying as required to control suction rate and to prevent excessive absorption affecting bond of mortar to unit. Allow excessively wet units to dry before laying.
- C. Laying Brick Masonry Units
1. General
 - a. Workmanship and methods: Unless otherwise indicated, in accordance with applicable Technical Notes of BIA.
 - b. Lay work to true lines, plumb and level, within allowable tolerances, unless otherwise indicated.
 - c. Build in ties, reinforcing, and accessories specified elsewhere.
 - d. Fill joints, except expansion joints, joints of open-end hollow masonry units, and space between masonry veneer and backing, unless otherwise indicated.
 - e. Build in work furnished by other trades, as required, without weakening or defacing masonry.
 1. Machine cut masonry neatly for installation of outlet boxes and similar equipment.
 2. Fill around sleeves for pipes and ducts passing through masonry walls solid with mortar.
 - f. Lay brick units in full beds of mortar; fill all head joints.
 - g. Wipe off excess mortar as the work progresses.
 2. Pattern
 - a. Face Brick: Lay units in running bond with all vertical joints evenly staggered.
 - b. Paving Brick: Lay in bond as shown.
 3. Joints
 - a. Make all joints of uniform thickness, approximately 3/8 inch. All vertical joints to be full by throwing excess mortar on end of brick and the brick shoved into place. Use proper tool for compressing and finishing joints to form concave tooled joints; finish all vertical joints in similar manner.
 1. Control Joints: Rake out mortar and form continuous vertical joints in masonry construction to receive sealant at the locations listed below. Sealant and backer rod specified elsewhere.
 - a. Abutments with other construction.
 - b. Straight runs spaced not over 20 feet apart.
 - c. At joints in masonry back-up.
 - d. As indicated on drawings, backer rod and sealant specified elsewhere.

END OF SECTION-04 00 00

SECTION 05 50 00
METAL FABRICATIONS

PART 1: GENERAL

- 1.01 Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to work of this Section.
- 1.02 SUMMARY
- A. Include pipe, miscellaneous steel hangers, rods, bolts, inserts, brackets, angles, anchors, fasteners and supports. Include pipe protection posts (bollards) if any.
- 1.03 QUALITY ASSURANCE
- A. Shop Assembly
1. Preassemble items in shop to greatest extent possible to minimize field splicing and assembly. Disassemble units only as necessary for shipping and handling limitations. Clearly mark units for reassembly and coordinated installation.
- 1.04 REFERENCES
- A. Applicable Publications
1. The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only.
- a. American Society for Testing and Materials (ASTM) Publications:
1. A36 - Structural Steel.
2. A53 - Welded and Seamless Steel Pipe.
3. A123 - Standard Specification for Zinc (Hot-Dip Galvanized) Coating of Iron and Steel Products.
4. A153 - Zinc Coating (Hot-Dip) on Iron and Steel Hardware.
- b. American Welding Society (AWS) Publications:
1. D1.1 - Structural Welding Code Steel.
- c. American Institute of Steel Construction (AISC) Publications:
1. Manual of Steel Construction including:
- a. Specifications for the Design, Fabrication and Erection of Structural Steel for Buildings.
- b. Code of Standard Practices for Steel Buildings and Bridges.
2. ASTM 1107 for non-shrink grout (replaces U.S. Army CE-CRD-C621).
- 1.05 SUBMITTALS
- A. Shop Drawings
1. Submit shop drawings for fabrication and erection of miscellaneous metal fabrication. Include plans, elevations and details of sections and connections. Show anchorage and accessory items. Provide templates for anchor and bolt installation by others.
- 1.06 PRODUCT DELIVERY, STORAGE AND HANDLING
- A. Protect metal fabrications from damage before, during and after installation.
- 1.07 JOB CONDITIONS
- A. Coordinate with other trades, items which will be built in or attached for proper positioning and timing of delivery.
- B. Verify existing conditions and critical dimensions at the job site prior to fabrication.

PART 2: PRODUCTS

2.01 MATERIALS

- A. Metals shall be free from defects impairing strength, durability or appearance and of the best commercial quality for purpose specified.
- B. All exposed fastenings shall be of same material, color and finish as metal to which applied, unless otherwise specified.
- C. Steel shapes, plates and bars shall conform to Standard Specification ASTM A-36.
- D. Steel pipe shall meet the requirements of ASTM A53.
- E. Galvanized steel shall be hot-dip galvanized, meeting the requirements of ASTM A-123, or A-153 as applicable.
- F. Non-Shrink Non-Metallic Grout
 - 1. Pre-mixed, factory-packaged, non-staining, non-corrosive, non-gaseous grout complying with ASTM 1107 (was CE-CRD-C621). Provide grout specifically recommended by manufacturer for exterior applications of type specified in this section.
 - 2. Where grout is used in rail-post pockets into masonry, grout is to be installed in two stage if necessary, to ensure that water drains away from the post pocket.
 - 3. Products include Super Por-Rok by CAM Corp. or equal by Bonsal, Anchor Cement by Sakrete, or Euclid.
 - 4. **Products must be Portland cement based, not gypsum based.**
 - 5. Note: Never use this product in contact with aluminum. Where contact may occur, submit specific grout for approval.
- G. Fasteners
 - 1. Provide zinc-coated fasteners for exterior use or where built into exterior walls. Select fasteners for the type, grade and class required.
- H. Primer Paint for Ferrous Metals
 - 1. Manufacturer's standard lead free rust-inhibiting primer; compatible with finish coats of paint. Coordinate selection of metal primer with finish paint requirements specified in Division 9.

2.02 FABRICATION

- A. Workmanship
 - 1. Use materials of size and thickness indicated, or if not indicated, as required to produce strength and durability in finished product for use intended. Work to dimensions indicated or accepted on shop drawings, using proven details of fabrication and support. Use type of materials indicated or specified for various components of work.
- B. Form exposed work true to line and level with accurate angles and surfaces and straight sharp edges. Ease exposed edges to a radius of approximately 1/32" unless otherwise indicated. Form bent-metal corners to smallest radius possible without causing grain separation or otherwise impairing work.
- C. Weld corners and seams continuously, complying with AWS recommendations. At exposed connections, grind exposed welds smooth and flush to match and blend with adjoining surfaces.
- D. Form exposed connection with hairline joints, flush and smooth, using concealed fasteners wherever possible. Use exposed fasteners of type indicated or, if not indicated, Phillips flathead (countersunk) screws or bolts.
- E. Provide for anchorage of type indicated, coordinated with supporting structure. Fabricate and space anchoring devices to provide adequate support for intended use.

- F. Cut, reinforce, drill and tap miscellaneous metal work as indicated to receive finish hardware and similar items.
- G. Fabricate joints which will be exposed to weather in a manner to exclude water or provide weep holes where water may accumulate.
- H. Insofar as possible, all work shall be fitted and shop assembled, ready for erection.
- I. Work shall be executed in strict accordance with drawings, details and approved shop drawings.
- J. Joints and intersections shall be tight and true with adequate support and fastening. Bolted work shall be tight and threads nicked to prevent loosening.
- K. All work shall be made and erected plumb, square and true with adequate reinforcing and anchoring.
- L. All anchors shall be of sufficient size to function as required by the best practice of the trade.
- M. Steel handrails shall be constructed to conform to the best practices of the National Association of Architectural Metal Manufacturers and as detailed on the drawings.
- N. Welding shall be done in accordance with AWS Standard Code for Arc and Gas Welding in Building Construction, latest edition, as formulated by The American Welding Society. Surfaces to be welded shall be cleaned of all loose scale, rust, oil, grease, paint or other foreign matter. Welds shall show uniform section and reasonable smoothness of weld metal without overlaps and a minimum of craters, porosity and clinkers. Visual inspection of the edge and end of fillets and butt joint welds shall indicate good fusion with and penetration into base metals. Plug welds shall be ground smooth. Precautions shall be taken to minimize stresses and distortions due to heat. Grind exposed welds smooth.
- O. Effectively insulate dissimilar metals or materials where necessary to prevent corrosion by electrolytic action or other causes.
- P. Except as specifically indicated otherwise, welded connections shall develop full strength of member.

2.03 SHOP PAINT

- A. Before leaving shop, all steel work except galvanized shall be thoroughly cleaned by blast cleaning to meet SSPC-SP. All steel work except as otherwise specified shall be given one (1) coat of paint, applied thoroughly and evenly and well worked into the joints and other open spaces. All paint shall be applied on dry surfaces. Spot paint abraded parts, welds, bolts, etc., after erection, using same paint as shop coat. Galvanized metal shall not be shop painted or blast cleaned.
 - 1. Do not paint surfaces to be encased in concrete or to receive sprayed-on fireproofing, or contact surfaces in friction-type connections, or surfaces to be field welded or galvanized steel.

PART 3: EXECUTION

3.01 PREPARATION

- A. Field Measurements
 - 1. Take field measurements prior to preparation of shop drawings and fabrication, where possible. Do not delay job progress; allow for trimming and fitting where taking field measurements before fabrication might delay work.
- B. Coordinate and furnish anchorages, setting drawings, diagrams, templates, instructions, and directions for installation of anchorages, such as concrete inserts, sleeves, anchor bolts and miscellaneous items having integral anchors, which are to be embedded in concrete or masonry construction. Coordinate delivery of such items to project site.

3.02 INSTALLATION

A. Fastening to In-Place Construction

1. Provide anchorage devices and fasteners where necessary for securing miscellaneous metal fabrications to in-place construction; including, threaded fasteners for concrete and masonry inserts, toggle bolts, through-bolts, lag bolts, wood screws and other connectors as required.

B. Cutting, Fitting and Placements

1. Perform cutting, drilling and fitting required for installation of miscellaneous metal fabrication. Set work accurately in location, alignment and elevation, plus, level, true and free of rack, measured from established lines and levels. Provide temporary bracing or anchors in formwork for items which are to be built into concrete masonry or similar construction.

- C. Fit exposed connections accurately together to form tight hairline joints. Weld connections which are not to be left as exposed joints, but cannot be shop welded because of shipping size limitations. Grind exposed joints smooth.

D. Field Welding

1. Comply with AWS Code for procedures of manual shielded metal-arc welding, appearance and quality of welds made, and methods used in correcting welding work.

END OF SECTION-05 50 00

SECTION 06 10 00
ROUGH CARPENTRY

PART 1: GENERAL

- 1.01 The General and Supplementary Conditions, Special Conditions, and the applicable portions of Division 1 of these Specifications are a part of this Section.
- 1.02 REFERENCE STANDARDS
- A. All materials shall conform to the current published standards of the following associations and agencies, unless otherwise specified herein.
 - 1. ASTM D 245.
 - 2. American Plywood Association.
 - 3. U.S. Department of Commerce "American Softwood Lumber Standard" PS-20.
 - 4. U.S. Department of Commerce "Construction and Industrial Plywood" PS-1-74.
 - B. Factory mark each piece of lumber and plywood to identify the type, grade, agency providing the inspection service, the producing mill and other qualities as specified herein.
 - C. For each use, comply with the applicable provisions for grading or workmanship, or both, of the following associations and agencies, unless otherwise indicated.
 - 1. U.S. Department of Commerce, Product Standard PS-1.
 - 2. U.S. Department of Commerce, Product Standard PS-20.
 - 3. Architectural Woodwork Institute "Quality Standards."
- 1.03 DELIVERY, HANDLING AND STORAGE
- A. Time delivery and installation of carpentry work to avoid delaying other trades whose work is dependent on or affected by the carpentry work and to comply with protection and storage requirements.
 - B. Keep carpentry materials dry during delivery. Store lumber and plywood in stacks with provisions for air circulation within stacks. Protect bottom of stacks against contact with damp or wet surfaces. Protect exposed materials against weather.
 - C. Moisture content of rough carpentry materials shall not exceed 19% at the time of installation.
- 1.04 JOB CONDITIONS
- A. Installer must examine all parts of the supporting structure and the conditions under which the carpentry is to be installed, and notify the contractor in writing of any 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.
 - B. Obtain measurements and verify dimensions shown and shop drawings details before proceeding with carpentry work, wherever possible.
 - C. Correlate location of furring, nailers, blocking, grounds and similiar supports so that attached work will comply with design requirements.
 - D. Fit carpentry work to other work. Scribe and cope as required for accurate fit.
- 1.05 SCOPE OF WORK
- A. Work under this Section includes all labor, materials, equipment, and related services necessary to furnish carpentry and millwork, including related accessories and specialties, as noted on drawings or specified herein. Such work includes, but is not limited to the following:
 - 1. Dimension Lumber.
 - 2. Plywood Wall Sheathing.

5. Plywood Roof Sheathing.
6. Plywood Floor Sheathing and Underlayment.
7. Furring, Blocking and Nailers.
8. Pressure Treated Lumber.

PART 2: PRODUCTS

2.01 DIMENSION LUMBER

- A. Provide Southern Pine or approved equal meeting stresses and grades listed.
 1. Studs and plates: Fb 625/725, Fv 75, E 1.2 x 106
 2. Joists, headers, beams: Fb 1200/1400, Fv 75, EI.5 x 106 and rafters.
 3. Blocking, furring and nailers: Standard Grade.

2.02 PLYWOOD

- A. Plywood for wall sheathing to be 1/2" CDX (exterior glue) yellow pine or approved equal. Unless otherwise indicated, entire wall is sheathed, not just corners.
- B. Plywood for roof sheathing to be 5/8" CDX (exterior glue) yellow pine or approved equal. Use metal clips or blocking at all edges. OSB may be substituted if material is of equal or greater thickness.
- C. Exterior sheathing (except corners) to be 1/2" Tuff-R or equal. To be used only when plywood is approved for corners only.
- D.. Concealed Performance-Rated Plywood
Where plywood panels will be used for sheathing or other structural application, provide APA Performance-Rated Panels complying with requirements indicated for grade designation, span rating, exposure durability classification, edge detail (where applicable) and thickness as indicated on plans.
- E. Plywood Backing Panels
For mounting electrical or telephone equipment, provide fire-retardant treated plywood panels with grade designation, APA C-D PLUGGED INT with exterior glue, in thickness indicated, or, if not otherwise indicated, not less than 1/2".
- F. Fasteners and Anchorages
Provide size, type, material and finish as indicated and as recommended by applicable standards, complying with applicable Federal Specifications for nails, staples, screws, bolts, nuts, washers and anchoring devices. Provide metal hangers and framing anchors of the size and type recommended by the manufacturer for each use including recommending nails.
 1. Where rough carpentry work is exposed to weather, in ground contact, or in area of high relative humidity, provide fasteners and anchorages with a hot-dip zinc coating (ASTM A 153).

2.05 WOOD TREATMENT

A. Preservative Treatment

- A. Where lumber or plywood is indicated as "P/T" or "Treated", or is specified herein to be treated, comply with applicable requirements of American Wood Preservers' Association (AWPA) Standards.
 1. Interior wood that is not in contact with ground or foundation shall meet UC1.
 2. Interior wood that is subject to dampness shall meet UC2.
 3. Plywood siding and any exterior treated wood above ground shall meet UC3A.
 4. Any exterior treated wood above intended to be finished shall meet UC3B.
 5. Fences posts and any wood in contact with ground or freshwater that constitutes low risk shall be UC4A.
 6. Utility poles, permanent wood posts for buildings and decks, and any wood in contact with ground or fresh water that has high potential for deterioration.
 7. Fire rated framing and structural elements shall meet UCFA.

- 8. Fire rated siding, shakes, stairways shall meet UCFB.
- 9. Fire rated wood elements shall meet requirements of ASTM E-84 and requirements indicated by the designated UL Design.

PART 3: EXECUTION

3.01 ROUGH CARPENTRY

- A. Framing, sheathing, blocking, wood paneling, wood parts, all items of trim, and all other carpentry items shall be laid out as called for by the drawings and shall be cut and fitted as necessitated by conditions encountered. All work shall be plumbed, leveled and braced with sufficient nails, spikes, bolts, etc., to insure rigidity, and a first quality result.
- B. Wood or other carpentry material with a defect or defects that prevent its intended use, even within limits of the grade specified, will be rejected and replaced with a satisfactory piece of material. Defects due to poor quality installation shall be replaced.
- C. Rough hardware needed for proper installation of all carpentry shall be provided. Nails, spikes, screws, bolts, and similar items shall be of proper types and sizes to fasten and hold the various members securely in place.

3.02 WOOD FURRING AND GROUND

- A. Wood furring, including blocking, grounds and stripping necessary to maintain lines of and support finished called for by the drawings, shall be provided as necessary and noted. Members shall be secured in place with approved types and sizes of nails, ties, bolts, inserts, etc., spaced so as to provide secure and rigid support.

END OF SECTION-06 10 00

SECTION 06 20 00
FINISH CARPENTRY

PART 1: GENERAL

- 1.01 The General and Supplementary Conditions, Special Conditions, and the applicable portions of Division 1 of these Specifications are a part of this Section.
- 1.02 STANDARDS
- A. Factory mark each piece of lumber and plywood to identify the type, grade, agency providing the inspection service, the producing mill and other qualities as specified herein.
 - B. For each use, comply with the applicable provisions for grading or workmanship, or both, of the following associations and agencies, unless otherwise indicated.
 - 1. U.S. Department of Commerce, Product Standard PS-1.
 - 2. U.S. Department of Commerce, Product Standard PS-20.
 - 3. Architectural Woodwork Institute "Quality Standards."
 - a. Unless otherwise noted, exterior millwork, interior millwork and casework are to follow the AWI Standards for "Custom Grade" as described in the publication above.
 - b. Interior millwork and casework are to have edges eased by sanding per AWI Standards for "Premium Grade".
 - 4. American Plywood Association (AWA).
- 1.03 DELIVERY, HANDLING AND STORAGE
- A. Time delivery and installation of carpentry work to avoid delaying other trades whose work is dependent on or affected by the carpentry work and to comply with protection and storage requirements.
 - B. Keep carpentry materials dry during delivery. Store lumber and plywood in stacks with provisions for air circulation within stacks. Protect bottom of stacks against contact with damp or wet surfaces. Protect exposed materials against weather.
- 1.04 JOB CONDITIONS
- A. Installer must examine all parts of the supporting Structure and the conditions under which the carpentry is to be installed, and notify the contractor in writing of any 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.
 - B. Obtain measurements and verify dimensions shown and shop drawings details before proceeding with carpentry work, wherever possible.
 - C. Correlate location of furring, nailers, blocking, grounds and similar supports so that attached work will comply with design requirements.
 - D. Fit carpentry work to other work. Scribe and cope as required for accurate fit.
- 1.05 SUBMITTALS
- A. Submit shop drawings for plastic laminate covered work, cabinets and shelving. Drawings shall be accurately dimensioned and detailed, showing method of jointing and assembly and attachment to contiguous work.
 - B. Submit samples of plastic laminate full color line for color selection.
- 1.06 SCOPE OF WORK
- A. Work under this Section includes all labor, materials, equipment, and related services necessary to furnish carpentry and millwork, including related accessories and specialties, as noted on drawings or specified herein. Such work includes, but is not limited to the following:

1. Exterior trim and siding.
2. Trim and millwork.

PART 2: PRODUCTS

2.01 STORAGE

- A. Protect millwork against dampness during and after delivery, and do not store or install it in any part of the building until concrete masonry and plaster work is dry. Millwork shall be stored in a heated and well ventilated space where not exposed to extreme changes of temperature or humidity, stacked on strips to insure adequate air circulation, and allowed to remain under such conditions for at least one week before being installed.

2.02 MOISTURE CONTENT

- A. Moisture content of finish carpentry (interior millwork) shall not exceed 8% at the time of installation.

2.03 EXTERIOR SIDING

- A. Provide vinyl siding to match existing siding to the greatest extent feasible. Match color, profile, and reveal size.
- B. Provide J channel, corners and all other accessories required for proper installation.

2.04 MILLWORK AND TRIM

- A. Provide paint grade southern yellow pine or Douglas fir trim where indicated on Drawings. Typical size to be 1 x 4 nominal at jambs and sills, and 1 x 6 nominal at heads unless otherwise indicated on Drawings

2.05 FINISH CARPENTRY AND MILLWORK MATERIALS

- A. All materials shall be the best of their respective kinds. Wood for finished work shall be clean and free from knots, cracks, or other defects, thoroughly seasoned, kiln dried and protected after leaving the kiln. No finish materials shall be bought to the building until building is dry and heated.
- B. All finish carpentry and millwork shall be dressed free of tool marks and other objectionable defects.
- C. Ease edges approximately 1/8" radius on all outside edges.**
- D. All interior trim and finish carpentry materials to be No. 2 or better white or ponderosa pine.
- E. Closet and storage shelving to be 3/4" AC plywood with hardwood nosing. See Drawings.
- F. Plastic laminate to be general purpose type. Nominal 1/16" thick by Wilsonart or approved equal.

PART 3: EXECUTION

3.01 MILLWORK AND TRIM

- A. Shelving and counters: Units shall be constructed in accordance with details on Drawings of materials as noted and specified in this Division. Counter tops, edging and backsplashes to be 1/16" plastic laminate on 3/4" plywood with face grain of close grained hardwood, edges built up to 1-1/2" thickness. Plastic laminate shall equal or exceed NFMA Standard LD-1, 1964 and latest revisions. Color and design of plastic laminates shall be selected by the Architect from samples submitted for this purpose. Submit four (4) sets of shop drawings to Architect prior to fabrication. Furnish three (3) sets of approved drawings to Architect and additional copies to others requiring same.
- B. Interior trim called for by Drawings shall be fastened in place with finishing nails, the heads of which shall be set for putty. Interior woodwork shall be sanded as necessary to remove irregularities and machine marks. All work shall be left free of blemishes and defects.

- C. Joints in all work shall be tight and formed to conceal shrinkage. Trim shall be in single lengths without splicing, and corners shall be mitered unless otherwise called for by Drawings. Running trim shall be in long lengths and jointed only where solid fastenings can be made. Whenever necessary, woodwork shall be scribed to adjacent work.
- D. Millwork and trim which will be in contact with concrete or masonry surfaces after setting will be back primed by the Subcontractor for painting work, who shall be notified that the millwork and trim are ready for back priming in ample time to permit application of paint and drying before installation.
- E. Back prime work on all surfaces which will be concealed with one coat of wood primer of the type specified in Section 09 91 00: Painting for the finish on the exposed surface.

3.02 WOOD FURRING AND GROUND

- A. Wood furring, including blocking, grounds and stripping necessary to maintain lines of and support finished called for by the Drawings, shall be provided as necessary and noted. Members shall be secured in place with approved types and sizes of nails, ties, bolts, inserts, etc., spaced so as to provide secure and rigid support.

3.03 CLEANING UP

- A. Keep the premise in a neat, safe and orderly condition at all times during execution of this portion of the work, free from accumulation of sawdust, cut-ends, and debris.
- B. Sweeping
 - 1. At the end of each working day, and more often if necessary, thoroughly sweep surfaces where refuse from this portion of the work has settled.
 - 2. Remove the refuse to the area of the job site set aside for its storage.
 - 3. Upon completion of this portion of the work, thoroughly broom clean all surfaces.

END OF SECTION-06 20 00

SECTION 07 21 00
THERMAL INSULATION

PART 1: GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SUMMARY

- A. This section shall include the following:
 - 1. Insulation for exterior building envelope and attic spaces
 - 2. Acoustical Insulation for interior walls and floors
 - 3. Perimeter, cavity walls at masonry and stone veneers, and foundation insulation.
- B. Underslab Vapor Barrier is specified in Section 07 26 00.
- C. Additional information for cavity wall insulation is specified in Section 04 00 00 and shall meet the requirements of this Section.
- D. Insulation under EPDM roof is specified in Section 07 50 00.
- E. Furnish and install insulation where indicated on the Drawings, except as specifically indicated otherwise. Furnish and install blanket-type ceiling and wall insulation.
- F. Furnish and install acoustical sound insulation in all interior partitions, unless otherwise noted on Drawings.
- G. Furnish and install acoustical sound insulation in all flooring assemblies, unless otherwise noted on Drawings.

1.03 QUALITY ASSURANCE

- A. Use skilled workmen who are thoroughly trained in the necessary crafts familiar with the methods needed for proper performance of the work of this Section.
- B. All foam plastic insulation shall meet the requirements of the Ohio Building Code for its proposed use.
- C. Insulation shall be asbestos free material.

PART 2: PRODUCTS

2.01 MANUFACTURERS

- A. Provide products from one of the following manufacturers:
 - 1. Owens Corning Fiberglass Corporation (Basis of Design)
 - 2. Manville Corporation
 - 3. CertainTeed Corporation.

2.02 MATERIALS

- A. Insulation for Exterior Building Envelope and attic spaces: (Basis of Design): Eco Touch FS-25 Batt Insulation or an approved equal meeting the following criteria:

1. Description: ASTM C 665, Type II (PSK facing), Class A, and Type III (FSK facing), Class A performed formaldehyde free glass fiber batt, poly/scrim/ kraft (PSK) or Foil/scrim/ kraft (FSC) faced on one side.
2. Flame Spread: Less than 25 per ASTM E 84.
3. Smoke Development Index: Less than 50 per ASTM E 84
4. Perm Rating: 0.02 maximum per ASTM E 96.
5. Provide a vapor barrier on the warm side (inside) of exterior wall insulation and underside of attic.

B. Acoustical Insulation for Interior Walls and Floors:

1. Description: Unfaced glass fiber acoustical insulation complying with ASTM C 665, Type I.
2. Flame spread index: 10 per ASTM E 84
3. Smoke development: 10 per ASTM E 84.
4. Meeting ASTM E 136 for combustion.
5. Meeting ASTM E 119 for fire resistance rating.
6. STC Rating: 49 between dwelling units/ office spaces/ examination rooms.

C. Perimeter, cavity walls at masonry and stone veneers, and foundation insulation: (Basis of Design):
Foamular 250 or an approved equal meeting the following criteria:

1. Description: Extruded polystyrene, closed cell foam panel insulation, meeting ASTM C 578, Type IV, 1.6 lb./cu. ft. min. density, with five (5) year aged R Value of 5 for 1" thickness at 75 degrees mean.
2. Provide thickness as required to meet indicated R Value requirements.

D. Provide loose fiberglass insulation to fill recesses and voids as required to eliminate heat leaks in wall and ceiling, roof construction.

E. Except for the ballasted roof insulation provide a complete wall and ceiling insulation envelope for the heated spaces with a continuous sealed vapor barrier.

F. Mastic for installation shall be as recommended by insulation manufacturer.

G. Staples shall be as recommended by insulation manufacturer and Contractor.

H. Accessories such as impaling pins, wire, tape and others shall be as recommended by installer for use intended.

2.02 OTHER MATERIALS

- A. Provide other materials, not specifically described but required for a complete and proper installation, as selected by the Contractor subject to the approval of the Architect.

PART 3: EXECUTION

3.01 SURFACE CONDITIONS

- A. Examine the conditions under which work of this Section will be performed. Correct conditions detrimental to proper completion of the project.
- B. Remove, or protect against, projections in construction framing which may damage or prevent proper insulation.

3.02 INSTALLATION

- A. Comply with manufacturer's instructions for the particular conditions of installation in each case; including method of support or anchorage to the substrate as appropriate for each application.

- B. Extend insulation full thickness as shown over entire surface to be insulated. Cut and fit tightly around obstructions, and fill voids with insulation.
- C. Set vapor barrier with vapor barrier behind finish materials to WARM SIDE of construction. Do NOT obstruct ventilating spaces, except for fire-stopping.
- D. Tape joints and ruptures in vapor barrier, using adhesive tape of type recommended by insulation manufacturer.
- E. Friction fit sound attenuation blanket insulation secured between studs. Add pins if required to hold in place. Butt ends of blankets closely together and fill all voids.

END OF SECTION-07 21 00

SECTION 07 24 00
EXTERIOR INSULATION & FINISH SYSTEMS (EIFS)

PART 1: GENERAL

1.01 SUMMARY

- A. Section Description: Section includes exterior insulation and finish system (EIFS - Class PB).
- B. Products Installed But Not Supplied Under This Section:
1. EIFS Joint Sealant: Refer to Division 7 Joint Treatment (Sealants) Section. Installation of EIFS Joint sealant shall be by EIFS applicator or a separate installer under direct supervision and control of EIFS applicator. EIFS Joint Sealant installer shall be experienced and competent in the installation of elastomeric construction sealants.

1.02 SYSTEM DESCRIPTION

- A. Description of Parex EIFS Standard System:
1. Parex EIFS Standard System with Cementitious Base Coat: An Exterior Insulation and Finish System (EIFS) consisting of Expanded Polystyrene Insulation (EPS) Board, Adhesive, Cementitious Base Coat with embedded Reinforcing Fabric Mesh, Primer, and Finish Coat.
- B. Parex EIF System Functional Criteria:
1. General:
 - a. Insulation Board: At system termination, completely encapsulate insulation board edges by mesh reinforced base coat, substrate, or Parex track. The use of and maximum thickness of insulation board shall be in accordance with applicable building codes and Parex requirements.
 - b. Flashing: Flashing shall be continuous and watertight. Flashing shall be designed and installed to prevent water infiltration behind EIFS. Refer to Division 7 Flashing Section for specified flashing materials.
 2. Substrate Systems:
 - a. Shall be engineered to withstand applicable design loads.
 - b. Maximum deflection under positive or negative design loads of substrate system shall not exceed 1/240 of span except as otherwise approved in writing by Parex prior to installation.
 - c. Substrate Dimensional Tolerances: Flat with 1/4 inch within any 4 foot radius.
 3. Impact Resistance Classification: Parex EIFS Standard System shall be classified in accordance with EIMA for EIFS classification and impact ranges as follows:
 - a. Standard Impact Resistance, 25-49 inch-lbs Impact Range.
 4. Expansion Joints: Continuous expansion joints shall be installed at locations in accordance with manufacturer's recommendations.
 - a. Substrate movement and expansion and contraction of Parex EIF System and adjacent materials shall be taken into account in design of expansion joints, with proper consideration given to sealant properties, installation conditions, temperature range, coefficients of expansion of materials, joint width to depth ratios, and other material factors. Minimum width of expansion joints shall be as recommended by EIFS manufacturer.
 5. Building Code Conformance: Parex EIF System shall be acceptable for use on this project under building code having jurisdiction.

1.03 SUBMITTALS

- A. General: Submit Samples, Reports, Certificates and Manufacturer's Warranty in accordance with Division 1 General Requirements Submittal Section.
- B. See below for shop drawings required.

1.04 QUALITY ASSURANCE

- A. Qualifications:
 - 1. EIFS Manufacturer: Shall have marketed Exterior Insulation and Finish Systems in United States for at least five years; At least 1,000 projects shall have been completed utilizing this Exterior Insulation and Finish System; Shall have completed projects of same building size and type as this project.
 - 2. EIFS Applicator: Shall have been trained by Parex in installation of Parex EIF Systems; Shall possess a current certificate of training; Shall be experienced and competent in installation of plaster-like materials.
- B. Regulatory Requirements:
 - 1. Insulation Board: Shall be produced and labeled under a third party quality program as required by applicable building code.

1.05 PROJECT / SITE CONDITIONS

- A. Environmental Conditions: Comply with manufacturer's recommendations of environmental conditions affecting product performance.

PART 2: PRODUCTS

2.01 MANUFACTURERS

- A. Manufacturer: Parex, Inc., P.O.Box 189, Redan, GA 30074
 - 1. System: Parex Exterior Insulation & Finish System (EIFS) Standard System.
 - a. Adhesive: Manufacturer's adhesive for EIFS selected.
 - b. Insulation Board: In compliance with manufacturer's requirements for Standard System EIFS.
 - c. Base Coat: Base Coat 301 (Cementitious).
 - d. Mesh Reinforcement: Locations to achieve impact strength shall be as follows:
 - 1) Locations (Not Noted Otherwise): EIMA Impact Classification: Standard.
 - e. Tracks: Square Edge Track 361, and Drip Edge Track 362, as required for EIFS.
 - f. Seal Tape: Seal Tape 360.
 - 2. Parex System Finish:
 - a. Type: CERASTONE 630.
 - b. Texture: Per approved mock-up.
 - c. Color: Per Architect from standard selection.

2.02 RELATED MATERIALS

- A. General: Sheathing and sealant material shall be in compliance with manufacturer's requirements for Parex Standard EIFS.
- B. Flashing: Refer to Division 7 Flashing Section for flashing materials.

PART 3: EXECUTION

3.01 MANUFACTURER'S INSTRUCTIONS

- A. Compliance: Comply with manufacturer's instructions for installation of exterior insulation & finish system.

3.02 INSTALLATION

- A. General: Installation shall conform to this specification and Parex EIFS written instructions and drawing details.
 - 1. Install tracks, back-wrap mesh, or edge-wrap mesh at system terminations.
 - 2. Apply adhesive to backs of insulation boards with a Parex notched trowel.
 - 3. Install insulation board without gaps in a running bond pattern and interlocked at corners.
 - 4. Rasp irregularities off insulation board.
 - 5. Apply base coat and fully embed mesh in base coat; include diagonal mesh patches at corners of openings and reinforcing mesh patches at joints of track sections. Apply multiple layers of base coat and mesh where required for specified impact resistance classification.

6. Apply primer to base coat after drying. Primer may be omitted if it is not required by the manufacturer's primer and base coat product data sheets for the specified finish coat.
 7. Finish Coat: Apply finish coat to match specified finish type, texture, and color.
- B. Flashing and joint sealing: as recommended by the manufacturer and as shown on detail in the drawings.
- C. Submit shop drawings indicating flashing and joint locations.

END OF SECTION-07 24 00

SECTION 07 26 00
VAPOR RETARDERS

PART 1: GENERAL

- 1.01 RELATED DOCUMENTS
 - A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to work of this Section.
- 1.02 SUMMARY
 - A. Provide underslab vapor barrier.
 - B. Wall and ceiling barriers are specified with insulation in Section 07 21 00.

PART 2: PRODUCTS

- 2.01 MATERIAL REQUIREMENTS
 - A. ASTM-1745 Class "C"
 - 1. MVT (Moisture Vapor Transmission): .3 perms or less.
 - 2. Tear Resistance: 13.6 lbf/in.
 - 3. Puncture Resistance: 475 grams.
- 2.02 MANUFACTURERS
 - A. Moistop "Ultra 6" vapor retarder by Fortifiber Building Products Systems.
 - B. Griffolyn Type – 65 by Reef Industries, Houston, TX.
 - C. Vapor Block by Raven Industries, Sioux Falls, SD.
 - D. Approved equal.

PART 3: EXECUTION

- 3.01 INSTALLATION
 - A. Install system per manufacturer's recommendations.
 - B. Install vapor barrier film under all interior concrete slabs on grade and where indicated on the Drawings.
 - C. Lay plastic film directly on gravel fill just before pouring concrete.
 - D. Lap film 6" at all joints with lap placed in direction of the spreading of concrete.
 - E. Carry film 6" beyond all junctions between walls and floors.
 - F. Cut film carefully around openings when installing pipes, wiring, etc. Tape film to pipe or wiring to ensure maximum barrier effectiveness.
 - G. Care shall be exercised so that film is not punctured.

END OF SECTION-07 26 00

SECTION 07 40 00
ROOFING AND SIDING PANELS

PART 1: GENERAL

- 1.01 The General and Supplementary Conditions, Special Conditions, and the applicable portions of Division 1 of these Specifications are a part of this Section.
- 1.02 SCOPE OF WORK
- A. Provide and install metal panels as indicated within this section
1. Standing Seam Metal Roof .
 2. Metal Wall Liner
 3. Exterior Metal Soffit
 4. Miscellaneous Accessories
- 1.03 SUBMITTALS
- A. Shop Drawings: Show layouts of metal panels. Include details of each condition of installation, panel profiles, and attachment to building. Provide details at a minimum scale 1-1/2-inch per foot of edge conditions, joints, fastener and sealant placement, flashings, openings, penetrations, roof accessories, lightning arresting equipment, and special details. Make distinctions between factory and field assembled work.
1. Indicate points of supporting structure that must coordinate with metal panel system installation.
 2. Include data indicating compliance with performance requirements.
 3. Include structural data indicating compliance with requirements of authorities having jurisdiction.
- B. Sample for Initial Selection: For each product specified including sealant, provide a physical sample of all manufacturer's standard line of colors for Architect's selection.
- C. Product Data: Provide manufacturer's product data to verify that product meets criteria indicated in this specification. Include product test reports.
- D. Qualification Information: Provide documentation indicating that the installer is certified to install product by manufacturer of product.
- E. Maintenance Data: Provide data for clear and maintenance of products.
- F. Warranty: Provide a finish warranty for 25 years from substantial completion on factory applied finishes.
1. Color fading in excess of 5 Hunter units per ASTM D 2244 at vertical applications.
 2. Color fading in excess of 7 Hunter units per ASTM D 2244 at non-vertical applications.
 3. Chalking in excess of No. 7 rating per ASTM D 2114 for vertical applications.
 4. Chalking in excess of No. 6 rating per ASTM D 4214 for no-vertical applications.
 5. Failures of adhesion, peeling, checking or cracking.

PART 2: PRODUCTS

- 2.01 STANDING SEAM METAL ROOF
- A. Where indicated as Standing seam metal roof provide the following:
1. Basis of Design: Higgins Series 2000 Standing Seam or an approved equal meeting the following criteria:
 - a. 18-inch wide, 24 gage metal roof panels.
 - b. ASTM A 792 Grade 10 Class 1 meeting ASTM A 924.
 - c. Finish: Akzo Nobel, Ceram-A-Star 1050, Cool Chemistry series paint.

- d. Color: As selected by Architect from manufacturer's standards of no less than (17) seventeen colors.
- e. Trim: Provide rake trim, drip edges, eave trim and other metal trim as required for proper weathertight installations. Trim shall meet ASTM A 792 Type B.

B. FASTENERS

- 1. Basis of Design: Wood Binder ZXL
 - a. Powder coated, zinc plating and chromate sealed; 1/4 -inch HWH- 30 Degree Type 17 sharp point fastener or a roof manufacturer approved equal fastener.

C. VAPOR BARRIER

- 1. Basis of Design: DuPont Tyvek Roof Protector or an approved equal meeting the following criteria:
 - a. Class A fire rated per ASTM E 108 moisture barrier synthetic roofing underlayment.
 - b. Thickness: 0.254 MM or 10 mils per ASTM D 1777
 - c. Liquid Water transmission: Pass per ASTM D 4869
 - d. Permability: less than 0.05 Perms per ASTM E96
 - e. Fire Rating: Class A
 - f. UV Exposure: 90 days per ICC-ES AC188.

2.02 METAL ROOF PANELS

A. Where indicated as 28 gage metal roof provide the following:

- 1. Basis of Design: Higgins Performance Panel or an approved equal meeting the following criteria:
 - a. 38-inch wide, 28 gage metal roof panels.
 - b. ASTM A 792 Grade 10 Class 1 meeting ASTM A 924.
 - c. Finish: Akzo Nobel, Ceram-A-Star 1050, Cool Chemistry series paint.
 - d. Color: As selected by Architect from manufacturer's standards of no less than (17) seventeen colors.
 - e. Trim: Provide rake trim, drip edges, eave trim and other metal trim as required for proper weathertight installations. Trim shall meet ASTM A 792 Type B.

B. FASTENERS

- 1. Basis of Design: Wood Binder ZXL
 - a. Powder coated, zinc plating and chromate sealed; 1/4 -inch HWH- 30 Degree Type 17 sharp point fastener or a roof manufacturer approved equal fastener.

C. VAPOR BARRIER

- 1. Basis of Design: DuPont Tyvek Roof Protector or an approved equal meeting the following criteria:
 - a. Class A fire rated per ASTM E 108 moisture barrier synthetic roofing underlayment.
 - b. Thickness: 0.254 MM or 10 mils per ASTM D 1777
 - c. Liquid Water transmission: Pass per ASTM D 4869
 - d. Permability: less than 0.05 Perms per ASTM E96
 - e. Fire Rating: Class A
 - f. UV Exposure: 90 days per ICC-ES AC188.

2.02 METAL WALL, CEILING LINER, AND SOFFIT

A. Basis of Design: Higgins Performance Panel or an approved equal meeting the following criteria:

- 1. 36-inch wide, (38-inch wide overall), 28 gage metal roof panels.
- 2. ASTM A 792 Grade 10 Class 1 meeting ASTM A 924.
- 3. Finish: Akzo Nobel, Ceram-A-Star 1050, Cool Chemistry series paint.
- 4. Color: As selected by Architect from manufacturer's standards of no less than (17) seventeen colors.
- 5. Trim: Provide rake trim, drip edges, eave trim and other metal trim as required for proper weathertight installations. Trim shall meet ASTM A 792 Type B.

FASTENERS

- A. Basis of Design: Wood Binder ZXL
 - 1. Powder coated, zinc plating and chromate sealed; 1/4-inch HWH- 30 Degree Type 17 sharp point fastener or a roof manufacturer approved equal fastener.

VAPOR BARRIER

- A. Basis of Design: Dupont TyVek Roof Protector or an approved equal meeting the following criteria:
 - 1. Class A fire rated per ASTM E 108 moisture barrier synthetic roofing underlayment.
 - 2. Thickness: 0.254 MM or 10 mils per ASTM D 1777
 - 3. Liquid Water transmission: Pass per ASTM D 4869
 - 4. Permability: less than 0.05 Perms per ASTM E96
 - 5. Fire Rating: Class A
 - 6. UV Exposure: 90 days per ICC-ES AC188.

2.03 METAL ROOF AND WALL PANEL ACCESSORIES

- A. Provide complete metal roof and wall panel assembly incorporating vented ridge, vented eave, and rake trims. Include gutters, downspouts, flashing, closure strips, support plates and sealant as recommended by metal panel manufacturer and as indicated on Drawings.
- B. Flashing and Trim: Match material thickness and finish of panel face sheets.
- C. Panel Fasteners: Provide as recommended by metal panel manufacturer. Fastener shall be stainless steel fastener with neoprene gaskets with heads matching of metal panels by means of factory-applied coating.
- D. Self-Adhering High Temperature Underlayment: Provide self-adhering, cold applied sheet underlayment, minimum 30 mil with primer if recommended by underlayment manufacturer.
- E. Joint Sealer: Provide manufacturer's standard or recommended liquid and preformed sealers and tapes as follows:
 - 1. Tape Sealer: Manufacturer's standard non-curing butyl tape per AAMA 809.2
 - 2. Concealed Joint Sealant: Non-curing butyl per AAMA 809.2
 - 3. Exposed Joint Sealant: Urethan, single component, ASTM C 920.
- F. Snow Guards: Provide extruded aluminum rail, color strip, clamps and all other required components for a full snow guard system.
 - 1. Locations: Provide snow guards on the roof where an eave is above the toilet doors. Guard shall align with face of exterior wall with doors and be continuous from exterior wall to exterior wall.

PART 3: EXECUTION

3.01 METAL WALL AND ROOF PANELS

- A. Examine metal panel system substrate to determine if support components are installed as indicated on approved shop drawings. Confirm presence of acceptable support at recommended spacing to match installation requirements of metal panels. Verify that supports are within metal panel manufacturer's acceptable tolerances.
- B. Install weathertight metal panel system in accordance with manufacturer's written instructions, approved shop drawings and project Drawings. Install metal panels in orientation, size and locations indicated, free of waves, warps, buckles, fastening stress and distortions. Anchor panels and other components securely in place. Provide for thermal structural movements.
- C. Panel Fastening: Attach panels to supports using screws, fasteners, and sealants recommended by manufacturer and indicated on approved shop drawings.

6. Fasten metal panels to supports at each location indicated on approved shop drawings, with spacing and fasteners recommended by manufacturer.
 7. Provide weatherproof jacks for pipe and conduit penetrating metal panels of types recommended by manufacturer.
 8. Dissimilar Materials: Where elements of metal panel system will come into contact with dissimilar materials, treat faces and edges in contact with dissimilar materials as recommended by manufacturer.
- D. General: Install metal panel trim, flashing, and accessories using recommended fasteners and joint sealers, with positive anchorage to building, and with weather tight mounting. Coordinate installation with flashings and other components.
1. Install components required for a complete metal panel assembly, including trim, copings, flashings, sealants, closure strips, and similar items.
 2. Comply with details of assemblies utilized to establish compliance with performance requirements and manufacturer's written installation instructions.
 3. Set units true to line and level as indicated. Install work with laps, joints, and seams that will be permanently weather resistant.
- E. Joint Sealers: Install joint sealers where indicated and where required for weathertight performance of metal panel assemblies, in accordance with manufacturer's written instructions.
- F. Remove temporary protective films immediately in accordance with metal roof panel manufacturer's instructions. Clean finished surfaces as recommended by metal roof panel manufacturer.
- G. Replace damaged panels and accessories that cannot be repaired to the satisfaction of the Architect.

END OF SECTION-07 40 00

SECTION 07 60 00
FLASHING AND SHEET METAL

PART 1: GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SUMMARY

- A. Extent of each type of flashing and sheet metal work is indicated on the Drawings and by provisions of this Section.
- B. Types of work specified in this Section include the following:
1. Metal fascia wall cap.
 2. Metal flashing and counter flashing.
 3. Miscellaneous sheet metal accessories.
- C. Laminated sheet flashing for masonry work is specified in Section 04 00 00. Gutters, downspouts and contiguous flashing is specified with metal roofing.

1.03 QUALITY ASSURANCE

- A. Except as otherwise specifically noted provide flashing and sheet metal meeting the recommendations of SMACNA "Architectural Sheet Metal Manual".

1.04 SUBMITTALS

- A. General
Submit the following in accordance with Conditions of Contract and Division 1 Specification Sections.
- B. Product Data, Flashing, Sheet Metal, and Accessories
Manufacturer's technical product data, installation instruction general recommendations for each specified sheet material and fabricated product.
- C. Samples of the following flashing, sheet metal, and accessory items.

PART 2: PRODUCTS

2.01 FLASHING AND SHEET METAL MATERIALS

- A. Fascia Wall Cap
Basis of Design: Econosnap 2 manufactured by W.P. Hickman Company or approved equal.
Basis of Design: EZ Edge Sloped Coping by IMETCO or an approved equal.
1. Provide fascia of .050" formed aluminum with Krynar color coating.
 2. Custom color selected by the Architect to match metal roofing.
 3. Cant Dam: 24 ga. galvanized steel.
 4. Concealed splice plate: Same material as face material. Provide factory fabricated corners.
- B. Flashing and Counter flashing
.032" mill finished aluminum except provide thicker material where recommended by SMACNA manual.
- C. Sheet Aluminum
ASTM B 209, alloy 3003, temper H14, AA-C22A41.

2.02 MISCELLANEOUS MATERIALS AND ACCESSORIES

- A. Fasteners

Same metal as flashing/sheet metal or, other non-corrosive metal as recommended by sheet manufacturer. Match finish of exposed heads with material being fastened.

- B. Bituminous Coating
FS TT-C-494 or SSPC - Paint 12, solvent type bituminous mastic, nominally free of sulfur, compounded for 15-mil dry film thickness per coat.
- C. Mastic Sealant
Polyisobutylene; non-hardening, non-skinning, non-drying, non-migrating sealant.
- D. Elastomeric Sealant
Meet the requirements of Section 07 92 00.
- E. Epoxy Seam Sealer
2-part non-corrosive metal seam cementing compound, recommended by metal manufacturer for exterior/interior non-moving joints including riveted joints.
- F. Adhesives
Type recommended by flashing sheet manufacturer for waterproof/weather-resistant seaming and adhesive application of flashing sheet.
- G. Paper Slip Sheet
5-lb. rosin-sized building paper.
- H. 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, non-corrosive, size and gauge required for performance.
 - 1. Roofing Cement
ASTM D 2822, asphaltic or material compatible with EPDM where in contact.

2.03 FABRICATED UNITS

- A. General Metal Fabrication
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.
- B. Seams
Fabricate non-moving seams in sheet metal with flat-lock seams. For metal other than aluminum, tin edges to be seamed, form seams, and solder. Form aluminum seams with epoxy seam sealer; rivet joints for additional strength where required.
- C. Expansion Provisions
Provide matching back plate type expansion joint in fascia wall cap and coping wall cap. Where back plate or lapped 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" deep, filled with mastic sealant (concealed within joints).
- D. 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.

E. Separations

Provide for separation of metal from non-compatible metal or corrosive substrates by coating concealed surfaces at locations of contact, with bituminous coating or other permanent separation as recommended by manufacturer/fabricator.

PART 3: EXECUTION

3.01 GENERAL

- A. Provide all fasteners, expansion joints, and accessories, required for a complete installation.
- B. Except as otherwise shown or specified, comply with the applicable recommendations and details of the "Architectural Sheet Metal Manual" of the SMACNA.
- C. Separate aluminum from (1) dissimilar metals, (2) concrete and masonry subject to wetting, and (3) wood containing preservatives other than pentachlorophenol, Wolman salts, creosote or zinc naphthanate. Paint the aluminum surface in contact with these surfaces with a heavy application of a bituminous coating, or use methods recommended by the manufacturer of the aluminum.
- D. Provide the thermal expansion of running trim, fascia and flashing exposed for more than 15'-0" of continuous length. Maintain a watertight installation at these expansion seams. Locate these seams at 12'-0" on center maximum and at 2'-0" on each side of corners.
- E. Conceal fasteners and expansion provisions wherever possible in exposed work, and locate so as to minimize the possibility of leakage. Provide cleat-type anchorages wherever possible.
- F. Fabricate and install work with lines and corners of exposed units true and accurate. Form exposed surfaces flat and free of buckles, excessive waves and tool marks, considering the temper of the metal. Provide uniform, neat seams.
- G. Flashing shall be provided to assure protection against the entrance of water at all critical joints in exterior roof and wall construction.
- H. Provide head flashing at exterior wall openings, with flashing extending from front edge of trim or lintel, up and over trim or lintel and through wall to inside face.
- I. In masonry or masonry veneer exterior walls, install sill flashing extending from front edge of masonry, under masonry sill, up to underside of window sill and under window sill to inside face of wall or into rabbet in underside of window sill.
- J. Other openings or projections through exterior walls shall be made watertight. Ventilators located in exterior walls shall be flashed in same manner as other openings unless self-flashing metal ventilators are used, or ventilator is installed directly under rake molding.
- K. At exterior wall intersections of different materials, install flashing at all horizontal intersections and at vertical intersections when exterior finish material does not provide a self-flashing joint.
- L. Flash pipe projections through roof with one piece flashing or two piece flange and sleeve flashing. Flange shall extend at least 6 inches on all sides but not less than 1-1/2 times shingle exposure. Counter-flash pipes or seal joints with mastic.

3.02 CLEANING AND PROTECTION

- A. Clean exposed metal surfaces, removing substances which might cause corrosion of metal or deterioration of finishes.
- B. Protection

Installer shall advise Contractor of required procedures for surveillance and protection of flashings and sheet metal work during construction, to ensure that work will be without damage or deterioration, other than natural weathering, at time of substantial completion.

END OF SECTION-07 60 00

SECTION 07 71 23
MANUFACTURED GUTTERS AND DOWNSPOUTS

PART 1: GENERAL

- 1.01 STANDARDS
 - A. SMACNA - Architectural Sheet Metal Manual.
- 1.02 TYPE AND QUALITY
 - A. New materials shall be equal in capacity and number as the existing to be removed. The contractor shall notify the Architect as to any discrepancy between these specifications and field conditions. All joints shall be absolutely watertight.
- 1.03 SUBMITTALS
 - A. Product Data: Provide manufacturer's product data.
 - B. Color Chart: Provide physical samples showing the full range of factory finished colors for Architect's selection.

PART 2: PRODUCTS

- 2.01 GUTTERS AND DOWNSPOUTS
 - A. Prefinished aluminum .027" gauge "Ogee" gutters and .019" gauge corrugated rectangular downspouts by Reynolds Metals or approved equal.
 - 1. Finish: Factory baked enamel over prime coat, equal to 70% "Kymar 500" finished both sides.
 - 2. Color: As selected by Architect from manufacturer's full line of colors.
- 2.02 ANCHORS, STRAPS, FASTENERS
 - A. Use Manufacturers' recommended size and type, materials to be noncorrosive and compatible with material secured.
- 2.03 SEALANTS
 - A. Manufacturers standard gutter sealing material.
- 2.04 METALS ISOLATION
 - A. Provide an appropriate slip sheet or isolation membrane to separate dissimilar metal materials, between metal roofing and aluminum gutters.

PART 3: EXECUTION

- 3.01 GENERAL
 - A. Coordinate work with metal roof and roof membrane installation for correct sequencing. Fabricate and install gutters and downspouts in accordance with manufacturers' recommendations. Provide all accessories required for a complete installation. Provide for thermal expansion, seal all joints and ends. Seal all expansion joints and end caps. Installation of gutters, downspouts and supports shall be able to withstand full loading by water or ice without damage or leakage. Extend downspouts to grade boots and make connection to new outlets. Connections to outlets, where PVC or Cast Iron, must be tight, neat in appearance and sealed. See details.

END OF SECTION-07 71 23

SECTION 07 84 00
FIRESTOPPING

PART 1: GENERAL

1.01 SUMMARY

- A. Section Includes: A firestopping system consisting of mineral wool insulation and a setting type sealing compound for penetrations in fire-rated walls.

- B. Related Sections:
 - 1. Section 03 30 00, Cast-in-Place Concrete.
 - 2. Section 04 20 00, Unit Masonry.
 - 3. Section 09 23 00, Plaster.
 - 4. Section 09 29 00, Gypsum Board.
 - 5. Section 09 21 16.23, Shaftwall.
 - 6. Section 09 21 16.33, Area Separation Walls.
 - 7. Section 09 72 00, Pre-Finished Gypsum Wall Panels.

1.02 REFERENCES

- A. American Society for Testing and Materials (ASTM):
 - 1. ASTM C 569, Test Method for Indentation Hardness of Preformed Thermal Insulations.
 - 2. ASTM C 665, Specification for Mineral Fiber Blanket Thermal Insulation for Light Frame Construction and Manufactured Housing.
 - 3. ASTM E 84, Test Method for Surface Burning Characteristics of Building Materials.
 - 4. ASTM E 119, Standard Methods for Fire Tests of Building Construction and Materials.
 - 5. ASTM E 814, Standard Methods for Fire Tests of Through-Penetration Fire Stops.

- B. Underwriters' Laboratories, Inc. (UL):
 - 1. UL 263, Fire Tests of Building Construction and Materials.
 - 2. UL 723, Surface Burning Characteristics of Building Materials.
 - 3. ANSI/UL 1479, Fire Tests of Through-Penetration Fire-stops.

1.03 SYSTEM DESCRIPTION

- A. Performance Requirements: Provide firestopping systems that meet the requirements for an F Rating, for time periods equal to or exceeding the fire resistance ratings of the construction assemblies being penetrated, when tested in accordance with ASTM E 84 or ANSUL/UL 1479.

1.04 SUBMITTALS

- A. Product Data: Manufacturer's specifications and installation instructions for each product specified.

 - B. Shop Drawings: Show materials and installation details for penetrations in each type of construction to be firestopped. Shop Drawings are not required for types of penetrations illustrated in the Product Data.

 - C. Quality Control Submittals:
 - 1. Test Reports: Showing that firestopping system has been tested and that it meets the specified Performance Requirements.
 - 2. Certificates:
-

- a. Contractor's certification that the installer has the specified experience.

1.05 QUALITY ASSURANCE

- A. Installer Qualifications: Experience in the installation of firestopping that is similar in material, design, and extent to the firestopping indicated for this Project.
- B. Mock-Ups:
 - 1. Install a mock-up of each type of wall penetration firestop to show materials used and quality of workmanship. Obtain the Architect's approval of mock-up locations.
 - 2. Do not start firestopping work until mock-ups are approved by the Architect. Remove mock-ups that are not approved and provide additional mock-ups, at the same location, as necessary to obtain approval.
 - 3. Approved mock-ups may be left in place as part of the Work.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Packaging and Shipping: Have materials shipped in manufacturer's original packages showing manufacturer's name and product brand name.
- B. Storage and Protection: Store materials inside and protected from damage by the elements.

1.07 PROJECT CONDITIONS

- A. Environmental Requirements: Install firestopping only after the building is enclosed and the permanent heating, ventilating, and air conditioning system is in operation. Maintain the temperature in the building at 50 deg. F or above during installation.

PART 2: PRODUCTS

2.01 MANUFACTURERS

- A. National Gypsum Co., ProForm® BRAND Sta-Smooth FS 90 Fire-Shield Compound, Fire and Smoke Stop.

2.02 MATERIALS

- A. Insulation: A combination of mineral fibers manufactured from glass and thermosetting resins, with a min. density of 0.5 pcf, complying with ASTM C 665, Type 1 (blankets without membrane facing).
- B. Sealing Compound: A lightweight, low density, vinyl based, non-asbestos setting compound formulated to mix easily with water (ProForm® BRAND Sta-Smooth FS 90 Fire-Shield Compound, Fire and Smoke Stop).

PART 3: EXECUTION

3.01 INSTALLATION

- A. In accordance with the manufacturer's recommendations:
 - 1. "Gypsum Construction Guide" and "ProForm® BRAND Sta-Smooth FS 90 Fire-Shield Compound, Fire and Smoke Stop," 110684; National Gypsum Company.

3.02 PROTECTION

- A. Protect firestopping installation from damage and deterioration until the date of Substantial Completion.

END OF SECTION-07 84 00

SECTION 07 92 00
JOINT SEALANTS

PART 1: GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SUMMARY

- A. Extent of each form and type of joint sealer is indicated on drawings. Furnish and install all exterior and interior caulking and sealants not specified as the work of other sections. Seal perimeter of all exterior openings where frames meet exterior facade. Seal interior of exterior opening where frames meet masonry or concrete. Seal interior and exterior control and expansion joints in walls and horizontal wearing surfaces. Seal the perimeter of kitchen type counters with sinks. Seal perimeter of all interior frames unless otherwise detailed. Sealed other joints as detailed or noted.
- B. Joint fillers for concrete slabs are specified in Division 3, Sealants, are specified herein.
- C. Refer to Division 7 for sealants related to metal roofing and flashing; not work of this section.
- D. Refer to Division 8 sections for glazing requirements; not work of this section.
- E. Refer to Division 22, 23 and 26 sections for joint sealers in mechanical and electrical work; not work of this section.

1.03 SYSTEM PERFORMANCES

- A. Provide joint sealers that have been produced and installed to establish and maintain watertight and airtight continuous seals.

1.04 QUALITY ASSURANCE

- A. Installer Qualifications
1. Engage an installer who has successfully completed within the last 3 years at least 3 joint sealer applications similar in type and size to that of this project and who will assign mechanics from these earlier applications to this project, of which one will serve as lead mechanic.
- B. Single Source Responsibility for Joint Sealer Materials
1. Obtain joint sealer materials from a single manufacturer for each different product required.
- C. General
1. Provide materials specified, compatible with each other and with joint substrates and conditions of service and applications indicated and as required for Project.
 2. Provide products that do not stain adjacent materials or provide primers or sealers that prevent staining due to joint sealants.
 3. Notify Architect prior to beginning of construction where materials specified are not considered acceptable for substrates and conditions.
- D. Preconstruction Field Tests
1. Prior to installation of joint sealants, field-test their finish and adhesion for substrates. Perform test in Architect's presence.

1.05 SUBMITTALS

- A. Product Data
1. Submit manufacturer's technical data for each joint sealer product required, including instructions for joint preparation and joint sealer application.

B. Samples for Initial Selection Purposes

1. Submit manufacturer's standard bead samples consisting of strips of actual products showing full range of colors available, for each product exposed to view.

C. Certificates

1. Submit certificates from manufacturer's joint sealers attesting that their products comply with specification requirements and are suitable for the use indicated.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials to project site in original unopen containers or bundles with labels informing about manufacturer, product name and designation, color, expiration period for use, pot life, curing time and mixing instructions for multicomponent materials.

- B. Store and handle materials to prevent their deterioration damage due to moisture, temperature changes, contaminant or other causes.

1.07 PROJECT CONDITIONS

A. Environmental Conditions

1. Do not proceed with installation of joint sealers under the following conditions:
 - a. When ambient and substrate temperature conditions are outside the limits permitted by joint sealer manufacturer or below 40 degrees F (4.4 degrees C).
 - b. When joint substrates are wet due to rain, frost, condensation or other causes.

B. Joint Width Conditions

1. Do not proceed with installation of joint sealers when joint widths are less than allowed by joint sealer manufacturer for application indicated.

PART 2: PRODUCTS

2.01 MATERIALS, GENERAL

A. Compatibility

1. Provide joint sealers, joint fillers and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by testing and field experience.

- B. Basis of Design is SIKA Corporation (201 Polito Avenue, Lyndhurst, NJ 07071, 800-933-7452(t), www.sikaconstruction.com) products. Equivalent product manufacturer's include:

1. Sonneborn Building Products
BASF Building Systems
889 Valley Park Drive
Shakopee, MN 55379
800-433-9517(t), www.buildingsystems.basf.com
2. Tremco, Inc.
3735 Green Road
Beachwood, Ohio 44122
800-321-7906(t), www.tremcoinc.com
3. Pecora Corporation
165 Wambold Road
Harleysville, PA 19438
800-523-6688(t), www.pecora.com

Provide all necessary data to confirm that the equivalent product proposed meets the description, type, class and grade specified as the SIKA Corporation basis of design.

C. Colors

1. Provide color of exposed joint sealers indicated or, if not otherwise indicated, as selected by Architect from manufacturer's full range of colors not indicated as custom.
2. See note below for color selection.

2.02 SEALANTS FOR JOINTS IN EXTERIOR BUILDING SURFACES

- A. Exterior Vertical Locations not Exposed to Traffic - General (One Component Urethane):
 1. Joint Sealant: Single Component High Performance Low Modulus Elastomeric Sealant: ASTM C920 Type S, Class 100/50, Grade NS.
 2. Type: Match Sika/Sikaflex®-15 LM.
- B. Exterior Vertical Locations not Exposed to Traffic – Small Joints, ½” Maximum Depth (One Component Urethane):
 1. Joint Sealant: Single Component High Performance Low Modulus Elastomeric Sealant: ASTM C920 Type S, Class 35, Grade NS.
 2. Type: Match Sika/Sikaflex®-1a.
- C. Exterior Vertical Locations not Exposed to Traffic – Small Joints, ½” Maximum Depth (One Component Urethane):
 1. Joint Sealant: Single Component High Performance Low Modulus Elastomeric Sealant: ASTM C920 Type S, Class 25, Grade NS.
 2. Type: Match Sika/Sikaflex® Textured Sealant.
- D. Exterior Vertical and Horizontal Locations not Exposed to Traffic (Multi-Component Urethane):
 1. Joint Sealant: Multi-Component Polyurethane Sealant: ASTM C920 Type M, Grade NS, Class 25, non-sag.
 2. Type: Match Sika/Sikaflex®-2c NS EZ Mix.
- E. Exterior Horizontal Locations not Exposed to Traffic (Multi-Component Urethane):
 1. Joint Sealant: Multi-Component Polyurethane Sealant: ASTM C920 Type M, Grade P, Class 25, self-leveling.
 2. Type: Match Sika/Sikaflex®-2c NS SL.

NOTE: 2-component systems maybe required if needed to access the full range of colors as needed to match adjacent materials.

2.03 SEALANTS FOR EXPOSED JOINTS IN TRAFFIC SURFACES (SIDEWALKS, SLABS, PAVERS)

- A. Traffic Bearing Locations, Exterior and Interior – General (One-Component Urethane):
 1. Joint Sealant: Single-Component Polyurethane Sealant: ASTM C920, Type S, Grade P, Class 25, self-leveling.
 2. Type: Match Sika/Sikaflex®-1c SL.
- B. Traffic Bearing Locations, Exterior and Interior Including Fire Truck Traffic (Multi-Component Urethane):
 1. Joint Sealant: Multi-Component Polyurethane Sealant: ASTM C920, Type M, Grade NS, Class 25, non-sag, minimum 25% expansion and compression capability.
 2. Type: Match Sika/Sikaflex®-2c NS TG.
- C. Traffic Bearing Locations, Exterior and Interior Including Fire Truck Traffic (Multi-Component Urethane):
 1. Joint Sealant: Multi-Component Polyurethane Sealant: ASTM C920, Type M, Grade P, Class 25, self-leveling, minimum 25% expansion and compaction capability.
 2. Type: Match Sika/Sikaflex®-2c SL.

2.04 SEALANTS FOR JOINTS IN INTERIOR BUILDING SURFACES

- A. Except where specifically noted otherwise, interior sealants shall be polyurethane or latex type. For toilet areas use silicone type as manufactured by GE or Dow, clear or in color selected by Architect.
- B. Polyurethane Sealants

1. General Interior Applications including Locations to be Painted: Provide at both general locations and at acoustical locations.
 - a. One Component All Purpose Polyurethane Sealant: ASTM C920, Type S, Grade NS, non-staining and non-bleeding; recommended for general interior exposure; compatible with paints specified in Section 09 90 00 – Painting and Coating.
2. Type: Match Sika/Sikaflex® Textured Sealant & Sikaflex 1a.

C. Latex Sealant

1. Manufacturer's standard, one part, non-sag, acrylic, mildew-resistant, acrylic-emulsion sealant complying with ASTM C 834, formulated to be paintable and recommended for exposed applications on interior and on protected exterior exposures involving joint movement of not more than +/- 7.5%.

D. Products

1. Latex Sealant:
 - "AC-20"; Pecora Corporation
 - "Sonolac"; Sonneborn Building Products Division; Rexnord Chemical Product, Inc.
 - "Tremco Acrylic Latex Caulk"; Tremco Inc.

2.05 FIRE STOPPING SEALANTS

A. One-Part Fire-Stopping Sealant

1. One part elastomeric sealant formulated for use as part of a through-penetration fire-stop system for sealing openings around cables, conduit, pipes and similar penetrations through walls and floors.

B. Products

- Subject to compliance with requirements, provide one of the following:
- "Dow Corning Fire Stop Sealant"; Dow Corning Corporation.
 - "3M Fire Barrier Caulk CP-25"; Electrical Products Division/3M.

2.06 JOINT SEALANT BACKING

A. General

1. Provide sealant backings of material and type which are non-staining; are compatible with joint substrates, sealants, primers and other joint fillers; and are approved for applications indicated by sealant manufacturer based on field experience and laboratory testing.

B. Plastic Foam Joint-Fillers

1. Preformed, compressible, resilient, non-waxing, non-extruding strips of plastic foam of material indicated below, and of size, shape and density to control sealant depth and otherwise contribute to producing optimum sealant performance.
 - a. Either flexible, open cell polyurethane foam or non-gassing, closed-cell polyethylene foam, unless otherwise indicated, subject to approval of sealant manufacturer.

C. Elastomeric Tubing Joint-Fillers

1. Neoprene, butyl or EPDM tubing complying with ASTM D 1056, non-absorbent to water and gas, capable of remaining resilient at temperatures down to -26 degrees F (-15 degrees C). Provide products with low compression set and of size and shape to provide a secondary seal, to control sealant depth and otherwise contribute to optimum sealant performance.

D. Bond-Breaker Tape

1. Polyethylene tape or other plastic tape as recommended by sealant manufacturer for preventing bond between sealant and joint filler or other materials at back (3rd) surface of joint. Provide self-adhesive tape where applicable.

2.07 MISCELLANEOUS MATERIALS

- A. Primer
 - 1. Provide type recommended by joint sealer manufacturer where required for adhesion of sealant to joint substrates indicated, as determined from preconstruction joint sealer-substrate and field tests.
- B. Cleaners for Nonporous Surface
 - 1. Provide non-staining, chemical cleaner of type acceptable to manufacturer of sealant and sealant backing materials which are not harmful to substrates and adjacent nonporous materials.
- C. Masking Tape
 - 1. Provide non-staining, non-absorbent type compatible with joint sealants and to surfaces adjacent to joints.
- D. Accessory Materials for Fire-Stopping Sealants
 - 1. Provide forming, non-combustible joint-fillers, packing and other accessory materials required for installation of fire-stopping sealants as applicable to installation conditions indicated.

PART 3: EXECUTION

3.01 INSPECTION

- A. Require installer to inspect joints indicated to receive joint sealers for compliance with requirements for joint configuration, installation tolerances and other conditions affecting joint sealer performance. Obtain Installer's written report listing any conditions detrimental to performance of joint sealer work. Do not allow joint sealer work to proceed until unsatisfactory conditions have been corrected.

3.02 PREPARATION

- A. Pre-Installation Meeting
 - 1. At Contractor's direction, Installer, joint sealer manufacturer's representative, and other trades whose work affects installation of joint sealers shall meet at project site to review procedures and time schedule proposed for installation of joint sealers which is coordinated with other related work.
- B. Surface Cleaning of Joints
 - 1. Clean out joints immediately before installing joint sealers to comply with recommendations of joint sealer manufacturers and the following requirements:
 - a. Remove all foreign material from joint substrates which could interfere with adhesion of joint sealer, including dust; paints, except for permanent, protective coatings tested and approved for sealant adhesion and compatibility by sealant manufacturer; oil; grease; waterproofing; water repellents; water; surface dirt and frost.
 - b. Clean concrete, masonry, unglazed surfaces of ceramic tile and similar porous joint substrate surfaces, by brushing, grinding, blast cleaning, mechanical abrading, acid washing or a combination of these methods to produce a clean, sound substrate capable of developing optimum bond with joint sealers. Remove loose particles remaining from above cleaning operations by vacuuming or blowing out joints with oil-free compressed air.
 - c. Remove laitance and form release agents from concrete.
 - d. Clean metal, glass, porcelain enamel, glazed surfaces of ceramic tile and other non-porous surfaces by chemical cleaners or other means which are not harmful to substrates or leave residues capable of interfering with adhesion of joint sealers.
- C. Joint Priming
 - 1. Prime joint substrates where indicated or where recommended by joint sealer manufacturer based on preconstruction joint sealer-substrate tests or prior experience. Apply primer to comply with joint sealer manufacturer's recommendations. Confine primers to areas of joint sealer bond, do not allow spillage or migration onto adjoining surfaces.
- D. Masking Tape

1. Use masking tape where required to prevent contact of sealant with adjoining surfaces which otherwise would be permanently stained or damaged by such contact or by cleaning methods required to remove sealant smears. Remove tape immediately after tooling without disturbing joint seal.

3.03 INSTALLATION OF JOINT SEALERS

A. General

1. Comply with joint sealer manufacturer's printed installation instructions applicable to products and applications indicated, except where more stringent requirements apply.
2. Follow SWR Institute recommendations for installation.

B. Elastomeric Sealant Installation Standard

1. Comply with recommendations of ASTM C 962 for use of joint sealants as applicable to materials, applications and conditions indicated.

C. Solvent-Release-Curing Sealant Installation Standard

1. Comply with requirements of ASTM C 804 for use of solvent-release-curing sealants.

D. Latex Sealant Installation Standard

1. Comply with requirements of ASTM C790 for use of latex sealants.

E. Installation of Sealant Backings

1. Install sealant backings to comply with the following requirements:
 - a. Install joint-fillers of type indicated to provide support of sealants during application and at position required to produce the cross-sectional shapes and depths of installed sealants relative to joint widths which allow optimum sealant movement capability.

F. Installation of Sealants

1. Install sealants by proven techniques that result in sealants directly contacting and fully wetting joint substrates, completely filling recesses provided for each joint configuration and providing uniform, cross-sectional shapes and depths relative to joint widths which allow optimum sealant movement capability.

G. Tooling of Non-sag Sealants

1. Immediately after sealant application and prior to time skinning or curing begins, tool sealants to form smooth, uniform beads of configuration indicated, to eliminate air pockets and to ensure contact and adhesion of sealants with sides of joint. Remove excess sealants from surfaces adjacent to joint. Do not use tooling agents which discolor sealants or adjacent surfaces or are not approved by sealant manufacturer.
 - a. Concave joint configuration per Figure 6A in ASTM C 962, unless otherwise indicated.
 - b. Stainless steel tools are recommended.

H. Installation of Fire-Stopping Sealant

1. Install sealant, including forming, packing and other accessory materials to fill openings around mechanical and electrical services penetrating floors and walls to provide fire-stops with fire-stops with fire resistance ratings indicated for floor or wall assembly in which penetration occurs.

3.04 PROTECTION AND CLEANING

- #### A.
- Protect joint sealers during and after curing period from contact with contaminating substances or from damage resulting from construction operations or other causes so that they are without deterioration or damage at time of substantial completion. If, despite such protection, damage or deterioration occurs, cut out and remove damaged or deteriorated joint sealers immediately and reseal joint with new materials to produce joint sealer installation with repaired areas indistinguishable from original work.

- B. Clean off excess sealants or sealant smears adjacent to joints as work progresses by methods and with cleaning materials approved by manufacturers of joint sealers and of products in which joints occur.

END OF SECTION-07 92 00

SECTION 08 13 00
METAL DOORS AND FRAMES

PART 1: GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SUMMARY

- A. Extent of standard steel doors and frames is indicated and scheduled on drawings. Drawings are based on Steelcraft Products.
- B. Finish hardware is specified elsewhere in Division 8.
- C. Building in of anchors and grouting of frames in masonry construction is specified in Division 4.
- D. Painting is specified in Section 09 91 00.

1.03 REFERENCE STANDARDS

- A. ASTM - American Society for Testing and Materials
 - 1. ASTM A 653/A 653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
 - 2. ASTM A 924 - Specification for General Requirements for Steel Sheet, Metallic Coated by the Hot Dip Process.
 - 3. ASTM A 1008/A 1008M - Standard Specification for Steel, Sheet, Cold-Rolled, Carbon, High Strength Low-Alloy, High Strength Low Alloy with Improved Formability, Solution Hardened, and Bake Hardenable.
 - 4. ASTM E 90 - Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions.
 - 5. ASTM E 413 - Classification for Rating Sound Insulation.
- B. ANSI - American National Standards Institute
 - 1. ANSI/DHI A115 - Specifications for Hardware Preparations in Standard Steel Doors and Frames.
 - 2. ANSI/DHI A115.IG - Installation Guide for Doors and Hardware.
 - 3. ANSI A156.7 - Hinge Template Dimensions.
 - 4. ANSI A 250.3 - Test Procedure and Acceptance Criteria for Factory Applied Finish Painted Steel Surfaces for Steel Doors and Frames.
 - 5. ANSI A250.4 – Test Procedure and Acceptance Criteria for Physical Endurance for Steel Doors and Hardware Reinforcing.
 - 6. ANSI A 250.8 - SDI-100 Recommended Specifications for Standard Steel Doors and Frames.
 - 7. ANSI A 250.10 - Test Procedure and Acceptance Criteria for Prime Painted Steel Surfaces for Steel Doors and Frames.
 - 8. ANSI/SDI 250.11 - Recommended Erection Instructions for Steel Frames
- C. SDI - Steel Door Institute
 - 1. SDI 105 - Recommended Erection Instructions for Steel frames.
 - 2. SDI 111 - Recommended Details and Guidelines for Standard Steel Doors and Frames and Accessories.
 - 3. SDI 112 - Zinc-Coated (Galvanized/Galvannealed) Standard Steel Doors and Frames.
 - 4. SDI 117 - Manufacturing Tolerances for Standard Steel Doors and Frames.
 - 5. SDI 118 - Basic Fire Door Requirements.
 - 6. SDI 122 - Installation and Troubleshooting Guide for Standard Steel Doors and Frames.
 - 7. SDI 124 - Maintenance of Standard Steel Doors and Frames.
- D. NAAMM/HMMA - Hollow Metal Manufacturers Association

1. HMMA 840 - Guide Specification for Installation and Storage of Hollow Metal Doors and Frames
2. HMMA 820 TN01- Grouting Hollow Metal Frames
3. HMMA 820 TN03 – Guidelines for Glazing of Hollow Metal Transom, Sidelight and Windows

E. Building Code references

1. NFPA 80 - Standard for Fire Doors and Other Opening Protectives.
2. NFPA 105 - Standard for the Installation of Smoke Door Assemblies and Other Opening Protectives
3. NFPA 252 – Standard Method of Fire Tests of Door Assemblies
4. ANSI/UL 10C - Standard for Safety for Positive Pressure Fire Tests of Door Assemblies
5. UL 1784 - Air Leakage Tests of Door Assemblies
6. UL - Building Materials Directory; Underwriters Laboratories Inc
7. Federal Emergency Management Agency (FEMA) 361 Guidelines

1.04 SUBMITTALS

A. Product Data

Submit manufacturer's technical product data substantiating that products comply with requirements.

B. Shop Drawings

Submit for fabrication and installation of steel doors and frames. Include details of each frame type, elevations of door design types, conditions at openings, details of construction, location and installation requirements of finish hardware and reinforcements, and details of joints and connections. Show anchorage and accessory items.

1. Provide schedule of doors and frames using same reference numbers for details and openings as those on contract drawings.
2. Indicate coordination of glazing frames and stops with glass and glazing requirements.

C. Label Construction Certification

For door assemblies required to be fire-rated and exceeding sizes of tested assemblies, submit manufacturer's certification for that each door and frame assembly has been constructed to conform to design, materials and construction equivalent to requirements for labeled construction.

1.05 DELIVERY, STORAGE AND HANDLING

A. Deliver hollow metal work cartoned or crated to provide protection during transit and job storage. Provide additional sealed plastic wrapping for factory-finished doors.

B. Inspect hollow metal work upon delivery for damage. Minor damages may be repaired provided refinished items are equal in all respects to new work and acceptable to Architect; otherwise, remove and replace damaged items as directed.

C. Store doors and frames at building site under cover. Place units on minimum 4" high wood blocking. Avoid use of non-vented plastic or canvas shelters which could create humidity chamber. If cardboard wrapper on door becomes wet, remove carton immediately. Provide 1/4" spaces between stacked doors to promote air circulation.

1.06 COORDINATION AND MEASUREMENT

A. Take all necessary measurements at the building to assure proper fitting and fabrication of all work. All variations of adjacent construction shall be taken into account and properly provided for. All work under this Section shall be closely coordinated with that of other trades whose work affects or is affected by work included herein.

B. Secure templates from finish hardware supplier and accurately make provisions for all finish hardware at factory.

PART 2: PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

A. Manufacturer

Subject to compliance with requirements, provide steel doors and frames by one of the following:

1. Steel Doors and Frames, (General):
2. Ceco Corp.
3. Amweld/Div. American Welding and Mfg. Co.
4. Curries Mfg., Inc.
5. Steelcraft/Div. American Standard Co.
6. Republic Builders Products Corp.

2.02 MATERIALS, GENERAL

- A. See reference standards in Paragraph 1.03 for ANSI, ASTM, UL, and all other required material standards.

2.03 SHOP APPLIED PAINT

A. Primer

Rust-inhibitive lead free enamel or paint, either air-drying or baking, suitable as a base for specified finish paints. Primer shall have smooth surface. Sand texture is not acceptable.

2.04 DOORS

- A. Steel Doors shall meet or exceed the following criteria:

1. Exterior Doors: Zinc-Iron Alloy-Coated galvanized steel, ASTM A 653, Class A60, 16-gage (0.053 inch) galvanized steel, with closed tops.
 - a. Include galvanized components and internal reinforcements with galvanized doors.
 - b. Close tops of exterior swing-out doors to eliminate moisture penetration. Galvanized steel top caps are permitted.
2. Interior Doors: Cold-rolled steel, A 1008, 16 gage (0.053 inch) cold rolled steel.
3. Factory prime all door indicated to be painted.
4. Hardware Reinforcements: Provide the following reinforcement
 - a. Hinge reinforcements for full mortise hinges: minimum 7 gage (0.180 inch).
 - b. Lock reinforcements: minimum 16 gage 0.053 inches).
 - c. Closer reinforcements: minimum 14 gage (0.067 inches), 20 inches long.
 - d. Where doors are galvanized doors, include galvanized hardware reinforcements.
 - e. Projection welded hinge and lock reinforcements to the edge of the door.
 - f. Provided adequate reinforcements for other hardware as required.
5. Glass moldings and stops (both labeled and non-labeled doors):
 - a. Fabricate glass trim from 24 gage steel conforming to:
 - 1 Interior openings ASTM designation A 366 cold rolled steel
 - 2 Exterior openings ASTM designation A 924 Zinc-Iron Alloy-Coated galvanized steel with a zinc coating of 0.06 ounces per square foot (A60) for exterior openings.
 - b. Install trim into the door as a four-sided welded assembly with mitered, reinforced and welded corners.
 - c. Trim: identical on both sides of the door.
 - d. Exposed fasteners are not permitted. Labeled and non-labeled doors: use the same trim.

- e. Acceptable mounting methods:
 - 1. Fit into a formed area of the door face, not extending beyond the door face, and interlocking into the recessed area
 - 2. Cap the cutout so that it does not extend more than 1/16 inches from the door face.
- B. Full Flush Type Doors Construction
 - 1. ANSI-A250.4 criteria and tested to 5,000,000 operating cycles.
 - 2. Approved door core constructions:
 - a. **“HM” doors: L Series doors by Steelcraft** with a honeycomb core or an approved equal meeting the following criteria:
 - Reinforced, stiffened, sound deadened and insulated with impregnated Kraft honeycomb core completely filling the inside of the doors and laminated to inside faces of both panels using contact adhesive applied to both panels and honeycomb core.
 - b. **Fire rated door: T Series door by Steelcraft** or an approved equal meeting the following criteria:
 - Mineral fiber core material to comply with the 250° F (121° C) maximum temperature rise rating. (Provide UL Design Label on all fire rated doors. Protect label from paint.)
 - 3. Vertical edge seams: Provide doors with continuous vertical mechanical inter-locking joints at lock and hinge edges with visible edge seams, or a one piece full height 14 gage channel. Apply a continuous bead of structural epoxy in the internal vertical connection.:
 - a. Welded Vertical Edges (W): Continuous vertical mechanical interlocking joint; edge seams welded, epoxy filled, and ground smooth.
 - 4. Bevel hinge and lock door edges 1/8 inch (3 mm) in 2 inches (50 mm). Square edges on hinge and/or lock stiles are not acceptable.
 - 5. Reinforce top and bottom of doors with galvanized 14 gage, welded to both panels.

2.05 DOOR FRAMES:

- A. Construct exterior and metal door frames to these profiles, designs and gages;
 - 1. Exterior Frames: Zinc-Iron Alloy-Coated galvanized steel, ASTM A 653, Class A60, 14 gage (0.067 inches) Zinc-Iron Alloy-Coated galvanized steel.
 - 2. Interior Frames in Masonry: Zinc-Iron Alloy-Coated galvanized steel, ASTM A 653, Class A60, 16-gage [0.053” (1.3mm)] galvanized steel.
 - 3. Interior Frames in stud wall construction: 16 gage 0.053 inches) cold rolled frames.
 - 4. Interior KD Drywall Frames (Slip-On construction): 16-gage [0.053 inches) cold rolled frames.
 - 5. Include galvanized components and internal reinforcements with galvanized frames.
- B. Basis of Design: F Series by Steelcraft
 - 1. Flush Frames: Provide knocked down for field assembly or set-up and welded with temporary shipping bars. Factory die-mitered corner connections reinforced with four integral tabs to secure and interlock at jambs to head.
 - a. Jambs: 2-inch face frame with 5/8- inch stops unless otherwise noted.
 - b. Head at masonry openings: 4-inch face frame with 5/8- inch stops unless otherwise noted.
 - c. Head at locations other than masonry: 2-inch frame with 5/8-inch stops unless otherwise indicated.
 - d. At drywall construction, form frames with double return backbends to prevent cutting into drywall surface. Design knock down frames to be securely installed in the rough opening after wallboard is applied. Factory die-mitered corner connections reinforced at miters, including soffit tabs to secure and interlock at jambs to head

2. Provide frames with a minimum of six wall anchors and two adjustable base anchors of manufacturer's standard design. Provide eight wall anchors where doors are taller than 7 feet and/or wider than 3 feet per door.
 - a. Locate adjustable anchors in each jamb 4" from the top of the door opening to hold frame in rigid alignment.
 - b. Provide security anchor at strike jambs on all frames 7'6" high and over.
 - c. Base anchor: Provide weld-in base anchor attaching plate in each jamb for field installation of loose base anchors to allow proper anchoring at base of frame.
 3. Provide welded 3-sided frames. Face welded: Weld miter joints between head and jamb faces completely along their length either internally or externally. The remaining elements of the frame profile (soffit, stop and rabbets) are not welded. Grind and finish face joints smooth.
- C. Except on weather-stripped frames, drill stops to receive inserted type door silencers (3) per strike jamb on single doors, and (2) per head for pair of doors. Stick-on silencers are not permitted.
- D. Frame Hardware Reinforcements
1. Mortise hinge reinforcement: minimum 7 gage (0.180 inch).
 - a. Provide high frequency hinge reinforcement for top hinge on all exterior, cross corridor, and stairwell frames, in accordance with SDI 111-H, Example "A" Application, where full mortise hinges are specified.
 2. Strike reinforcements: minimum 16 gage (0.053 inch) and prepared for an ANSI-A115.1-2 strike.
 3. Closer reinforcement: minimum 14 gage (0.067 inch) steel.
 4. Projection weld hinge and strike reinforcements to the door frame.
 5. Provide metal plaster guards for all mortised cutouts.
 6. Provide adequate reinforcements for other hardware as required.
 7. Include galvanized hardware reinforcements in all galvanized frames.

2.06 FABRICATION, GENERAL

- A. Fabricate steel door and frame units to be rigid, neat in appearance and free from defects, warp or buckle. Wherever practicable, fit and assemble units in manufacturer's plant.
- B. Clearly identify work that cannot be permanently factory-assembled before shipment, to assure proper assembly at project site.
- C. Exposed Fasteners
Unless otherwise indicated, provide countersunk flat Phillips heads for exposed screws and bolts.

2.05 SHOP PAINTING

- A. Clean, treat, and paint exposed surfaces of steel door and frame units, including galvanized surfaces.
- B. Clean steel surfaces of mill scale, rust, oil, grease, dirt, and other foreign materials before application of paint.
- C. Apply shop coat of prime paint of even consistency to provide a uniformly finished surface ready to receive finish paint.

PART 3: EXECUTION

3.01 INSTALLATION

- A. General

Installation is specified as the work of Section 06 20 00 and shall meet these requirements. Install standard steel doors, frames, and accessories in accordance with final shop drawings, manufacturer's data, and as herein specified.

B. Placing Frames

Comply with provisions of SDI-105 "Recommended Erection Instructions for Steel Frames", unless otherwise indicated.

1. Except for frames located at in-place concrete or masonry and at drywall installations, place frames prior to construction of enclosing walls and ceilings. Set frames accurately in position, plumbed, aligned, and braced securely until permanent anchors are set. After wall construction is completed, remove temporary braces and spreaders leaving surfaces smooth and undamaged.
2. In masonry construction, locate 3 wall anchors per jamb at hinge and strike levels.
3. At in-place concrete or masonry construction, set frames and secure to adjacent construction with machine screws and masonry anchorage devices.
4. Install fire-rated frames in accordance with NFPA Std. No. 80.
5. In metal stud partitions, install at least 3 wall anchors per jamb at hinge and strike levels. In open steel stud partitions, place studs in wall anchor notches and wire tie. In closed steel stud partitions, attach wall anchors to studs with tapping screws.

C. Fit hollow metal doors accurately in frames, within clearances specified in SDI-100.

D. Place fire-rated doors with clearances as specified in NFPA Standard No. 80.

3.02 ADJUST AND CLEAN

A. Prime Coat Touch-Up

Immediately after erection, sand smooth any rusted or damaged areas of prime coat and apply touch-up of compatible air-drying primer.

B. Protection Removal

Immediately prior to final inspection, remove protective plastic wrappings from prefinished doors.

C. Final Adjustments

Check and readjust operating finish hardware items, leaving steel doors and frames undamaged and in complete and proper operating condition.

END OF SECTION-08 13 00

SECTION 08 14 00
WOOD DOORS

PART 1: GENERAL

- 1.01 The General and Supplementary Conditions, Special Conditions, and the applicable portions of Division 1 of these Specifications are a part of this Section.
- 1.02 DESCRIPTION
- A. Include furnishing all labor, materials, equipment, etc., to provide all Wood Doors and Frames as shown on the drawings and as specified.
- B. WORK OF OTHER SECTIONS
1. Installation of doors and frames work should be completed following the Manufacturer's recommendations.
 2. Finish Hardware: Provided as work of Section 08 70 00 and installed following Manufacturer's recommendations.
 3. Painting: Section 09 90 00
- 1.03 QUALITY ASSURANCE
- A. Qualifications of Manufacturer: For manufacturer of doors and frames, use only personnel who are thoroughly trained and experienced in skills required and who are completely familiar with requirements of this work.
- B. Codes and Standards: In addition to complying with all pertinent codes and regulations, comply with the following:
1. Manufacturer labeled doors in strict accordance with specifications and procedures of Underwriters' Laboratories, Inc. or Factory Mutual requirements.
- 1.04 COORDINATION AND MEASUREMENT
- A. Take all necessary measurements at the building to assure proper fitting and fabrication of all work. All variations of adjacent construction shall be taken into account and properly provided for. All work under this Section shall be closely coordinated with that of other trades whose work affects or is affected by work included herein.
- B. Secure templates from finish hardware supplier and accurately make provisions for all finish hardware at factory.
- 1.05 PRODUCT HANDLING
- A. Protection:
1. Deliver, store and handle all doors and frames in a manner to prevent damage and deterioration.
 2. Provide packaging such as cardboard or separators, banding, spreaders, and paper wrappings as required to completely protect all doors and frames during transportation and storage.
 3. Store doors upright, in a protected dry area, at least 1" off the ground and with at least 1/4" air space between individual pieces.
 4. Use all means necessary to protect the installed work and materials of all other trades.
- B. Replacements: In the event of damage, immediately make all repairs and replacements necessary for the approval of the Architect at no additional cost to Owner.

PART 2: PRODUCTS

- 2.01 INTERIOR PRE-HUNG FLUSH WOOD DOOR
- A. Provide particleboard core, Type II flush door conforming to ANSI /WDMA 1S1A with faces of hardboard for painted finish.
1. Hardwood Face: Birch or red oak, plain sliced

2. No added urea-formaldehyde resin permitted.
3. Core to be mineral wool where 20-minute rating is required.
4. Hinge loading resistance: Provide doors meeting standard duty (400-pound force).
5. 6-panel design door as indicated on Drawings.

2.02 INTERIOR PRE-HUNG DOOR FRAMES

- A. Frames for pre-hung interior doors shall be paint-grade, unfinished with three-piece adjustable jam units with pins. Provide doors complete with frames, hinges, and prepared to receive door hardware.

2.03 HARDWARE REINFORCING

- A. Provide lock blocks to secure specific hardware as recommended by door hardware manufacturer.

PART 3: EXECUTION

3.01 INSTALLATION

- A. Do not install door and frame where building materials show visual evidence of biological growth. Before installing seal top and bottom edges of door with approve water-resistant sealer or primer that is compatible with paint system. Seal cuts made in field immediately. Fit, trim and hang door with 1/16 inch minimum and 1/8-inch maximum clearance at sides and top and 3/16-inch minimum to 1/4-inch maximum clearance over finished threshold.
- B. Install following manufacturer's recommendations. Anchor securely in place.
- C. All doors and frames shall be set true and plumb, and square.
- D. All doors and frames shall be trimmed to fit to allow neat appearance with smooth operation. All door must be able to open freely at a 90-degree angle to frame and adjacent walls without catching, binding and warping. Adjust doors as required.

END OF SECTION-08 14 00

SECTION 08 41 13
ALUMINUM-FRAMED ENTRANCES AND STOREFRONTS

PART 1: GENERAL

- 1.01 The General and Supplementary Conditions, Special Conditions, and the applicable portions of Division 1 of the Specifications are a part of this section.
- 1.02 SCOPE OF WORK
- A. Provide aluminum entrances and storefront window framing as shown and specified. Work includes:
1. Providing storefront window framing.
 2. Associated anchors fasteners, sealants, joint fillers and flashing to complete the systems.
- B. Related work:
1. Section 08 80 00: Glass and Glazing.
- 1.03 QUALITY ASSURANCE
- A. Performance requirements:
Fixed storefront framing shall meet or exceed the following performance requirements.
1. Resistance to air infiltration: When tested in accordance with ASTM E 283, air infiltration shall not exceed .06 cfm per sq. ft. of fixed area.
 2. Resistance to water infiltration: The wall shall not leak when tested in accordance with ASTM E 331 at a test pressure of 6.24 psf.
 3. Performance under uniform loading: When tested in accordance with ASTM E 330, the maximum deflection of any member shall not exceed 1/175 of its span, and when the load is removed there shall be no evidence of permanent deformation or damage when tested under a load of 20 psf inward and 15 psf outward.
- B. Weather resistance
Fabricate exterior door and frame units, including weatherstripping and thresholds to prevent the uncontrolled penetration of air and water under normal severe weather conditions.
- 1.04 SUBMITTALS
- A. Submit manufacturer's product data, specifications and standards details for storefront framing and glazing.
- B. Submit shop drawings for the fabrication and installation of aluminum entrances and associated components of the work. Include glazing details and an itemized schedule of hardware.
- 1.05 JOB CONDITIONS
- A. Field verify measurements and conditions of installation.
- B. Examine all details and be responsible for proper fitting to details as required. Include all necessary materials to fully complete hardware requirements of the entrance units.

PART 2: PRODUCTS

- 2.01 MATERIALS
- A. Entrance and storefront window framing: Kawneer "TriFabII 451-T" member size 2 in. X 4-1/2 in or an approved equal.
- B. Finish: Permanodic, Architectural Class 1 anodic coating with integral color. Color: Black.
- C. Weatherstripping: Kawneer "Sealair Weathering" system.
- D. Glazing:

1. Storefront windows shall have 1 inch insulating low E glazing units with tempered glass of thickness required.

2.02 FABRICATION

- A. Provide aluminum extrusions fabricated of 6063-T5 alloy. Flat sheet and brake metal of 5005-H32 alloy. Provide screws, miscellaneous fastening devices and internal components of stainless steel, plated or corrosion-resistant materials. Finish exposed fasteners to match aluminum work.
- B. The framing system shall provide for flush glazing on all sides with no projecting stops. Vertical and horizontal framing members shall have a nominal face dimension of 2". Overall depth shall be 4-1/2" with a 1" glass pocket width. Entrance members shall be compatible with glass framing in appearance. All single acting entrance frames shall include the Sealair positive barrier weathering.
- C. Fit and assemble the work at the shop to the greatest extent possible. Disassemble only as required for shipment and erection. Maintain true continuity of line and accurate relation of planes and angles. Provide secure attachment and support at mechanical joints, with hairline fit of contacting members. Conceal fasteners wherever possible.

PART 3: EXECUTION

3.01 INSTALLATION

- A. Comply with manufacturer's specifications for installation of components.
- B. Set units plumb, level and true to line without warp or rack of frames or panels. Anchor securely in place. Separate aluminum and other corrodible metal surfaces from sources of corrosion or electrolytic action at points of contact with other materials.
- C. Set thresholds in a bed of sealant compound or with joint fillers or gaskets to provide weathertight construction.

END OF SECTION-08 41 13

SECTION 08 53 13
VINYL WINDOWS

PART 1: GENERAL

1.01 SECTION INCLUDES

- A. Vinyl double-hung windows.
- B. Picture (Fixed) Windows

1.02 REFERENCES

- A. American Architectural Manufacturers Association (AAMA):
 - 1. AAMA 502 – Voluntary Specification for Field Testing of Windows and Sliding Doors.
- B. ASTM International:
 - 1. ASTM C 1036 – Flat Glass.
 - 2. ASTM C 1048 – Heat-Treated Flat Glass--Kind HS, Kind FT Coated and Uncoated Glass.
 - 3. ASTM D 3656 – Insect Screening and Louver Cloth Woven from Vinyl-Coated Glass Yarns.
 - 4. ASTM E 283 – Rate of Air Leakage Through Exterior Windows, Curtain Walls and Doors Under Specified Pressure Difference Across the Specimen.
 - 5. ASTM E 547 – Water Penetration of Exterior Windows, Curtain Walls and Doors by Cyclic Static Air Pressure Differential.
- C. Screen Manufacturers Association (SMA):
 - 1. SMA 1201 – Specifications for Insect Screens for Windows, Sliding Doors and Swinging Doors.
- D. Window and Door Manufacturers Association (WDMA):
 - 1. ANSI/AAMA/NWWDA 101/I.S.2 – Voluntary Specifications for Aluminum, Vinyl (PVC) and Wood Windows and Glass Doors.

1.03 PERFORMANCE REQUIREMENTS

- A. Windows shall meet Rating H-R-PG in accordance with ANSI/AAMA/NWWDA 101/I.S.2/A440-08.
- B. Window Air Leakage, ASTM E 283: Window air leakage when tested at 1.57 psf (25 mph) shall be 0.24 cfm/ft² of frame or less.
- C. Window Water Penetration, ASTM E 547.

1.04 SUBMITTALS

- A. Comply with Division 1 requirements.
- B. Product Data: Submit manufacturer's product data, including installation instructions.
- C. Shop Drawings: Submit manufacturer's shop drawings, indicating dimensions, construction, component connections and locations, anchorage methods and locations, hardware locations, and installation details.
- E. Warranty: Submit manufacturer's standard warranty.

1.05 DELIVERY, STORAGE, AND HANDLING

- A. Delivery: Deliver materials to site undamaged in manufacturer's original, unopened containers and packaging, with labels clearly identifying manufacturer and product name. Include installation instructions.
- B. Storage:

1. Store materials in accordance with manufacturer's instructions.
2. Store materials off ground and under cover.
3. Protect materials from weather, direct sunlight, and construction activities.

C. Handling: Protect materials and finish during handling and installation to prevent damage.

PART 2- PRODUCTS

2.01 VINYL DOUBLE-HUNG WINDOWS

A. Vinyl Double-hung Windows: ThermaStar by Pella.

1. Factory-assembled windows with sash installed in frame.
2. Frame and Sash Material: Extruded, rigid polyvinylchloride (PVC).

B. Frame:

1. Type:
 - a. New Construction Frame: 25 Series with integral fin.
2. Overall Frame Depth:
 - a. New Construction Frame: 4-3/16 inches for 2-9/16-inch wall depth, and 6 inches for 4-9/16-inch wall depth.
3. Nominal Wall Thickness, Vinyl Members: 0.065 inch to 0.075 inch.
4. Frame Corners:
 - a. Mitered.
 - b. Heat-fused, fully welded corners.
5. Sill: Fitted with weeps.

C. Sash:

1. Vent Sash: Removable for cleaning exterior glass.
2. Sash Corners:
 - a. Mitered.
 - b. Heat-fused, fully welded corners.

D. Glazing:

1. Float Glass: ASTM C 1036, Quality 1.
 - a. Tempered Glass: ASTM C 1048.
2. Type: Exterior face-glazed, 3/4-inch, sealed insulating glass.
 - a. Multi-layer, low-E coated, tempered glass with argon.

E. Weather Stripping:

1. Vent Sash: Fin-type, pile around perimeter.

2.02 PICTURE WINDOWS

A. Picture Windows: Pella 250 Series Picture Windows.

1. Meets or exceeds AAMA/WDMA/CSA 101/I.S.2/A440 Ratings: LC-PG35, WDMA.
2. Unit assembly shall withstand both positive and negative uniform static air pressure difference without damage when tested according to ASTM E 330.
3. Air Infiltration, 1.57 psf wind pressure: 0.30 cfm/ft² of frame.
4. Design Pressure: 35 psf.
5. Water Penetration Resistance: 5.43 psf.

B. Frame:

1. Interior and Exterior Frame Surfaces: Extruded, rigid, polyvinyl chloride (uPVC) complying with AAMA 303, having minimum ignition temperature 824 degrees F. when tested in accordance with ASTM D 1929.
2. Overall Frame Depth: 3-1/4 inches.
3. Frame Members: Mitered and heat fused to provide fully welded corner.

4. Sill: Fitted with weeps.

2.03 INSECT SCREENS

A. Insect Screens:

1. Compliance:
 - a. ASTM D 3656.
 - b. SMA 1201.
2. Screen Cloth: Full-size with black, vinyl-coated, 18/14 mesh, fiberglass screen cloth set in aluminum frame fitted to window exterior.
3. Screens for window with frame height $\leq 51\text{-}1/2$ " have one plunger per side, screens for windows with frame height $> 51\text{-}1/2$ " have two plungers per side.
4. Screens for windows with frame width >39 " or frame height $> 53\text{-}1/2$ " have a screen spreader bar.
5. Complete with necessary hardware.
6. Screen Frame Finish: Baked enamel.
 - a. Color: Match window exterior.

2.03 HARDWARE

A. Balances:

1. Galvanized steel block-and-tackle balances concealed with frame jamb.
2. Polyester Cords: Connect balance to sash.

B. Lock:

1. Type: Factory-installed, zinc-die-cast, self-aligning, cam-action lock on meeting rail.
2. Units with Frame Width $29\text{-}1/2$ Inches or Greater: 2 locks.
3. Color: Match window interior.

C. Tilt Latches:

1. Type: Factory install zinc-die-cast, self-aligning tilt latches.
2. Located on check rail of lower sash and top rail of upper sash.
3. Color: Match window interior.

2.04 TOLERANCES

A. Windows shall accommodate the following opening tolerances:

1. Horizontal Dimensions Between High and Low Points: Plus $1/4$ inch, minus 0 inch.
2. Width Dimensions: Plus $1/4$ inch, minus 0 inch.
3. Building Columns or Masonry Openings: Plus or minus $1/4$ inch from plumb.

2.05 FINISH

A. Window Frame and Sash Vinyl Extrusions: Integral color throughout profile.

B. Exposed Surfaces: Smooth, glossy, and uniform in appearance.

C. Color: As selected by Owner from White or Almond.

2.06 INSTALLATION ACCESSORIES

A. Flashing/Sealant Tape: Pella SmartFlash.

1. Aluminum-foil-backed butyl window and door flashing tape.
2. Maximum Total Thickness: 0.013 inch.
3. UV resistant.
4. Verify sealant compatibility with sealant manufacturer.

B. Interior Insulating-Foam Sealant: Low-expansion, low-pressure polyurethane insulating window and door foam sealant.

C. Exterior Perimeter Sealant: "Pella Window and Door Installation Sealant" or equivalent high quality, multi-purpose sealant as specified in the joints sealant section.

- D. Jamb Extensions: Factory-applied, primed-wood jamb extensions for as required for wall depth.

PART 3- EXECUTION

3.01 EXAMINATION

- A. Examine areas to receive vinyl double-hung windows. Notify Architect of conditions that would adversely affect installation or subsequent use. Do not proceed with installation until unsatisfactory conditions are corrected.

3.02 INSTALLATION

- A. Install vinyl double-hung windows in accordance with manufacturer's instructions.
- B. Install vinyl double-hung windows to be weather-tight and freely operating.
- C. Maintain alignment with adjacent work.
- D. Secure assembly to framed openings, plumb and square, without distortion.
- E. Integrate vinyl double-hung window installation with exterior weather-resistant barrier using flashing/sealant tape. Apply and integrate flashing/sealant tape with weather-resistant barrier using watershed principles in accordance with window manufacturer's instructions.
- F. Seal vinyl double-hung windows to exterior wall cladding with sealant and related backing materials at perimeter of assembly.
- G. Place interior seal around vinyl double-hung window perimeter to maintain continuity of building thermal and air barrier using insulating-foam sealant.
- H. Leave vinyl double-hung windows closed and locked.

3.03 CLEANING

- A. Clean vinyl double-hung windows in accordance with manufacturer's instructions.
- B. Do not use harsh cleaning materials or methods that would damage finish or glass.
- C. Remove labels and visible markings.
- D. Keep window tracks clear of dirt and debris.
- E. Keep weep holes open and clear of obstructions.

3.04 PROTECTION

- A. Protect installed vinyl double-hung windows to ensure that, except for normal weathering, windows will be without damage or deterioration at time of substantial completion.

END OF SECTION-08 52 00

SECTION 08 71 02
DOOR HARDWARE

PART 1: GENERAL

- 1.01 The General and Supplementary Conditions, Special Conditions, and the applicable portions of Division 1 of these Specifications are a part of this section.
- 1.02 SCOPE OF WORK
- A. All hardware indicated or required.
- 1.03 SUBMITTALS
- A. Final hardware schedule shall be submitted by the Contractor for Architect's approval. Hardware schedule shall include the following information for each item:
1. Type, style, function, size and finish.
 2. Name and manufacturer.
 3. Fastening and other pertinent information.
 4. Keying information.
- B. Product Data: Provide product data for all hardware to be installed. Verify that all trades have been coordinated for proper power, blocking and all other requirements necessary for proper installation and function of hardware.

PART 2: MATERIALS

- 2.01 LOCKSETS
- A. Owner supplied. Contractor to coordinate with Owner for blocking and reinforcement.
- 2.02 CLOSER AND EXIT DEVICES (PANIC HARDWARE)
- A. Closer: (Basis of Design): Norton 7500 Series or an approved equal meeting the following criteria:
1. ANSI A156.1, Grade 1, UL 10C
 2. Cast iron body, full complement bearings.
 3. Mounting: As recommended by door hardware specialist.
 4. Meets ANSI 117.1-2009
 5. 120 degree and 85 degree hold open.
- B. Exit Devices: (Basis of Design): Yale 7000 Series or an approved equal meeting the following criteria:
1. Surface mounted vertical rod device with top and bottom latch and strikes.
 2. Meets and/or exceeds ANSI A156.3 Grade 1.
 3. Provide hex dogging unless indicated otherwise on Drawings.
 4. Levers shall match lever design, style, roses and/or escutcheons of locksets as indicated in 2.01.
- 2.03 HINGES
- A. Hinges: (Basis of Design): TA/T4A Series (32D) McKinney Hinge:
1. Heavy weight ball bearing, 5 knuckle, stainless steel, satin finish, full mortise hinge with non-removable pins.
 2. Provide 3 hinges per door that is three foot wide or narrower, and 6'-8" or 7'-0" tall. Provide 4 hinges per door that is wider than 3'-0" and/or taller than 7'-0". Provide 4 hinges for all Dutch doors (two per each section).
 3. Installation: Unless otherwise recommended by hardware manufacturer, install top hinge 5 inches below door head, install bottom hinge 10 inches above floor, and equally center middle hinge(s) between top and bottom hinge.
- 2.04 KICK PLATES
- A. .05-inch-thick, 10" high aluminum protection plate with beveled edges and countersunk mounting.

- B. Meets UL10C and ANSI156.6.

2.05 STOPS

- A. Wall Stops: Rockwood 400 Series Wall Bumper by Ives or an approved equal meeting the following criteria:
 - 1. Heavy-duty cast brass, with grey rubber bumper meeting ANSI/BHMA 156.16.

2.06 THRESHOLDS

- A. Exterior Thresholds:
 - 1. UL 10 Classified, ANSI 117.1-2009 (Barrier Free), BHMA Certified, Aluminum threshold with thermal barrier.

2.07 PEEPHOLE

- A. Peephole: (basis of Design): Rockwood 622 or an approved equal meeting the following criteria:
 - 1. Material: Brass
 - 2. 180-degree minimum door viewer.
 - 3. UL listed.
 - 4. Finish: as selected by Architect from manufacturer's full line of finishes.

PART 3: EXECUTION

3.01 GENERAL

- A. All interior door frames shall receive silencers and all exterior door frames shall receive weather stripping.
- B. Provide a 3 Level System of keying as follows:
 - 1. Grandmaster keying for the entire building (including mechanical spaces).
 - a. Provide (2) two grandmaster keys.
 - 2. Provide (3) three master keys.
 - 3. Individual Change keying for each door with a lockset.
 - a. Provide (2) change keys per each door.
 - 4. General Contractor shall set up a Keying Conference and provide the following information:
 - a. A keying matrix explaining the key location, identification, and number of keys for Architect and Owner review.
- C. Provide all required tools and instructions. Leave all work in full and smooth operating condition.
- D. Accessible route door hardware shall have lever operation and exterior doors must have zero type thresholds, unless otherwise indicated.
- E. Provide plaster guards/dust pockets at all strikes.

END OF SECTION-08 71 02

SECTION 09 21 16
GYPSUM BOARD ASSEMBLIES

PART 1: GENERAL

1.01 DESCRIPTION

- A. Furnish and install complete d gypsum drywall interior partitions where shown on the drawings ready for finishes.
- B. Unless otherwise noted, furnish and install exterior gypsum as specified below.
- C. Construct drywall soffits where shown.
- D. Furnish and install drywall ceilings.

1.02 GENERAL REQUIREMENTS

- A. The material and installation shall meet the requirements stated in the manufacturer’s latest printed directions or specifications.
- B. Deliver materials to the job site in original unopened containers or bundles. Store in a place protected from the elements and from damage from tampering.
- C. In cold weather, and during the period of wall board application and joint finishing, maintain uniform temperatures in building within the range of 55 to 70 degrees Fahrenheit.
- D. Provide adequate ventilation during the same period to eliminate excessive moisture.
- E. Coordinate work with that of other trades. Reinforce wall system to receive all devices attached to wall such as cabinets, shelving, etc.
- F. Workmanship shall be of the highest quality and only mechanics experienced in this type of installation shall be employed.
- G. All surplus material and debris shall be removed from the site.
- H. Replace any damaged or defective material with new material in kind where required prior to application of final finishes (paint, vinyl wall fabric, etc.) by others.

1.03 QUALITY STANDARDS

- A. Unless otherwise indicated herein or in the Room Finish Schedule, the standards of quality for the work shall conform to the following standards as defined by the National Gypsum Company “Recommended Levels of Gypsum Board Finish,” including the consensus document presented by the AWCI, CISCA, GA and PDCA.
 - 1. LEVEL 1: Where “fire-taping” is called for, plenum areas above ceilings, in attics and other concealed areas.
 - 2. LEVEL 2: Where water-resistant gypsum backing board is used as a substrate for tile.
 - 3. LEVEL 3: Where heavy or medium-texture finishes are to be used.
 - 4. LEVEL 4: All other areas to receive paint, medium-texture finish or wallcoverings, except were Level 5 below is specifically called for.
 - 5. LEVEL 5: Skim-coat finish, where specifically called for on the Finish Schedule.

PART 2: PRODUCTS

2.01 GYPSUM WALLBOARDS

- A. Interior Partitions

1. Physical Characteristics:
 - a. Core: Type X gypsum core.
 - b. 5/8 inch thick unless otherwise specified on Drawings
 - c. Meeting ASTM C1396/ C1396M
 - d. Meeting ASTM E84, Class A
2. Acceptable Products:
 - a. Tough Rock Fireguard X by Georgia Pacific Company,
 - b. Gold Bond Brand Fire Shield Gypsum Sheathing by National Gypsum.
 - c. USG Sheetrock Brand Firecode X Panel.

B. Fire Rated Partitions and Floor to Ceiling Assemblies:

1. Fire rated partitions shall be limited to the products indicated by the UL rating indicated for each partition type. No substitutions shall be permitted. Follow exact UL instructions for installation.

C. Ceilings

1. Physical Characteristics:
 - a. Core: Type X gypsum core.
 - b. 5/8 inch thick.
 - c. Meeting ASTM C1396/ C1396M
 - d. Meeting ASTM E84, Class A
2. Acceptable Products:
 - a. Tough Rock Fireguard X by Georgia Pacific Company,
 - b. Gold Bond Brand Fire Shield Gypsum Sheathing by National Gypsum.
 - c. USG Sheetrock Brand Firecode X Panel.

D. Moisture resistant wall boards:

1. In bathrooms, kitchens and areas prone to moisture, provide the following:
 - a. Core: Regular.
 - b. Edges: Tapered
 - c. 5/8-inch thick
 - d. Mold/ Mildew Resistance: ASTM C3273; Score of 10
 - e. Mold/ mildew Resistance: ASTM G21; Score of 10.

E. Ceramic Tile Underlayment: See Ceramic Tile specification section for underlayment.

2.02 EXTERIOR WALLBOARD

- A. Thickness: 5/8-inch.
- B. Product
 1. Dens-Glas Gold by Georgia Pacific Gypsum Company.
 2. GlasRoc sheathing by BPB America, Inc., Tampa, FL.
 3. Approved equal.
- C. Exterior wallboard is installed as a system. Install all products per manufacturer's recommendations for the intended application.

2.03 METALS

- A. General Requirements:
 1. Fire Test Response Characteristics: For fire-resistant rated assemblies, follow the requirements of the UL Listed Designation. In addition, the steel framing shall meet ASTM E 119 and display a classification label from the testing agency.
 2. STC-Rated Assemblies: Provide steel framing that meets ASTM E90 and classified in accordance with ASTM E413. Final assembly shall be required to meet STC rating designated on Drawings.

3. Horizontal Deflection: Provide wall assemblies limited to 1/360 of the wall height based on a loading of 10 lbf/sq.ft.
4. Design framing system in accordance with AISI S220 "North American Specification for the Design of Cold Formed Steel Framing- Non-Structural Members", unless otherwise indicated.
5. All framing members shall be hot-dip galvanized. Provide coating that complies with ASTM C645; ASTM A653/ASTM 653M G40 or an approved equal. Galvanealed products are not permitted.

C. Studs: ASTM C645, cold formed steel C-studs.

1. Studs shall be 20 gauge unless otherwise noted.
2. Size: As indicated on Drawing.
3. Spacing: 16 inches on center standard, unless otherwise indicated on Drawings.

D. Runner Track: ASTM C645, cold formed steel track.

1. Studs shall be 20 gauge, typical unless otherwise noted and no smaller than 25 gauge.
2. Size: To fit properly with studs. Do not oversize or undersize track unless indicated on Drawings.
3. Fire stop Tack: Top track shall be manufactured to allow partition heads to expand and contract with movement of structure while maintaining continuity of fire-resistant rated assembly.

E. Carrying Channels: 0.053-inch (16 gauge) uncoated steel thickness (member shall be hot-dipped galvanized) with a minimum 1/2-inch flange.

1. Furring Brackets: adjustable, corrugated edge type steel sheet 0.0296 inch.
2. Tie wire: ASTM A641/a641M, Class 1 zinc coating soft tempered 0.062-inch diameter wire or double strand of 0.048-inch diameter wire.

F. Furring Channels

1. Resilient Furring Channel: 16-gauge, steel sheet members designed to reduce sound transmission and/or meet UL requirements. Sized at 1/2 inch, unless otherwise indicated on Drawings and/or in UL Designation.
2. Z-Shaped Furring: 16-gauge face flange of 1-1/4 inch and attachment flange of 3/4 inch and depth of 1-1/2 inch unless otherwise indicated on Drawings.
3. Rigid Furring Channels: 16-gauge, hat shaped channels.

F. Hanger Wires: 8 gauge galvanized annealed wire.

G. Accessories

Dur-a-bead corners, 200-series trims.

H. Deflection Clips

Where required due to deflection, expansion or wind loads, use "top-of-wall", "by-pass" or "offset bi-pass" attachment clips similar to "VertiClip" SL, SLD, SLB and SLS Series by "The Steel Network, Inc., Raleigh, NC (919-845-1025) or approved equal. Install all deflection clips per manufacturer's recommendations.

2.04 MISCELLANEOUS

A. Acoustics: All interior partitions sound attenuation blankets to match size of framing, unless otherwise noted on Drawings. Insulation shall not be compacted into space.

1. Space between 3-5/8-inch studs shall receive 3-1/2-inch sound attenuation batt insulation.
2. Space between 6-inch studs shall receive (1) layer 3-1/2 inch and (1) layer 2-1/2 inch sound attenuation batt insulation.
3. Space between 2-1/2-inch studs shall receive 2-1/2-inch sound attenuation batt insulation.
4. All insulation shall meet ASTM E90 and ASTM E413 for Sound Transmission Class.
5. Basis of Design:
 1. Eco Touch Sound Attenuation Batts with Pure Fiber Technology by Owens Corning.

B. Caulking

USG acoustical sealant.

C. Joint Treatment

Perf-a-tape.

D. Adhesives for laminating drywall to masonry shall be manufacturer's standard base laminating adhesive.

E. Control Joints

1. Provide caulked control joints at maximum 40'-0" o.c. in all drywall runs in excess of 40'-0".
2. Joints to be extruded vinyl formed with V shaped slot covered with removable flexible vinyl strip similar to Goldbond E-Z strip expansion joint. Caulk joints after removing strip.

2.04 WOOD

A. See Division 6 specification for rough lumber requirements.

2.05 FASTENERS

A. Adhesives

Durabond joint compound 2/0 or 90.

B. Screws

1" type S (unless noted otherwise).

C. Special Note

No power driven anchors (charge actuated) will be permitted in securing the drywall system to the structure. Use toggles, mollys, self-drilling anchors, cast-in-hoop inserts, or expansion bolts in shields other than wood, lead or plastic.

D. Joint Compounds

As recommended by the manufacturer for the various applications.

PART 3: EXECUTION

3.01 INSPECTION

- A. Building shall be closed-in and dry. If, in the opinion of the Architect, the building contains excessive moisture, forced drying shall be accomplished through use of temporary heat or by using the heating system of the building.
- B. Check alignment of all framing and suspension members before starting work and correct or compensate for any irregularities to the satisfaction of the Architect.
- C. Inspect surfaces to which drywall is to be applied. Notify the Architect of defects which might affect this work. Starting of work shall mean acceptance of the surface.

3.02 INSTALLATION

- A. Install runner tracks accurately with suitable fasteners at 24-inch on center maximum (refer to "special note" under fasteners.)
- B. Position studs as indicated on Drawings. Provide additional studs where required for support of recessed or applied items. Provide positive anchorage to runner tracks for all studs that are adjacent to door frames, partition intersections, and corners. Use metal locking fasteners or screws.
- C. Provide runners as headers over door frames, with intermediate vertical studs as required. Locate studs no more than 2 inches from door frame jambs (at solid core doors), provide double studs with one additional stud spaced 6 inches from jamb, each side, abutting partitions, partitions corners, and other construction. Securely anchor studs to jamb and head of door frames with screws or bolts.

- D. Apply wall board with long dimension vertical. Locate no vertical joints closer than 8 inches to any vertical door frame member. Secure with screws per manufacturer.
- E. Joints shall be arranged to fall on different stud than opposite wall face. Laminate drywall to masonry with specified adhesive. New masonry work shall be cleaned free of dirt, mortar droppings, etc. prior to lamination of drywall. Existing masonry shall be prepared to receive drywall in accordance with drywall manufacturer's recommendations.
- F. Special care shall be taken to extend and fit all drywall tight to floor slab as required for a good back-up for finish materials.
- G. Install sound blanket in all stud spaces unless otherwise indicated.

3.03 DRYWALL SOFFITS

- A. Use runner channels at wall, ceiling, and free edge. Secure at 2'-0" on center.
- B. Brace and suspend free edge with steel studs.
- C. Cover with gypsum wallboard, screw attached at 12" on center into framing members.

3.04 DRYWALL CEILINGS

- A. Provide hanger wires at 48 inches on center along carrying channels. (Refer to anchorage limitations under fasteners).
- B. Locate carrying channels within 6 inches of parallel walls. Provide 1-inch clearance between ends and perpendicular walls.
- C. Attach furring channels to carrying channels 24 inches on center using clips or 18-gauge wire saddle ties. Space from wall 6 inches max. on side, 1 inch at ends.
- D. Apply gypsum panels with long dimension perpendicular to furring channels and secure with screws at 12 inches on center.

3.05 GENERAL ERECTION

- A. Apply tape to all joints and interior corners.
- B. Install metal corner beads on all exterior corners (concealed type).
- C. Apply joint compound over all joints, as required at trims and over recessed screw heads.
- D. All components and completed work to be plumb or level and true.

PRODUCT IDENTIFICATION

All SSMA products have a four part identification code which identifies the size (both depth and flange width), style, and material thickness of each member.

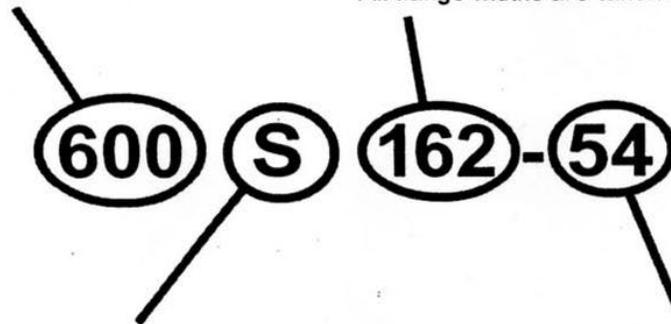
EXAMPLE:

MEMBER DEPTH:

(Example: 6" = 600 × 1/100 inches)
 All member depths are taken in 1/100 inches.
 For all "T" sections member depth is the inside to inside dimension.

FLANGE WIDTH:

(Example: 1 5/8" = 1.625" = 162 × 1/100 inches)
 All flange widths are taken in 1/100 inches.



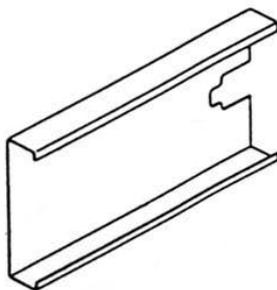
STYLE:

(Example: Stud or Joist section = S)
 The four alpha characters utilized by the designator system are:
S = Stud or Joist Sections
T = Track Sections
U = Channel Sections
F = Furring Channel Sections

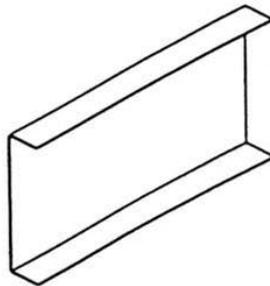
MATERIAL THICKNESS:

(Example: 0.054 in. = 54 mils;
 1 mil = 1/1000 in.)
 Material thickness is the minimum base metal thickness in mils. Minimum base metal thickness represents 95% of the design thickness.

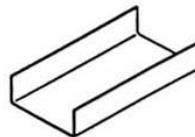
Note: For those sections where two different yield strengths (33 ksi and 50 ksi) are shown, the yield strength used in the design, if greater than 33 ksi, needs to be identified on the design and ordering of steel. (i.e., 600S162-54 (50 ksi))



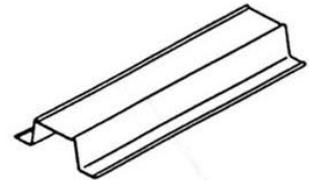
**C-STUD / JOIST
S-SECTIONS**



**TRACK
T-SECTIONS**



**CHANNEL
U-SECTIONS**



**FURRING CHANNEL
F-SECTIONS**

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General Product Information

Thickness — Steel Components

Minimum Thickness ¹ (mils)	Design Thickness (in)	Inside Corner Radii (in)	Reference Only Gauge No.
18	0.0188	0.0843	25
27	0.0283	0.0796	22
30	0.0312	0.0781	20 - Drywall
33	0.0346	0.0764	20 - Structural
43	0.0451	0.0712	18
54	0.0566	0.0849	16
68	0.0713	0.1069	14
97	0.1017	0.1525	12

Design Stiffening Lip Length

Section	Flange Width	Design Stiffening Lip Length (in)
S125	1 1/4"	0.188
S137	1 3/4"	0.375
S162	1 5/4"	0.500
S200	2"	0.625
S250	2 1/2"	0.625

¹ Minimum Thickness represents 95% of the design thickness and is the minimum acceptable thickness delivered to the job site based on Section A3.4 of the 1996 AISI Specification.

General Notes for all tables

- The strength increase due to cold work of forming was incorporated for flexural strength as applicable per AISI A7.2.
- The moment of inertia for deflection is calculated at a stress which results in an effective section modulus such that the stress times that section modulus is equal to the allowable moment. This follows Procedure 1 of the AISI Specification.
- The yield stress (33 ksi or 50 ksi) used to calculate the tabulated values are indicated in the tables.
- When provided, factory punch-outs will be located along the centerline of the webs of the members and will have a minimum center-to-center spacing of 24". Punch-outs will have a maximum width = half the member depth (d/2) or 2 1/2", whichever is less, and a maximum length = 4 1/2". The minimum distance between the end of the member and the near edge of the web punch-out = 10".
- For those steels that have both 33 and 50 ksi listings, if the design is based upon 50 ksi, the 50 ksi steel needs to be specified by the contractor/purchasers. (i.e., 362S137-54 (50 ksi))

Definitions of Structural Property Symbols

Gross Properties

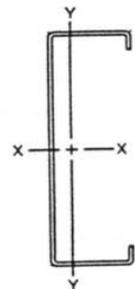
- I_{xx}: Moment of inertia of the gross section about the X-X axis (strong axis).
- R_x: Radius of gyration of the gross section about the X-X axis.
- I_{yy}: Moment of inertia of the gross section about the Y-Y axis (weak axis).
- R_y: Radius of gyration of the gross section about the Y-Y axis.

Effective Properties

- I_{xx}: Moment of inertia for deflection calculations based on "Procedure 1 for Deflection Determination" of the 1996 AISI Specification.
- S_{xx}: Effective section modulus about the X-X axis (strong axis) Stress = F_y.
- M_a: Allowable Bending Moment – Based on the effective section modulus and the allowable stress including the strength increase from cold-work of forming (AISI 7.2) where applicable.
- V_a: Allowable Shear Load.
- Y_{cg}: Maximum distance from the outside of the compression flange to the center of gravity of the effective section.

Torsional Properties

- J: St. Venant Torsional Constant.
- C_w: Torsional warping constant.
- X_o: Distance from the shear center to the centroid along the principal X-axis.
- R_o: Polar radius of gyration about the centroidal principal axis.
- β: 1 - (X_o/R_o)²



SECTION 09 30 13
CERAMIC TILE

PART 1: GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SUMMARY

- A. Section includes but is not limited to the following:
 - 1. Ceramic tile work as indicated on the Drawings and Room Finish Schedule.
 - 2. Provide all required returns, bases, angles, corners and trim of standard shapes for type of tile specified.
 - 3. Metal edge strips at doors.
 - 4. Membrane waterproofing and shower pan.
 - 5. Mortar bed for tile.
- B. Sealants are specified in Section 07 92 00.

1.03 SUBMITTALS

- A. Furnish Master Grade Certificates signed by both tile manufacturer and tile subcontractor upon request only.
- B. Submit one sample panel approximately 12" sq. for each color, pattern and type of tile intended to be used. Obtain approval of job sample submittals before delivering any products to job site.
- C. Submit tile manufacturer's maintenance guides for Owner's use in maintaining all ceramic tile work here specified.

1.04 PRODUCT HANDLING

- A. Deliver all products to job site in manufacturer's unopened containers with grade seals unbroken and labels intact.
- B. Keep tile cartons dry and protect from damage.

1.05 JOB CONDITIONS

- A. Maintain temperature at 50 degrees F minimum during tilework and for seven (7) days after completion.
- B. Provide adequate lighting for good grouting and clean up.

PART 2: PRODUCTS

2.01 WALL TILE

- A. Basis of Design: Color story wall by American Olean or an approved equal.
 - 1. Size: 8 inch by 24 inch wall tile; 3 inch by 6 inch bull nose at top of ceramic tile and 3 inch by 6 inch cove base.
 - 2. Water Absorption: < 20% per ASTM C 373.
 - 3. Chemical Resistance: Per ASTM C650.
- B. Latex Portland cement mortar shall meet the requirements of ANSI A118.4. Latex additives shall be manufactured by Bostik, L & M, or American Olean.
- C. Grouts

1. Grout for floors other than quarry tile shall be sanded Portland cement type meeting ANSI A118.6 with latex additive and shall be Bostik Hydroment or equal by L & M or American Olean. Color shall be as selected by the Architect from manufacturer's standards.
 2. Grout for cement backer board ceiling and walls shall be Portland cement grout meeting ANSI A118.6 with latex grout additive manufactured by Bostik, L & M or American Olean. Color as selected by the Architect from manufacturer's standards.
 3. Grout for quarry tile shall be chemical resistant epoxy meeting ANSI A118.3 manufactured by American Olean (A0400), Atlas, L & M or Bostik.
- D. Water shall be clean and drinkable.
- E. Portland cement - ASTM C-150, Type L.
- F. Sand - White pure silica sand passing a 30 mesh screen for grout. Other sand - ASTM C-144.
- G. Temporary Wax Coating
Protect exposed surfaces of quarry tile against adherence of mortar and grout where indicated below by pre-coating with wax to produce a continuous film. Use wax which is approved by manufacturers of both tile and grout as being compatible with their materials and with the cleaning method required to remove wax without damage to tile or grout. Apply wax in manner to avoid coating unexposed tile surfaces and edges; backs or edges of other units. When storing waxed units, prevent contamination of backs and edges.
- L. Cement Backer Board – Hardiboard, Wonderboard, or other product acceptable to tile manufacturer. Thickness as noted on the drawings. Field verify floor tile will align with adjacent finish floor surface. Provide 5/8" thick on stud walls.

PART 3: EXECUTION

3.01 INSPECTION

- A. The Contractor shall inspect all wall and floor surfaces prior to beginning work and notify the Architect of any defects or irregularities that will cause his work to be unsatisfactory. Starting of work will imply acceptance of the surfaces.
- B. Before tiling, be sure surfaces to be tiled are free of curing membranes, oil, grease, wax and dust.

3.02 LAYOUT

- A. Determine locations of all movement joints before starting tilework.
- B. Determine locations of all accessories before starting tilework.
- C. Lay out all tilework so as to minimize cuts less than one-half tile in size.
- D. Locate cuts in both walls and floors so as to be least conspicuous.
- E. Align all wall joints to give straight uniform grout lines, plumb and level.
- F. Align all floor joints to give straight uniform grout lines, parallel with walls.
- G. Make joints between tile sheets same width as joints within sheets, so extent of each sheet is not apparent in finished work.

3.03 INSTALLATION

- A. Install tile in accordance with applicable ANSI Specifications and the Tile Council of America Specifications (TCA).

- B. Use all products in strict accordance with recommendations and directions of manufacturers.
- C. Proportion all mixes in accordance with latest ANSI Standard Specifications.
- D. Extend tile work into recesses and under or behind equipment and fixtures, to form a complete covering without interruptions, except as otherwise shown. Terminate work neatly at obstructions, edges and corners without disrupting pattern or joint alignments.
- E. Smooth all exposed cut tile edges. Be sure cut edges are clean before installing tiles.
- F. Provide sealant filled joint above subsurface joints where indicated.
- G. Fit tile carefully against trim and porcelain accessories, also around pipes, electric boxes and other built-up fixtures so that escutcheons, plates and collars will completely overlap cut edges.
- H. Joints between all units of ceramic mosaic and abutting sheets, as laid, shall maintain the standard mounting width.
- I. Minimize tearing sheets apart by drilling pipe holes as much as possible.
- J. Be sure all tilework is free of grout film upon completion.

3.04 SETTING METHODS

- A. Use TCA method F115 with latex P.C. mortar and epoxy grout for quarry tile except in coolers or freezers. Use method F132 as applicable in freezers or coolers.
- B. Use TCS method F113 with latex P.C. mortar and grout for floors other than quarry tile.
- C. Use TCA method W244 with latex P.C. mortar and grout for cement backer board walls.
- D. Use TCA method C311 with latex P.C. mortar and grout for cement backer board ceilings.

3.05 CLEANING

- A. Cleaning
Upon completion of placement and grouting, clean all ceramic tile surfaces so they are free of foreign matter.
 - 1. Unglazed tile may be cleaned with acid solutions only when permitted by tile and grout manufacturer's printed instructions, but no sooner than 14 days after installation. Protect metal surfaces, cast iron and vitreous plumbing fixtures from effects of acid cleaning. Flush surface with clean water before and after cleaning.
 - 2. Remove temporary wax coating from quarry tile, using methods recommended by manufacturers of tile and grout.
- B. Remove all grout haze, observing grout manufacturer's recommendations as to use of acid and chemical cleaners.
- C. Rinse tilework thoroughly with clean water before and after using chemical cleaners.

3.06 PROTECTION FROM CONSTRUCTION DIRT

- A. Apply to all clean, completed tile walls and floors, a protective coat of neutral cleaner solution, 1 part cleaner to 1 part water.
- B. In addition, cover all tile floors with heavy-duty, non-staining construction paper, masked in place.
- C. Just before final acceptance of tilework, remove paper and rinse protective coat of neutral cleaner from all tile surfaces.

3.07 PROTECTION FROM TRAFFIC

- A. Prohibit all foot and wheel traffic from using newly tiled floors for at least three days, preferably 7 days.

- B. Place large, flat boards in walkways and wheelways for 7 days where use of newly tiled floors with cement type grout is unavoidable.

END OF SECTION-09 30 13

SECTION 09 65 19
RESILIENT TILE FLOORING

PART 1: GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SUMMARY

- A. Provide resilient flooring and base as indicated on the Room Finish Schedule.

1.03 SAMPLES

- A. Furnish samples of manufacturer's full line of colors and patterns to Architect for color selection.

PART 2: PRODUCTS

2.01 VINYL TILE

- A. Basis of Design: Safety Zone Slip Retardant Tile Flooring by Armstrong Flooring or an approved equal meeting the following criteria:
1. Description: Vinyl tile composed of polyvinyl chloride resin, plasticizers, fillers, pigment, and grit. Tile shall have a nominal 0.020 in. (0.51 mm) thick pattern layer containing proprietary slip-retardant grit.
 2. Tile shall meet size, thickness, indentation, impact, deflection, dimensional stability, resistance to chemicals, squareness, and resistance to heat requirements of ASTM F 1066 Standard Specification for Vinyl Composition Tile, Class 2, through pattern.
 3. Pattern and Color: Color selected by Architect from the range currently available from Armstrong Flooring, Inc.
 4. Size: 12 in. x 12 in.
 5. Thickness: 1/8"/0.125 in. (3.2mm)

2.02 LUXURY VINYL TILE

- A. Basis of Design: Terran II 20 Mil Luxury Vinyl Tile by Shaw Contract or an approved equal meeting the following criteria:
1. Class/ ASTM F1700: Class III, Type B.
 2. Finish: Exo Guard
 3. Nominal Dimensions: 6-inch by 48 inches
 4. Wear Thickness: 20 mil.
 5. Overall Thickness: 0.098 inches
 6. Edge Profile: Squared edge
 7. Installation: Direct Glue.
 8. Static Load: ASTM F970: Pass per 1500 lbs.
 9. Coefficient of Friction: ≥ 0.5 meeting ADA walking surface per ASTM D 2047.

2.03 RUBBER BASE

- A. At Luxury Vinyl Tile, Vinyl Tile, Wood or Concrete Flooring, provide 1/8 in. (3.18 mm) thick, 4 in. (10.16 cm) high Armstrong Flooring Color-Integrated Wall Base with a matte finish, conforming to ASTM F 1861, Type TP - Rubber, Thermoplastic, Group 1 - Solid, Style B – Cove or an approved equal.
- B. At Carpet or carpet tile, provide 1/4 in. (6.35 mm) thick, 4.5 in. (11.43 cm) high Armstrong Flooring Color-Integrated Wall Base with a matte finish, conforming to ASTM F 1861, Type TP - Rubber, Thermoplastic, Group 1 - Solid, Style A – Straight or an approved equal.

2.04 ADHESIVE

- A. Provide adhesive as recommended by flooring manufacturer. Follow manufacturer's instructions.

PART 3: EXECUTION

3.01 WORKMANSHIP

- A. Contractor shall lay finished floors on subfloor of concrete which he shall inspect before starting work. He shall notify the Architect, in writing, of any defects in subfloor and not proceed until such defects, as reported by him, have been corrected. Starting work by this Contractor shall imply his acceptance of the underflooring.
- B. Subfloor shall be delivered to this Contractor broom clean, free from all foreign matter and thoroughly dry.
- C. Fill all cracks, pits, expansion joints, etc., in concrete with joint filler approved by the manufacturer.
- D. Lay resilient floor true, level and even with tight joints and in accordance with manufacturer's installation instructions.
- E. Fit to and around all permanent fixtures.
- F. Roll in two directions with 100# or heavier roller.
- G. Clean off surplus adhesive according to manufacturer's instructions.
- H. Install beveled edging (reducer strip) at threshold termination of resilient flooring at doors to rooms with exposed concrete as finish floor.
- I. Contractor is to inspect and approve the wall prior to installation of the wall base. Where beveled drywall, incomplete taping jobs or other imperfections which may telescope through the base are found, these are to be corrected prior to commencing the rubber base work.
- J. Apply wall base to walls, columns, pilasters, casework and other permanent fixtures in rooms or areas where base is required. Install base in lengths as long as practicable, with preformed outside corner units, or fabricated from base materials with mitered or coped inside corners. Where external corners are not preformed, form with no joints nearer to corner than 18". Tightly bond base to substrate throughout length of each piece, with continuous contact at horizontal and vertical surfaces. On masonry surfaces, or other similar irregular substrates, fill voids along top edge of resilient wall base with manufacturer's recommended adhesive filler material.
- K. Maintain a 68 degree to 60 degree temperature in room for twenty-four (24) hours before placing tile. Materials shall be placed in rooms for twenty-four (24) hours before installation.

3.02 CLEAN UP

- A. Clean up as indicated under Contract provisions.
- B. See Finishing above for sealant and wax.
- C. **Turn over all excess tile and base material to the Owner's representative (minimum 5%).**

END OF SECTION-09 65 19

SECTION 099123
PAINTING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes surface preparation and field painting of exposed exterior and interior items and surfaces.

1. Surface preparation, priming, and finish coats specified in this Section are in addition to shop priming and surface treatment specified in other Sections.

- B. Paint exposed surfaces, except where these Specifications indicate that the surface or material is not to be painted or is to remain natural. If an item or a surface is not specifically mentioned, paint the item or surface the same as similar adjacent materials or surfaces. If a color of finish is not indicated, Architect will supply a color selection.

1. Painting includes field painting of exposed bare and covered pipes and ducts (including color coding), hangers, exposed steel and iron supports, and surfaces of mechanical and electrical equipment that do not have a factory-applied final finish.

- C. Do not paint prefinished items, concealed surfaces, finished metal surfaces, operating parts, and labels.

1. Prefinished items include the following factory-finished components (unless otherwise noted on Drawing):

- a. Architectural woodwork.
- b. Acoustical wall panels.
- c. Metal toilet enclosures.
- d. Metal lockers.
- e. Unit kitchens.
- f. Elevator entrance doors and frames.
- g. Elevator equipment.
- h. Light fixtures.

2. Concealed surfaces include walls or ceilings in the following generally inaccessible spaces:

- a. Foundation spaces.
- b. Furred areas.
- c. Ceiling plenums.
- d. Utility tunnels.
- e. Pipe spaces.
- f. Duct shafts.
- g. Elevator shafts.

3. Finished metal surfaces include the following:

- a. Anodized aluminum.
- b. Stainless steel.
- c. Chromium plate.
- d. Copper and copper alloys.
- e. Bronze and brass.

4. Operating parts include moving parts of operating equipment and the following:

- a. Valve and damper operators.
- b. Linkages.
- c. Sensing devices.
- d. Motor and fan shafts.

5. Labels: Do not paint over UL, FMG, or other code-required labels or equipment name, identification, performance rating, or nomenclature plates.

1.3 DEFINITIONS

A. General: Standard coating terms defined in ASTM D 16 apply to this Section.

1. Flat refers to a lusterless or matte finish with a gloss range below 15 when measured at an 85-degree meter.
2. Eggshell refers to low-sheen finish with a gloss range between 20 and 35 when measured at a 60-degree meter.
3. Semigloss refers to medium-sheen finish with a gloss range between 35 and 70 when measured at a 60-degree meter.
4. Full gloss refers to high-sheen finish with a gloss range more than 70 when measured at a 60-degree meter.

1.4 SUBMITTALS

A. Paint System Schedule: Provide a schedule indicating each paint system to be used and material where paint is to be applied. Engage a representative of the paint manufacturer to review and verify paint shall work with the material indicated for new surfaces. For existing surfaces, provide a test per paint manufacturer's recommendations on surface in an inconspicuous location to verify that paint shall work on surface.

B. Product Data: Provide paint manufacturer's product data for each paint system indicated; include block fillers and primers.

1. Material List: An inclusive list of required coating materials. Indicate each material and cross-reference specific coating, finish system, and application. Identify each material by manufacturer's catalog number and general classification. Submit in same format as specification.
2. Manufacturer's Information: Manufacturer's technical information, including label analysis and instructions for handling, storing, and applying each coating material.
3. Certification by the manufacturer that products supplied comply with local regulations controlling use of volatile organic compounds (VOC's).

C. Color Charts for initial Selection: Provide professionally generated color charts to indicated manufacturer's full line of available colors. Do not submit color charts printed from the internet.

D. Samples for Verification: For each color and material to be applied, with texture to simulate actual conditions, on representative Samples of the actual substrate.

1. Submit 2 sets of samples of each final color and finish.

- E. Qualification Data: For firms and persons specified in the "Quality Assurance" Article to be 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.
- F. Certifications:
1. Furnish a letter from the paint manufacturer or their factory representative certifying that the paint system proposed for this project are equal to or better than the specified systems in appearance and performance levels. Submit proof of equivalency for approval including generic type, descriptive information, VOC content, performance data, solids by volume, and recommended film thickness. Submittals not accompanied by this certification will be returned, "REJECTED."
- G. Coating Maintenance Manual: Upon conclusion of the project, the Contractor or paint manufacturer/supplier shall furnish a coating maintenance manual, such as Sherwin-Williams "Custodian Project Color and Product Information" report or equal. Manual shall include an Area Summary with finish schedule, Area Detail designating where each product/color/finish was used, product data pages, Material Safety Data Sheets, care and cleaning instructions, touch-up procedures, and color samples of each color and finish used.

1.5 QUALITY ASSURANCE

- A. Applicator Qualifications: A firm or individual experienced in applying paints and coatings similar in material, design, and extent to those indicated for this Project, whose work has resulted in applications with a record of successful in-service performance.
- B. Source Limitations: Obtain block fillers and primers for each coating system from the same manufacturer as the finish coats.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials to Project site in manufacturer's original, unopened packages and containers bearing manufacturer's name and label and the following information:
1. Product name or title of material.
 2. Product description (generic classification or binder type).
 3. Manufacturer's stock number and date of manufacture.
 4. Contents by volume, for pigment and vehicle constituents.
 5. Thinning instructions.
 6. Application instructions.
 7. Color name and number.
 8. VOC content.
- B. Store materials not in use in tightly covered containers in a well-ventilated area at a minimum ambient temperature of 45 deg F. Maintain storage containers in a clean condition, free of foreign materials and residue.
1. Protect from freezing. Keep storage area neat and orderly. Remove oily rags and waste daily.
- C. Take necessary measures to ensure that workers and work areas are protected from fire and health hazards resulting from handling, mixing, and application.

1.7 PROJECT CONDITIONS

- A. Apply waterborne paints only when temperatures of surfaces to be painted and surrounding air are between 50 and 90 deg F.
- B. Apply solvent-thinned paints only when temperatures of surfaces to be painted and surrounding air are between 45 and 95 deg F.
- C. Do not apply paint in snow, rain, fog, or mist; or when relative humidity exceeds 85 percent; or at temperatures less than 5 deg F above the dew point; or to damp or wet surfaces.
 - 1. Painting may continue during inclement weather if surfaces and areas to be painted are enclosed and heated within temperature limits specified by manufacturer during application and drying periods.

1.8 EXTRA MATERIALS

- A. Furnish extra paint materials from the same production run as the materials applied and in the quantities described below. Package with protective covering for storage and identify with labels describing contents. Deliver left-over paint materials to Owner.
 - 1. Quantity: Furnish Owner with extra paint materials in quantities indicated below:
 - a. Exterior: 2 gallons of each color applied.
 - b. Interior: 1 case of each color applied.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Available Products: Subject to compliance with requirements, provide products from one of the following manufacturers. Sherwin-Williams is the basis of design and establishes the standard of quality required.
- B. Manufacturers' Names:
 - 1. Sherwin Williams. (SW)
 - 2. Pittsburgh Paints (PPG)
 - 3. Benjamin Moore (BM)

2.2 PAINT MATERIALS, GENERAL

- A. Material Compatibility: Provide block fillers, primers, and finish-coat materials that are compatible with one another and with the substrates indicated under conditions of service and application, as demonstrated by manufacturer based on testing and field experience. Each system should be from the same manufacturer.
- B. Material Quality: Provide manufacturer's best-quality paint material of the various coating types specified that are factory formulated and recommended by manufacturer for application indicated. Paint-material containers not displaying manufacturer's product identification will not be acceptable.
 - 1. Proprietary Names: Use of manufacturer's proprietary product names to designate colors or materials is not intended to imply that products named are required to be used to the exclusion of equivalent products of other manufacturers. Furnish manufacturer's material data and certificates of performance for proposed substitutions.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Applicator present, for compliance with requirements for paint application. Comply with procedures specified in PDCA P4.
 - 1. Proceed with paint application only after unsatisfactory conditions have been corrected and surfaces receiving paint are thoroughly dry.
 - 2. Start of painting will be construed as Applicator's acceptance of surfaces and conditions within a particular area.
- B. Coordination of Work: Review other Sections in which primers are provided to ensure compatibility of the total system for various substrates. On request, furnish information on characteristics of finish materials to ensure use of compatible primers.
 - 1. Notify Architect about anticipated problems when using the materials specified over substrates primed by others.
- C. Where materials are being applied over previously painted surfaces, apply mock up samples and perform field testing to check for compatibility, adhesion, and film integrity of the new materials to existing painted surfaces. Report in writing any condition that may affect application, appearance, or performance of the specified coating system.

3.2 PREPARATION

- A. General: Remove hardware and hardware accessories, plates, machined surfaces, lighting fixtures, and similar items already installed that are not to be painted. If removal is impractical or impossible because of size or weight of the item, provide surface-applied protection before surface preparation and painting.
 - 1. After completing painting operations in each space or area, reinstall items removed using workers skilled in the trades involved.
- B. Cleaning: Before applying paint or other surface treatments, clean substrates of substances that could impair bond of the various coatings. Remove oil and grease before cleaning. All surfaces must be clean, dry, and free of all oil, grease, surface contaminants, and substances that could impair adhesion.
 - 1. Schedule cleaning and painting so dust and other contaminants from the cleaning process will not fall on wet, newly painted surfaces.
- C. Surface Preparation: Clean and prepare surfaces to be painted according to manufacturer's written instructions for each particular substrate condition and as specified.
 - 1. Provide barrier coats over incompatible primers or remove and reprime.
 - 2. Cementitious Materials: Prepare concrete, concrete unit masonry, cement plaster, and mineral-fiber-reinforced cement panel surfaces to be painted. Remove efflorescence, chalk, dust, dirt, grease, oils, and release agents. Roughen as required to remove glaze. If hardeners or sealers have been used to improve curing, use mechanical methods of surface preparation.
 - a. Use abrasive blast-cleaning methods if recommended by paint manufacturer.
 - b. Determine alkalinity and moisture content of surfaces by performing appropriate tests. If surfaces are sufficiently alkaline to cause the finish paint to blister and burn, correct this

- condition before application. Do not paint surfaces if moisture content exceeds that permitted in manufacturer's written instructions.
3. For Concrete Floors:
- Surface must be clean, dry, and in sound condition. Remove stains, oil, dust, grease, dirt, rust, release agents, curing compounds and hardeners, salts, efflorescence, laitance, and other contaminants and foreign material to ensure adequate adhesion.
 - Follow recommendations as listed in the Sherwin Williams / General Polymers G-1 Surface Preparation Guide and ICRI Guideline #310-2-1997 for surface preparation.
 - Provide Concrete Surface Profile (CSP) as recommended by manufacturer for specified systems.
 - Determine alkalinity and moisture content of surfaces by performing appropriate tests. Document results in writing to GC and architect.
4. Wood: Clean surfaces of dirt, oil, and other foreign substances with scrapers, mineral spirits, and sandpaper, as required. Sand surfaces exposed to view smooth and dust off.
- Scrape and clean small, dry, seasoned knots, and apply a thin coat of white shellac or other recommended knot sealer before applying primer. After priming, fill holes and imperfections in finish surfaces with putty or plastic wood filler. Sand smooth when dried.
 - Prime, stain, or seal wood to be painted immediately on delivery. Prime edges, ends, faces, undersides, and back sides of wood, including cabinets, counters, cases, and paneling.
 - If transparent finish is required, backprime with spar varnish.
 - Backprime paneling on interior partitions where masonry, plaster, or other wet wall construction occurs on back side.
 - Seal tops, bottoms, and cutouts of unprimed wood doors with a heavy coat of varnish or sealer immediately on delivery.
5. Ferrous Metals: Clean ungalvanized ferrous-metal surfaces that have not been shop coated; remove oil, grease, dirt, loose mill scale, and other foreign substances. Use solvent or mechanical cleaning methods that comply with SSPC's recommendations.
- Power Tool Clean steel surfaces clean as recommended by paint system manufacturer and according to SSPC-SP 3.
 - Treat bare and sandblasted or pickled clean metal with a metal treatment wash coat before priming.
 - Touch up bare areas and shop-applied prime coats that have been damaged. Wire-brush, clean with solvents recommended by paint manufacturer, and touch up with same primer as the shop coat.
6. Galvanized Surfaces: Clean galvanized surfaces with nonpetroleum-based solvents so surface is free of oil and surface contaminants. Remove pretreatment from galvanized sheet metal fabricated from coil stock by mechanical methods.
7. Previously Painted Surfaces: Remove all surface contamination such as oil, grease, dirt, oxide, rust, mold, mildew, mortar, efflorescence and other foreign contaminants by cleaning per SSPC-SP1, Solvent Cleaning. Scuff sand or mechanically abrade smooth and/or glossy surfaces of existing paint films to impart a surface profile that will promote adhesion of subsequent coating system. Spot prime any bare areas with the appropriate primer. Check for compatibility by applying a test patch of the recommended coating system, covering 2 to 4 sq. feet. Allow to dry one week before testing adhesion per ASTM D3359. If the coating system is incompatible additional surface preparation up to and including complete removal may be required.

- D. Material Preparation: Mix and prepare paint materials according to manufacturer's written instructions.
 - 1. Maintain containers used in mixing and applying paint in a clean condition, free of foreign materials and residue.
 - 2. Stir material before application to produce a mixture of uniform density. Stir as required during application. Do not stir surface film into material. If necessary, remove surface film and strain material before using.
 - 3. Use only thinners approved by paint manufacturer and only within recommended limits.
- E. Tint each undercoat a lighter shade to simplify identification of each coat when multiple coats of same material are applied. Tint undercoats to match the color of the finish coat but provide sufficient differences in shade of undercoats to distinguish each separate coat.

3.3 APPLICATION

- A. General: Apply paint according to manufacturer's written instructions. Use applicators and techniques best suited for substrate and type of material being applied.
 - 1. Paint colors, surface treatments, and finishes are indicated in the paint schedules.
 - 2. Do not paint over dirt, rust, scale, grease, moisture, scuffed surfaces, or conditions detrimental to formation of a durable paint film.
 - 3. Provide finish coats that are compatible with primers used.
 - 4. The term "exposed surfaces" includes areas visible when permanent or built-in fixtures, grilles, convactor covers, covers for finned-tube radiation, and similar components are in place. Extend coatings in these areas, as required, to maintain system integrity and provide desired protection.
 - 5. Paint surfaces behind movable equipment and furniture the same as similar exposed surfaces. Before final installation of equipment, paint surfaces behind permanently fixed equipment or furniture with prime coat only.
 - 6. Paint interior surfaces of ducts with a flat, nonspecular black paint where visible through registers or grilles.
 - 7. Paint back sides of access panels and removable or hinged covers to match exposed surfaces.
 - 8. Finish exterior doors on tops, bottoms, and side edges the same as exterior faces.
 - 9. Finish interior of wall and base cabinets and similar field-finished casework to match exterior.
 - 10. Sand lightly between each succeeding enamel or varnish coat.
- B. Scheduling Painting: Apply first coat to surfaces that have been cleaned, pretreated, or otherwise prepared for painting as soon as practicable after preparation and before subsequent surface deterioration.
 - 1. The number of coats and film thickness required are the same regardless of application method. Do not apply succeeding coats until previous coat has cured as recommended by manufacturer. If sanding is required to produce a smooth, even surface according to manufacturer's written instructions, sand between applications.
 - 2. Omit primer over metal surfaces that have been shop primed and touchup painted.
 - 3. If undercoats, stains, or other conditions show through final coat of paint, apply additional coats until paint film is of uniform finish, color, and appearance. Give special attention to ensure that edges, corners, crevices, welds, and exposed fasteners receive a dry film thickness equivalent to that of flat surfaces.
 - 4. Allow sufficient time between successive coats to permit proper drying. Do not recoat surfaces until paint has dried to where it feels firm and does not deform or feel sticky under moderate thumb pressure, and until application of another coat of paint does not cause undercoat to lift or lose adhesion.
- C. Application Procedures: Apply paints and coatings by brush, roller, spray, or other applicators according to manufacturer's written instructions.

- 1.Brushes: Use brushes best suited for type of material applied. Use brush of appropriate size for surface or item being painted.
 - 2.Rollers: Use rollers of carpet, velvet-back, or high-pile sheep's wool as recommended by manufacturer for material and texture required.
 - 3.Spray Equipment: Use airless spray equipment with orifice size as recommended by manufacturer for material and texture required.
- D. Minimum Coating Thickness: Apply paint materials no thinner than manufacturer's recommended spreading rate to achieve dry film thickness indicated. Provide total dry film thickness of the entire system as recommended by manufacturer.
- E. Mechanical and Electrical Work: Painting of mechanical and electrical work is limited to items exposed in equipment rooms and occupied spaces.
- F. Mechanical items to be painted include, but are not limited to, the following:
- 1.Exposed uninsulated metal piping.
 - 2.Exposed uninsulated plastic piping.
 - 3.Exposed pipe hangers and supports.
 - 4.Tanks that do not have factory-applied final finishes.
 - 5.Visible portions of internal surfaces of metal ducts, without liner, behind air inlets and outlets.
 - 6.Duct, equipment, and pipe insulation having "all-service jacket" or other paintable jacket material.
 - 7.Mechanical equipment that is indicated to have a factory-primed finish for field painting.
- G. Electrical items to be painted include, but are not limited to, the following:
- 1.Switchgear.
 - 2.Panelboards.
 - 3.Electrical equipment that is indicated to have a factory-primed finish for field painting.
- H. All interior and exterior exposed gypsum wallboard, including any bulkheads and soffits to be painted.
- I. All interior and exterior ferrous metal to be painted including any lintels, railings, grilles, and louvers (does not include factory or pre-finished items).
- J. All hollow metal doors and frames, interior and exterior, to be painted.
- K. Block Fillers: Apply block fillers to concrete masonry block at a rate to ensure complete coverage with pores filled.
- L. Prime Coats: Before applying finish coats, apply a prime coat, as recommended by manufacturer, to material that is required to be painted or finished and that has not been prime coated by others. Recoat primed and sealed surfaces where evidence of suction spots or unsealed areas in first coat appears, to ensure a finish coat with no burn-through or other defects due to insufficient sealing.
- M. Pigmented (Opaque) Finishes: Completely cover surfaces as necessary to provide a smooth, opaque surface of uniform finish, color, appearance, and coverage. Cloudiness, spotting, holidays, laps, brush marks, runs, sags, ropiness, or other surface imperfections will not be acceptable.
- N. Transparent (Clear) Finishes: Use multiple coats to produce a glass-smooth surface film of even luster. Provide a finish free of laps, runs, cloudiness, color irregularity, brush marks, orange peel, nail holes, or other surface imperfections.
- 1.Provide satin finish for final coats.

- O. Completed Work: Match approved samples for color, texture, and coverage. Remove, refinish, or repaint work not complying with requirements.
- P. Marking and Identification: Fire walls, fire barriers, fire partitions, smoke barriers and smoke partitions or any other wall required to have protected openings or penetrations shall be effectively and permanently identified with signs or stenciling. Such identification shall:
 - 1. Be located in accessible concealed floor, floor-ceiling or attic spaces;
 - 2. Be repeated at intervals not exceeding 30 feet measured horizontally along the wall or partition; and
 - 3. Include lettering not less than 0.5 inch in height, incorporating the suggested wording: "FIRE AND/OR SMOKE BARRIER-PROTECT ALL OPENINGS," or other wording.
 - a. Exception: Walls in Group R-2 occupancies that do not have a removable decorative ceiling allowing access to the concealed space.

3.4 FIELD QUALITY CONTROL

- A. Owner reserves the right to invoke the following test procedure at any time and as often as Owner deems necessary during the period when paint is being applied:
 - 1. Owner will engage a qualified independent testing agency to sample paint material being used. Samples of material delivered to Project will be taken, identified, sealed, and certified in the presence of Contractor.
 - 2. Testing agency will perform appropriate tests for the following characteristics as required by Owner:
 - a. Quantitative material analysis.
 - b. Abrasion resistance.
 - c. Apparent reflectivity.
 - d. Flexibility.
 - e. Washability.
 - f. Absorption.
 - g. Accelerated weathering.
 - h. Dry opacity.
 - i. Accelerated yellowness.
 - j. Recoating.
 - k. Skinning.
 - l. Color retention.
 - m. Alkali and mildew resistance.
 - 3. Owner may direct Contractor to stop painting if test results show material being used does not comply with specified requirements. Contractor shall remove noncomplying paint from Project site, pay for testing, and repaint surfaces previously coated with the noncomplying paint. If necessary, Contractor may be required to remove noncomplying paint from previously painted surfaces if, on repainting with specified paint, the two coatings are incompatible.

3.5 CLEANING

- A. Cleanup: At the end of each workday, remove empty cans, rags, rubbish, and other discarded paint materials from Project site.
 - 1. After completing painting, clean glass and paint-spattered surfaces. Remove spattered paint by washing and scraping without scratching or damaging adjacent finished surfaces.

3.6 PROTECTION

- A. Protect work of other trades, whether being painted or not, against damage from painting. Correct damage by cleaning, repairing or replacing, and repainting, as approved by Architect.
- B. Provide "Wet Paint" signs to protect newly painted finishes. After completing painting operations, remove temporary protective wrappings provided by others to protect their work.
 - 1. After work of other trades is complete, touch up and restore damaged or defaced painted surfaces. Comply with procedures specified in PDCA P1.

3.7 EXTERIOR PAINT SCHEDULE

- A. Ferrous Metal: Provide the following finish systems over exterior ferrous metal. Primer is not required on shop-primed items.
 - 1. High Performance: Waterbased Urethane Finish: two finish coats over a rust-inhibitive primer.
 - a. Primer: Pro Industrial Pro-Cryl Universal Metal Primer, B66-310 series
 - b. 1st Coat: SW Pro Industrial Waterbased Acrolon 100 Urethane Gloss, B65-721 series
 - c. 2nd Coat: SW Pro Industrial Waterbased Acrolon 100 Urethane Gloss, B65-721
- B. Previously Painted Ferrous Metal: Provide the following finish systems over exterior previously painted ferrous metal. Primer is not required on shop-primed items. *Note: Mock-Up with adhesion test per ASTM-D3359 is required prior to installation of this system.
 - 1. High Performance: Waterbased Urethane Finish: two finish coats over an adhesion promoting primer.
 - a. Spot Primer (for bare or rusted areas): Pro Industrial Pro-Cryl Universal Metal Primer, B66-310 series
 - b. Primer: Extreme Bond Primer, B51-150 series
 - c. 1st Coat: SW Pro Industrial Waterbased Acrolon 100 Urethane Gloss, B65-721 series
 - d. 2nd Coat: SW Pro Industrial Waterbased Acrolon 100 Urethane Gloss, B65-721 series
- C. Galvanized Metal: Provide the following finish systems over exterior galvanized metal. Primer is not required on shop-primed items.
 - 1. High Performance: Waterbased Urethane Finish: two finish coats over a rust-inhibitive primer.
 - a. Primer: Pro Industrial Pro-Cryl Universal Metal Primer, B66-310 series
 - b. 1st Coat: SW Pro Industrial Waterbased Acrolon 100 Urethane Gloss, B65-721 series
 - c. 2nd Coat: SW Pro Industrial Waterbased Acrolon 100 Urethane Gloss, B65-721
- D. Previously Painted Galvanized Metal: Provide the following finish systems over exterior previously painted galvanized metal. Primer is not required on shop-primed items. *Note: Mock-Up with adhesion test per ASTM-D3359 is required prior to installation of this system.
 - 1. High Performance: Waterbased Urethane Finish: two finish coats over an adhesion promoting primer.

- a. Spot Primer (for bare or rusted areas): Pro Industrial Pro-Cryl Universal Metal Primer, B66-310 series
 - b. Primer: Extreme Bond Primer, B51-150 series
 - c. 1st Coat: SW Pro Industrial Waterbased Acrolon 100 Urethane Gloss, B65-721 series
 - d. 2nd Coat: SW Pro Industrial Waterbased Acrolon 100 Urethane Gloss, B65-721 series
- E. Concrete Masonry Units (CMU): Provide the following finish systems over exterior CMU/Block.
- 1. Semi-Gloss Acrylic-Enamel Finish: two finish coats over a block filler.
 - a. Filler: PrepRite Block Filler, B25W25
 - b. 1st Coat: A-100 Exterior 100% Acrylic Gloss, A8 series
 - c. 2nd Coat: A-100 Exterior 100% Acrylic Gloss, A8 series
- F. Previously Painted Concrete Masonry Units (CMU): Provide the following finish systems over previously painted exterior CMU/Block. *Note: Mock-Up with adhesion test per ASTM-D3359 is required prior to installation of this system.
- 1. Semi-Gloss Acrylic-Enamel Finish: two finish coats over an adhesion promoting primer.
 - a. Primer: Extreme Bond Primer, B51-150 series
 - b. 1st Coat: A-100 Exterior 100% Acrylic Gloss, A8 series
 - c. 2nd Coat: A-100 Exterior 100% Acrylic Gloss, A8 series
- G. Poured Concrete/Masonry: Provide the following finish systems over exterior concrete/masonry.
- 1. Flat Acrylic-Enamel Finish: two finish coats over a masonry primer.
 - a. Primer: Not required
 - b. 1st Coat: Loxon Self-Cleaning Acrylic Coating, LX13 series
 - c. 2nd Coat: Loxon Self-Cleaning Acrylic Coating, LX13 series
- H. Previously Painted Poured Concrete/Masonry: Provide the following finish systems over previously painted exterior concrete/masonry. *Note: Mock-Up with adhesion test per ASTM-D3359 is required prior to installation of this system.
- 1. Flat Acrylic-Enamel Finish: two finish coats over an adhesion promoting primer.
 - a. Primer: Extreme Bond Primer, B51-150 series
 - b. 1st Coat: Loxon Self-Cleaning Acrylic Coating, LX13 series
 - c. 2nd Coat: Loxon Self-Cleaning Acrylic Coating, LX13 series
- I. Exterior Wood (Painted Finish): Provide the following finish systems over exterior wood surfaces.
- 1. Semi-Gloss Acrylic-Enamel Finish: two finish coats over a wood primer.
 - a. Primer: Exterior Latex Wood Primer, B42W8041
 - b. 1st Coat: Solo 100% Acrylic Int./Ext. Semi-Gloss, A76 series
 - c. 2nd Coat: Solo 100% Acrylic Int./Ext. Semi-Gloss, A76 series

- J. Previously Painted Exterior Wood (Painted Finish): Provide the following finish systems over previously painted exterior wood surfaces. *Note: Mock-Up with adhesion test per ASTM-D3359 is required prior to installation of this system.
1. Semi-Gloss Acrylic-Enamel Finish: two finish coats over an adhesion promoting primer.
 - a. Spot Primer (any bare surfaces): Exterior Latex Wood Primer, B42W8041
 - b. Primer: Extreme Bond Primer, B51-150 series
 - c. 1st Coat: Solo 100% Acrylic Int./Ext. Semi-Gloss, A76 series
 - d. 2nd Coat: Solo 100% Acrylic Int./Ext. Semi-Gloss, A76 series

3.8 INTERIOR PAINT SCHEDULE

- A. Gypsum Board: Provide the following finish systems over interior gypsum board surfaces:
1. Flat Acrylic Finish: At all interior walls, provide two finish coats over a primer.
 - a. Primer: ProMar 200 Zero VOC Latex Primer, B28W600.
 - b. 1st Coat: ProMar 200 Zero VOC Latex Flat, B30W2650 series
*Product remains Zero VOC when tinted.
 - c. 2nd Coat: ProMar 200 Zero VOC Latex Flat, B30W2650 series
*Product remains Zero VOC when tinted.
 2. Semi-Gloss Acrylic-Enamel Finish: At all ceilings, provide two finish coats over a primer.
 - a. Primer: ProMar 200 Zero VOC Latex Primer, B28W600.
 - b. 1st Coat: ProMar 200 Zero VOC Latex Semi-Gloss, B31W2650 series
*Product remains Zero VOC when tinted.
 - c. 2nd Coat: ProMar 200 Zero VOC Latex Semi-Gloss, B31W2650 series
*Product remains Zero VOC when tinted.
- B. Previously Painted Gypsum Board: Provide the following finish systems over previously painted interior gypsum board surfaces. *Note: Mock-Up with adhesion test per ASTM-D3359 is required prior to installation of this system.
1. Flat Acrylic Finish: At all interior walls, provide two finish coats over an adhesion promoting primer.
 - a. Primer: Extreme Bond Primer, B51-150 series
 - b. 1st Coat: ProMar 200 Zero VOC Latex Flat, B30W2650 series
*Product remains Zero VOC when tinted.
 - c. 2nd Coat: ProMar 200 Zero VOC Latex Flat, B30W2650 series
*Product remains Zero VOC when tinted.
 2. Semi-Gloss Acrylic-Enamel Finish: At all ceilings, provide two finish coats over an adhesion promoting primer.
 - a. Primer: Extreme Bond Primer, B51-150 series
 - b. 1st Coat: ProMar 200 Zero VOC Latex Semi-Gloss, B31W2650 series
*Product remains Zero VOC when tinted.
 - c. 2nd Coat: ProMar 200 Zero VOC Latex Semi-Gloss, B31W2650 series
*Product remains Zero VOC when tinted.

- C. Ferrous Metal: Provide the following finish systems over ferrous metal:
1. Semi-Gloss Finish: two finish coats over a primer.
 - a. Primer: Pro Industrial Pro-Cryl Universal Metal Primer, B66-310 series
 - b. 1st Coat: Pro Industrial Waterbased Alkyd UretaneSemi-Gloss, B53-1150 series
 - c. 2nd Coat: Pro Industrial Waterbased Alkyd UretaneSemi-Gloss, B53-1150 series
- D. Previously Painted Ferrous Metal: Provide the following finish systems over previously painted ferrous metal. *Note: Mock-Up with adhesion test per ASTM-D3359 is required prior to installation of this system.
1. Semi-Gloss Finish: two finish coats over an adhesion promoting primer.
 - a. Spot Primer (for bare or rusty areas): Pro Industrial Pro-Cryl Universal Metal Primer, B66-310 series
 - b. Primer: Extreme Bond Primer, B51-150 series
 - c. 1st Coat: Pro Industrial Waterbased Alkyd UretaneSemi-Gloss, B53-1150 series
 - d. 2nd Coat: Pro Industrial Waterbased Alkyd UretaneSemi-Gloss, B53-1150 series
- E. Galvanized Metal: Provide the following finish systems over galvanized metal:
1. Semi-Gloss Finish: two finish coats over a primer.
 - a. Primer: Pro Industrial Pro-Cryl Universal Metal Primer, B66-310 series
 - b. 1st Coat: Pro Industrial Waterbased Alkyd UretaneSemi-Gloss, B53-1150 series
 - c. 2nd Coat: Pro Industrial Waterbased Alkyd UretaneSemi-Gloss, B53-1150 series
- F. Previously Painted Galvanized Metal: Provide the following finish systems over previously painted galvanized metal. *Note: Mock-Up with adhesion test per ASTM-D3359 is required prior to installation of this system.
1. Semi-Gloss Finish: two finish coats over an adhesion promoting primer.
 - a. Spot Primer (for bare or rusty areas): Pro Industrial Pro-Cryl Universal Metal Primer, B66-310 series
 - b. Primer: Extreme Bond Primer, B51-150 series
 - c. 1st Coat: Pro Industrial Waterbased Alkyd UretaneSemi-Gloss, B53-1150 series
 - d. 2nd Coat: Pro Industrial Waterbased Alkyd UretaneSemi-Gloss, B53-1150 series
- G. Concrete Masonry Units: Provide the following finish systems over primer for wall applications.
1. Semi-Gloss Finish: two finish coats over a primer.
 - a. Filler: PrepRite Block Filler, B25W25.
 - b. 1st Coat: ProMar 200 Zero VOC Latex Semi-Gloss, B31W2650 series
*Product remains Zero VOC when tinted.

- c. 2nd Coat: ProMar 200 Zero VOC Latex Semi-Gloss, B31W2650 series
*Product remains Zero VOC when tinted.

- H. Previously Painted Concrete Masonry Units: Provide the following finish systems over an adhesion promoting primer for wall applications. *Note: Mock-Up with adhesion test per ASTM-D3359 is required prior to installation of this system.
 - 1. Semi-Gloss Finish: two finish coats over a primer.
 - a. Primer: Extreme Bond Primer, B51-150 series
 - b. 1st Coat: ProMar 200 Zero VOC Latex Semi-Gloss, B31W2650 series
*Product remains Zero VOC when tinted.
 - c. 2nd Coat: ProMar 200 Zero VOC Latex Semi-Gloss, B31W2650 series
*Product remains Zero VOC when tinted.

END OF SECTION 099123

SECTION 10 55 23
MAILBOXES

PART 1: GENERAL

- 1.01 RELATED DOCUMENTS
 - A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to work of this Section.
- 1.02 SUMMARY
 - A. Section includes mailboxes
- 1.03 SUBMITTALS
 - A. Submit product data.
 - B. Submit shop drawings as indicated in Division 1.
- 1.04 PRODUCT HANDLING
 - A. Deliver, store and handle materials as recommended by their manufacturer.
- 1.05 PROJECT CONDITIONS
 - A. Meet the requirements of the manufacturer.

PART 2: PRODUCTS

- 2.01 MAILBOX
 - A. Basis of Design: 140065OU by National Mailboxes or an approved equal meeting the following criteria:
 - 1. Installation: Front load, recessed mounted.
 - 2. Finish: Anodized aluminum
 - 3. Locks: Standard cam-lock, 2-key.
 - 4. Door ID: To be coordinated with Owner.
 - 5. Doors:
 - 25) 1 x 1 compartments: 6-3/8-inch by 5-inch high
 - 1) Master Compartment
 - 1) 1404 2 x 2 collection: 12-7/8-inch by 10-3/8-inch high.
 - 6. Depth: 15-inches
 - 7. USPS approved
 - 8.

PART 3: EXECUTION

- 3.01 INSTALLATION
 - A. Installation per manufacturer's recommendations. Provide blocking as recommended.
 - B. Install plumb, level and such that doors open freely without binding.

END OF SECTION-10 55 23

SECTION 10 14 00
SIGNAGE

PART 1: GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SUMMARY

- A. All labor and materials to fabricate and install interior and exterior signage as specified in this section and indicated on the drawings.
- B. All labor and materials to fabricate and install ground lighted building identification sign, including masonry substructure. Work includes all electrical work required from existing junction box located at the sign structure.
- C. All patching or painting of existing work which is damaged by installation of work under this contract.
1. Repainting, if necessary, shall be to a logical cut-off point which is acceptable to the Architect. No patch painting will be acceptable.
- D. Repair or replacement of existing exterior pavement, lawns and plant material damaged by work under this contract.

1.03 DESCRIPTION

- A. Work Included
The work to be performed under this section shall include, but is not limited to, the following:
1. Panel Signs
 2. Exterior Sign

1.04 QUALITY ASSURANCE

- A. Acceptable Manufacturers
All units to be custom fabricated; manufacturer's products meeting the specifications will be acceptable. Fabricator must be regularly engaged in fabrication and installation of signage units and related identifying devices.
1. Fabricator shall make at least one visit to the site before production begins to review all sign locations and installation conditions with Architect and Owner's Representative.
 2. Fabricator must review all dimensional changes with Architect.
- B. Approvals
1. All text and graphics must be approved by Owner before fabricating.
 2. All signage must be approved by Architect prior to shipment and installation.

1.05 SUBMITTALS

- A. Shop Drawings
Submit manufacturer's product data, where applicable, and complete drawings showing all signage and installation details.
- B. Samples
Submit samples for materials, finishes, colors, letter styles, etc. as required for selection and approval by Architect prior to fabrication of signage.

1.06 DELIVERY, STORAGE AND HANDLING

- A. Deliver materials in manufacturer's original shipping cartons with seals unbroken.

- B. Protect materials from physical damage.
- C. Store materials in clean, dry area.
- D. Inspect all materials prior to installation to assure proper function and condition of all items.

PART 2: PRODUCTS

2.01 GENERAL REQUIREMENTS

A. Locations, Quantities, Graphics and Copy

General Contractor shall set up a signage meeting to determine actual type of signs at each location.

As part of the base bid, provide the cost for labor and materials required for proper installation of signs and dimensional letterings in the following locations:

- Swing doors and sliding doors shall receive at least one sign located on the lockset side of the door.
- No signage shall be required for mechanical rooms, electrical room or utility-based rooms that do not have public access.

B. Letter Style

Helvetica Medium, Upper case, unless otherwise indicated. Letter height as indicated for specified signs. Exterior sign to be sandblasted to a minimum depth of 3/8".

C. Contractor is to provide a Letterguide Kit that includes all the tools and format guides needed to manage signage program. This kit should include, but not be limited to, Letterguide Board, Parallel Rule, and other necessary equipment for in-house maintenance of signage.

2.02 MATERIALS

A. Acrylic

Clear, transparent sheets with non-glare, matte finish, in sizes and thicknesses indicated and all edges buffed and polished smooth. Corners shall be radiused as indicated on drawings.

B. Applied Legends and Copy

Opaque die-cut, tough flexible vinyl film, precoated with pressure sensitive adhesive which permits application to reverse face of clear acrylic. Adhesive shall be protected by an easily removable, treated liner paper.

1. Legends and copy shall be pre-spaced and aligned on treated paper as required for installation.

D. Color Coatings for Acrylic Plastic Sheets

Use colored coatings, including inks and paints for copy and background colors, which are recommended by acrylic manufacturers for optimum adherence to acrylic surface and are non-fading for the application intended.

E. Adhesive

Type as recommended by acrylic sheet manufacturer for the various applications and fabrications indicated.

F. Wood

Clear heart redwood, glued with waterproof resorcinol glue. All support and framing members shall be construction heart Redwood, or better.

G. Fasteners

Unless otherwise indicated, use concealed fasteners fabricated from metals that are non-corrosive to either the sign material or the mounting surface.

H. Anchors and Inserts

Use non-ferrous metal or hot-tipped galvanized anchors and inserts for exterior installations and elsewhere as required for corrosion resistance. Use toothed steel or lead expansion bolt devices for drilled-in-place anchors. Furnish inserts, as required, to be set into concrete or masonry work.

I. Concrete

Provide concrete consisting of Portland cement, ASTM C 33, and clean water. Mix materials to obtain concrete with a minimum 28-day compressive strength of 2500 psi using at least 4 sacks of cement per cu. yd., 1" maximum size aggregate, maximum 3" slump, and 2% to 4% entrained air.

2.02 FABRICATION

A. TOILET ROOM SIGNS

1. Unisex/ Gender Neutral Toilet Signs: At each unisex toilet, provide a room sign with lettering and Braille for "GENDER NEUTRAL RESTROOM", the international symbol for men, women, gender neutral and accessibility. Sign shall meet the following criteria:
 - a. Material and Construction:
 1. Material: Molded Plastic Components
 2. Tactile Characters/Symbols: Raised 1/32 inch (1 mm) from sign plate face
 3. Construction: Plate: 9-inch-high x 7-inch-wide ADA panel with symbols, text and associated Braille described above.
 4. Lettering Style: Typeface shall be 5/8-inch-high Helvetica.
 5. Braille: Grade 2 Braille, placed directly below last line of letters
 6. Contrast: Letters, numbers and symbols shall contrast with background for ADA panels
 7. Color of Background and Letters: As selected by Architect from manufacturer's full line of colors

B. OFFICE SIGNS

1. Interchangeable Office Signs: At each office, provide a room sign with lettering and Braille that indicates the Office Room Number, and structural rail for interchangeable inserts meeting the following criteria:
 - a. Material and Construction:
 1. Material: Molded Plastic Components
 2. Tactile Characters/Symbols: Raised 1/32 inch (1 mm) from sign plate face
 3. Construction: Plate: 6-inch-high x 12-inch-wide.
 4. Lettering Style: Typeface shall be 5/8-inch-high Helvetica.
 5. Braille: Grade 2 Braille, placed directly below last line of letters
 6. Contrast: Letters, numbers and symbols shall contrast with background.
 7. Color of Background and Letters: As selected by Architect from manufacturer's full line of colors
 8. Structural Rail: Horizontal rail spaced to allow uniform modular 0.09-inch thick, 2-inch by 10-inch ABS plastic inserts. Inserts shall be inserted by side of sign.
3. Group and Staff Work Area Signs: At each group office, staff suite, and other multi-person offices, provide a room sign with lettering and Braille that indicates the Office Room Number, meeting the following criteria:
 - a. Material and Construction:
 1. Material: Molded Plastic Components
 2. Tactile Characters/Symbols: Raised 1/32 inch (1 mm) from sign plate face
 3. Construction: Plate: 6-inch-high x 12-inch-wide.
 4. Lettering Style: Typeface shall be 5/8-inch-high Helvetica.
 5. Braille: Grade 2 Braille, placed directly below last line of letters
 6. Contrast: Letters, numbers and symbols shall contrast with background.
 7. Color of Background and Letters: As selected by Architect from manufacturer's full line of colors
4. Miscellaneous Signs: At any room not indicated above (such as storage, pharmacy, phlebotomy, etc.), provide a room sign with lettering and Braille that indicates the Room Number, and room function meeting the following criteria:

- a. Material and Construction:
 1. Material: Molded Plastic Components
 2. Tactile Characters/Symbols: Raised 1/32 inch (1 mm) from sign plate face
 3. Construction: Plate: 6-inch-high x 12-inch-wide.
 4. Lettering Style: Typeface shall be 5/8-inch-high Helvetica.
 5. Braille: Grade 2 Braille, placed directly below last line of letters
 6. Contrast: Letters, numbers and symbols shall contrast with background.
 7. Color of Background and Letters: As selected by Architect from manufacturer's full line of colors

D. DIMENSIONAL LETTERS

1. At the doors of each residential room, main building entry door, provide the following:
 - a. 2-inch high, aluminum letters or numbers with baked enamel finish. Letter/number style shall be a custom style to match Owner's specific brand logo.
 - b. At residential room, indicate building letter and room number. At entry doors indicate building letter and Entry.
 - c. Provide placard with type 2 Braille equivalent to number/ letter designation at door.

PART 3: EXECUTION

3.01 REQUIRED SIGNAGE

- A. See above and Drawings for required locations for signs. All signage to be mounted on walls or suspended from ceilings, not doors, unless otherwise indicated. Verify location of all signs with Architect prior to installation.

3.02 INSTALLATION

- A. Install in strict accordance with manufacturer's printed instructions and recommendations and as indicated on approved shop drawings.
 1. Install sign units level, plumb and at the height indicated, with sign surfaces free from distortion or other defects in appearance.
- B. Wall Mounted Panel Signs
Attach panel signs to wall surfaces using the methods indicated meeting the following:
 1. Vinyl-tape Mounting
Use double-sided foam tape to mount signs to smooth, non-porous surfaces. Do not use this method for vinyl-covered or rough surfaces.
 2. Silicone Adhesive Mounting
Use liquid silicone adhesive recommended by the sign manufacturer to attach sign units to irregular, porous or vinyl-covered surfaces. Use double-sided vinyl tape where recommended by the sign manufacturer to hold the sign in place until the adhesive has fully cured.
 3. Mounting Plate
Signs mounted to masonry wall shall have backplate screwed into wall, then the panel sign is mounted with foam tape to the smooth surface of the mounting plate.
- C. Cast Metal
Mount cast plaques using the standard method recommended by the plaque manufacturer for the type of wall surface indicated.
 1. Concealed Mounting
Mount by inserting threaded studs into tapped lugs on the back of the plaque. Set in predrilled holes filled with quick-setting cement.

END OF SECTION-10 14 00

SECTION 10 26 13
CORNER GUARDS

PART 1: GENERAL

- 1.01 RELATED DOCUMENTS
 - A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to work of this Section.
- 1.02 SUMMARY
 - A. Section includes the following:
 - 1. Vinyl corner guard on all outside corners.
- 1.03 SUBMITTALS
 - A. Submit product data.
 - B. Submit shop drawings as indicated in Division 1.
- 1.04 PRODUCT HANDLING
 - A. Deliver, store and handle materials as recommended by their manufacturer.
- 1.05 PROJECT CONDITIONS
 - A. Meet the requirements of the manufacturer.

PART 2: PRODUCTS

- 2.01 VINYL CORNER GUARDS
 - A. Corner guards to be similar to "Korogard" extruded corner guards selected from the manufacturer's by RJK quick-ship selection of 12 colors.
 - 1. Acceptable equivalents:
 - a. Pawling Corp. (CG-12).
 - b.
 - B. Guards to be #G815 series, 0.078" thick with 1-1/2" wings.
 - C. Guard manufacturer to be the same as wall fabric manufacturer. Install all products per manufacturer's recommendations.

PART 3: EXECUTION

- 3.01 INSTALLATION
 - A. Installation per manufacturer's recommendations

END OF SECTION-10 26 13

SECTION 10 28 13
TOILET ACCESSORIES

PART 1: GENERAL

- 1.01 The General and Supplementary Conditions, Special Conditions and applicable portions of Division 1 of these Specifications are a part of this Section.
- 1.02 SUMMARY
- A. Work under this Section includes labor, materials, and equipment related to Toilet and Bath Accessories shown on the drawings and in these specifications, including the following:
1. Grab bars
 2. Mirrors
 3. Toilet paper dispenser
 4. Paper towel dispensers
 5. Soap dispensers
 6. Mop and broom holder
- 1.03 SUBMITTALS
- A. Shop drawings and product data.

PART 2: PRODUCTS

2.01 GRAB BARS

- A. Basis of Design: B-5806 Series Concealed Mounting Grab Bar by Bobrick or an approved equal.
1. 1-1/4-inch diameter, length as indicated on Drawings.
 2. 18-8, Type-304, 18-gauge (1.2mm) stainless steel tubing with satin-finish. 1-1/4" (32mm) outside diameter. Ends are heliarc welded to concealed mounting flanges. Clearance between the grab bar and wall is 1-1/2" (38mm).
 3. Concealed Mounting Flanges: 18-8, Type-304, 11-gauge (3.2mm) thick, stainless steel plate; end flanges 2" x 3-1/8" (50 x 80mm) with holes for attachment to wall. Intermediate flanges 2-5/8" x 3-1/8" (65 x 80mm) wide x 3-1/8" (80mm) diameter.
 4. Snap Flange Covers: 18-8, Type-304, 22-gauge (0.8mm) drawn stainless steel with satin-finish. 3-1/4" (85mm) diameter x 5/8" (16mm) deep. Each cover snaps over mounting flange to conceal mounting screws.

2.02 MIRROR

- A. Basis of Design: B-165 Series Channel-Frame Mirror by Bobrick or an approved equal.
1. Frame: Type-430 stainless steel, 1/2" x 1/2" x 3/8" (13 x 13 x 9.5mm) channel with 1/4" (6mm) return at rear for Snap Locking Design; 1/2" x 1/2" x 1/2" (13 x 13 x 13mm) channel for Lock Tab Design, with bright polished finish. One-piece frame with 90-degree mitered corners. Galvanized steel back has integral horizontal hanging brackets near the top for hanging the mirror and near the bottom to prevent the bottom of the mirror from pulling away from the wall. Locking devices secure mirror to concealed wall hanger.
 2. Mirror: No. 1 quality, 1/4" (6mm) select float glass: selected for silvering, electrolytically copper-plated by the galvanic process, and guaranteed for 15 years against silver spoilage. Back is protected by full-size, shock-absorbing, water-resistant, nonabrasive, polyethylene padding.
 3. Concealed Wall Hanger: 16-gauge cold roll steel construction. Incorporates upper and lower support members, which engage backplate louvers to keep mirror against wall.

2.03 TOILET TISSUE DISPENSER

- A. Basis of Design: B-2888 ClassicSeries Surface-Mounted Multi-Roll Toilet Tissue Dispenser by Bobrick or an approved equal.
1. Cabinet: 18-8, type-304, 22-gauge (0.8mm) stainless steel. All-welded construction. Exposed surfaces have satin finish.

2. Door: 18-8, type-304, 22-gauge (0.8mm) stainless steel with 18-gauge (1.2mm) stainless steel door frame. Exposed surfaces have satin finish. Front of door is drawn, one-piece, seamless construction. Secured to cabinet with two rivets. Equipped with a tumbler lock keyed like other Bobrick washroom accessories.
3. Dispensing Mechanism, Inner Housing and Cam: 18-8, type-304, 18-gauge (1.2mm) stainless steel.
4. Spindles: (2) Heavy-duty, one-piece, molded ABS. Theft-resistant. Retained in dispensing mechanism when door is locked.

2.04 PAPER TOWEL DISPENSER

- A. Basis of Design: B-258 Series Paper Towel Dispenser by Bobrick or an approved equal.
1. Bracket: Heavy-duty cast aluminum with satin finish.
 2. Spindle: Molded and extruded ABS. Equipped with retractable pin and concealed locking mechanism.
 3. Holds up to 6-inch diameter rolls of paper towels

2.05 SOAP DISPENSER

- A. Basis of Design: B-40 Series Soap Dispenser or an approved equal.
1. Valve: Grey, high-impact-resistant ABS push button and spout. Soap head-holding mushroom valve. Stainless steel spring. U-packing seal and duckbill.
 2. Wall Bracket: Grey, high-impact-resistant ABS. Equipped with a concealed locking device to secure the lid and a removable plastic key to disengage locking device.
 3. Container: Black, translucent ABS. Capacity: 40-fl oz (1.2-L).
 4. Lid: Grey, high-impact-resistant ABS.

2.06 MOP AND BROOM HOLDER

- A. Basis of Design: B-223 Mop and Broom Holder by Bobrick or an approved equal.
1. Mounting Base: 18-8, type-304, 22-gauge (0.8mm) stainless steel with satin finish.
 2. Mop and Broom Holders: Spring-loaded rubber cam holders with anti-slip coating. Powder coated steel retainers.

2.07 ACCEPTABLE MANUFACTURERS

- A. Toilet room accessories shall be manufactured by Bobrick or equal products manufactured by Accessory Specialties, Inc. Or A&J Washroom Accessories. Numbers indicated are Bobrick.

2.08 FINISH

- A. Dispensers, receptacles and other items shall be the manufacturer's standard units with type 302 satin finish stainless steel exposed metal parts, unless otherwise noted above or on Drawings.

PART 3: EXECUTION

3.01 INSTALLATION

- A. Install products in strict compliance with manufacturer's written instructions and recommendations, including the following:
1. Verify blocking has been installed properly.
 2. Verify location does not interfere with door swings or use of fixtures.
 3. Comply with manufacturer's recommendations for backing and proper support.
 4. Use fasteners and anchors suitable for substrate and project conditions.
 5. Install units rigid, straight, plumb, and level, in accordance with manufacturer's installation instructions and approved shop drawings.
 6. Conceal evidence of drilling, cutting, and fitting to room finish.
 7. Test for proper operation.

3.02 CLEANING AND PROTECTION

- A. Clean exposed surfaces of compartments, hardware, and fittings using methods acceptable to the manufacturer.
- B. Touch-up, repair or replace damaged products until Substantial Completion.

END OF SECTION-10 28 13

SECTION 10 41 00
EMERGENCY ACCESS AND INFORMATION CABINETS

PART 1: GENERAL

- 1.01 RELATED DOCUMENTS
 - A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specifications Sections, apply to work in this Section.
- 1.02 SUMMARY
 - A. Section includes the following:
 - 1. Knox Box
- 1.03 SUBMITTALS
 - A. Submit product data.
 - B. Submit shop drawings as indicated on Division 1.
 - C. Submit certification specified.
- 1.04 PRODUCT HANDLING
 - A. Deliver, store and handle materials as recommended by their manufacturer.
- 1.05 PRODUCT CONDITIONS
 - A. Meet the requirements of the manufacturer.

PART 2: PRODUCTS

- 2.01 MATERIALS
 - A. KNOX BOX
 - A. General Contractor is to purchase "Knox-Box" from the Knox Company, 17672 Armstrong, Irvine, CA 92714, 800-552-5669 and follow the manufacturer's requirements regarding delivery of keys to the local Fire Department.
 - B. "Knox-Box" to be Model #4400, without Tamper Switch, but with Recessed Mounting Kit (RMK), Polyester Powder Coat (Black).
 - a. 4-1/2" return trim with rolled edge, partial double strength glass, with door handle.
 - b. Nominal dimensions: 10-1/2" wide, 24" high, 2" depth (recess).

PART 3: EXECUTION

- 3.01 EXAMINATION/PREPARATION
 - A. Prior to beginning the work of this Section, verify that the installed work is complete and correct to the extent necessary for the proper execution of the work of this Section.
 - B. Do not start work affected by discrepancies until they have been corrected.
 - C. Verify that all required concealed supports and blocking are installed at the proper time.
- 3.02 INSTALLATION
 - A. Install in strict accordance with the manufacturer's printed instructions and recommendations and as indicated on the approved shop drawings.

END OF SECTION-10 41 00

SECTION 10 44 16
FIRE EXTINGUISHERS

PART 1: GENERAL

- 1.01 RELATED DOCUMENTS
 - A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specifications Sections, apply to work in this Section.
- 1.02 SUMMARY
 - A. Provide cabinets where indicated. Fire extinguishers and cabinets to be furnished and installed by General Contractor.
- 1.03 SUBMITTALS
 - A. Submit shop drawings or material cuts.

PART 2: PRODUCTS

- 2.01 MATERIALS
 - A. Fire Extinguisher
J.L Industries "Cosmic 10E" model 10 pound dry chemical fire class A, B, C, UL rating 4A60BC. Provide extinguishers fully loaded, tested, tagged and ready for use. Furnish mark mounting brackets for every extinguisher, except those located in cabinets.
 - B. Equivalent cabinets by Larsen Manufacturing Company or Potter-Roemer, Inc. are acceptable.

PART 3: EXECUTION

- 3.01 INSTALLATION
 - A. Contractor shall verify that suitable wall thickness will be provided for indicated units.
 - B. Top of fire extinguishers to be 54 inches above finished floor.
 - C. Provide adequate blocking or backing, as required, for secure installation.
 - D. Install in strict accordance with manufacturer's printed instructions and as indicated on the Drawings.
 - E. Scratched or damaged units or installation with sloppy clearance will not be acceptable.

END OF SECTION-10 44 16

SECTION 12 32 16
MANUFACTURED PLASTIC-LAMINATE-CLAD CASEWORK

PART 1: GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SUMMARY

- A. Extent of plastic laminate faced casework is shown on the drawings. Design and model numbers are based on LSI products. Casework shall be type with overlay doors PVC edging, five knuckle hinge and contour type pull.
- B. Countertops for casework are specified in this Section and shall be furnished and installed as part of this work, except where specifically noted otherwise.
- C. Sinks, service fixtures, and electrical fixtures are included under mechanical work of Division 22, 23 and electrical work of Division 26.
- D. Unless specifically noted otherwise, provide only hinged doors, that is, no sliding doors.
- E. Vinyl base is specified under resilient flooring in Division 9.
- F. Refer to the schedule of alternates for work affecting this section.

1.03 SUBMITTALS

- A. Submit product data for cabinet, cabinet construction materials, hinges, and all other information pertinent to this section.
- B. Submit scaled shop drawings indicating layout, elevations, dimensions, sections, and details.
- C. Submit samples of manufacturer's full line of colors and patterns for Architect's selection.

1.04 QUALITY ASSURANCE

- A. All exposed faces of cabinets shall be covered with high pressure plastic laminate including exposed ends, backs, doors and drawer fronts.
- B. Single Source Responsibility
Provide laminate casework manufactured or furnished by same casework company for single responsibility.
- C. Catalog Standards
Manufacturer's catalog numbers are shown on drawings for convenience in identifying certain laminate cabinet work. Unless modified by notation on drawings or otherwise specified, catalog description for indicated number constitutes requirements for each such cabinet.

1.05 PRODUCT HANDLING

- A. Deliver, store and handle materials as recommended by their manufacturer.

PART 2: PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

- A. Subject to compliance with requirements, provide products of one of the following manufacturers:

LSI Corporation of America, Inc. (L44 Series)
Stevens Industries, Inc.
TMI Systems Design Corp.

2.02 MATERIALS

A. Casework Materials

1. All exposed exterior vertical surfaces shall be surfaced with a high pressure plastic laminate meeting current N.E.M.A. standards for vertical grade Part 3, at least .030" thick, manufactured by Wilsonart or Formica.
2. Interior surfaces shall be neutral in color, and of a polyester or melamine laminate bonded to a 45 lb. density particle board. Cabinet interiors without doors shall match exterior color.
3. Exposed edges of cabinet bodies to be edged with a high impact PVC in color to match exterior.
4. Doors and drawer fronts shall be edged with a high impact, 3mm P.V.C. in color to match exterior.
5. Edges for concealed shelving and partitions shall be high impact PVC in color to match cabinet interior.
6. Drawer bodies shall be of manufacturer's standard construction.
7. Substrate for plastic laminate, melamine, and polyester surfaces shall be high density industrial grade particle board with a minimum density of 45 pounds cubic foot and a moisture content between 9% maximum and 6% minimum, and shall meet or exceed commercial standard specification No. CS 236-66 and American Society of testing and material specification No. ASTM D 1037.
8. Hardboard shall meet or exceed the requirements of CS-236, Fed. Spec. LLL-B-00810. Tempered hardboard shall be smooth both sides.

B. Countertops

1. Basis of Design: Provide 051 Solid Surface by Wilsonart or an approved equal meeting the following criteria:
 - a. Homogeneous-filled plastic resin complying with ICPA SS-1.
 - b. Thickness: 1/2-inch or 0.490 inches
 - c. Tensile Strength: 6800 PSI for ASTM D 638
 - d. Tensile Modulus: 1.5×10^6 PSI for ASTM D 638
 - e. Flexural Strength: 10,400 PSI per ASTM D790
 - f. Impact Resistance: 1.44 in drop per ISO 4586
 - g. Fungi Resistance: Pass per ASTM G 21
 - h. Bacteria Resistance: Pass per ASTM G22
 - i. Fire Rating: Class and Class A per ASTM E 84
2. Subsurface Requirements:
 - a. Particleboard meeting ANSI A208.1 Grade M-2, 3/4-inch thick
 - b. Plywood: Exterior grade softwood plywood complying with DOC PS-1, Grade C-C Plugged.
3. Solid Wood Edges: Provide Red Oak lumber, free of defects, selected for compatible grain and color and kiln dried to 7 percent moisture content.
4. Fabrication: Fabricate per manufacturer's instructions and recommendations. Install with factory applied edges and backsplash.
 - a. Prepare countertops in shop for field cutting openings for counter mounted plumbing fixtures.
 - b. Adhesive: As recommended by manufacturer.

C. Hardware

1. Hinges for all wall cabinets, base cabinets and case doors shall be of the wrap around, five knuckle pin, heavy duty institutional type with rounded ends 2-3/4" high x .095 minimum thickness. Hinges shall be finished in brushed dull chrome. Offset kitchen cabinet type, plain butt hinges, concealed hinges or hinges with removable pins will not be acceptable. All hinge screws shall be concealed when door is closed. Doors under 44" high shall have two hinges and those over 44" high shall have three hinges.

2. Pulls as standard shall be injection moulded contour or semi recessed PVC or ABS plastic in color to match edge.
3. Catches for doors on wall and base cabinets shall be double action, spring tension nylon roller catches or magnetic type with 7# minimum pull. On all tall cases, catches shall be of heavy duty spring tension rubber roller type.
4. Locks for drawers and hinged doors, where specified, shall be heavy duty, cylinder type with five tumblers and shall be keyed and master-keyed as specified.
5. Drawer slides for all standard type drawers shall be of the type standard with cabinet manufacturer providing a minimum 75 pound load capacity and incorporating positive stops. Slides for file drawers shall be of the progressive type providing a minimum 100 pound load capacity and incorporating positive stops.
6. Shelf standards and shelf supports shall be manufacturers standard providing for shelf adjustment on 2" centers. Shelf clips shall be easily removable for shelf adjustment. Shelf supports of pin type providing adjustments of 2" minimum intervals are also acceptable.

2.03 CONSTRUCTION

- A. Doors, drawer fronts, face frame rails, ends and exposed backs shall be 3/4" material with high pressure laminate on exposed side and interior finish or backer sheet on opposite side. Exterior color as specified.
- B. Bottoms, tops, dividers and shelves shall be 3/4" material. Interior shelves shall be adjustable at 2" on center or less.
- C. All exposed edges banded.
- D. Backs shall be 3/16" material with interior finish on inside and backer sheet toward minimum 3/8" space to wall. Color as specified.
- E. Drawer construction standard with approved manufacturer is acceptable.
- F. Drawer faces and doors shall be edged as specified and overlap the face frame. Color as specified.
- G. Provide base for all cabinets.

PART 3: EXECUTION

3.01 INSPECTION/PREPARATION

- A. Prior to beginning the work of this Section, verify that the installed work is complete and correct to the extent necessary for the proper execution of the work of this Section.
- B. Do not start work affected by discrepancies until they have been corrected.
- C. Verify that all required concealed supports and blocking are installed at the proper time.

3.02 INSTALLATION, GENERAL

- A. Install in strict accordance with the manufacturer's printed instructions and recommendations and as indicated on the approved shop drawings.
- B. Installation shall be by an approved agent of the manufacturer and in strict accord with the specifications and recommendations of the manufacturer.
- C. Neatly and accurately fit all items. Job measure all critical dimensions.
- D. Set all casework level and fasten securely to structure.
- E. Cut holes in counter tops and cabinets, as required for installation of sinks.

3.03 CASEWORK INSTALLATION

- A. Install plumb, level, true and straight with no distortions. Shim as required, using concealed shims. Where casework abuts other finished work, scribe and apply filler strips for accurate fit with fasteners concealed where practicable.
- B. Base Cabinets
Set cabinets straight, plumb, and level. Adjust sub-tops within 1/16" of a single plane. Fasten each individual cabinet to floor at toe space, with fasteners spaced 24" o.c. or equivalent attachment. Bolt continuous cabinets together. Secure individual cabinets with not less than 2 fasteners into floor, where they do not adjoin other cabinets. Where required, assemble units into one integral unit with joints flush, tight, and uniform. Align similar adjoining doors and drawers to a tolerance of 1/16".
- C. Wall Cabinets
Securely fasten to solid supporting material, not plaster, lath, or wallboard. Anchor, adjust, and align wall cabinets as specified for base cabinets.
 - 1. Reinforcement of stud walls to support wall-mounted cabinets will be done during wall erection by trade involved, but responsibility for accurate location and sizing of reinforcement is part of this work.
- D. Adjust casework and hardware so that doors and drawers operate smoothly without warp or bind. Lubricate operating hardware as recommended by Manufacturer.

3.04 INSTALLATION OF TOPS

- A. Attach countertops securely to base units. Spline and glue joints in countertops; provide concealed mechanical clamping of joint. Provide cutouts for sinks; drill pilot holes at corners before making cutouts. Smooth cut edges and coat with waterproof coating or adhesive.

3.05 CLEANING AND PROTECTION

- A. Repair or remove and replace defective work as directed upon completion of installation.
- B. Clean shop-finished surfaces, touch-up as required, and remove or refinish damaged or soiled areas, as acceptable to Architect.
- C. Protection
Advise Contractor of procedures and precautions for protection of materials and installed laboratory furniture from damage by work of other trades.

END OF SECTION-12 32 16

SECTION 22 00 00
PLUMBING SPECIFICATIONS

PART 1: GENERAL

- 1.01 FEES AND PERMITS
- A. Owner shall submit documents to State of Ohio Department of Industrial Compliance for approval and shall secure the building permit. Contractor shall pay for any other inspection fees and charges related to the installation of the plumbing work. Arrange for inspection of the work by the Code Authority having jurisdiction. Comply with all State and Local Codes.
- 1.02 EXCAVATION AND BACKFILL
- A. Excavation and backfill shall comply with State and Local Codes and Utility Company standards. Coordinate with Architect.
- 1.03 GUARANTEE
- A. Provide (1) full year guarantee from date of substantial completion of all equipment and work performed.
- 1.04 CUTTING AND PATCHING
- A. General Trades Contractor patches floors and walls in areas of removed piping. Coordinate location of core drilling of walls and floors with other contractors and equipment. General Trades Contractor saw cuts existing floor slab and patches floor for new underground drain and vent piping. Provide all other cutting and patching required for own work. Patch to match adjacent surfaces. Painting shall be by General Trades Contractor. Division 15 Contractor shall core drill existing walls and floors and provide sleeves as required. Fill space around all sleeves with material compatible with adjacent construction, finish, and fire rating. Pack and seal or caulk around pipes through walls and floors to maintain fire-resistance rating. Plastic drain, waste, and vent lines penetrating fire-rated floors and walls shall be fire-stopped and waterproofed with Proset System, Inc. or equal, Series 45 or 55 couplings and Series 90 fire-stop system "C" closet stubs and floor drains. Install according to Manufacturers' instruction.
- 1.05 MISCELLANEOUS ACCESSORIES
- A. Contractor is required to provide any adapters, fittings, trim, and other appurtenances as necessary to mount or install all items of equipment specified or shown on the Drawings.
- B. These accessories are required even though they may not be shown or detailed on the Drawings.
- C. Installation shall be compatible with the building construction on which the item is to be located.
- D. Contractor will be responsible for verifying the type of construction prior to ordering the equipment item so that all required accessories are included.
- 1.06 PROJECT RECORDS
- A. Provide marked-up Record Drawings showing any deviations in locations of piping, equipment, etc. Record Addendum and Change Order items. At completion of project, deliver Record Drawings to Architect. Provide (6) copies of Shop Drawings of each equipment item to Architect. Provide (2) sets of bound 8-1/2 in. x 11 in. Operating and Maintenance Manuals.
- 1.07 TEST
- A. Test all piping systems for tightness per Code.
- 1.08 DEMOLITION
- A. Provide demolition work where indicated and noted on Drawings.
- 1.09 ASBESTOS

- A. If any asbestos is encountered during the course of work, all work associated therewith must stop and the Contractor shall notify the Engineer and Owner immediately. The Owner shall be responsible for properly removing and/or sealing the asbestos before this Contractor proceeds with its work. No material suspected or identified as containing asbestos shall be removed or disturbed by the Contractor.

1.10 GENERAL

- A. Install chrome-plated escutcheons where exposed pipes pass through walls, ceilings, or floors in finished spaces. Do not install piping over, under, or in front of windows, doors, lighting fixtures, electrical panels, switchgear, or skylights. Access panels shall be provided by General Trades Contractor. Welding to structure must be approved by (Architect and Owner, Construction Manager). Contractor shall be responsible for the cost of additional engineering work required for changes to the Work as shown or described, due to use of equipment other than the design base equipment, or due to relocation of items requested by the Contractor. Concrete work shall be by General Trades Contractor.

PART 2: PRODUCTS

2.01 DEMOLITION WORK

- A. Contractor is responsible for removing all existing abandoned plumbing fixtures, and all existing plumbing items that interfere with the installation of new work. The Drawings do not show every item that must be removed and disconnected by the Contractor. Service to existing equipment that remains shall be maintained or reconnected.
- B. All salvable items are to be offered to the Owner before removal. If the item is wanted by the Owner, it is to be removed and delivered to the Owner. All other items are to be removed and disposed of properly.

2.02 PLUMBING PIPING SPECIALTIES

- A. Wall Hydrants: (ASSE 1011) Nibco Fig. 80-VB-LS, freeze-proof faucet, vacuum breaker, 3/4 in. size hose connection, length as required. Bronze body and nickel face. Equal by Watts, Woodford, J. R. Smith, Zurn, or Josam.
- B. Shock Absorbers: Provide DCW and DHW at each toilet room, at each wall hydrant, at the end of each branch longer than 10 ft, if not otherwise provided. (Not shown.) Furnish (ANSI A112.26.1M, ASSE 1010, PDI-WH201) shock absorbers. Wade, Zurn, Sioux Chief, or Watts. Provide sizes as recommended by the manufacturer. Size of each unit shall be clearly marked for field verification.
- C. Wall Cleanouts: Zurn Fig. Z-1460-9, primered access cover, vandal-proof screw. Equal by Wade, Josam, J. R. Smith, or Watts.
- D. Floor Cleanouts: Zurn #1400-HD, adjustable cast iron body, threaded A.B.S. plastic plug, heavy-duty nickaloy top, line size. Equal by Wade, Josam, J. R. Smith, or Watts.
- E. Floor Drains: Zurn #Z-550-P, adjustable cast iron body, 8 1/2" diameter heavy-duty nickaloy strainer, 3" pipe size. Equal by Wade, Josam, J. R. Smith, or Watts.
- F. Backflow Preventer:
 - 1. Main Water Service (2 in.): Wilkins Model 975XLUS (ASSE 1013) 175 lbs. SWP, reduced pressure with vents, inlet and outlet gate valves, inlet strainer, test cocks, neoprene discs, and differential pressure relief valves, bronze body, air gap drain body with air gap drain funnel. Equal by Hersey, Beeco, Watts Model 900.
 - 2. Install strainer on inlet. Backflow preventer must be tested and certified at time of installation. Size as indicated on Drawings. Install drain from air gap drain funnel down to floor drain full size. Secure drain to wall.

2.03 INTERIOR DOMESTIC COLD AND HOT WATER PIPING

Connect to outlet of existing meter, provide new backflow preventer, and extend to plumbing fixtures where shown on Drawings.

- A. Piping: Type "L" hard copper tubing (ASTM B88), copper solder fittings. Lead-free 95/5 solder.
 - 1. PEX piping shall be permitted. Provide piping that meets ASTM F877 for distribution and NSF/ANSI 61-G/ANSI 372 for Lead Free Drinking Water System Components.
- B. Ball Valves (2 in. and smaller): Full port, bronze body, 175 lbs. WOG, extension shaft for insulation clearance. Milwaukee "Butterball" #BB2-100 or #BB2-350. Equal by Watts, Nibco, or Apollo.
- C. Check Valves: 150 lbs. SWP, bronze, swing check, screwed R solder ends, bronze disc. Nibco #T-433 or #S-433. Equal by Watts.
- D. Thermometer: Terrice, red reading, mercury with 9 in. scale, cast aluminum case, front double-strength window, adjustable angle pattern, brass separable well. Range: 30 to 180 deg. F. Install on domestic hot water line from water heater, and on outlet from thermostatic mixing valves. Equal by Weiss, Ashcroft, Marsh, Weksler, or Marshalltown.
- E. Pressure Gauge: Weiss 4 PGA-1, standard single bourbon tube, black die cast aluminum case, 4-1/2 in. diameter dial, chrome removable slip ring, gauge cock and pig tail, ±1% accuracy, 3/8 in. ball valve. Equal by Terrice, March, Weksler, Marshalltown, or Ashcroft.
- F. Provide all required piping specialties. Sterilize and flush new water lines. Use minimum of 15% sodium hypochlorite. Isolate existing lines. Test entire system at 125 PSI for 6 hours with no leaks. Flush entire building. Contractor shall install water meter according to Utility Company standards. Insulate direct contact between pipe, fittings, and hangers of dissimilar materials by use of shims, coatings, or other approved methods. Provide dielectric unions where connecting copper piping to any non-copper piping.

2.04 INTERIOR SANITARY WASTE AND VENT PIPING

Connect to existing sanitary drain lines and vent lines, extend and connect to new plumbing fixtures where shown on Drawings. Insulate direct contact between pipe, fittings, and hangers of dissimilar materials by use of shims, coatings, or other approved methods.

- A. Piping:
 - 1. PVC/DWV plastic pipe (ASTM D2665) with solvent weld fittings.
 - 2. Option:
 - a. Copper/DWV pipe (ASTM B306) with copper drainage fittings with solder joints.
 - b. Hubless cast iron (ASTM A74) pipe and fittings, factory-coated with coal tar enamel. Joints to be "no-hub" (ASTMA74) Anaco neoprene sleeve, stainless steel collar, and a minimum of (4) stainless steel clamps. Equal by Husky. Option of cast iron coupling equal to Alfa, MG, or Gustin-Bacon.
- B. For a minimum test, plug piping at the lowest point and fill with water to highest point on roof to provide a minimum of 10 ft. of head of water on all parts of the system. Maintain for (1) hour with no leakage. Repair any deficiencies. Final test to be conducted with smoke or peppermint at 1 in. WG for 15 minutes. Install gaskets or reset fixtures as required. All tests to be performed before any piping is covered or concealed. Should leaks occur, the defective section(s) of pipe and/or defective fitting(s) shall be removed and replaced with new materials at no cost to Owner. Tests shall be repeated until no leaks occur. Isolate existing system as much as possible during test.

2.05 GAS PIPING

Connect to existing gas meter outlet, upstream of low pressure regulator. Install gas shutoff valve, and extend 2 PSI gas line to rooftop HVAC equipment as shown. Entire line is to be outside of the building, and is to be extended across the roof. Gas pressure regulators to be provided at each rooftop unit. Also

connect to existing 2 PSI gas line in the boiler room, provide regulator, and extend 7" w.c. gas to new 140 degree F. water heater and kitchen equipment as shown.

- A. Piping: Schedule 40, black steel pipe (ANSI B36.10), screwed, welded, or flanged joints. Screwed 125 PSI. Malleable iron fittings.
- B. Plug Valves (2 in. and smaller): 200 PSI, WOG, semi-steel body, screwed ends, TFE stem seal and seat, lever handle. Homestead Fig.611, Powell Fig. 2200 or Nordstrom 142.
- C. Ball Valves (2 in. and smaller): AGA and UL approvals, 175 lbs., bronze body, viton seat, screwed ends, stainless steel disc and stem, lever handle. Milwaukee "Butterball," Model BB2-100, or approved equal.
- D. Pressure Regulators: (ANSI Z21.18) Rockwell Model 086, 121, or 122, relief valve, zero governor. Size and capacity as required by equipment. Acceptable Manufacturers: American, Emro, or Sprague.
- E. Pipe Supports: Pipe supports on roof equal to Miro Model O2, PVC base.
- F. Connect to gas-fired equipment. Provide plug valve, dirt leg, gas pressure regulator, and union at each final connection. New gas piping system shall be given a pressure test of not less than 1-1/2 times the proposed maximum working pressure, but not less than 3 PSIG. Test duration shall not be less than (1) hour for each 500 cu. ft. of pipe volume or fraction thereof. For piping systems having a volume more than 24,000 cu. ft., the duration of the test need not exceed (24) hours with no leakage. Obtain Utility Company inspector approval. Contractor shall soap suds test all exposed fittings at operating pressure. Isolate existing system as much as possible during test. Coordinate installation with Gas Company.

2.06 PIPING INSULATION

- A. Cover new domestic cold water lines 1 in. size and smaller lines with 1/2 in. thick minimum insulation, 1-1/4 in. and larger size lines with 1 in. thick minimum insulation. Cover new domestic hot water lines with 1 in. thick minimum insulation. 1-piece snap-on fiberglass insulation with all-purpose vapor barrier jacket and self-sealing lap. Insulate valves and fittings, miter and seal all terminations. Owens Corning Fiberglas Type ASJ/SSL-II or equal by Manson, Schuller, Knauf, or Armstrong. Cover elbows, valves, and fittings with PVC plastic cover. Option: 3/4 in. thick fire-rated Armaflex-AP foamed plastic, 200 deg. F. rating insulation is permitted in interior walls only. Provide PVC jacket on pipe insulation in areas where pipe insulation may be exposed to physical damage. Protection shall extend from floor to 7 ft. above floor. Insulate electric water cooler waste traps and drain to wall, hot water supply lines, and waste pipe under lavatories accessible to the handicapped.
- B. Accessible Lavatories: P-trap or offset P-trap and hot and cold water supplies/angle stop/supply assemblies shall be insulated with Trap Wrap protective kit 500R by Brocar, Truebro, or equal. Abrasion-resistant vinyl plastisol exterior cover shall be smooth, and shall have 1/8 in. thick wall, minimum, over cushioned foam insert. Nylon tie fasteners shall remain substantially out of sight.

2.07 HANGERS AND SUPPORTS

Provide Michigan #100 hangers for steel, cast iron, or plastic uninsulated pipe; #101 hangers for uninsulated copper pipe; and #103 with shield for insulated piping. Use Michigan #301 beam clamp with #300.C retainer strap. Option: Grinnell Fig. 86 malleable iron clamp, hardened cup point set screw with Fig. 89 retaining clip. "C" clamps by themselves are prohibited.

- A. Rod Sizes: 3/8 in. diameter rod for pipe sizes up to 2 in.
- B. Piping Indicated to be Installed Tight to Ceiling: (1/2 to 4 in.) Grinnell Fig. 262, plastic-coated hanger for copper pipe. Options: Power-Strut channels with Model PS3126 hold-down clamp, use with rubber cushion for copper pipe. Equal by Grinnell, Elcen, PHD, Modern, Michigan, Unistrut, Power-Strut, B-Line, or Fee and Mason. Maximum 6 ft. hanger spacing for pipes 1-1/2 in. and smaller,

10 ft. hanger spacing for pipes 2 in. and larger. Support piping only from building structure. Use through-bolted angle clips when hanging from wood structure.

2.08 GAS WATER HEATER

- A. See plumbing drawings for make and model.

2.09 ELECTRIC WATER HEATER

- A. See plumbing drawings for make and model.

2.10 PLUMBING FIXTURES

- A. General: Provide all trim, fittings, carriers, traps, and stops required for a complete installation. Fixtures must comply with ANSI A112.19 and 2124 standards. All lavatory and sink traps to be chrome-plated cast brass. Furnish Wade, Josam, Zurn, or J. R. Smith heavy-duty rectangular carrier for wall-hung lavatories, urinals, and water coolers. Anchor carrier securely to the floor. Caulk around wall- and floor-mounted fixtures. Install stops on all cold and hot water supplies to fixtures. Install chrome-plated brass escutcheons on all waste and supply piping at walls whether concealed or not. General Trades Contractor cuts holes in countertop for countertop lavatories and countertop sinks. The Plumbing Contractor shall provide all required seals, gaskets, nuts, bolts, washers, etc. to make all fixtures complete and working unit(s).
- B. Water Closets: American Standard elongated Cadet 3 ADA Model 2998.012, floor-mounted, bottom outlet, elongated bowl, vitreous china, flush tank water closet with bolt caps. Equal by Kohler, Crane, or Eljer. Chrome supply with stop, chrome metal escutcheon plate. Beneke Model 533-FR-SS "Sani-shield," commercial grade, extra-heavy-duty, solid white, flame-retardant polypropylene plastic, open front seat with self-sustaining check hinge, integral molded bumper, no cover. Equal by Olsonite, Bemis, Church, or Sperzel.
- C. Lavatories: American Standard "Lucerne," Model 0355.012, accessible, wall hung, 20 in. x 18 in., vitreous china, 4 in. centers. Equal by Kohler, American Standard, Crane, or Eljer. American Standard "Reliant 3" faucet Model 7385.058 with ceramic disk valving, vandal-resistant long metal lever handle, chrome grid drain, and 0.5 GPM vandal-resistant flow device. Equal by Kohler, Chicago Faucet, or T & S. 1-1/4 in. chrome 17 ga. tailpiece. Install chrome cast brass trap with cleanout plug and chrome 17 ga. drain to wall, chrome water supply piping with wheel angle stops, chrome metal supply and waste escutcheon plates. Provide heavy-duty carrier with vandalproof trim. Install lavatory at 2 ft.-7 in. above floor to top of front lip. Trap and supplies insulation kit as specified elsewhere.
- D. Shower Faucets: Provide Reliant 3 Water-Saving Pressure Balance Shower only trim kit with double ceramic pressure balance cartridge, one piece design by American Standards.
- E. Shower: Provide 36-inch by 36-inch inside dimension, center drain with integral accessible compliant threshold shower base and sides made from polyester/ acrylic blended resin with natural filler materials. Color shall be white. See Toilet Accessories specifications and Drawings for grab bars. Provide 2 x 10 concealed wood blocking for grab bar and secure so that grab bar shall withstand a 250 lbs. point load. Provide drain and drain cover and all other materials required for proper function of the shower.
- F. Shower: Provide 32-inch by 32-inch inside dimension, center drain shower base and sides made from polyester/ acrylic blended resin with natural filler materials. Color shall be white. Provide drain and drain cover and all other materials required for proper function of the shower.
- G. Kitchen Sink: Colony 33 x 22 Double Bowl Stainless Steel Kitchen Sink 20DB.8332283S.075 by American Standard or an approved equal 20 gauge, 8-inch-deep double bowl, stainless steel, 14-inch wide, 16-inch front to back, meeting ASME A112.19.3 with Colony Pro Single Control Kitchen

Faucet 7077300 with pull down spray, stainless steel, with ceramic disc valve cartridge. Provide sink drain with strainer and all other component required for proper function of sink.

- H. Bottle Filler and Drinking Fountain: Provide as indicated on Drawings.
- I. Floor Sinks (FS-1): Fiat Model MSB-2424, molded stone mop service sink basin, 24 in. x 24 in. x 10 in. high, 3 in. outlet. Fiat Model 889-CC mop hanger. Fiat Model 832-AA hose and hose bracket. Fiat Model E-77-AA vinyl bumper guards on all exposed edges. Provide Fiat 18 ga. stainless steel wall guards with stainless steel screws on abutting walls. Equal by Swan or Mustee. Chicago Faucet Model 897 rough chrome service sink faucet, bucket hook, hose end rigid spout with top wall brace, vacuum breaker, lever handles, stops in shanks. Equal by T & S. Install faucet at 3 ft.-0 in. A.F.F. Install mop hanger at 4 ft.-0 in. A.F.F. on adjacent wall from faucet and centered on basin.

2.13 REQUIREMENTS FOR SUBSTANTIAL COMPLETION

Provide Operating and Maintenance manuals, all required operating tests, instruction of Owner's personnel in operation of all systems, and spare parts and special tools.

END OF SECTION-22 00 00

SECTION 23 05 93
TESTING, ADJUSTING, AND BALANCING FOR HVAC

PART 1: GENERAL

- 1.01 DESCRIPTION
- A. Provide all labor, materials and tools for completely testing, balancing and adjusting the following systems:
1. Air flows.
 2. Air temperature rise on all units.
- 1.02 QUALITY ASSURANCE
- A. Standards
AABC National Standards for Field Measurement and Instrumentation.
- B. Instruments used for testing and balancing of air systems must have been calibrated within a period of (6) months and checked for accuracy prior to start of work on this Project.
- 1.03 ON-GOING INSPECTIONS
- A. Inspect the installation of all HVAC systems, including equipment, sheet metal work, temperature controls and other components. This inspection work shall be performed periodically as the HVAC Work progresses.
- B. Make an inspection within 90 days after occupancy of the building to insure that satisfactory conditions are being maintained throughout, and to satisfy any unusual conditions.
- C. Make an inspection of the HVAC system during the opposite season from that in which the initial adjustments were made and make any modifications to the initial adjustments as required to produce the proper conditions in each conditioned space.
- D. The various air systems shall be in operation with all accessories, filters and diffusers in place.
- 1.04 AIR SYSTEMS
- A. Air velocities shall be measured with an anemometer, velometer or pitot tube and manometer. Static pressures and total pressures shall be measured with a velometer or pitot tube and manometer. Fan RPM shall be measured with a tachometer or revolution counter. Motor amperage shall be measured with an "Amprobe" or similar device. Voltages shall be measured with a voltmeter.
- B. In measuring velocities in ducts or at outlets, traverse the duct or outlet so that one reading is taken for each 80 square inches maximum of flow area, but a minimum of (6) readings shall be taken for each duct or outlet regardless of size.
- C. Adjust supply air systems as follows:
1. Adjust all fans to deliver the design air quantities at system design static pressure.
 2. Adjust all duct balancing dampers and extractors for initial balance.
 3. Adjust dampers at individual diffusers and registers for the design air quantities.
 4. Adjust dampers and register bars to provide uniform draftless air distribution in all areas of rooms.
 5. Re-adjust duct balancing dampers if diffuser dampers are noisy.
 6. Any or all of the above procedures shall be repeated as required until air quantities at individual registers or diffusers are within 5% of quantities shown on the Drawings and total air quantity handled by each system is within 5% of the quantity shown or specified.
- D. Air balance report shall include the following data and information:
1. Average of final velocity readings taken at each individual supply air outlet or exhaust register, size of outlet, free area of outlet, and air quantity delivered or exhausted.

2. Average of final velocity readings taken at each fan or air handling unit, size of the duct or plenum, and total air quantity delivered or exhausted by the fan or unit.
3. Final static pressure at each fan outlet and final static pressure at each fan inlet. Measure static pressure across fan only, not across the entire unit.
4. Final fan speed for each fan.
5. Manufacturer's fan curve for each fan or air handling unit, with balance position plotted.
6. Final running amperage on each motor and actual voltage at each motor.
7. Motor horsepower and nameplate amperage for each motor.
8. Starter element sizes and amperage ratings for each motor. If starter elements amperage rating is not more than 10 percent greater than motor nameplate amperage, the HVAC Contractor shall furnish and install proper size elements.
9. Air temperature rise across all coils.

1.05 FAN SHEAVES

- A. Where necessary, or when directed by the Architect, provide larger or smaller fan pulleys at no additional cost to the Owner, sized to drive the fans at the speeds necessary to give the indicated volumes.

1.06 QUALITY CONTROL

- A. Testing and balancing shall be performed in complete accordance with AABC National Standards for Field Measurement and Instrumentation, Form Number 81266, Volume One, Sections as applicable.
- B. At time of final inspection, the TAB Agency shall re-check, in the presence of the Owner's personnel, specific and random selections of data recorded in the Certified Report. If random tests indicate a measured flow deviation greater than five percent than that recorded in the Certified Report, the report shall be automatically rejected. In the event the report is rejected, the Balancing Contractor shall readjust and test the system, submit new reports and re-inspect at no cost to the Owner.
- C. Following acceptance of Certified Report by the Owner, the settings of all splitters, dampers, and other adjustment devices shall be permanently marked by the Balancing Contractor, so that adjustment can be re-established if disturbed. Devices shall not be marked until after final acceptance.

END OF SECTION-23 05 93

SECTION 23 09 13.43
CONTROL DAMPERS

PART 1: GENERAL

- 1.01 DESCRIPTION
 - A. Provide all fixed dampers for adjusting air flow.
- 1.02 QUALITY ASSURANCE
 - A. Standards
AMCA Standard 500 Certified Performance.
- 1.03 ACCEPTABLE MANUFACTURERS
 - A. Ruskin, American Warming and Ventilating, Arrow United, National Controlled Air, Inc., Honeywell, Johnson Controls, Barber-Colman or approved equal.
- 1.04 RELATED WORK DESCRIBED ELSEWHERE
 - A. Refer to Section 23 09 33, "Electric and Electronic Control System for HVAC".

PART 2: PRODUCTS

- 2.01 EXTRACTORS
 - A. Steel frame and parallel diverting blades, angle bracket, pivot bearing assembly, worm gear operator and control shaft.
 - 1. Tuttle and Bailey "Vectrols" or equal by Titus.
- 2.02 BALANCING DAMPERS
 - A. Galvanized steel, 6 in. 16 gauge galvanized steel blades, 6 in. on center, concealed linkage, TFE-filled bearings, 1/2 in. hexagonal steel axles, extended 1/2 in. O.D. control shaft, opposed blade operation, locking quadrant brackets as required.
 - 1. Rectangular Balancing Dampers: Ruskin Type CD35/OBC.
 - 2. Balancing Dampers for ducts 12 in. and smaller: Furnish single blade Ruskin Type MD35.
 - 3. Round Balancing Dampers: Furnish single-blade Ruskin Type CDR25.

PART 3: EXECUTION

- 3.01 INSTALLATION
 - A. Install dampers in ductwork and provide access to adjustments as required.

END OF SECTION-23 09 13.43

SECTION 23 31 00
HVAC DUCTS AND CASINGS

PART 1: GENERAL

1.01 DESCRIPTION

- A. Provide ductwork for the following:
 - 1. Supply Air
 - 2. Return Air
- B. Include turning vanes, extractors, splitter-dampers, volume dampers, access doors, flex connections.
- C. Duct layout is schematic; provide duct risers, drops, offsets around obstructions, flattened sections, etc., and all fittings necessary to install ductwork.

1.02 QUALITY ASSURANCE

- A. Standards
 - 1. American Society of Heating, Refrigeration and Air Conditioning Engineers (ASHRAE), Sheet Metal and Air Conditioning Contractors National Association (SMACNA), National Fire Protection Association (NFPA), and Underwriters' Laboratories (UL).
 - 2. For ductwork supports, SMACNA "Duct Construction Standards": These are absolute MINIMUM standards; duct construction shall meet or exceed these standards.

1.03 SUBMITTALS

- A. If any changes are made from Plans, submit ductwork layout shop drawings for review.
- B. Layout Drawings shall be at 1/4" = 1'-0" scale, with enlarged sections and elevation plans as necessary.
- C. These drawings will be used as a basic coordination tool by all Contractors.
- D. Sheet Metal Contractor shall notify the Architect and Engineer, during the Bidding Period, of any obvious conflicts between the ductwork and the work of all other Trades.

1.04 DUCT DIMENSIONS

- A. The dimensions indicated on the Drawings are the net inside clear dimensions available for air flow.
- B. Contractor shall allow for shop-lined or exterior insulation thickness as required.

PART 2: PRODUCTS

2.01 STEEL DUCTWORK

- A. Construction

Galvanized steel, 24 gauge thru 16 gauge, intermediate reinforcing bracing, slip joints, mechanical forced seams, beaded and cross-broken.

 - 1. SMACNA Section I.
- B. Elbows, Branches, Transitions, Offsets

Round duct fittings to be conical with scoops at branch takeoffs. Round elbows to be 3-piece type.

 - 1. SMACNA Section II.
- C. Turning Vanes

Double thickness airfoil construction. Tuttle & Bailey "Duct-Turns" or equal by Titus or Anemostat.

 - 1. SMACNA Section II, Fig. 2-3.
- D. Equipment Casings, Flexible Connections, Curbs
 - 1. SMACNA Section VI.

- E. Hangers, Attachments and Supports
 - 1. SMACNA Section IV.
- 2.02 FIBERGLASS DUCTWORK
 - A. No fiberglass ductwork permitted. No exceptions.
- 2.03 DUCT SEALER
 - A. United McGill Corporation "United Duct Sealer" or approved equal.
- 2.04 DAMPERS
 - A. Refer to Section 23 09 13.43, "Control Dampers", for extractors, splitter-dampers, and volume dampers.
- 2.05 FLEXIBLE DUCTWORK
 - A. Preinsulated metal flexible round ductwork for branch runouts and connections to diffusers. Min. 3" pressure rating with .25"C Factor.
 - 1. Flexmaster Type M or approved equal.
 - B. U.L. 181, Class I, must not exceed 25 Flame Spread and 50 Smoke Developed.
- 2.06 FLEXIBLE CONNECTIONS
 - A. 30 oz. neoprene coated glass fabric Ventfabrics "Ventglas" or approved equal.
- 2.07 DUCT LINER
 - A. Refer to Section 23 07 00, "HVAC Insulation".

PART 3: EXECUTION

- 3.01 INSTALLATION
 - A. Ductwork installation shall comply with all recommendations of SMACNA reference publication.
 - B. Install turning vanes at all changes of direction. Exception: None in kitchen cooking hood exhaust ductwork. Option: Use standard radius turns, with centerline radius a minimum 1-1/2 times duct dimensions.
 - C. Install extractors at all rectangular supply branches. Install combination scoop extractors/butterfly dampers at all round supply branches.
 - D. Provide duct sealer at all joints.
 - E. Make final connections to diffusers in suspended ceilings with insulated flexible duct (5 ft. long maximum).
 - F. Install a minimum 4 in. flexible connection where ductwork connects to motor-driven equipment. Do not bulge or install on a bind.
 - G. Duct Access Doors
Install in accessible usable locations.
 - H. Keep ductwork tight as possible to underside of structure. Maintain at least 7 in. clear between duct and suspended A.T. ceiling construction where recessed lights occur. Otherwise, 3" minimum.
 - I. Install all dampers and provide blank-off plates to seal frames airtight.

- J. Contractor shall coordinate size and location of ductwork with structure, piping, lighting, equipment, conduit, cable trays, ceiling construction and clear height above and other items which may present a potential conflict. For shop-lined insulation work, refer to Section 23 07 00, "HVAC Insulation". Note that the dimensions indicated are net inside clear dimensions.
- K. Install necessary hanger rods and angle iron support brackets to properly support ductwork, insulation, reinforcing and external loads.
- L. Maximum spacing of supports to be as follows:

RECTANGULAR DUCTS

<u>1/2 X DUCT PERIMETER</u>	<u>ROD DIA.</u>	<u>SPACING</u>
Less than 72"	1/4"	10 ft.

ROUND DUCTS

<u>DUCT DIA.</u>	<u>ROD DIA.</u>	<u>SPACING</u>
Up thru 26"	1/4"	12 ft.

- 1. Use a pair of rods, one each side of ductwork. Rods to be uncoated hot-rolled steel.
- 2. Use sheet metal screws to attach hanger bracket to ductwork.
- 3. OPTION: 1" wide sheet metal straps may be used as per the latest SMACNA HVAC Duct Construction Standard.

3.02 FIBERGLASS DUCTWORK INSTALLATION

- A. Installation shall comply with Manufacturer's recommendations and SMACNA Publication, "Duct Standard Fibrous Glass Construction". Coat the ends and edges of fiberglass duct sections using a non-corroding cement.

3.03 TESTING

- A. Pressurize ductwork to 110% of design pressure. Air leakage shall not exceed 0.5% of the design CFM in any main or branch.

END OF SECTION-23 31 00

SECTION 23 37 13
DIFFUSERS, REGISTERS, AND GRILLES

PART 1: GENERAL

- 1.01 DESCRIPTION
- A. Provide grilles, registers and diffusers as indicated on the Drawings.
 - B. Service shall be for supply, return, transfer or exhaust as noted on the Drawings.
- 1.02 QUALITY ASSURANCE
- A. Standard: Air Diffusion Council (ADC).
- 1.03 RATINGS AND CAPACITIES
- A. Refer to Drawings for air device construction, CFM, finish and accessories.
- 1.04 A. Design Base
Anemostat. Model numbers are shown on the Drawings.
- B. Acceptable Options
Titus, Tuttle & Bailey, Carnes or Krueger.

PART 2: PRODUCTS

- 2.01 GRILLES, REGISTERS AND DIFFUSERS
- A. General Construction
 - 1. Steel or aluminum, factory-fabricated to evenly distribute design CFM throughout the space without causing noticeable drafts.
 - 2. Ceiling diffusers shall be square, with equalizing grid volume-control damper and fixed air discharge pattern.
 - 3. Grilles shall be same construction as registers without volume-control damper.
 - 4. Diffusers, registers and grilles shall have white paint finish.
- 2.02 EQUALIZING DEFLECTORS
- A. Steel bladed assembly, flat black finish.
 - 1. Anemostat Type ED, or Titus Type EG.
- 2.03 COMBINATION SPLITTER DAMPER/EQUALIZING DEFLECTOR
- A. Steel, splitter control damper and bladed equalizing deflector assembly, flat black finish.
 - 1. Anemostat Type CU-1, or Titus Type AG-65.
- 2.04 LOUVER DAMPER/EQUALIZING DEFLECTOR
- A. Steel louver blades and equalizing deflector, flat black finish.
 - 1. Anemostat Type LD, or Titus Type AG-85.

PART 3: EXECUTION

- 3.01 INSTALLATION
- A. Diffusers on rectangular ducts shall be installed with equalizing deflectors at the diffuser neck and combination damper and equalizing grid at tap into the rectangular duct. Install dampers in neck with blades 90 Degrees from blades in grid unit. Diffusers supplied by flexible ducts shall be installed with louver damper equalizing grid installed in the diffuser neck.
 - B. Do not install combination damper/equalizer on bottom connection to a continuing supply air main duct.

- C. Registers shall be provided with sponge-rubber gasket between flanges and wall or ceiling.
- D. Wall supply registers shall be installed at least 6 inches below the ceiling, unless otherwise indicated.
- E. Provide additional support hangers for diffusers, grilles, or registers mounted in lay-in ceiling tiles.
- F. Insure air-tight seal at all connections.

END OF SECTION-23 37 13

SECTION 26 00 00
ELECTRICAL (GENERAL PROVISIONS)

PART 1: GENERAL

- 1.01 The Instructions to Bidders, General and Supplementary Conditions, Special Conditions, Addenda, Alternates, applicable portions of Division 1, these technical specifications and the drawings, together with the Contract and Proposal, comprise the Contract Documents for the Electrical Contract.
- 1.02 **SCOPE OF WORK**
Work under this contract consists of furnishings, installing, testing and guarantee of a complete electrical system as shown on the drawings and as specified herein. The following is a general summary of the categories of work included. Work shall not, however, be limited to these categories, as the detailed drawings and specifications define the full scope of the work.
- A. Distribution equipment including switchboards, panelboards, switches, breakers and fuses.
 - B. Branch circuit wiring for lighting, power and miscellaneous equipment, including motor starters and disconnects.
 - C. Emergency system.
 - D. Lighting fixtures, lamps and wiring devices.
- 1.03 **PERMITS AND REGULATIONS**
- A. Include payment of all local permit and inspection fees applicable to the electrical contract work. Furnish for the Owner a certificate of approval from the governing inspection agency as a condition for final payment. Include proportional cost of general permit fees where such general permit fees are required. Unless otherwise indicated, State permit fees will be paid for by the Owner.
 - B. Work must conform to the National Electrical Code, National Electrical Safety Code and other applicable local, state and federal laws, ordinances and regulations. Where drawings or specifications exceed code requirements, the drawings and specifications shall govern. Install no work contrary to minimum legal standards.
 - C. All electrical work shall be inspected and approved by the local jurisdictional authority.
- 1.04 **CUTTING AND PATCHING**
- A. Provide all cutting and patching require for own work. Patch to match adjacent surfaces. Coordinate location of wall penetrations with General Trades Contractor.
 - B. All roof and masonry openings by General Trades Contractor. Coordinate sizes, locations, etc. with General Trades Contractor and Architect.
 - C. Sleeve all masonry and concrete penetrations. Sleeves provided and installed by General Trades Contractor; where directed by Electrical Contractor, sleeves sealed by Electrical Contractor.
- 1.05 **INSPECTION OF SITE**
Each bidder shall inspect the site and premises and compare conditions with those shown on the drawings. Report immediately to the Architect any significant discrepancies which may be discovered. After the Contract is signed, no allowance will be made for failure to have made a thorough site inspection of conditions on the premises.
- 1.06 **DRAWINGS AND SPECIFICATIONS**
- A. The drawings indicate the general arrangement of the system and are to be followed insofar as possible. If deviations from the layout are necessitated by field conditions, detailed layouts of the proposed departures shall be submitted in writing to the Architect for approval before proceeding with the work.

- B. This Contractor shall make his own measurements in the field and shall be responsible for correct fittings. He shall coordinate his work with all other branches in such a manner as to cause a minimum of conflict or delay.
- C. The drawings and specifications shall be carefully studied during the course of bidding and construction, and any errors in layout, omissions or conflicts shall be referred immediately to the Architect for interpretation or correction, so that misunderstanding at a later date may be avoided. The contract drawings are not intended to show every vertical or horizontal offset which may be necessary to complete the systems.
- D. All lighting circuits are to be switched unless specifically indicated not to be switched.
- E. The Architect shall reserve the right to make minor adjustments in locations of system runs and components where he considers such adjustments desirable in the interest of concealing work or presenting anticipated and requested sufficiently in advance as to not cause extra work on the part of the Contractor or unduly delay the work. Coordinate work in advance with all other trades and report immediately any difficulties which can be anticipated.
- F. Where any system and components are so placed as to cause or contribute to a conflict, they shall be readjusted at the expense of the Contractor causing such conflict. The Architect's decision shall be final in regard to the arrangement of conduit, etc., where conflict arises.
- G. Where offsets in systems runs, additional fittings, necessary pull boxes, switches or devices are required to complete the installation, or for the proper operation of the system, these shall be deemed to be included in the contract. Each Contractor shall exercise due and particular caution to determine that all parts of his work are made quickly and easily accessible.
- H. Should overlap of work between the various trades become evident, this shall be called to the attention of the Architect. In such event, neither trade shall assume that he is relieved of the work which is specified under his branch until instructions in writing are received from the Architect.

1.07 RECORD DRAWINGS

The Contractor shall maintain a separate set of prints of the contract documents and shall show any changes or variations which are made during construction. Upon completion of the work, these drawings shall be turned over to the Architect.

1.08 IDENTIFICATION NAMEPLATES

- A. Each piece of equipment shall be identified per industry formats.
- B. Each circuit shall be identified at the breaker panel inside cover.

1.09 SUBMITTALS

- A. Electrical Contractor to provide catalog cuts and shop drawings on all manufactured items and components to be used in the work.

END OF SECTION-26 00 00

SECTION 26 00 01
GENERAL PROVISIONS - ELECTRICAL

PART 1: GENERAL

1.01 REFERENCE

- A. The General Provisions listed in this Section are in addition to the requirements referenced below. They are not meant to replace them, but they shall supersede any conflicting statements contained elsewhere in the Specifications. In case of conflict, ask the Architect for interpretation.
- B. Related Work Described Elsewhere
Refer to Instructions to Bidders, General Conditions, Special Conditions, Supplementary Conditions, Division 1 General Requirements and other Articles listed below for specific requirements, responsibilities and methods relating to Electrical Work.
1. Supervision of Work and Construction Procedures
 2. Permits, Fees and Notices
 3. Record Drawings
 4. Shop Drawings
 5. Cutting and Patching
 6. Tests
 7. Protection of Persons and Property
 8. Temporary Services
 9. Coordination of Work
 10. Painting
 11. Examination of Site
 12. Excavation and Backfill
 13. Concrete Work
 14. Access Panels
 15. Sleeves
 16. Maintenance Manuals
 17. Alternates
- C. Related Documents
The Drawings and General Provisions of the Contract, including General and Supplementary Conditions and Division 1 apply to the work of this Division.

1.02 BRIEF DESCRIPTION OF WORK

- A. Contractor shall provide Electrical Work, including, but not limited to, the following:
1. Site Electrical Systems
 - a. Primary Service Conduit, Trenching and Backfill
 - b. Secondary Service Feeders, Conduit, Trenching and Backfill
 - c. Site Lighting
 2. Lighting Systems
 3. Power Systems
 4. Lighting Controls
 5. Control Wiring

1.03 STANDARDS OF QUALITY

- A. The Contractor shall provide Work of the highest quality, conforming to the accepted practices and standards of the Trades involved. Further definition of quality is given by reference to various Laws, Codes, Standards and Regulations.
- B. Any Law, Code, Standard or Regulation referred to in other Sections, is included in its entirety as a part of these Specifications.
- C. Listed below are titles and abbreviations that may be used in the Specification:

1. National Electrical Code (NEC)
2. National Electrical Manufacturers Association (NEMA)
3. Underwriters' Laboratories (UL)
4. National Fire Protection Association (NFPA)
5. Institute of Electrical and Electronic Engineers (IEEE)

D. The following Codes apply to this Work:

1. The latest National Electrical Code
2. State Building Code

E. Work must be performed by licensed Contractors as required by Local and State Codes.

F. All equipment, fixtures, devices, and wiring shall be listed by Underwriters' Laboratories.

1.05 CONTRACT DRAWINGS

- A. Drawings are schematic and show approximate locations and extent of Work. Exact locations must be coordinated with other Trade Contractors and verified in the field.
- B. Significant deviations from Drawings must be approved in writing by the Architect.
- C. The Architect reserves the right to make minor changes in location which do not require additional labor or material, up to the time of roughing-in, without additional cost. The Architect reserves the right to determine what is "significant" and what is "minor".
- D. If a conflict occurs between the Drawings and Specifications, the Contractor shall immediately call it to the attention of the Architect, who will determine which interpretation shall take precedence.

1.06 DEFINITIONS

- A. Provide
To furnish, erect, install, and connect to make completely ready for regular operation.
- B. Concealed
Either embedded in masonry or other construction, or installed below floor slab, behind wall furring, within walls, within double partitions or above ceilings, in trenches, in tunnels or within crawl spaces.
- C. Exposed
In full or partial view; not concealed as defined above.
- D. Low Voltage
Systems or wiring operating at potentials less than 48 volts.

1.07 PERMITS, FEES AND NOTICES

- A. Contractor shall pay for all local permits and governmental fees, bonds, licenses and inspections necessary for the proper execution and completion of Electrical Work.
- B. The Contractor must give notice and comply with all Laws, Ordinances, Rules, Regulations and lawful orders of any Public Authority bearing on the performance of the Work.
- C. If the Contractor observes that any of the Contract Documents are at variance therewith in any respect, he shall promptly notify the Architect in writing, and any necessary changes will be arranged by the Architect.
- D. If the Contractor performs any Work knowing it to be contrary to such Laws, Ordinances, rules and Regulations, and fails to give such notice to the Architect, he shall assume full responsibility for, and shall bear all costs associated with such Work.

1.08 EXAMINATION OF SITE

- A. Certain existing conditions may affect the manner or sequence of the performance of Work. Existing services, structures and operating schedules may need to be reviewed to facilitate the installation of the Work.
- B. Contractor should visit the site of the proposed Project. After the Contract is signed, no allowance will be made for lack of knowledge of Project conditions.
- C. The Contractor shall verify and reconcile Work required by the Contract Documents with conditions at the Site.
- D. Should the Contractor note any discrepancies during the Bidding Period, he shall notify the Architect immediately, in writing, to permit issuance of an Addendum to prevent misunderstandings at a later date.

1.09 UTILITIES

- A. The Contractor shall locate any existing utilities prior to construction. Where necessary to make minor relocations to permit installation of his Work, Contractor shall be responsible for making all such relocations. Contractor shall advise the Architect immediately of major conflicts to permit modification of the Contract Documents.
- B. Contractor shall record location of all concealed utilities on the Record Drawings.
- C. Contractor shall be responsible for coordinating any utility service shutdowns or outages with the Architect and the Owner, and shall conform with all Utility Company requirements. Contractor shall avoid inconveniencing the Owner, and shall provide temporary service during the curtailment, if required by the Architect.

1.10 COORDINATION

- A. Contractor shall coordinate his Work carefully with the General Trades Contractor and all other Contractors.
- B. Contractor shall review all equipment nameplate ratings and advise the Architect immediately of any system design changes required to wire the equipment properly.

PART 2: PRODUCTS

2.01 EQUIPMENT MANUFACTURERS

- A. The Drawings and Specifications are based on the requirements and layouts of the equipment of the Design Base Manufacturer. Design coordination of equipment with the building and with other Trades has been made for this specific Model and Manufacturer of equipment. Where several Manufacturers are listed, the first-named is the Design Base Manufacturer, unless specifically noted otherwise.
- B. All equipment and materials furnished by the Contractor as an approved equal, or as a Substitution, must be, in the opinion of the Architect, equivalent in quality, design, features, performance, arrangement, and appearance to that of the Design Base Equipment or material.
- C. Where particular brands of equipment, types of material, or types of systems are listed as Alternates, this is done, recognizing that they may not be equal to the Design Base equipment or material. The Owner reserves the right to accept or reject Alternates, regardless of price differences.

- D. The Contract Documents require a design based on a Design Base Manufacturer of equipment and materials as standard. Where other materials or Manufacturer's equipment are specified as approved equal, or optional, and the Contractor elects to use them, they may be submitted for review for compliance with all other requirements of these Specifications. Contractor will be responsible for all re-design and construction costs necessitated by his selection of an Equipment Manufacturer other than the Design Base Manufacturer.

2.02 ALTERNATE, OPTIONAL OR SUBSTITUTE MANUFACTURERS

- A. The inclusion of additional Product Manufacturers in these Specifications shall not be construed to infer that said product has been reviewed by the Architect or that said product will provide all the features, capabilities, and have the same physical dimensions as the Design Base Manufacturer.
- B. Where deemed necessary by the Architect, the Contractor shall prepare new layouts required either for substituted equipment, listed Alternate equipment, or other equipment listed as an approved equal, and which may have different dimensional or service requirements from the Design Base Manufacturer. Submit these to the Architect for review.
- C. Contractor shall reimburse the Architect for design costs incurred by the Architect in the preparation of revised drawings or specifications, as deemed necessary by the Architect, to accommodate the use of an Equipment Manufacturer other than the Design Base Manufacturer. This shall apply irrespective of whether or not an Alternate, any Optional or a Substitute Manufacturer is selected by the Contractor.
- D. Listing of Additional Manufacturers
Information on any proposed equipment or material the Contractor desires to use as an approved equal, must be submitted for review to the Architect no later than seven (7) days prior to bidding. If acceptable, the Architect will then issue an Addendum, adding that Manufacturer to the Specification.
- E. Only those Manufacturers which are named either in the Specification or subsequent Addenda, or approved as a Substitution, will be acceptable.

2.03 SUBSTITUTION PROCEDURE

- A. Substitutions
For consideration, any proposed Substitution must be listed on a Substitution Sheet and included with the Bid Proposal. The following conditions must be met before acceptance of a Substitution will be considered:
1. The proposed Substitution must be proven, to the satisfaction of the Architect, to be equivalent or superior to the specified item.
 2. Extended delivery schedules on specified items, which, in the Architect's opinion, would delay timely completion of the job, may be cause for consideration of Substitutions. The Contractor shall submit proof of delay in delivery of the specified equipment by written correspondence from each of the Manufacturers listed for that item.
 3. Contractor must submit the following data with his written request for Substitution:
 - a. Comparison of the qualities of the proposed Substitution with the item specified.
 - b. All changes required in other Work because of the Substitution.
 - c. Effect on the construction schedule.
 - d. Cost data comparing the proposed Substitution with the Manufacturers and Models specified.
 - e. Any required license fees or royalties.
 - f. Availability of maintenance service, and source of replacement materials.
 4. Contractor's request for Substitution constitutes a representation that the Contractor:
 - a. Has investigated the proposed Product and determined that it is equal, or superior in all respects to that specified.
 - b. Will provide the same warranties or bonds for the Substitution as for the item specified.

- c. Will coordinate the installation of an accepted Substitution into the Work, and make such other changes as may be required to make the Work complete in all respects.
- d. Waives all claims for additional costs, under his responsibility, which may subsequently become apparent.

2.04 QUANTITIES

- A. Equipment may be referred to in these Specifications or on the Drawings, as either singular or plural; Contractor is responsible for verifying the exact number of items required to complete his Work.

PART 3: EXECUTION

3.01 PROTECTION

- A. Equipment and material shall not be delivered to the site until the Work is ready to receive it, unless it can be protectively stored in a manner acceptable to the Architect.
- B. Protect all equipment and materials during construction from damage by weather, water, dirt, paint droppings, welding and cutting spatters and other construction activities.
- C. All materials or equipment stored outside shall be elevated and protectively covered.
- D. Materials and equipment sensitive to weather or construction conditions shall be stored inside. Where necessary, sensitive equipment should be stored in a heated area.
- E. During construction, cover all fixtures, panels, controls and electrical equipment which is stored or installed in place.
- F. Refer also to individual Specification Sections for specialized protection.
- G. Damaged equipment or materials must immediately be repaired or replaced by this Contractor, to the satisfaction of the Architect and at no additional cost to the Owner.
- H. Contractor shall protect the building and other Contractor's material and equipment from damage caused by his Work. Protect floors from cutting oil and chips.
- I. Use all means necessary to protect materials before, during, and after installation.

3.02 CUTTING AND PATCHING

- A. Unless otherwise required in General or Special Conditions, Division 1, or by other sections, each Contractor is responsible for all cutting and patching required for his own Work. Rotary drills shall be used for cutting of holes. Patching shall match adjacent surface construction. All cutting and patching must be accomplished in a neat and workmanlike manner, acceptable to the Architect.
- B. For all masonry or roof construction, Division 26 Contractor shall arrange and pay for the General Contractor or other Tradesman acceptable to the Architect to perform all cutting and patching required for Division 26 Work.
- C. The Division 26 Contractor is permitted to perform only cutting of drywall, wood, or other non-masonry construction with his own workmen. For the patching of these surfaces, the Division 26 Contractor shall arrange and pay for the General Contractor or other general Tradesman acceptable to the Architect to perform the Work.
- D. The Division 26 Contractor shall include the cost of all cutting and patching in his Bid.
- E. All cutting and patching shall be done promptly and all repairs shall be made as necessary to leave the entire Work in good condition, including all cutting, fitting and drilling of masonry, concrete,

metal, wood, plaster, and other materials as specified or required for proper assembly, fabrication, installation, and completion of all Work of the Contract.

- F. If necessary to cut into Work of other Trades, it shall be done by other Trades at this Contractor's expense, or it may be done by this Contractor, with the written consent of the Architect. Patching shall be similarly executed.
- G. Cutting of structural support beams, joists, plates or other structural members is strictly prohibited without the specific written consent of the Architect.
- H. Power panel openings and other openings in walls are provided by the General Contractor. Division 16 Contractor shall locate and dimension openings prior to construction.
- I. The General Contractor shall provide all roof openings required for conduit, and shall provide flashing, roof boots, waterproof seal, etc. as required.
- J. Coordinate drilling and welding, etc., and method of attachment to columns, joists, beams, girts, etc., with the Architect and General Contractor before proceeding.

3.03 SLEEVES

- A. Furnish sleeves for conduit, wiring, and other electrical items that penetrate through new masonry and concrete construction to General Contractor, who installs sleeves where directed by Division 26 Contractor.
- B. Division 16 Contractor is responsible for correct location and size, and delivery of sleeves to the General Trades Contractor, so as not to delay construction.
- C. Sleeve where electrical work passes through walls exposed, through smoke or fire rated separations, or through equipment room walls or floor.
- D. Provide dimensions and locations of openings to General Contractor.
- E. Carefully coordinate and check locations of sleeves immediately before and after each concrete pour and masonry installation.
- F. If sleeves are not installed, due to fault of Division 26 Contractor: Holes through masonry or concrete construction shall be core drilled by General Contractor, at expense of Division 26 Contractor.
- G. Furnish machine cut Schedule 40 black steel pipe for sleeves.
- H. Close space around conduits and other electrical items passing through walls and floors. Seal space up to a 1/2" gap with sealant or caulking. Close off space greater than 1/2" gap with sheet metal and seal airtight. Pack all fire or sound rated separation sleeves with glass fiber, mineral wool, fire retardant rope, calcium silicate, or other non-combustible material approved by the Local Code Authority to maintain fire rating of structure. Fill space around all sleeves leading into exposed areas with material compatible with adjacent construction and finish.
- I. Cut sleeves 1/8" above finished floors and 3" above floors in kitchens, utility rooms, equipment rooms, and the like.

3.04 PENETRATION OF FIRE RATED CONSTRUCTION

- A. Contractor shall use approved, UL-listed, fire retardant sealants, backing and packing as required to maintain fire rating of the structure penetrated. Spray UL-listed foam sealant around cables in conduit.

- B. For sealing around conduit sleeves or other openings in fire-rated construction, use one of the following UL listed (ASTM E119) sealants:
 - Dow Corning 3-654B
 - Chase Foam
 - 3M "Fire Barrier"
 - Carborundum "Fibersil"
 - Nelson "Fire Stop"
 - Johns-Manville "Cerafiber"
- C. For larger openings, provide FM/UL listed KBS sealbags as manufactured by International Protective Coatings Corporation.

3.05 PAINTING AND RELATED WORK

- A. Finish building painting is the responsibility of the General Contractor and is specified in Division 9.
- B. Any other painting, required by Sections in Division 26, is the responsibility of the respective Division 26 Contractor. It shall be done by a qualified tradesman skilled in the craft and shall meet the requirements of Division 9. Contractor is responsible for repainting of finished areas disturbed by his own cutting and patching.
- C. Factory-finished equipment which as rusted or been damaged, shall be cleaned, spot primed with zinc chromate, and finished to the original quality by this Contractor.

3.06 CLEANING AND PAINTING

- A. Interiors of all enclosures to be cleaned of dirt and debris before installing trim or covers.
- B. All finished surfaces of equipment shall be thoroughly cleaned of dirt and all scratched or damaged surfaces shall be touched up with matching material before final acceptance of the work. Dents and marred finishes shall be repaired to the satisfaction of the Architect.
- C. Rust spots on any part shall be brushed clean, primed and painted in kind.
- D. Prime and paint all steel hangers, boxes, straps, and rods, furnished under this Contract which are not provided with rust-protective finish or is damaged in installation. Paint to be zinc chromate primer and aluminum bronze. This applies to unfinished and mechanical spaces as well as "exposed to view" locations.
- E. Paint all conduits that are run exposed in "finished" areas. Color shall match ceiling or wall background.
- F. All wood mounting panels to be primed and painted with two (2) coats gray flameproof paint, both sides and edges.

3.07 RECORD DRAWINGS

- A. Contractor shall maintain at the job site, one copy of Drawings which shall be used exclusively for recording the location of all installed work. Contractor shall update Record Drawings daily.
- B. Record exact location of concealed conduit. Record Addendum and Change Order Items.
- C. Record any changes made necessary to incorporate equipment different from the Design Base Manufacturer.
- D. At completion of the Project, Contractor shall use this information to prepare (2) sets of marked-up prints. He shall deliver these Record Drawings (marked-up prints) to the Architect.
- E. Refer to Division 1 for General Requirements.

3.08 IDENTIFICATION NAMEPLATES

- A. Each piece of electrical equipment, such as disconnects, starters, switchboard, power and lighting panels, and auxiliary systems, shall be identified on the front cover or trim with its designated name or number/letter shown on the Drawings and with the voltage available within the panel and the source from where it is fed. Panelboards in finished areas shall be identified on the inside cover.
- B. Identification shall be in the form of laminated plastic nameplates, with the letters engraved into the white background, minimum 1/4" high. Plates shall be secured to each piece of equipment by pressure sensitive adhesive or screws. No "Dymo" or similar tape type labels will be accepted.

3.09 OWNER MAINTENANCE MANUAL AND PERSONNEL INSTRUCTION

- A. Furnish two (2) bound copies, 8-12" x 11", in hard binders to the Architect.
- B. Format of manual to be as follows:
 - 1. First Page
Title of Job, Owner, Address, Date of Submittal, Name and Address of Contractor, Name of Architect.
 - 2. Second Page
Index
 - 3. First Section
A copy of each shop drawing and approval submittal with an index at the beginning of the Section.
 - 4. Second Section
A list of all equipment used on the job, along with Suppliers' names and addresses.
 - 5. Third Section
Prints of all system wiring diagrams and information regarding system services and repair personnel.
- C. Provide a minimum of four (4) hours total instruction to personnel selected by the Owner. Instructions to include the following:
 - 1. Location of items of equipment and explanation of their use.
 - 2. Reference to operating instruction manual for record and clarity.
 - 3. Coordination of written and verbal instructions so that each is understood by personnel.

3.10 CONCRETE WORK

- A. Forming and installation of concrete work for equipment bases, pads and lighting pole bases, and for concrete envelopes around conduits, shall be provided by the General Contractor. Division 16 Contractor shall be responsible for size, location, and any embedment items associated with pads, bases, or curbs.
- B. Anchor bolts, boxes, conduit, sleeves or any other items required to be in precast concrete or poured-in-place concrete shall be furnished along with full information in time to cause no delay in work.
- C. Notification and coordination of this work with the General Contractor is the responsibility of the Division 26 Contractor.

3.11 EXCAVATION AND BACKFILL

- A. All excavations and backfill work shall comply with requirements of latest OSHA Standards.
- B. Contractor shall provide all excavation and backfill required for installation of electrical work.
- C. Contractor shall coordinate routing of underground lines with Architect to minimize disruption and damage to trees, shrubs, walks, drives and other landscape features.

- D. Contractor shall acquaint himself with the location of all existing underground utilities before excavation work is begun. Excavation damage to any underground utility shall be a liability of the Contractor whether or not plotted on the Drawings and all damages to any existing utility shall be promptly repaired or replaced to the full satisfaction of the Owners of such utilities.
- E. Trenches for the burial of electrical conduit, duct, or conductors shall be of sufficient depth, such that the top of the highest duct is not less than 24" below finished grade, or greater, if required by Code or specified elsewhere in these Specifications, or shown on the Drawings. Trench bottoms shall be as required to accommodate the conductors, conduit, or ductbank, but in no case less than 6" wide. Primary and secondary electrical service shall have 36" minimum cover. Direct burial cables shall be laid on 6" deep sand bed and buried with minimum cover indicated above.
- F. Only approved backfill may be used. No large rocks (over 2") or other debris that would damage the cable of duct will be permitted in the backfill.
- G. Do not excavate utility trenches parallel to building or column footings, and closer than 5 feet thereto, except by approval of Architect. When parallel trenches are required that are deeper than the building footings, the horizontal distance from the footing shall be equal to, or greater than, 1-1/2 times the vertical distance below the footing, but in no case shall the horizontal distance be less than 5 feet, except by the approval of the Architect.
- H. Excavation shall be open cut from the surface. No undercuts permitted, except where specifically directed by the Architect. Provide shoring, bracing, barricades and warning lights to protect workers and public.
- I. Place no backfill until underground circuits have been tested. Compact backfill in 6" deep layers. Install service identifying tape or dust 18" above utility line.
- J. Whenever, in the opinion of the Architect, the soil is unsuitable for underground wiring and conduit, additional provisions shall be made, and the Contract price adjusted accordingly.
- K. Contractor shall refer to available soil boring data; however, rock, soft shale and large boulders may be encountered during excavation. Contractor may be entitled to additional compensation for these hidden soil conditions. Coordinate with Architect.

3.12 EXCAVATION SAFETY

- A. Excavation and trench wall supporting, shoring, sloping, cribbing, stepping of excavations, and other steps required for safety shall be in strict accordance with OSHA and Local requirements.
- B. Stability of Excavations
Slope sides of excavations to comply with OSHA and Local Code Authority having jurisdiction. Shore and brace where sloping is not possible because of space restrictions or instability of material exposed.
- C. Maintain sides and slope of excavations in a safe condition until completion of backfilling.
- D. Shoring and Bracing
Provide materials for shoring and bracing such as sheet piling, uprights, stringers and cross-braces, in good serviceable condition.
- E. Maintain shoring and bracing in excavations regardless of time period excavations will be open. Carry down shoring and bracing as excavation progresses.
- F. Protection of Persons and Property
Barricade open excavations occurring as part of this Work and post with warning lights. Erect warning lights as required by OSHA and Local Code Authority.

- G. Protect existing structures, utilities, sidewalks, pavements, and other facilities which are to remain, from damage caused by settlement, lateral movement, undermining, washout and other hazards created by earthwork operations.
 - H. Refer to the "Manual of Accident Prevention in Construction", published by the Associated General Contractors of America, and safety regulations of the appropriate State Agency.
 - I. Refer to Division 2 for general requirements.
- 3.13 TEMPORARY LIGHTING AND POWER
- A. Refer to Division 1, Section 01 52 00.
- 3.14 ENERGIZATION OF POWER TO EQUIPMENT ITEMS
- A. Contractor shall coordinate application of power to each equipment item with the Contractor supplying that item.
 - B. Power may be applied briefly to check direction of motor rotation or start-up conditions; however, no power may be applied unless the Contractor or equipment supplier is present.
- 3.15 BLOCK COURSE COORDINATION
- A. The mounting heights of items are called out on the Drawings. Mounting heights may have to be adjusted to accommodate brick or block coursing. Contractor shall coordinate installation of all items in a brick or block wall with the Architect.

END OF SECTION-26 00 01

SECTION 26 01 26
MAINTENANCE TESTING OF ELECTRICAL SYSTEMS

PART 1: GENERAL

1.01 DESCRIPTION

- A. Contractor shall conduct such tests and adjustments of equipment as required by Architect or necessary to verify performance requirements. Submit data taken during such tests to Architect. Contractor shall pay all professional engineering fees involved in required testing of equipment.
- B. Contractor to perform a megger test at 1,000 volts on all power conductors.
- C. All special systems shall be checked out and tested by Certified Representative of Equipment Supplier. A report shall be submitted to Architect by Representative indicating results of such final check out and test.
- D. Upon completion of electrical work, test the full load phase balance of the entire electrical system. Tests to be witnessed by the Architect, and these results recorded and reported to the Architect in writing.
- E. Optimum phase balance under full load condition to be obtained by reconnection of panelboard feeders and branch circuits. Any panelboard requiring circuit changes for balance, shall have properly revised changes made in the panel directory.
- F. Verify proper rotation of motors during load balance and final adjustments.
- G. Test lines before burying or covering with new construction.
- H. Tests shall include:
 - 1. Proper operation of lights and equipment.
 - 2. Continuity of conduit system.
 - 3. Insulation leakage and impedances.
 - 4. Ground system resistance.
 - 5. Any Special System tests described in other Sections of these Specifications.
- I. Adjustments shall include load balancing of all electrical phases.

1.02 ARRANGEMENTS FOR INSPECTION

- A. On-going inspections shall be performed by the State Division of Factory and Buildings.

1.03 CERTIFICATE

- A. Furnish approved Certificate of Final Inspection.

END OF SECTION-26 01 26

SECTION 26 02 01
ELECTRICAL GENERAL REQUIREMENTS (SUBMITTALS)

PART 1: GENERAL

1.01 DESCRIPTION

- A. Materials and equipment installed in this Work shall meet all the requirements of the Contract Documents and no materials or equipment shall be ordered until submittals are reviewed and approved by the Architect.
- B. The Contractor shall submit complete copies of the catalog data or shop drawings for each manufactured item of equipment and all components to be used in the Work, including specific performance data, material description, rating, capacity, dimensional data, material gauge or thickness, wiring diagrams, brand name, catalog number and general type.
- C. Catalog data for equipment reviewed by the Architect shall not take precedence over the requirements of the Contract Documents. Review by the Architect shall not relieve the Contractor from the responsibility for deviations from Drawings or Specifications, nor from the responsibility for providing proper clearance and coordination with other Trades.
- D. When submitted for review, all shop drawings shall bear the Contractor's signed certification that he has reviewed, checked and approved the shop drawings, that they have been coordinated with the requirements of the Project and with the provisions of the Contract Documents, and that he has verified all field measurements and construction criteria, materials, catalog numbers and similar data.

1.02 SHOP DRAWINGS

- A. Indicate arrangement of component parts, physical dimensions, materials, electrical and mechanical service requirements, colors (where required), controls, accessories, capacities and performance characteristics.
- B. Contractor must stamp and sign all submittals, indicating his review and approval that the equipment meets all the requirements of the Design Base Manufacturer's equipment. Unsigned copies will not be reviewed.
- C. Submit eight (8) copies, unless otherwise noted. Approved shop drawings will be distributed as follows:

<u>Quantity</u>	<u>To</u>
2	Architect
2	Contractor
2	Supplier
2	Service Manuals

- D. Notify the Architect in writing, at time of submission, of any deviations in the submittals from the requirements of the Contract Documents.
- E. Contractor shall make submittals promptly in accordance with the approved schedule, and in such sequence as to cause no delay in the Work or in the work of any other Contractor.
- F. Make any corrections or changes in rejected submittals as required by the Architect and resubmit until approved.
- G. Begin no fabrication or work which requires submittals until approved submittals are returned.

1.04 INCORPORATION OF SHOP DRAWINGS IN SERVICE MANUALS

- A. Refer to Section 26 00 01.

1.05 CERTIFICATIONS

A. Provide:

- 1. Test Agency results verifying capacities, operating conditions and power requirements at design conditions.
- 2. Manufacturer’s statement of compliance with Standards discussed in individual Specification Sections.
- 3. Equipment labels indicating Certification requirements.
- 4. Quality standard designations on each unit piece, e.g., each device, fixture or component.
- 5. Other Certifications listed in other Sections of the Specifications.

1.06 REQUIRED SUBMITTAL INFORMATION

ELECTRICAL CONTRACT ITEMS

SUBMITTALS REQUIRED

LIGHTING AND POWER PANELBOARDS	SHOP DRAWINGS
WIRING DEVICES AND PLATES	SHOP DRAWINGS
LIGHTING FIXTURES AND LAMPS	SHOP DRAWINGS
FLEXIBLE WIRING SYSTEM.....	SHOP DRAWINGS
LIGHTING CONTROL EQUIPMENT.....	SHOP DRAWINGS
MOTOR STARTERS	SHOP DRAWINGS
DISCONNECT SWITCHES.....	SHOP DRAWINGS
FUSES	SHOP DRAWINGS
CONTACTORS.....	SHOP DRAWINGS

END OF SECTION-26 02 01

SECTION 26 02 02
ELECTRICAL GENERAL REQUIREMENTS (CONTROL WIRING)

PART 1: GENERAL

1.01 SCOPE OF WORK

- A. Provide all power and control and interlock wiring and conduit, relays, control transformers and auxiliary contacts as required to provide complete and operating control systems.
- B. Relays and wiring inside temperature control cabinets shall be the responsibility of Division 22 Contractor.
- C. Systems shall be wired to perform the operation required in Section 23 09 33, "Electric and Electronic Control System for HVAC".

1.02 DESCRIPTION OF CONTROL WIRING REQUIREMENTS

- A. Cabinet Unit Heaters
For each unit, wire PE switch located at unit.
- B. Unit Heaters
Provide power and control wiring.
- C. Exhaust Fans
Wire to wall switch, wall switch with pilot light, day-night PE switch located at the exhaust fan, or speed controller.
- D. Temperature Control Panel
Provide 120 volt power.

1.03 WIRING DIAGRAMS

- A. It will be the responsibility of the Division 22 Contractor to provide a full set of detailed wiring diagrams for the use of the Division 26 Contractor.

1.04 ADDITIONAL REMARKS

- A. This Contractor will be responsible for providing all relays, auxiliary contacts, control power transformers and fuses required to effect the proper sequence of operation of each equipment subsystem.

END OF SECTION-26 02 02

SECTION 26 02 03
ELECTRICAL GENERAL REQUIREMENTS (FINAL CONNECTIONS)

PART 1: GENERAL

1.01 DESCRIPTION

- A. Contractor shall provide rough-in and final connection for each piece of equipment requiring power, including but not limited to, the following:
 - 1. All items of kitchen, vending and office equipment.
 - 2. Plumbing equipment, such as circulation pumps, water heater control, and residential washer/dryer Guy Gray box.
 - 3. All heating equipment and similar items.

1.02 COORDINATION

- A. This Contractor is responsible for coordinating the electrical requirements of equipment with the supplying Contractor or Manufacturer.

END OF SECTION-26 02 03

SECTION 26 02 04
ELECTRICAL GENERAL REQUIREMENTS (COORDINATION)

PART 1: GENERAL

1.01 DESCRIPTION

- A. Contractor shall coordinate the installation of items requiring power or control wiring with work specified in Division 26.
- B. Equipment drawing 1000 watts or more must have a power factor of 85% or greater at rated load conditions. Equipment with an operating power factor less than 85% shall be corrected to at least 90% under rated load operating conditions. Power factor correction devices shall be the responsibility of the Contractor furnishing the equipment.
- C. All wiring required to power, control, monitor or interlock plumbing, fire protection or HVAC equipment, is specified in Division 26.

1.02 ALTERNATIVE MANUFACTURER ELECTRICAL REQUIREMENTS

- A. Contractor furnishing equipment shall compensate the Electrical Contractor for the cost of additional labor and materials required to wire and hook-up equipment other than the Design Base Model and Manufacturers, including any power factor correction devices furnished by Division 22 Contractor.

1.03 COORDINATION

- A. Contractors shall coordinate their Work as follows:
 - 1. Plumbing Items
 - a. Coordinate location of electric water cooler(s) and electrical requirements with Division 26 Work. Electric water coolers shall be furnished and installed by the Plumbing Contractor. Receptacle and wiring shall be a part of Division 26 Work.
 - b. Coordinate location of domestic hot water recirculating pumps and electrical requirements with Division 26 Work. Domestic hot water recirculating pumps, and aquastat, shall be furnished and installed by the Plumbing Contractor. Wiring shall be a part of Division 26 Work.
 - c. All washer connection boxes shall be furnished, installed and piped by the Plumbing Contractor. Wiring shall be a part of Division 26 Work.
 - 2. HVAC Items
 - a. Pumps and Air Handlers: Starters, disconnects, interlock wiring, control wiring, and power wiring is specified in Division 26.
 - b. Unless otherwise noted, all electric motor-operated dampers shall be 120 volts. Wiring is specified in Division 26.
 - d. Division 26 Contractor shall provide disconnects and power wiring for air handlers, fans, air-cooled condensing units, cabinet unit heaters, unit heaters, and unit ventilators.
 - e. Roof-mounted exhaust fans shall include integral weather-proof disconnect switches. Other disconnects shall be NEMA Type as required.
 - 3. Temperature Control Items
 - a. Wherever possible, PE and EP switches and time clock shall be mounted in temperature control cabinets. Power to cabinet terminal strips and wiring to remote PE and EP switches and time clock is specified in Division 26.
 - b. Unless noted otherwise, all electric motor-operated dampers shall be 120 volt. Wiring is specified in Division 26.
 - c. Time clocks, relays and control panel, including internal wiring, is by HVAC Contractor. All control wiring is a part of Division 26 Work. All final connections shall be supervised by HVAC Contractor. All control wiring is a part of Division 26 Work. All final connections shall be supervised by HVAC Contractor.

- d. Temperature control air compressors shall be furnished with electrical control panels with starters and circuit breakers or fusible disconnect switches for each motor provided by the HVAC Contractor. Power wiring to control panel is specified in Division 26.
- e. All thermostats shall be furnished and installed by the Division 22 Contractor, unless specified otherwise. Wiring is a part of Division 26 Work.

5. Electrical Items

- a. Pipe Tracing: Division 26 Contractor shall furnish and install heat cable, thermostats and all wiring.
- b. Smoke Detectors: All duct smoke detectors shall be furnished, installed, and wired by the Division 26 Contractor.
- c. Thermostats: Furnished and installed by the HVAC Contractor, and wired by the Division 26 Contractor, unless specified as an integral part of the heating unit.

1.04 QUALITY ASSURANCE

- A. All electrical equipment must be listed by UL and furnished in accordance with the Specification requirements of Division 26. Installation must comply with the National Electrical Code.

PART 2: PRODUCTS

2.01 DISCONNECT SWITCHES

- A. Factory-installed disconnects shall be NEMA Type 3R, heavy duty, disconnect switch within the housing of the equipment, for exterior equipment such as roof exhaust fans or other NEMA type as required.
- B. Refer to Division 26 for Acceptable Manufacturers.

2.02 MOTOR STARTERS

- A. Centrifugal chiller starters shall be Star-Delta, closed transition type, complete with circuit breaker and undervoltage trip.
- B. Factory-installed starters shall be provided by Division 22 Contractor only where specifically listed in Specifications. All other starters are by Division 26 Contractor.
- C. Refer to Division 26 for acceptable Manufacturers.

2.03 CONTROL WIRING (ALL BY DIVISION 26 CONTRACTOR)

- A. All wiring shall be run in conduit. Exception: Low voltage wiring can be run exposed above accessible ceilings, however, if ceiling is used as a return air plenum, wiring must be Teflon-coated UL 910 listed for use in air plenums. Refer to Division 26 Specifications for all details.

PART 3: EXECUTION

3.01 PREPARATION

- A. Consult Drawings which may affect the location of equipment, conduit or wiring, and make minor adjustments in locations as necessary to secure coordination.

3.02 INSTALLATION

- A. Division 22 Contractor shall provide all wiring diagrams and coordinate wiring requirements with Electrical Contractor and assist in check-out and start-up operations.
- B. The HVAC Contractor will be responsible for the installation of chiller starter.
- C. Division 22 Contractor shall be responsible for the final operation of equipment provided under his work.

3.03 INSTALLATION OF CONTROLS AND INTERLOCKS

- A. All control wiring, regardless of voltage, and conduit is specified in Division 26. This includes, but is not limited to, control wiring between the air handling unit and the condensing unit and wiring associated with control panels, thermostats, motorized dampers, air handlers, exhaust fans, pumps, and equipment interlocks, outside air stat interlock with pipe tracing, EP and PE switches wiring and other electrical control devices indicated.
- B. HVAC Contractor shall furnish and install motor-operated dampers, EP and PE switches, and all pneumatic tubing. Wiring is a part of Division 26 Work.
- C. HVAC and Electrical Contractors shall coordinate all work associated with thermostats, temperature control panels and those PE or EP switches which may be remotely located.

END OF SECTION-26 02 04

SECTION 26 03 01
ELECTRICAL GENERAL EQUIPMENT (WIRING DEVICES)

PART 1: GENERAL

- 1.01 DESCRIPTION
 - A. Provide wiring devices as indicated, including cover plates.
- 1.02 QUALITY ASSURANCE
 - A. Underwriters' Laboratories (UL) Label.
- 1.03 ACCEPTABLE MANUFACTURERS
 - A. Hubbell, General Electric, Arrow-Hart, Slater or Pass and Seymour.
- 1.04 EQUIPMENT TERMINATION
 - A. Contractor shall verify termination requirements, including, but not limited to, plug, receptacle configuration, prior to rough-in.

PART 2: PRODUCTS

- 2.01 SWITCHES
 - A. 20 ampere, 120/277 volt, Specification Grade, back and side wired.

<u>Device</u>	<u>Hubbell Cat. No.</u>
Single Pole	1221-WHI
Double Pole	1222-WHI
Three Way	1223-WHI
Four Way	1224-WHI
Key-Operated	Add-K
Pilot Light	Add-PL

- 2.02 RECEPTACLES
 - A. 125 volt, Specification Grade, 2 pole, 3 wire grounding, back and side wired.

<u>Device</u>	<u>Hubbell Cat. No.</u>
20 Amp. Duplex	5362-WHI
GFI Outlet	GF5362-WHI
Weatherproof (GFI)	GF5362/WP26 Plate

- 2.03 FLOOR OUTLETS
 - A.

<u>Device</u>	<u>Hubbell Cat. No.</u>
Power Service	B-2537 (single)
Power Service	B-4233 (two-gang)
Data Service	B-2537 (single)
 - B. Provide flush covers on all floor outlets equal to Hubbell Series S-3925 (single) and S-3825 (two-gang).
 - C. Provide flush covers on all floor outlets equal to Hubbell Series S-2525 (data).

- 2.04 SPECIAL OUTLETS
 - A. Voltage and Ampere capacity as required, multi-pole, grounding.

<u>Device</u>	<u>Hubbell Cat. No.</u>
50 Amp., 250 V/1	7962
60 Amp., 250/3	8460

- 2.05 PLATES

- A. Plates for flush devices shall be Specification Grade white with a smooth plastic finish. Plate cover shall match device color.
- B. Plates for devices in surface fittings shall be cadmium plated steel surface covers. Covers to fit without overlap and have round corners.
- C. Plates for heavy duty outlets and for specialty switches and outlets required for auxiliary systems shall be stainless steel.
- D. Plates for future system outlets shall be blank covers matching device plates in quality and finish.
- E. Weatherproof plates shall be die cast aluminum, gasketed with single lift cover suitable for GFI receptacle.
- F. Cover plate Manufacturer shall be Sierra or device Manufacturer.

PART 3: EXECUTION

3.01 INSTALLATION

- A. Unless noted otherwise, Contractor shall center outlets in wall or in other architectural features. Switches shall be installed adjacent to strike side of door openings. Devices and cover plates to be absolutely plumb and horizontal with no visible gaps around edge of plates. Install bottom of box at nearest block joint. Coordinate all box locations with the Architect.
- B. Install cover plates on all devices.
- C. Install galvanized, blank, screw or hinge covers on all junction boxes.
- D. Install gang plates on gang devices.
- E. Connect green insulated ground wire to each device grounding terminals. Wire to panel ground bar.
- F. All weatherproof outlets shall include ground fault interrupting type receptacle.

3.02 COORDINATION

- A. Contractor shall verify conductor ampacity/voltage and plug configuration of equipment being connected to insure proper final connection.

END OF SECTION-26 03 01

SECTION 26 05 13
MEDIUM-VOLTAGE CABLES

PART 1: GENERAL

- 1.01 DESCRIPTION
 - A. Provide conductors for secondary feeder and branch circuit wiring, special system wiring, and control wiring.
- 1.02 QUALITY ASSURANCE
 - A. Underwriters' Laboratories (UL).
- 1.03 ACCEPTABLE MANUFACTURERS
 - A. General Electric, Pirelli, Carol, Rome Anaconda, Liqui-Tite, or Canadian Wire.
- 1.04 WIRING OPTIONS
 - A. See electrical drawings for wiring methods and permitted wires. Provide American Gage Wire size as indicated in electrical panel.

PART 2: PRODUCTS

- 2.01 WIRE AND CABLE
 - A. All conductors to be color-coded in accordance with standard practice.
- 2.02 SPECIAL SYSTEM WIRING
 - A. Refer to System Section for description of required wire or cable.
- 2.03 A. Flexible cords for short connections to equipment shall be 600 volt, heat resistant, rubber insulated, portable cable with neoprene jacket, UL type "SO" on "STO". Cords to be extra flexible stranded copper with ground conductor.
- 2.04 SPLICES
 - A. Splices in number #10 AWG and smaller wire to be made with Minnesota Mining Manufacturing Co. insulated "Scotch locks", Ideal Co. "Wing-nut", T & B Type "PT" connectors, or with mechanically crimped sleeves as manufactured by T & B or Ideal Company, which shall be insulated with pressure sensitive electrical tape equal to Minnesota Mining and Manufacturing Co. "Scotch 88".
 - B. Splices in #8 AWG and larger to be made with pressure type mechanical connectors and insulated with two layers of insulating putty and two layers of "Scotch 88" tape.

PART 3: EXECUTION

- 3.01 WIRING INSTALLATION
 - A. Free ends and loops at boxes and enclosures are to be pushed back in box and protected by blank covers or other means until the interior painting and decorating work is completed. Wires #8 AWG and smaller to be hand pulled. Use UL-listed pulling lubricants. Refer to Section 26 01 26 for testing of conductors.
 - B. Leave at least six (6) inches of free conductor at all outlets, except where conductors are intended to loop without joints through outlets for fixtures or wiring device hookups.
 - C. The following wire color code shall be used as applicable to this Project:

<u>WIRE</u>	<u>120/240 VOLT</u>
Active	Black
Neutral	White
Ground	Green

- D. Branch circuits to be connected as numbered on Drawings.
- E. Test and permanently tag by circuit number each conductor wire, except neutrals, in panelboard gutter before connecting to panelboard. Numbered adhesive tapes may be used.
- F. Use deoxidant cleaner on all wiring connections.
- G. Tag and identify all conductors entering or leaving terminal wiring strips in special system enclosures or control cabinets.
- H. Motor control, low voltage and line voltage conductors shall be installed in separate conduits.
- I. Low voltage wiring may be run exposed above accessible ceilings. All wiring run in air handling plenums shall be UL 910 listed. Wiring shall be run neatly, perpendicular to walls, away from piping, ductwork, or other construction likely to damage the insulation, and securely clipped or fastened directly to the building structure. Unless otherwise noted, all low voltage wiring shall be installed in conduit at the following locations:
 - 1. Where wiring rises up inside walls.
 - 2. Where wiring is run below floor.
 - 3. Where wiring is run through or above inaccessible ceilings or in chases.
- J. All wiring installed in air handling plenums shall either be UL 910 listed Teflon-coated, or entirely in conduit.
- K. Wiring installation shall be acceptable to the Local Code Authority having jurisdiction.

END OF SECTION-26 05 13

SECTION 26 05 26
GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS

PART 1: GENERAL

1.01 DESCRIPTION

- A. Contractor shall ground the electrical service and distribution system, including all equipment, raceways, receptacles and motors.
- B. Ground metering equipment and base in accordance with the requirements of the Power Company.

1.02 QUALITY ASSURANCE

- A. National Electrical Code Article 250.

1.03 GROUNDING ELECTRODES

- A. Pole-Mounted Lights
5/8 inch diameter x 8 feet long copper clad ground rod.
- B. Building Electrical Service
 - 1. 5/8 inch diameter x 10 feet long copper clad ground rod at location indicated on the Drawings. Provide parallel ground rods as required to achieve a ground impedance no greater than 5 ohms.
- C. All connections shall be Cadweld.

1.04 GROUNDING CONNECTORS

- A. All grounding connections in Main Service equipment and buried grounding electrodes to be Cadweld or Burndy "Thermoweld".
- B. Run main service grounding conductors in rigid non-metallic conduit.
- C. Conduits entering a switchboard or similar enclosure through concrete or requiring a ground bond shall be bonded with the use of O.Z. type "BLG" bonding bushings and the same size conductor as the equipment grounding conductor. All other connections to pipes or conduits shall be made by the use of one of the following clamps:
 - 1. Burndy "GAR" type.
 - 2. Penn-Union "GPL" type.
 - 3. O.Z. "ABG" or "CG" type.
 - 4. Anderson GC-111 type.

1.05 CONDUIT AND RACEWAY SYSTEM GROUNDING

- A. The entire metallic conduit system shall be electrically continuous with locknuts cutting through paint on enclosures. Where reducing washers are used and where concentric or eccentric knockouts are not completely removed, bonding bushings shall be required.

1.06 EQUIPMENT GROUNDING CONDUCTOR

- A. An equipment grounding conductor (green ground wire) shall be included with all circuit conductors over 100 volts. Size in accordance with NEC table 250-95, except not smaller than #12 AWG for power and lighting circuits and #14 AWG for control circuits.

1.07 NEUTRAL CONNECTION

- A. The grounding conductor shall be connected to the neutral in only two locations - on the supply side of the service disconnect means and on separately derived systems. Because the ground is lost through the transformer, it must be re-established by use of a grounding conductor which connects the transformer secondary neutral point to the preferred ground connection.

- B. The neutral of the service entrance shall be bonded to the enclosure by a main bonding jumper. The neutral of the transformer of a separately derived system shall also be bonded by a main bonding jumper to the transformer enclosure.

1.08 WIRED GROUND CONNECTIONS

- A. Because the conduit system can provide a lower impedance path than the wired equipment grounding system, the wired equipment grounding system shall connect to the metallic conduit ground system in every accessible panel, junction box, pull box, fixture housing, motor terminal box, and other metallic enclosures as follows:
 1. Lighting and power panels shall have a ground assembly, that has the same number, size and type of anti-turn solderless lugs that the neutral assembly has. This grounding assembly shall be factory bonded to the panel tub and shall have the screwdriver slots facing the front of the panel.
 2. Junction and pull boxes shall be bonded by the use of UL listed grounding screws or lugs. If there are more than four ground wires entering a box, a ground assembly of the same type used for panelboards shall be bonded securely to the enclosure. Note that NEC requires that an equipment grounding conductor passing through any accessible location be bonded to that enclosure. Self-tapping sheet metal screws may be used.
 3. In enclosures not requiring a ground assembly, all ground conductors entering an enclosure shall be connected together and a pigtail the size of the largest conductor bonded to the enclosure with an attachment used for no other purpose.
 4. General use outlet boxes shall be bonded by the use of a ground screw in the threaded ground tap.
 5. Motor terminal boxes shall be grounded by the use of a manufacturer-supplied ground lug or by drilling and tapping a hole for a ground screw. Remove paint prior to making the connection.
 6. Lighting fixtures shall be grounded by the use of a pigtail fastened on bare metal that is free of paint.
 7. Use equipment grounding conductors on all convenience outlets. Outlet box attachment screws shall not be used as a ground.
 8. In any enclosure that has a grounding assembly, all ground wires shall be connected to the assembly. Provide connection lugs or terminals for the ultimate number of wires to be connected to the assembly. Use a separate connection for each wire.
 9. Paint and any other material shall be removed from ground connections so the connection is metal to metal.

1.09 WATER LINE

- A. Metallic water service piping shall be bonded to ground system.

1.10 GAS LINE

- A. Metallic gas piping shall be bonded to ground system.

END OF SECTION- 26 05 26

SECTION 26 05 33
RACEWAY AND BOXES FOR ELECTRICAL SYSTEMS

PART 1: GENERAL

1.01 DESCRIPTION

- A. Provide boxes for devices, lighting fixtures, motors and equipment connections, systems equipment connections, and special outlets. Provide pull boxes where more than (3) 90 degree bends are required or if conductors are pulled farther than 100 feet.

1.02 QUALITY ASSURANCE

- A. Underwriters' Laboratories (UL) Label.

1.03 ACCEPTABLE MANUFACTURERS

- A. Raco, Steel City, National Electric or Crouse-Hinds.

PART 2: PRODUCTS

2.01 BOXES

- A. All outlet boxes to be galvanized pressed steel of standard knockout type. Covers to be secured with screws.
- B. Lighting outlet boxes to be standard 4" octagonal, 1-1/2" minimum deep boxes with 3/8" fixture mounting stud. Outlet boxes having more than two conduits, or when 3/4" conduit is used, to be standard 4" square boxes 1-1/2" deep or deeper as might be required to accommodate the wiring contained therein.
- C. Flush device boxes in masonry walls to be masonry boxes designed for the purpose, or 4 inch square boxes with raised covers designed for masonry.
- D. Wiring device boxes for surface conduit work and those located in potentially damp areas to be FS series cast boxes. Exterior exposed boxes to be weatherproof or airtight with gaskets.
- E. Where outlet boxes are to be cast in concrete slabs, they shall be boxes designed for concrete installation.
- F. Flush device boxes in plaster or drywall construction to be 4 inch square, 2-1/8" deep boxes with plaster covers or gangable 2-1/2" deep boxes. Shallow 1-1/2" deep gangable boxes may be used only in demountable partitions and in other walls too thin for standard depth boxes.
- G. Boxes shall be large enough to accommodate the size and number of conduits secured thereto and the number and size of wiring conductors.
- H. All fittings, covers and hardware shall be galvanized steel.

PART 3: EXECUTION

3.01 INSTALLATION

- A. Install plaster rings where boxes are concealed in drywall.
- B. All boxes to be rigidly supported from building structure independent of the conduit system. Boxes to be screwed to studs; no "caddy clips" will be permitted. Boxes cast into masonry or concrete are considered to be rigidly supported.
- C. Flush boxes must finish within 1/4" of surface of non-combustible materials. Boxes shall not project beyond finished surfaces.

- D. Flush-mounted fixtures in ceilings to have branch circuit conduit terminated in a junction box above ceiling, but accessible through ceiling opening and located at least one foot away from the fixture. Use 3/8" flexible steel conduit connection between junction box and fixture housing.
- E. Boxes installed in masonry walls shall be placed with bottom of box at the nearest block joint. Coordinate with the Architect.

END OF SECTION-26 05 33

SECTION 26 05 34
CONDUIT AND FITTINGS

PART 1: GENERAL

1.01 DESCRIPTION

- A. Unless otherwise noted, all conductors shall be enclosed in a continuous, grounded raceway system.
- B. The conduit system shall be made mechanically tight and electrically continuous throughout. Conduit system to be grounded at the service entrance.

1.02 QUALITY ASSURANCE

- A. Underwriters' Laboratories (UL) Label.
- B. ANSI C80 Specification.
- C. Use galvanized steel conduit or Schedule 40 PVC. No aluminum conduit is permitted.

1.03 MINIMUM SIZE

- A. 1/2 in.; 1 in. min. below slab or underground.

1.04 ACCEPTABLE MANUFACTURERS

- A. Steel Conduit
Steel Duct, Omega, or approved equal.
- B. Non-Metallic Conduit
Carlson, Certainteed, Condux, or National Pipe.

PART 2: PRODUCTS

2.01 CONDUIT SYSTEMS

- A. Use electrical metallic tubing, intermediate metal conduit, or rigid steel conduit, as specified below:
 - 1. Threaded rigid or intermediate conduit is required under the following conditions:
 - a. Where conduit is exposed to physical damage, or exposed within 8 feet of finished floor, or run in concrete or under slab or run in exterior walls.
 - b. Where vertical drops are made to equipment in open space. The vertical conduit shall be rigidly supported from the equipment, extend a minimum of 10 feet above floor level, and be not less than 1" in diameter.
 - 2. Steel thin-wall EMT may be used elsewhere in interior construction, where rigid or intermediate is not required.
 - 3. Schedule 40 PVC conduit may be installed below the ground floor slab for power feeders (#6 Awg. and larger); PVC conduit must terminate below the slab and connect to rigid steel riser conduit.
- B. Final connections to motors and equipment subject to vibration or moisture shall be made with flexible steel conduit, 18" to 24" long, with PVC jacket and containing copper phase and ground conductors. Connections between recessed lighting fixtures and junction boxes may be installed using flexible steel conduit not over 60" long.
- C. Wiring for exterior lighting may be direct burial on 4" deep sand bed. Use 1" Schedule PVC without concrete encasement under paved areas. Install 24" deep with 6" layered backfilling.
- D. Underground electrical service shall be run in non-metallic conduits pitched a minimum of 4" in 100 ft., where feasible for drainage. Conduits shall be encased in a minimum 3" concrete envelope with

7-1/2" spacing between conduits. Encased conduit shall be Schedule 40 PVC. All concrete shall be by General Contractor.

- E. Metallic surface raceway system shall be complete with boxes, fittings, elbows, terminations, and all mounting hardware. Furnish Wiremold or equal National Electric.

2.02 CONDUIT FITTINGS

- A. All conduit and EMT fittings to be galvanized malleable iron or steel. Connectors and couplings to be steel, threaded, set screw or compression type, concrete tight. Conduit bodies to be malleable iron, threaded for heavy wall conduit and compression type for EMT, with cadmium finish and cadmium plated sheet steel covers. Provide neoprene cover gaskets for conduit body covers exposed to the weather.

2.03 BRIDLE RINGS

- A. Provide Diamond steel bridle rings for supporting low voltage cable above ceiling or below joist space.

2.04 WIREWAYS

- A. Surface wireways shall be rigid, heavy gauge, steel raceways with hinged covers and with baked enamel finish. All necessary blank sections, fittings, tees, elbows, junction boxes, adapters, and hangers shall be provided. Surface wireway supports shall be spaced not more than 5'-0" o.c. Closer support spacing shall be used if loading so requires. Wiremold, National Electric, or Hoffman.

PART 3: EXECUTION

3.01 GENERAL INSTALLATION

- A. Square cut all conduit ends, ream and file; clean and cap all empty conduits. Cut at least 5 threads and draw up tight.
- B. All conduits shall be concealed wherever possible. Exposed conduit will be permitted in electric and mechanical rooms and in similar unfinished spaces, and overhead in areas without dropped ceilings. Conduit to be adequately supported from elements of the building using suitable straps, clamps and hangers and shall not rest nor be supported from suspended ceilings, or piping or ductwork. Conduits shall be run perpendicular to walls and parallel to floors and ceilings. Secure conduits every 10 feet and within 3 feet of every bend, box, fitting or coupling.
- C. Lay out conduit system to avoid crossing building expansion joints insofar as possible. Where crossings are necessary, use O.Z. type "AX: or "TX: expansion fittings.
- D. Exposed conduits rising from floor to surface-mounted panels and boxes to have a 3" high concrete curb encasing the conduits at the floor line.
- E. Do not use field fabricated bends containing indentations or elliptical sections. All conduit bends shall be done with an approved bending device. No more than (3) 90 degree bends will be allowed in any conduit run. Install pullboxes at 100 feet on center or where more bends are required.
- F. Install bushings on all conduit ends. Bushings smaller than 1-1/2" to be all metal with formed radius to prevent insulation damage. Bushings 1-1/2" and larger to be insulating type constructed of metal insert and bakelite plastic, molded to the metal insert, as manufactured by O.Z., T & B or Appleton.
- G. The use of running threads, either concealed or exposed, is prohibited. Use split coupling equal to O.Z. Type, SP or Erickson.
- H. All threaded conduits entering panelboards, pullboxes or outlet boxes shall be secured by galvanized locknuts (inside and outside) and insulated bushings.

- I. Install and identify nylon pull line or #16 galvanized iron wire in all empty conduits.
- J. All conduits to be continuous from outlet to outlet, and installed complete before pulling conductors. Swab conduits free of dirt, grease and moisture before pulling conductors.

3.02 SPECIAL CONDUIT INSTALLATION

- A. All conduits entering or leaving refrigerated spaces shall be sealed to prevent air circulation and condensation.

3.03 UNDERGROUND CONDUIT INSTALLATION

- A. Top of primary or secondary electrical service duct bank envelopes to have a minimum of 36" earth cover to finished grade except as is necessary for utility crossings. DUCTS SHALL CROSS BELOW GAS LINES WITHOUT EXCEPTION.
- B. Exterior conduit systems for secondary (non-service) feeders and branch circuits shall be installed at least 24" below finished grade minimum. Bottom of trench to be free of stones and sharp objects.
- C. Seal all conduits entering building from underground conduit with Johns-Manville "Ducseal" packed around cables.
- D. No conduits larger than 1-1/4" may be installed in concrete slab construction. Conduits in slabs shall be rigid and installed below wire mesh (exterior) and reinforcing steel (interior).
- E. All empty underground PVC conduits shall have a tracer wire installed above to permit later detection of their location.

END OF SECTION-26 05 34

SECTION 26 24 16
PANELBOARDS

PART 1: GENERAL

- 1.01 DESCRIPTION
 - A. Provide factory-assembled panelboards having main lugs and branch breakers as shown on the Drawings.
 - B. Minimum interrupting capacity shall be 10,000 amperes RMS.
- 1.02 QUALITY ASSURANCE
 - A. UL-50, 67, and 489.
NEMA PB-1, 1977.
NEMA AB-1, 1978
ANSI C 33.38.
Federal W-P-115b, W-C-375B.
- 1.03 RATINGS AND CAPACITIES
 - A. Refer to Drawings for voltage, ampacity and breaker requirements.
- 1.04 ACCEPTABLE MANUFACTURERS
 - A. Design Base
Square D
 - B. Other Manufacturers
ITE, Crouse-Hinds, General Electric or Westinghouse.

PART 2: PRODUCTS

- 2.01 PANELBOARDS
 - A. Dead Front, steel cabinet, baked enamel finish, concealed hinges, flush lock, typed circuit directory, distributed phase sequence bussing, separate ground and neutral bars, lugs and adapters suitable for feeder sizes (CU/AL), thermal magnetic circuit breakers, tripped circuit indicator, 20 ampere switching breaker rating, lock-on straps as required.
 - B. Furnish bolt-on breakers.
 - C. Power and Lighting Panels
Square D Type "NQOD" or "NEHB".
 - D. Size
20" wide x 5 3/4" deep.
 - E. For double and triple tub panels, furnish feed-thru lugs.

PART 3: EXECUTION

- 3.01 INSTALLATION
 - A. Furnish directory frames inside the door of each panel which shall contain a correctly typed directory card properly filled out to correspond to the circuit numbers on the Drawings. If room numbers assigned by the Owner do not match the room numbers on the Drawings, both sets of room numbers must be cross referenced and identified in the panel directory.
 - B. Top of panelboard cabinets (box) to be installed at 6 feet above floor unless otherwise noted on Drawings.

- C. Surface-mounted panelboards to be mounted on a 3/4" thick painted plywood mounting board. Size required for proper installation with minimum size noted on Drawings.
- D. All flush panelboards to have five (5) 1" spare conduits rising and turning out of the wall above the ceiling line for future use. Wall recess shall be provided by General Contractor. This Contractor shall provide fire resistant backing as required to maintain wall fire resistance rating.
- E. Coordinate all panel locations with other Contractors.

END OF SECTION-26 24 16

SECTION 26 28 13
FUSES

PART 1: GENERAL

- 1.01 DESCRIPTION
- A. Provide disconnect switches as required for motors and equipment items.
 - B. Provide fuses for switches, combination starters or other circuits as indicated.
 - C. Provide overcurrent protection for equipment and wiring as required by Article 240 of the National Electrical Code.
- 1.02 QUALITY ASSURANCE
- A. Switches
NEMA Standard KS1-1975, UL-98, ANSI-333.64.
 - B. Fuses
UL-198.
- 1.03 RATINGS AND CAPACITIES
- A. Refer to Drawings for ampacity, number of poles, voltage rating and NEMA Type.
- 1.04 ACCEPTABLE MANUFACTURERS
- A. Switches
Square D, Crouse-Hinds, Gould-ITE, General Electric or Westinghouse.
 - B. Fuses
Bussman or Reliance.

PART 2: PRODUCTS

- 2.01 DISCONNECT SWITCHES
- A. NEMA Heavy Duty Type HD, steel enclosure, dual cover interlocks, horsepower-rated plated contacts, indicating handle, provisions for electrical circuit interlock and padlocking.
 - B. Provide Class R rejection fuse clips if fuses are noted on the Drawing or required by Code.
 - C. Toggle-operated disconnect switches equal to Square D Class 2510 will be acceptable for unfused loads less than 16 amperes.
- 2.02 SWITCH FUSES
- A. General
NEMA Class RK-1, dual element, current-limiting, 200,000 ampere RMS symmetrical interrupting capacity.
 - B. 600 Ampere and Below
 - 1. 250 Volt: Buss Type FRN-R, KTN-R or LPN-R.
 - C. 601 Ampere and above: Buss Type KRP-C "Hi-Cap".

PART 3: EXECUTION

- 3.01 SWITCH INSTALLATION
- A. Switch must be NEMA Type approved for the environmental conditions prevailing.

- B. Locate switches to provide access and minimum 3 feet clearance in front.
- C. Coordinate location with other Contractors.

3.02 INSTALLATION OF FUSES

- A. Coordinate fuse selection with the ampere draw and type of load being served.
- B. Install painted plywood board with (3) spare fuses for each size rating in fuse clips, fuse pullers and a framed typewritten list of fuse sizes. Install adjacent to switchboard.

END OF SECTION-26 28 13

SECTION 26 51 13
INTERIOR LIGHTING FIXTURES, LAMPS AND BALLASTS

PART 1: GENERAL

1.01 DESCRIPTION

- A. Provide lighting fixtures as shown on the Drawings, complete with ballasts, frames, canopies, hangers, straps and trim, as required for a complete installation.
- B. Coordinate fixture mounting type with ceiling type listed on the Architectural Room Finish Schedule.

1.02 QUALITY ASSURANCE

- A. Underwriters' Laboratories (UL) Label.
- B. CBM/ETL Certification.

PART 2: PRODUCTS

2.01 LIGHTS

- A. Interior Downlight: Provide DWR6-15W-830-D-WH by Eiro Lighting, 6-inch diameter, 15 W (16W max.) 1,100 lumens, 3000K, wet rated dimmable downlights.
- B. Exterior Grade Downlight: Provide DWR6-15W-830-D-WH by Eiro Lighting, 6-inch diameter, 15 W (16W max.) 1,100 lumens, 3000K, wet rated dimmable downlights
- C. Vanity Light: 5200BK Vanity Light by Maxim, 16W, 3000K, 24-inch long, omni directional vanity light.
- D. Surface Mounted Light: Provide PLT-90543, 90W, 4000K, 11750 Lume, 8-foot-long damp rated, LED Strip Lighting
- E. Waterproof LED Emergency Light: PLT-50332, 90-minute battery backup with injection molded thermoplastic ABS housing and polycarbonate cover, UL 94V-0 flame rated.
- F. Emergency Light/ Exit Light Combo: PLT-50297, 2W, 90-minute battery back up with thermoplastic housing, UL 94 V-0 flame rated, damp rated, with lights.
- G. Exhaust Fan and Light: Provide BEL8 Room side Series Fan and Light by Broan, 80 CFM, 12.7 W LED light, 3500 K, UL listed, 26 ga. Constructed steel housing.
- H. Smoke Detector: Provide30CUA10-V Smoke + CO Alarm by Kidde, conforming to UI 217 and UL 2034, electrochemical CO detection, Photoelectrical smoke detection, interconnected
- I. Carbon Monoxide Alarm: Provide30CUA10-V Smoke + CO Alarm by Kidde, conforming to UI 217 and UL 2034, electrochemical CO detection, Photoelectrical smoke detection, interconnected

PART 3: EXECUTION

3.01 INSTALLATION OF FIXTURES

- A. Fixtures to be securely mounted to elements of the building structure or suspended therefrom, such that fixtures will be square, plumb, and rigid, will not fall or sag, and will not cause the suspended ceiling system to sag. Flush fixtures to be furnished with installation provisions compatible with the suspended acoustical system furnished and installed. This Contractor shall verify the actual suspension system to be used and make all adjustments in fixture installation provisions occasioned thereby. Provide additional hanger supports as required. Use caddy clips to secure fixture to grid.

- B. All fixtures shall attach to outlet boxes, which shall be rigidly supported to the structure independent of the ceiling suspension system. Provide an additional support to the ceiling suspension system by means of hanger bars between tees as required.
- C. Fixtures to be cleaned of dirt both inside and outside. No fixtures to be installed until painting work is completed.
- D. Damaged, deformed or defective ballasts and fixtures shall be replaced.
- E. Flush fixtures with light spilling between frame and ceiling to have felt gasket installed between trim and ceiling.

3.02 INSTALLATION OF LAMPS

- A. Install lamps in all fixtures installed under this Contract in accordance with the Fixture Schedule on the Drawings.
- B. Only the number of lamps required to provide adequate lighting for work yet to be done, in each area, and acceptable temporary lighting elsewhere shall be installed by Contractor at the time lighting fixtures are installed and tested. Remaining lamps to be installed not more than 10 days prior to date of substantial completion. Replace lamps used for temporary lighting with new lamps not more than 10 days prior to date of substantial completion.
- C. All lamps to be in working order at the time of date of substantial completion of the work. Contractor shall replace all defective lamps with new lamps until the work is finally accepted.

3.03 CEILING LOCATION

- A. Contractor shall coordinate the location of all lighting fixtures with the Architectural reflected ceiling plan, diffusers, and grilles.

END OF SECTION-26 51 13

SECTION 31 23 16.13
TRENCHING

PART 1: GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SUMMARY

- A. Unless otherwise indicated, water, sewer and storm lines are to be bedded.
- B. Unless otherwise indicated, gas, and electric lines are to be bedded.
- C. See 2.01 below for concrete encasement.
- D. All excavation and backfill work shall comply with requirements of the latest OSHA Standards.
- E. In addition to the requirements of this Section, comply with the requirements of Section 31 00 00.
- F. Excavation, backfill, surface repair and traffic control within the public right-of-way shall be in accordance with governing agency rules and regulations. Any fee for activity in the roadway shall be included in this Contract so that no additional cost will accrue to the Owner.
- G. Remove unusable or surplus excavated material from the site. Any usable surplus excavated material shall be deposited where directed by the General Contractor.
- H. The bedding and backfill requirements listed in this Section represents a minimum requirement. If City or State requirements are in excess of listed requirements, these requirements will also apply and must be followed.
- I. Locate existing underground utilities, if any, in the areas of new Work. If utilities are to remain in place, provide adequate means of protection during earthwork operations. Should uncharted, or incorrectly charted piping or other utilities be encountered during excavation, notify the Architect's Representative immediately for instruction before proceeding. Cooperate with other Trade Contractors in operation. Repair damaged utilities to satisfaction of the Utility Companies and the Architect at no cost to the Owner.
- J. All public and private service, pipes, conduits, and appliances uncovered due to work of this Contractor, whether within or without the property lines, shall be suitably supported, protected, and maintained in operation and shall be protected against settlement when excavations are refilled.
- K. The Contractor shall repair and restore shrubs, trees, sodded areas, paving, streets, curbs, and walks to match existing in the area where excavations are made, if that work has already been done or is in existing to remain conditions. Contractor shall hire the Landscape Contractor to do this work, or make other arrangements, which are acceptable to the Architect.
- L. Coordinate timing of excavation where required by Code, or by authority having jurisdiction, or where otherwise specified herein.
- M. Provide pipe bedding for all sewers outside of building to within 5 feet of the building and for storm lines connecting to exterior downspouts.
- N. Obtain approval from Architect for bearing conditions.

- O. Whenever, in the opinion of the Architect, the soil is unsuitable for supporting piping, provisions for proper foundations will be made, and the Contract price will be adjusted accordingly.
 - P. Soils reports are available for review at the office of the Architect or are bound in the Project Manual.
 - Q. Bidders are advised to investigate existing soil conditions. Contractor may refer to existing soil reports; however, rock, soft shale and large boulders may be encountered during excavation. Contractor may be entitled to additional compensation if hidden soil conditions are significantly different than what is indicated in the soils reports. Coordinate with Architect.
- 1.03 REFERENCE DATUM
- A. All dimensions or elevations are relative to finished grade, (not existing grade).
- 1.04 QUALITY ASSURANCE
- A. Ohio Department of Transportation (ODOT) "Construction and Material Specifications".
 - B. State and Local requirements.
 - C. OSHA requirements.

PART 2: PRODUCTS

2.01 BACKFILL

- A. Typical Backfill Conditions
 1. Piping where bedding is not specified or required by Code: Previously excavated material.
 2. Other piping outside building: Pea gravel from 4" below piping to 12 in. minimum above pipe, then previously excavated material.
 3. Piping under drives and parking lots, playground pavement and walks: Pea gravel from 4" below piping to 12 in. minimum above pipe, then previously excavated material; if pipe is less than 2 ft. below grade to top of pipe, provide 6" concrete encasement.
 4. Piping in trenches cut through rock, tamped backfill shall be used for at least 6 in. under and around pipe and for at least 2 ft. above the pipe.
 5. Concrete pad bases: Granular material.
 6. Piping under footings and foundations: Concrete encasement.
 7. Underground grease interceptors: Pea gravel.
- B. Materials
 1. Crushed stone: (ODOT Item 304).
 2. Pea Gravel: 1/8 in. minimum to 3/4 in. maximum diameter.
 3. Sand: Clean, dry, coarse or medium.
 4. Washed gravel: 3/4 in. size.
 5. Concrete encasement: Material conforming to Division 3 requirements.
- C. Prohibited Materials
 1. Material used for backfill may not contain large rocks (over 2 in.), building materials, masonry debris, cinders, rubbish, wood, or other material subject to decay, or any material which may cause damage to piping or ductwork.
 2. Frozen earth shall not be used for backfill.

PART 3: EXECUTION

3.01 EXCAVATION

- A. Cut existing street, drives, sidewalks, curbs and parking lot paving and other permanent hard surfaces which are encountered in the path of the excavation.

- B. Excavations shall be open cut from the surface. No undercuts permitted, except where specifically directed by the Architect.
- C. Hold trench width to a minimum.
- D. Do not excavate utility trenches parallel to building or column footings closer than 5 ft. except by approval of Architect. When parallel trenches are required deeper than the building footings, the horizontal distance from the footing shall be equal to, or greater than, 1-1/2 times the vertical distance below the footing, but in no case shall the horizontal distance be less than 5 ft., except with the approval of the Architect.
- E. Bedded Piping
Mechanical excavation shall extend 4 in. to 6 in. below and 6 in. above final elevation of pipe. In trenches cut through rock, mechanical excavation shall extend 6 in. below and around final elevation of pipe.
- F. Unbedded Piping
Mechanical excavation shall be held to 4 in. above final elevation. The remainder shall be trenched by manual excavation, so that piping is fully supported on undisturbed soil. Shoring of piping in trench will not be allowed.
- G. Remove from site, excess materials unsuitable for fill.
- H. Whenever the soil is found to be unsuitable for supporting piping, provisions for proper foundations will be made, and the Contract price adjusted accordingly.
- I. Coordinate timing of excavations in advance with other Contractors, the Architect, and the Owner.

3.02 PROTECTION

- A. Maintain in place adequate barricades, guards, planking, plating, signage, warning lights, etc., at and around excavations.
- B. Contact the Ohio Utilities Protection Service (1-800-362-2764) well in advance of the start of any excavation to determine if any of the utility companies or other agencies have underground utilities in or near the project area.
- C. Contact local water and sewer departments, gas company, electric company, telephone company, etc. regarding the possibility of encountering existing utilities. The integrity of all existing utilities shall be maintained.
- D. Existing utilities encountered during excavation work shall be protected in a manner acceptable to the utility owner. Any utilities that are damaged shall be repaired or replaced by this Contractor to the full satisfaction of the utility owner.
- E. Provide and maintain bracing, shoring, sheet piling or sheathing as required to safely support walls of the excavation. Barricade and maintain in a safe condition until backfilling is completed.
- F. Provide and operate pumping equipment to keep excavation free of water at all times.
- G. Protect excavation from frost by covering and heating as necessary.
- H. Install a continuous 4 in. wide vinyl plastic tape, with embossing, identifying buried service, 18 in. above pipe elevation and on pipe centerline, during backfilling operation on new outside piping. Tape equal to Seton.

3.03 BACKFILLING

- A. Backfill only when exact location of lines and equipment have been recorded and all tests and inspections have been completed.
- B. Do not place fill material on frozen ground, or use fill in a frozen condition.
- C. Deposit fill in layers on thickness required by the nature of the soil or as directed, but not exceeding 6 in. compacted thickness, to a point 24 in. above pipe, and 12 in. thickness above this point. Compact each layer to a uniform solid mass. Place fill in horizontal layers, beginning with lowest areas and building up until entire area to be filled is at a uniform elevation. Compaction shall be a minimum of 90 lbs./cu.ft. laboratory dry weight. Under slabs, pavement and walks compact in 6" layers for full depth to meet the requirements of ODOT 203 for embankment.
- D. Bedded Piping
Pipes shall be bedded in pea gravel, minimum 4 in. below pipe, 6 in. above pipe, according to Ohio Specifications CM 310.02, Grading "A".
- E. Unbedded Piping
If excavation should go deeper than required, fill with bank run gravel and tamp firmly to achieve final elevation. Wherever material is encountered in the bottom of the excavation that is not capable of supporting piping properly, remove such material to depth required. Backfill with crushed stone, and tamp firmly to achieve final elevation.
- F. Control moisture content of compacted fill to insure maximum density either by adding water and working soil prior to compacting.
- G. Use machine tampers around perimeter of foundation walls or areas inaccessible to large equipment and rollers. Do not use rolling equipment in areas adjacent to foundations.
- H. Concrete encasement shall extend 6 in. around piping and for 1 ft. each side of footings or foundations and shall extend up to footing bearing elevation. Any additional concrete required because of excessive excavation beyond amount listed around pipe must be paid for by Sub-Contractor.
- I. Backfill after concrete encasement has hardened. Clean around pipe before encasement.
- J. Where excavations have not been properly filled or where settlement occurs, they shall be refilled, compacted, smoothed off, and finally made to conform to the final grade.

3.04 EXCAVATION SAFETY

- A. Excavation and trench wall supporting, shoring, sloping, cribbing, stepping of excavations, and other steps required for safety shall be in strict accordance with OSHA and Local requirements.
- B. Stability of Excavations
Slope sides of excavations to comply with OSHA and Local Code Authority having jurisdiction. Shore and brace where sloping is not possible because of space restrictions or instability of material exposed.
- C. Maintain sides and slope of excavations in a safe condition until completion of backfilling.
- D. Shoring and Bracing
Provide materials for shoring and bracing such as sheet piling, uprights, stringers, and cross-braces, in good serviceable condition. Maintain shoring and bracing in excavations regardless of the time period excavations may be open. Carry down shoring and bracing as excavation progresses.
- E. Protection of Persons and Property

Barricade open excavation occurring as part of this Work and post with warning lights. Erect warning lights as required by OSHA and Local Code Authority. Consult with Architect regarding additional requirements.

- F. Protect existing structures, utilities, sidewalks, pavements, and other facilities which are to remain, from damage caused by settlement, lateral movement, undermining, washout and other hazards created by earthwork operations.
- G. Refer to the "Manual of Accident Prevention in Construction", published by the Associated General Contractors of America, and safety regulations of the appropriate State Agency.

END OF SECTION-31 23 16.13

SECTION 31 31 16
TERMITE CONTROL

PART 1: GENERAL

- 1.01 GENERAL
 - A. The General and Supplementary Conditions, Special Conditions and applicable portions of Division 1 of these Specifications are a part of this Section.
- 1.02 STANDARDS
 - A. FHA and EPA Regulations for Termite Soil Pretreatment.
- 1.03 GUARANTEE
 - A. Five (5) year pretreatment guarantee with transferable or continuing contract.
- 1.04 SCOPE OF WORK
 - A. Work of this Section includes all materials, labor and equipment necessary to provide an approved Ground Treatment Termite Control Service in the applicable areas of construction.

PART 2: PRODUCTS

- 2.01 TERMITE CONTROL
 - A. Treatment to be an approved chlorinated hydrocarbon in .5% strength similar to "Aldrin".
 - B. Treatment to be inside masonry walls, piers, etc., in backfill and crawl space soil, under all slabs and as required by E.P.A., in quantities as required.

PART 3: EXECUTION

- 3.01 GENERAL
 - A. Product system to be installed by a manufacturer certified installer per manufacturer's instructions.

END OF SECTION-31 31 16

SECTION 32 17 23
PARKING LOT MARKINGS

PART 1: GENERAL

- 1.01 The General and Supplementary Conditions, Special Conditions, and the applicable portions of Division 1 of these Specifications are a part of this Section.
- 1.02 SECTION INCLUDES
 - A. Painted markings applied to asphalt pavement.
- 1.03 QUALITY ASSURANCE
 - A. The work of this section shall be performed by a company which specializes in pavement markings with a minimum of five years' experience.
- 1.04 SUBMITTALS
 - A. Product Data: Provide product data for each product to be used.
 - B. Shop Drawings: Provide a shop drawing indicating pavement markings, colors, lane separations, dimensions of spaces and no park area striping, lettering, location of accessible parking symbol and all other pertinent information for a successful layout of the parking lot.
- 1.04 PROJECT/SITE CONDITIONS
 - A. Proceed with pavement markings only on clean, dry surfaces and a minimum ambient or surface temperature of 40 degrees F and not exceeding 95 degrees F.

PART 2: PRODUCTS

- 2.01 ACCEPTABLE MANUFACTURERS
 - A. Provide from one of the following manufacturers.
 - 1. Benjamin Moore
 - 2. PPG Industries
 - 3. Sherwin Williams Company.
- 2.02 MATERIALS
 - A. Pavement Markings Paint: Latex, waterborne emulsion, lead and chromate free, ready mixed complying with FS TT P-1952 Type II, with drying time of less than 45 minutes.

PART 3: EXECUTION

- 3.01 EXAMINATION
 - A. Verify that pavement is dry and in suitable condition to begin pavement marking according to manufacturer's written instructions.
 - B. Proceed with pavement marking only after unsatisfactory conditions have been corrected.
- 3.02 PAVEMENT MARKING
 - A. Do not apply pavement-marking paint until layout, colors, and placement have been verified with Architect.
 - B. Sweep and clean surface to eliminate loose material and dust.
 - C. Apply paint with mechanical equipment to produce pavement markings, of dimensions indicated, with uniform, straight edges. Apply at manufacturer's recommended rates to provide a minimum wet film thickness of 15 mils(0.4 mm).

1. Apply graphic symbols and lettering with paint-resistant, die-cut stencils, firmly secured to pavement. Mask an extended area beyond edges of each stencil to prevent paint application beyond the stencil. Apply paint so that it cannot run beneath the stencil.

3.03 PROTECTING AND CLEANING

- A. Protect pavement markings from damage and wear during remainder of construction period.
- B. Clean spillage and soiling from adjacent construction using cleaning agents and procedures recommended by manufacturers of affected construction.

END OF SECTION-32 17 23

SECTION 32 01 17.61
SEALING CRACKS IN ASPHALT PAVING

PART 1: GENERAL

- 1.01 The General and Supplementary Conditions, Special Conditions, and the applicable portions of Division 1 of these Specifications are a part of this Section.
- 1.02 SECTION INCLUDES
- A. Elastomeric hot applied crack and joint sealing in asphalt or portland cement concrete.
- 1.03 RELATED SECTIONS
- A. Section 32 12 36: Seal Coat.
- B. Section 32 01 17: Flexible Paving Repair.
- 1.04 REFERENCES
- A. American Society for Testing Materials (ASTM)
1. D1190 Specification for Concrete Joint Sealant, Hot Applied Elastic Type
 2. D3405 Specification for Joint Sealants, Hot Applied, for Concrete and Asphalt.
 3. D5329 Test Methods for Sealants and Fillers, Hot Applied, for Joints and Cracks in Asphaltic and Portland Cement Concrete Pavements.
- 1.05 SYSTEM DESCRIPTION
- A. Provide installation of sealant.
- 1.06 SUBMITTALS
- A. Product Data
1. Submit manufacturer's printed Product Data Sheets.
- 1.07 QUALITY ASSURANCE
- A. Certification
1. Contractor to submit a letter stating that equipment used to heat the material meets requirements of this specification.
- B. Test Reports
1. Upon request the Contractor will submit manufacturer's test results on products used.
- 1.08 PROJECT/SITE CONDITIONS
- A. Environmental Requirements
1. Apply sealant only to clean, dry, properly prepared cracks and joints.
 2. At ambient temperatures below forty (4) degrees F. use a hot compressed air lance to achieve clean, dry, warm space for sealant installation.
- 1.09 EXISTING CONDITIONS
- A. Cracks and joints under one quarter (1/4) inch width are not covered under this specification unless stipulated in writing by Architect.
- B. If cracks and joints under one quarter (1/4) inch or less are to be addressed, then they must be routed.

PART 2: PRODUCTS

- 2.01 MANUFACTURER
- A. Neyra Industries, Inc., 10700 Evendale Drive, Cincinnati, Ohio 45241 (800) 543-7077: Thermo-Seal PLS

1. Materials are listed as a standard of quality.

2.02 MATERIALS

A. Sealant: Thermo-Seal P.L.S.

1. Hot applied elastomeric crack/joint sealant for asphaltic and concrete pavements.

2.03 EQUIPMENT

- A. Melt down the sealant in a kettle or melter constructed as a double boiler. The space between the inner and outer shells filled with a high flash heat transfer oil or other indirect heating means.
- B. The kettle to be used must have constant agitation any time material is over three hundred (300) degrees F. The kettle must have temperature monitoring capabilities.
- C. Roofing kettles or other direct fired melters are not acceptable for these materials.

PART 3: EXECUTION

3.01 EXAMINATION

- A. Inspect existing pavement for conditions and defects that will adversely affect quality of work, and which cannot be put into an acceptable condition through normal preparatory work as specified.
- B. Starting installation constitutes Contractor's acceptance of surface as suitable for installation.

3.02 PREPARATION

A. Cracks

1. Remove vegetation and all incompressibles from cracks and joints by means of hot compressed air lance.
2. Cracks and joints less than one quarter (1/4) inch in width must be routed to a minimum one half (1/2) inch by one half (1/2) inch in shape.

B. Sealant

1. Prepare sealant in specified equipment.
2. Heat Sealant according to manufacturer's Product Data Sheet.

3.03 APPLICATION

- A. Install heated sealant directly into cracks and joints not to exceed a one (1) inch wide band.
- B. Control thickness to one eighth (1/8) inch above pavement surface.
- C. Finished sealed cracks and joints will be uniformly level and all "sinkers" will be refilled to achieve flush to one eighth (1/8) inch concave surface appearance.

3.04 PROTECTION

- A. Care must be taken to keep the public from work area while sealant is being installed and traffic should not be allowed to cross sealant filled cracks and joints for a period of ten (10) minutes.
- B. Failure to follow manufacturer's printed recommendations could result in a severe burn hazard.

END OF SECTION-32 01 17.61

SECTION 32 01 17
FLEXIBLE PAVING REPAIR

PART 1: GENERAL

- 1.01 The General and Supplementary Conditions, Special Conditions, and the applicable portions of Division 1 of these Specifications are a part of this Section.
- 1.02 SECTION INCLUDES
 - A. Patch pavement areas detailed on drawings to full-depth with hot mix, hot laid asphaltic concrete.
- 1.03 REFERENCES
 - A. CL-19 The Asphalt Institute Bulletin, "Full-Depth Asphalt Patching".
 - B. ASTM D 946 Standard Specification for Penetration Graded Asphalt Cement in Pavement Construction.
 - C. ASTM D 2397 Standard Specification for Cationic Emulsified Asphalt.
 - D. ASTM D 3381 Standard Specification for Viscosity-Graded Asphalt Cement for use in Pavement Construction.
 - E. ASTM D 3628 Standard Practice for Selection and Use of Emulsified Asphalt.
- 1.04 PROJECT/SITE CONDITIONS
 - A. Environmental Requirements
 - 1. Apply hot mix, hot laid asphaltic concrete in dry weather when pavement and atmospheric temperatures are forty (40) degrees F. or above and are anticipated to remain above forty (40) degrees F. for four (4) hours after completing application.

PART 2: PRODUCTS

- 2.01 MATERIALS
 - A. Asphalt Cement: Per ODOT Standards.
 - B. Mineral Aggregate: Per ODOT Standards.
 - C. Tack Coat: Per ODOT Standards.
- 2.02 MIXES
 - A. Use dry material to avoid foaming. Mix uniformly in central plant.
 - B. Mixture
 - 1. 5 to 7 percent of asphalt cement by weight in total mixture in accordance with ODOT Standards.

PART 3: EXECUTION

- 3.01 EXAMINATION
 - A. Inspect areas that have not been detailed for patching on drawings and notify Architect if additional patching is needed.
 - B. If after excavating for patching, the subbase is found to be unsuitable, notify Architect.
- 3.02 PREPARATION
 - A. Remove surface, base course and subgrade to reach firm support. Extend at least one (1) foot horizontally into pavement.

- B. Make square or rectangular cuts. Make faces straight and vertical, with one pair of faces, where practical, parallel to the direction of traffic.
- C. Trim and compact subgrade. Compact subgrade to at least one hundred (100) percent of standard procter density or ninety-five (95) percent of modified procter density.
- D. Tack coat vertical surface with ASTM D 2397 or D 3628 asphalt emulsion types SS-1, SS-1h, CSS-1 or CSS-1h diluted with equal parts of water.

3.03 REPAIR/RESTORATION

- A. Backfill with hot mix, hot laid asphaltic concrete while temperature stays above one hundred eighty-five (185) degrees F. Prevent segregation of mixture.
- B. Compact in layers, if hole is more than four (4) inches deep. Compact layers thoroughly to maximum of three (3) inches in thickness. Compact with equipment most suited for size of job.
- C. Adequate compaction equipment will yield surface of patch at same elevation as the surrounding pavement. When hand tamping or other light compaction methods are required, leave surface of compacted patch slightly higher than adjacent pavement, permitting patch to be further compressed by traffic.
- D. Check riding quality and alignment of patch with a straight edge or string line.

3.04 CLEANING

- A. Broom clean areas of work and remove extra materials from job site.

END OF SECTION-32 01 17

SECTION 32 12 16
ASPHALT PAVING

PART 1: GENERAL

- 1.01 The General and Supplementary Conditions, Special Conditions, and the applicable portions of Division 1 of these Specifications are a part of this Section.
- 1.02 SUMMARY
- A. Extent of the work is as indicated on the drawings and includes asphaltic concrete, aggregate base.
 - B. Work in the public right of way shall meet all the requirements of the governing authority. Obtain required approvals and permits.
- 1.03 REFERENCES
- A. Reference Standards: ODOT refers to the State of Ohio Department of Transportation, Construction and Material Specification. Thicknesses indicated are compacted thickness. Material and workmanship shall meet ODOT indicated.
 - B. Conform to the requirements of ODOT Item 401 for asphaltic concrete pavement.
- 1.04 JOB CONDITIONS
- A. Weather Limitations: Apply prime and tack coats when ambient temperature is above 50 degrees F. (10 degrees C.), and when temperature has not been below 35 degrees F. (1 degree C.) for 12 hours immediately prior to application. Do not apply when base is wet or contains an excess of moisture.
 - B. Construct asphalt concrete intermediate and surface courses when atmospheric temperature is above 40 degrees F. (4 degrees C.), and when base is dry. Do not place over wet or frozen surfaces.
 - C. All finished surfaces shall be smooth and free flowing. Create smooth vertical curves through high and low points indicated by spot elevations and contours. Provide uniform slopes between new and existing grades. Avoid ridges and depressions. All surfaces must drain.
 - D. The surface color and finish of each material shall be uniform throughout. Discolored, stained or otherwise nonconforming portions of work shall be neatly removed and replaced at the Contractor's expense and as directed by the Architect.

PART 2: PRODUCTS

2.01 MATERIALS

- A. Aggregate Sub-base: #2 stone (ODOT 703).
- B. Gravel base for concrete and asphaltic concrete shall be gravel or crushed stone and shall conform to ODOT Item 304. Materials retained on #4 sieve shall contain at least 90% fractured pieces. Compacted thickness of base shall be as indicated on the Drawings.
- C. Prime Coat: ODOT Item 408 Asphalt Emulsion.
- D. Asphaltic Concrete Surface Course: ODOT Item 448 compacted thickness as indicated.
- E. Asphaltic concrete aggregate mix is to be modified to eliminate all iron pyrite aggregate from the mix. (This applies only to sport surfaces if applicable).
- F. Tack coat shall be RC-250 as per ODOT Item 702 and conform to ODOT Item 407. Cover aggregate shall conform to ODOT Item 407.
- G. Paint: White at general parking, blue at handicapped spaces as shown.
- H. Concrete for curbs shall be as specified in Section 03 30 00.
- I. Aggregate base for concrete slabs on grade shall be #57 or #67 stone as per ODOT Item 703 and Section 02200 - Clearing and Earthwork.
- J. Prefomed expansion joint fillers shall be as shown on the drawings and shall conform to ODOT Item 705.03.
- K. Joint sealant shall be self-leveling, traffic grade, two compound polysulfide sealant with polyethylene foam backup material. Color shall match pavement. Type and color shall be as approved by the Architect. Submit samples prior to installation.
- L. Seal-coat coal tar emulsion, Jennite J-16 or equal.

2.02 LINE PAINT

- A. Use only top quality acrylic line paint. Mask and tape all lines. All lines 4" wide. White at general parking, blue at handicapped spaces.

PART 3: EXECUTION

3.01 SURFACE PREPARATION

- A. Subgrade Preparation:

1. Subgrade shall be prepared as described in ODOT Item 203.13 and Section 31 10 00 – Site Clearing including proof-rolling and compaction of 100% maximum dry weight density to a depth of 6".
2. Fill and level defects, ruts or holes, remove loose material prior to final proof-rolling and compaction. Do not allow finished subgrade to become wet or be disturbed prior to placement of pavement base.
3. Verify that all pipe trenches crossing pavement areas have been properly backfilled and compacted as specified in other sections.
4. Place aggregate sub-base where indicated or as directed by the Architect/Soils Engineer in lifts of 6" compacted thickness.

3.02 ASPHALTIC CONCRETE WITH BASE

- A. Install aggregate base and asphaltic concrete to meet requirements of referenced Specification.
- B. Install and compact aggregate base to 100% maximum density in accordance with ODOT Item 304.
- C. Prime coat shall be applied to all compacted aggregate base surfaces in accordance with ODOT Items 408.04, 408.05, 408.06 and 408.07. Apply at rate of .30 gallons per square yard on dry base and let stand for 24 hours before beginning subsequent paving.
- D. Apply tack coat to existing pavement, if any, to be surfaced at rate of 0.10 gallon per square yard. Apply by brush to contact all vertical surfaces.
- E. Tack coat shall also be applied if directed by the Architect to contact surfaces of previously constructed asphalt surfaces if those surfaces have had traffic on them or have become covered with silt and dirt. Apply tack coat as described in ODOT Items 407.03, 407.04 and 407.05. Apply .10 gallons per square yard.
- F. Installation of intermediate and surfaces courses shall conform to the requirements of ODOT Item 404.
- G. Transport asphaltic concrete in trucks equipped to maintain temperature. Temperature of material at job site shall not be less than 250 degrees F.
- H. Spread asphaltic concrete by machine, neat and with minimum number of joints. Compact uniformly with a minimum 8 ton roller. Neatly cut and roll edges to prevent spalling. Provide positive drainage, as indicated, by finish elevations. Allow no pockets or depressions to collect water.
- I. Prepare and construct joints between old and new pavement or between successive day's work, to ensure continuous bond between adjoining work. Construct joints to have same texture, density and smoothness as other sections of asphalt concrete course. Clean contract surface and apply tack coat.

- J. Adjust utility structures to grade, flush with new pavement.
- K. All improperly formed joints and all finished asphalt surfaces that do not drain, are discolored or improperly compacted or show evidence of surface unravelling or spalling shall be removed as directed by the Architect and replaced as specified. Such work shall be at the expense of the Contractor.
- L. All overspray from prime coat/tack coat application shall be removed from adjacent surfaces by sandblasting or other method approved by the Architect. Seal-coat coal tar emulsion, Jennite J-16 or equal.
- M. **Allow a minimum of 60 days cure and “cook-off” of asphalt before applying seal coat.**

3.03 PAINTING

- A. Stripe paved parking areas as indicated on drawings. Painted line shall be 4" wide. Work shall be accurately laid out and striping shall be straight and true. Other markings shall be as indicated. Handicapped space painting to be standard blue.
- B. Striping to be applied twice; once at completion of paving and after application of seal coat.

END OF SECTION-32 12 16

SECTION 32 12 36
SEAL COATS

PART 1: GENERAL

- 1.01 The General and Supplementary Conditions, Special Conditions, and the applicable portions of Division 1 of these Specifications are a part of this Section.
- 1.02 SECTION INCLUDES
- A. Refined coal tar emulsion seal coat slurry over new and aged asphaltic concrete paving.
- 1.03 REFERENCES
- A. Federal Specifications
1. R-P 355e Pitch, Coal Tar Emulsion (Coating for Bituminous Pavements)
- B. American Society for Testing Materials (ASTM)
1. C136 Method for Sieve Analysis of Fine and Coarse Aggregates
 2. D490 Specification for Road Tar
 3. D2939 Method for Testing Emulsified Bitumens Used as Protective Coatings
 4. D3320 Standard Specification for Emulsified Coal-Tar Pitch (Mineral Colloid Type)
 5. D5727 Standard Specification for Emulsified Refined Coal-Tar (Mineral Colloid Type).
- 1.04 SYSTEM DESCRIPTION
- A. Provide two (2) applications of the coating (refined coal tar emulsion slurry) in all areas.
- 1.05 SUBMITTALS
- A. Product Data
1. Submit manufacturer's printed Product Data Sheets.
- 1.06 PROJECT/SITE CONDITIONS
- A. Environmental Requirements
1. Apply coating when pavement temperature is at least fifty (50) degrees F. and air temperature if fifty (50) degrees F. and rising.
 2. Apply coating during dry weather and when rain is not anticipated within eight (8) hours after application is completed.

PART 2: PRODUCTS

- 2.01 MANUFACTURER
- A. Neyra Industries, Inc., Cincinnati, Ohio: Tarconite.
- B. Neyra Industries, Inc., Cincinnati, Ohio: Jennite.
- 2.02 MATERIALS
- A. Sealer: Tarconite
1. An emulsion of refined coal tar specifically formulated to extend the pavement life.
- B. Sealer: Jennite
1. A high solids refined coal tar emulsion containing hot blended rubber.
 2. Provide two (2) year dual warranty from the manufacturer and contractor.
- C. Crack Sealant: Thermo-Seal PLS
1. Hot applied, elastomeric type crack sealant compatible with pavement coating.
- D. Pavement Primer: Polyprime
1. Acrylic based, primer compatible with pavement coating.

- D. Oil Spot Primer: Neyra Oil Seal
 - 1. Water based acrylic oil spot primer compatible with pavement coating.
- E. Sand: As recommended in printed data sheets by sealer manufacturer.
 - 1. Washed dry silica sand free of dust, trash, clay, organic materials or other contaminants.
 - 2. Gradation: To have an American Foundry Society grain fineness number that is no less than fifty (50) and no more than seventy (70), when tested in accordance with ASTM C 136.
- F. Mixing Water
 - 1. Potable and free from harmful soluble salts.
 - 2. Temperature of the water: minimum fifty degrees (50) F.

2.03 EQUIPMENT

- A. Use equipment that keeps the mixture homogeneous at all times and is capable of applying required coating weights evenly over entire width of application mechanism to provide a uniformly coated surface.

2.04 MIXES

- A. Tarconite: Add five (5) pounds of sand to the refined coal tar emulsion, and mix with power equipment to a homogeneous coating.
- B. Tarconite: Add water to the coating mix as required for application, quantity not to exceed thirty five (35) percent of refined coal tar emulsion.
- C. Jennite: Add six (6) pounds of sand to the refined coal tar emulsion and mix with power equipment to a homogeneous coating.
- D. Jennite: Add water to the coating mix as required for application not to exceed ten (10) percent of refined coal tar emulsion.

PART 3: EXECUTION

3.01 EXAMINATION

- A. Inspect existing pavement surfaces for conditions and defects that will adversely affect quality of work, and which cannot be put into an acceptable condition through normal preparatory work as specified.
- B. Do not place coating over unsound oil spots softened by fuel or oil. If this condition exists, notify Architect.
- C. Starting installation constitutes Contractor's acceptance of surface as suitable for installation.

3.02 PREPARATION - AGED PAVEMENT

- A. Repairing Asphaltic Concrete Pavement
 - 1. Repair areas as shown on drawings or schedule according to Section 02950.
- B. Crack Sealing
 - 1. Apply crack sealant as detailed on drawings or in Section 02975.
- C. Cleaning
 - 1. Clean pavement surface prior to applying primer coat and coating.
- D. Protection
 - 1. Protect adjacent curbs, walks, fences and other items from receiving primer and coating.

- E. Oil Spots
 - 1. Clean oil spots and treat with oil spot primer.
 - F. Priming
 - 1. Apply a diluted mixture of one (1) part primer and two (2) parts water at the rate of 0.03 to 0.06 gallons per square yard.
- 3.03 PREPARATION - NEW PAVEMENT
- A. Curing
 - 1. Allow new asphalt to cure at least thirty (30) days before applying pavement coating.
 - B. Cleaning
 - 1. Clean pavement surface prior to applying primer coat and coating.
 - C. Protection
 - 1. Protect adjacent curbs, walks, fences and other items from receiving primer and coating.
 - D. Oil Spots
 - 1. Clean oil spots and treat with oil spot primer.
 - E. Priming
 - 1. Apply a diluted mixture of one (1) part primer and two (2) parts water at the rate of 0.03 to 0.06 gallons per square yard.
- 3.04 APPLICATION
- A. Apply all coats uniformly at a rate of 0.14 - 0.17 gallons per square yard per coat using mixed and diluted material.
 - B. Allow each coat to cure sufficiently to take traffic without scuffing.
 - C. Allow final coat to cure a minimum of twenty-four (24) hours under good drying conditions before allowing traffic.
- 3.05 CLEANING AFTER APPLICATION
- A. Remove primer and coating from surfaces other than those requiring primer and coating.
- 3.06 PROTECTION
- A. Barricade coated area until the coating has dried sufficiently for traffic.

END OF SECTION-32 12 36

SECTION 32 16 00
CURBS AND GUTTERS

PART 1: GENERAL

- 1.01 The General and Supplementary Conditions, Special Conditions, and the applicable portions of Division 1 of these Specifications are a part of this Section.
- 1.02 SCOPE OF WORK
- A. Furnish and install curbs, walks and paving as shown and specified. The work includes:
1. Final Subgrade preparation.
 2. Granular base for concrete walks.
 3. Reinforcing, expansion joints and accessories as indicated.
 4. Curbs, sidewalks, ramps and stairs as indicated.
- 1.03 QUALITY ASSURANCE
- A. Standards: Comply with provisions of following American Concrete Institute (ACI) codes, specifications and standards:
1. ACI 347 "Recommended Practice for Concrete Formwork".
 2. ACI 304 "Recommended Practice for Measuring, Mixing, Transporting and Placing Concrete".
- B. Maintain field reports of time, date of placing, curing, removal of forms, etc., of concrete in each portion of work.
- C. Employ, at the Contractor's expense, a testing laboratory acceptable to the Architect to perform evaluation tests and to design concrete mixes.
- 1.04 SUBMITTALS
- A. Submit concrete mix designs and obtain approval before placing any concrete.
- B. Submit manufacturer's product data and material certification for aggregate, concrete, reinforcing, admixtures, joint fillers, curing compounds and other items, when requested.
- C. Submit concrete test reports.
- 1.05 JOB CONDITIONS
- A. Establish and maintain required lines and grade elevations.
- B. Do not install curbs, walks and paving over wet or frozen subgrade.
- C. Protect adjacent work.
- D. Provide temporary barriers, warning lights and all necessary protection for project work and public safety.

PART 2: PRODUCTS

- 2.01 FORMS
- A. Steel or wood of size and strength to resist movement during concrete placement and to retain horizontal and vertical alignment until removed. Provide straight forms free of distortions and defects. Provide flexible wood or spring steel forms to form radius bends shown.
- B. Form coating: Non-staining, commercial formulation that will not bond to concrete.

- C. Portland cement: ASTM C150, Type 1.
 - D. Aggregate: ASTM C33, fine aggregate clean natural sand, coarse aggregate AASHTO M43 grading #57. Provide crushed limestone coarse aggregate only.
 - E. Water: Clean and potable.
 - F. Air entraining admixture: ASTM C260.
 - G. Water reducing admixture: ASTM C491; Master Builders' "Pozzolith", W. R. Grace "WRDA", or Euclid Chemical "EUCON WR".
 - H. Premolded joint filler: ASTM C1751, 1/2 inch thick non-extruding asphalt-impregnated fiberboard.
 - I. Joint forms: Removable cap strips by "Vinylex Corp" or equal. Model #VP1392 for 3/8" joints. Model #VP1391 for 1/2" joints.
 - J. Curing compound: ASTM C309, non-staining liquid membrane-forming compound.
 - K. Reinforcing steel: ASTM A615, Grade 40, deformed steel bars.
 - L. Granular base: AASHTO M43 #6 crushed stone or gravel for concrete walks and slabs.
- 2.02 MIXES
- A. Provide ready-mixed concrete only complying with ASTM C94 and containing an approved water-reducing and air-entraining admixture.
 - 1. Strength: 4000 psi minimum at 28 days.
 - 2. Slump range: 2 inches to 4 inches.
 - 3. Air content: 5% to 7%.
 - B. Provide delivery tickets for each load of concrete delivered to the site. Delivery tickets shall indicate the following:
 - 1. Batch number.
 - 2. Mix by class or sack content with maximum size aggregate.
 - 3. Admixtures.
 - 4. Air content.
 - 5. Slump.
 - 6. Time of loading.

PART 3: EXECUTION

3.01 INSPECTION

- A. Examine surfaces and conditions under which the work is to be performed. Do not proceed with the work until unsatisfactory conditions are corrected.

3.02 PREPARATION

- A. Design, erect, support, brace and maintain formwork to support all vertical and lateral loads. Construct formwork so concrete work is of correct size, shape, alignment, elevation and position.
- B. Design formwork to be readily removable without impact, shock or damage to cast-in-place concrete surfaces and adjacent materials.
- C. Install minimum 4-inch depth of granular base at all concrete walks.
- D. Locate, place and support curb reinforcement as indicated.

3.03 PLACING CONCRETE

- A. Comply with ACI 304 "Recommended Practice for Measuring, Mixing, Transporting and Placing Concrete" except as otherwise noted.
- B. Protect concrete from physical damage or reduced strength due to weather extremes during mixing, placement and curing. In cold weather comply with ACI 306. In hot weather comply with ACI 305.
- C. Uniformly dampen subgrade and formwork prior to placing concrete.
- D. Deposit concrete within any one section continuously so that no concrete will be placed on older concrete which has set sufficiently to result in seams and planes of weakness within the section.
- E. Place all concrete full thickness in one operation, without change in proportions; screeded to proper elevations; floated and lightly troweled.
- F. Consolidate placed concrete using only square faced shovels with hand rodding and tamping, so that concrete is worked around reinforcement and into all parts of formwork.

3.04 CURBS, SIDEWALKS, RAMPS AND SLABS

- A. Construct curbs, sidewalks, ramps and slabs adjacent to city streets in accordance with city requirements. Construct on-site curbs and walks as detailed, with proper and positive drainage.
- B. Install expansion joint materials where indicated. Provide control joints and tooling patterns as indicated.

3.05 FINISHES

- A. Provide textured wood float finish for sidewalks and slabs. Edge all outside edges of walks and slabs and all joints with radius edging tool.
- B. Provide smooth float finish for curbs.
- C. Provide textured non-slip finish for ramps.

3.06 CURING

- A. Cure all concrete with an approved non-staining liquid membrane-forming curing compound. Spray apply in accordance with manufacturer's coverage rate immediately after completing surface finish.

3.07 PROTECTION

- A. Protect installed concrete work from damage until acceptance of work.
- B. Erect and maintain barriers as required. Exclude traffic for at least 7 days.

3.08 TESTING

- A. Employ a laboratory to test the concrete.
- B. Provide air indicator tests and air meter tests for all air-entrained concrete.
- C. Strength testing:
 - 1. Provide one set of three test cylinders for each pour in any one day. Secure samples in accordance with ASTM C172 and mold specimens in accordance with ASTM C31. Provide not less than 3 sets of strength tests.
 - 2. Test one specimen at seven days and two specimens at twenty-eight days in accordance with ASTM C39.
 - 3. Furnish copies of field records and test reports as follows:
 - 2 copies to Architect.

1 copy to Contractor.
1 copy to Ready Mix Supplier.

D. Air content testing:

1. Provide Air Indicator Test with a "Chase" AE 55 or equal and Air Meter Test in accordance with ASTM C231 or C173 on the first load of concrete delivered in the morning and the afternoon.
2. Furnish copies of field records and test reports as for strength tests listed above.

E. Record the exact location of the concrete in the work represented by each set of cylinders and show on test reports.

F. Provide an insulated moist box for protection of the cylinders until shipped to the laboratory.

3.09 CLEANING

- A. Perform cleaning during curb, walks and paving installation work and upon completion of the work.

END OF SECTION-32 16 00

SECTION 32 92 19
SEEDING

PART 1: GENERAL

- 1.01 DESCRIPTION OF WORK
- A. Finish grading, seeding, mulching and maintenance as shown on drawings.
- 1.02 QUALITY ASSURANCE
- A. Subcontract landscape work to a single company specializing in landscape work. Landscape Contractor shall have a minimum of five years experience and shall submit three references and recently complete projects with landscape bid.
- B. Source Quality Control
1. General
Comply with regulations applicable to landscape materials.
2. Do not make substitutions. If specified landscape material is not obtainable, submit proof of non-availability to Architect, together with proposal for use of equivalent material.
3. Analysis and Standards
Package standard products with manufacturer's certified analysis. For other materials, provide analysis by recognized laboratory made in accordance with methods established by the Association of Official Agriculture Chemists, wherever possible.
4. Topsoil
Before delivery of topsoil, furnish Architect with written statement giving location of properties from which topsoil is to be obtained, names and addresses of Owners, depth to be stripped, and crops grown during past two years.
- 1.03 SUBMITTALS
- A. Certification
Submit seed vendor's certified statement for each grass seed mixture required, stating botanical and common name, percentage by weight, and percentages of purity, germination, and weed seed for each grass seed species.
- 1.04 DELIVERY, STORAGE AND HANDLING
- A. Packaged Materials
Deliver packaged materials in containers showing weight, analysis and name of manufacturer. Protect materials from deterioration during delivery, and while stored at site.
- 1.05 JOB CONDITIONS
- A. Proceed with and complete landscape work when all other site work is complete, working within seasonal limitations for each kind of landscape work required.
- B. Utilities
Determine location of underground utilities and perform work in a manner which will avoid possible damage. Hand excavate, as required. Maintain grade stakes set by others until removal is mutually agreed upon by parties concerned.
- C. Planting Time
Per Industry Standards.
- 1.06 SPECIAL PROJECT WARRANTY
- A. Warranty lawns through specified lawn maintenance period, and until final acceptance.

PART 2: PRODUCTS

2.01 TOPSOIL

- A. Topsoil for landscape work is not available at site and must be furnished as specified.
- B. Provide a total of 6" (six inches) of topsoil in the affected or designated areas shown.
- C. Provide new topsoil which is fertile, friable, natural loam, surface soil, reasonably free of subsoil, clay lumps, brush, weeds and other litter, and free of roots, stumps, stones larger than 2" in any dimension, and other extraneous or toxic matter harmful to plant growth.
- D. Obtain topsoil from local sources or from areas having similar soil characteristics to that found at project site. Obtain topsoil only from naturally, well-drained sites.

2.02 SOIL AMENDMENTS

- A. Lime
Natural dolomitic limestone containing not less than 85% of total carbonates with a minimum of 30% magnesium carbonates, ground so that not less than 90% passes a 10-mesh sieve and not less than 50% passes a 100-mesh sieve.
- B. Peat Humus
FS Q-P- 166 decomposed peat with no identifiable fibers and with ph range suitable for intended use.
- C. Superphosphate
Soluble mixture of treated minerals; 44%.
- D. Sand
Clean, washed sand, free of toxic materials.
- E. Mulch
Organic mulch free from deleterious materials and suitable for top dressing of saucers and planting beds and consisting of the following:

 Finely shredded, double processed hardwood bark.
- F. Commercial Fertilizer
Complete fertilizer of neutral character, with some elements derived from organic sources and containing the following percentages:
 1. For lawns, provide fertilizer with percentage as follows: 10% total nitrogen, 6% available phosphoric acid and 4% soluble potash.
 2. Submit samples of all products for approval.

2.03 GRASS MATERIALS

- A. Grass Seed
Provide fresh, clean, new-crop seed complying with tolerance for purity and germination established by Official Seed Analysts of North America. Provide seed mixture composed of grass species, proportions and minimum percentages of purity, germination, and maximum percentage of weed seed, as follows:

Proportion By Weight	Common Name	Min. % Germ.	Min. % Pure Sd.	Max. % Weed Sd.
80%	Tall Fescue "Quest Tall", "Arid 3" & "Pixie"	95	98	0.50
20%	Perennial "Accent" & Ryegrass "Caddy Shack"	95	98	0.50

Provide certification of grass seed and mix from producer.

2.04 MISCELLANEOUS LANDSCAPE MATERIALS

A. Straw Mulch

Provide clean, seed-free threshed straw of wheat, rye, oats or barley.

PART 3: EXECUTION

3.01 PREPARATION

A. Unless otherwise indicated, place 6" (six inches) of topsoil as specified.

B. For lawn areas, provide not less than the following quantities of specified materials:

1. 50 lbs. of lime per 1000 sq. ft.
2. 20 lbs. of commercial fertilizer per 1000 sq. ft.

C. Preparation for Planting Lawns

1. Where lawns are to be planted, prepare soil as follows: Till to a depth of not less than 6"; apply lime as specified; remove high areas and fill in depressions; till soil to a homogenous mixture of fine texture, free of lumps, clods, stones, roots and other extraneous matter.
2. Prior to preparation of unchanged areas, remove existing grass, vegetation and turf. Dispose of such material outside of Owner's property; do not turn over into soil being prepared for lawns.
3. Apply specified commercial fertilizer at rates specified and thoroughly mix into upper 2" of topsoil. Delay application of fertilizer if lawn planting will not follow within a few days.
4. Fine grade lawn areas to smooth, even surface with loose, uniformly fine texture. Roll, rake and drag lawn areas, remove ridges and fill depressions, as required to meet finish grades. Limit fine grading to areas which can be planted immediately after grading.
5. Moisten prepared lawn areas before planting if soil is dry. Water thoroughly and allow surface moisture to dry before planting lawns. Do not create a muddy soil condition.
6. Restore lawn areas to specified condition if eroded or otherwise disturbed after fine grading and prior to planting.

3.02 PLANTING

A. Seeding New Lawns

1. Do not use wet seed or seed which is moldy or otherwise damaged in transit or storage.
2. Sow seed using a spreader or seeding machine. Do not seed when wind velocity exceeds 5 miles per hr. Distribute seed evenly over entire area by sowing equal quantity in 2 directions at right angles to each other.
3. Sow seed at a rate of 8 lbs. per 1000 square feet.
4. Rake seed lightly into top 1/8" of soil, roll lightly, and water with a fine spray.
5. Protect seeded slopes against erosion with erosion netting or other methods acceptable to the Architect. Areas requiring erosion control netting are indicated on the drawings.
6. Protect other seeded areas against erosion by spreading specified lawn mulch after completion of seeding operations. Spread uniformly to form a continuous blanket not less than 2" depth loose measurement over seeded areas.

3.03 MAINTENANCE

A. Begin maintenance immediately after planting.

B. Maintain lawns for not less than the period stated, and longer as required to establish an acceptable lawn. Maintain seeded lawns not less than 60 days after substantial completion. If seeded in fall and not given full 60 days of maintenance, or if not considered acceptable at that time, continue maintenance the following spring until acceptable lawn is established.

- C. Maintain lawns by watering, weeding, mowing, trimming, and other operations such as rolling, regrading and replanting as required to establish a smooth, acceptable lawn, free of eroded or bare areas.

3.04 CLEANUP AND PROTECTION

- A. During landscape work, keep pavements clean and work area in an orderly condition.
- B. Protect landscape work and materials from damage due to landscape operations, operations by other contractors and trades and trespassers. Maintain protection during installation and maintenance periods. Treat, repair or replace damaged landscape work as directed.

3.05 INSPECTION AND ACCEPTANCE

- A. When all landscape work is completed, including maintenance, Architect will, upon request, make an inspection to determine acceptability.
- B. When inspected landscape work does not comply with requirements, replace rejected work and continue specified maintenance until reinspected by Architect and found to be acceptable. Remove rejected materials promptly from project site.
- C. This Contractor shall water all new plants and lawn areas until accepted by the Owner or as listed in 3.03.D above.

END OF SECTION-32 92 19

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RE-BID SET
11/03/2025

ARCHITECT/ENGINEER STAMP

PLAN EXAMINER STAMP

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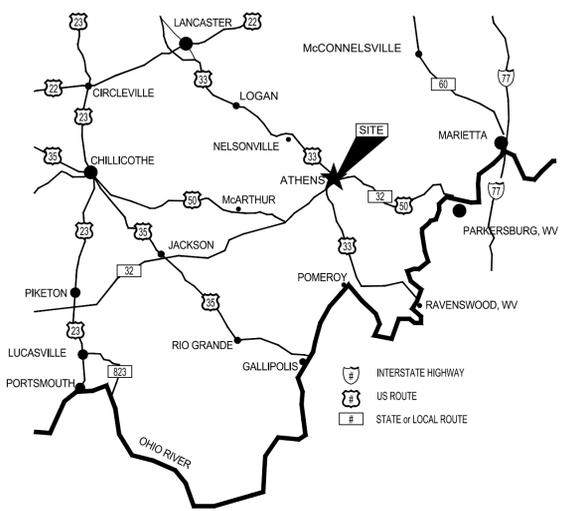
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HAPCAP
135 COLUMBUS ROAD, ATHENS OHIO-45701
RVC PROJECT #241101

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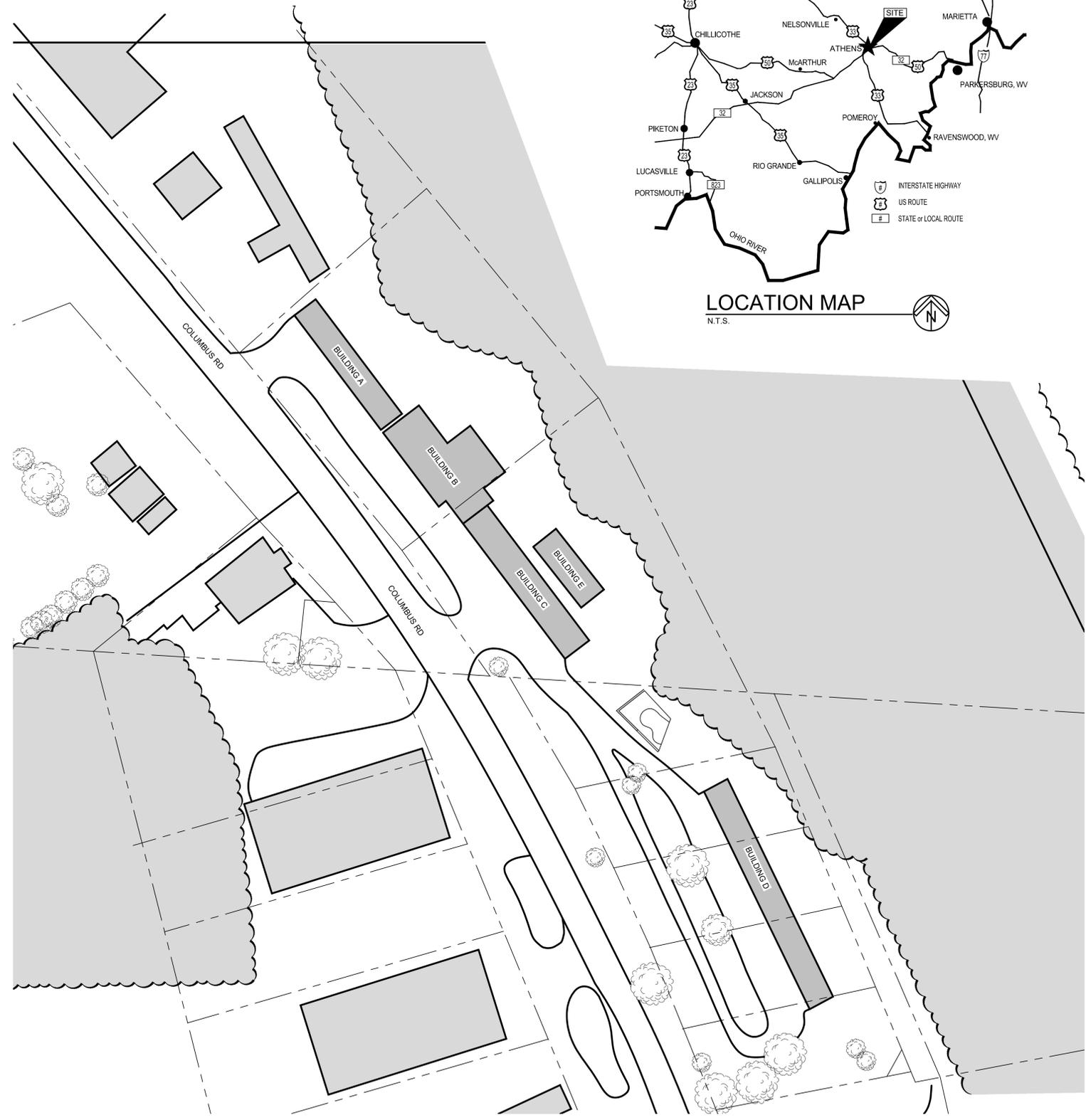
THE SUNSET SHELTER PROJECT HAPCAP

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ATHENS, OHIO 45701

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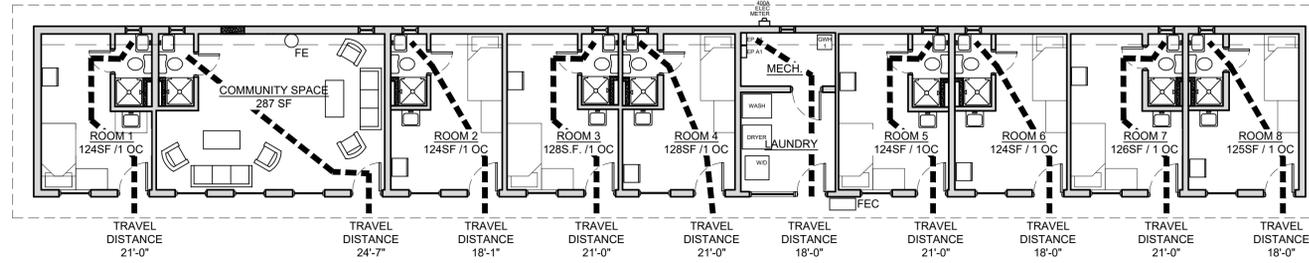
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N.T.S.



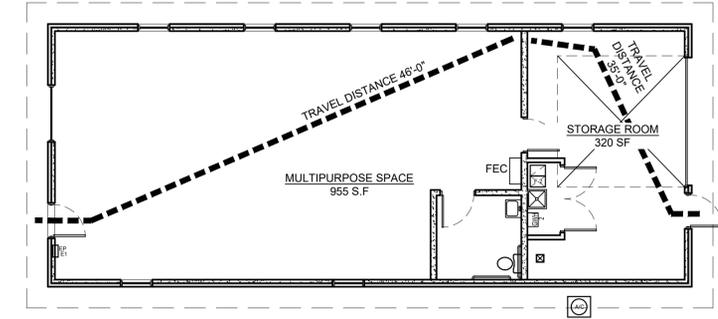
SITE PLAN
1"=50'-0"

- SITE PLAN SYMBOLS:
- PROPERTY LINE
 - BUILDING IN PROJECT
 - EXISTING BUILDING NOT IN WORK

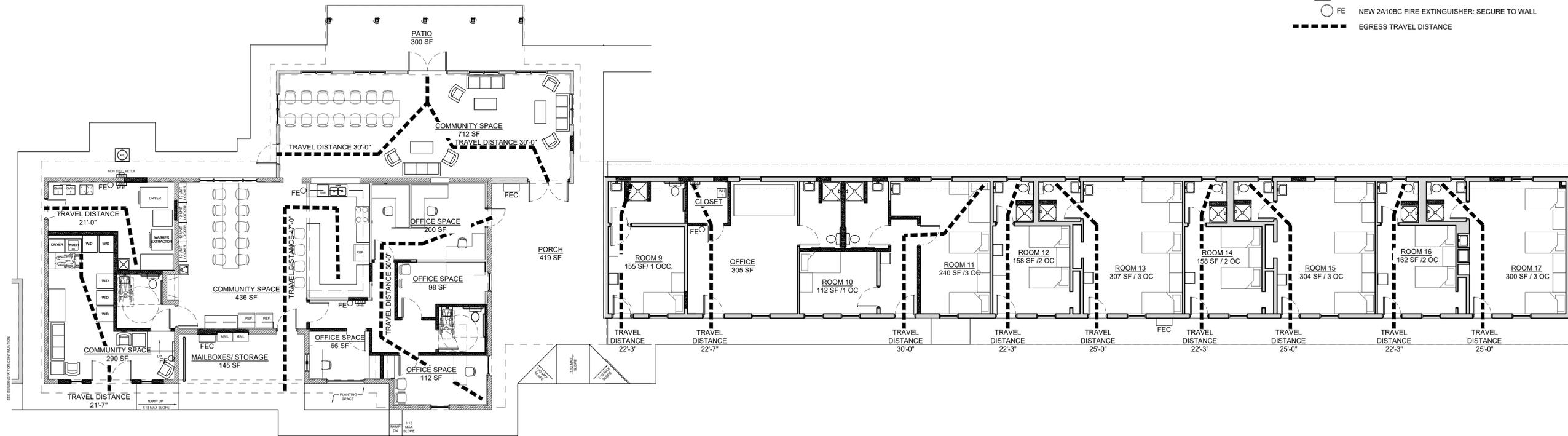
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E1.1E	ELECTRICAL POWER/LIGHTING PLANS, NOTES, RISER DIAGRAM, BUILDING E



BUILDING A
CODE REVIEW PLAN
 1/8" - 1'-0"

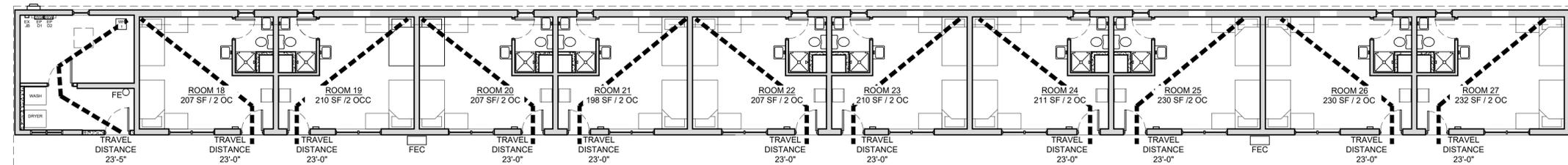


BUILDING E
CODE REVIEW PLAN
 1/8" - 1'-0"



BUILDING B
CODE REVIEW PLAN
 1/8" - 1'-0"

BUILDING C
CODE REVIEW PLAN
 1/8" - 1'-0"



BUILDING D
CODE REVIEW PLAN
 1/8" - 1'-0"

FLOOR PLAN SYMBOLS:

- NEW 2A10BC FIRE EXTINGUISHER AND CABINET
- NEW 2A10BC FIRE EXTINGUISHER: SECURE TO WALL
- EGRESS TRAVEL DISTANCE

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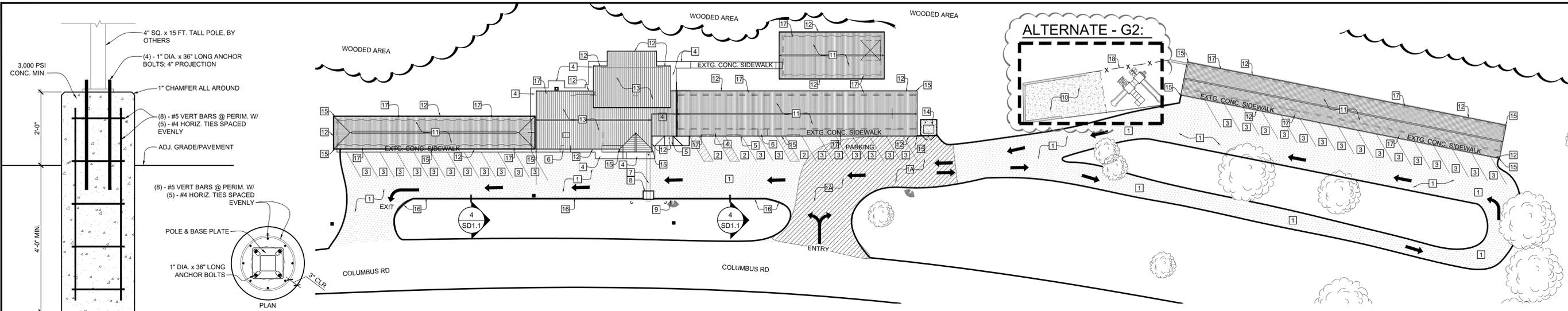
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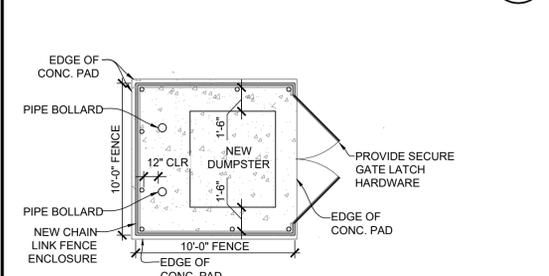
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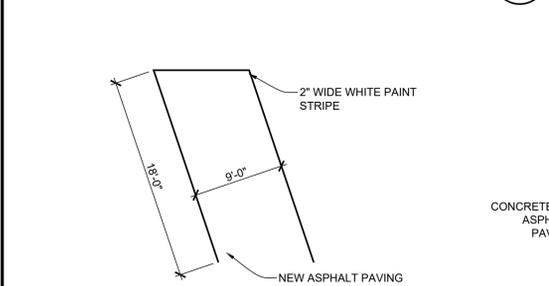
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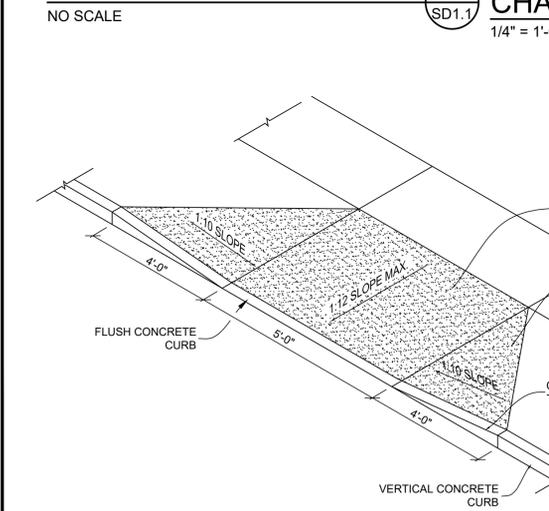
LIGHT POLE BASE FOUNDATION DETAIL
3/4" = 1'-0"



DUMPSTER ENCLOSURE PLAN
3/16" = 1'-0"

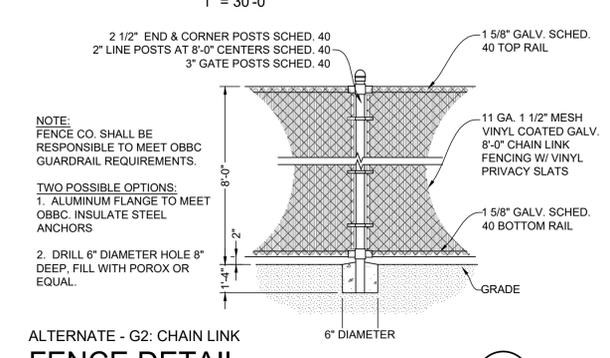


PARKING SPACE DETAIL
NO SCALE

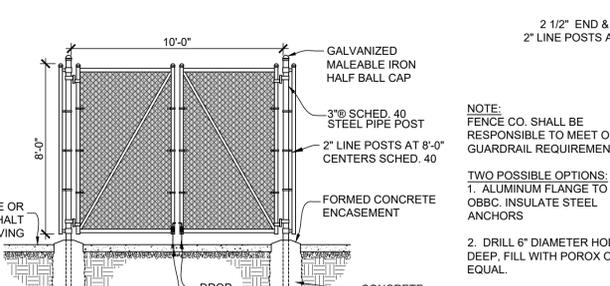


RECESSED CURB RAMP
1/4" = 1'-0"

SITE DEVELOPMENT PLAN
1" = 30'-0"



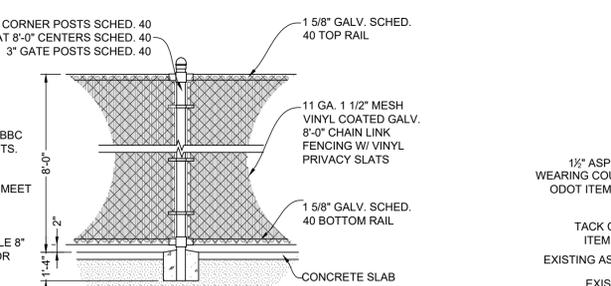
ALTERNATE - G2: CHAIN LINK FENCE DETAIL
3/4" = 1'-0"



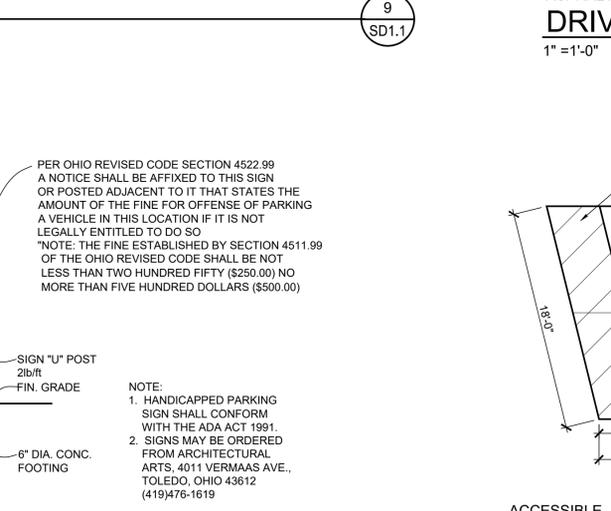
CHAIN LINK GATE AND ENCLOSURE DETAIL
1/4" = 1'-0"

CODED NOTES

- PREPARE EXTG. PARKING LOT AND DRIVE FOR NEW 1-1/2" TOP COAT. GRIND DOWN AS NECESSARY, COORDINATE NEW PAVEMENT SURFACE WITH CURB. SEE DETAIL 3/SD1.1
- PREPARE AREA FOR NEW HD ASPHALT. GRIND DOWN AS NECESSARY. COORDINATE NEW PAVEMENT SURFACE WITH ADJACENT SURFACES. SEE DETAIL 1/SD1.1
- NEW ADA PARKING WITH SIGN SEE 5&6/SD1.1
- NEW PARKING TYP SEE 8/SD1.1 FOR DETAILS
- NEW CONCRETE - SEE S1.1
- RECESSED CURB RAMP, SEE 7/SD1.1 FOR DETAILS
- NEW ADA RAMP FROM EXISTING SIDEWALK TO NEW SIDEWALK, 1:12 MAXIMUM SLOPE
- EXISTING METAL SIGN, NEW PAINT. SEE SPECIFICATIONS
- EXISTING CONC. SIGN BASE, NEW PAINT. SEE SPECIFICATIONS
- NEW STORM DRAIN SPILL MOUTH, SEE SD1.3
- ALTERNATE - G2: NEW PLAYGROUND AREA SEE SD1.3
- NEW 28 GA METAL ROOFING OVER NEW UNDERLAYMENT
- NEW 5" METAL GUTTER, TIE DOWNSPOUT INTO EXISTING DRAIN OR PROVIDE SPLASH BLOCK
- NEW STANDING SEAM METAL ROOF AT BUILDING B, SEE S1.2 FOR MORE DETAILS
- NEW DUMPSTER ENCLOSURE, SEE DETAILS 9&12/SD1.1
- METAL GUTTER DOWNSPOUT LOCATION
- EXISTING CONCRETE CURB TO REMAIN
- PERFORATED METAL SOFFIT, PAINT TO MATCH ROOFING (TYP.)
- ALTERNATE - G2: NEW CHAIN LINK FENCING, SEE DETAIL 11/SD1.1

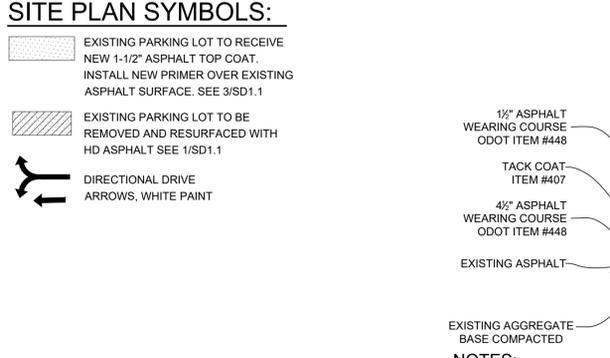


ASPHALT DRIVE & CURB DETAIL
1/4" = 1'-0"

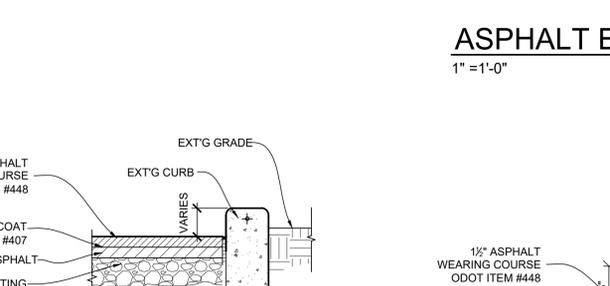


ACCESSIBLE PARKING LOT DETAIL
NO SCALE

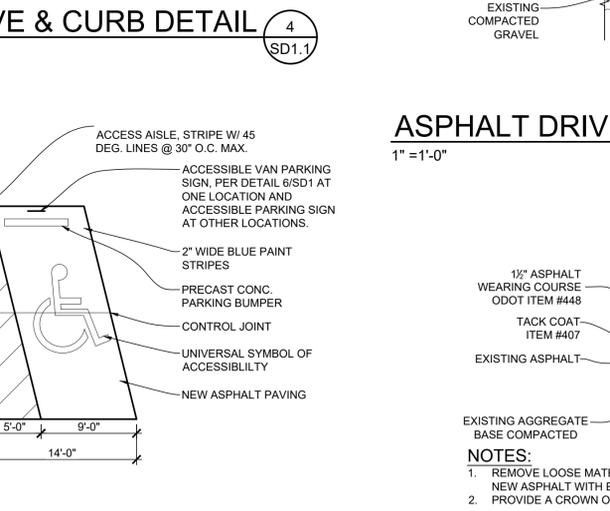
SITE PLAN SYMBOLS:



ASPHALT DRIVE & CURB DETAIL
1" = 1'-0"

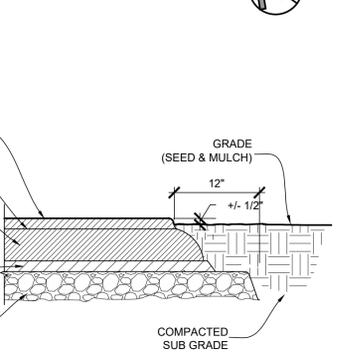


ASPHALT DRIVE & CURB DETAIL
1" = 1'-0"

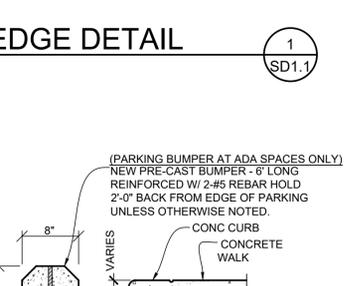


ASPHALT EDGE DETAIL
1" = 1'-0"

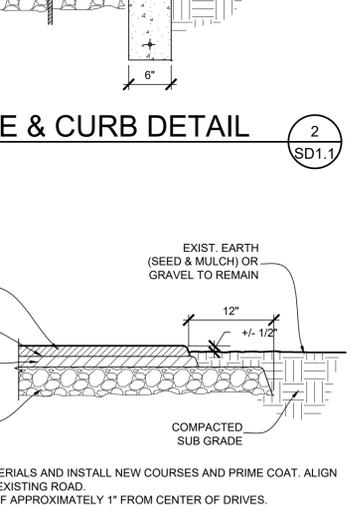
ASPHALT DRIVE & CURB DETAIL
1" = 1'-0"



ASPHALT DRIVE & CURB DETAIL
1" = 1'-0"



ASPHALT EDGE DETAIL
1" = 1'-0"



ASPHALT EDGE DETAIL
1" = 1'-0"

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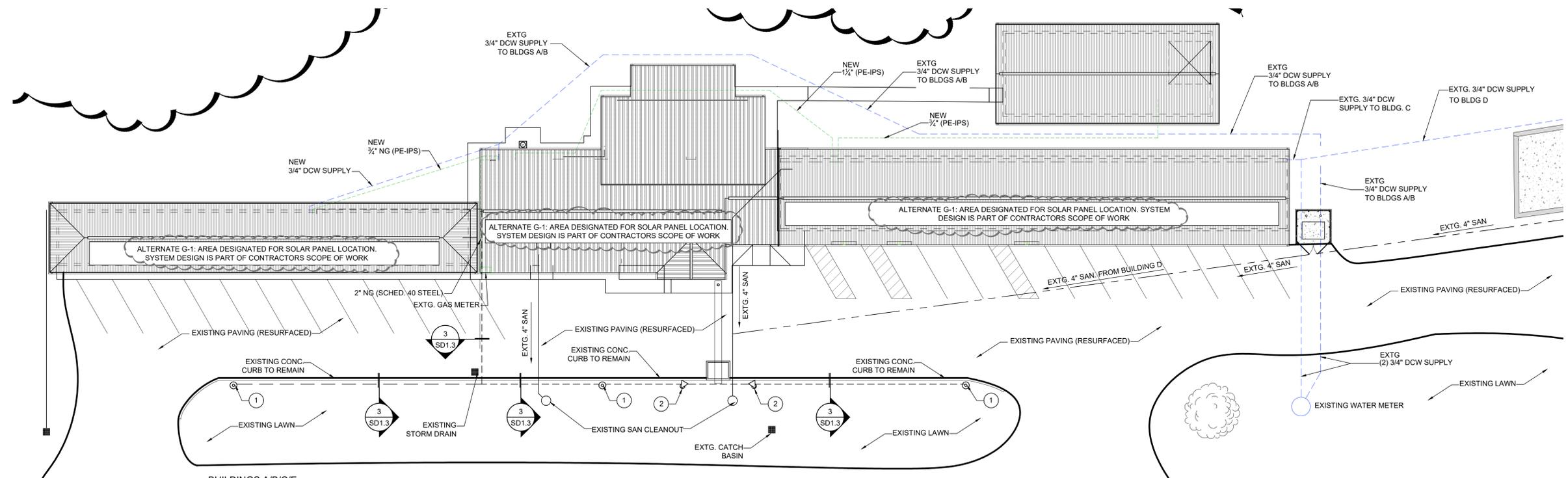
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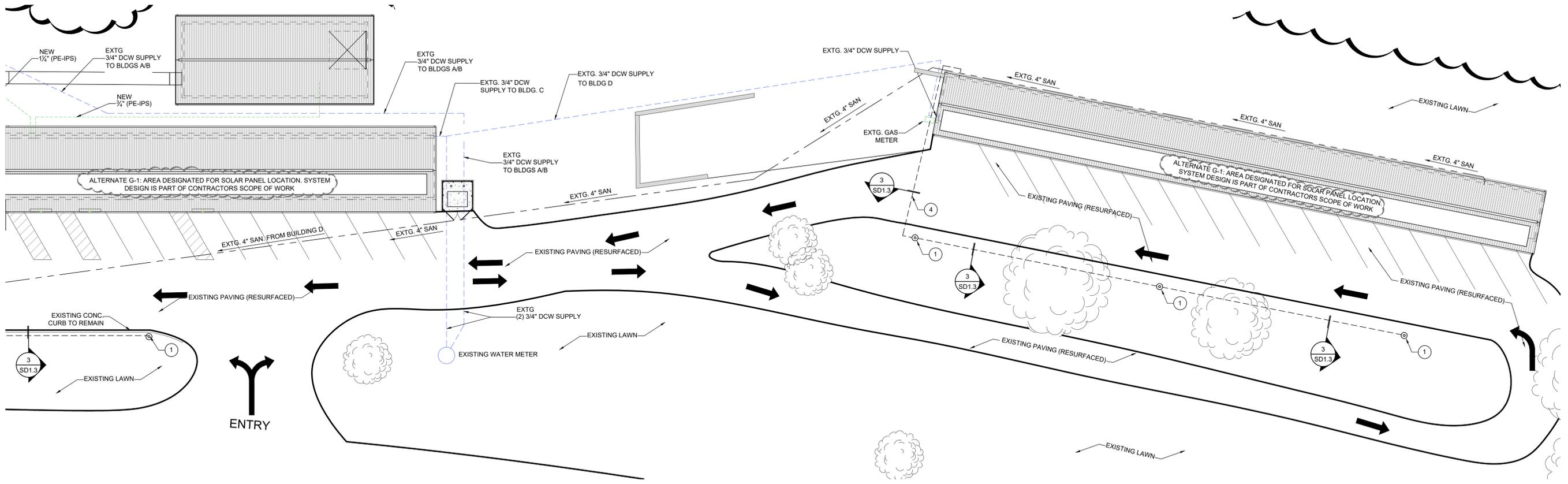
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BUILDINGS A/B/C/E
SITE UTILITY PLAN
1/16" = 30'-0"

SITE UTILITY PLAN CODED NOTES

1. NEW LOW PROFILE, POLE MOUNTED SITE LIGHTING FIXTURE WITH DIRECT MOUNTED DISCRETE LEADS. TYPE 3 OPTICS WITH HOUSE SIDE SHIELD. PROVIDE 4" SQUARE X 15'-0" STRAIGHT POLE WITH 24" Ø CONCRETE POLE BASE. SEE DETAIL 10/SD1.1 -31W LUMARK PRV-P-PA1A-750-U-T3-SM-AP OR APPROVED EQ.
2. NEW LED SPOT & SIGN LIGHT
-16 W. BRONZE BY WAC LIGHTING OR APPROVED EQUAL
-PROVIDE 12" DIAMETER PIER 12" BELOW GRADE, 6" ABOVE GRADE.
3. FOR SITE LIGHTING AT BUILDINGS A,B AND C. RUN U/G CONDUIT FROM BUILDING A ELECTRICAL PANEL AS SHOWN.
4. FOR SITE LIGHTING AT BUILDING D. RUN U/G CONDUIT FROM BUILDING D ELECTRICAL PANEL AS SHOWN.



BUILDING D
SITE UTILITY PLAN
1/16" = 30'-0"

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SD1.2

RE-BID SET
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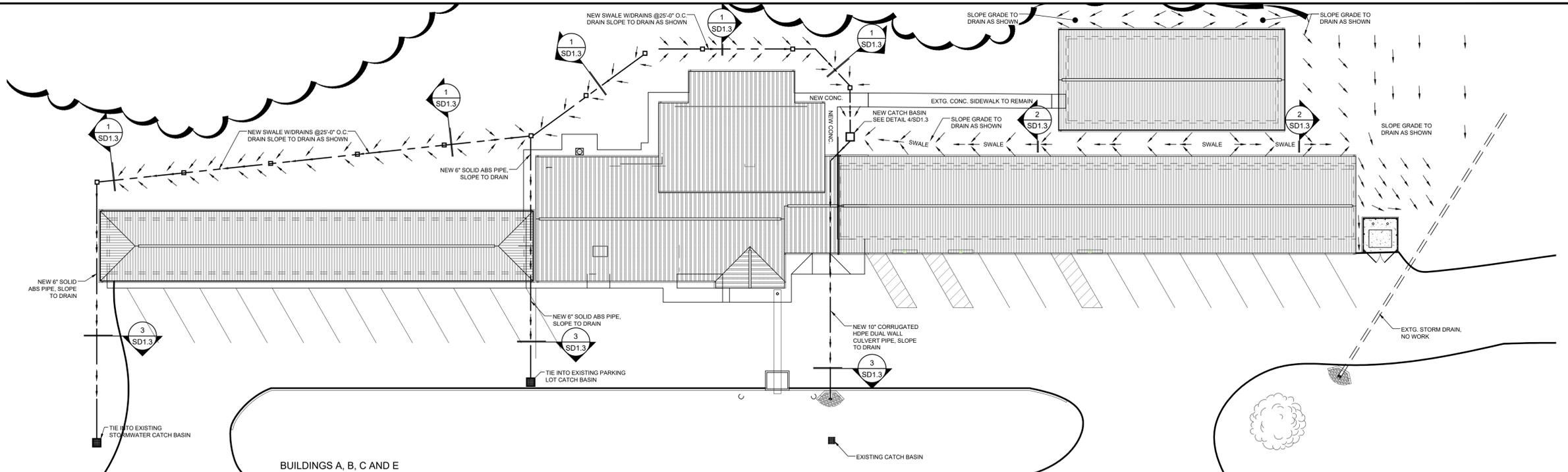
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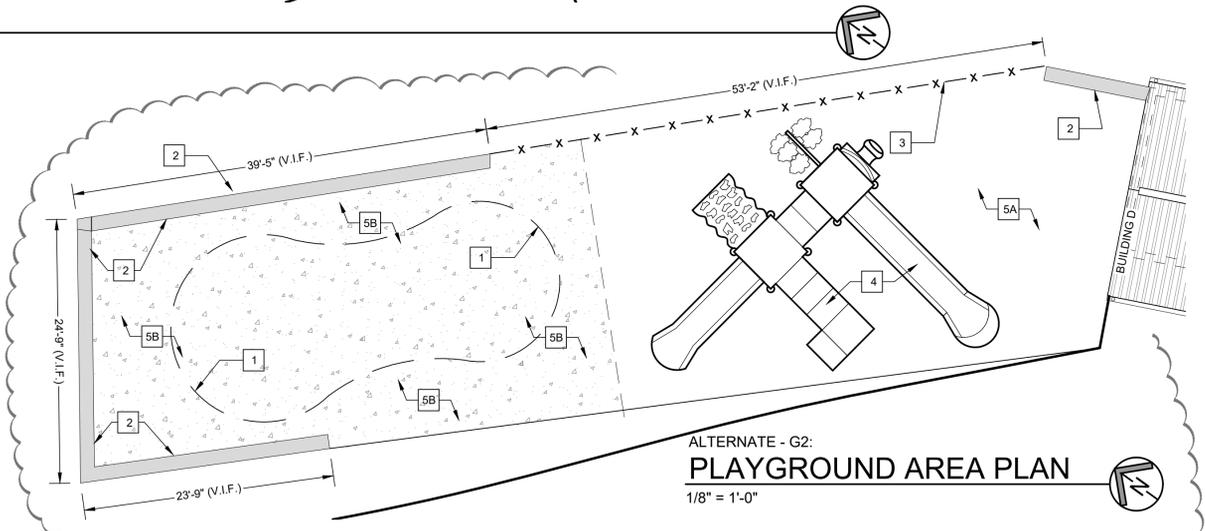
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SD1.3



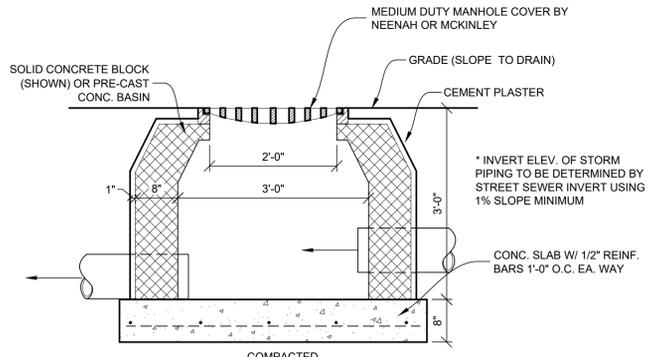
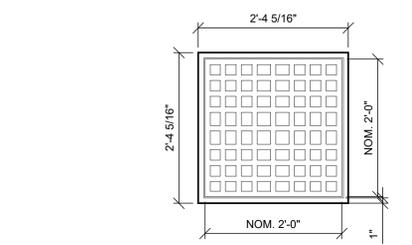
BUILDINGS A, B, C AND E
SITE GRADING & DRAINAGE PLAN
1/16" = 1'-0"



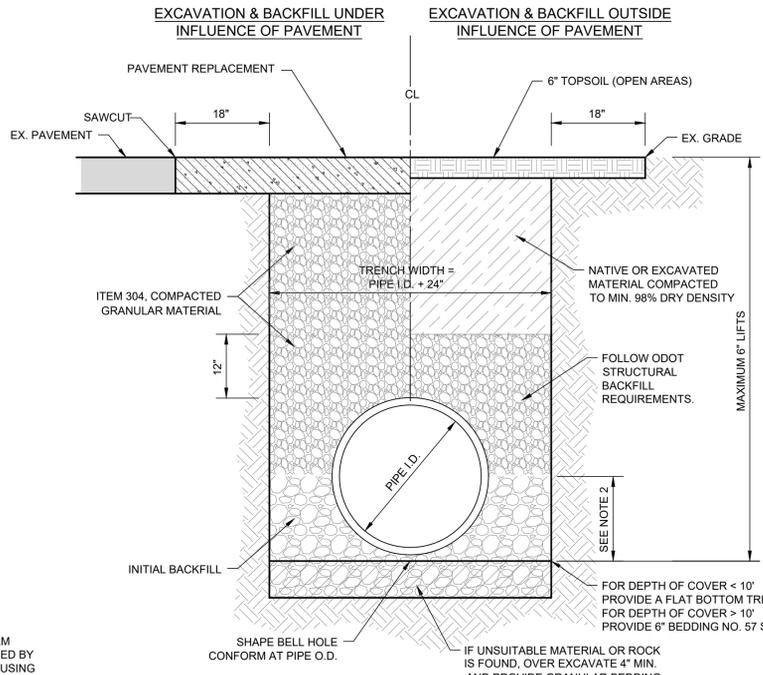
ALTERNATE - G2:
PLAYGROUND AREA PLAN
1/8" = 1'-0"

ALTERNATE - G2:
CODED NOTES (PLAYGROUND AREA)

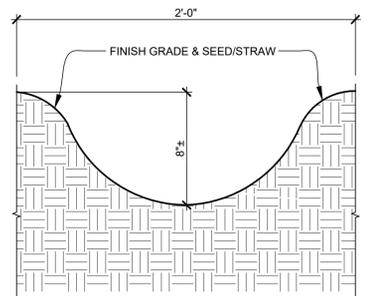
1. REMOVE EXISTING POOL LINER TO BELOW GRADE.
2. CLEAN AND REPAIR EXISTING MASONRY WALL AND MORTAR JOINTS, ADD VERTICAL REBAR REINFORCEMENT @24" O.C., GROUT CORES SOLID, REPLACE TOP CAP WITH NEW, PAINT.
3. INSTALL NEW CHAIN LINK FENCE, SEE DETAIL 11/SD1.1
4. INSTALL NEW PLAYGROUND EQUIPMENT PER MANUFACTURERS SPECIFICATIONS.
5. A. REMOVE EXISTING CONCRETE SLAB, RE-GRADE TO DRAIN TO EXISTING DRIVE, SEED/STRAW.
B. REMOVE EXISTING CONCRETE SLAB, RE-GRADE TO DRAIN TO EXISTING DRIVE, INSTALL NEW 4" CONCRETE SLAB.



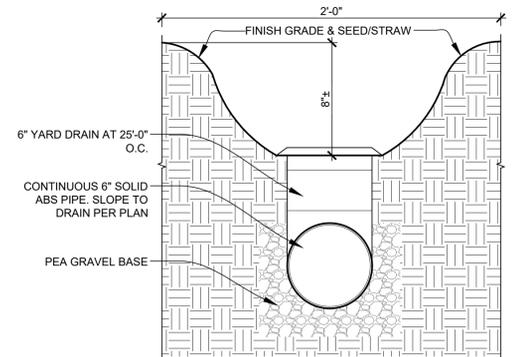
CATCH BASIN DETAIL
3/4" = 1'-0"



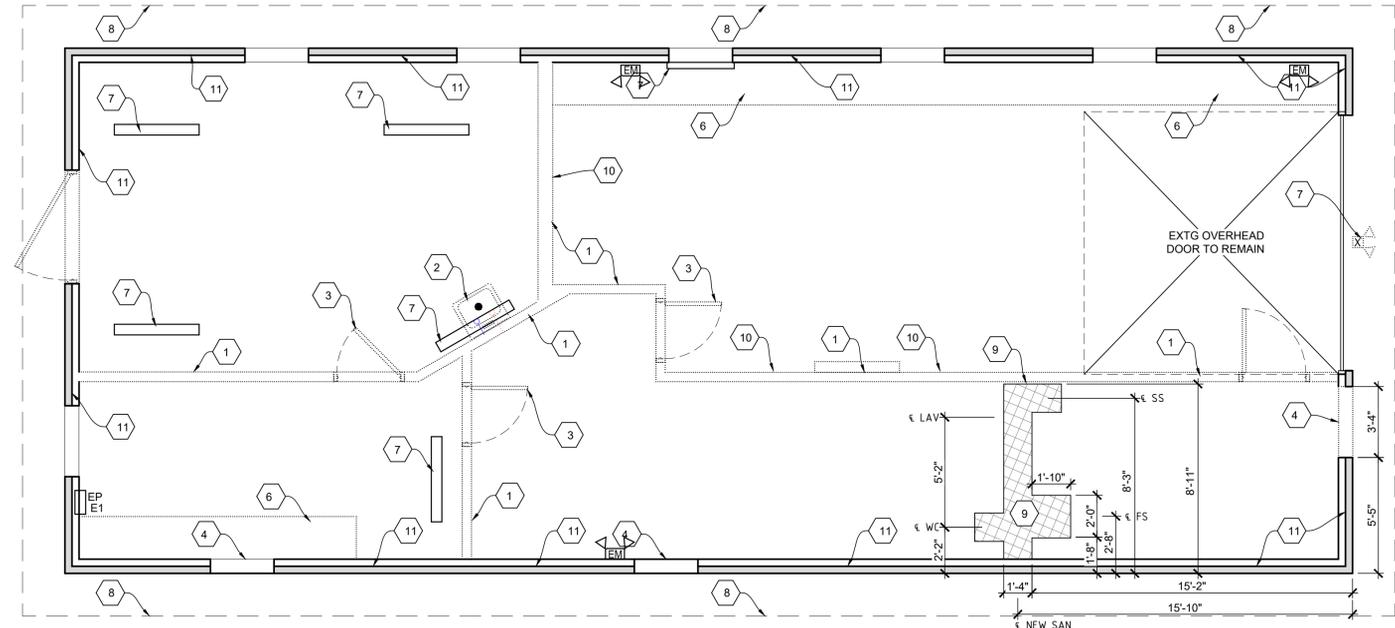
TYPICAL UTILITY TRENCH DETAIL
3/4" = 1'-0"



WITHOUT DRAIN PIPE SWALE DETAIL
2" = 1'-0"



WITH DRAIN PIPE SWALE DETAIL
2" = 1'-0"



BUILDING E
DEMOLITION FLOOR PLAN

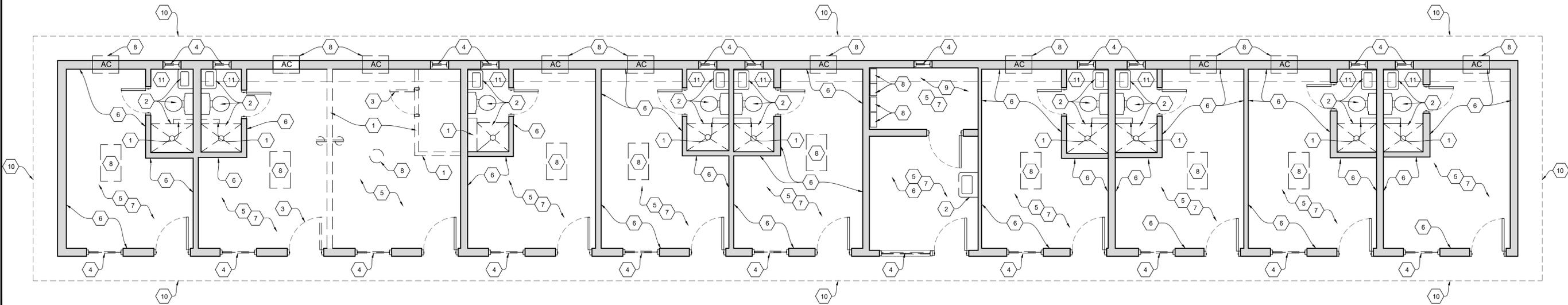
1/4" = 1'-0"

DEMO CODED NOTES (BUILDING E):

1. REMOVE EXISTING WALL AS SHOWN ON DEMOLITION PLAN. PATCH/REPAIR AS NEEDED TO ACCOMMODATE NEW WORK AS SHOWN ON DRAWINGS. CAP ANY ASSOCIATED PLUMBING FOR POTENTIAL REUSE OR IN WALL/FLOOR. TERMINATE ANY ASSOCIATED WIRING TO NEAREST JUNCTION BOX. PREPARE FLOOR/WALL FOR NEW FINISHES. SEE PLANS, FINISH SCHEDULE
2. REMOVE EXISTING PLUMBING FIXTURE. CAP ANY ASSOCIATED PLUMBING FOR POTENTIAL REUSE OR IN WALL/FLOOR.
3. REMOVE EXISTING DOOR AND FRAME, PREPARE FOR NEW DOOR OR INFILL AS INDICATED ON NEW WORK PLANS/DOOR SCHEDULE.
4. REMOVE PORTION OF EXISTING EXTERIOR WALL TO ALLOW FOR NEW WINDOW INSTALLATION. SEE WINDOW SCHEDULE.
5. REMOVE PORTION OF EXISTING EXTERIOR WALL TO ALLOW FOR NEW WINDOW INSTALLATION. SEE WINDOW SCHEDULE.
6. REMOVE EXISTING WORKBENCHES AND ANY EXISTING CASEWORK.
7. REMOVE EXISTING ELECTRICAL EQUIPMENT/RECEPTACLE/FIXTURE. TERMINATE ANY ASSOCIATED WIRING FOR POTENTIAL REUSE.. SEE ELECTRICAL PLANS FOR NEW WORK.
8. REMOVE EXISTING ASPHALT SHINGLES AND UNDERLAYMENT. PREPARE EXISTING SHEATHING FOR NEW METAL ROOF PANELS OVER NEW UNDERLAYMENT.
9. SAW-CUT AND REMOVE EXISTING FLOOR SLAB TO ALLOW FOR NEW PLUMBING TIE-IN. SEE PLUMBING PLAN.
10. REMOVE EXISTING LOFT STORAGE STRUCTURE. PREPARE SPACE FOR NEW LAYOUT.
11. REMOVE ALL EXISTING WALL COVERINGS, PREPARE FOR NEW LAYOUT.

DEMO CODED NOTES (BUILDING A):

1. REMOVE EXISTING WALL AS SHOWN ON DEMOLITION PLAN. PATCH/REPAIR AS NEEDED TO ACCOMMODATE NEW WORK AS SHOWN ON DRAWINGS. CAP ANY ASSOCIATED PLUMBING FOR POTENTIAL REUSE OR IN WALL/FLOOR. TERMINATE ANY ASSOCIATED WIRING TO NEAREST JUNCTION BOX. PREPARE FLOOR/WALL FOR NEW FINISHES. SEE PLANS, FINISH SCHEDULE
2. REMOVE EXISTING PLUMBING FIXTURE. CAP ANY ASSOCIATED PLUMBING FOR POTENTIAL REUSE OR IN WALL/FLOOR.
3. REMOVE EXISTING DOOR AND FRAME, PREPARE FOR NEW DOOR OR INFILL AS INDICATED ON NEW WORK PLANS/DOOR SCHEDULE.
4. REMOVE EXISTING WINDOW AND FRAME, PREPARE FOR NEW WINDOW OR INFILL AS INDICATED ON NEW WORK PLANS/WINDOW SCHEDULE.
5. REMOVE EXISTING FLOOR FINISH IN THIS SPACE, REPAIR FLOOR STRUCTURE AS NEEDED PREPARE AREA FOR NEW FLOOR FINISH. SEE ROOM FINISH SCHEDULE.
6. REMOVE EXISTING WOOD PANEL WALL COVERING, PREPARE TO BE REPLACED WITH 1/2" GWB.
7. REMOVE EXISTING ACT CEILING GRID. PATCH, PAINT EXISTING CEILING FINISH ABOVE.
8. REMOVE EXISTING ELECTRICAL EQUIPMENT/RECEPTACLE/FIXTURE. TERMINATE ANY ASSOCIATED WIRING FOR POTENTIAL REUSE. SEE ELECTRICAL PLANS FOR NEW WORK.
9. REMOVE EXISTING OBSOLETE PLUMBING/PIPING IN THIS SPACE. TERMINATE/CAP IN WALL OR FLOOR
10. REMOVE EXISTING ASPHALT SHINGLES AND UNDERLAYMENT ON EXISTING ROOF. PREPARE FOR NEW METAL ROOF PANELS OVER NEW UNDERLAYMENT.
11. REMOVE EXISTING WALL AND FLOOR COVERING IN BATHROOMS, PREPARE FOR NEW 5/8" MRGWB WALLS, LVT FLOORING.

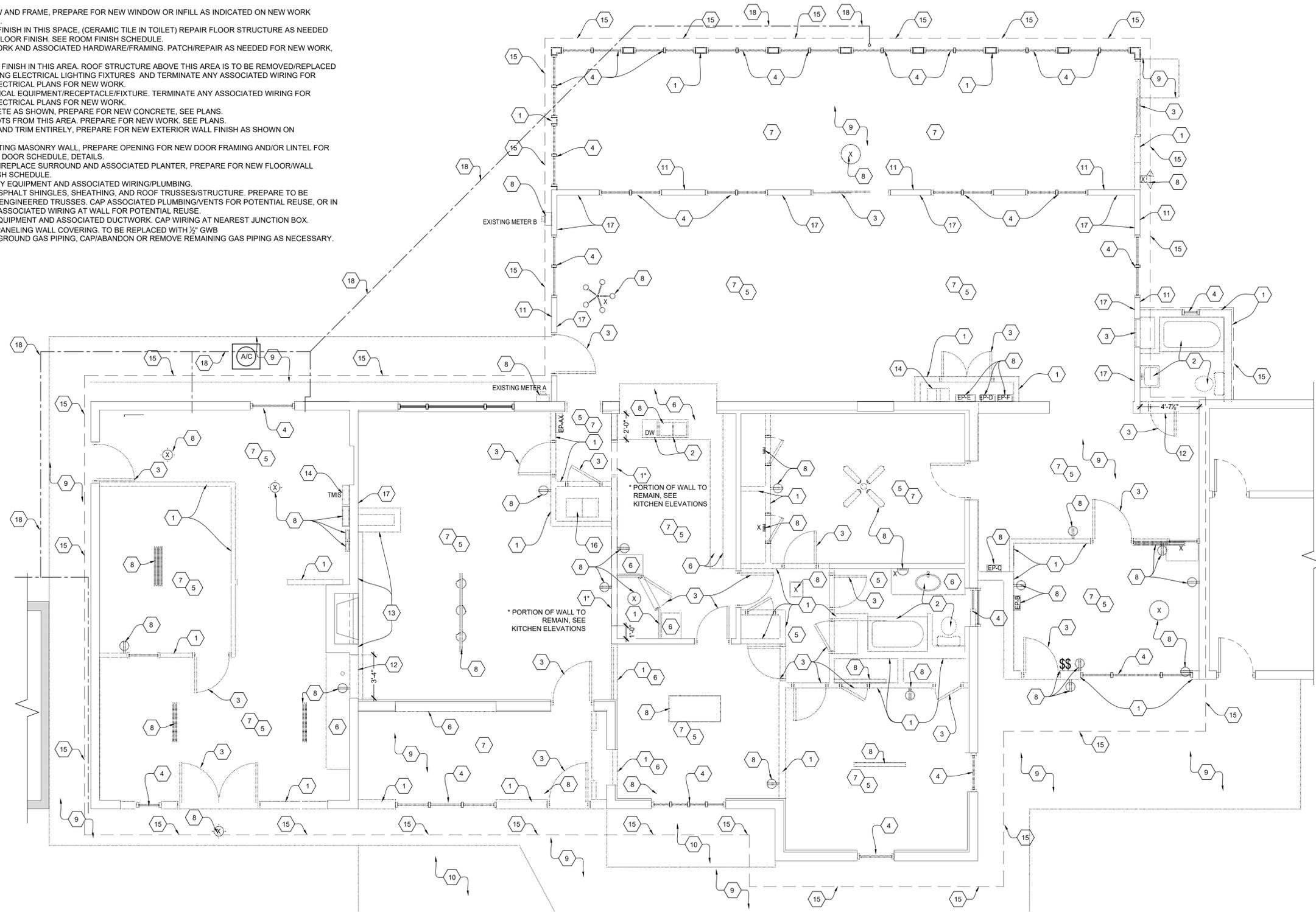


BUILDING A
DEMOLITION FLOOR PLAN

1/4" = 1'-0"

DEMO CODED NOTES:

1. REMOVE EXISTING WALL AS SHOWN ON DEMOLITION PLAN. PATCH/REPAIR AS NEEDED TO ACCOMMODATE NEW WORK AS SHOWN ON DRAWINGS. CAP ANY ASSOCIATED PLUMBING FOR POTENTIAL REUSE OR IN WALL/FLOOR. TERMINATE ANY ASSOCIATED WIRING TO NEAREST JUNCTION BOX. PREPARE FLOOR/WALL FOR NEW FINISHES. SEE PLANS, FINISH SCHEDULE.
2. REMOVE EXISTING PLUMBING FIXTURE. CAP ANY ASSOCIATED PLUMBING FOR POTENTIAL REUSE OR IN WALL/FLOOR.
3. REMOVE EXISTING DOOR AND FRAME. PREPARE FOR NEW DOOR OR INFILL AS INDICATED ON NEW WORK PLANS/DOOR SCHEDULE.
4. REMOVE EXISTING WINDOW AND FRAME. PREPARE FOR NEW WINDOW OR INFILL AS INDICATED ON NEW WORK PLANS/WINDOW SCHEDULE.
5. REMOVE EXISTING FLOOR FINISH IN THIS SPACE. (CERAMIC TILE IN TOILET) REPAIR FLOOR STRUCTURE AS NEEDED. PREPARE AREA FOR NEW FLOOR FINISH. SEE ROOM FINISH SCHEDULE.
6. REMOVE EXISTING CASEWORK AND ASSOCIATED HARDWARE/FRAMING. PATCH/REPAIR AS NEEDED FOR NEW WORK. SEE PLANS.
7. REMOVE EXISTING CEILING FINISH IN THIS AREA. ROOF STRUCTURE ABOVE THIS AREA IS TO BE REMOVED/REPLACED WITH NEW. REMOVE EXISTING ELECTRICAL LIGHTING FIXTURES AND TERMINATE ANY ASSOCIATED WIRING FOR POTENTIAL REUSE. SEE ELECTRICAL PLANS FOR NEW WORK.
8. REMOVE EXISTING ELECTRICAL EQUIPMENT/RECEPTACLE/FIXTURE. TERMINATE ANY ASSOCIATED WIRING FOR POTENTIAL REUSE. SEE ELECTRICAL PLANS FOR NEW WORK.
9. REMOVE EXISTING CONCRETE AS SHOWN. PREPARE FOR NEW CONCRETE. SEE PLANS.
10. REMOVE PLANTINGS & ROOTS FROM THIS AREA. PREPARE FOR NEW WORK. SEE PLANS.
11. REMOVE EXISTING SIDING AND TRIM ENTIRELY. PREPARE FOR NEW EXTERIOR WALL FINISH AS SHOWN ON ELEVATIONS.
12. REMOVE PORTION OF EXISTING MASONRY WALL. PREPARE OPENING FOR NEW DOOR FRAMING AND/OR LINTEL FOR NEW OPENING. SEE PLANS, DOOR SCHEDULE, DETAILS.
13. REMOVE EXISTING BRICK FIREPLACE SURROUND AND ASSOCIATED PLANTER. PREPARE FOR NEW FLOOR/WALL FINISHES. SEE PLANS, FINISH SCHEDULE.
14. REMOVE EXISTING LAUNDRY EQUIPMENT AND ASSOCIATED WIRING/PLUMBING.
15. REMOVE EXISTING ROOF ASPHALT SHINGLES, SHEATHING, AND ROOF TRUSSES/STRUCTURE. PREPARE TO BE REPLACED WITH NEW PRE-ENGINEERED TRUSSES. CAP ASSOCIATED PLUMBING/VENTS FOR POTENTIAL REUSE, OR IN FLOOR/WALL. TERMINATE ASSOCIATED WIRING AT WALL FOR POTENTIAL REUSE.
16. REMOVE EXISTING HVAC EQUIPMENT AND ASSOCIATED DUCTWORK. CAP WIRING AT NEAREST JUNCTION BOX.
17. REMOVE EXISTING WOOD PANELING WALL COVERING. TO BE REPLACED WITH 1/2" GWB.
18. REMOVE EXISTING ABOVE GROUND GAS PIPING. CAP/ABANDON OR REMOVE REMAINING GAS PIPING AS NECESSARY.



BUILDING B
DEMOLITION FLOOR PLAN
 1/4" = 1'-0"



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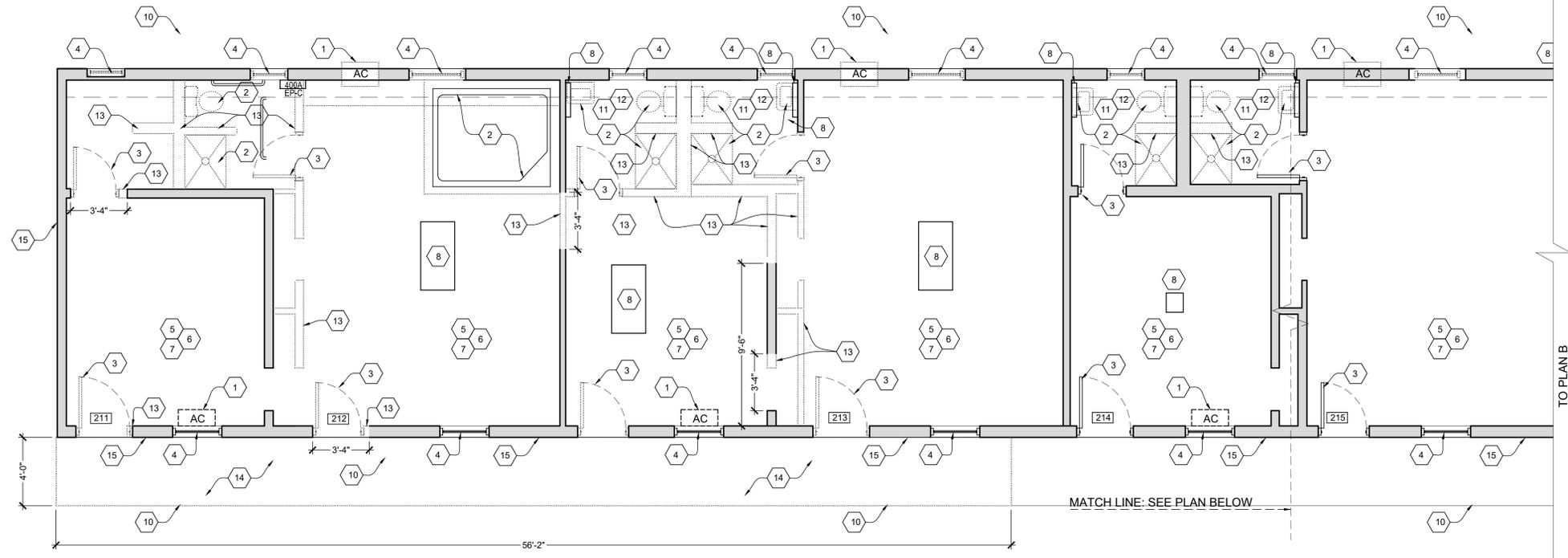
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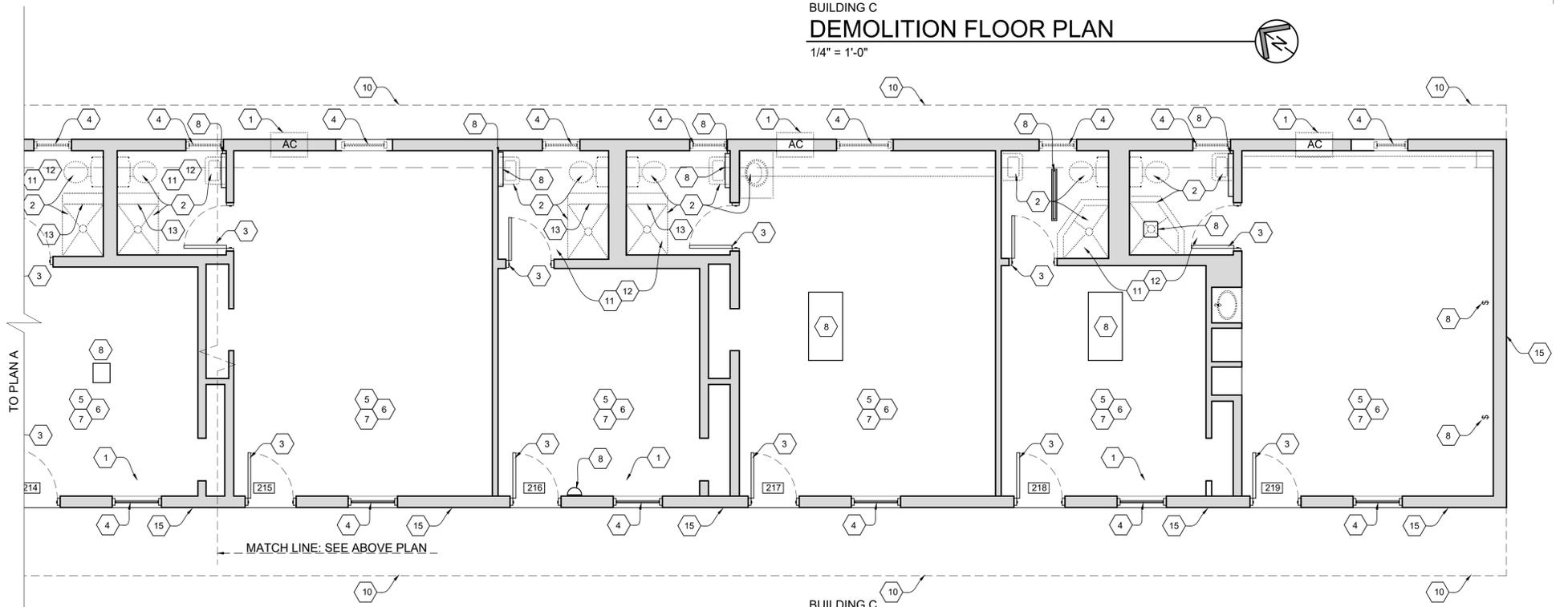
BUILDING C
D1.1C

DEMO CODED NOTES:

1. REMOVE EXISTING THRU-WALL A/C UNIT. PREPARE OPENING FOR NEW PTAC UNIT. SEE MECHANICAL.
2. REMOVE EXISTING PLUMBING FIXTURE. PREPARE FOR NEW REPLACEMENT.
3. REMOVE EXISTING DOOR AND FRAME. PREPARE FOR NEW DOOR OR INFILL AS INDICATED ON NEW WORK PLANS/DOOR SCHEDULE.
4. REMOVE EXISTING WINDOW AND FRAME. PREPARE FOR NEW WINDOW OR INFILL AS INDICATED ON NEW WORK PLANS/WINDOW SCHEDULE.
5. REMOVE EXISTING FLOOR FINISH IN THIS SPACE. REPAIR FLOOR STRUCTURE AS NEEDED, PREPARE AREA FOR NEW FLOOR FINISH. SEE ROOM FINISH SCHEDULE.
6. REMOVE EXISTING WOOD PANEL WALL COVERING. PREPARE TO BE REPLACED WITH 1/2" GWB.
7. REMOVE EXISTING CEILING FINISH IN THIS AREA. REMOVE EXISTING ELECTRICAL LIGHTING FIXTURES AND TERMINATE ANY ASSOCIATED WIRING FOR POTENTIAL REUSE. SEE ELECTRICAL PLANS FOR NEW WORK.
8. REMOVE EXISTING ELECTRICAL EQUIPMENT/RECEPTACLE/FIXTURE. TERMINATE ANY ASSOCIATED WIRING FOR POTENTIAL REUSE. SEE ELECTRICAL PLANS FOR NEW WORK.
9. REMOVE EXISTING OBSOLETE PLUMBING/PIPING IN THIS SPACE. TERMINATE/CAP IN WALL OR FLOOR.
10. REMOVE EXISTING ASPHALT SHINGLES ON EXISTING ROOF. PREPARE FOR NEW METAL ROOF PANELS.
11. REMOVE EXISTING CERAMIC TILE WALL COVERING IN BATHROOMS. PREPARE FOR WALL COVERING. SEE FINISH SCHEDULE.
12. REMOVE EXISTING CERAMIC TILE FLOOR COVERING IN BATHROOMS. PREPARE FOR NEW FLOORING. SEE FINISH SCHEDULE.
13. REMOVE PORTION OF EXISTING WALL AS SHOWN. PREPARE FOR NEW WORK. SEE NEW WORK PLANS.
14. REMOVE PORTION OF EXISTING SIDEWALK AS SHOWN. PREPARE FOR NEW CONCRETE SIDEWALK WITH RAMP.
15. REMOVE EXISTING EXTERIOR WALL FINISH. PREPARE FOR NEW EXTERIOR WALL FINISH. SEE ELEVATIONS.



BUILDING C
DEMOLITION FLOOR PLAN
1/4" = 1'-0"



BUILDING C
DEMOLITION FLOOR PLAN
1/4" = 1'-0"

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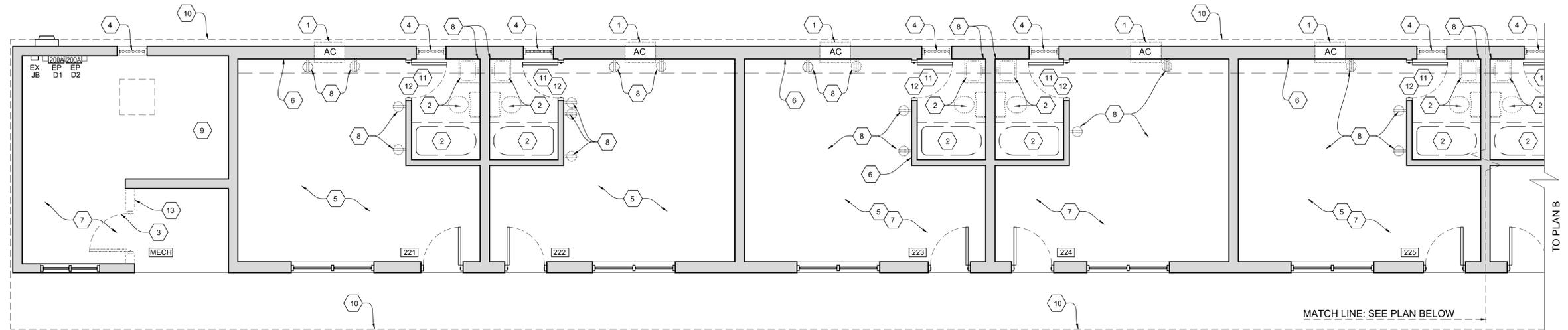
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BUILDING D

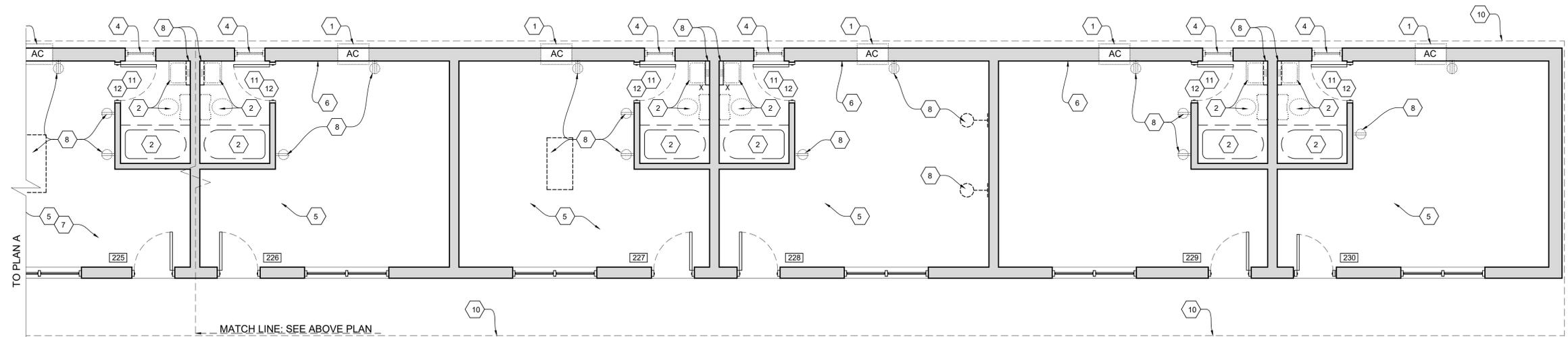
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DEMO CODED NOTES:

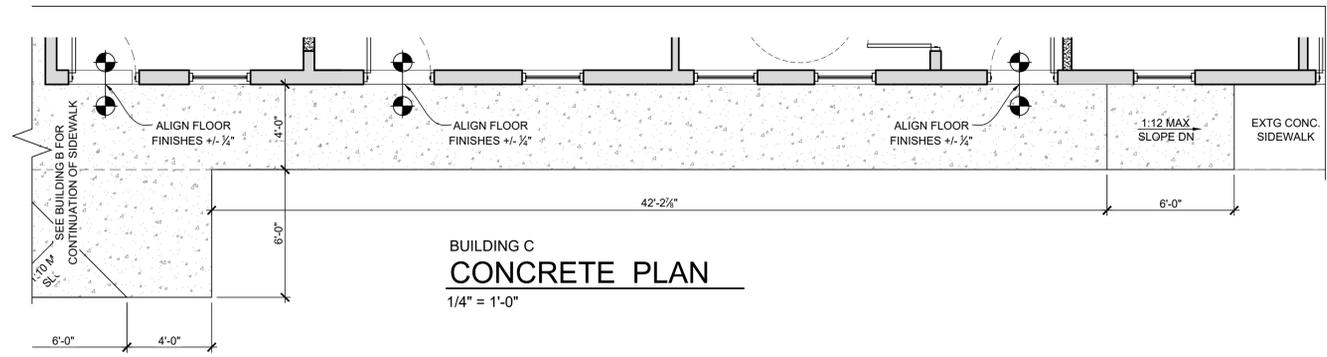
1. REMOVE EXISTING THRU-WALL A/C UNIT. PREPARE OPENING FOR NEW PTAC UNIT. SEE MECHANICAL.
2. REMOVE EXISTING PLUMBING FIXTURE. PREPARE FOR NEW REPLACEMENT.
3. REMOVE EXISTING DOOR AND FRAME. PREPARE FOR NEW DOOR OR INFILL AS INDICATED ON NEW WORK PLANS/DOOR SCHEDULE.
4. REMOVE EXISTING WINDOW AND FRAME. PREPARE FOR NEW WINDOW OR INFILL AS INDICATED ON NEW WORK PLANS/WINDOW SCHEDULE.
5. REMOVE EXISTING FLOOR FINISH IN THIS SPACE. REPAIR FLOOR STRUCTURE AS NEEDED, PREPARE AREA FOR NEW FLOOR FINISH. SEE ROOM FINISH SCHEDULE.
6. REMOVE EXISTING WOOD PANEL WALL COVERING. PREPARE TO BE REPLACED WITH 1/2" GWB.
7. REMOVE EXISTING ACT CEILING GRID. PATCH, PAINT EXISTING CEILING FINISH ABOVE.
8. REMOVE EXISTING ELECTRICAL EQUIPMENT/RECEPTACLE/FIXTURE. TERMINATE ANY ASSOCIATED WIRING FOR POTENTIAL REUSE. SEE ELECTRICAL PLANS FOR NEW WORK.
9. REMOVE EXISTING OBSOLETE PLUMBING/PIPING IN THIS SPACE. TERMINATE/CAP IN WALL OR FLOOR.
10. REMOVE EXISTING ASPHALT SHINGLES AND UNDERLAYMENT ON EXISTING ROOF. PREPARE FOR NEW METAL ROOF PANELS OVER NEW UNDERLAYMENT.
11. REMOVE EXISTING CERAMIC TILE WALL COVERING IN BATHROOMS. PREPARE FOR WALL COVERING. SEE FINISH SCHEDULE.
12. REMOVE EXISTING CERAMIC TILE FLOOR COVERING IN BATHROOMS. PREPARE FOR NEW FLOORING. SEE FINISH SCHEDULE.
13. REMOVE PORTION OF EXISTING WALL AS SHOWN. PREPARE FOR NEW WORK, SEE NEW WORK PLANS.
- 14.



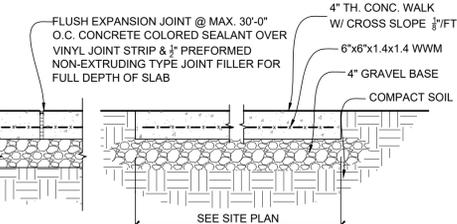
BUILDING D
DEMOLITION FLOOR PLAN A
1/4" = 1'-0"



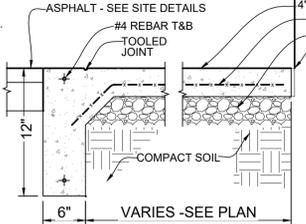
BUILDING D
DEMOLITION FLOOR PLAN B
1/4" = 1'-0"



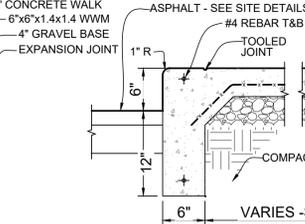
**BUILDING C
CONCRETE PLAN**
1/4" = 1'-0"



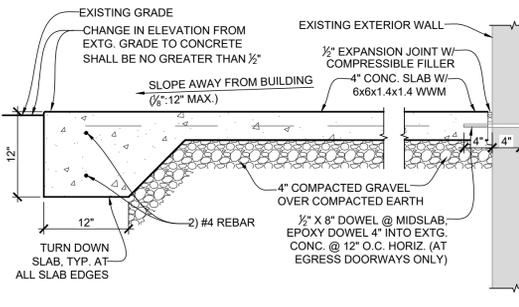
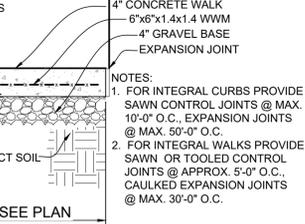
SIDEWALK SECTION 3
1" = 1'-0"



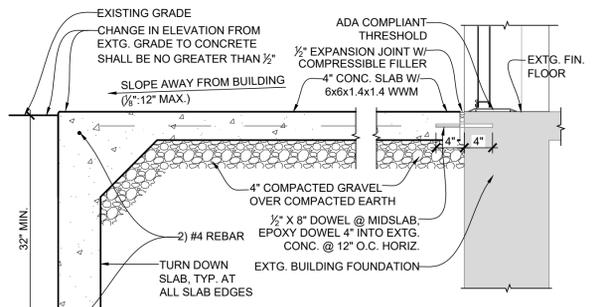
SIDEWALK SECTION 2
1" = 1'-0"



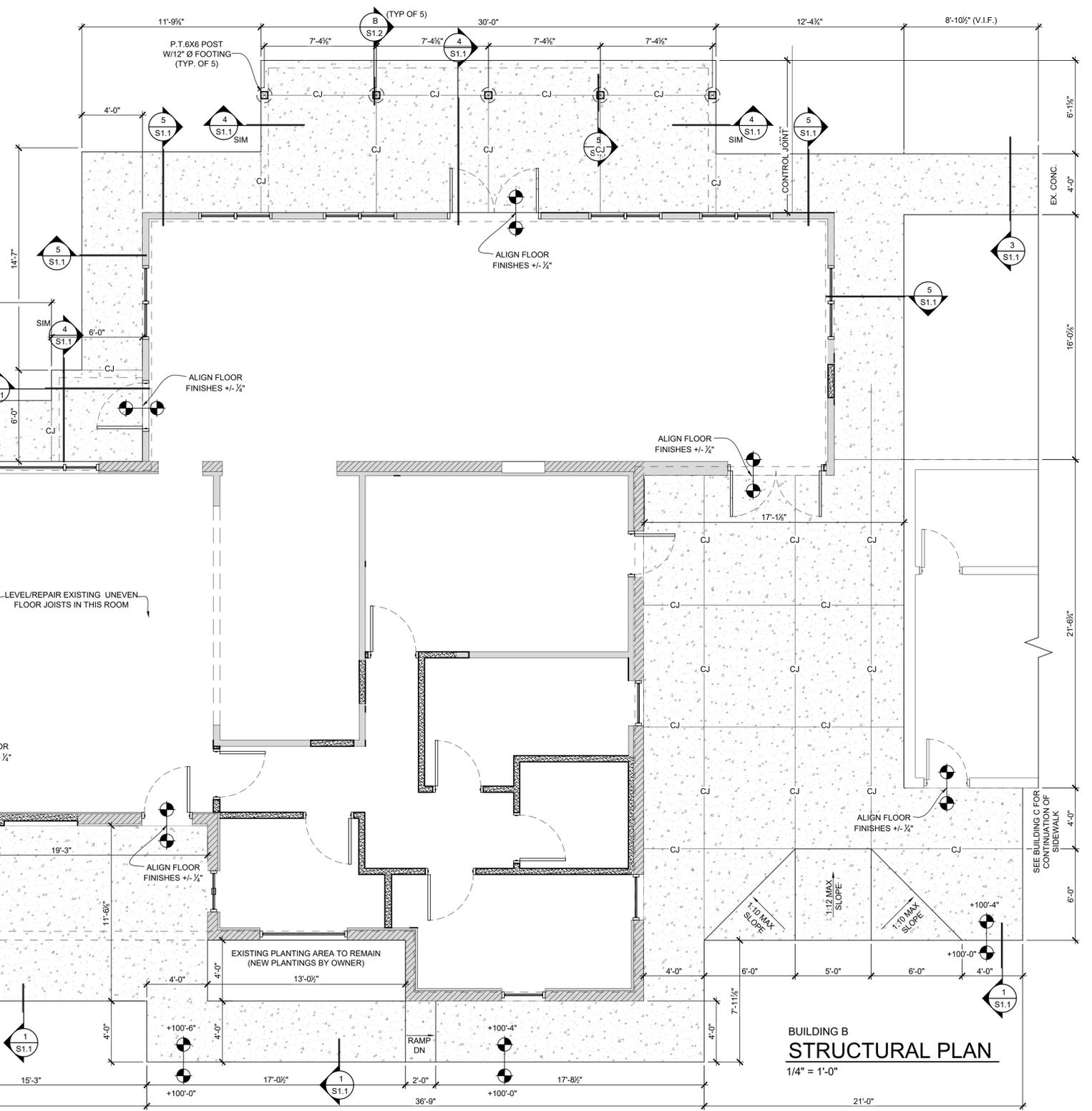
SIDEWALK SECTION 1
1" = 1'-0"



**AT EXISTING BUILDING
TURNDOWN SLAB SECTION 5**
1" = 1'-0"



**AT EGRESS DOORWAYS
TURNDOWN SLAB SECTION 4**
1" = 1'-0"



**BUILDING B
STRUCTURAL PLAN**
1/4" = 1'-0"

REINFORCED CONCRETE NOTES

- SPECIFICATIONS AND STANDARDS: UNLESS SPECIFICALLY SHOWN OTHERWISE, ALL CONCRETE WORK, DETAILING, FABRICATION AND PLACING OF BARS AND CONCRETE SHALL BE GOVERNED BY THE LATEST REVISIONS OF:
 - ACI 301, ACI 315, AND ACI 318.
 - CRSI RECOMMENDED PRACTICE FOR PLACING REINFORCING BARS.
 - ACI 306 AND ACI 305 FOR WINTER AND HOT WEATHER CONCRETING RESPECTIVELY. THE CONTRACTOR SHALL AT ALL TIMES HAVE A COPY OF THE RELEVANT SPECIFICATIONS QUOTED ABOVE ON THE SITE AND THE SUPERVISORY PERSONNEL SHALL BE THOROUGHLY FAMILIAR WITH THE CONTENTS THEREOF.
- CONTINGENCIES:
 - PROVIDE LEAN CONCRETE UNDER FOUNDATIONS FOR EARTH FILL DUE TO ACCIDENTAL OVER EXCAVATION OR SOFT SPOTS.
- CONCRETE REQUIREMENTS AND LOCATIONS IN JOB:

CLASS	LOCATION	F.C.	SPECIAL
I	FOOTINGS, PIER, & ALL INT. CONCRETE NOT OTHERWISE NOTED	3000 PSI	
II	EXTERIOR CONCRETE	4000 PSI	
III	INTERIOR SLABS ON-GRADE	3500 PSI	
IV	MASONRY GROUT	3000 PSI	7" SLUMP 3/8" MAX AGG.
V	EARTH FILL	1500 PSI	NO TESTS
- REINFORCING REQUIREMENTS:
 - BARS: ASTM A615, A616, A617 - GRADE 60.
 - WELDED WIRE FABRIC: ASTM A185.
- FOOTING:
 - BEND ALL BARS 24 DIAMETERS AROUND CORNERS OF WALL AND FOOTINGS. BARS AT THE INSIDE FACE OF THE CORNER SHALL BE CONTINUED ACROSS TO THE OUTSIDE AND THEN BENT.
 - DOWELS IN FOOTINGS TO MATCH VERTICAL WALL, COLUMN OR PIER REINFORCING.
- SPLICES:
 - NO SPLICES IN BEAM, JOIST, OR SLAB STEEL UNLESS SPECIFICALLY SHOWN OTHERWISE.
 - COMPRESSION SPLICES: LAP 30 DIAMETERS.
 - TENSION SPLICES, WHEN PERMITTED: LAP IN ACCORDANCE WITH THE ACI CODE.
 - LAP WELDED WIRE FABRIC 1 SPACE +2" AT ALL EDGES AND ENDS OF SHEET.
- OPENINGS:
 - OPENINGS SHOWN ARE FOR BIDDING PURPOSES ONLY. CONTRACTOR SHALL RECONCILE THEIR EXACT SIZE AND LOCATION WITH MECHANICAL AND OTHER REQUIREMENTS BEFORE PROCEEDING WITH THE WORK.
 - IF ANY OPENING NOT SHOWN ON THE PLAN IS REQUIRED, APPROVAL MUST BE SECURED FROM THE ARCHITECT BEFORE PROCEEDING WITH THE WORK.

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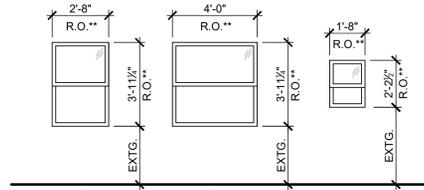
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ALL BUILDINGS
S1.1

WINDOW SCHEDULE (BUILDING A)						
MARK	DESCRIPTION	MATL	ROUGH OPENING (WH)	QUANTITY	DETAIL	NOTES
AA	DOUBLE HUNG	VINYL	32" X 47.5"	11	4/A1.2B	
AB	FIXED	HM (PAINT)	48" X 47.5"	1	6/A1.2B	
EX	DOUBLE HUNG	VINYL	EXISTING	2	NA	NEW FROSTED FILM AT TOILET WINDOWS

GENERAL WINDOW SCHEDULE NOTES:

- GENERAL CONTRACTOR SHALL VERIFY ALL WINDOW SIZES AND ROUGH OPENINGS PRIOR TO FRAMING



DOUBLE HUNG VINYL WINDOW WITH TEMPERED GLASS
 DOUBLE HUNG VINYL WINDOW WITH TEMPERED GLASS
 EXISTING SINGLE HUNG VINYL WINDOW WITH TEMPERED GLASS (PROVIDE FROSTED FILM AT TOILET LOCATIONS)

** - VERIFY ALL ROUGH OPENINGS OF REPLACEMENT WINDOWS PRIOR TO ORDERING

WINDOW TYPES

1/4" = 1'-0"

ROOM FINISH SCHEDULE									
ROOM	FLOOR	BASE	WALLS	CEILING	NOTES				
201	ROOM 1	LVT	RCB	GWB2	PAINT	EXTG			
201B	ROOM 1 BATHROOM	LVT	RCB	MRGWB	PAINT	EXTG			
202	COMMUNITY	LVT	RCB	GWB2	PAINT	EXTG			
202B	COMMUNITY BATHROOM	LVT	RCB	MRGWB	PAINT	EXTG			
204	ROOM 2	LVT	RCB	GWB2	PAINT	EXTG			
204B	ROOM 2 BATHROOM	LVT	RCB	MRGWB	PAINT	EXTG			
205	ROOM 3	LVT	RCB	GWB2	PAINT	EXTG			
205B	ROOM 3 BATHROOM	LVT	RCB	MRGWB	PAINT	EXTG			
206	ROOM 4	LVT	RCB	GWB2	PAINT	EXTG			
206B	ROOM 4 BATHROOM	LVT	RCB	MRGWB	PAINT	EXTG			
2L	LAUNDRY	LVT	RCB	MRGWB	PAINT	EXTG			
2M	MECH ROOM	LVT	RCB	MRGWB	PAINT	EXTG			
207	ROOM 5	LVT	RCB	GWB2	PAINT	EXTG			
207B	ROOM 5 BATHROOM	LVT	RCB	MRGWB	PAINT	EXTG			
208	ROOM 6	LVT	RCB	GWB2	PAINT	EXTG			
208B	ROOM 6 BATHROOM	LVT	RCB	MRGWB	PAINT	EXTG			
209	ROOM 7	LVT	RCB	GWB2	PAINT	EXTG			
209B	ROOM 7 BATHROOM	LVT	RCB	MRGWB	PAINT	EXTG			
210	ROOM 8	LVT	RCB	GWB2	PAINT	EXTG			
210B	ROOM 8 BATHROOM	LVT	RCB	MRGWB	PAINT	EXTG			

ABBREVIATIONS ON ROOM FINISH SCHEDULE:

- MLP - METAL LINER PANEL
- GWB - GYPSUM WALL BOARD
- MRGWB - MOISTURE RESISTANT GYPSUM WALL BOARD
- GWB2 - 1/2" GYPSUM WALL BOARD TO REPLACE EXISTING WALL AND/OR CEILING PANELING
- GWB1 - 5/8" GYPSUM WALL BOARD
- PAINT - LATEX, SEE SPECIFICATIONS
- PCONC - POLISHED CONCRETE
- SCONG - SEALED CONCRETE
- LVT - LUXURY VINYL TILE
- RCB - RUBBER COVE BASE; ARMSTRONG METAL GRAY; R48MG OR SIMILAR

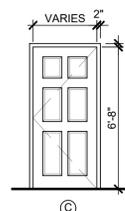
DOOR SCHEDULE											
DR #	DOOR SIZE W x H - THK	TYPE	FRAME				MISC				
			MATL	FIN	MATL	FIN	DETAIL	RATING	HWDE	NOTES	
201.1	2'-8" x 6'-8" x 1-3/4"	EXTG	HM	PAINT	EXTG	PAINT					2
201.2	2'-0" x 6'-8" x 1-3/4"	C	WD	PAINT	WD	PAINT	/				3
202.1	2'-8" x 6'-8" x 1-3/4"	EXTG	HM	PAINT	HM	PAINT	7/A1.2				2
202.2	2'-0" x 6'-8" x 1-3/4"	C	WD	PAINT	WD	PAINT	/				3
204.1	2'-10" x 6'-8" x 1-3/4"	EXTG	HM	PAINT	HM	PAINT	7/A1.2				2
204.2	2'-0" x 6'-8" x 1-3/4"	C	WD	PAINT	WD	PAINT	/				3
205.1	2'-10" x 6'-8" x 1-3/4"	EXTG	HM	PAINT	HM	PAINT	7/A1.2				2
205.2	2'-0" x 6'-8" x 1-3/4"	C	WD	PAINT	WD	PAINT	/				3
206.1	2'-8" x 6'-8" x 1-3/4"	EXTG	HM	PAINT	HM	PAINT	7/A1.2				2
206.2	2'-0" x 6'-8" x 1-3/4"	C	WD	PAINT	WD	PAINT	/				3
2L.1	2'-8" x 6'-8" x 1-3/4"	EXTG	HM	PAINT	HM	PAINT	7/A1.2				1
2M.1	2'-8" x 6'-8" x 1-3/4"	BA	HM	PAINT	HM	PAINT	7/A1.2				6
207.1	2'-8" x 6'-8" x 1-3/4"	EXTG	HM	PAINT	HM	PAINT	7/A1.2				2
207.2	2'-0" x 6'-8" x 1-3/4"	C	WD	PAINT	WD	PAINT	/				3
208.1	2'-8" x 6'-8" x 1-3/4"	EXTG	HM	PAINT	HM	PAINT	7/A1.2				2
208.2	2'-0" x 6'-8" x 1-3/4"	C	WD	PAINT	WD	PAINT	/				3
209.1	2'-8" x 6'-8" x 1-3/4"	EXTG	HM	PAINT	HM	PAINT	7/A1.2				2
209.2	2'-0" x 6'-8" x 1-3/4"	C	WD	PAINT	WD	PAINT	/				3
210.1	2'-8" x 6'-8" x 1-3/4"	EXTG	HM	PAINT	HM	PAINT	7/A1.2				2
210.2	2'-0" x 6'-8" x 1-3/4"	C	WD	PAINT	WD	PAINT	/				3

DOOR HARDWARE SCHEDULE:

SET #	DESCRIPTION	COMPONENTS
1	ENTRY DOORS	<ul style="list-style-type: none"> (0) LOCKSET PROVIDED BY SECURITY CONTRACT (N.I.C) (1) ADA CLOSER (3) NORMAL DUTY STEEL HINGES (1) DOOR SWEEP (1) WEATHER STRIPPING
2	UNIT DOOR	<ul style="list-style-type: none"> (0) LOCKSET PROVIDED BY SECURITY CONTRACT (N.I.C) (1) ADA CLOSER UNLESS NOTED OTHERWISE ON DOOR SCHEDULE (3) NORMAL DUTY STEEL HINGES (1) WEATHER STRIPPING (1) 180° FIELD OF VIEW MINIMUM PEEPHOLE (1) DOOR SWEEP
3	BATHROOM ROOM DOOR	<ul style="list-style-type: none"> (1) ADA PRIVACY LOCKSET (3) NORMAL DUTY STEEL HINGES
4	OFFICE DOOR	<ul style="list-style-type: none"> (1) ADA ENTRY LOCKSET (1) ADA CLOSER (U.N.O.) (3) NORMAL DUTY STEEL HINGES (1) 180° FIELD OF VIEW MINIMUM PEEPHOLE (1) DOOR SWEEP
5	OFFICE BATHROOM DOOR	<ul style="list-style-type: none"> (1) ADA PRIVACY LOCKSET (1) ADA CLOSER (U.N.O.) (3) NORMAL DUTY STEEL HINGES (1) DOOR SWEEP
6	STORAGE ROOM DOOR	<ul style="list-style-type: none"> (1) ADA STOREROOM LEVER LOCKSET (3) NORMAL DUTY STEEL HINGES (1) DOOR SWEEP (1) 180° FIELD OF VIEW MINIMUM PEEPHOLE (1) DEADBOLT (1) PRY PLATE (1) ADA CLOSER (U.N.O.)
7	MECHANICAL ROOM DOOR	<ul style="list-style-type: none"> (0) LOCKSET PROVIDED BY SECURITY CONTRACT (N.I.C) (3) NORMAL DUTY STEEL HINGES (1) 180° FIELD OF VIEW MINIMUM PEEPHOLE (1) DEADBOLT (1) PRY PLATE (1) ADA CLOSER (1) DOOR SWEEP

FLOOR PLAN SYMBOLS:

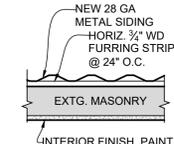
- WALL ID TAG: SEE WALL TYPES
- DOOR ID TAG: SEE DOOR SCHEDULE
- WINDOW TYPES: SEE WINDOW SCHEDULE
- NEW WALL PARTITION - SEE WALL TYPES
- EXISTING WALL TO REMAIN
- NEW WALL MOUNT COAT RACK CSL #TMK-24 OR APPROVED EQUAL



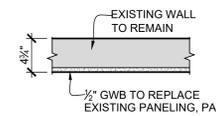
SOLID CORE WOOD 6-PANEL DOOR W/ WOOD FRAME

DOOR TYPES

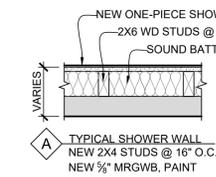
1/4" = 1'-0"



EXISTING EXTERIOR WALL AT BUILDING FRONTAGE



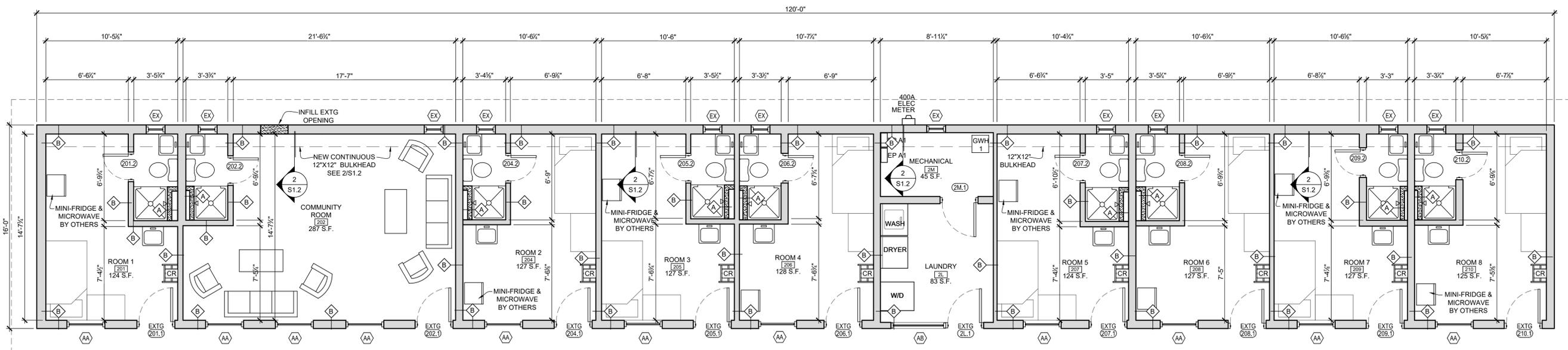
EXISTING INTERIOR WALL NEW 1/2" GWB, PAINT



TYPICAL SHOWER WALL NEW 2X4 STUDS @ 16" O.C. NEW 5/8" MRGWB, PAINT

WALL TYPES

1" = 1'-0"



BUILDING A EXISTING FLOOR PLAN

1/4" = 1'-0"

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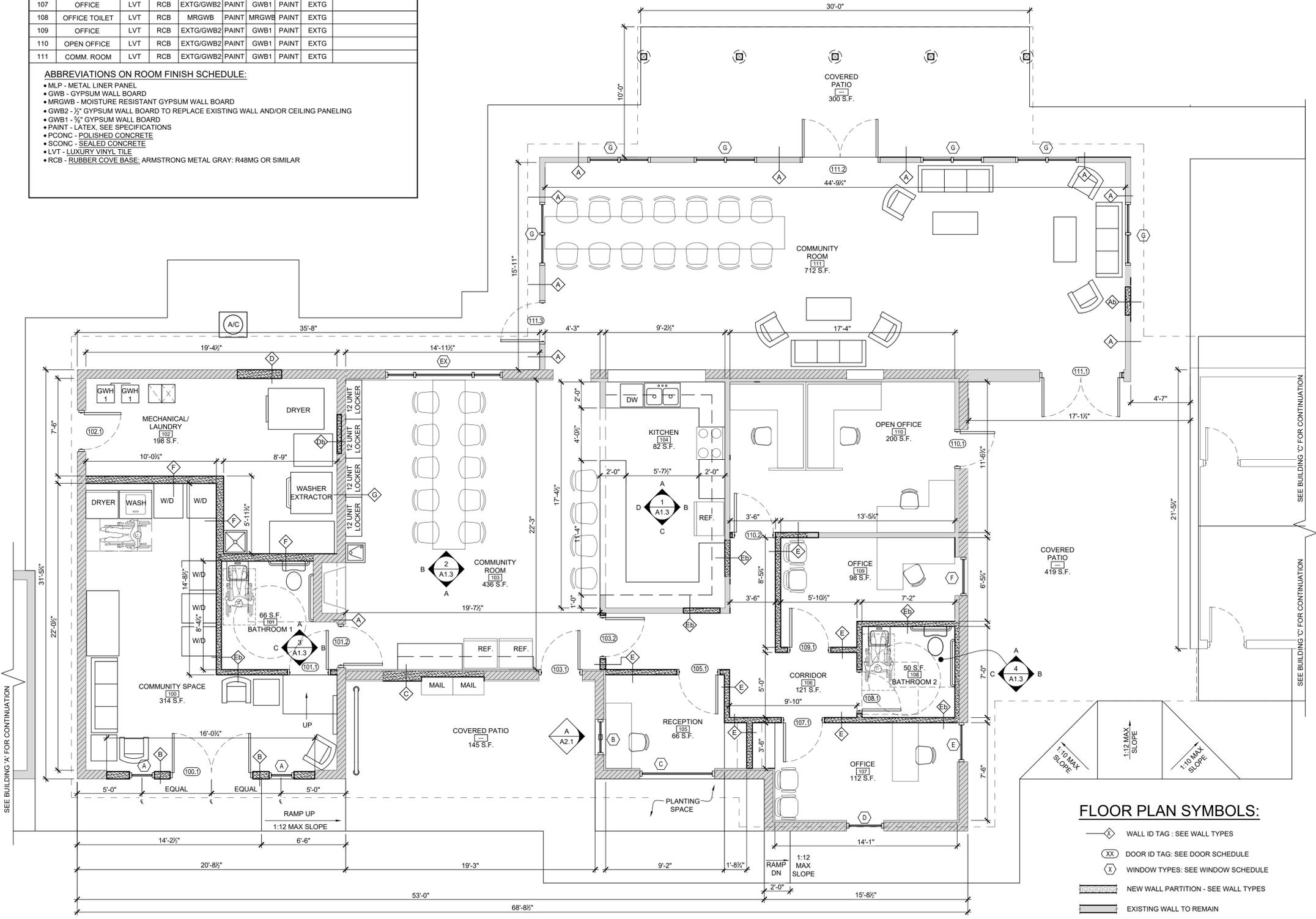
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BUILDING B
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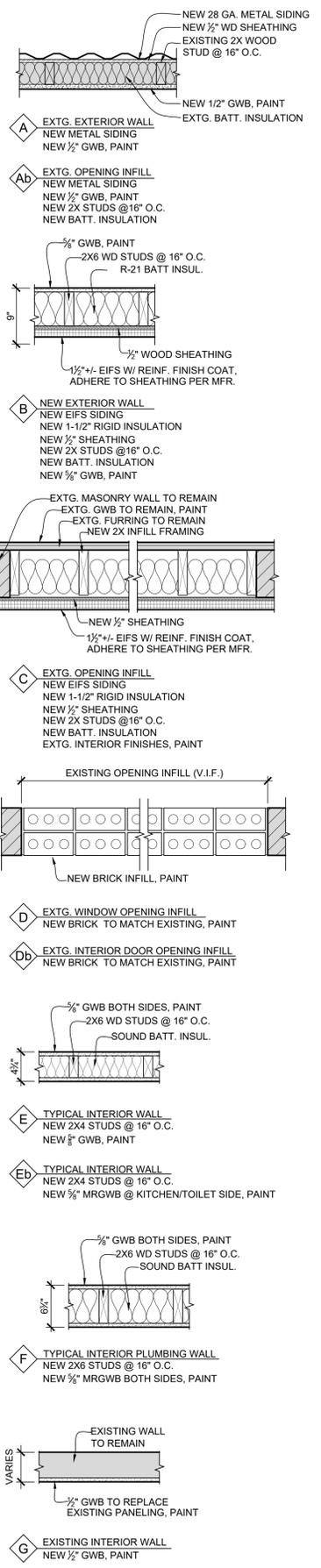
ROOM FINISH SCHEDULE							
RM. NO.	ROOM NAME	FLOOR	BASE	WALLS	FIN.	CEILING	HEIGHT
100	COMM. LAUNDRY	LVT	RCB	MRGWB	PAINT	MRGWB	PAINT
101	BATHROOM	LVT	RCB	MRGWB	PAINT	MRGWB	PAINT
102	MECHANICAL/LAUNDRY	LVT	RCB	MRGWB	PAINT	MRGWB	PAINT
103	COMMUNITY ROOM	LVT	RCB	EXTG/GWB2	PAINT	GWB1	PAINT
104	COMMUNITY KITCHEN	LVT	RCB	MRGWB	PAINT	MRGWB	PAINT
105	RECEPTION	LVT	RCB	EXTG/GWB2	PAINT	GWB1	PAINT
106	OFFICE CORRIDOR	LVT	RCB	EXTG/GWB2	PAINT	GWB1	PAINT
107	OFFICE	LVT	RCB	EXTG/GWB2	PAINT	GWB1	PAINT
108	OFFICE TOILET	LVT	RCB	MRGWB	PAINT	MRGWB	PAINT
109	OFFICE	LVT	RCB	EXTG/GWB2	PAINT	GWB1	PAINT
110	OPEN OFFICE	LVT	RCB	EXTG/GWB2	PAINT	GWB1	PAINT
111	COMM. ROOM	LVT	RCB	EXTG/GWB2	PAINT	GWB1	PAINT

ABBREVIATIONS ON ROOM FINISH SCHEDULE:

- MLP - METAL LINER PANEL
- GWB - GYPSUM WALL BOARD
- MRGWB - MOISTURE RESISTANT GYPSUM WALL BOARD
- GWB2 - 1/2" GYPSUM WALL BOARD TO REPLACE EXISTING WALL AND/OR CEILING PANELING
- GWB1 - 5/8" GYPSUM WALL BOARD
- PAINT - LATEX. SEE SPECIFICATIONS
- PCONC - POLISHED CONCRETE
- SCONC - SEALED CONCRETE
- LVT - LUXURY VINYL TILE
- RCB - RUBBER COVE BASE; ARMSTRONG METAL GRAY: R48MG OR SIMILAR



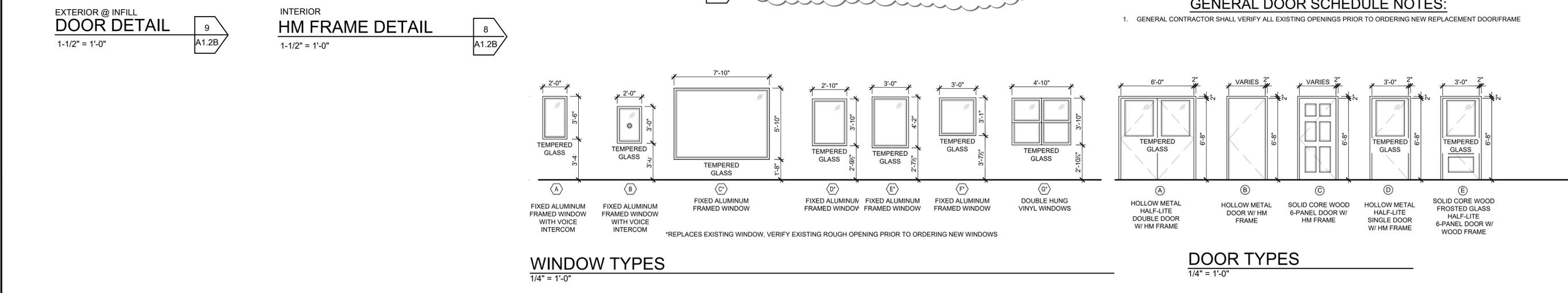
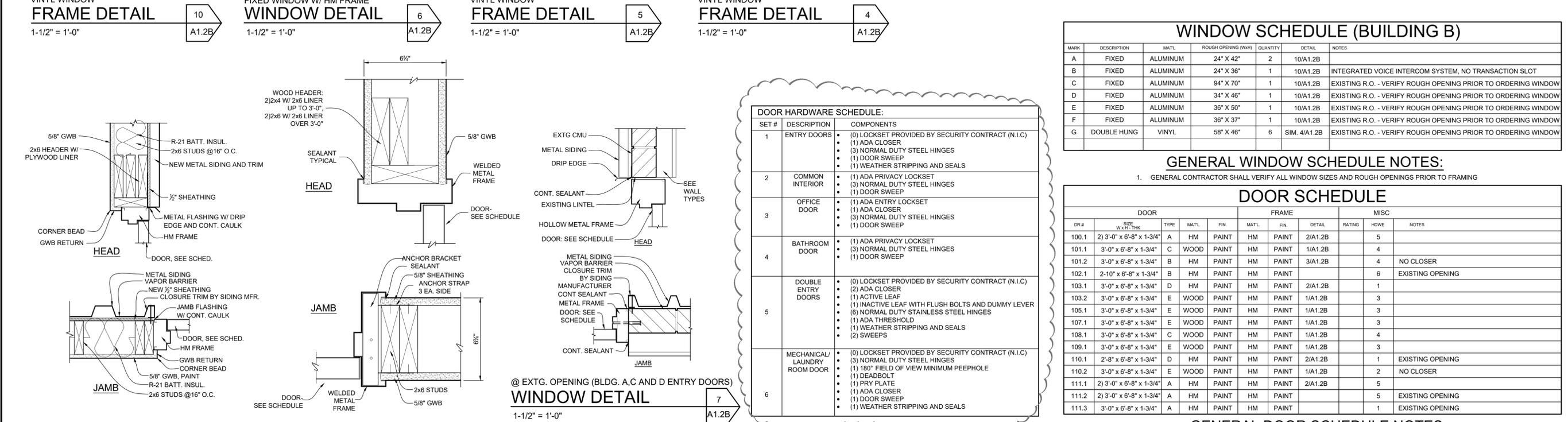
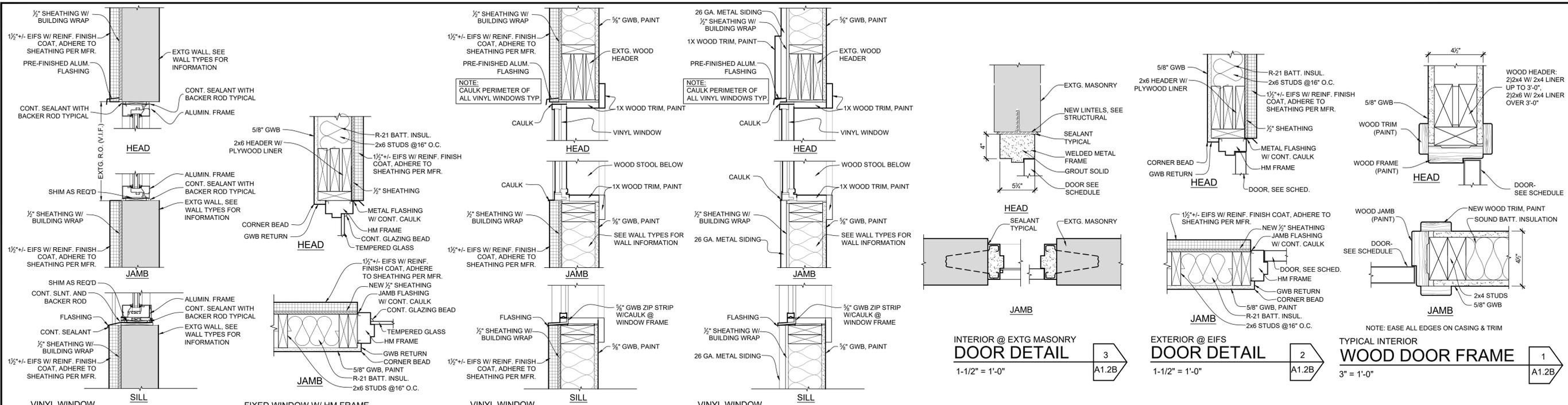
- FLOOR PLAN SYMBOLS:**
- ◇ WALL ID TAG - SEE WALL TYPES
 - XX DOOR ID TAG - SEE DOOR SCHEDULE
 - X WINDOW TYPES - SEE WINDOW SCHEDULE
 - ▨ NEW WALL PARTITION - SEE WALL TYPES
 - ▩ EXISTING WALL TO REMAIN

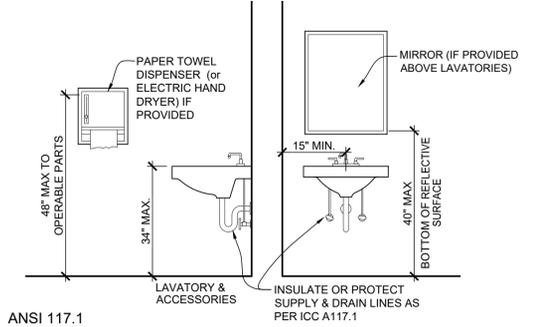


WALL TYPES
1" - 1'-0"

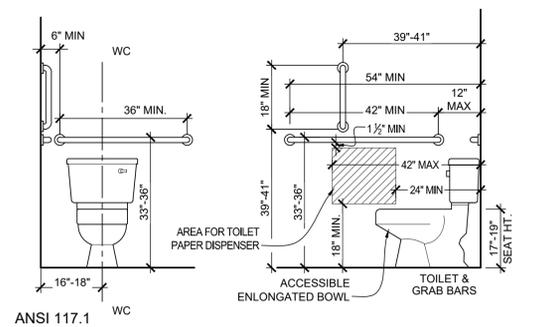
BUILDING B: PHASE 1
FLOOR PLAN
1/4" - 1'-0"



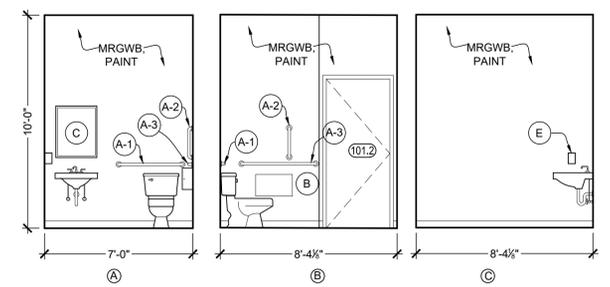




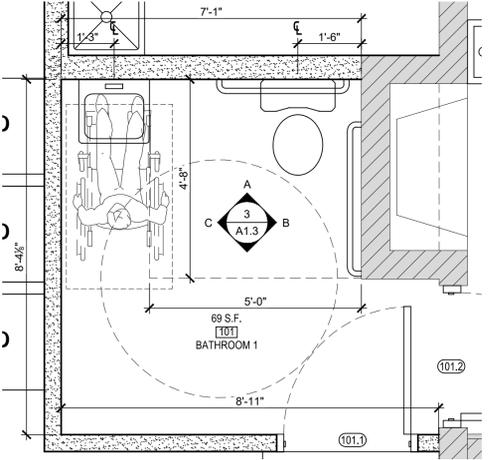
ANSI 117.1
NEW LAVATORY DETAIL
NO SCALE



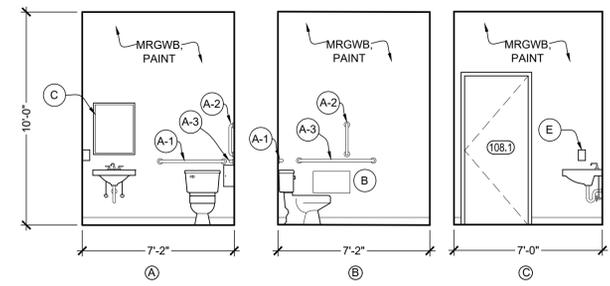
ANSI 117.1
TYPICAL WATER CLOSET DETAIL
NO SCALE



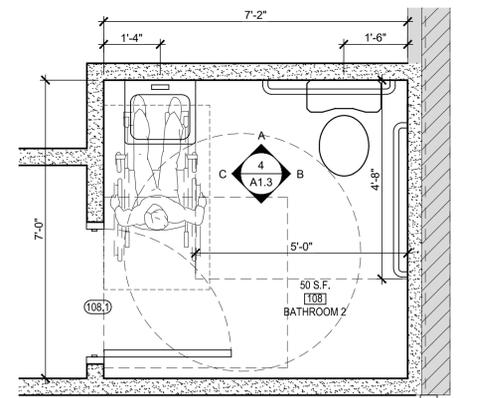
**BUILDING B
BATHROOM 1 ELEVATIONS**
1/4" - 1'-0"



**BUILDING B
BATHROOM 1 ENLARGED PLAN**
1/2" - 1'-0"



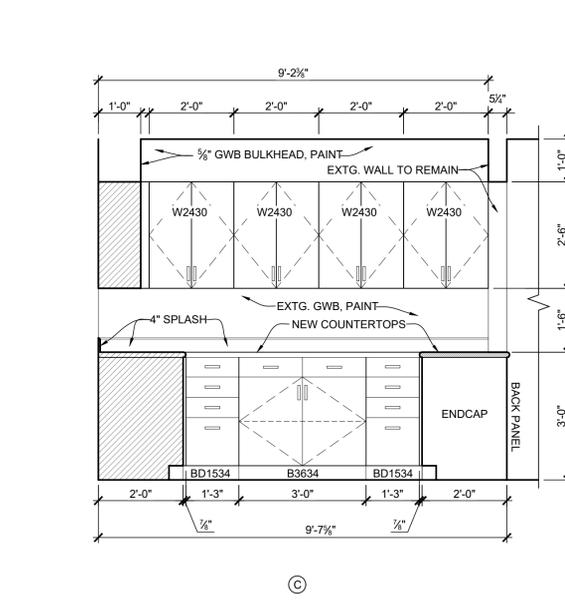
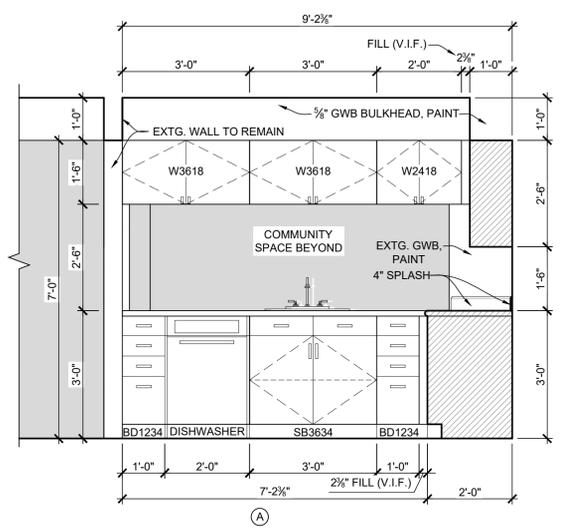
**BUILDING B
BATHROOM 2 ELEVATIONS**
1/4" - 1'-0"



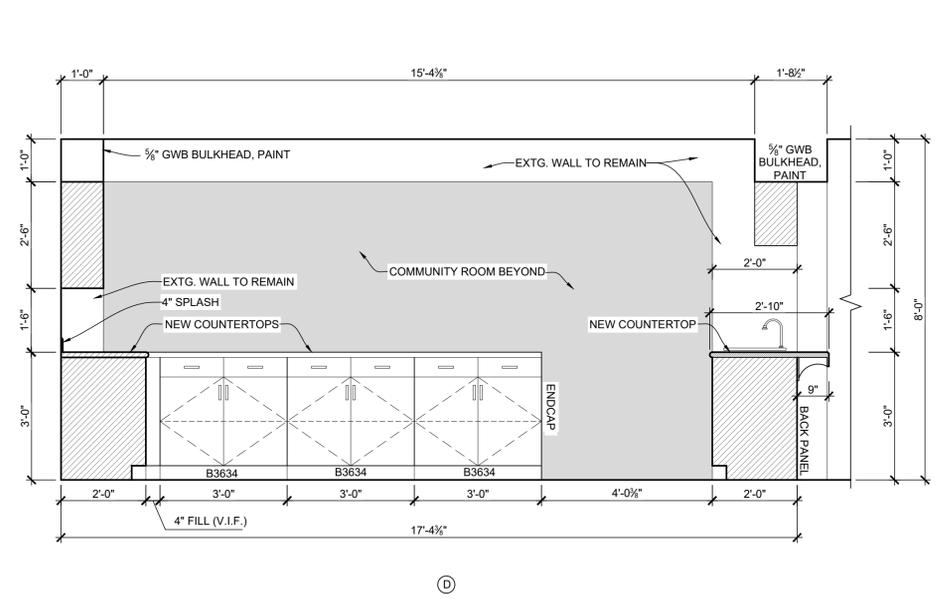
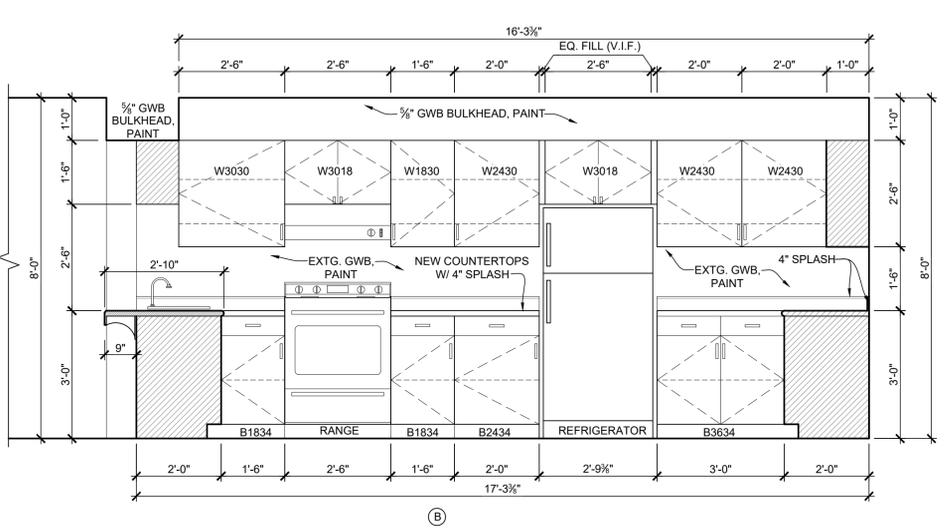
**BUILDING B
BATHROOM 2 ENLARGED PLAN**
1/2" - 1'-0"

TOILET ACCESSORY SCHEDULE	
(A-1)	36" GRAB BAR
(A-2)	42" GRAB BAR
(A-3)	18" GRAB BAR
(A-4)	EXISTING 18" GRAB BAR
(B)	TOILET TISSUE DISPENSER
(C)	MIRROR
(D)	PAPER TOWEL DISPENSER
(E)	SOAP DISPENSER
(F)	MOP AND BOOM HOLDER

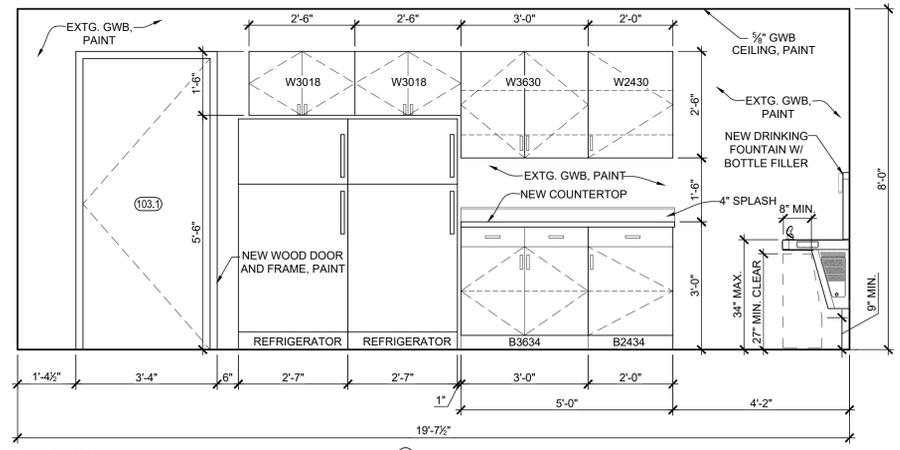
TOILET ACCESSORIES ARE BASIS OF DESIGN OR AN APPROVED EQUAL
NEW ACCESSORIES ARE SHOWN FOR OWNER OPTION



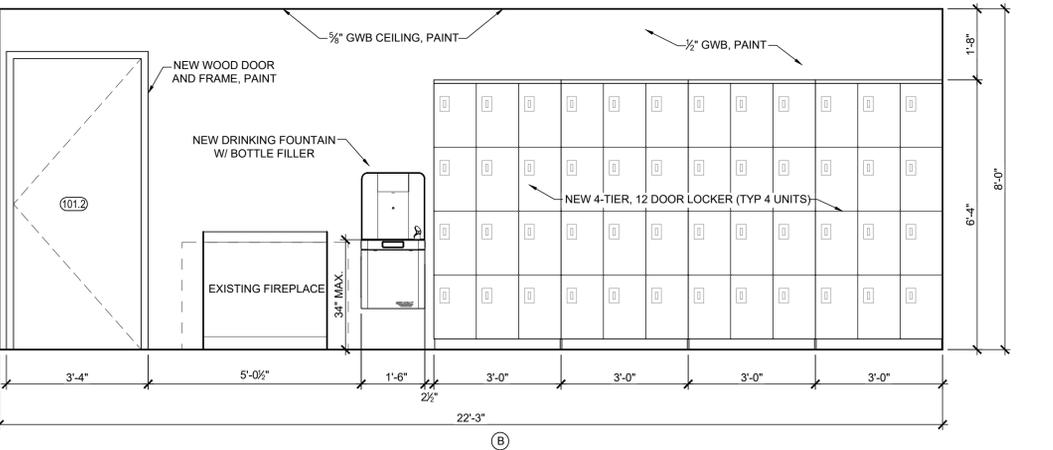
**BUILDING B
KITCHEN ELEVATIONS**
1-1/2" - 1'-0"



**BUILDING B
KITCHEN ELEVATIONS**
1-1/2" - 1'-0"



**BUILDING B
COMMUNITY ROOM 103 ELEVATIONS**
1-1/2" - 1'-0"



**BUILDING B
COMMUNITY ROOM 103 ELEVATIONS**
1-1/2" - 1'-0"

RE-BID SET
11/03/2025

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ALL BUILDINGS
A1.3B

ROOM FINISH SCHEDULE

RM NO.	ROOM NAME	FLOOR	BASE	WALLS	CEILING	HEIGHT	NOTES
211	ROOM	LVT	RCB	ETR/GWB2	PAINT	ETR	ETR
211a	BATHROOM	LVT	RCB	ETR/MRGWB	PAINT	ETR	ETR
212	ROOM	LVT	RCB	ETR/GWB2	PAINT	ETR	ETR
212a	STORAGE / IT	LVT	RCB	ETR/GWB2	PAINT	ETR	ETR
212b	BATHROOM	LVT	RCB	MRGWB	PAINT	MRGWB	ETR
213a	ROOM CORRIDOR	LVT	RCB	ETR/GWB2	PAINT	ETR	ETR
213b	ROOM	LVT	RCB	ETR/GWB2	PAINT	ETR	ETR
213c	ROOM	LVT	RCB	ETR/GWB2	PAINT	ETR	ETR
213d	BATHROOM	LVT	RCB	MRGWB	PAINT	MRGWB	ETR
214	ROOM	LVT	RCB	ETR/GWB2	PAINT	ETR	ETR
214a	BATHROOM	LVT	RCB	ETR/MRGWB	PAINT	ETR	ETR
215	ROOM	LVT	RCB	ETR/GWB2	PAINT	ETR	ETR
215a	BATHROOM	LVT	RCB	ETR/MRGWB	PAINT	ETR	ETR
216	ROOM	LVT	RCB	ETR/GWB2	PAINT	ETR	ETR
216a	BATHROOM	LVT	RCB	ETR/MRGWB	PAINT	ETR	ETR
217	ROOM	LVT	RCB	ETR/GWB2	PAINT	ETR	ETR
217a	BATHROOM	LVT	RCB	ETR/MRGWB	PAINT	ETR	ETR
218	ROOM	LVT	RCB	ETR/GWB2	PAINT	ETR	ETR
218a	BATHROOM	LVT	RCB	ETR/MRGWB	PAINT	ETR	ETR
219	ROOM	LVT	RCB	ETR/GWB2	PAINT	ETR	ETR
219a	BATHROOM	LVT	RCB	ETR/MRGWB	PAINT	MRGWB	ETR

ABBREVIATIONS ON ROOM FINISH SCHEDULE:

- MLP - METAL LINER PANEL
- GWB - GYPSUM WALL BOARD
- MRGWB - MOISTURE RESISTANT GYPSUM WALL BOARD
- GWB2 - 1/2" GYPSUM WALL BOARD TO REPLACE EXISTING WALL AND/OR CEILING PANELING
- GWB1 - 5/8" GYPSUM WALL BOARD
- PAINT - LATEX, SEE SPECIFICATIONS
- PONC - POLISHED CONCRETE
- SCONC - SEALED CONCRETE
- LVT - LUXURY VINYL TILE
- RCB - RUBBER COVE BASE; ARMSTRONG METAL GRAY: R48MG OR SIMILAR

DOOR SCHEDULE

DR#	SIZE W x H - THK	TYPE	MATL	FRM	MATL	FRM	DETAIL	RATING	HDWE	NOTES
211.1	3'-0" x 6'-8" x 1-3/4"	B	HM	PAINT	HM	PAINT	7/A1.2B	2		
211.2	3'-0" x 6'-8" x 1-3/4"	C	WD	PAINT	WD	PAINT	--	3		
212.1	3'-0" x 6'-8" x 1-3/4"	B	HM	PAINT	HM	PAINT	7/A2.1B	2		
212.2	2'-6" x 6'-8" x 1-3/4"	C	WD	PAINT	WD	PAINT	--	3		
213.1	3'-0" x 6'-8" x 1-3/4"	B	HM	PAINT	HM	PAINT	7/A2.1B	2		
213.2	3'-0" x 6'-8" x 1-3/4"	C	WD	PAINT	WD	PAINT	--	2		
213.3	3'-0" x 6'-8" x 1-3/4"	C	WD	PAINT	WD	PAINT	1/A2.1B	2		
213.4	3'-0" x 6'-8" x 1-3/4"	C	WD	PAINT	WD	PAINT	1/A2.1B	3		
214.1	3'-0" x 6'-8" x 1-3/4"	B	HM	PAINT	HM	PAINT	7/A2.1B	2		
214.2	2'-6" x 6'-8" x 1-3/4"	C	WD	PAINT	WD	PAINT	--	3		
215.1	2'-10" x 6'-8" x 1-3/4"	B	HM	PAINT	HM	PAINT	7/A2.1B	2		
215.2	2'-6" x 6'-8" x 1-3/4"	C	WD	PAINT	WD	PAINT	--	3		
216.1	2'-8" x 6'-8" x 1-3/4"	B	HM	PAINT	HM	PAINT	7/A2.1B	2		
216.2	2'-6" x 6'-8" x 1-3/4"	C	WD	PAINT	WD	PAINT	--	3		
217.1	2'-8" x 6'-8" x 1-3/4"	B	HM	PAINT	HM	PAINT	7/A2.1B	2		
217.2	2'-6" x 6'-8" x 1-3/4"	C	WD	PAINT	WD	PAINT	--	3		
218.1	2'-8" x 6'-8" x 1-3/4"	B	HM	PAINT	HM	PAINT	7/A2.1B	2		
218.2	2'-6" x 6'-8" x 1-3/4"	C	WD	PAINT	WD	PAINT	--	3		
219.1	2'-8" x 6'-8" x 1-3/4"	B	HM	PAINT	HM	PAINT	7/A2.1B	2		
219.2	2'-6" x 6'-8" x 1-3/4"	C	WD	PAINT	WD	PAINT	--	3		

WINDOW SCHEDULE (BUILDING C)

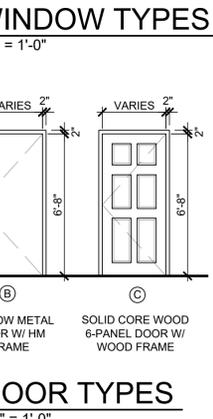
MARK	DESCRIPTION	MATL	ROUGH OPENING (WxH)	QUANTITY	DETAIL	NOTES
CA	DOUBLE HUNG	VINYL	28" X 45-1/2"	6		NEW FROSTED FILM AT TOILET WINDOWS
CB	DOUBLE HUNG	VINYL	40" X 54"	5		
CC	DOUBLE HUNG	VINYL	34-1/2" X 48"	11		

GENERAL WINDOW SCHEDULE NOTES:

- GENERAL CONTRACTOR SHALL VERIFY ALL WINDOW SIZES AND ROUGH OPENINGS PRIOR TO FRAMING
- NEW WINDOWS ARE IN EXISTING ROUGH OPENINGS.

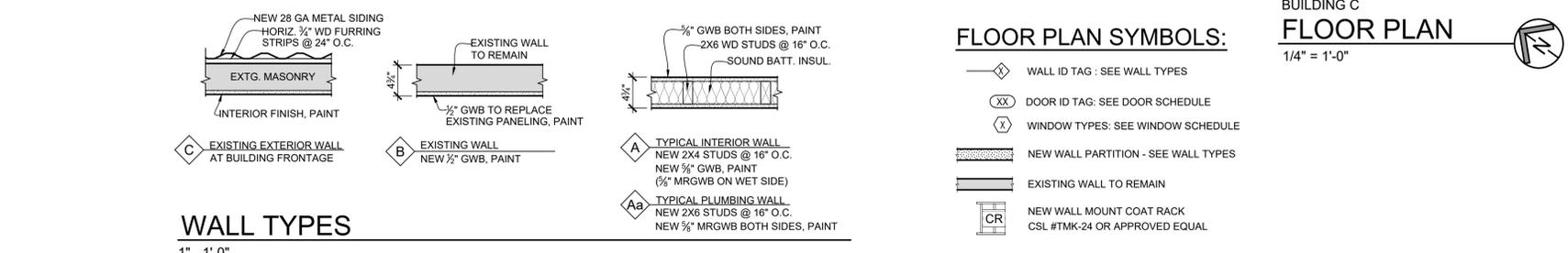
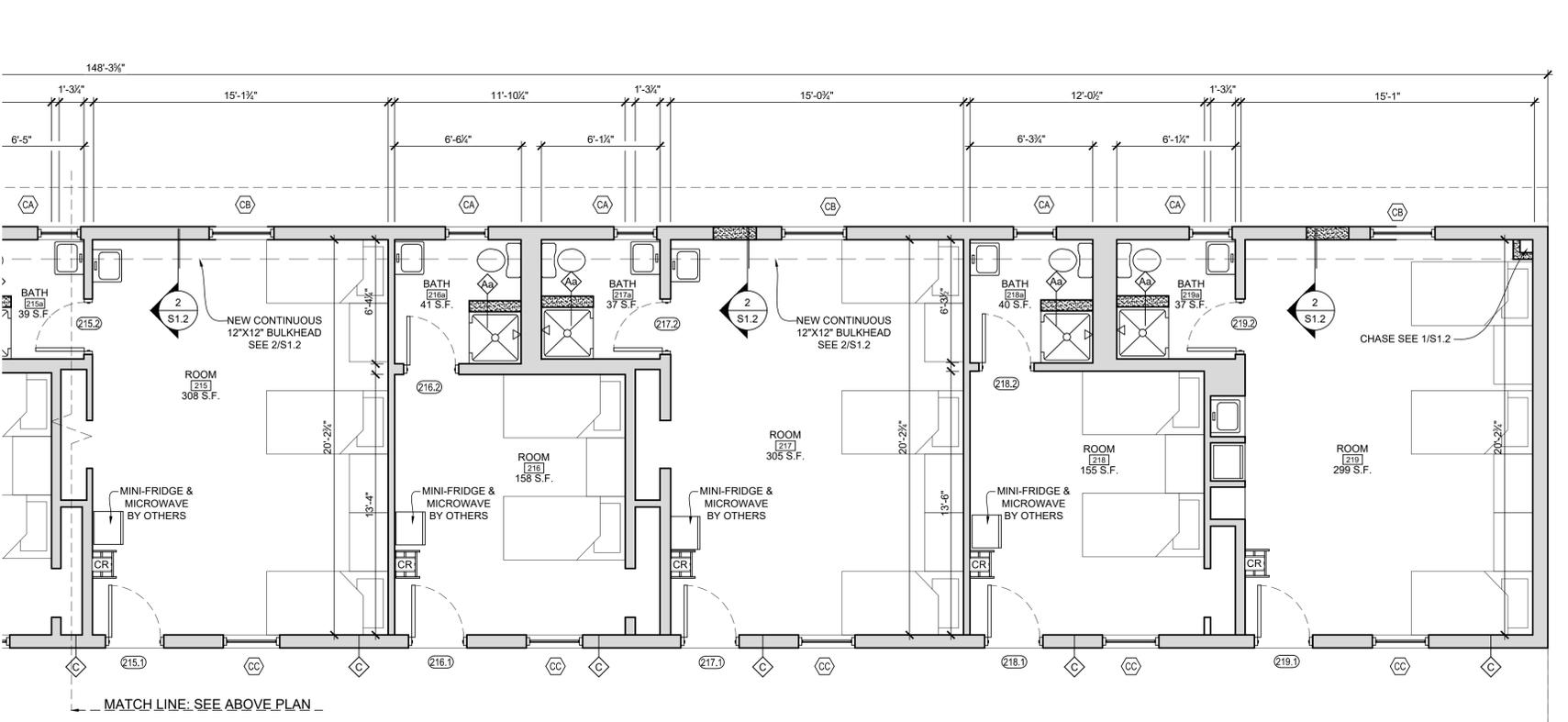
DOOR HARDWARE SCHEDULE:

SET #	DESCRIPTION	COMPONENTS
1	ENTRY DOORS	(0) LOCKSET PROVIDED BY SECURITY CONTRACT (N.I.C) (1) ADA CLOSER (3) NORMAL DUTY STEEL HINGES (1) DOOR SWEEP (1) WEATHER STRIPPING
2	UNIT DOOR	(0) LOCKSET PROVIDED BY SECURITY CONTRACT (N.I.C) (1) ADA CLOSER UNLESS NOTED OTHERWISE ON DOOR SCHEDULE (3) NORMAL DUTY STEEL HINGES (1) WEATHER STRIPPING (1) 180° FIELD OF VIEW MINIMUM PEEPHOLE (1) DOOR SWEEP
3	BATHROOM ROOM DOOR	(1) ADA PRIVACY LOCKSET (3) NORMAL DUTY STEEL HINGES
4	OFFICE DOOR	(1) ADA ENTRY LOCKSET (1) ADA CLOSER (U.N.O.) (3) NORMAL DUTY STEEL HINGES (1) 180° FIELD OF VIEW MINIMUM PEEPHOLE (1) DOOR SWEEP
5	OFFICE BATHROOM DOOR	(1) ADA PRIVACY LOCKSET (1) ADA CLOSER (U.N.O.) (3) NORMAL DUTY STEEL HINGES (1) DOOR SWEEP
6	STORAGE ROOM DOOR	(1) ADA STOREROOM LEVER LOCKSET (3) NORMAL DUTY STEEL HINGES (1) DOOR SWEEP (1) 180° FIELD OF VIEW MINIMUM PEEPHOLE (1) DEADBOLT (1) PRY PLATE (1) ADA CLOSER (U.N.O.)
7	MECHANICAL ROOM DOOR	(0) LOCKSET PROVIDED BY SECURITY CONTRACT (N.I.C) (3) NORMAL DUTY STEEL HINGES (1) 180° FIELD OF VIEW MINIMUM PEEPHOLE (1) DEADBOLT (1) PRY PLATE (1) ADA CLOSER (1) DOOR SWEEP



BUILDING C FLOOR PLAN

1/4" = 1'-0"



- ### FLOOR PLAN SYMBOLS:
- ◇ WALL ID TAG - SEE WALL TYPES
 - XX DOOR ID TAG - SEE DOOR SCHEDULE
 - X WINDOW TYPES - SEE WINDOW SCHEDULE
 - ▨ NEW WALL PARTITION - SEE WALL TYPES
 - ▭ EXISTING WALL TO REMAIN
 - CR NEW WALL MOUNT COAT RACK CSL #TMK-24 OR APPROVED EQUAL

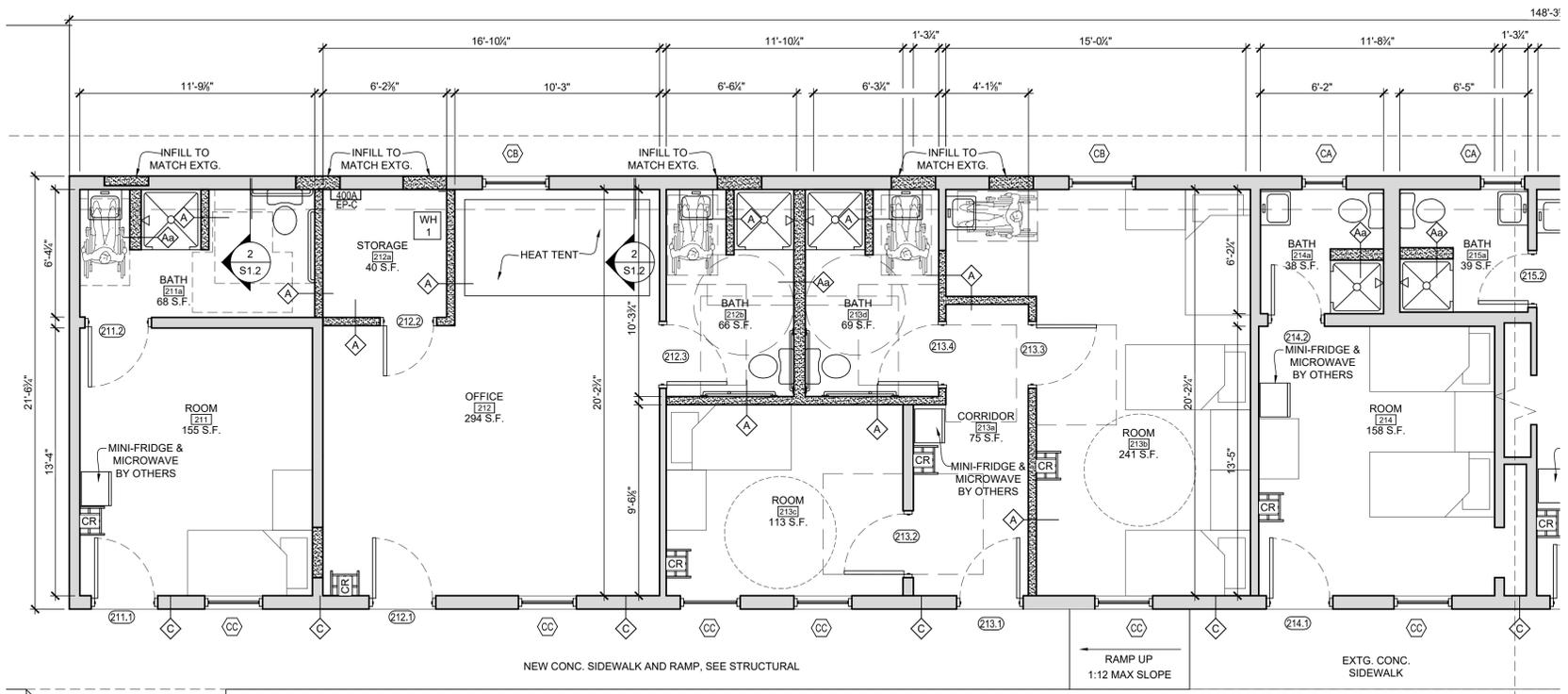
BUILDING C FLOOR PLAN

1/4" = 1'-0"



WALL TYPES

1" = 1'-0"



BUILDING C FLOOR PLAN

1/4" = 1'-0"

MATCH LINE: SEE PLAN BELOW

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BUILDING C
A1.1C

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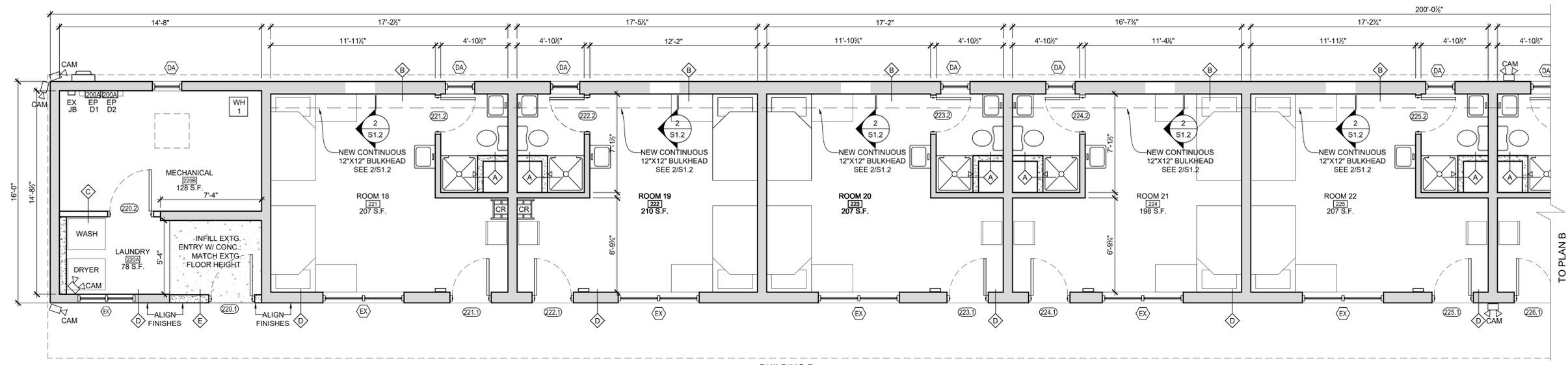
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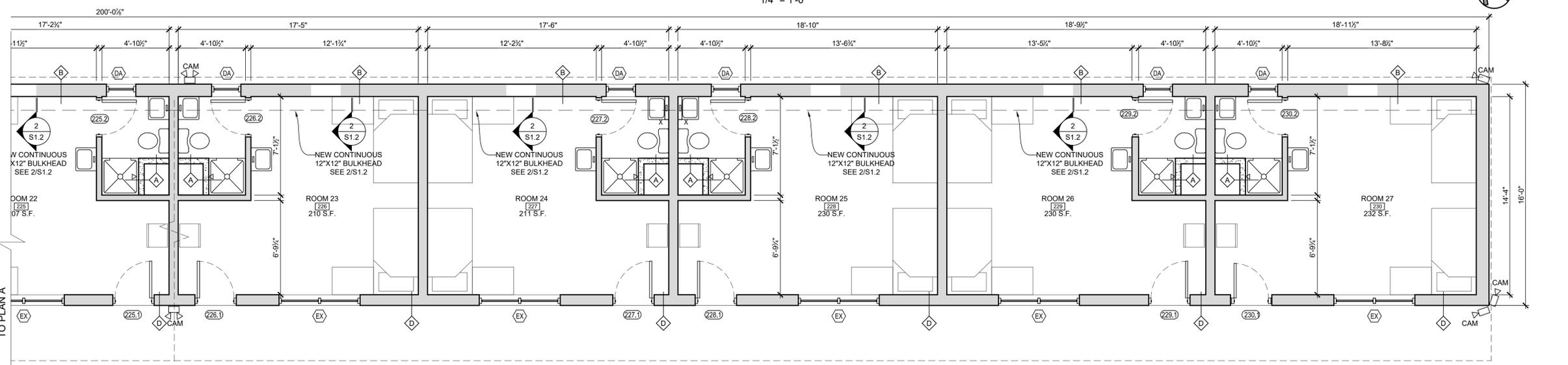
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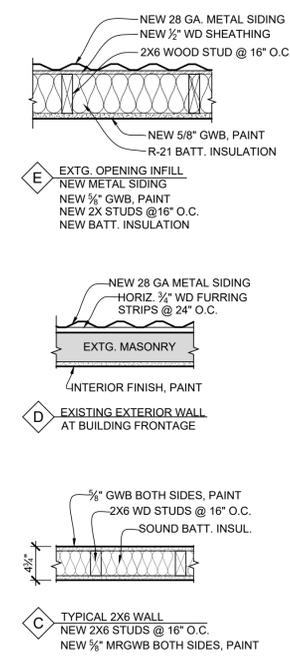
BUILDING D
A1.1D



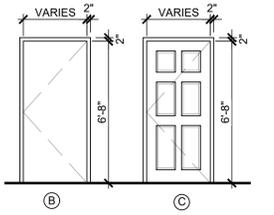
BUILDING D
FLOOR PLAN A
1/4" = 1'-0"



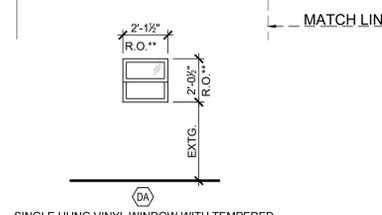
BUILDING D
FLOOR PLAN B
1/4" = 1'-0"



WALL TYPES
1" = 1'-0"



DOOR TYPES
1/4" = 1'-0"



WINDOW TYPE
1/4" = 1'-0"

DOOR HARDWARE SCHEDULE:

SET #	DESCRIPTION	COMPONENTS
1	ENTRY DOORS	<ul style="list-style-type: none"> (0) LOCKSET PROVIDED BY SECURITY CONTRACT (N.I.C) (1) ADA CLOSER (3) NORMAL DUTY STEEL HINGES (1) DOOR SWEEP (1) WEATHER STRIPPING
2	UNIT DOOR	<ul style="list-style-type: none"> (0) LOCKSET PROVIDED BY SECURITY CONTRACT (N.I.C) (1) ADA CLOSER UNLESS NOTED OTHERWISE ON DOOR SCHEDULE (3) NORMAL DUTY STEEL HINGES (1) WEATHER STRIPPING (1) 180° FIELD OF VIEW MINIMUM PEEPHOLE (1) DOOR SWEEP
3	BATHROOM ROOM DOOR	<ul style="list-style-type: none"> (1) ADA PRIVACY LOCKSET (3) NORMAL DUTY STEEL HINGES
4	OFFICE DOOR	<ul style="list-style-type: none"> (1) ADA ENTRY LOCKSET (1) ADA CLOSER (U.N.O.) (3) NORMAL DUTY STEEL HINGES (1) 180° FIELD OF VIEW MINIMUM PEEPHOLE (1) DOOR SWEEP
5	OFFICE BATHROOM DOOR	<ul style="list-style-type: none"> (1) ADA PRIVACY LOCKSET (1) ADA CLOSER (U.N.O.) (3) NORMAL DUTY STEEL HINGES (1) DOOR SWEEP
6	STORAGE ROOM DOOR	<ul style="list-style-type: none"> (1) ADA STOREROOM LEVER LOCKSET (3) NORMAL DUTY STEEL HINGES (1) DOOR SWEEP (1) 180° FIELD OF VIEW MINIMUM PEEPHOLE (1) DEADBOLT (1) PRY PLATE (1) ADA CLOSER (U.N.O.)
7	MECHANICAL ROOM DOOR	<ul style="list-style-type: none"> (0) LOCKSET PROVIDED BY SECURITY CONTRACT (N.I.C) (3) NORMAL DUTY STEEL HINGES (1) 180° FIELD OF VIEW MINIMUM PEEPHOLE (1) DEADBOLT (1) PRY PLATE (1) ADA CLOSER (1) DOOR SWEEP

DOOR SCHEDULE

DR#	SIZE W x H - THK	TYPE	FRAME			MISC			NOTES
			MATL	FIN	DETAIL	RATING	HDWE		
220.1	3'-0" x 6'-8" x 1-3/4"	B	HM	PAINT	HM	PAINT	9/A1.2B	1	
220.2	3'-0" x 6'-8" x 1-3/4"	B	HM	PAINT	HM	PAINT	8/A1.2B	6	
221.1	2'-8" x 6'-8" x 1-3/4"	B	HM	PAINT	HM	PAINT	7/A1.2B	1	
221.2	2'-6" x 6'-8" x 1-3/4"	C	WD	PAINT	WD	PAINT	-/-	3	
222.1	2'-8" x 6'-8" x 1-3/4"	B	HM	PAINT	HM	PAINT	7/A1.2B	1	
222.2	2'-6" x 6'-8" x 1-3/4"	C	WD	PAINT	WD	PAINT	-/-	3	
223.1	2'-8" x 6'-8" x 1-3/4"	B	HM	PAINT	HM	PAINT	7/A1.2B	1	
223.2	2'-6" x 6'-8" x 1-3/4"	C	WD	PAINT	WD	PAINT	-/-	3	
224.1	2'-8" x 6'-8" x 1-3/4"	B	HM	PAINT	HM	PAINT	7/A1.2B	1	
224.2	2'-6" x 6'-8" x 1-3/4"	C	WD	PAINT	WD	PAINT	-/-	3	
225.1	2'-8" x 6'-8" x 1-3/4"	B	HM	PAINT	HM	PAINT	7/A1.2B	1	
225.2	2'-6" x 6'-8" x 1-3/4"	C	WD	PAINT	WD	PAINT	-/-	3	
226.1	2'-8" x 6'-8" x 1-3/4"	B	HM	PAINT	HM	PAINT	7/A1.2B	1	
226.2	2'-6" x 6'-8" x 1-3/4"	C	WD	PAINT	WD	PAINT	-/-	3	
227.1	2'-8" x 6'-8" x 1-3/4"	B	HM	PAINT	HM	PAINT	7/A1.2B	1	
227.2	2'-6" x 6'-8" x 1-3/4"	C	WD	PAINT	WD	PAINT	-/-	3	
228.1	2'-8" x 6'-8" x 1-3/4"	B	HM	PAINT	HM	PAINT	7/A1.2B	1	
228.2	2'-6" x 6'-8" x 1-3/4"	C	WD	PAINT	WD	PAINT	-/-	3	
229.1	2'-8" x 6'-8" x 1-3/4"	B	HM	PAINT	HM	PAINT	7/A1.2B	1	
229.2	2'-6" x 6'-8" x 1-3/4"	C	WD	PAINT	WD	PAINT	-/-	3	
230.1	2'-6" x 6'-8" x 1-3/4"	B	HM	PAINT	HM	PAINT	7/A1.2B	1	
230.2	2'-6" x 6'-8" x 1-3/4"	C	WD	PAINT	WD	PAINT	-/-	3	

ROOM FINISH SCHEDULE

RM NO.	RM. NAME	FLOOR		WALLS		CEILING		HEIGHT	NOTES
		MATL	BASE	MATL	FIN	MATL	FIN		
220A	LAUNDRY	LVT	RCB	EXTG/GWB2	PAINT	GWB1	PAINT	EXTG	
220B	MECHANICAL	EXTG	-	EXTG	PAINT	EXTG	PAINT	EXTG	
221	ROOM 18	LVT	RCB	EXTG/GWB2	PAINT	EXTG	PAINT	EXTG	
222	ROOM 19	LVT	RCB	EXTG/GWB2	PAINT	EXTG	PAINT	EXTG	
223	ROOM 20	LVT	RCB	EXTG/GWB2	PAINT	EXTG	PAINT	EXTG	
224	ROOM 21	LVT	RCB	EXTG/GWB2	PAINT	EXTG	PAINT	EXTG	
225	ROOM 22	LVT	RCB	EXTG/GWB2	PAINT	EXTG	PAINT	EXTG	
226	ROOM 23	LVT	RCB	EXTG/GWB2	PAINT	EXTG	PAINT	EXTG	
227	ROOM 24	LVT	RCB	EXTG/GWB2	PAINT	EXTG	PAINT	EXTG	
228	ROOM 25	LVT	RCB	EXTG/GWB2	PAINT	EXTG	PAINT	EXTG	
229	ROOM 26	LVT	RCB	EXTG/GWB2	PAINT	EXTG	PAINT	EXTG	
230	ROOM 27	LVT	RCB	EXTG/GWB2	PAINT	EXTG	PAINT	EXTG	

ABBREVIATIONS ON ROOM FINISH SCHEDULE:

- MLP - METAL LINER PANEL
- GWB - GYPSUM WALL BOARD
- MRGWB - MOISTURE RESISTANT GYPSUM WALL BOARD
- GWB2 - 1/2" GYPSUM WALL BOARD TO REPLACE EXISTING WALL AND/OR CEILING PANELING
- GWB1 - 5/8" GYPSUM WALL BOARD
- PAINT - LATEX. SEE SPECIFICATIONS
- PCONC - POLISHED CONCRETE
- SCONC - SEALED CONCRETE
- LVT - LUXURY VINYL TILE
- RCB - RUBBER COVE BASE, ARMSTRONG METAL GRAY: R48MG OR SIMILAR

WINDOW SCHEDULE (BUILDING D)

MARK	DESCRIPTION	MATL	ROUGH OPENING (DHX)	QUANTITY	DETAIL	NOTES
DA	SINGLE HUNG	VINYL	25.5" X 24.5"	11	-	NEW FROSTED FILM AT TOILET WINDOWS

GENERAL WINDOW SCHEDULE NOTES:

- GENERAL CONTRACTOR SHALL VERIFY ALL WINDOW SIZES AND ROUGH OPENINGS PRIOR TO FRAMING
- NEW WINDOWS ARE IN EXISTING ROUGH OPENINGS.

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BUILDING E
A1.1E

DOOR SCHEDULE

DR.#	SIZE W X H - THK	TYPE	DOOR			FRAME			MISC			NOTES
			MATL	FIN.	DETAIL	MATL	FIN.	DETAIL	RATING	HDWE		
G1.1	3'-0" x 6'-8" x 1-3/4"	D	HM	PAINT	HM	PAINT	10/A1.2B		1			MATCH EXTG EXT FINISHES,TRIM
G2.1	3'-0" x 6'-8" x 1-3/4"	D	HM	PAINT	HM	PAINT	10/A1.2B		1			MATCH EXTG EXT FINISHES,TRIM
G2.2	(2) 3'-0" x 6'-8" x 1-3/4"	B	HM	PAINT	HM	PAINT	8/A1.2B		8			
G2.3	3'-0" x 6'-8" x 1-3/4"	C	HM	PAINT	HM	PAINT	1/A1.2B		2			
G3.1	3'-0" x 6'-8" x 1-3/4"	C	HM	PAINT	HM	PAINT	1/A1.2B		3			

WINDOW SCHEDULE (BUILDING E)

MARK	DESCRIPTION	MATL	ROUGH OPENING (WxH)	QUANTITY	DETAIL	NOTES
EB	FIXED	ALUM	60" X 48"	1	4/A2.1	MATCH EXISTING EXTERIOR FINISHES,TRIM
EC	FIXED	ALUM	36" X 36"	2	4/A2.1	MATCH EXISTING EXTERIOR FINISHES,TRIM

GENERAL WINDOW SCHEDULE NOTES:

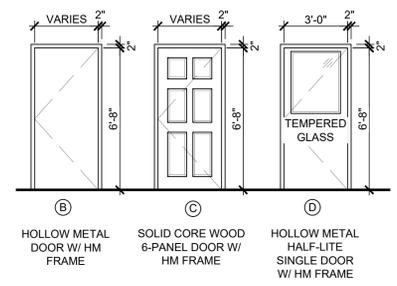
- GENERAL CONTRACTOR SHALL VERIFY ALL WINDOW SIZES AND ROUGH OPENINGS PRIOR TO FRAMING

DOOR HARDWARE SCHEDULE:

SET #	DESCRIPTION	COMPONENTS
1	ENTRY DOORS	<ul style="list-style-type: none"> (0) LOCKSET PROVIDED BY SECURITY CONTRACT (N.I.C) (1) ADA CLOSER (3) NORMAL DUTY STEEL HINGES (1) DOOR SWEEP (1) WEATHER STRIPPING
2	UNIT DOOR	<ul style="list-style-type: none"> (0) LOCKSET PROVIDED BY SECURITY CONTRACT (N.I.C) (1) ADA CLOSER UNLESS NOTED OTHERWISE ON DOOR SCHEDULE (3) NORMAL DUTY STEEL HINGES (1) WEATHER STRIPPING (1) 180° FIELD OF VIEW MINIMUM PEEPHOLE (1) DOOR SWEEP
3	BATHROOM ROOM DOOR	<ul style="list-style-type: none"> (1) ADA PRIVACY LOCKSET (3) NORMAL DUTY STEEL HINGES
4	OFFICE DOOR	<ul style="list-style-type: none"> (1) ADA ENTRY LOCKSET (1) ADA CLOSER (U.N.O.) (3) NORMAL DUTY STEEL HINGES (1) 180° FIELD OF VIEW MINIMUM PEEPHOLE (1) DOOR SWEEP
5	OFFICE BATHROOM DOOR	<ul style="list-style-type: none"> (1) ADA PRIVACY LOCKSET (1) ADA CLOSER (U.N.O) (3) NORMAL DUTY STEEL HINGES (1) DOOR SWEEP
6	STORAGE ROOM DOOR	<ul style="list-style-type: none"> (1) ADA STOREROOM LEVER LOCKSET (3) NORMAL DUTY STEEL HINGES (1) DOOR SWEEP (1) 180° FIELD OF VIEW MINIMUM PEEPHOLE (1) DEADBOLT (1) PRY PLATE (1) ADA CLOSER (U.N.O.)
7	MECHANICAL ROOM DOOR	<ul style="list-style-type: none"> (0) LOCKSET PROVIDED BY SECURITY CONTRACT (N.I.C) (3) NORMAL DUTY STEEL HINGES (1) 180° FIELD OF VIEW MINIMUM PEEPHOLE (1) DEADBOLT (1) PRY PLATE (1) ADA CLOSER (1) DOOR SWEEP
8	MECHANICAL DOUBLE DOOR	<ul style="list-style-type: none"> (1) ADA STOREROOM LEVER LOCKSET (6) NORMAL DUTY STEEL HINGES (1) 180° FIELD OF VIEW MINIMUM PEEPHOLE (1) DEADBOLT (1) PRY PLATE (1) ADA CLOSER (1) DOOR SWEEP

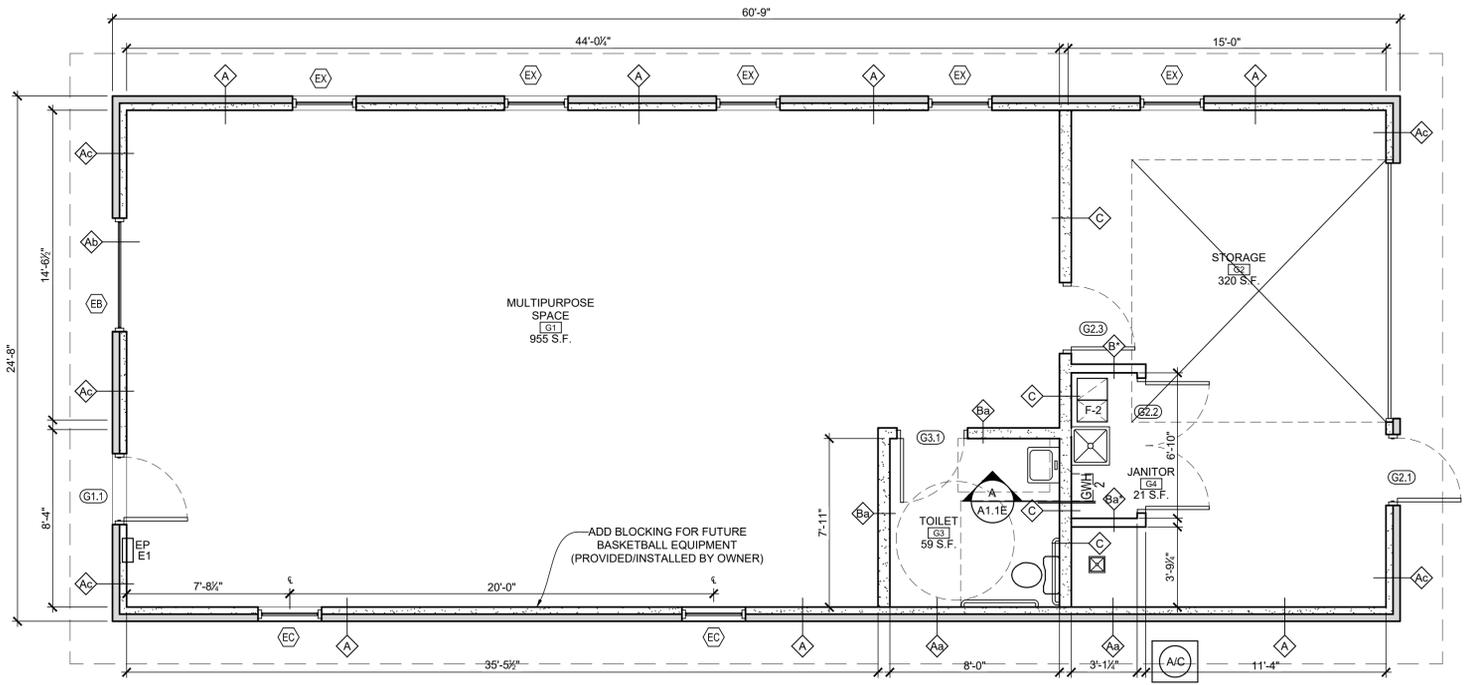
FLOOR PLAN SYMBOLS:

- WALL ID TAG: SEE WALL TYPES
- DOOR ID TAG: SEE DOOR SCHEDULE
- WINDOW TYPES: SEE WINDOW SCHEDULE
- NEW WALL PARTITION - SEE WALL TYPES
- EXISTING WALL TO REMAIN



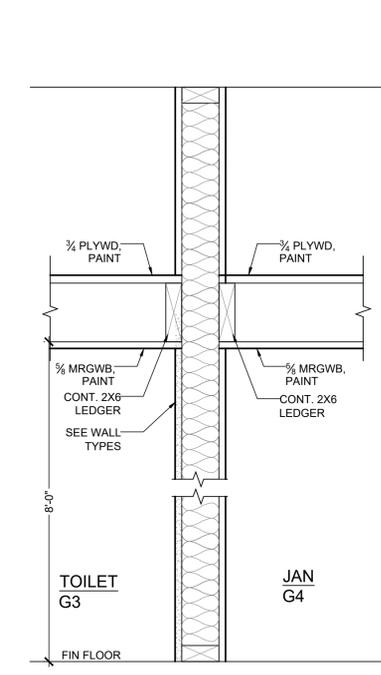
DOOR TYPES

1/4" = 1'-0"



BUILDING E FLOOR PLAN

1/8" = 1'-0"

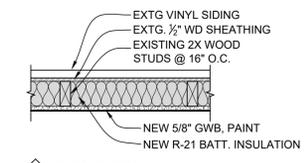


WALL SECTION

1-1/2" - 1'-0"

WINDOW TYPES

1/4" = 1'-0"



EXTG. EXTERIOR WALL
EXTG. VINYL SIDING
NEW 2X6 STUDS (SEE STRUCTURAL)
NEW 1/2" GWB, PAINT
NEW R-21 BATT. INSUL.

EXTG. EXTERIOR WALL
EXTG. VINYL SIDING
NEW 1/2" GWB, PAINT
NEW R-21 BATT. INSUL.

EXTG. EXTERIOR WALL (OPENING INFILL)
NEW VINYL SIDING (AT INFILL)
NEW 2X6 WOOD STUDS AT 16" O.C.
NEW CONT. 1/4" OSB @ ENDWALL INTERIOR
NEW 1/2" MRGWB, PAINT
NEW R-21 BATT. INSUL.

EXTG. EXTERIOR WALL (ENDWALL)
EXTG. VINYL SIDING
NEW 2X6 WOOD STUDS AT 16" O.C.
NEW CONT. 1/4" OSB @ ENDWALL INTERIOR
NEW 1/2" MRGWB, PAINT
NEW R-21 BATT. INSUL.

TYPICAL INTERIOR WALL
NEW 2X4 STUDS @ 16" O.C.
NEW 1/2" GWB, PAINT

TYPICAL INTERIOR WALL
NEW 2X4 STUDS @ 16" O.C.
NEW 1/2" MRGWB @ WET SIDE, PAINT

TYPICAL INTERIOR PLUMBING WALL
NEW 2X6 STUDS @ 16" O.C.
NEW 1/2" MRGWB BOTH SIDES, PAINT

* TERMINATE MECHANICAL CLOSET WALLS AT 8'-0" A.F.F

POLISHED CONCRETE NOTES:

GENERAL CONTRACTOR SHALL REMOVE ALL EXISTING FLOOR COVERING AND POLISH THE CONCRETE SLAB. THE CONCRETE SLAB SHALL BE MECHANICALLY POLISHED STARTING WITH METAL CUTTING DIAMONDS THROUGH 800 RESIN POLISH INCLUDING PROPER CONCRETE DENSIFICATION AND HAND FINISHING IN WALL TO FLOOR AREAS THAT ARE EXPOSED. FINISH WILL BE THE CONCRETE'S NATURAL COLOR. GENERAL CONTRACTOR MAY HIRE ANYONE THEY WANT TO POLISH THE FLOOR BUT MUST MEET SPECIFICATIONS OF THIS WORK LETTER. THOSE SPECIFICATIONS ARE AS FOLLOWS:

- STEP 1- METAL 40 GRIND
- STEP 2- FILL ALL JOINTS, CRACKS, AND APPLY GROUT WHERE NEEDED
- STEP 3- TRANSITIONAL DIAMOND
- SCRUB THE FLOOR
- STEP 4- 100 GRIT RESIN
- SCRUB THE FLOOR
- STEP 5- APPLY DENSIFIER TO REJECTION
- STEP 6- 200 GRIT RESIN
- SCRUB THE FLOOR
- STEP 7- 400 GRIT RESIN
- SCRUB THE FLOOR
- STEP 8- 800 GRIT RESIN
- SCRUB THE FLOOR
- STEP 9- APPLY A PENETRATING SEALER
- STEP 10- FINISH THE FLOOR WITH A HIGH-SPEED PROPANE BURNISHER WITH A 3000 GRIT DIAMOND PAD

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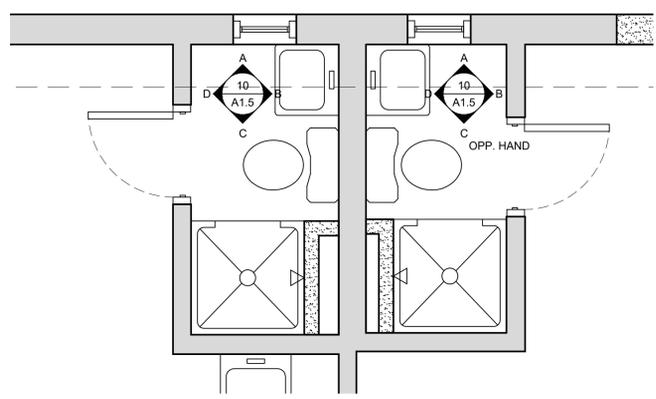
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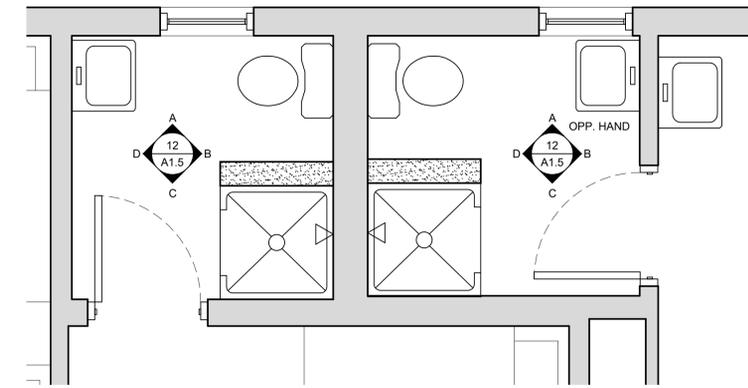
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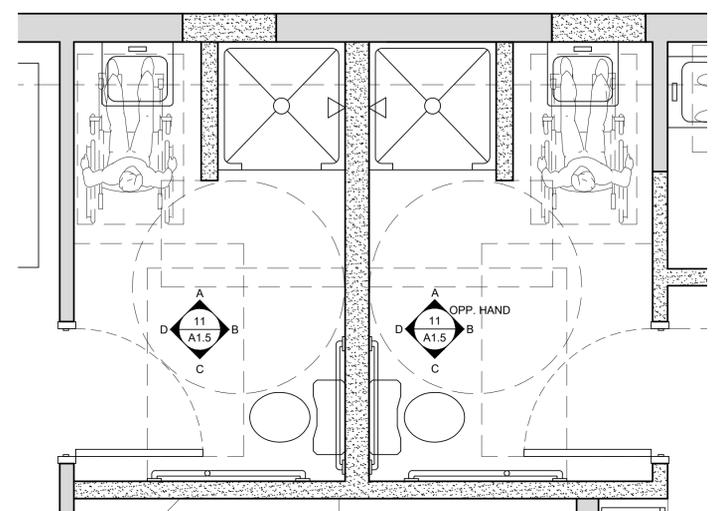
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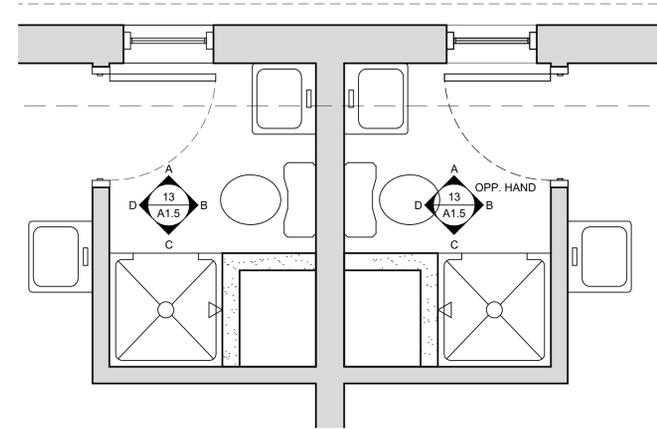
BATHROOM LAYOUTS TYPICAL OF BUILDING A 1
1/4" - 1'-0" A1.4



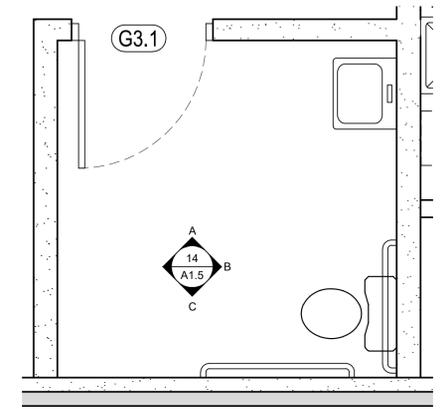
BATHROOM LAYOUTS TYPICAL OF BUILDING C 2
1/4" - 1'-0" A1.4



BUILDING C
ADA BATHROOMS 5
1/2" - 1'-0" A1.4



BATHROOM LAYOUTS TYPICAL OF BUILDING D 3
1/4" - 1'-0" A1.4

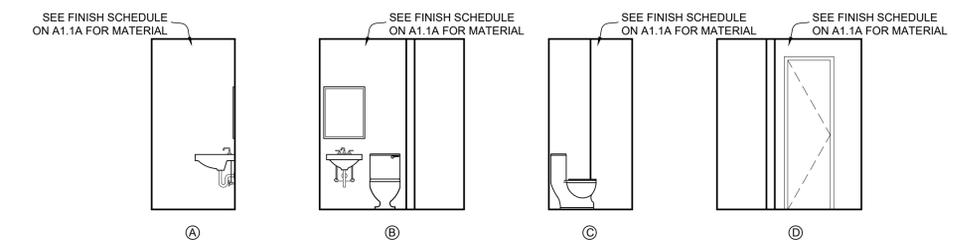


BUILDING E
ADA BATHROOMS 4
1/2" - 1'-0" A1.4

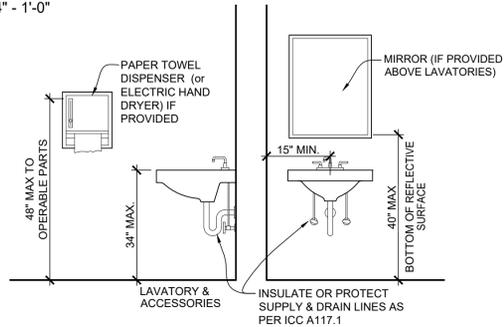
TOILET ACCESSORY SCHEDULE

A-1	36" GRAB BAR
A-2	42" GRAB BAR
A-3	18" GRAB BAR
A-4	EXISTING 18" GRAB BAR
B	TOILET TISSUE DISPENSER
C	MIRROR
D	PAPER TOWEL DISPENSER
E	SOAP DISPENSER
F	MOP AND BOOM HOLDER

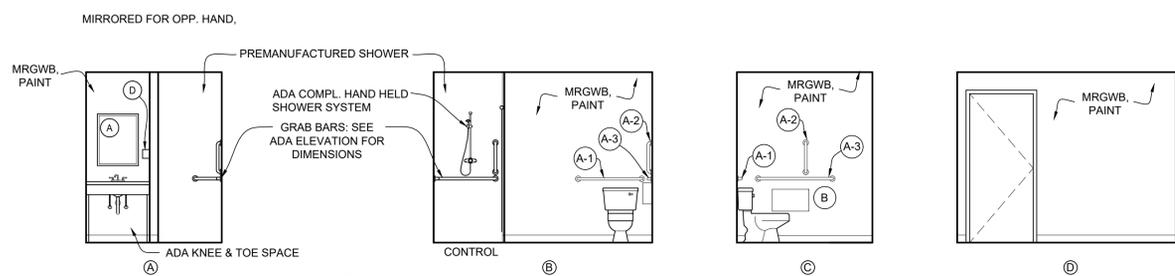
TOILET ACCESSORIES ARE BASIS OF DESIGN OR AN APPROVED EQUAL. NEW ACCESSORIES ARE SHOWN FOR OWNER OPTION.



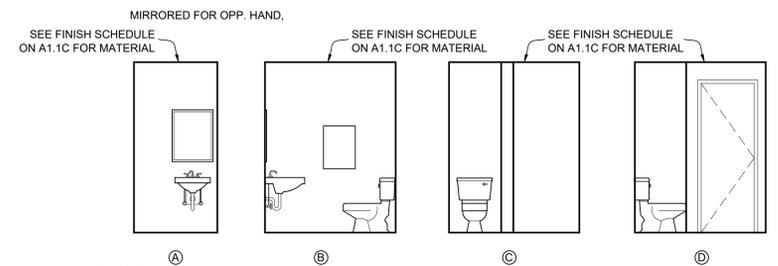
BUILDING A
BATHROOM ELEVATIONS, TYPICAL 10
1/4" - 1'-0" A1.5



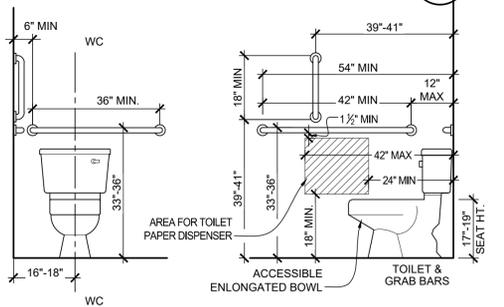
ANSI 117.1
NEW LAVATORY DETAIL 7
NO SCALE A1.4



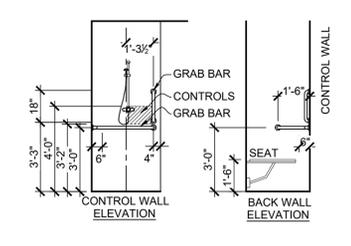
BUILDING C
ADA BATHROOM ELEVATIONS, TYPICAL 11
1/4" - 1'-0" A1.5



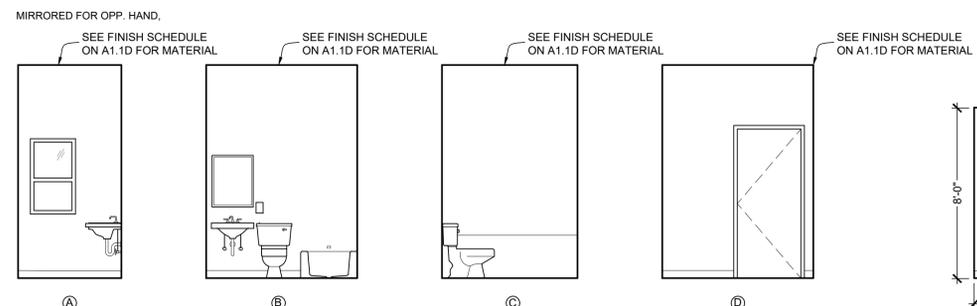
BUILDING C
BATHROOM ELEVATIONS, TYPICAL 12
1/4" - 1'-0" A1.5



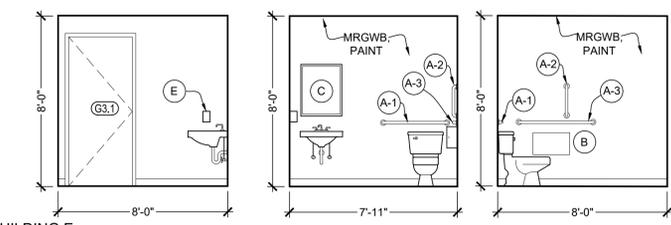
ANSI 117.1
TYPICAL WATER CLOSET DETAIL 8
NO SCALE A1.4



ANSI 117.1
ADA SHOWER ELEVATION 9
NO SCALE A1.4



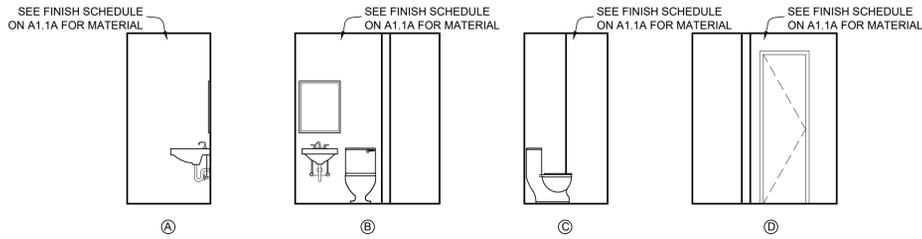
BUILDING D
BATHROOM ELEVATIONS, TYPICAL 13
1/4" - 1'-0" A1.5



BUILDING E
BATHROOM ELEVATIONS, TYPICAL 14
1/4" - 1'-0" A1.5

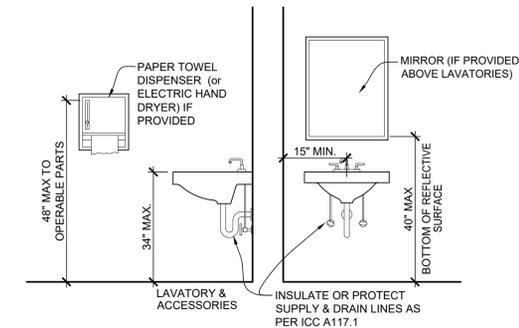
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ALL BUILDINGS
A1.4



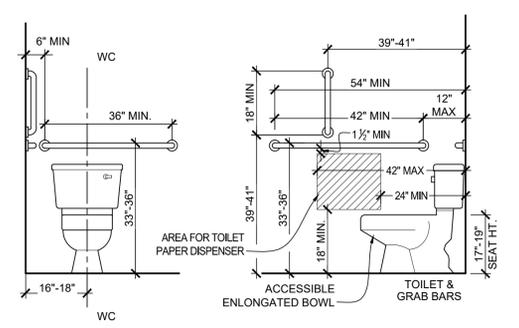
BUILDING A
BATHROOM ELEVATIONS, TYPICAL
 1/4" - 1'-0"

1
 A1.5



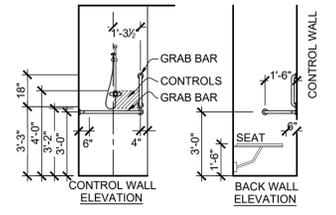
ANSI 117.1
NEW LAVATORY DETAIL
 NO SCALE

7
 A1.4



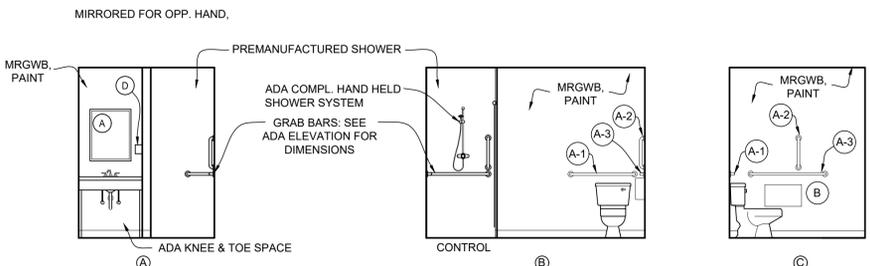
ANSI 117.1
TYPICAL WATER CLOSET DETAIL
 NO SCALE

8
 A1.4



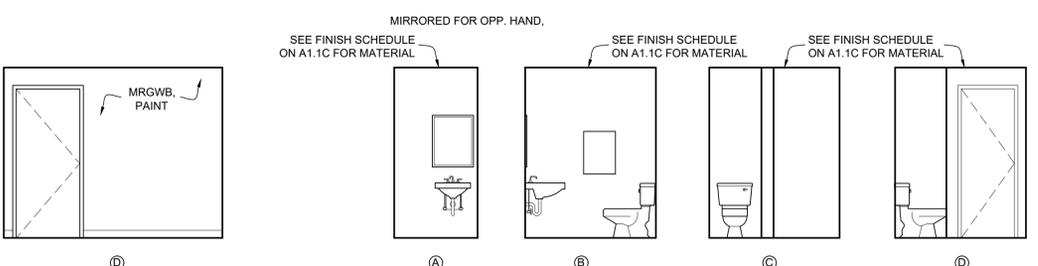
ANSI 117.1
ADA SHOWER ELEVATION
 NO SCALE

9
 A1.4



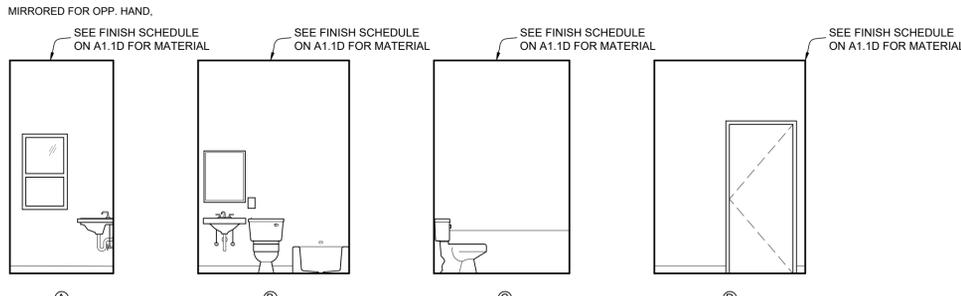
BUILDING C
ADA BATHROOM ELEVATIONS, TYPICAL
 1/4" - 1'-0"

3
 A1.5



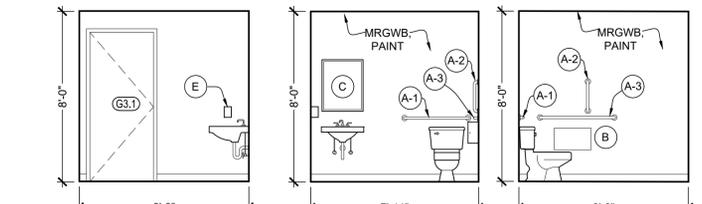
BUILDING C
BATHROOM ELEVATIONS, TYPICAL
 1/4" - 1'-0"

4
 A1.5



BUILDING D
BATHROOM ELEVATIONS, TYPICAL
 1/4" - 1'-0"

5
 A1.5



BUILDING E
BATHROOM ELEVATIONS, TYPICAL
 1/4" - 1'-0"

6
 A1.5

TOILET ACCESSORY SCHEDULE	
(A-1)	36" GRAB BAR
(A-2)	42" GRAB BAR
(A-3)	18" GRAB BAR
(A-4)	EXISTING 18" GRAB BAR
(B)	TOILET TISSUE DISPENSER
(C)	MIRROR
(D)	PAPER TOWEL DISPENSER
(E)	SOAP DISPENSER
(F)	MOP AND BOOM HOLDER

TOILET ACCESSORIES ARE BASIS OF DESIGN OR AN APPROVED EQUAL
 NEW ACCESSORIES ARE SHOWN FOR OWNER OPTION

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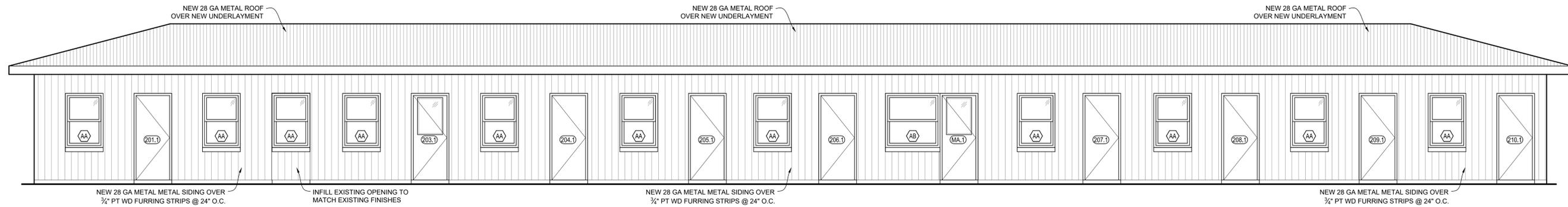
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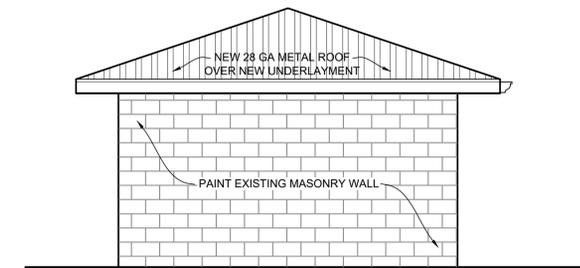
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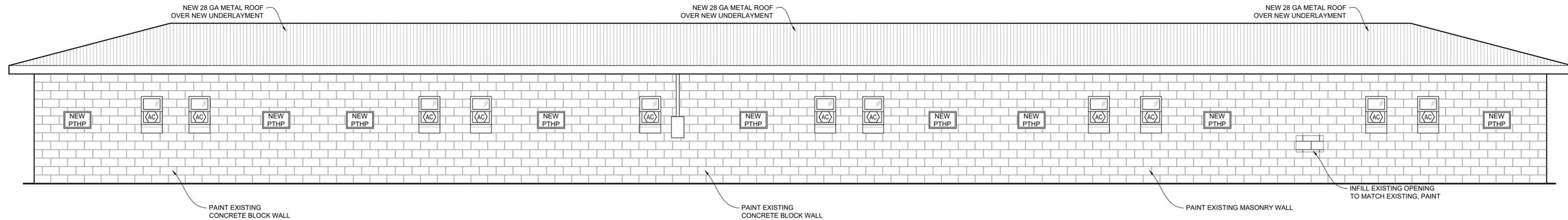
ALL BUILDINGS
A1.5



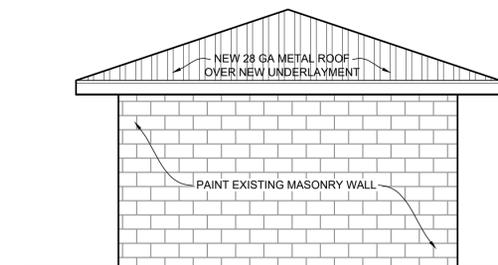
SOUTHWEST ELEVATION
1/4" = 1'-0"



SOUTHEAST ELEVATION
1/4" = 1'-0"



NORTHEAST ELEVATION
1/4" = 1'-0"



NORTHWEST ELEVATION
1/4" = 1'-0"

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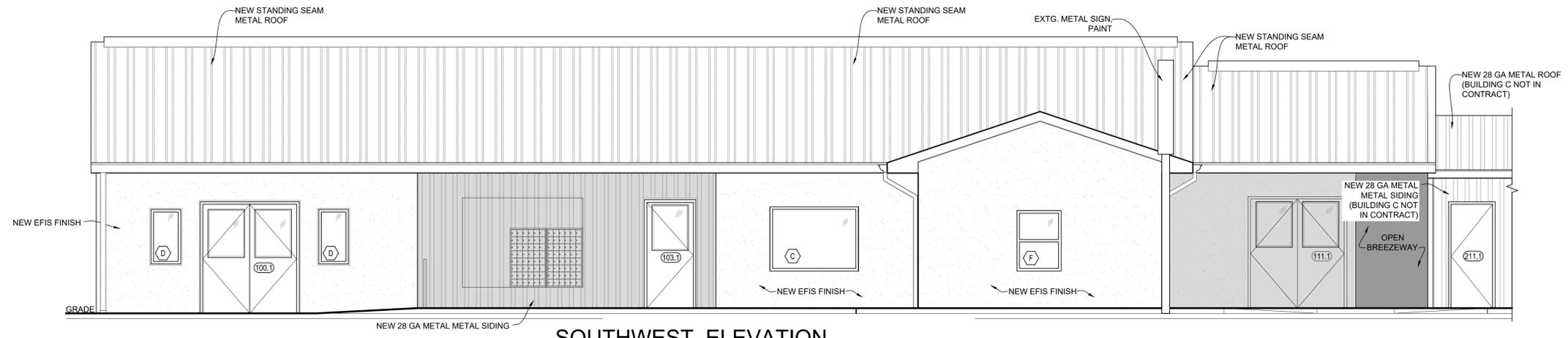
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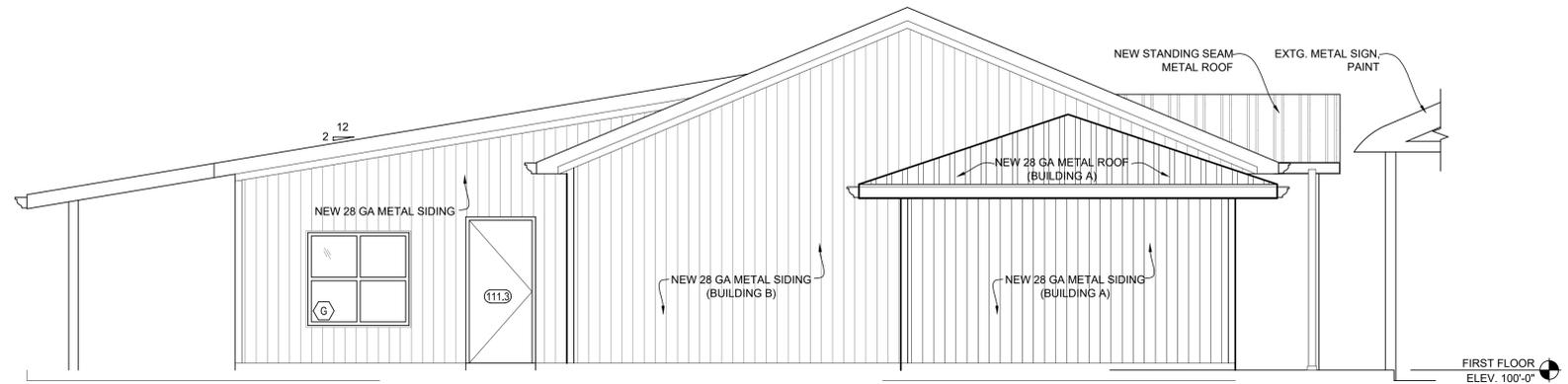
BUILDING A

A2.1A



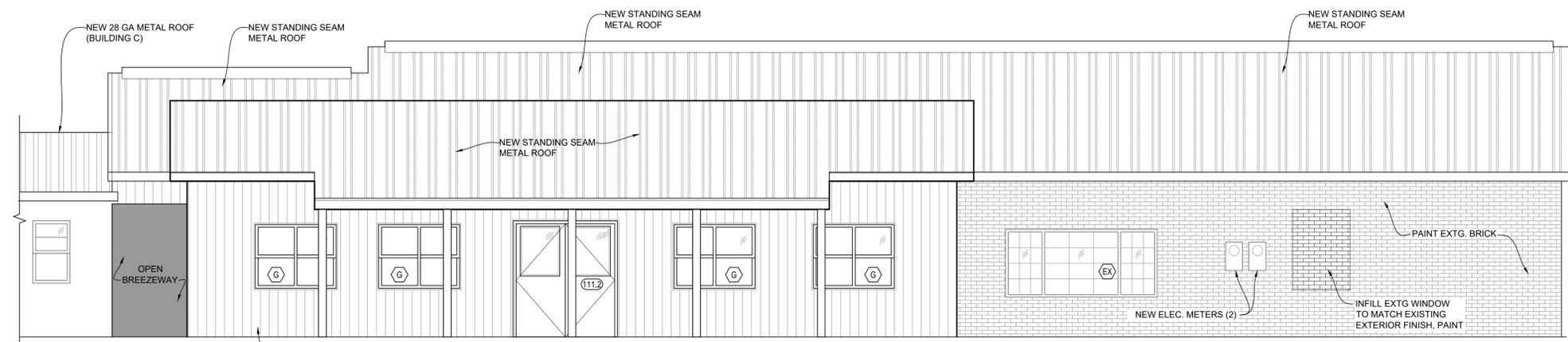
SOUTHWEST ELEVATION

1/4" = 1'-0"



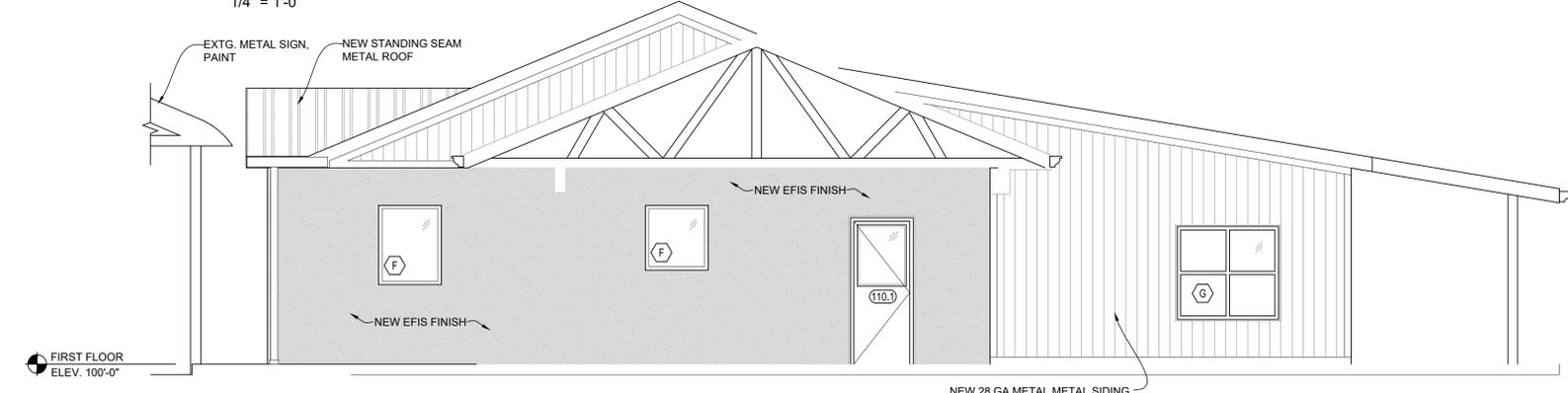
NORTHWEST ELEVATION

1/4" = 1'-0"



NORTHEAST ELEVATION

1/4" = 1'-0"



SOUTHEAST ELEVATION

1/4" = 1'-0"

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A2.1B

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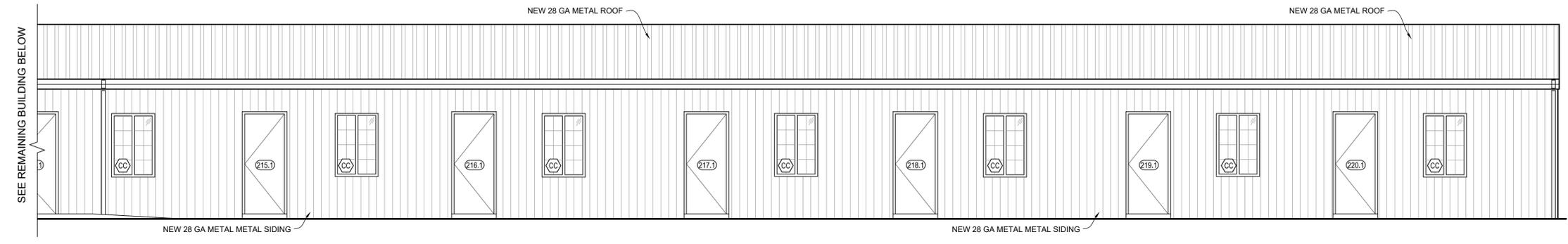
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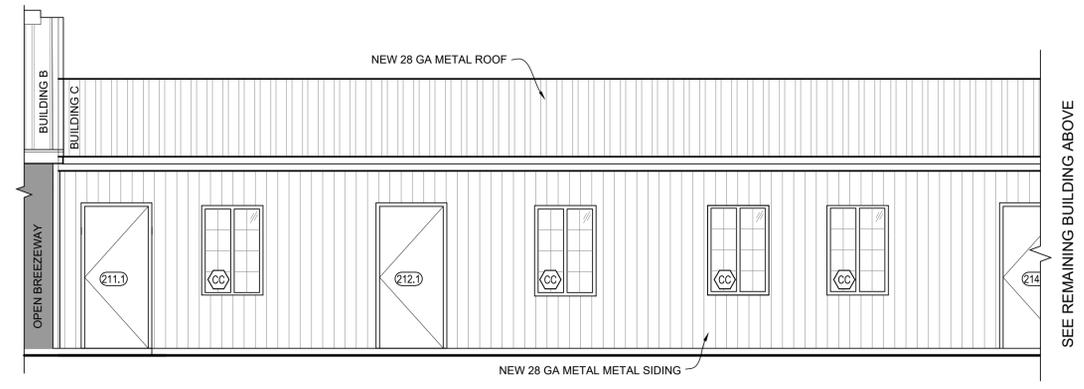
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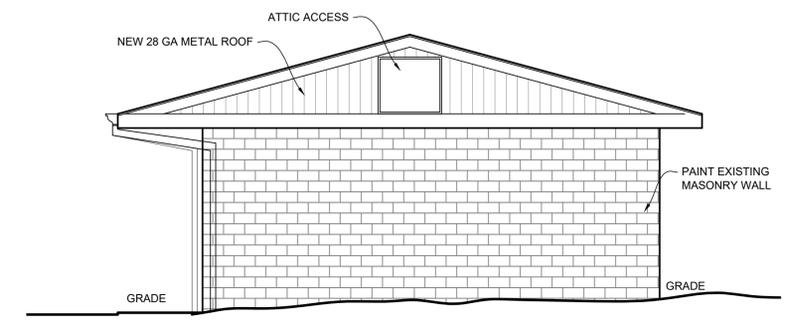
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A2.1C



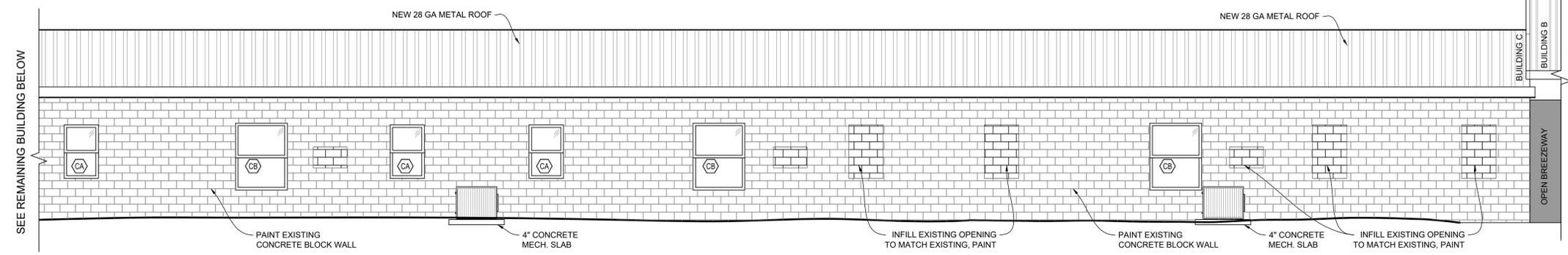
SOUTHWEST ELEVATION
1/4" = 1'-0"



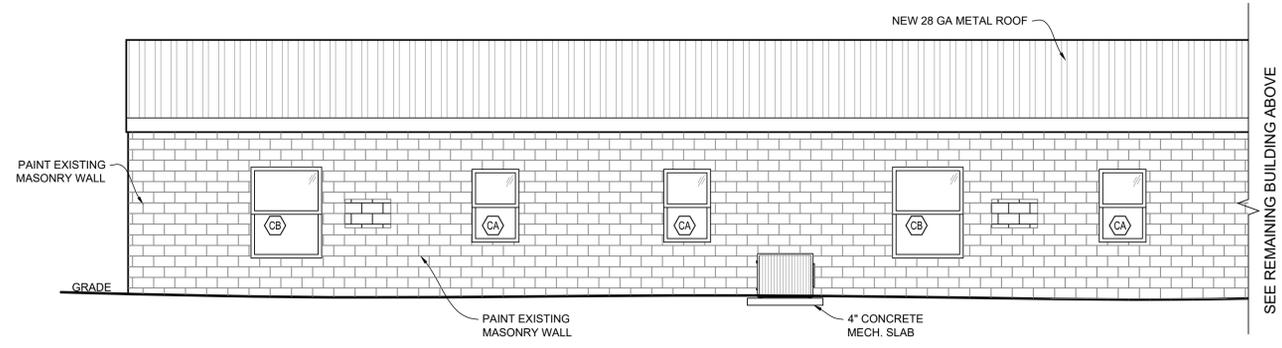
SOUTHWEST ELEVATION (CONTINUED)
1/4" = 1'-0"



SOUTHEAST ELEVATION
1/4" = 1'-0"



NORTHEAST ELEVATION
1/4" = 1'-0"



NORTHEAST ELEVATION (CONTINUED)
1/4" = 1'-0"

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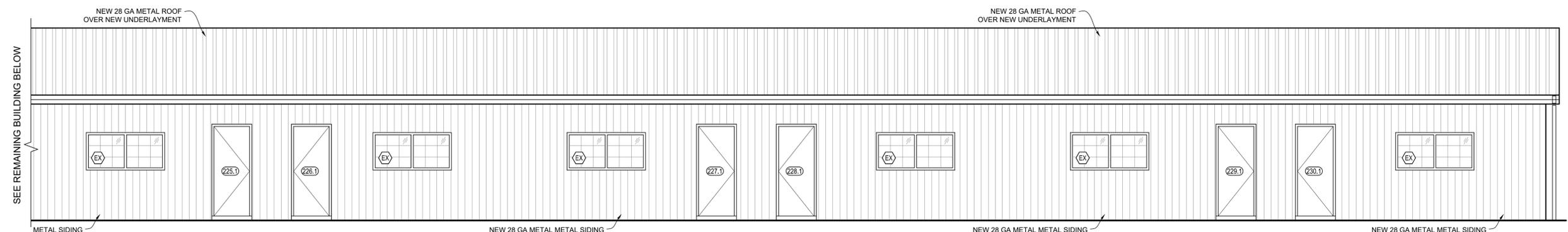
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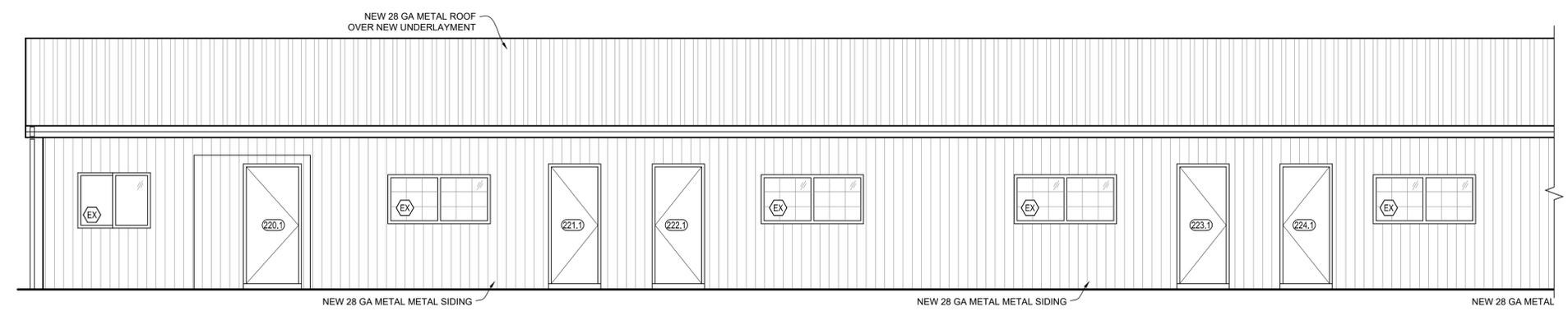
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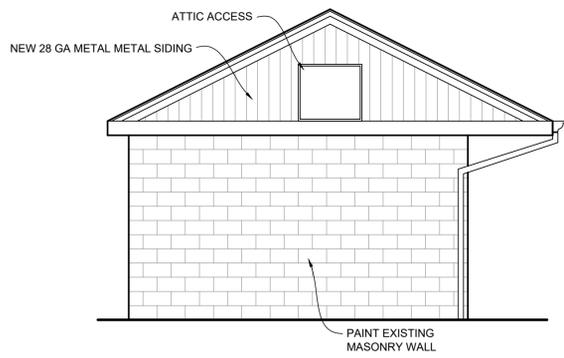
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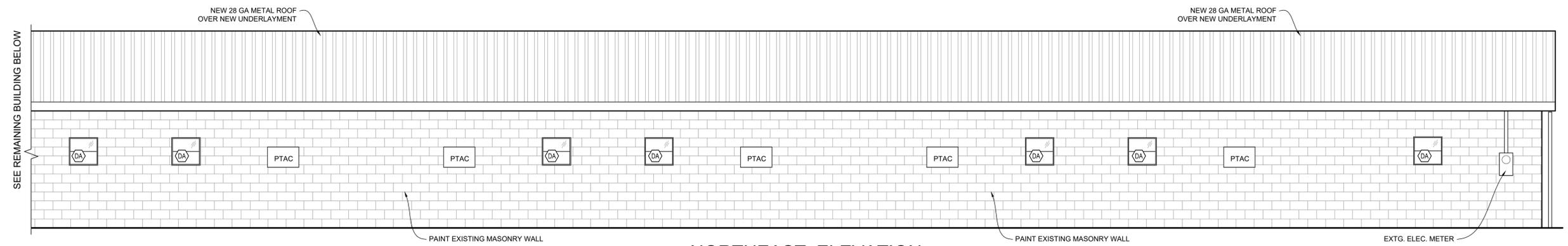
SOUTHWEST ELEVATION
1/4" = 1'-0"



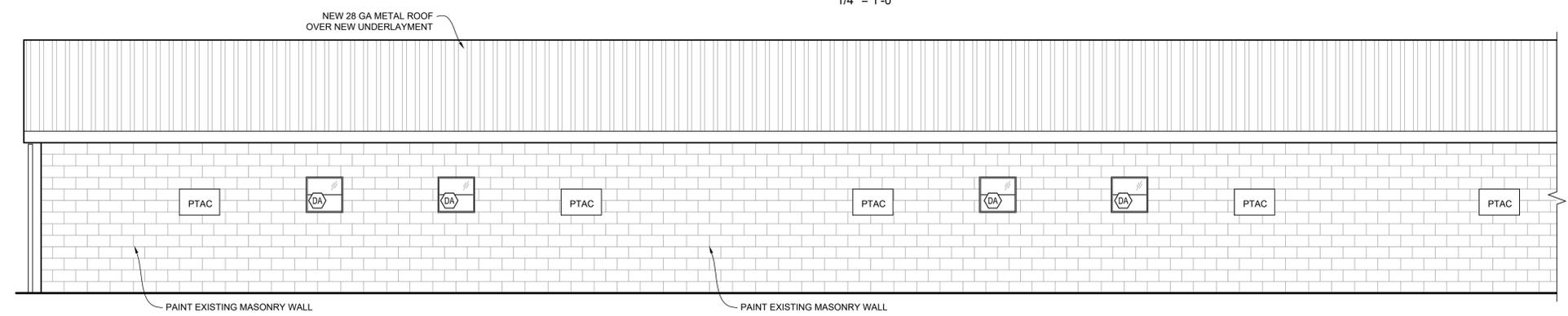
SOUTHWEST ELEVATION (CONTINUED)
1/4" = 1'-0"



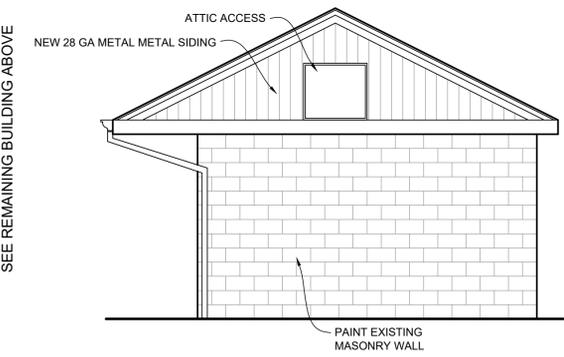
NORTHWEST ELEVATION
1/4" = 1'-0"



NORTHEAST ELEVATION
1/4" = 1'-0"



NORTHEAST ELEVATION (CONTINUED)
1/4" = 1'-0"



SOUTHEAST ELEVATION
1/4" = 1'-0"

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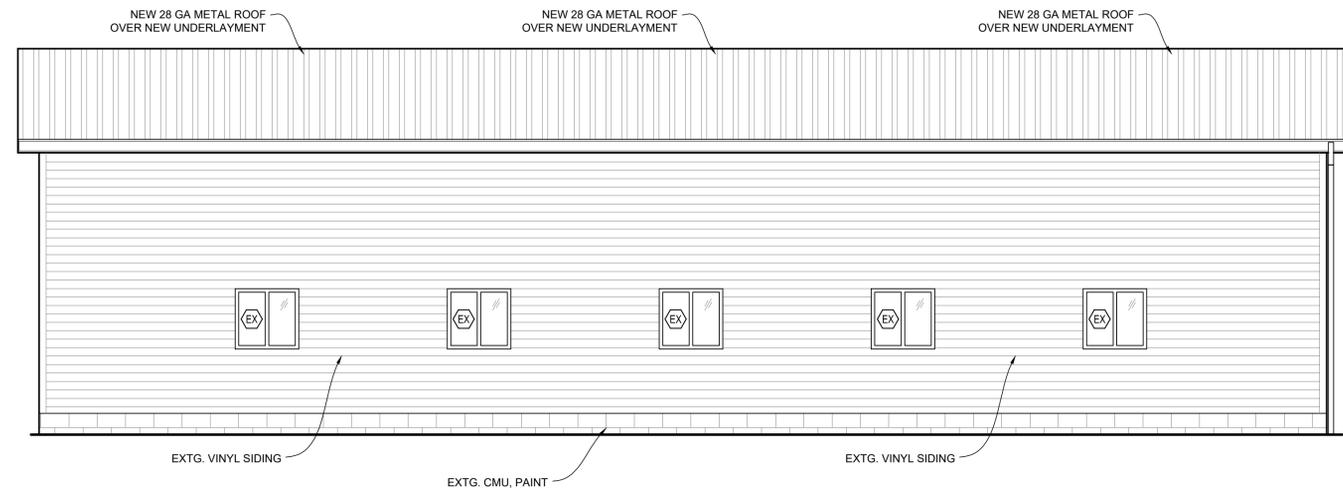
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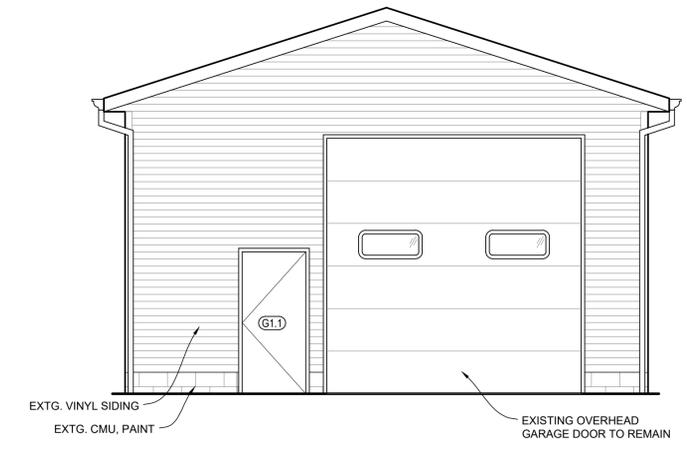
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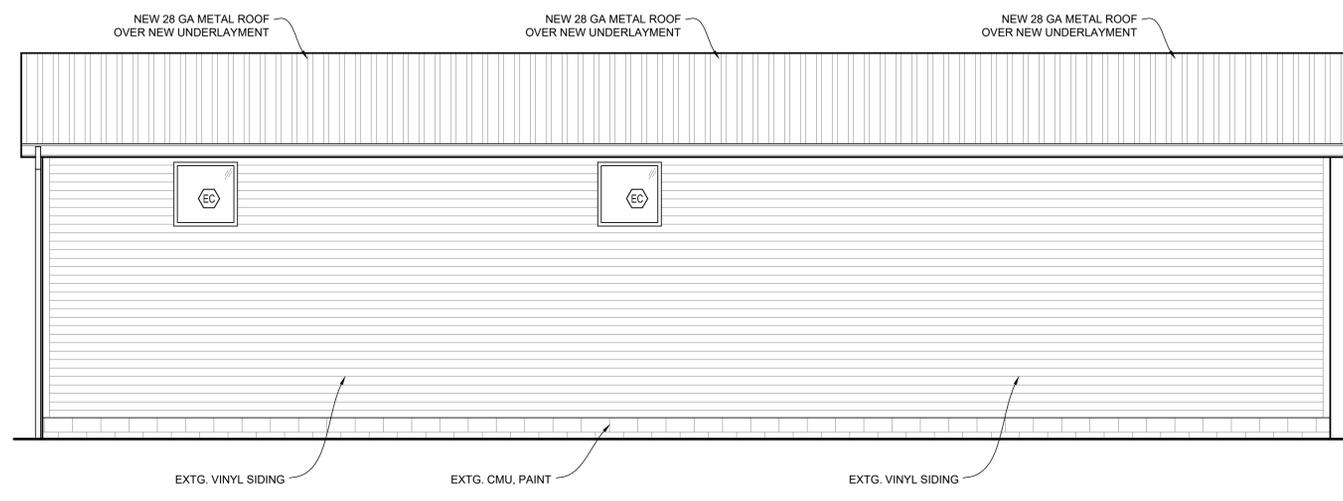
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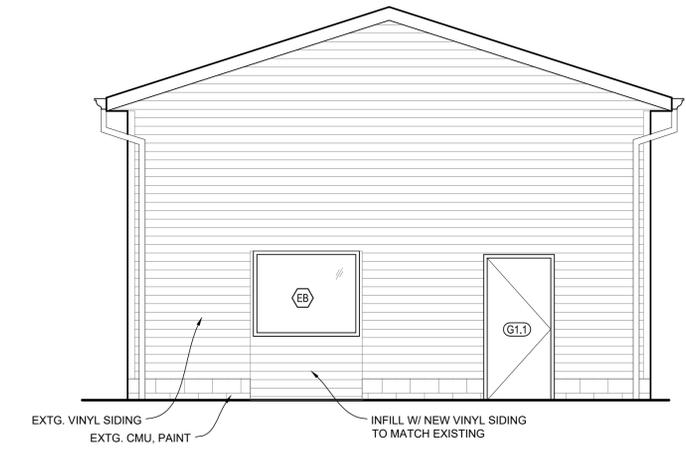
NORTHEAST ELEVATION
1/4" = 1'-0"



SOUTHEAST ELEVATION
1/4" = 1'-0"



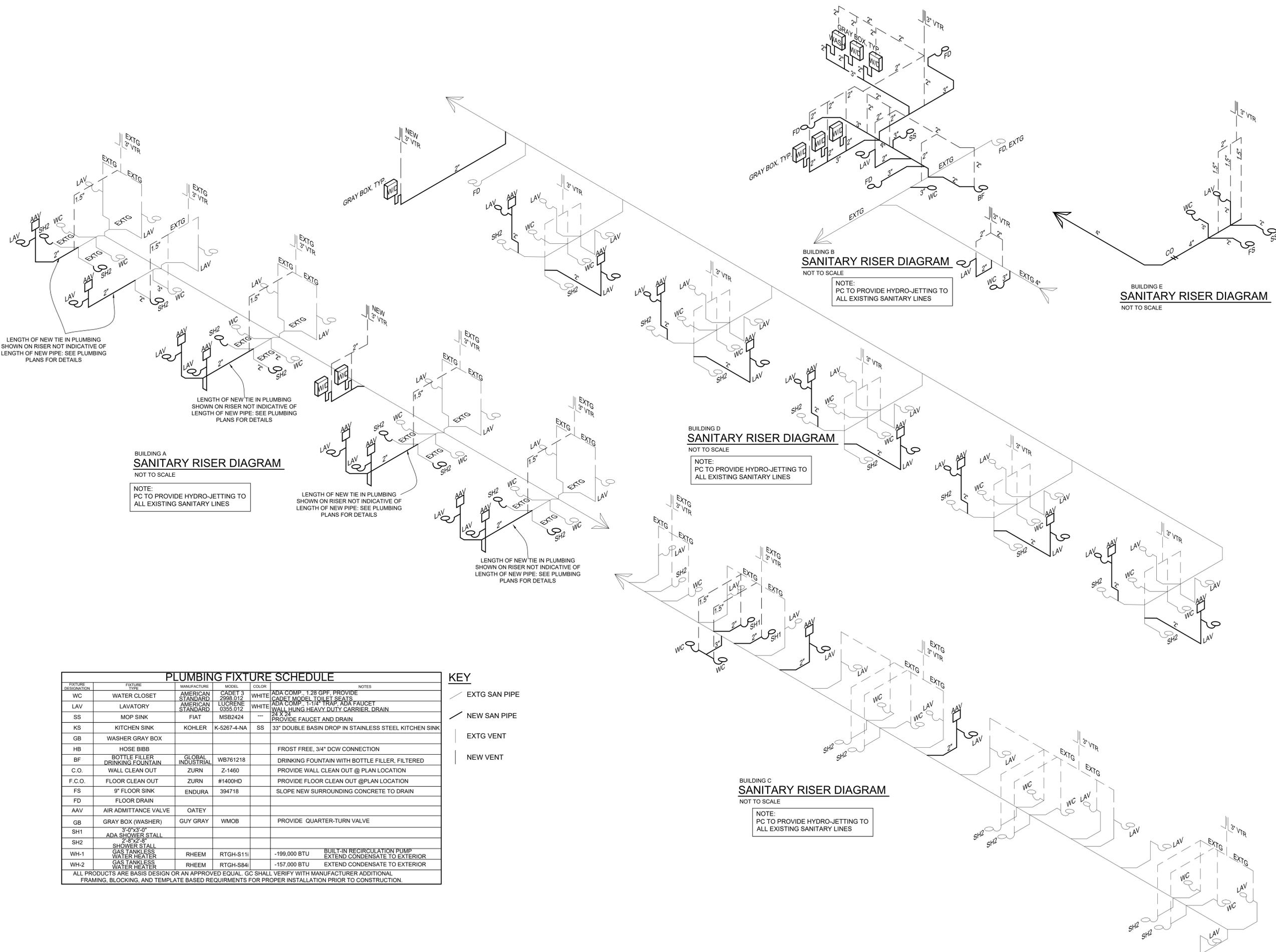
SOUTHWEST ELEVATION
1/4" = 1'-0"



NORTHWEST ELEVATION
1/4" = 1'-0"

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BUILDING E
A2.1E



LENGTH OF NEW TIE IN PLUMBING SHOWN ON RISER NOT INDICATIVE OF LENGTH OF NEW PIPE. SEE PLUMBING PLANS FOR DETAILS

LENGTH OF NEW TIE IN PLUMBING SHOWN ON RISER NOT INDICATIVE OF LENGTH OF NEW PIPE. SEE PLUMBING PLANS FOR DETAILS

LENGTH OF NEW TIE IN PLUMBING SHOWN ON RISER NOT INDICATIVE OF LENGTH OF NEW PIPE. SEE PLUMBING PLANS FOR DETAILS

LENGTH OF NEW TIE IN PLUMBING SHOWN ON RISER NOT INDICATIVE OF LENGTH OF NEW PIPE. SEE PLUMBING PLANS FOR DETAILS

**BUILDING A
SANITARY RISER DIAGRAM**
NOT TO SCALE

NOTE:
PC TO PROVIDE HYDRO-JETTING TO ALL EXISTING SANITARY LINES

**BUILDING D
SANITARY RISER DIAGRAM**
NOT TO SCALE

NOTE:
PC TO PROVIDE HYDRO-JETTING TO ALL EXISTING SANITARY LINES

**BUILDING B
SANITARY RISER DIAGRAM**
NOT TO SCALE

NOTE:
PC TO PROVIDE HYDRO-JETTING TO ALL EXISTING SANITARY LINES

**BUILDING E
SANITARY RISER DIAGRAM**
NOT TO SCALE

**BUILDING C
SANITARY RISER DIAGRAM**
NOT TO SCALE

NOTE:
PC TO PROVIDE HYDRO-JETTING TO ALL EXISTING SANITARY LINES

PLUMBING FIXTURE SCHEDULE					
FIXTURE DESIGNATION	FIXTURE TYPE	MANUFACTURE	MODEL	COLOR	NOTES
WC	WATER CLOSET	AMERICAN STANDARD	CADET 3 2998.012	WHITE	ADA COMP. 1.28 GPF. PROVIDE CADET MODEL TOILET SEATS
LAV	LAVATORY	AMERICAN STANDARD	LUCRENE 0355.012	WHITE	ADA COMP. 1-1/4" TRAP. ADA FAUCET
SS	MOP SINK	FIAT	MSB2424	---	24" X 24" PROVIDE FAUCET AND DRAIN
KS	KITCHEN SINK	KOHLER	K-5267-4-NA	SS	33" DOUBLE BASIN DROP IN STAINLESS STEEL KITCHEN SINK
GB	WASHER GRAY BOX				
HB	HOSE BIBB				FROST FREE, 3/4" DCW CONNECTION
BF	BOTTLE FILLER DRINKING FOUNTAIN	GLOBAL INDUSTRIAL	WB761218		DRINKING FOUNTAIN WITH BOTTLE FILLER, FILTERED
C.O.	WALL CLEAN OUT	ZURN	Z-1460		PROVIDE WALL CLEAN OUT @ PLAN LOCATION
F.C.O.	FLOOR CLEAN OUT	ZURN	#1400HD		PROVIDE FLOOR CLEAN OUT @ PLAN LOCATION
FS	9" FLOOR SINK	ENDURA	394718		SLOPE NEW SURROUNDING CONCRETE TO DRAIN
FD	FLOOR DRAIN				
AAV	AIR ADMITTANCE VALVE	OATEY			
GB	GRAY BOX (WASHER)	GUY GRAY	WMOB		PROVIDE QUARTER-TURN VALVE
SH1	ADA SHOWER STALL				
SH2	ADA SHOWER STALL				
WH-1	GAS TANKLESS WATER HEATER	RHEEM	RTGH-S111		-199,000 BTU BUILT-IN RECIRCULATION PUMP EXTEND CONDENSATE TO EXTERIOR
WH-2	GAS TANKLESS WATER HEATER	RHEEM	RTGH-S841		-157,000 BTU EXTEND CONDENSATE TO EXTERIOR
ALL PRODUCTS ARE BASIS DESIGN OR AN APPROVED EQUAL. GC SHALL VERIFY WITH MANUFACTURER ADDITIONAL FRAMING, BLOCKING, AND TEMPLATE BASED REQUIREMENTS FOR PROPER INSTALLATION PRIOR TO CONSTRUCTION.					

KEY

- EXTG SAN PIPE
- NEW SAN PIPE
- EXTG VENT
- NEW VENT

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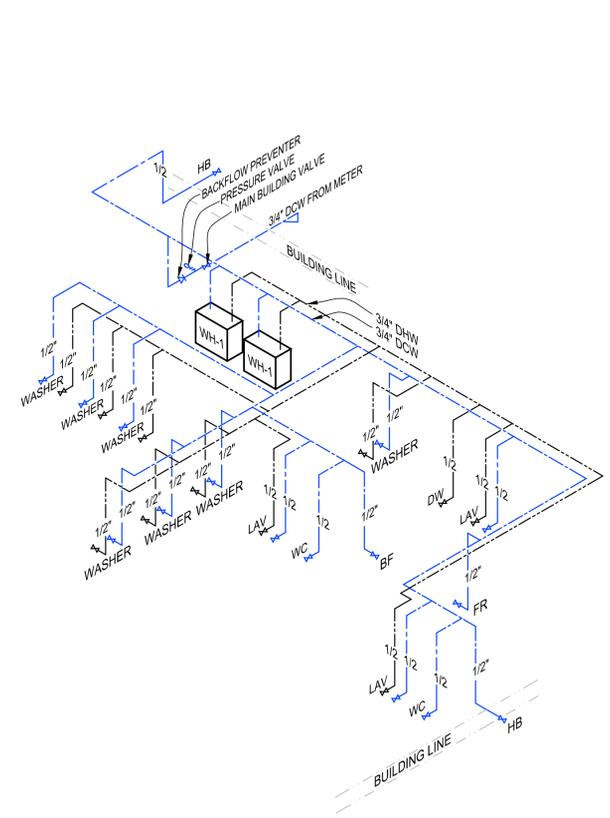
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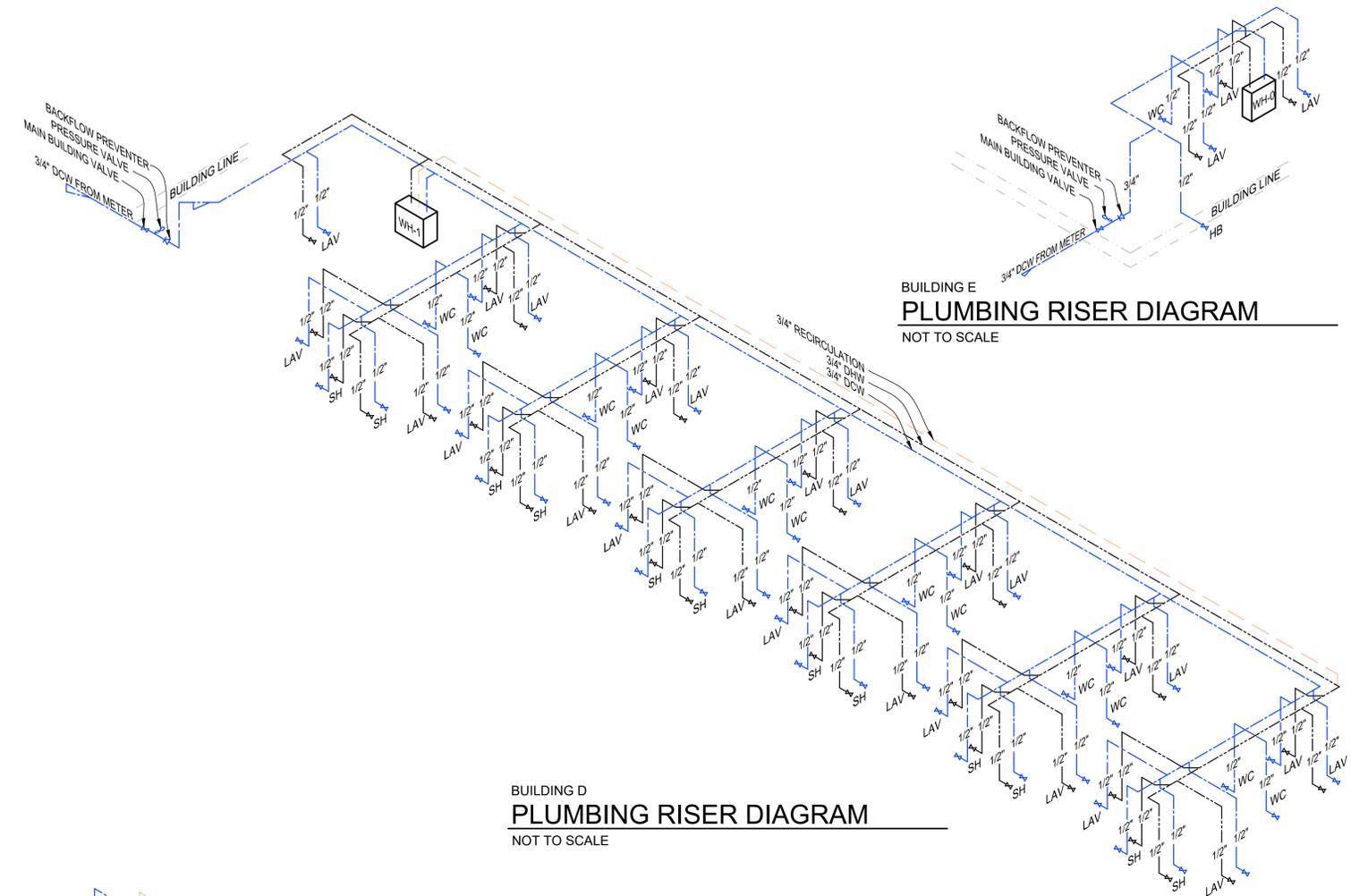
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ALL BUILDINGS

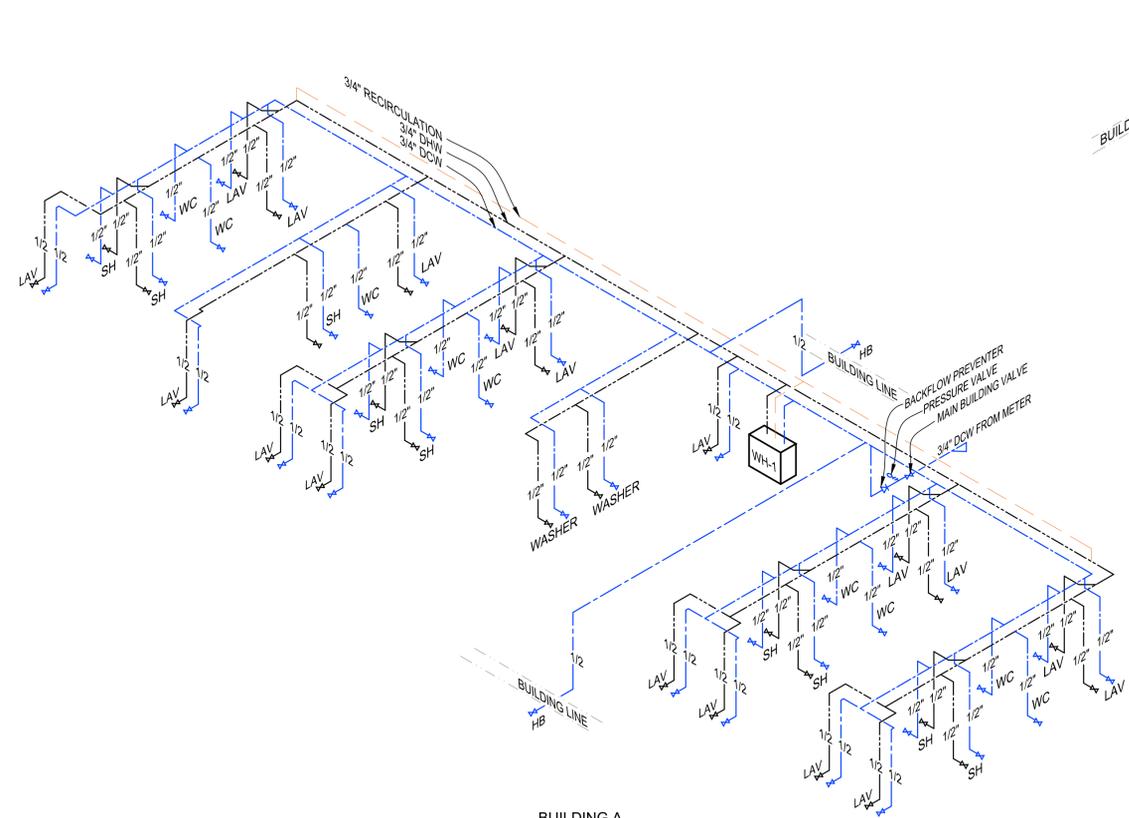
P1.1



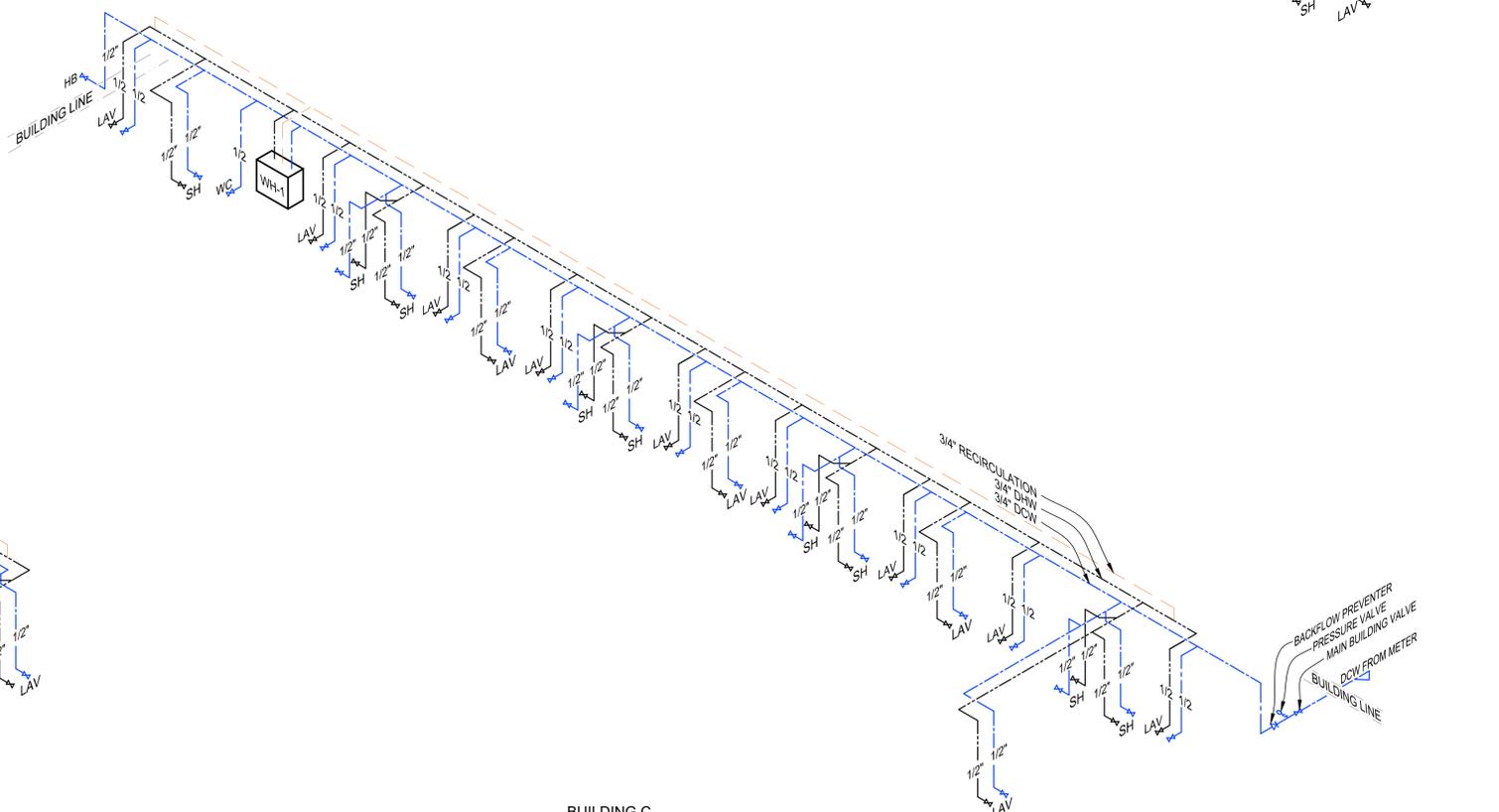
BUILDING B
PLUMBING RISER DIAGRAM
NOT TO SCALE



BUILDING D
PLUMBING RISER DIAGRAM
NOT TO SCALE



BUILDING A
PLUMBING RISER DIAGRAM
NOT TO SCALE



BUILDING C
PLUMBING RISER DIAGRAM
NOT TO SCALE

- RISER PLUMBING CODED NOTES:
1. SEE PIPING DIAGRAM
 2. IF THE WATER COMPANY DOES NOT REQUIRE A BACK FLOW PREVENTER THE PC WILL PROVIDE CREDIT.
 3. IF THE WATER PRESSURE CAN NOT EXCEED 80 PSI THE PC WILL PROVIDE CREDIT FOR PRESSURE REGULATOR
 4. TEMPERED WATER SUPPLY TO ALL SINKS & LAVATORIES

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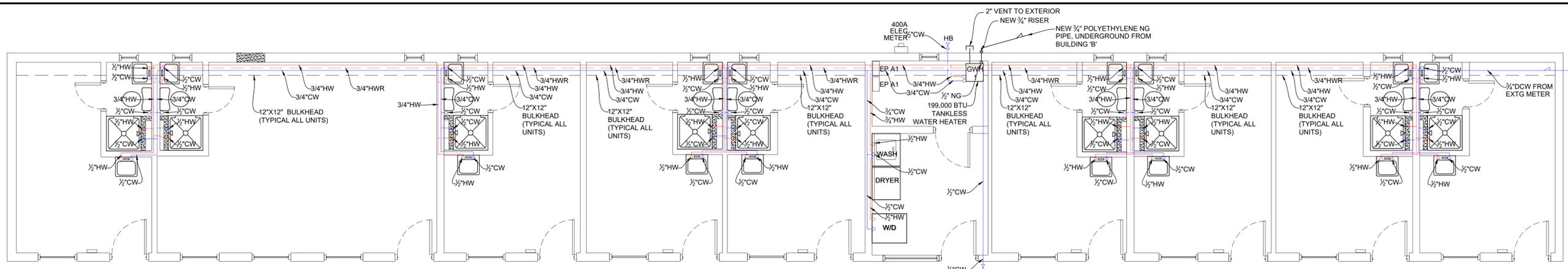
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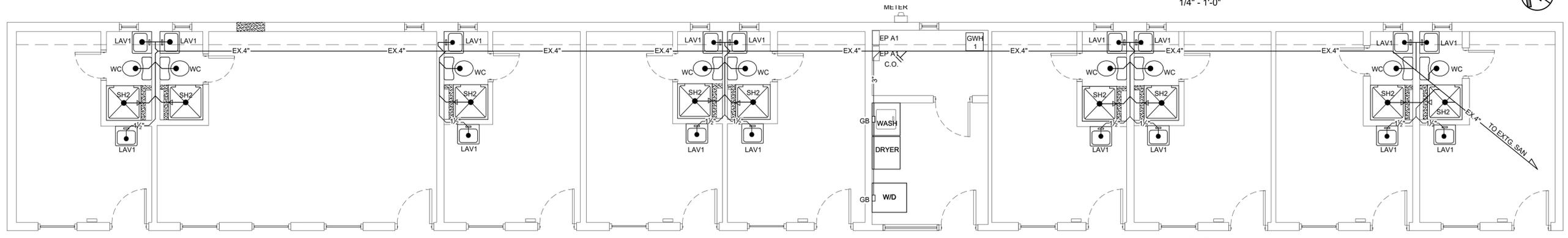
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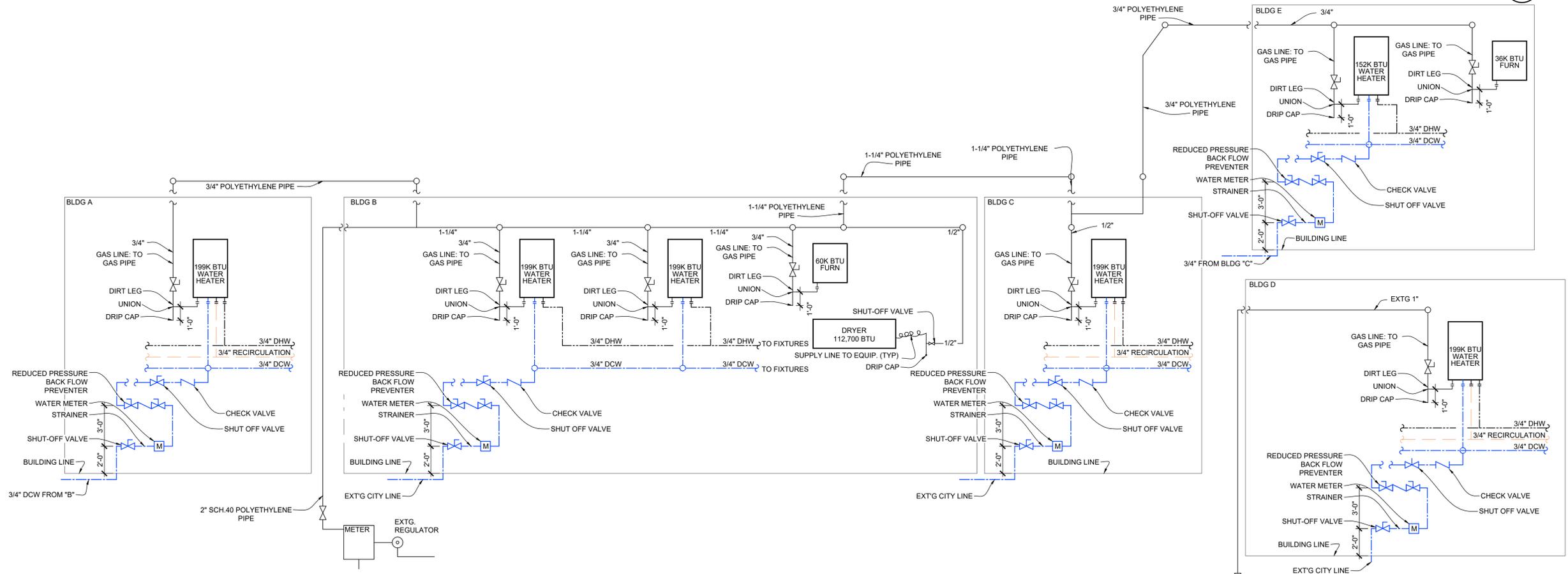
BUILDING A
P1.1A



BUILDING A
WATER AND GAS PLUMBING PLAN
1/4" - 1'-0"



BUILDING A
SANITARY PLUMBING PLAN
1/4" - 1'-0"

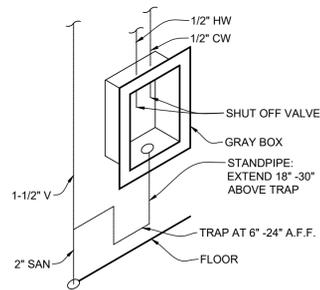
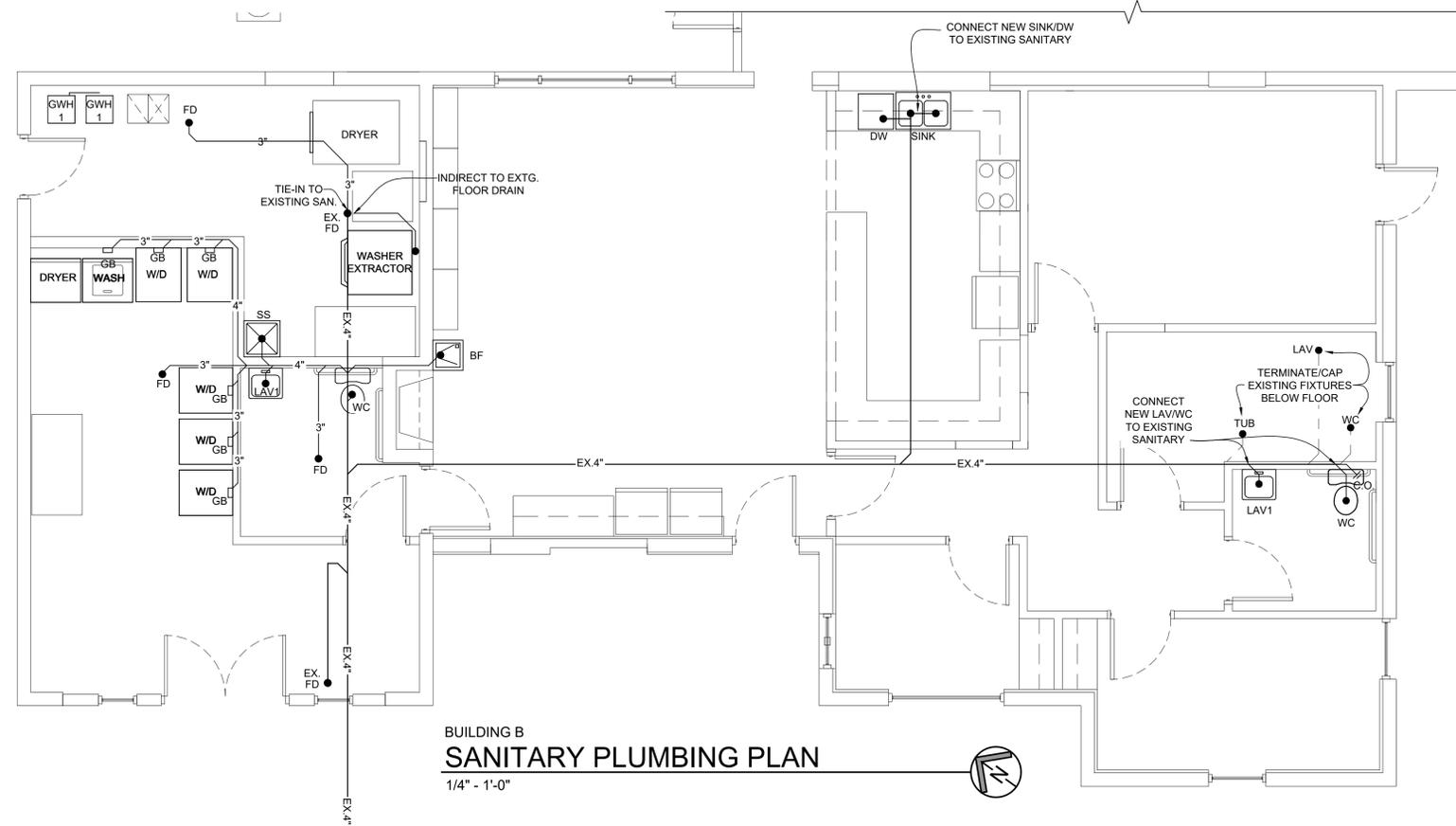


NATURAL GAS RISER
1/4" - 1'-0"

1
P1.1A

PLUMBING NOTES

- A PRESSURE TANK & SHOCK ABSORBERS SHALL BE INSTALLED ON THE MAIN BRANCH LINES.
- STOP VALVES SHALL BE INSTALLED ON ALL FIXTURES. PC SHALL PROVIDE AN ACCESS DOOR AS NEEDED FOR STOPS FOR INSTALLATION BY THE GC. PC SHALL NOTIFY ARCHITECT OF PLACEMENT PRIOR TO WORK.
- THE PC SHALL ASSUME ALL RESPONSIBILITY FOR COMPLETION OF ALL WORK TO THE HIGHEST TRADE AND MFG. STANDARDS. THE INTERPRETATION OF THESE STANDARDS SHALL BE MADE BY THE ARCHITECT.
- THE PC SHALL REVIEW THE DRAWINGS AND SPECIFICATIONS PRIOR TO BIDDING AND NOTIFY THE ARCHITECT OF ANY CONFLICT. ALL WORK SHALL BE DONE IN FULL COMPLIANCE WITH ALL STATE AND LOCAL CODES. THERE WILL BE NO CHANGE ORDERS IN FAVOR OF THE PC FOR CODE & MFG. REQUIRED WORK AFTER THE BID IS ACCEPTED. THE PC SHALL NOTIFY THE ARCHITECT OF ANY CONFLICTS PRIOR TO BID ACCEPTANCE.
- PC SHALL PROVIDE AND INSTALL A TRAP PRIMER FOR EACH FLOOR DRAIN.
- PC SHALL PROVIDE AND INSTALL SAN. & WATER LINES TO APPROVED SANITARY SYSTEM INCLUDING PERMITS, FEES, METERS AND PRESSURE REDUCING VALVES AND BACK FLOW PREVENTERS AS REQUIRED.
- OWNER SHALL PAY FOR STATE PLUMBING & SPRINKLER PERMITS.
- PC SHALL SECURE ALL LOCAL PERMITS. PC SHALL COORDINATE PLUMBING WORK WITH OTHER TRADES AS WELL AS STATE AND LOCAL INSPECTORS.
- PC SHALL MAINTAIN REVISIONS TO THE DRAWINGS DURING THE WORK AND AT THE END OF THE JOB, PC SHALL PROVIDE AS-BUILT DRAWINGS FOR ALL WORK AS INSTALLED AND NOT SHOWN ON DRAWINGS.
- STORM AND FOUNDATION DRAINS SHALL BE PROVIDED AND INSTALLED BY GC. PC SHALL PROVIDE ROOF FLASHING AND FLASHING FOR VENT STACKS. GC SHALL CUT HOLE & INSTALL FLASHING.
- ALL WATER LINES SHALL BE INSULATED UNDER AND SLEEVED THROUGH CONCRETE BY PC. THE PC SHALL COMPACT ALL BACKFILL AROUND PLUMBING.
- THE PC SHALL PROVIDE LAVATORY WITH SUPPORT ARMS AND WATER CLOSET WITH ELONGATED TOILET BOWL AND OPEN FRONT SEAT.
- THE PC SHALL PROVIDE LEVER HANDLES ON SINKS & LAVATORIES.
- FURNISH AND INSTALL CLEAN OUTS IN BUILDING AND BRANCH DRAINS, NOT EXCEEDING 50'-0" ON CENTERS, 5'-0" OUTSIDE BUILDING WALL, AND AT BASE OF ALL STACKS. CONSULT LOCAL JURISDICTION AND/OR INSPECTORS FOR USE OF WATER CLOSETS AS REQUIRED CLEANOUTS.
- PC SHALL PROVIDE AND INSTALL GARBAGE DISPOSAL. EC SHALL PROVIDE POWER AND INSTALL SWITCH.
- PC SHALL PROVIDE PLUMBING TO DISHWASHER. DISHWASHER SHALL BE PROVIDED & INSTALLED BY GC. EC SHALL PROVIDE POWER.
- PC SHALL PROVIDE AND INSTALL WASHER CONNECTION BOX. EC SHALL PROVIDE POWER. WASHER AND DRYER SHALL BE PROVIDED AND INSTALLED BY GC.
- PC SHALL PROVIDE AND INSTALL WATER HEATER AND EXTEND RELIEF TO FLOOR DRAIN. IF ELECTRIC- WIRES SHALL BE PROVIDED AND INSTALLED TO TANK BY EC. FINAL ELECTRICAL HOOKUP AND TESTING BY PC. IF GAS- MC SHALL PROVIDE AND EXTEND FLUE TO EXTERIOR. MC SHALL PROVIDE FLASHING. GC SHALL CUT HOLE AND INSTALL FLASHING.
- PC/MC SHALL PROVIDE AND INSTALL GAS PIPING THROUGH OUT BUILDING. INCLUDE SHUT OFF VALVES, UNIONS, ETC. PC/MC SHALL PROVIDE GAS TO EQUIPMENT. PROVIDER OF EQUIPMENT SHALL MAKE FINAL CONNECTION AND TEST.
- INSULATE ALL WALL HUNG LAVATORY PLUMBING WITH TRU BRD LAV GUARD SCALED PROTECTION OR EQUAL AS REQUIRED PER THE ADA
- SEE APPLIANCE / EQUIPMENT RESPONSIBILITIES
- PROVIDE AND INSTALL 110 F DEGREE TEMPERING VALVE THAT CONFORMS TO ASSE 1070 AT PUBLIC HAND WASH SINKS
- PC TO PROVIDE HYDRO-JETTING AT ALL EXISTING SANITARY LINES.



PLUMBING FIXTURE SCHEDULE						
FIXTURE DESIGNATION	FIXTURE TYPE	MANUFACTURE	MODEL	COLOR	NOTES	
WC	WATER CLOSET	AMERICAN STANDARD	CADET 3 2995.012	WHITE	ADA COMP. 1.28 GPF PROVIDE CADET MODEL TOILET SEATS	
LAV	LAVATORY	AMERICAN STANDARD	LUCRENE 0355.012	WHITE	ADA COMP. 1-1/4" TRAP, ADA FAUCET WALL HUNG HEAVY DUTY CARRIER, DRAIN 24" X 24"	
SS	MOP SINK	FIAT	MSB2424	---	PROVIDE FAUCET AND DRAIN	
KS	KITCHEN SINK	KOHLER	K-5267-4-NA	SS	33" DOUBLE BASIN DROP IN STAINLESS STEEL KITCHEN SINK	
GB	WASHER GRAY BOX					
HB	HOSE BIBB				FROST FREE, 3/4" DCW CONNECTION	
BF	BOTTLE FILLER DRINKING FOUNTAIN	GLOBAL INDUSTRIAL	WB761218		DRINKING FOUNTAIN WITH BOTTLE FILLER, FILTERED	
C.O.	WALL CLEAN OUT	ZURN	Z-1460		PROVIDE WALL CLEAN OUT @ PLAN LOCATION	
F.C.O.	FLOOR CLEAN OUT	ZURN	#1400HD		PROVIDE FLOOR CLEAN OUT @ PLAN LOCATION	
FS	9" FLOOR SINK	ENDURA	394718		SLOPE NEW SURROUNDING CONCRETE TO DRAIN	
FD	FLOOR DRAIN					
AAV	AIR ADMITTANCE VALVE	OATEY				
GB	GRAY BOX (WASHER)	GUY GRAY	WMOB		PROVIDE QUARTER-TURN VALVE	
SH1	3'-0" X 3'-0" ADA SHOWER STALL					
SH2	2'-8" X 2'-8" SHOWER STALL					
WH-1	GAS TANKLESS WATER HEATER	RHEEM	RTGH-S11i		-199,000 BTU BUILT-IN RECIRCULATION PUMP EXTEND CONDENSATE TO EXTERIOR	
WH-2	GAS TANKLESS WATER HEATER	RHEEM	RTGH-S84i		-157,000 BTU EXTEND CONDENSATE TO EXTERIOR	
ALL PRODUCTS ARE BASIS DESIGN OR AN APPROVED EQUAL. GC SHALL VERIFY WITH MANUFACTURER ADDITIONAL FRAMING, BLOCKING, AND TEMPLATE BASED REQUIREMENTS FOR PROPER INSTALLATION PRIOR TO CONSTRUCTION.						

SANITARY FLOW							
ID	ITEM	FLOW RATE PER UNIT	# OF UNITS	FLOW RATE	DFU	SANITARY LINE	
WASH	WASHER	9	7	63	126	2-1/4"	
LAV	TOILET LAVATORY	1/2	2	1	2	1-1/2"	
WC	TOILET WATER CLOSET	3	2	6	12	3"	
DF	DRINKING FOUNTAIN	1/2	2	1	2	1-1/2"	
KS	KITCHEN SINK	1	1	1	2	1-12"	
SS	SERVICE SINK	1	1	1	2	1-12"	
LS	LAUNDRY SINK	1/4	1	1/4	1/2	3"	
FD	FLOOR DRAINS	1	2	2	4	3"	
					TOTAL LINE USE	148	4"

TOTAL DFU ON MAIN LINE = 148
 PERMITTED DFU ON 4" LINE @ 1/4" MIN SLOPE = 216 (OPC TABLE 710.1(1))

9 WASHERS = 126 DFU PROVIDED, 126 PERMITTED (4" @ 1/4" SLOPE)

NOTE:
 PC TO PROVIDE HYDRO-JETTING TO ALL EXISTING SANITARY LINES

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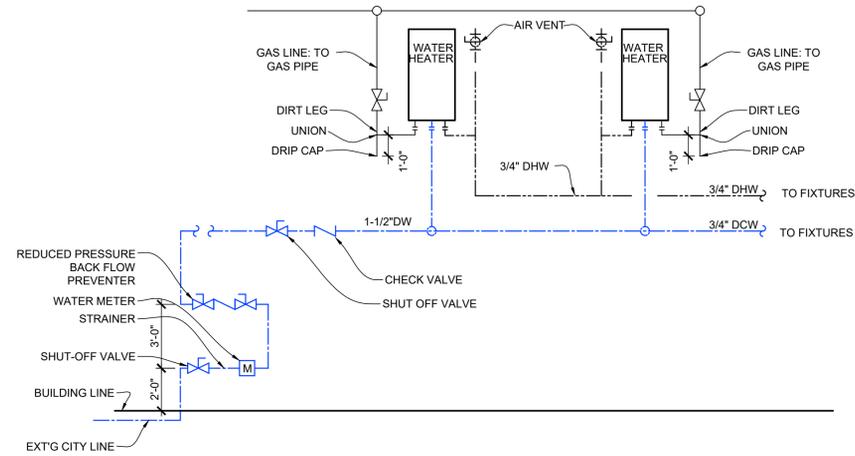
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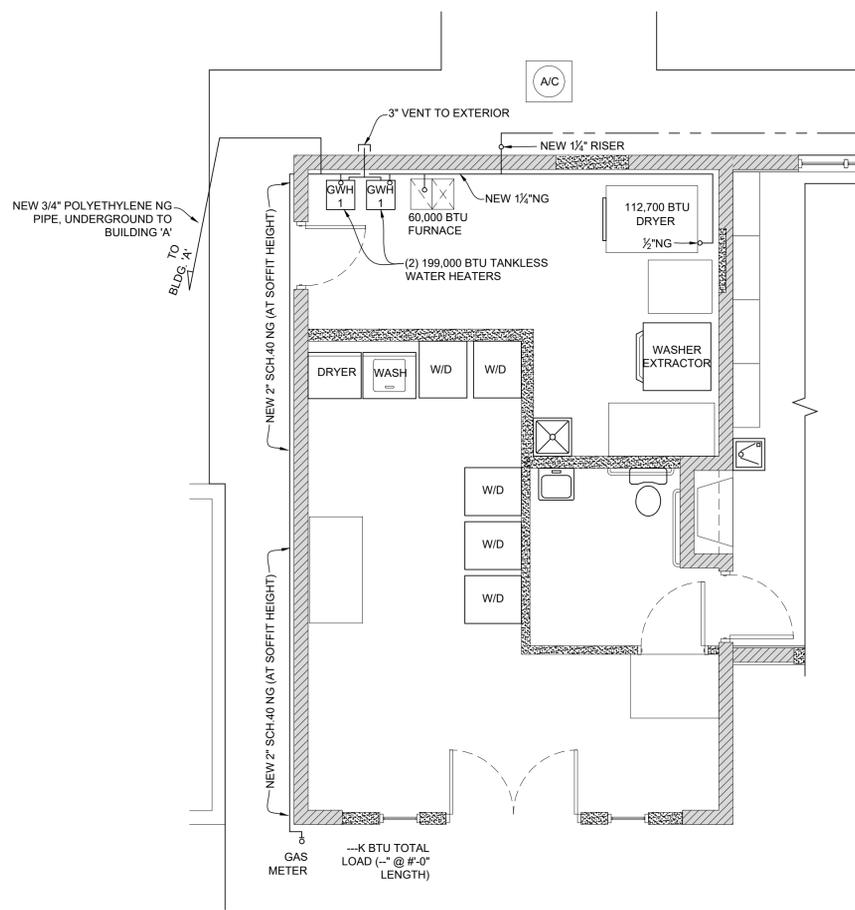
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 RVC PROJECT #241101

BUILDING B

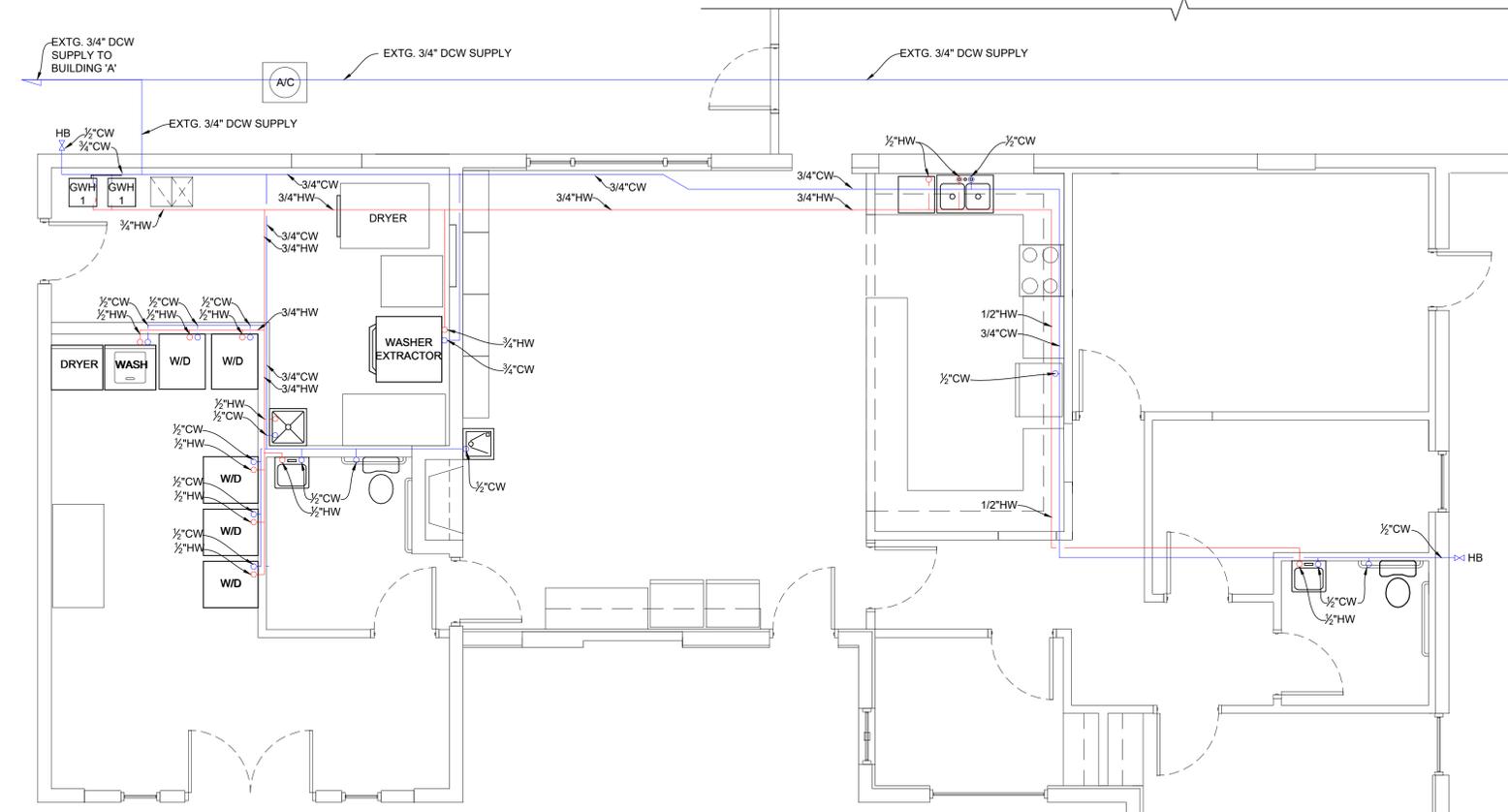
P1.1B



WATER MAIN DIAGRAM NOT TO SCALE
WATER HEATER PIPING DIAGRAM NOT TO SCALE



BUILDING B
NATURAL GAS PLUMBING PLAN
 1/4" - 1'-0"



BUILDING B
DOMESTIC WATER PLUMBING PLAN
 1/4" - 1'-0"

PLUMBING FIXTURE SCHEDULE					
FIXTURE DESIGNATION	FIXTURE TYPE	MANUFACTURE	MODEL	COLOR	NOTES
WC	WATER CLOSET	AMERICAN STANDARD	CADET 3 2885.012	WHITE	ADA COMP. 1-28 GPF, PROVIDE CADET MODEL TOILET SEATS
LAV	LAVATORY	AMERICAN STANDARD	LUCRENE 0355.012	WHITE	ADA COMP. 1-1/4" TRAP, ADA FAUCET
SS	MOP SINK	FIAT	MSB2424	---	24" X 24" PROVIDE FAUCET AND DRAIN
KS	KITCHEN SINK	KOHLER	K-5267-4-NA	SS	33" DOUBLE BASIN DROP IN STAINLESS STEEL KITCHEN SINK
GB	WASHER GRAY BOX				
HB	HOSE BIBB				FROST FREE, 3/4" DCW CONNECTION
BF	BOTTLE FILLER DRINKING FOUNTAIN	GLOBAL INDUSTRIAL	WB761218		DRINKING FOUNTAIN WITH BOTTLE FILLER, FILTERED
C.O.	WALL CLEAN OUT	ZURN	Z-1460		PROVIDE WALL CLEAN OUT @ PLAN LOCATION
F.C.O.	FLOOR CLEAN OUT	ZURN	#1400HD		PROVIDE FLOOR CLEAN OUT @ PLAN LOCATION
FS	9" FLOOR SINK	ENDURA	394718		SLOPE NEW SURROUNDING CONCRETE TO DRAIN
FD	FLOOR DRAIN				
AAV	AIR ADMITTANCE VALVE	OATEY			
GB	GRAY BOX (WASHER)	GUY GRAY	WMOB		PROVIDE QUARTER-TURN VALVE
SH1	3'-0" X 3'-0" ADA SHOWER STALL				
SH2	2'-8 1/2" X 3'-8" SHOWER STALL				
WH-1	GAS TANKLESS WATER HEATER	RHEEM	RTGH-S111		-199,000 BTU BUILT-IN RECIRCULATION PUMP EXTEND CONDENSATE TO EXTERIOR
WH-2	GAS TANKLESS WATER HEATER	RHEEM	RTGH-S841		-157,000 BTU EXTEND CONDENSATE TO EXTERIOR

ALL PRODUCTS ARE BASIS DESIGN OR AN APPROVED EQUAL. GC SHALL VERIFY WITH MANUFACTURER ADDITIONAL FRAMING, BLOCKING, AND TEMPLATE BASED REQUIREMENTS FOR PROPER INSTALLATION PRIOR TO CONSTRUCTION.

RE-BID SET
 11/03/2025

ARCHITECT/ENGINEER STAMP
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THE SUNSET SHELTER PROJECT
 HAPCAP
 135 COLUMBUS ROAD, ATHENS OHIO-45701
 RVC PROJECT #241101

BUILDING B
P1.2B

PLUMBING NOTES

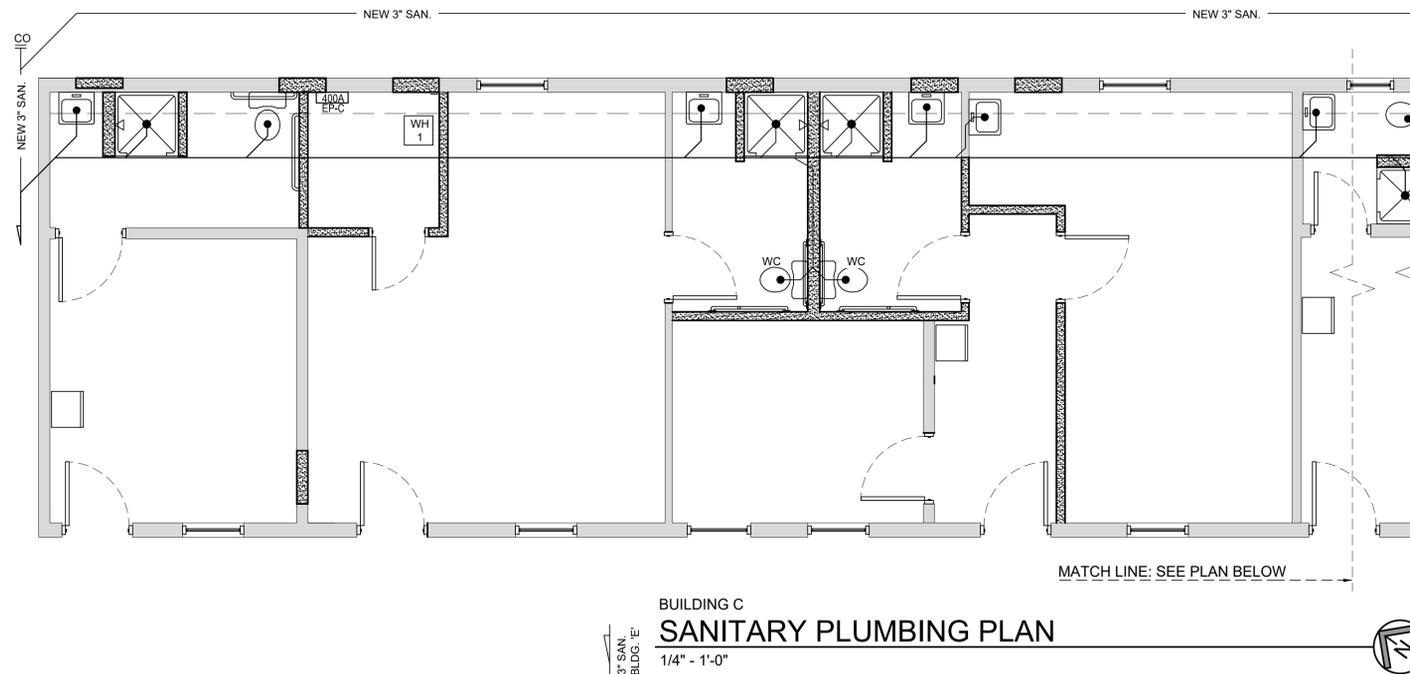
- A PRESSURE TANK & SHOCK ABSORBERS SHALL BE INSTALLED ON THE MAIN BRANCH LINES. STOP VALVES SHALL BE INSTALLED ON ALL FIXTURES. PC SHALL PROVIDE AN ACCESS DOOR AS NEEDED FOR STOPS FOR INSTALLATION BY THE GC. PC SHALL NOTIFY ARCHITECT OF PLACEMENT PRIOR TO WORK.
- THE PC SHALL ASSUME ALL RESPONSIBILITY FOR COMPLETION OF ALL WORK TO THE HIGHEST TRADE AND MFG. STANDARDS. THE INTERPRETATION OF THESE STANDARDS SHALL BE MADE BY THE ARCHITECT.
- THE PC SHALL REVIEW THE DRAWINGS AND SPECIFICATIONS PRIOR TO BIDDING AND NOTIFY THE ARCHITECT OF ANY CONFLICT. ALL WORK SHALL BE DONE IN FULL COMPLIANCE WITH ALL STATE AND LOCAL CODES. THERE WILL BE NO CHANGE ORDERS IN FAVOR OF THE PC FOR CODE & MFG. REQUIRED WORK AFTER THE BID IS ACCEPTED. THE PC SHALL NOTIFY THE ARCHITECT OF ANY CONFLICTS PRIOR TO BID ACCEPTANCE.
- PC SHALL PROVIDE AND INSTALL A TRAP PRIMER FOR EACH FLOOR DRAIN. PC SHALL PROVIDE AND INSTALL SAN. & WATER LINES TO APPROVED SANITARY SYSTEM INCLUDING PERMITS, FEES, METERS AND PRESSURE REDUCING VALVES AND BACK FLOW PREVENTERS AS REQUIRED.
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- ALL WALL LINES SHALL BE INSULATED UNDER AND SLEEVED THROUGH CONCRETE BY PC. THE PC SHALL COMPACT ALL BACKFILL AROUND PLUMBING.
- THE PC SHALL PROVIDE LAVATORY WITH SUPPORT ARMS AND WATER CLOSET WITH ELONGATED TOILET BOWL AND OPEN FRONT SEAT.
- THE PC SHALL PROVIDE LEVER HANDLES ON SINKS & LAVATORIES.
- FURNISH AND INSTALL CLEAN OUTS IN BUILDING AND BRANCH DRAINS, NOT EXCEEDING 50'-0" ON CENTERS, 5'-0" OUTSIDE BUILDING WALL, AND AT BASE OF ALL STACKS. CONSULT LOCAL JURISDICTION AND/OR INSPECTORS FOR USE OF WATER CLOSETS AS REQUIRED CLEANOUTS.
- PC SHALL PROVIDE AND INSTALL GARBAGE DISPOSAL. EC SHALL PROVIDE POWER AND INSTALL SWITCH.
- PC SHALL PROVIDE PLUMBING TO DISHWASHER. DISHWASHER SHALL BE PROVIDED & INSTALLED BY GC. EC SHALL PROVIDE POWER.
- PC SHALL PROVIDE AND INSTALL WASHER CONNECTION BOX. EC SHALL PROVIDE POWER. WASHER AND DRYER SHALL BE PROVIDED AND INSTALLED BY GC.
- PC SHALL PROVIDE AND INSTALL WATER HEATER AND EXTEND RELIEF TO FLOOR DRAIN. IF ELECTRIC WIRES SHALL BE PROVIDED AND INSTALLED TO TANK BY EC. FINAL ELECTRICAL HOOKUP AND TESTING BY PC. IF GAS-MC SHALL PROVIDE AND EXTEND FLUE TO EXTERIOR. MC SHALL PROVIDE FLASHING. GC SHALL CUT HOLE AND INSTALL FLASHING.
- PC/MC SHALL PROVIDE AND INSTALL GAS PIPING THROUGH OUT BUILDING. INCLUDE SHUT OFF VALVES, UNIONS, ETC. PC/MC SHALL PROVIDE GAS TO EQUIPMENT. PROVIDER OF EQUIPMENT SHALL MAKE FINAL CONNECTION AND TEST.
- INSULATE ALL WALL HUNG LAVATORY PLUMBING WITH TRU BRD LAV GUARD SCALD PROTECTION OR EQUAL AS REQUIRED PER THE ADA
- SEE APPLIANCE / EQUIPMENT RESPONSIBILITIES
- PROVIDE AND INSTALL 110 F DEGREE TEMPERING VALVE THAT CONFORMS TO ASSE 1070 AT PUBLIC HAND WASH SINKS
- PC TO PROVIDE HYDRO-JETTING AT ALL EXISTING SANITARY LINES.

(IF YOU DONT HAVE SPECIFICATIONS, ADD THE FOLLOWING)

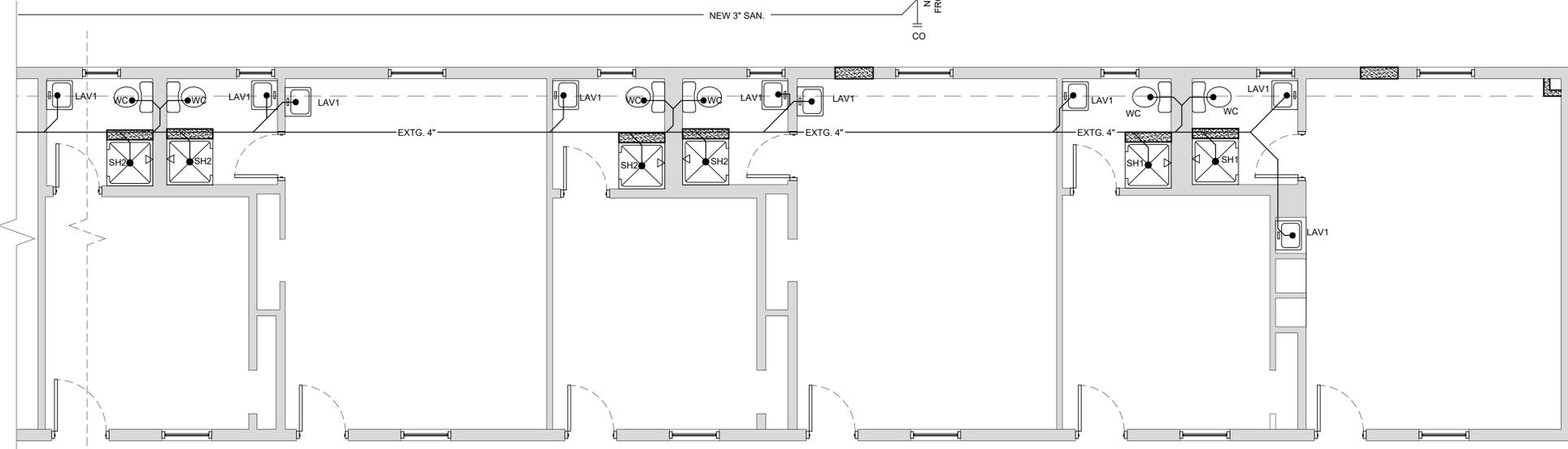
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- WALL HYDRANTS PROVIDE: (ASSE 1011) NIBCO FIG. 80-VB-LS, FREEZE-PROOF FAUCET, VACUUM BREAKER, 3/4 IN. SIZE HOSE CONNECTION, LENGTH AS REQUIRED. BRONZE BODY AND NICKEL FACE. EQUAL BY WATTS, WOODFORD, J. R. SMITH, ZURN, OR JOSAM.
- SHOCK ABSORBERS: PROVIDE ON THE DCW AND DHW AT EACH TOILET ROOM, AT EACH WALL HYDRANT, AT THE END OF EACH BRANCH LONGER THAN 10 FT, IF NOT OTHERWISE PROVIDED. (NOT SHOWN.) FURNISH (ANSI A112.26.1M, ASSE 1010, PDI-WH201) SHOCK ABSORBERS. WADE, ZURN, SIOUX CHIEF, OR WATTS. PROVIDE SIZES AS RECOMMENDED BY THE MANUFACTURER. SIZE OF EACH UNIT SHALL BE CLEARLY MARKED FOR FIELD VERIFICATION.
- WALL CLEANOUTS: ZURN FIG. Z-1460-9, PRIMERED ACCESS COVER, VANDAL-PROOF SCREW. EQUAL BY WADE, JOSAM, J. R. SMITH, OR WATTS. FLOOR CLEANOUTS: ZURN #1400-HD, ADJUSTABLE CAST IRON BODY, THREADED A.B.S. PLASTIC PLUG, HEAVY-DUTY NICKALOY TOP, LINE SIZE. EQUAL BY WADE, JOSAM, J. R. SMITH, OR WATTS.
- FLOOR DRAINS: ZURN #Z-550-P, ADJUSTABLE CAST IRON BODY, 8 1/2" DIAMETER HEAVY-DUTY NICKALOY STRAINER, 3" PIPE SIZE. EQUAL BY WADE, JOSAM, J. R. SMITH, OR WATTS.
- BACKFLOW PREVENTER: MAIN WATER SERVICE (2 IN.) WILKINS MODEL 975XLUS (ASSE 1013) 175 LBS. SWP, REDUCED PRESSURE WITH VENTS, INLET AND OUTLET GATE VALVES, INLET STRAINER, TEST COCKS, NEOPRENE DISCS, AND DIFFERENTIAL PRESSURE RELIEF VALVES, BRONZE BODY, AIR GAP DRAIN BODY WITH AIR GAP DRAIN FUNNEL. EQUAL BY HERSEY, BEECO, WATTS MODEL 900. BOILER MAKE-UP WATER SYSTEM: WILKINS MODEL 975XLUS, 175 SWP, REDUCED PRESSURE WITH VENTS, INLET AND OUTLET GATE VALVES, INLET STRAINER, TEST COCKS, NEOPRENE DISCS, AND DIFFERENTIAL PRESSURE RELIEF VALVES, BRONZE BODY, AIR GAP DRAIN BODY WITH AIR GAP DRAIN FUNNEL. EQUAL BY HERSEY, BEECO, OR WATTS. COFFEE, ICE, AND VENDING MACHINE BACKFLOW PREVENTER: WATTS MODEL 98D CONTINUOUS PRESSURE TYPE WITH ATMOSPHERIC VENT, STAINLESS STEEL BODY AND PARTS, DOUBLE-CHECK VALVE ASSEMBLY, FDA-APPROVED, 3/8 IN. SIZE. EQUAL BY HERSEY BEECO, WATTS, WILKINS, LAWLER, FEBCO, OR CLAYTON.
- INSTALL STRAINER ON INLET. BACKFLOW PREVENTER MUST BE TESTED AND CERTIFIED AT TIME OF INSTALLATION. SIZE AS INDICATED ON DRAWINGS. INSTALL DRAIN FROM AIR GAP DRAIN FUNNEL DOWN TO FLOOR DRAIN FULL SIZE. SECURE DRAIN TO WALL.
- INTERIOR DOMESTIC COLD AND HOT WATER PIPING: TYPE "L" HARD COPPER TUBING (ASTM B88), COPPER SOLDER FITTINGS. LEAD-FREE 95/5 SOLDER.
- BALL VALVES (2 IN. AND SMALLER): FULL PORT, BRONZE BODY, 175 LBS. WOG. EXTENSION SHAFT FOR INSULATION CLEARANCE. MILWAUKEE "BUTTERBALL" #BB2-100 OR #BB2-350. EQUAL BY WATTS, NIBCO, OR APOLLO. CHECK VALVES: 150 LBS. SWP, BRONZE, SWING CHECK, SCREWED R SOLDER ENDS, BRONZE DISC, NIBCO #T-433 OR #S-433. EQUAL BY WATTS.
- INTERIOR SANITARY WASTE AND VENT PIPING: PVC/DWV PLASTIC PIPE (ASTM D2665) WITH SOLVENT WELD FITTINGS, OR COPPER/DWV PIPE (ASTM B306) WITH COPPER DRAINAGE FITTINGS WITH SOLDER JOINTS, OR HUBLESS CAST IRON (ASTM A74) PIPE AND FITTINGS, FACTORY-COATED WITH COAL TAR ENAMEL. JOINTS TO BE "NO-HUB" (ASTM A74) ANACO NEOPRENE SLEEVE, STAINLESS STEEL COLLAR, AND A MINIMUM OF 4" STAINLESS STEEL CLAMPS. EQUAL BY HUSKY. OPTION OF CAST IRON COUPLING EQUAL TO ALFA, MG, OR JUSTIN-BACON.
- GAS PIPING: SCHEDULE 40, BLACK STEEL PIPE (ANSI B36.10), SCREWED, WELDED, OR FLANGED JOINTS. SCREWED 125 PSI, MALLEABLE IRON FITTINGS. PLUG VALVES (2 IN. AND SMALLER): 200 PSI, WOG, SEMI-STEEL BODY, SCREWED ENDS, TFE STEM SEAL AND SEAT, LEVER HANDLE. HOMESTEAD FIG.611, POWELL FIG. 2200 OR NORDSTROM 142. BALL VALVES (2 IN. AND SMALLER): AGA AND UL APPROVALS, 175 LBS., BRONZE BODY, VITON SEAT, SCREWED ENDS, STAINLESS STEEL DISC AND STEM, LEVER HANDLE. MILWAUKEE "BUTTERBALL," MODEL BB2-100, OR APPROVED EQUAL. PRESSURE REGULATORS: (ANSI Z21.18) ROCKWELL MODEL 086, 121, OR 122, RELIEF VALVE, ZERO COVER, SIZE AND CAPACITY AS REQUIRED BY EQUIPMENT. ACCEPTABLE MANUFACTURERS: AMERICAN EMRO, OR SPRAGUE.
- PIPE SUPPORTS: PIPE SUPPORTS ON ROOF EQUAL TO MIRO MODEL O2, PVC BASE.
- PIPING INSULATION: COVER NEW DOMESTIC COLD WATER LINES 1 IN. SIZE AND SMALLER LINES WITH 1/2 IN. THICK MINIMUM INSULATION, 1-1/4 IN. AND LARGER SIZE LINES WITH 1 IN. THICK MINIMUM INSULATION. COVER NEW DOMESTIC HOT WATER LINES WITH 1 IN. THICK MINIMUM INSULATION. 1-PIECE SNAP-ON FIBERGLASS INSULATION WITH ALL-PURPOSE VAPOR BARRIER JACKET AND SELF-SEALING LAP. INSULATE VALVES AND FITTINGS, MITER AND SEAL ALL TERMINATIONS. OWENS CORNING FIBERGLASS TYPE AS, JSL-II OR EQUAL BY MANSON, SCHULLER, KNAUF, OR ARMSTRONG. COVER ELBOWS, VALVES, AND FITTINGS WITH PVC PLASTIC COVER. OPTION: 3/4 IN. THICK FIRE-RATED ARMAFLEX-AP FOAMED PLASTIC, 200 DEG. F. RATING INSULATION IS PERMITTED IN INTERIOR WALLS ONLY. PROVIDE PVC JACKET ON PIPE INSULATION IN AREAS WHERE PIPE INSULATION MAY BE EXPOSED TO PHYSICAL DAMAGE. PROTECTION SHALL EXTEND FROM FLOOR TO 7 FT ABOVE FLOOR. INSULATE ELECTRIC WATER COOLER WASTE TRAPS AND DRAIN TO WALL. HOT WATER SUPPLY LINES, AND WASTE PIPE UNDER LAVATORIES ACCESSIBLE TO THE HANDICAPPED.
- HANDICAPPED LAVATORIES: P-TRAP OR OFFSET P-TRAP AND HOT AND COLD WATER SUPPLIES/ANGLE STOP/SUPPLY ASSEMBLIES SHALL BE INSULATED WITH TRAP WRAP PROTECTIVE KIT 500R BY BROCAR, TRUBRO, OR EQUAL. ABRASION-RESISTANT VINYL PLASTISOL EXTERIOR COVER SHALL BE SMOOTH, AND SHALL HAVE 1/8 IN. THICK WALL, MINIMUM, OVER CUSHIONED FOAM INSERT. NYLON TIE FASTENERS SHALL REMAIN SUBSTANTIALLY OUT OF SIGHT.
- HANGERS AND SUPPORTS: PROVIDE MICHIGAN #100 HANGERS FOR STEEL, CAST IRON, OR PLASTIC UNINSULATED PIPE; #101 HANGERS FOR UNINSULATED COPPER PIPE; AND #103 WITH SHIELD FOR INSULATED PIPING. USE MICHIGAN #301 BEAM CLAMP WITH #300.C RETAINER STRAP. OPTION: GRINNELL FIG. 86 MALLEABLE IRON CLAMP, HARDENED CUP POINT SET SCREW WITH FIG. 89 RETAINING CLIP. "C" CLAMPS BY THEMSELVES ARE PROHIBITED. ROD SIZES: 3/8 IN. DIAMETER ROD FOR PIPE SIZES UP TO 2 IN. PIPING INDICATED TO BE INSTALLED TIGHT TO CEILING: (1/2 TO 4 IN.) GRINNELL FIG. 262, PLASTIC-COATED HANGER FOR COPPER PIPE. OPTIONS: POWER-STRUT CHANNELS WITH MODEL PS3126 HOLD-DOWN CLAMP. USE WITH RUBBER CUSHION FOR COPPER PIPE. EQUAL BY GRINNELL, ELGEN, PHD, MODERN, MICHIGAN, UNISTRUT, POWER-STRUT, B-LINE, OR FEE AND MASON. MAXIMUM 6 FT. HANGER SPACING FOR PIPES 1-1/2 IN. AND SMALLER, 10 FT. HANGER SPACING FOR PIPES 2 IN. AND LARGER. SUPPORT PIPING ONLY FROM BUILDING STRUCTURE. USE THROUGH-BOLTED ANGLE CLIPS WHEN HANGING FROM WOOD STRUCTURE.

PLUMBING FIXTURE SCHEDULE					
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BUILDING C
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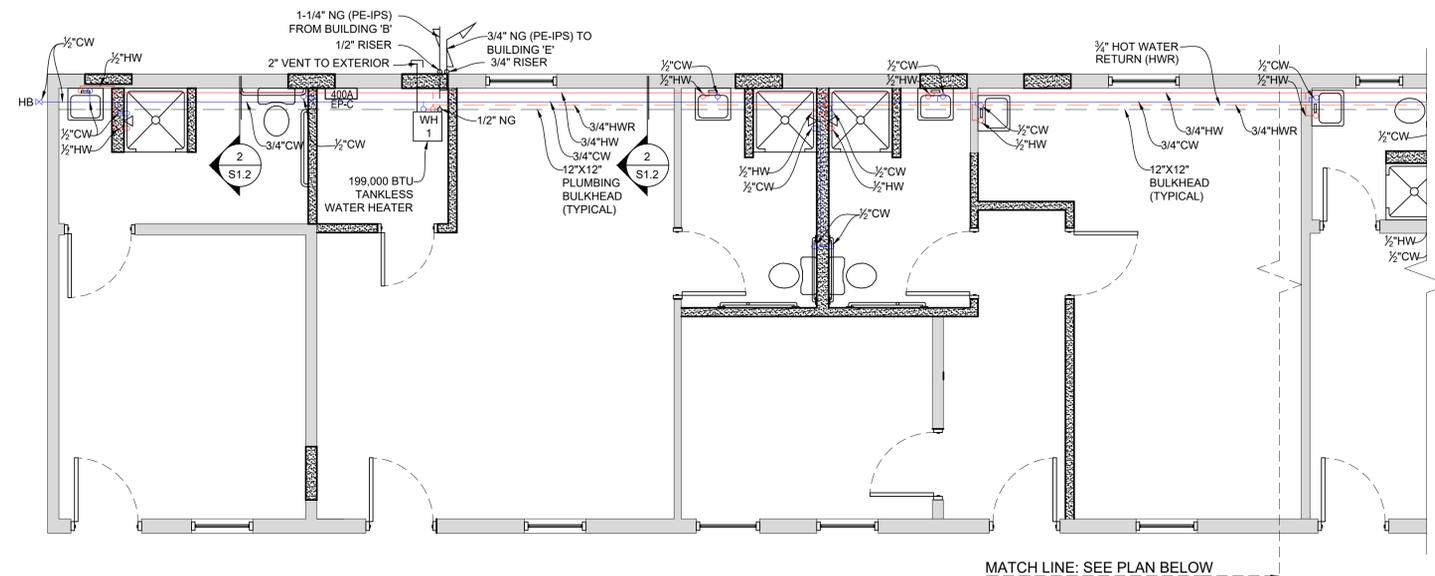
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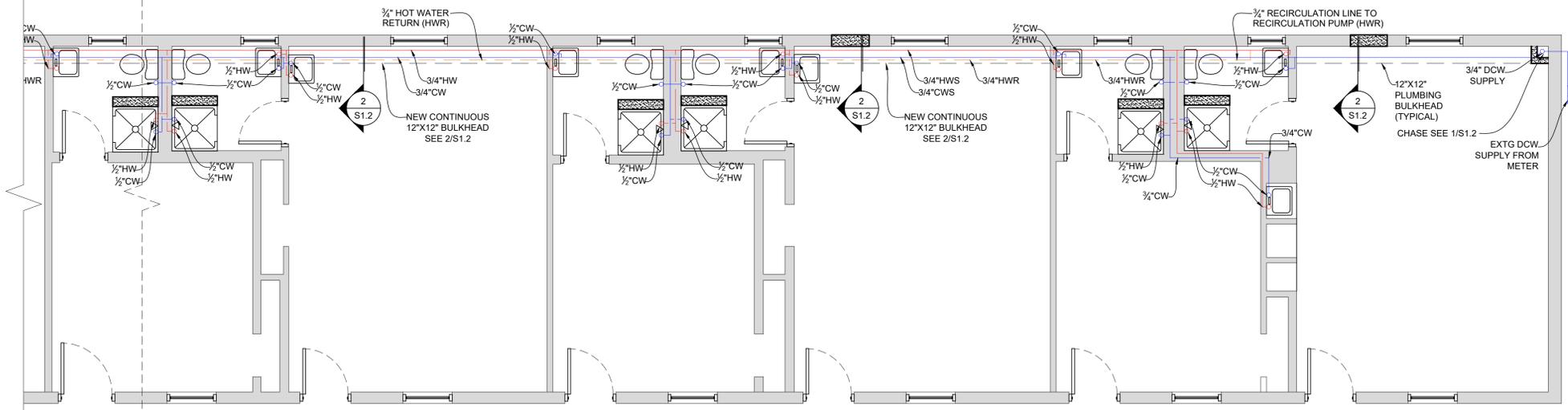
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- WALL HYDRANTS PROVIDE (ASSE 1011) NIBCO FIG. 80-VB-LS, FREEZE-PROOF FAUCET, VACUUM BREAKER, 3/4 IN. SIZE HOSE CONNECTION, LENGTH AS REQUIRED. BRONZE BODY AND NICKEL FACE. EQUAL BY WATTS, WOODFORD, J. R. SMITH, ZURN, OR JOSAM.
- SHOCK ABSORBERS: PROVIDE ON THE DCW AND DHW AT EACH TOILET ROOM, AT EACH WALL HYDRANT, AT THE END OF EACH BRANCH LONGER THAN 10 FT, IF NOT OTHERWISE PROVIDED. (NOT SHOWN.) FURNISH (ANSI A112.26.1M, ASSE 1010, PDI-WH201) SHOCK ABSORBERS. WADE, ZURN, SIOUX CHIEF, OR WATTS. PROVIDE SIZES AS RECOMMENDED BY THE MANUFACTURER. SIZE OF EACH UNIT SHALL BE CLEARLY MARKED FOR FIELD VERIFICATION.
- WALL CLEANOUTS: ZURN FIG. Z-1460-9, PRIMERED ACCESS COVER, VANDAL-PROOF SCREW. EQUAL BY WADE, JOSAM, J. R. SMITH, OR WATTS. FLOOR CLEANOUTS: ZURN #1400-HD, ADJUSTABLE CAST IRON BODY, THREADED A.B.S. PLASTIC PLUG, HEAVY-DUTY NICKALOY TOP, LINE SIZE. EQUAL BY WADE, JOSAM, J. R. SMITH, OR WATTS.
- FLOOR DRAINS: ZURN #Z-550-P, ADJUSTABLE CAST IRON BODY, 8 1/2" DIAMETER HEAVY-DUTY NICKALOY STRAINER, 3" PIPE SIZE. EQUAL BY WADE, JOSAM, J. R. SMITH, OR WATTS.
- BACKFLOW PREVENTER: MAIN WATER SERVICE (2 IN.) WILKINS MODEL 975XLUS (ASSE 1013) 175 LBS. SWP, REDUCED PRESSURE WITH VENTS, INLET AND OUTLET GATE VALVES, INLET STRAINER, TEST COCKS, NEOPRENE DISCS, AND DIFFERENTIAL PRESSURE RELIEF VALVES, BRONZE BODY, AIR GAP DRAIN BODY WITH AIR GAP DRAIN FUNNEL. EQUAL BY HERSEY, BEECO, WATTS MODEL 900. BOILER MAKE-UP WATER SYSTEM: WILKINS MODEL 975XLUS, 175 SWP, REDUCED PRESSURE WITH VENTS, INLET AND OUTLET GATE VALVES, INLET STRAINER, TEST COCKS, NEOPRENE DISCS, AND DIFFERENTIAL PRESSURE RELIEF VALVES, BRONZE BODY, AIR GAP DRAIN BODY WITH AIR GAP DRAIN FUNNEL. EQUAL BY HERSEY, BEECO, OR WATTS. COFFEE, ICE, AND VENDING MACHINE BACKFLOW PREVENTER: WATTS MODEL 98D CONTINUOUS PRESSURE TYPE WITH ATMOSPHERIC VENT, STAINLESS STEEL BODY AND PARTS, DOUBLE-CHECK VALVE ASSEMBLY, FDA-APPROVED, 3/8 IN. SIZE. EQUAL BY HERSEY BEECO, WATTS, WILKINS, LAWLER, FEBCO, OR CLAYTON.
- INSTALL STRAINER ON INLET. BACKFLOW PREVENTER MUST BE TESTED AND CERTIFIED AT TIME OF INSTALLATION. SIZE AS INDICATED ON DRAWINGS. INSTALL DRAIN FROM AIR GAP DRAIN FUNNEL DOWN TO FLOOR DRAIN FULL SIZE. SECURE DRAIN TO WALL.
- INTERIOR DOMESTIC COLD AND HOT WATER PIPING: TYPE "L" HARD COPPER TUBING (ASTM B88), COPPER SOLDER FITTINGS. LEAD-FREE 95/5 SOLDER.
- BALL VALVES (2 IN. AND SMALLER): FULL PORT, BRONZE BODY, 175 LBS. WOG, EXTENSION SHAFT FOR INSULATION CLEARANCE. MILWAUKEE "BUTTERBALL" #BB2-100 OR #BB2-350. EQUAL BY WATTS, NIBCO, OR APOLLO. CHECK VALVES: 150 LBS. SWP, BRONZE, SWING CHECK, SCREWED R SOLDER ENDS, BRONZE DISC, NIBCO #T-433 OR #S-433. EQUAL BY WATTS.
- INTERIOR SANITARY WASTE AND VENT PIPING: PVC/DWV PLASTIC PIPE (ASTM D2665) WITH SOLVENT WELD FITTINGS, OR COPPER/DWV PIPE (ASTM B306) WITH COPPER DRAINAGE FITTINGS WITH SOLDER JOINTS, OR HUBLESS CAST IRON (ASTM A74) PIPE AND FITTINGS, FACTORY-COATED WITH COAL TAR ENAMEL. JOINTS TO BE "NO-HUB" (ASTM A74) ANACO NEOPRENE SLEEVE, STAINLESS STEEL COLLAR, AND A MINIMUM OF (4) STAINLESS STEEL CLAMPS. EQUAL BY HUSKY. OPTION OF CAST IRON COUPLING EQUAL TO ALFA, MG, OR GUSTIN-BACON.
- GAS PIPING: SCHEDULE 40, BLACK STEEL PIPE (ANSI B36.10), SCREWED, WELDED, OR FLANGED JOINTS. SCREWED 125 PSI, MALLEABLE IRON FITTINGS. PLUG VALVES (2 IN. AND SMALLER): 200 PSI, WOG, SEMI-STEEL BODY, SCREWED ENDS, TFE STEM SEAL AND SEAT, LEVER HANDLE. HOMESTEAD FIG.611, POWELL FIG. 2200 OR NORDSTROM 142. BALL VALVES (2 IN. AND SMALLER): AGA AND UL APPROVALS, 175 LBS., BRONZE BODY, VITON SEAT, SCREWED ENDS, STAINLESS STEEL DISC AND STEM, LEVER HANDLE. MILWAUKEE "BUTTERBALL," MODEL BB2-100, OR APPROVED EQUAL. PRESSURE REGULATORS: (ANSI Z21.18) ROCKWELL MODEL 086, 121, OR 122, RELIEF VALVE, ZERO COVER, SIZE AND CAPACITY AS REQUIRED BY EQUIPMENT. ACCEPTABLE MANUFACTURERS: AMERICAN EMRO, OR SPRAGUE.
- PIPE SUPPORTS: PIPE SUPPORTS ON ROOF EQUAL TO MIRO MODEL O2, PVC BASE.
- PIPING INSULATION: COVER NEW DOMESTIC COLD WATER LINES 1 IN. SIZE AND SMALLER LINES WITH 1/2 IN. THICK MINIMUM INSULATION, 1-1/4 IN. AND LARGER SIZE LINES WITH 1 IN. THICK MINIMUM INSULATION. COVER NEW DOMESTIC HOT WATER LINES WITH 1 IN. THICK MINIMUM INSULATION, 1-PIECE SNAP-ON FIBERGLASS INSULATION WITH ALL-PURPOSE VAPOR BARRIER JACKET AND SELF-SEALING LAP. INSULATE VALVES AND FITTINGS, MITER AND SEAL ALL TERMINATIONS. OWENS CORNING FIBERGLASS TYPE ASJ-SL-II OR EQUAL BY MANSION, SCHULLER, KNAUF, OR ARMSTRONG. COVER ELBOWS, VALVES, AND FITTINGS WITH PVC PLASTIC COVER. OPTION: 3/4 IN. THICK FIRE-RATED ARMAFLEX-AP FOAMED PLASTIC, 200 DEG. F. RATING INSULATION IS PERMITTED IN INTERIOR WALLS ONLY. PROVIDE PVC JACKET ON PIPE INSULATION IN AREAS WHERE PIPE INSULATION MAY BE EXPOSED TO PHYSICAL DAMAGE. PROTECTION SHALL EXTEND FROM FLOOR TO 7 FT ABOVE FLOOR. INSULATE ELECTRIC WATER COOLER WASTE TRAPS AND DRAIN TO WALL. HOT WATER SUPPLY LINES, AND WASTE PIPE UNDER LAVATORIES ACCESSIBLE TO THE HANDICAPPED.
- HANDICAPPED LAVATORIES: P-TRAP OR OFFSET P-TRAP AND HOT AND COLD WATER SUPPLIES/ANGLE STOP/SUPPLY ASSEMBLIES SHALL BE INSULATED WITH TRAP WRAP PROTECTIVE KIT 500R BY BROCAR, TRUBRO, OR EQUAL. ABRASION-RESISTANT VINYL PLASTISOL EXTERIOR COVER SHALL BE SMOOTH, AND SHALL HAVE 1/8 IN. THICK WALL, MINIMUM, OVER CUSHIONED FOAM INSERT. NYLON TIE FASTENERS SHALL REMAIN SUBSTANTIALLY OUT OF SIGHT.
- HANGERS AND SUPPORTS: PROVIDE MICHIGAN #100 HANGERS FOR STEEL, CAST IRON, OR PLASTIC UNINSULATED PIPE; #101 HANGERS FOR UNINSULATED COPPER PIPE; AND #103 WITH SHIELD FOR INSULATED PIPING. USE MICHIGAN #301 BEAM CLAMP WITH #300.C RETAINER STRAP. OPTION: GRINNELL FIG. 86 MALLEABLE IRON CLAMP, HARDENED CUP POINT SET SCREW WITH FIG. 89 RETAINING CLIP. "C" CLAMPS BY THEMSELVES ARE PROHIBITED. ROD SIZES: 3/8 IN. DIAMETER ROD FOR PIPE SIZES UP TO 2 IN. PIPING INDICATED TO BE INSTALLED TIGHT TO CEILING: (1/2 TO 4 IN.) GRINNELL FIG. 262, PLASTIC-COATED HANGER FOR COPPER PIPE. OPTIONS: POWER-STRUT CHANNELS WITH MODEL PS3126 HOLD-DOWN CLAMP. USE WITH RUBBER CUSHION FOR COPPER PIPE. EQUAL BY GRINNELL, ELGEN, PHD, MODERN, MICHIGAN, UNISTRUT, POWER-STRUT, B-LINE, OR FEE AND MASON. MAXIMUM 6 FT. HANGER SPACING FOR PIPES 1-1/2 IN. AND SMALLER, 10 FT. HANGER SPACING FOR PIPES 2 IN. AND LARGER. SUPPORT PIPING ONLY FROM BUILDING STRUCTURE. USE THROUGH-BOLTED ANGLE CLIPS WHEN HANGING FROM WOOD STRUCTURE.

PLUMBING FIXTURE SCHEDULE						
FIXTURE DESIGNATION	FIXTURE TYPE	MANUFACTURE	MODEL	COLOR	NOTES	
WC	WATER CLOSET	AMERICAN STANDARD	CADET 3 2998.012	WHITE	ADA COMP. 1.28 GPF. PROVIDE CHAET MODEL TOILET SEATS	
LAV	LAVATORY	AMERICAN STANDARD	LUCRENE 0355.012	WHITE	ADA COMP. 1-1/4" TRAP, ADA FAUCET WALL HUNG HEAVY DUTY CARRIER, DRAIN	
SS	MOP SINK	FIAT	MSB2424	---	24" X 24" PROVIDE FAUCET AND DRAIN	
KS	KITCHEN SINK	KOHLER	K-5267-4-NA	SS	33" DOUBLE BASIN DROP IN STAINLESS STEEL KITCHEN SINK	
GB	WASHER GRAY BOX					
HB	HOSE BIBB				FROST FREE, 3/4" DCW CONNECTION	
BF	BOTTLE FILLER DRINKING FOUNTAIN	GLOBAL INDUSTRIAL	WB761218		DRINKING FOUNTAIN WITH BOTTLE FILLER, FILTERED	
C.O.	WALL CLEAN OUT	ZURN	Z-1460		PROVIDE WALL CLEAN OUT @ PLAN LOCATION	
F.C.O.	FLOOR CLEAN OUT	ZURN	#1400HD		PROVIDE FLOOR CLEAN OUT @ PLAN LOCATION	
FS	9" FLOOR SINK	ENDURA	394718		SLOPE NEW SURROUNDING CONCRETE TO DRAIN	
FD	FLOOR DRAIN					
AAV	AIR ADMITTANCE VALVE	OATEY				
GB	GRAY BOX (WASHER)	GUY GRAY	WMOB		PROVIDE QUARTER-TURN VALVE	
SH1	3'-0"x3'-0" ADA SHOWER STALL					
SH2	SHOWER STALL					
WH-1	GAS TANKLESS WATER HEATER	RHEEM	RTGH-S11i		-199,000 BTU BUILT-IN RECIRCULATION PUMP EXTEND CONDENSATE TO EXTERIOR	
WH-2	GAS TANKLESS WATER HEATER	RHEEM	RTGH-S84i		-157,000 BTU EXTEND CONDENSATE TO EXTERIOR	
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BUILDING C
WATER AND GAS PLUMBING PLAN
 1/4" = 1'-0"



BUILDING C
WATER & GAS PLUMBING PLAN
 1/4" = 1'-0"

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WC	WATER CLOSET	AMERICAN STANDARD	CADET 3 2998 012	WHITE	ADA COMP. 1.28 GPF. PROVIDE CADET MODEL TOILET SEATS
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SS	MOP SINK	FIAT	MSB2424	---	24 X 24 PROVIDE FAUCET AND DRAIN
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GB	WASHER GRAY BOX				
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FD	FLOOR DRAIN				
AAV	AIR ADMITTANCE VALVE	OATEY			
GB	GRAY BOX (WASHER)	GUY GRAY	WMOB		PROVIDE QUARTER-TURN VALVE
SH1	3'-0" X 3'-0" ADA SHOWER STALL				
SH2	SHOWER STALL GAS TANKLESS WATER HEATER	RHEEM	RTGH-S111		-199,000 BTU BUILT-IN RECIRCULATION PUMP EXTEND CONDENSATE TO EXTERIOR
WH-1	GAS TANKLESS WATER HEATER	RHEEM	RTGH-S841		-157,000 BTU EXTEND CONDENSATE TO EXTERIOR
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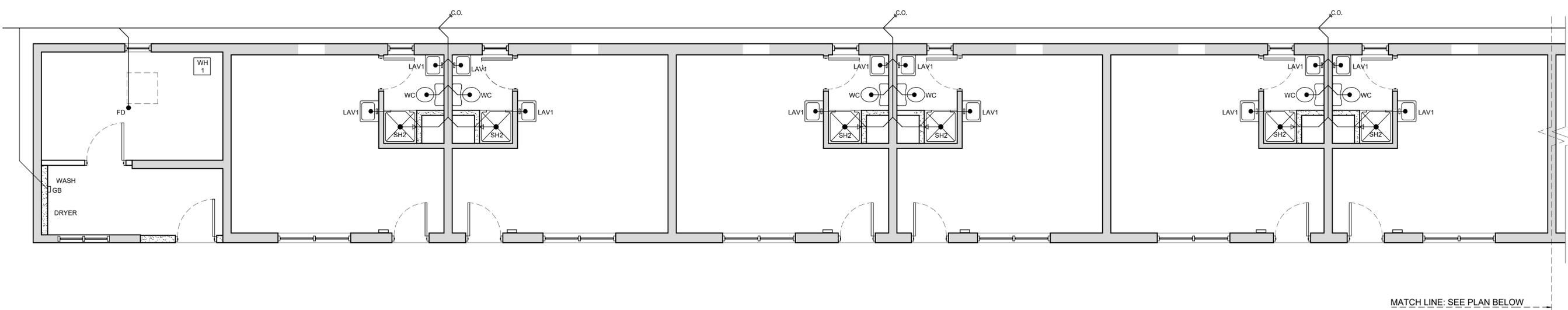
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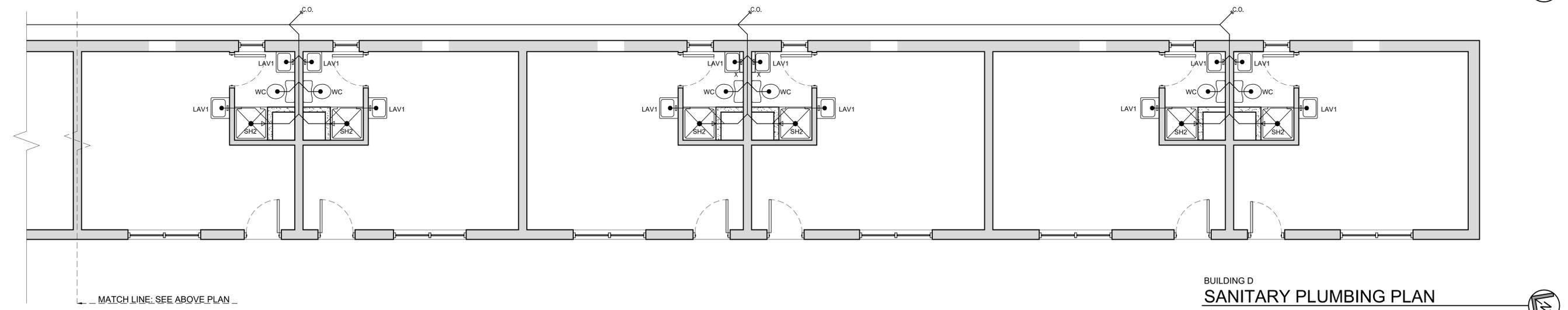
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BUILDING D
SANITARY PLUMBING PLAN
1/8" - 1'-0"



BUILDING D
SANITARY PLUMBING PLAN
1/8" - 1'-0"

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BUILDING D
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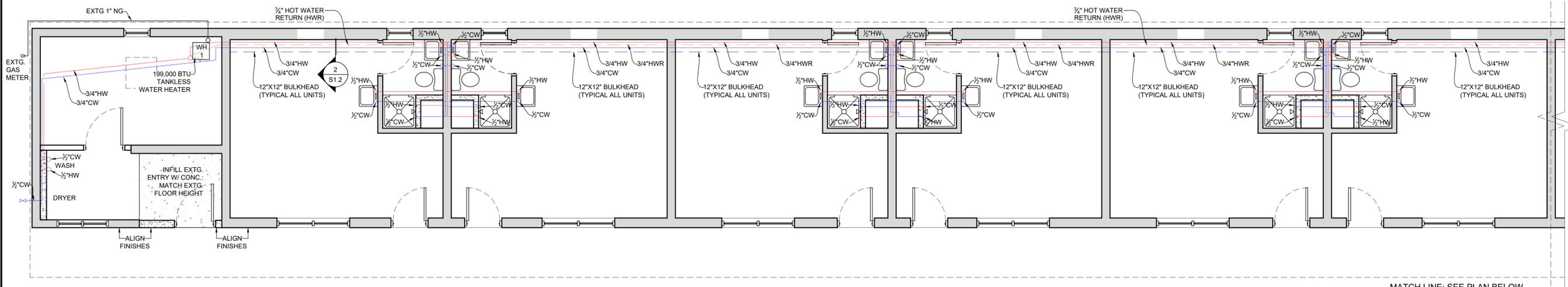
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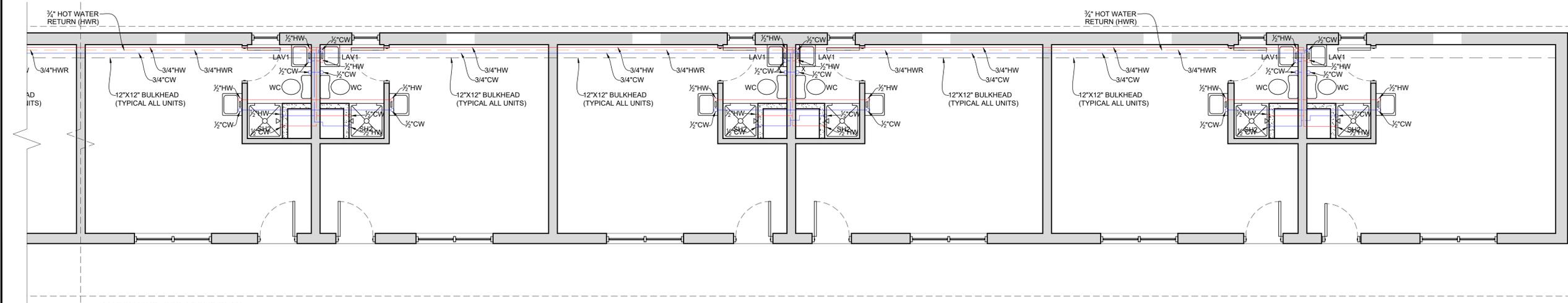
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BUILDING D
WATER & GAS PLUMBING PLAN
1/8" - 1'-0"



BUILDING D
WATER & GAS PLUMBING PLAN
1/8" - 1'-0"

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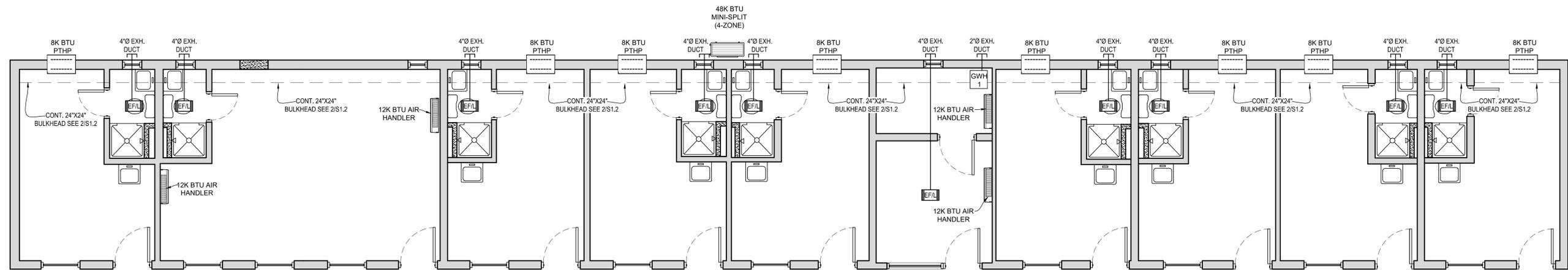
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HVAC/MECHANICAL NOTES

- MC SHALL INSTALL ALL HVAC EQUIPMENT AND OPERATION DEVICES AS NEEDED TO MAINTAIN DESIGN TEMPERATURES OF 68 DEGREES SUMMER TEMP. AND 72 DEGREES WINTER TEMP. AS WELL AS PROPER VENTILATION.
- MC SHALL PROVIDE ALL REQUIRED FLASHING FOR ROOF &/OR WALL PENETRATIONS. PENETRATIONS THROUGH EXTERIOR WALL OR ROOF SHALL BE MADE BY GC.
- COMPRESSOR PAD BY MC.
- EXTERIOR REFRIG. LINES (BY MC.) SHALL BE PROTECTED BY ABS OR PVC CONDUIT.
- FINAL ELECTRICAL HOOK UP AND TESTING SHALL BE BY MC. WIRES FOR HIGH VOLTAGE PROVIDED AND INSTALLED TO EQUIPMENT BY EC.
- INTERIOR CONDENSATE LINE TO BE PROVIDED AND INSTALLED BY PC. 12. ALL WORK SHALL COMPLY WITH THE OBC MECH. CODE AND MFG. SPECIFICATIONS AS WELL AS U.L., SMACNA AND TRADE STANDARDS. 13. EC SHALL PROVIDE AND INSTALL ALL BATHROOM AND KITCHEN VENTS. GC SHALL CUT HOLE AND INSTALL FLASHING. FLASHING PROVIDED BY EC. THERE WILL BE NO CHANGE ORDERS IN FAVOR OF THE MC AFTER THE BIDS ARE ACCEPTED TO COVER CODE OR PERFORMANCE REQUIREMENTS. 14. MC SHALL NOTIFY ARCHITECT PRIOR TO BID SUBMISSION OF ANY CONFLICT IN THE DRAWINGS OR SPECIFICATIONS.
- PC SHALL PROVIDE AND RUN FLUE & PROVIDE FLASHING FOR HW. TANKS. GC SHALL CUT HOLE AND INSTALL FLASHING.
- MC SHALL MAINTAIN AND, AT THE END OF THE JOB, PROVIDE AS BUILT DRAWINGS FOR ANY VARIATION OF THESE PLANS AND SPECIFICATIONS.

HVAC KEY

-  NEW 8000 BTU PACKAGED TERMINAL HEAT PUMP UNIT 115V, 1PH., 60HZ, 11A.1350W. ACIQ-08TTW OR APPROVED EQUAL.
-  NEW 4-ZONE MINI SPLIT CONDENSER 208/230V, 1PH, 60HZ, 40A. CARRIER 37MGHAQ48FA3 OR APPROVED EQUAL.
-  NEW WALL MOUNTED MINI-SPLIT AIR HANDLER CARRIER 45MAHAQ12X3
-  NEW 80 CFM EXHAUST FAN WITH LED LIGHT 120V, 60HZ, 22W BROAN BEL8 OR APPROVED EQ.



MECHANICAL PLAN

1/4" = 1'-0"



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M1.1A

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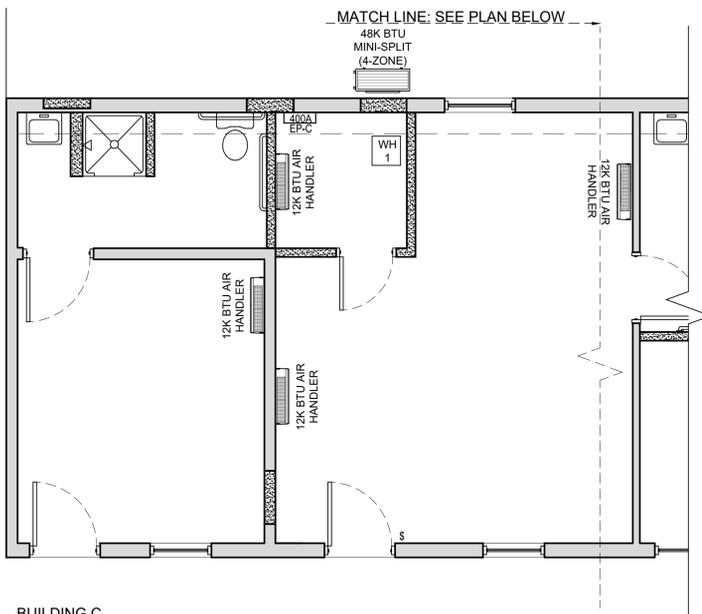
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HVAC/MECHANICAL NOTES

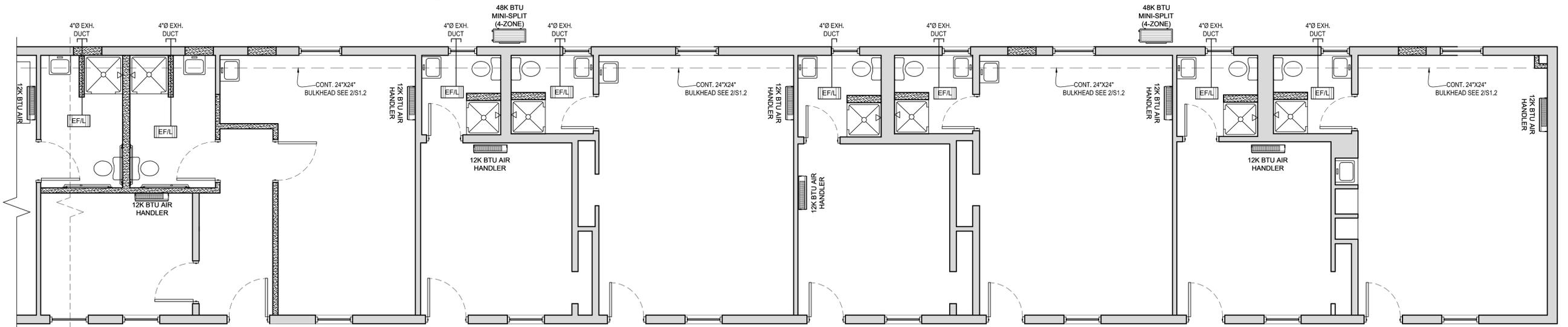
- DUCTS: INSULATE ALL SUPPLY AIR DUCTS. ALL RETURN AIR DUCTS EXPOSED TO UNCONDITIONED TEMPERATURES SHALL BE INSULATED. INSULATION SHALL BE 1" THICK AND/OR HAVE AN R-VALUE OF R-6.7, WHICH EVER IS MORE STRICT. ALL SA DUCTS SHALL BE DAMPER CONTROLLED AS NEEDED TO BALANCE SYSTEM FOR HEATING AND COOLING. NO WALL OR CEILING DIFFUSERS SHALL BE USED FOR SYSTEM BALANCING; ONLY INCIDENTAL CONTROL CAN BE MADE AT POINT OF DISCHARGE USE. NO FIBERGLASS DUCT WORK SHALL BE PERMITTED. ALL DUCT WORK SHALL BE METAL.
- REGISTERS: HART & COOLEY OR BETTER. COLOR SELECTION BY ARCHITECT. GC SHALL PAINT VISIBLE INTERIOR OF ALL GRILLE/DUCTS FLAT BLACK.
- VENTILATION:
 - MC SHALL PROVIDE AND INSTALL COMBUSTION AIR DUCT AS PER MECH. CODE AND ACCORDING TO MFG. SPECIFICATIONS.
 - MC SHALL PROVIDE FRESH AIR TO RETURN AIR PLENUM TO MEET ALL MECH. CODES.
 - DWGS: SHOW APPROXIMATE LOCATIONS OF DUCTS AND GRILLES. THE MC SHALL COORDINATE INSTALLATION WITH OTHER TRADES.
- MC SHALL INSTALL ALL HVAC EQUIPMENT AND OPERATION DEVICES AS NEEDED TO MAINTAIN DESIGN TEMPERATURES OF 68 DEGREES SUMMER TEMP. AND 72 DEGREES WINTER TEMP. AS WELL AS PROPER VENTILATION.
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- INTERIOR CONDENSATE LINE TO BE PROVIDED AND INSTALLED BY PC. 12. ALL WORK SHALL COMPLY WITH THE OBC MECH. CODE AND MFG. SPECIFICATIONS AS WELL AS U.L., SMACNA AND TRADE STANDARDS. 13. EC SHALL PROVIDE AND INSTALL ALL BATHROOM AND KITCHEN VENTS. GC SHALL CUT HOLE AND INSTALL FLASHING. FLASHING PROVIDED BY EC. THERE WILL BE NO CHANGE ORDERS IN FAVOR OF THE MC AFTER THE BIDS ARE ACCEPTED TO COVER CODE OR PERFORMANCE REQUIREMENTS. 14. MC SHALL NOTIFY ARCHITECT PRIOR TO BID SUBMISSION OF ANY CONFLICT IN THE DRAWINGS OR SPECIFICATIONS. 15. PC SHALL PROVIDE AND RUN FLUE & PROVIDE FLASHING FOR HW. TANKS. GC SHALL CUT HOLE AND INSTALL FLASHING. 16. MC SHALL MAINTAIN AND, AT THE END OF THE JOB, PROVIDE AS BUILT DRAWINGS FOR ANY VARIATION OF THESE PLANS AND SPECIFICATIONS.

HVAC KEY

-  NEW 4-ZONE MINI SPLIT CONDENSER 208/230V, 1PH, 60HZ, 40A. CARRIER 37MGAHQ48FA3 OR APPROVED EQUAL.
-  NEW WALL MOUNTED MINI-SPLIT AIR HANDLER CARRIER 45MAHAQ12XA3
-  NEW 80 CFM EXHAUST FAN WITH LED LIGHT 120V, 60HZ, 22W BROAN BEL8 OR APPROVED EQ.



BUILDING C
MECHANICAL PLAN
1/4" = 1'-0"



BUILDING C
MECHANICAL PLAN
1/4" = 1'-0"

THE SUNSET SHELTER PROJECT
HAPCAP
135 COLUMBUS ROAD, ATHENS OHIO-45701
RVC PROJECT #241101

M1.1C

RE-BID SET
11/03/2025

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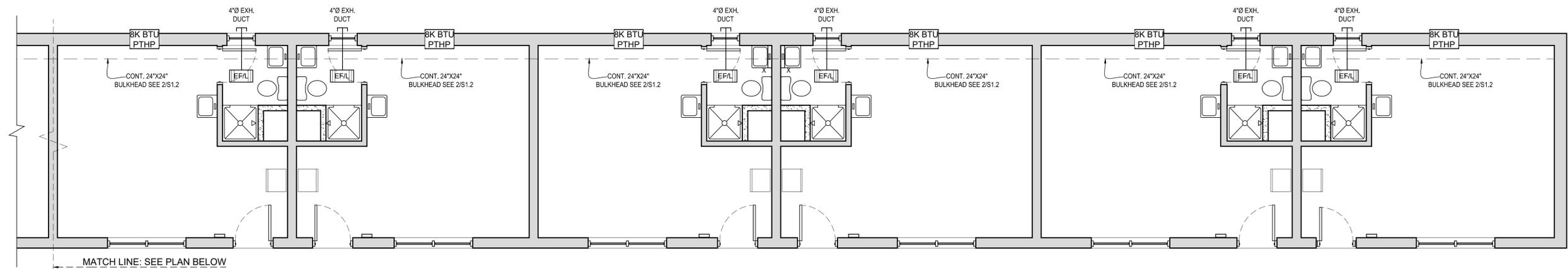
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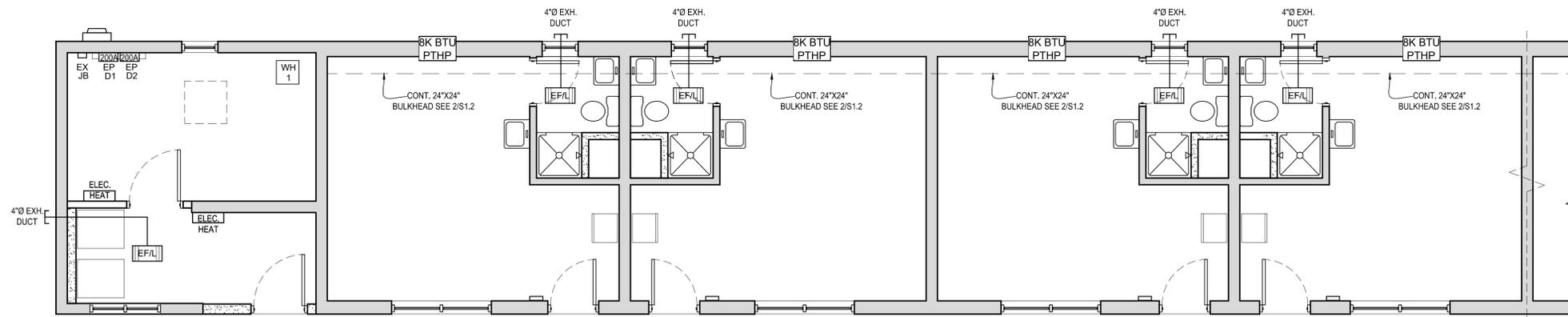
HVAC/MECHANICAL NOTES

- DUCTS: INSULATE ALL SUPPLY AIR DUCTS. ALL RETURN AIR DUCTS EXPOSED TO UNCONDITIONED TEMPERATURES SHALL BE INSULATED. INSULATION SHALL BE 1" THICK AND/OR HAVE AN R-VALUE OF R-6.7, WHICH EVER IS MORE STRICT. ALL SA DUCTS SHALL BE DAMPER CONTROLLED AS NEEDED TO BALANCE SYSTEM FOR HEATING AND COOLING. NO WALL OR CEILING DIFFUSERS SHALL BE USED FOR SYSTEM BALANCING; ONLY INCIDENTAL CONTROL CAN BE MADE AT POINT OF DISCHARGE USE. NO FIBERGLASS DUCT WORK SHALL BE PERMITTED. ALL DUCT WORK SHALL BE METAL.
- REGISTERS: HART & COOLEY OR BETTER. COLOR SELECTION BY ARCHITECT. GC SHALL PAINT VISIBLE INTERIOR OF ALL GRILLE/DUCTS FLAT BLACK.
- VENTILATION:
 - MC SHALL PROVIDE AND INSTALL COMBUSTION AIR DUCT AS PER MECH. CODE AND ACCORDING TO MFG. SPECIFICATIONS.
 - MC SHALL PROVIDE FRESH AIR TO RETURN AIR PLENUM TO MEET ALL MECH. CODES.
 - DWGS. SHOW APPROXIMATE LOCATIONS OF DUCTS AND GRILLES. THE MC SHALL COORDINATE INSTALLATION WITH OTHER TRADES.
- MC SHALL INSTALL ALL HVAC EQUIPMENT AND OPERATION DEVICES AS NEEDED TO MAINTAIN DESIGN TEMPERATURES OF 68 DEGREES SUMMER TEMP. AND 72 DEGREES WINTER TEMP. AS WELL AS PROPER VENTILATION.
- MC SHALL PROVIDE ALL REQUIRED FLASHING FOR ROOF &/OR WALL PENETRATIONS. PENETRATIONS THROUGH EXTERIOR WALL OR ROOF SHALL BE MADE BY GC.
- COMPRESSOR PAD BY MC.
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MECHANICAL PLAN

1/4" - 1'-0"



MECHANICAL PLAN (CONTINUED)

1/4" - 1'-0"



HVAC KEY

- 8K BTU PTHP** NEW 8000 BTU PACKAGED TERMINAL HEAT PUMP UNIT 115V, 1PH., 60HZ, 11A, 1350W. ACIQ-08TTW OR APPROVED EQUAL.
- ELEC. HEAT** NEW 1500/750W ELECTRIC UNIT HEATER, WALL MOUNTED 120V, 1PH, 12.5A, 5115 BTU QMARK CZ1512T OR APPROVED EQ.
- EF/L** NEW 80 CFM EXHAUST FAN WITH LED LIGHT 120V, 60HZ, 22W BROAN BEL8 OR APPROVED EQ.

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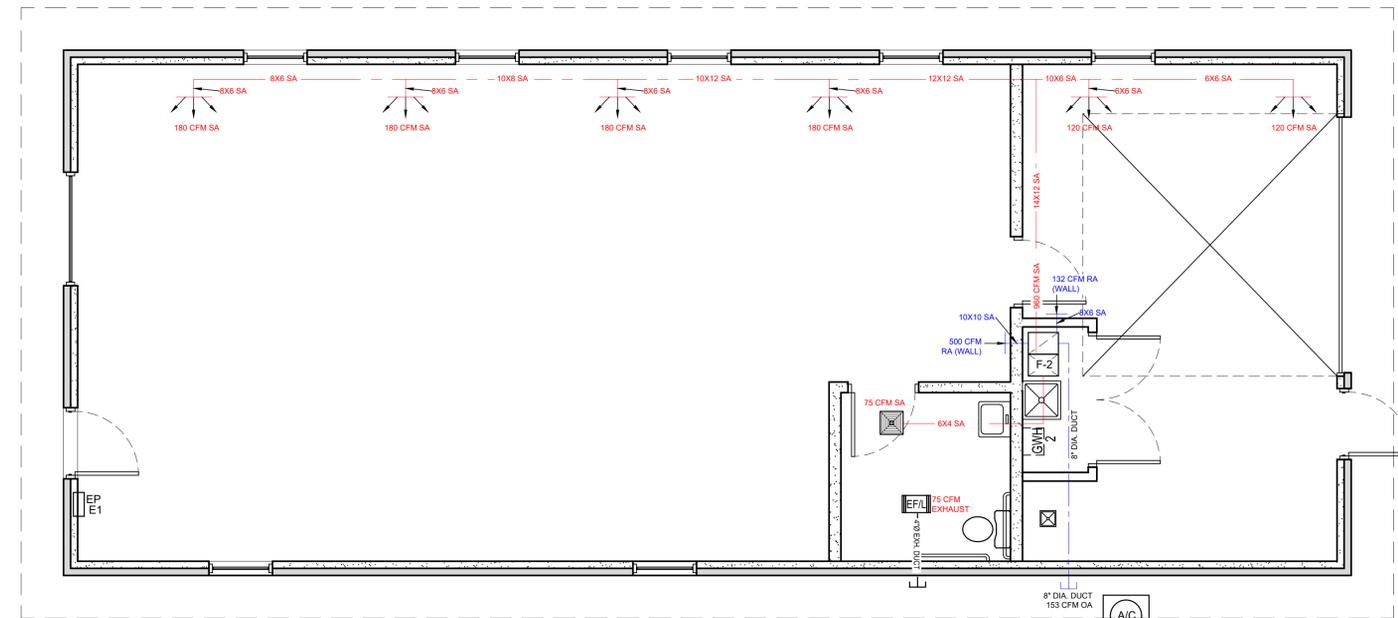
HVAC KEY

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-  NEW 1500/750W ELECTRIC UNIT HEATER, WALL MOUNTED 120V, 1PH, 12 SA, 5115 BTU QMARK CZ1512T OR APPROVED EQ.
-  NEW 4-ZONE MINI SPLIT CONDENSER 208/230V, 1PH, 60HZ, 40A, CARRIER 37MGHA048FA3 OR APPROVED EQUAL.
-  NEW 5-TON GAS UPFLOW FURNACE. 92%AFUE CARRIER CVAVA6021XMA A/C; CVAVA6021XMA
-  NEW 3-TON GAS UPFLOW FURNACE. 92%AFUE CARRIER 59SC2E100M21-22 A/C; CVAVA4221XMA
-  NEW 80 CFM EXHAUST FAN WITH LED LIGHT 120V, 60HZ, 22W BROAN BEL8 OR APPROVED EQ.

BREATHING ZONE: FRESH AIR

COMMUNITY AREAS (2):
1275 SQ.FT. X .12 = 153 CFM

EXHAUST FAN = 75 CFM
TOTAL OUTSIDE AIR REQUIRED 153 CFM
PROVIDE 8" DIAMETER FRESH AIR DUCT



BUILDING E
MECHANICAL PLAN
1/4" - 1'-0"



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ELECTRIC NOTES & SPECS

- ALL WORK SHALL BE DONE BY A STATE OF OHIO LICENSED ELECTRICIAN TO THE MANUFACTURERS SPECIFICATIONS AND THE HIGHEST TRADE STANDARDS.
- ELECTRICAL WIRING, EQUIPMENT, AND INSTALLATION SHALL CONFORM TO THE REQUIREMENTS OF THE LATEST VERSION O.B.C., N.E.C., LOCAL CODES AND SHALL BE SUBJECT TO THE APPROVAL OF THE DISTRICT INSPECTOR & CODE OFFICE.
- ALL EXITS SIGNS SHALL HAVE BATTERY 90 MIN. BACK UP AND BE CONNECTED TO THE NEAREST LIGHTING CKT. AHEAD OF THE SWITCH.
- THE MAIN SERVICE ENTRANCE GROUND INCLUDING BUT NOT LIMITED TO ALL FIXTURE AND EQUIPMENT GROUNDS SHALL COMPLY WITH ARTICLE 250 OF THE N.E.C.
- ALL EQUIPMENT AND FIXTURES SHALL BE U.L. APPROVED.
- THE EC SHALL COORDINATE ALL WORK WITH THE POWER COMPANY.
- THE EC SHALL SUBMIT SHOP DRAWINGS OR PRODUCT CUT SHEETS FOR ANY ITEM NOT SPECIFIED ON THE DRAWINGS OR IN THE SPECIFICATIONS AS A SUBSTITUTION. THE SUBSTITUTION SHALL ALSO LIST THE AMOUNT OF CONTRACT REBATE TO OWNER.
- THE EC SHALL MARK UP A CLEAN SET OF DRAWINGS SHOWING ALL CHANGES TO THE WORK AND FIXTURES NOT SHOWN ON THE BID SET. THE ARCH. WILL PROVIDE ONE NEW SET OF DRAWINGS WHICH THE EC WILL AMEND PRIOR TO FINAL PAYMENT. ALL ADDITIONAL SETS SHALL BE AT THE G.C. EXPENSE.
- THE EC SHALL REVIEW THE DRAWINGS AND JOB SITE PRIOR TO SUBMITTING A BID AND NOTE ALL CONFLICTS OR QUESTIONS WHICH CANNOT BE BID WITH CONFIDENCE.
- THE EC SHALL PROVIDE AND INSTALL ALL HIGH VOLTAGE WIRE, JUNCTION BOXES, SWITCHES, AND FIXTURES REQUIRED TO COMPLETE THE PROJECT. ALL FINAL HOOKUP AND TESTING OF FIXTURES OR EQUIPMENT SHALL BE DONE BY THE CONTRACTOR SUPPLYING THE ITEM.
- PHONE, CABLE, AND/OR COMPUTER JUNCTION BOXES SHALL HAVE CONDUIT STUBBED TO AN ACCESSIBLE AREA FOR FUTURE CHANGES UNLESS OTHERWISE SPECIFIED.
- THE EC SHALL PROVIDE AND INSTALL ALL FINISH COVER PLATES. COVER PLATES SHALL BE SELECTED BY THE ARCH. EC SHALL PROVIDE SAMPLES FOR SELECTION.
- THE E.C. SHALL CHECK WITH EACH TRADE AND VERIFY ALL ELECTRICAL NEEDS AND INCLUDE THESE REQUIREMENTS IN THE BID.
- PROVIDE ARC-FAULT CIRCUIT INTERRUPTER PROTECTION (RECEPTACLES) IN BEDROOMS AND ALL LOCATIONS. WHERE GFI ARE NOT REQUIRED PER NEC 210.12.
- PROVIDE TAMPER RESISTANT RECEPTACLES.

WIRING METHODS

WET AREAS (KITCHEN):

- PROVIDE GFCI OUTLETS WITHIN 10'-0" OF ALL SINKS, LAVATORIES, WATER CLOSETS AND OTHER PLUMBING FIXTURES. CONDUCTORS AND CABLE SHALL BE MOISTURE IMPERVIOUS METAL SHEATHED. TYPES MTW, RHW, RHW-2, TW, THW, THW-2, THHW, THWN, THWN-2, XHHW, XHHW-2, ZW AND LISTED FOR USE IN WET LOCATIONS.

ALL OTHER SPACES:

- WIRING: PROVIDE INSULATED CONDUCTORS AND CABLE TYPES: FEP, FEPB, MTW, PFA, RHH, RHW, RHW-2, THHN, THW, THW-2, THHW, THWN, THWN-2, THWN, THWN-2, TW, XHH, XHHW, XHHW-2, Z AND ZW. ALL EXPOSED TO SUNLIGHT SHALL BE SUNLIGHT RESISTANT AND COVERED WITH INSULATING MATERIAL TAPE AND SLEEVES THAT ARE SUN RESISTANT.

GENERAL:

NEW WIRING SHALL BE LOCATED IN EITHER METAL CONDUIT, SHALL BE METAL SHEATHED, OR RECEIVE A PROTECTIVE 1/16 INCH PROTECTIVE PLATE IN THE FOLLOWING CONDITIONS:
 WHERE BORED HOLES ARE LESS THAN 1-1/4" FROM THE FACE OF THE WOOD STUD, TRUSS OR JOIST PER NEC 70 300 4, IN EXPOSED DROPPED OR SUSPENDED CEILING CAVITIES, WHERE EXPOSED TO CORROSIVE FUMES AND VAPORS, EMBEDDED IN CONCRETE, EMBEDDED IN MASONRY AND/OR UNDERGROUND.

ALL NEW RECEPTACLES OR BOXES THAT ARE TO BE INSTALLED ON EXISTING WALLS SHALL BE SURFACE MOUNTED IN EMT CONDUIT AND BOXES. UP TO THE ACCESSIBLE ATTIC SPACE.

ELECTRIC SYMBOL KEY

NOTE: ADJUST MOUNTING HEIGHTS OF DEVICES WHICH PROTRUDE MORE THAN 4" INTO CORRIDORS AND WALKWAYS AS NECESSARY TO MEET A.D.A. CLEARANCE REQUIREMENTS.

NEW SWITCH, SINGLE POLE, EXISTING SWITCH LOCATION (EXISTING RECEPTACLE SWITCH)
 NEW SWITCH, SINGLE POLE, 36"-48" A.F.F.
 NEW SWITCH, 3-WAY, 36"-48" A.F.F.,
 NEW SWITCH, SINGLE POLE, EXISTING SWITCH LOCATION
 NEW 120V GFI DUPLEX RECEPTACLE
 18" MIN. A.F.F. UNLESS NOTED OTHERWISE ON PLAN
 NEW RECEPTACLE, DUPLEX, 120V,
 18" MIN. A.F.F. UNLESS NOTED OTHERWISE ON PLAN
 NEW WEATHER PROOF 120V GFI DUPLEX RECEPTACLE
 WITH GROUND FAULT INTERRUPTER
 NEW RECEPTACLE, QUADRUPLX, 120V,
 18" MIN. A.F.F. UNLESS NOTED OTHERWISE ON PLAN
 NEW RECEPTACLE, 220V, 3 WIRE, APPLIANCE
 EXTG. RECEPTACLE TO REMAIN, EXTG. CIRCUIT SHALL BE
 TIED INTO NEW PANEL FROM NEAREST LOCATION.
 EXTG. GFI RECEPTACLE TO REMAIN
 NEW 16W LED INTERIOR DOWNLIGHT
 NEW 16W EXTERIOR GRADE LED DOWNLIGHT
 NEW 29W LED WALL MOUNTED VANITY LIGHTING
 NEW 90W LED SURFACE MOUNTED, IMPACT RESISTANT 8'-0" STRIP LIGHTING
 NEW 100W LED WALL PACK LIGHT
 NEW PHOTO CELL
 NEW SURVEILLANCE CAMERA - PROVIDE 4" SQUARE GALVANIZED
 ELECTRICAL BOX AND CONDUIT TO EACH PLAN LOCATION
 NEW ELECTRONIC ENTRY - PROVIDE 1-GANG ELECTRICAL
 BOX, CONDUIT AND COVER PLATE AT EACH PLAN LOCATION
 FOR FUTURE CALL STATION (BY OTHERS)
 NEW 80 CFM EXHAUST FAN WITH LED LIGHT
 120V, 60HZ. 22W BROAN BEL8 OR APPROVED EQ.
 NEW EMERGENCY/EXIT LIGHT COMBO, WIRED TO AREA LIGHT CKT.
 AHEAD OF LT. SWITCH, WITH BATT. BACK UP, DUAL HEAD
 REMOTE EM LIGHT SLAVE HEAD WIRED TO EM FIXTURE AS SHOWN.
 EMERGENCY LIGHT, WIRED TO AREA LIGHT CKT. AHEAD OF LT.
 SWITCH, WITH BATT. BACK UP, DUAL HEAD
 SMOKE DETECTOR
 ELECTRIC METER
 ELECTRIC PANEL
 CARBON MONOXIDE ALARM
 DISCONNECT SWITCH
 NEW DATA PORT CONDUIT AND DATA
 WIRE TO BE RUN BY ELECTRICIAN

ELECTRICAL PANEL SCHEDULE

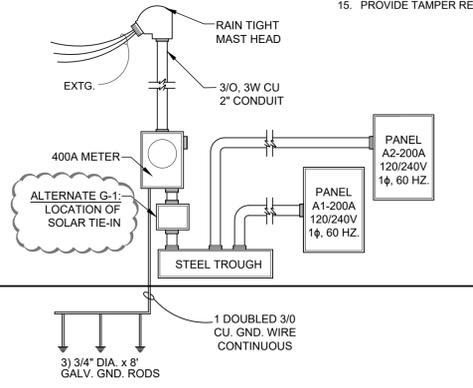
PANEL: NEW A1				MOUNTING: SURFACE					
120/240 VOLTS		1 PHASE		3 WIRE					
NO.#	DESCRIPTION	AMP	KW	AVG	NO.#	DESCRIPTION	AMP	KW	AVG
1	ROOM 201 MICRO/FRIDGE	20	1.80	12	2	ROOM 201 LIGHTS/RECEP	20	0.67	12
3	ROOM 204 MICRO/FRIDGE	20	1.80	12	4	ROOM 202 LIGHTS/RECEP	20	0.74	12
5	ROOM 205 MICRO/FRIDGE	20	1.80	12	6	ROOM 204 LIGHTS/RECEP	20	0.67	12
7	ROOM 206 MICRO/FRIDGE	20	1.80	12	8	ROOM 205 LIGHTS/RECEP	20	0.67	12
9	ROOM 207 MICRO/FRIDGE	20	1.80	12	10	ROOM 206 LIGHTS/RECEP	20	0.67	12
11	ROOM 208 MICRO/FRIDGE	20	1.80	12	12	ROOM 207 LIGHTS/RECEP	20	0.67	12
13	ROOM 209 MICRO/FRIDGE	20	1.80	12	14	ROOM 208 LIGHTS/RECEP	20	0.67	12
15	ROOM 210 MICRO/FRIDGE	20	1.80	12	16	ROOM 209 LIGHTS/RECEP	20	0.67	12
17	GAS WATER HEATER	20	0.18	12	18	ROOM 210 LIGHTS/RECEP	20	0.67	12
19					20	ROOM 201 LAUNDRY LIGHTS/RECEP	20	0.82	12
21	DRYER	30	5.40	10	22	ROOM 202 EXHAUST FAN	20	0.24	12
23					24	EXTERIOR LIGHTING	20	0.40	12
25	WASHER/DRYER	30	5.60	10	26	ROOM 201 EXTG. RECEP	20	0.36	12
27					28	ROOM 202 EXTG. RECEP	20	0.36	12
29	WASHER	20	1.20	12	30	ROOM 204 EXTG. RECEP	20	0.36	12
31					32	ROOM 205 EXTG. RECEP	20	0.36	12
33					34	ROOM 206 EXTG. RECEP	20	0.36	12
35					36	ROOM 207 EXTG. RECEP	20	0.36	12
37					38	ROOM 208 EXTG. RECEP	20	0.36	12
39					40	ROOM 209 EXTG. RECEP	20	0.36	12
41					42	ROOM 210 EXTG. RECEP	20	0.36	12

NEW CIRCUITS SHOWN AS SHADED ON PANEL SCHEDULE ABOVE
 EXTG. CIRCUITS TO REMAIN SHALL BE TIED INTO NEW PANEL FROM THE NEAREST LOCATION

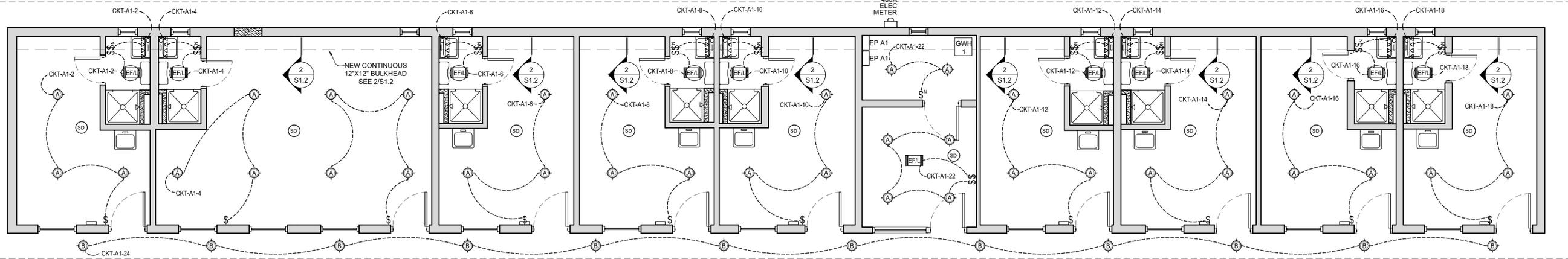
ELECTRICAL PANEL SCHEDULE

PANEL: NEW A2				MOUNTING: SURFACE					
120/240 VOLTS		1 PHASE		3 WIRE					
NO.#	DESCRIPTION	AMP	KW	AVG	NO.#	DESCRIPTION	AMP	KW	AVG
1	ROOM 201 PTAC	20	1.30	12	2	MINISPLIT	40	4.26	8
3					6				
5	ROOM 204 PTAC	20	1.30	12	8				
7	ROOM 205 PTAC	20	1.30	12	10				
9	ROOM 206 PTAC	20	1.30	12	12				
11	ROOM 207 PTAC	20	1.30	12	14				
13	ROOM 208 PTAC	20	1.30	12	16				
15	ROOM 209 PTAC	20	1.30	12	18				
17	ROOM 210 PTAC	20	1.30	12	20				
19					22				
21					24				
23					26				
25					28				
27					30				
29					32				
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37					40				
39					42				

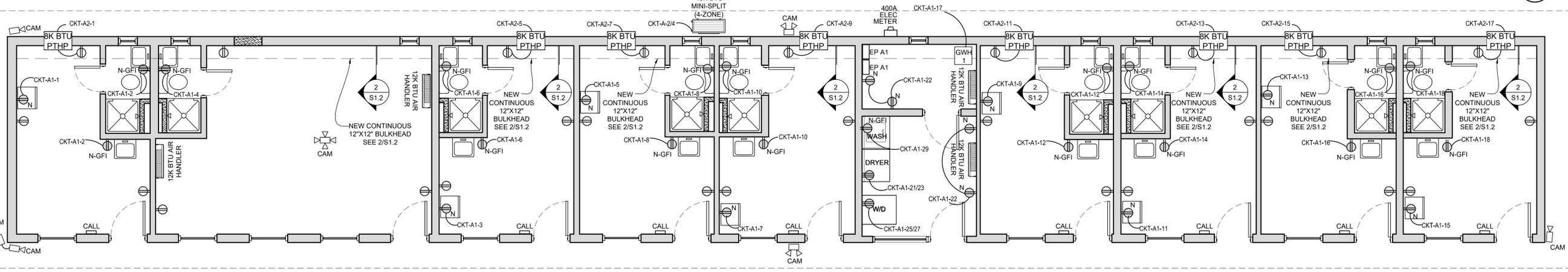
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BUILDING A
ELECTRICAL SERVICE RISER
 NO SCALE



BUILDING A
ELECTRICAL LIGHTING FLOOR PLAN
 1/4" = 1'-0"



BUILDING A
ELECTRICAL POWER FLOOR PLAN
 1/4" = 1'-0"

RE-BID SET
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ELECTRICAL PANEL SCHEDULE

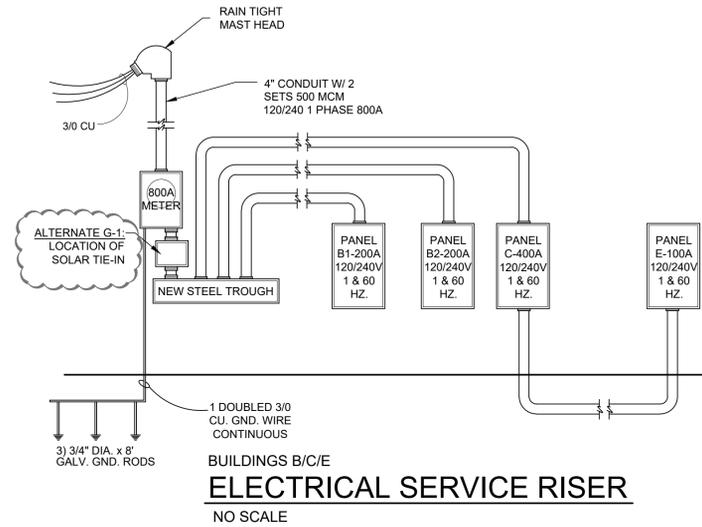
PANEL: NEW B1			MOUNTING: SURFACE						
120/240 VOLTS, 1 PHASE, 3 WIRE			51.5 CONN. KW.						
NO.#	DESCRIPTION	AMP	KW	AWG	NO.#	DESCRIPTION	AMP	KW	AWG
1	DRYER	30	5.40	10	2	SPARE	20	-	12
3	STACKED DRYER/WASH	30	5.60	10	6	EXT. LIGHTING	20	0.48	12
5	STACKED DRYER/WASH	30	5.60	10	8	LIGHTS	20	0.42	12
7	STACKED DRYER/WASH	30	5.60	10	10	A/C	60	7.50	6
9	STACKED DRYER/WASH	30	5.60	10	12				
11	STACKED DRYER/WASH	30	5.60	10	14	GAS DRYER	20	0.18	12
13	STACKED DRYER/WASH	30	5.60	10	16	GAS FURNACE	20	0.18	12
15	STACKED DRYER/WASH	30	5.60	10	18	TOILET FAN/LTS/REC.	20	0.90	12
17	STACKED DRYER/WASH	30	5.60	10	20	RECEPTACLES	20	0.90	12
19	STACKED DRYER/WASH	30	5.60	10	22	RECEPTACLES	20	0.54	12
21	STACKED DRYER/WASH	30	5.60	10	24	WP RECEPT.	20	0.18	12
23	STACKED DRYER/WASH	30	5.60	10	26	BOTTLE FILLER	20	0.18	12
25	RECEPTACLES	20	1.08	12	28	RECEPTACLES	20	0.54	12
27	RECEPTACLES	20	1.08	12	30	GAS WH	20	0.18	12
29	RECEPTACLES	20	1.08	12	32	GAS WH	20	0.18	12
31	RECEPTACLES	20	0.90	12	34	LIGHTS	20	0.25	12
33	SITE LIGHTS	20	0.25	12	36				
35	WASHER EXTR	50	12.0	8	38				
37					40				
39					42				
41									

NEW CIRCUITS SHOWN AS SHADED ON PANEL SCHEDULE ABOVE
EXTG. CIRCUITS TO REMAIN SHALL BE TIED INTO NEW PANEL FROM THE NEAREST LOCATION

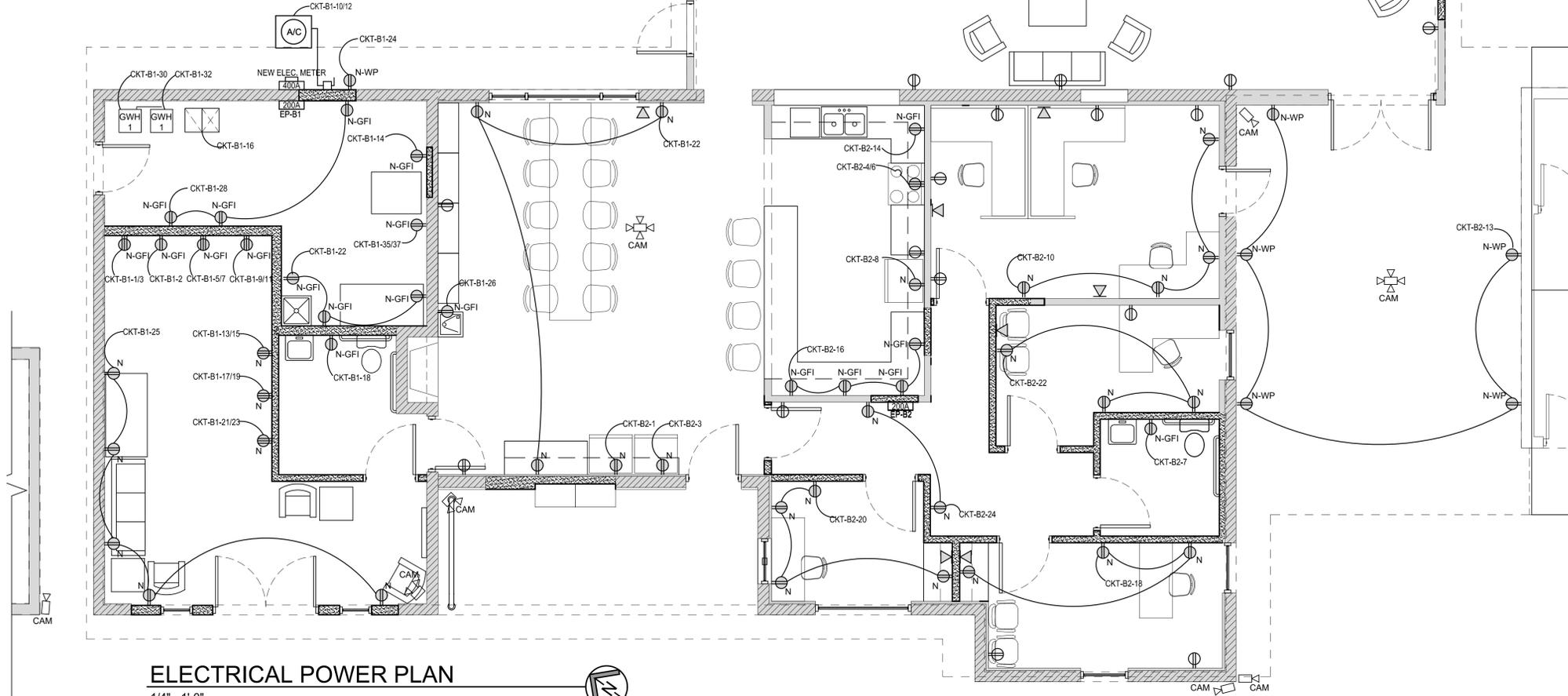
ELECTRICAL PANEL SCHEDULE

PANEL: NEW B2			MOUNTING: SURFACE						
120/240 VOLTS, 1 PHASE, 3 WIRE			27.31 CONN. KW.						
NO.#	DESCRIPTION	AMP	KW	AWG	NO.#	DESCRIPTION	AMP	KW	AWG
1	REFRIGERATOR	20	0.18	12	2	WASHER	20	1.20	12
3	REFRIGERATOR	20	0.18	12	4	RANGE	40	10.0	12
5	LIGHTS	20	0.44	12	6				
7	TOILET FAN/LTS/REC.	20	0.90	12	8	REFRIGERATOR	20	0.18	12
9	RECEPTACLES	20	1.44	12	10	RECEPTACLES	20	0.90	12
11	RECEPTACLES	20	1.44	12	12	RECEPTACLES	20	0.72	12
13	WP RECEPT.	20	1.26	12	14	RECEPTACLES	20	0.72	12
15	RECEPTACLES	20	1.08	12	16	RECEPTACLES	20	0.72	12
17	RECEPTACLES	20	1.08	12	18	RECEPTACLES	20	0.72	12
19	RECEPTACLES	20	0.90	12	20	RECEPTACLES	20	0.72	12
21	RECEPTACLES	20	0.72	12	22	RECEPTACLES	20	0.72	12
23	LIGHTS	20	0.37	12	24	RECEPTACLES	20	0.72	12
25					26				
27					28				
29					30				
31					32				
33					34				
35					36				
37					38				
39					40				
41					42				

NEW CIRCUITS SHOWN AS SHADED ON PANEL SCHEDULE ABOVE
EXTG. CIRCUITS TO REMAIN SHALL BE TIED INTO NEW PANEL FROM THE NEAREST LOCATION



ELECTRICAL SERVICE RISER
NO SCALE



ELECTRICAL POWER PLAN
1/4" = 1'-0"

ELECTRIC NOTES & SPECS

- ALL WORK SHALL BE DONE BY A STATE OF OHIO LICENSED ELECTRICIAN TO THE MANUFACTURERS SPECIFICATIO AND THE HIGHEST TRADE STANDARDS.
- ELECTRICAL WIRING, EQUIPMENT, AND INSTALLATION SHALL CONFORM TO THE REQUIREMENTS OF THE LATEST VERSION O.B.C., N.E.C., LOCAL CODES AND SHALL BE SUBJECT TO THE APPROVAL OF THE DISTRICT INSPECTOR CODE OFFICE.
- ALL EXITS SIGNS SHALL HAVE BATTERY 90 MIN. BACK UP AND BE CONNECTED TO THE NEAREST LIGHTING CKT. AHEAD OF THE SWITCH.
- THE MAIN SERVICE ENTRANCE GROUND INCLUDING BUT NOT LIMITED TO ALL FIXTURE AND EQUIPMENT GROUND SHALL COMPLY WITH ARTICLE 250 OF THE N.E.C.
- ALL EQUIPMENT AND FIXTURES SHALL BE U.L. APPROVED.
- THE EC SHALL COORDINATE ALL WORK WITH THE POWER COMPANY.
- THE EC SHALL SUBMIT SHOP DRAWINGS OR PRODUCT CUT SHEETS FOR ANY ITEM NOT SPECIFIED ON THE DRAWINGS OR IN THE SPECIFICATIONS AS A SUBSTITUTION. THE SUBSTITUTION SHALL ALSO LIST THE AMOUNT CONTRACT REGATE TO OWNER.
- THE EC SHALL MARK UP A CLEAN SET OF DRAWINGS SHOWING ALL CHANGES TO THE WORK AND FIXTURES NOT SHOWN ON THE BID SET. THE ARCH. WILL PROVIDE ONE NEW SET OF DRAWINGS WHICH THE EC WILL AMEND PRIOR TO FINAL PAYMENT. ALL ADDITIONAL SETS SHALL BE AT THE G.C. EXPENSE.
- THE EC SHALL REVIEW THE DRAWINGS AND JOB SITE PRIOR TO SUBMITTING A BID AND NOTE ALL CONFLICTS O QUESTIONS WHICH CANNOT BE BID WITH CONFIDENCE.
- THE EC SHALL PROVIDE AND INSTALL ALL HIGH VOLTAGE WIRE, JUNCTION BOXES, SWITCHES, AND FIXTURES REQUIRED TO COMPLETE THE PROJECT, ALL FINAL HOOKUP AND TESTING OF FIXTURES OR EQUIPMENT SHALL DONE BY THE CONTRACTOR SUPPLYING THE ITEM.
- PHONE, CABLE, AND/OR COMPUTER JUNCTION BOXES SHALL HAVE CONDUIT STUBBED TO AN ACCESSIBLE AREA FOR FUTURE CHANGES UNLESS OTHERWISE SPECIFIED.
- THE EC SHALL PROVIDE AND INSTALL ALL FINISH COVER PLATES. COVER PLATES SHALL BE SELECTED BY THE ARCH. EC SHALL PROVIDE SAMPLES FOR SELECTION.
- THE E.C. SHALL CHECK WITH EACH TRADE AND VERIFY ALL ELECTRICAL NEEDS AND INCLUDE THESE REQUIREMENTS IN THE BID.
- PROVIDE ARC-FULT CIRCUIT INTERRUPTER PROTECTION (RECEPTACLES) IN BEDROOMS AND ALL LOCATIONS. WHERE GFI ARE NOT REQUIRED PER NEC 210.12.
- PROVIDE TAMPER RESISTANT RECEPTACLES.

WIRING METHODS

WET AREAS (KITCHEN):
1. PROVIDE GFCI OUTLETS WITHIN 10'-0" OF ALL SINKS, LAVATORIES, WATER CLOSETS AND OTHER PLUMBING FIXTURES. CONDUCTORS AND CABLE SHALL BE MOISTURE IMPERVIOUS METAL SHEATHED. TYPES MTW, RHW, RHW-2, TW, THW, THW-2, THHW, THWN, THWN-2, XHHW, XHHW-2, Z AND ZW. ALL EXPOSED TO SUNLIGHT SHALL BE SUNLIGHT RESISTANT AND COVERED WITH INSULATING MATERIAL TAPE AND SLEEVES THAT ARE SUN RESISTANT.

ALL OTHER SPACES:
1. WIRING: PROVIDE INSULATED CONDUCTORS AND CABLE TYPES: FEP, FEPB, MTW, PFA, RHH, RHW, RHW-2, THHN, THW, THW-2, THHW, THWN, THWN-2, THWN, THWN-2, THW, THW-2, TW, XHH, XHHW, XHHW-2, Z AND ZW. ALL EXPOSED TO SUNLIGHT SHALL BE SUNLIGHT RESISTANT AND COVERED WITH INSULATING MATERIAL TAPE AND SLEEVES THAT ARE SUN RESISTANT.

GENERAL:
NEW WIRING SHALL BE LOCATED IN EITHER METAL CONDUIT, SHALL BE METAL SHEATHED, OR RECEIVE A PROTECTIVE 1/16 INCH PROTECTIVE PLATE IN THE FOLLOWING CONDITIONS:
WHERE BORED HOLES ARE LESS THAN 1-1/4" FROM THE FACE OF THE WOOD STUD, TRUSS OR JOIST PER NEC 70 300.4. IN EXPOSED DROPPED OR SUSPENDED CEILING CAVITIES, WHERE EXPOSED TO CORROSIVE FUMES AND VAPORS, EMBEDDED IN CONCRETE, EMBEDDED IN MASONRY AND/OR UNDERGROUND.

ALL NEW RECEPTACLES OR BOXES THAT ARE TO BE INSTALLED ON EXISTING WALLS SHALL BE SURFACE MOUNTED IN EMT CONDUIT AND BOXES. UP TO THE ACCESSIBLE ATTIC SPACE

ELECTRIC SYMBOL KEY

NOTE: ADJUST MOUNTING HEIGHTS OF DEVICES WHICH PROTRUDE MORE THAN 4" INTO CORRIDORS AND WALKWAYS AS NECESSARY TO MEET A.D.A. CLEARANCE REQUIREMENTS.

- NEW SWITCH, SINGLE POLE, EXISTING SWITCH LOCATION (EXISTING RECEPTACLE SWITCH)
- NEW SWITCH, SINGLE POLE, 36"-48" A.F.F.
- NEW SWITCH, 3-WAY, 36"-48" A.F.F.
- NEW SWITCH, SINGLE POLE, EXISTING SWITCH LOCATION
- NEW 120V GFI DUPLEX RECEPTACLE 18" MIN. A.F.F. UNLESS NOTED OTHERWISE ON PLAN
- NEW RECEPTACLE, DUPLEX, 120V, 18" MIN. A.F.F. UNLESS NOTED OTHERWISE ON PLAN
- NEW WEATHER PROOF 120V GFI DUPLEX RECEPTACLE WITH GROUND FAULT INTERRUPTER
- NEW RECEPTACLE, QUADRUPLX, 120V, 18" MIN. A.F.F. UNLESS NOTED OTHERWISE ON PLAN
- NEW RECEPTACLE, 220V, 3 WIRE, APPLIANCE
- EXTG. RECEPTACLE TO REMAIN, EXTG. CIRCUIT SHALL BE TIED INTO NEW PANEL FROM NEAREST LOCATION.
- EXTG. GFI RECEPTACLE TO REMAIN

- NEW 16W LED INTERIOR DOWNLIGHT
- NEW 16W EXTERIOR GRADE LED DOWNLIGHT
- NEW 29W LED WALL MOUNTED VANITY LIGHTING
- NEW 90W LED SURFACE MOUNTED, IMPACT RESISTANT 8"-0" STRIP LIGHTING
- NEW 100W LED WALL PACK LIGHT
- NEW PHOTO CELL
- NEW SURVEILLANCE CAMERA - PROVIDE 4" SQUARE GALVANIZED ELECTRICAL BOX AND CONDUIT TO EACH PLAN LOCATION
- NEW ELECTRONIC ENTRY - PROVIDE 1-GANG ELECTRICAL BOX, CONDUIT AND COVER PLATE AT EACH PLAN LOCATION FOR FUTURE CALL STATION (BY OTHERS)
- NEW 80 CFM EXHAUST FAN WITH LED LIGHT 120V, 60HZ 22W BROAN BEL8 OR APPROVED EQ.
- NEW EMERGENCY/EXIT LIGHT COMBO, WIRED TO AREA LIGHT CKT. AHEAD OF LT. SWITCH WITH BATT. BACK UP, DUAL HEAD REMOTE EM LIGHT SLAVE HEAD WIRED TO EM FIXTURE AS SHOWN.
- EMERGENCY LIGHT, WIRED TO AREA LIGHT CKT. AHEAD OF LT. SWITCH, WITH BATT. BACK UP, DUAL HEAD
- SMOKE DETECTOR
- CARBON MONOXIDE ALARM
- ELECTRIC METER
- DISCONNECT SWITCH
- ELECTRIC PANEL
- NEW DATA PORT CONDUIT AND DATA WIRE TO BE RUN BY ELECTRICIAN

RE-BID SET
11/03/2025

ARCHITECT/ENGINEER STAMP

PLAN EXAMINER STAMP

RVC ARCHITECTS
131 WEST STATE STREET
ATHENS, OHIO 45701
(740) 592-5615
rvccarchitects.com

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THE SUNSET SHELTER PROJECT
HAPCAP
135 COLUMBUS ROAD, ATHENS OHIO-45701
RVC PROJECT #241101

E1.1B

ELECTRICAL PANEL SCHEDULE

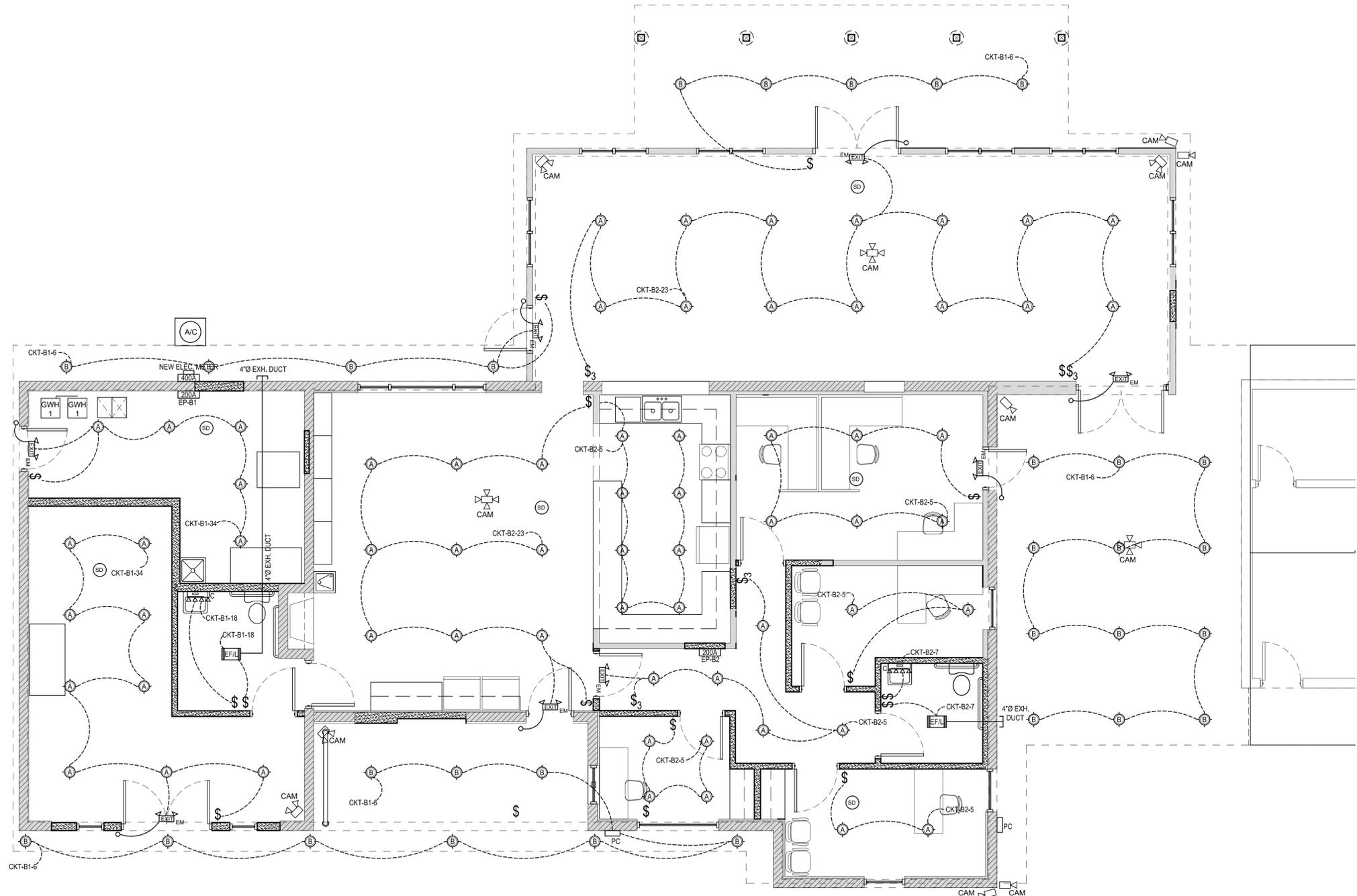
PANEL: NEW B1				MOUNTING: SURFACE			
120/240 VOLTS				1 PHASE			
800 AMP				61 S. CONN. KW			
NO. #	DESCRIPTION	AMP	KW	NO. #	DESCRIPTION	AMP	KW
1	DRYER	30	5.40	2		20	-
3				4	SPARE	20	-
5	STACKED DRYER/WASH	30	5.60	6	EXT. LIGHTING	20	0.48
7	STACKED DRYER/WASH	30	5.60	8	LIGHTS	20	0.42
9	STACKED DRYER/WASH	30	5.60	10	A/C	60	7.50
11	STACKED DRYER/WASH	30	5.60	12			
13	STACKED DRYER/WASH	30	5.60	14	GAS DRYER	20	0.18
15	STACKED DRYER/WASH	30	5.60	16	GAS FURNACE	20	0.18
17	STACKED DRYER/WASH	30	5.60	18	TOILET FAN/LTS./REC.	20	0.90
19	STACKED DRYER/WASH	30	5.60	20	RECEPTACLES	20	0.90
21	STACKED DRYER/WASH	30	5.60	22	RECEPTACLES	20	0.54
23	STACKED DRYER/WASH	30	5.60	24	WP RECEPT.	20	0.18
25	RECEPTACLES	20	1.08	26	BOTTLE FILLER	20	0.18
27				28	RECEPTACLES	20	0.54
29	RECEPTACLES	20	1.08	30	GAS WH	20	0.18
31	RECEPTACLES	20	0.90	32	GAS WH	20	0.18
33	SITE LIGHTS	20	0.25	34	LIGHTS	20	0.25
35	WASHER EXTR.	50	12.0	36			
37				38			
39				40			
41				42			

NEW CIRCUITS SHOWN AS SHADED ON PANEL SCHEDULE ABOVE
EXTG. CIRCUITS TO REMAIN SHALL BE TIED INTO NEW PANEL FROM THE NEAREST LOCATION

ELECTRICAL PANEL SCHEDULE

PANEL: NEW B2				MOUNTING: SURFACE			
120/240 VOLTS				1 PHASE			
800 AMP				27.31 S. CONN. KW			
NO. #	DESCRIPTION	AMP	KW	NO. #	DESCRIPTION	AMP	KW
1	REFRIGERATOR	20	0.18	2	WASHER	20	1.20
3	REFRIGERATOR	20	0.18	4	RANGE	40	10.0
5	LIGHTS	20	0.44	6			
7	TOILET FAN/LTS./REC.	20	0.90	8	REFRIGERATOR	20	0.18
9	RECEPTACLES	20	1.44	10	RECEPTACLES	20	0.72
11	RECEPTACLES	20	1.44	12	RECEPTACLES	20	0.90
13	WP RECEPT.	20	1.26	14	RECEPTACLES	20	0.72
15	RECEPTACLES	20	1.08	16	RECEPTACLES	20	0.72
17	RECEPTACLES	20	1.08	18	RECEPTACLES	20	0.72
19	RECEPTACLES	20	0.90	20	RECEPTACLES	20	0.72
21	RECEPTACLES	20	0.72	22	RECEPTACLES	20	0.72
23	LIGHTS	20	0.37	24	RECEPTACLES	20	0.72
25				26			
27				28			
29				30			
31				32			
33				34			
35				36			
37				38			
39				40			
41				42			

NEW CIRCUITS SHOWN AS SHADED ON PANEL SCHEDULE ABOVE
EXTG. CIRCUITS TO REMAIN SHALL BE TIED INTO NEW PANEL FROM THE NEAREST LOCATION



ELECTRICAL LIGHTING PLAN

1/4" = 1'-0"

ELECTRIC SYMBOL KEY

NOTE: ADJUST MOUNTING HEIGHTS OF DEVICES WHICH PROTRUDE MORE THAN 4" INTO CORRIDORS AND WALKWAYS AS NECESSARY TO MEET A.D.A. CLEARANCE REQUIREMENTS.

- NEW SWITCH, SINGLE POLE, EXISTING SWITCH LOCATION (EXISTING RECEPTACLE SWITCH)
-
-
- NEW SWITCH, SINGLE POLE, EXISTING SWITCH LOCATION
-
-
- NEW WEATHER PROOF 120V GFI DUPLEX RECEPTACLE WITH GROUND FAULT INTERRUPTER
-
- NEW RECEPTACLE, 220V, 3 WIRE, APPLIANCE
- EXTG. RECEPTACLE TO REMAIN, EXTG. CIRCUIT SHALL BE TIED INTO NEW PANEL FROM NEAREST LOCATION.
- EXTG. GFI RECEPTACLE TO REMAIN

- NEW 16W LED INTERIOR DOWNLIGHT
- NEW 16W EXTERIOR GRADE LED DOWNLIGHT
- NEW 29W LED WALL MOUNTED VANITY LIGHTING
-
- NEW 100W LED WALL PACK LIGHT
- NEW PHOTO CELL
-
- NEW ELECTRONIC ENTRY - PROVIDE 1-GANG ELECTRICAL BOX, CONDUIT AND COVER PLATE AT EACH PLAN LOCATION FOR FUTURE CALL STATION (BY OTHERS)
- NEW 80 CFM EXHAUST FAN WITH LED LIGHT 120V, 60HZ, 22W BROAN BEL8 OR APPROVED EQ.
- NEW EMERGENCY/EXIT LIGHT COMBO, WIRED TO AREA LIGHT CKT. AHEAD OF LT. SWITCH WITH BATT. BACK UP, DUAL HEAD REMOTE EM LIGHT SLAVE HEAD WIRED TO EM FIXTURE AS SHOWN.
- EMERGENCY LIGHT, WIRED TO AREA LIGHT CKT. AHEAD OF LT. SWITCH, WITH BATT. BACK UP, DUAL HEAD
- SMOKE DETECTOR
- CARBON MONOXIDE ALARM
- ELECTRIC METER
- DISCONNECT SWITCH
- ELECTRIC PANEL
- NEW DATA PORT CONDUIT AND DATA WIRE TO BE RUN BY ELECTRICIAN

RE-BID SET
11/03/2025

ARCHITECT/ENGINEER STAMP

PLAN EXAMINER STAMP

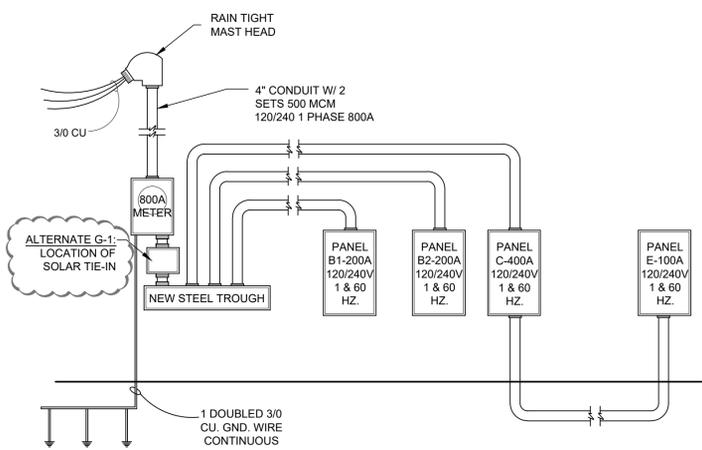
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PROJ. #: 241101
SHT #:

THE SUNSET SHELTER PROJECT
HAPCAP
135 COLUMBUS ROAD, ATHENS OHIO-45701
RVC PROJECT #241101

E1.2B



BUILDINGS B/C/E
ELECTRICAL SERVICE RISER
 NO SCALE

ELECTRIC NOTES & SPECS

- ALL WORK SHALL BE DONE BY A STATE OF OHIO LICENSED ELECTRICIAN TO THE MANUFACTURES SPECIFICATIONS AND THE HIGHEST TRADE STANDARDS.
- ELECTRICAL WIRING, EQUIPMENT, AND INSTALLATION SHALL CONFORM TO THE REQUIREMENTS OF THE LATEST VERSION O.B.C., N.E.C., LOCAL CODES AND SHALL BE SUBJECT TO THE APPROVAL OF THE DISTRICT INSPECTOR & CODE OFFICE.
- ALL EXITS SIGNS SHALL HAVE BATTERY 90 MIN. BACK UP AND BE CONNECTED TO THE NEAREST LIGHTING CKT. AHEAD OF THE SWITCH.
- THE MAIN SERVICE ENTRANCE GROUND INCLUDING BUT NOT LIMITED TO ALL FIXTURE AND EQUIPMENT GROUNDS SHALL COMPLY WITH ARTICLE 250 OF THE N.E.C.
- ALL EQUIPMENT AND FIXTURES SHALL BE U.L. APPROVED.
- THE EC SHALL COORDINATE ALL WORK WITH THE POWER COMPANY.
- THE EC SHALL SUBMIT SHOP DRAWINGS OR PRODUCT CUT SHEETS FOR ANY ITEM NOT SPECIFIED ON THE DRAWINGS OR IN THE SPECIFICATIONS AS A SUBSTITUTION. THE SUBSTITUTION SHALL ALSO LIST THE AMOUNT OF CONTRACT REBATE TO OWNER.
- THE EC SHALL MARK UP A CLEAN SET OF DRAWINGS SHOWING ALL CHANGES TO THE WORK AND FIXTURES NOT SHOWN ON THE BID SET. THE ARCH. WILL PROVIDE ONE NEW SET OF DRAWINGS WHICH THE EC WILL AMEND PRIOR TO FINAL PAYMENT. ALL ADDITIONAL SETS SHALL BE AT THE G.C. EXPENSE.
- THE EC SHALL REVIEW THE DRAWINGS AND JOB SITE PRIOR TO SUBMITTING A BID AND NOTE ALL CONFLICTS OR QUESTIONS WHICH CANNOT BE BID WITH CONFIDENCE.
- THE EC SHALL PROVIDE AND INSTALL ALL HIGH VOLTAGE WIRE, JUNCTION BOXES, SWITCHES, AND FIXTURES REQUIRED TO COMPLETE THE PROJECT. ALL FINAL HOOKUP AND TESTING OF FIXTURES OR EQUIPMENT SHALL BE DONE BY THE CONTRACTOR SUPPLYING THE ITEM.
- PHONE, CABLE, AND/OR COMPUTER JUNCTION BOXES SHALL HAVE CONDUIT STUBBED TO AN ACCESSIBLE AREA FOR FUTURE CHANGES UNLESS OTHERWISE SPECIFIED.
- THE EC SHALL PROVIDE AND INSTALL ALL FINISH COVER PLATES. COVER PLATES SHALL BE SELECTED BY THE ARCH. EC SHALL PROVIDE SAMPLES FOR SELECTION.
- THE E.C. SHALL CHECK WITH EACH TRADE AND VERIFY ALL ELECTRICAL NEEDS AND INCLUDE THESE REQUIREMENTS IN THE BID.
- PROVIDE ARC-FAULT CIRCUIT INTERRUPTER PROTECTION (RECEPTACLES) IN BEDROOMS AND ALL LOCATIONS. WHERE GFI ARE NOT REQUIRED PER NEC 210.12.
- PROVIDE TAMPER RESISTANT RECEPTACLES.

WIRING METHODS

- WET AREAS (KITCHEN):**
- PROVIDE GFCI OUTLETS WITHIN 10'-0" OF ALL SINKS, LAVATORIES, WATER CLOSETS AND OTHER PLUMBING FIXTURES. CONDUCTORS AND CABLE SHALL BE MOISTURE IMPERVIOUS METAL SHEATHED, TYPES MTW, RHW, RHW-2, TW, THW, THW-2, THHW, THWN, THWN-2, XHHW, XHHW-2, ZW AND LISTED FOR USE IN WET LOCATIONS.
- ALL OTHER SPACES:**
- WIRING: PROVIDE INSULATED CONDUCTORS AND CABLE TYPES: FEP, FEPB, MTW, PFA, RHH, RHW, RHW-2, THHN, THW, THW-2, THHW, THWN, THWN-2, THHW, THWN-2, TW, XHH, XHHW, XHHW-2, Z AND ZW. ALL EXPOSED TO SUNLIGHT SHALL BE SUNLIGHT RESISTANT AND COVERED WITH INSULATING MATERIAL TAPE AND SLEEVES THAT ARE SUN RESISTANT.
- GENERAL:**
- NEW WIRING SHALL BE LOCATED IN EITHER METAL CONDUIT, SHALL BE METAL SHEATHED, OR RECEIVE A PROTECTIVE 1/16 INCH PROTECTIVE PLATE IN THE FOLLOWING CONDITIONS:
 WHERE BORED HOLES ARE LESS THAN 1-1/4" FROM THE FACE OF THE WOOD STUD, TRUSS OR JOIST PER NEC 70 300.4, IN EXPOSED DROPPED OR SUSPENDED CEILING CAVITIES, WHERE EXPOSED TO CORROSIVE FUMES AND VAPORS, EMBEDDED IN CONCRETE, EMBEDDED IN MASONRY AND/OR UNDERGROUND.
- ALL NEW RECEPTACLES OR BOXES THAT ARE TO BE INSTALLED ON EXISTING WALLS SHALL BE SURFACE MOUNTED IN EMT CONDUIT AND BOXES, UP TO THE ACCESSIBLE ATTIC SPACE**

ELECTRIC SYMBOL KEY

NOTE: ADJUST MOUNTING HEIGHTS OF DEVICES WHICH PROTRUDE MORE THAN 4" INTO CORRIDORS AND WALKWAYS AS NECESSARY TO MEET A.D.A. CLEARANCE REQUIREMENTS.

- SR NEW SWITCH, SINGLE POLE, EXISTING SWITCH LOCATION (EXISTING RECEPTACLE SWITCH)
- SW NEW SWITCH, SINGLE POLE, 36"-48" A.F.F.
- SW3 NEW SWITCH, 3-WAY, 36"-48" A.F.F.
- SW4 NEW SWITCH, SINGLE POLE, EXISTING SWITCH LOCATION
- GFI NEW 120V GFI DUPLEX RECEPTACLE
- 18" NEW 18" MIN. A.F.F. UNLESS NOTED OTHERWISE ON PLAN
- WP NEW WEATHER PROOF 120V GFI DUPLEX RECEPTACLE WITH GROUND FAULT INTERRUPTER
- QD NEW RECEPTACLE, QUADRUPLX, 120V, 18" MIN. A.F.F. UNLESS NOTED OTHERWISE ON PLAN
- NEW RECEPTACLE, 220V, 3 WIRE, APPLIANCE
- EXTG. RECEPTACLE TO REMAIN, EXTG. CIRCUIT SHALL BE TIED INTO NEW PANEL FROM NEAREST LOCATION.
- X-GFI EXTG. GFI RECEPTACLE TO REMAIN
- NEW 16W LED INTERIOR DOWNLIGHT
- NEW 16W LED EXTERIOR GRADE LED DOWNLIGHT
- NEW 29W LED WALL MOUNTED VANITY LIGHTING
- NEW 90W LED SURFACE MOUNTED, IMPACT RESISTANT 8'-0" STRIP LIGHTING
- NEW 100W LED WALL PACK LIGHT
- NEW PHOTO CELL
- PC NEW SURVEILLANCE CAMERA - PROVIDE 4" SQUARE GALVANIZED ELECTRICAL BOX AND CONDUIT TO EACH PLAN LOCATION
- NEW ELECTRONIC ENTRY - PROVIDE 1-GANG ELECTRICAL BOX, CONDUIT AND COVER PLATE AT EACH PLAN LOCATION FOR FUTURE CALL STATION (BY OTHERS)
- NEW 80 CFM EXHAUST FAN WITH LED LIGHT
- 120V, 60HZ, 22W BROAN BEL8 OR APPROVED EQ.
- NEW EMERGENCY/EXIT LIGHT COMBO, WIRED TO AREA LIGHT CKT. AHEAD OF LT. SWITCH, WITH BATT. BACK UP, DUAL HEAD
- REMOTE EM LIGHT SLAVE HEAD WIRED TO EM FIXTURE AS SHOWN.
- EMERGENCY LIGHT, WIRED TO AREA LIGHT CKT. AHEAD OF LT. SWITCH, WITH BATT. BACK UP, DUAL HEAD
- SD SMOKE DETECTOR
- CO CARBON MONOXIDE ALARM
- EM ELECTRIC METER
- DISCONNECT SWITCH
- EP ELECTRIC PANEL
- NEW DATA PORT CONDUIT AND DATA WIRE TO BE RUN BY ELECTRICIAN

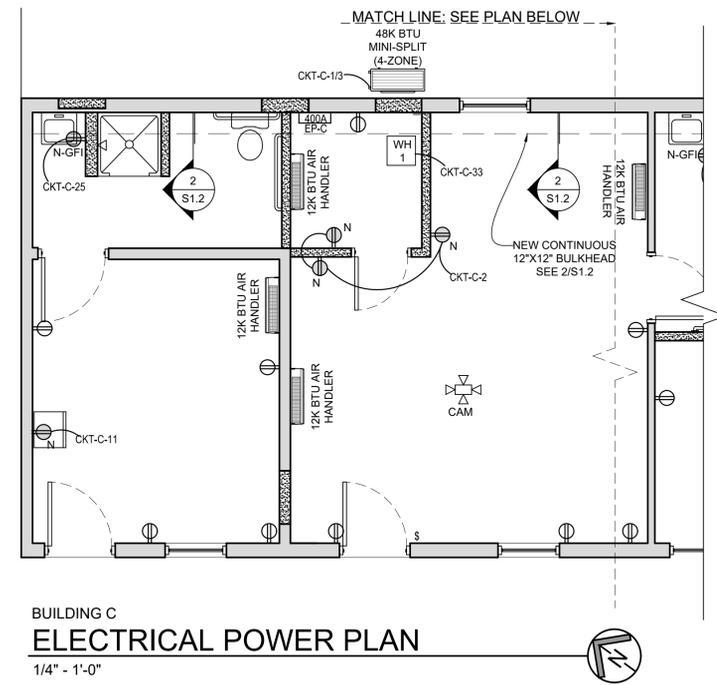
ELECTRICAL PANEL SCHEDULE

PANEL: NEW C1 MOUNTING: SURFACE

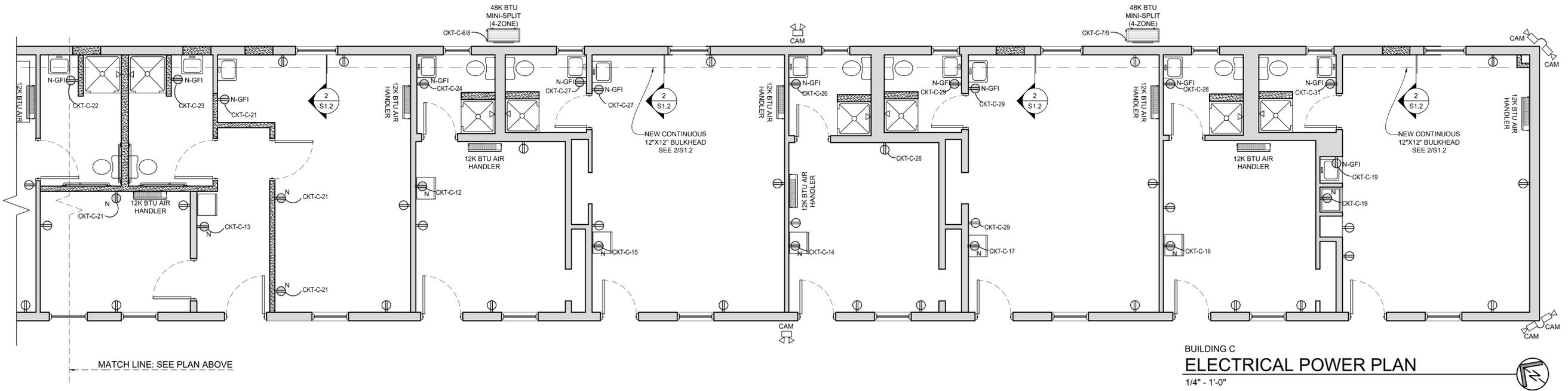
120/240 VOLTS.				1 PHASE.				3 WIRE.			
400 AMP.				80 KW.				81.77 CONN. KW.			
NO.#	DESCRIPTION	AMP	KW	AWG	NO.#	DESCRIPTION	AMP	KW	AWG		
1	MINISPLIT	40	4.26	8	2	212 RCP	20	1.44	12		
3					4						
5	MINISPLIT	40	4.26	8	6	MINISPLIT	40	4.26	8		
9					10	212 FRIDGE	20	1.8	12		
11	211 FRIDGE	20	1.8	12	12	214 FRIDGE	20	1.8	12		
13	213 FRIDGE	20	1.8	12	14	216 FRIDGE	20	1.8	12		
15	215 FRIDGE	20	1.8	12	16	218 FRIDGE	20	1.8	12		
17	217 FRIDGE	20	1.8	12	18						
19	219 FRIDGE	20	1.8	12	20	MINISPLIT	40	4.26	8		
21	213A RCP+LTS	20	1.372	12	22	212 RCP+LTS	20	0.635	12		
23	213B RCP+LTS	20	0.983	12	24	214 RCP+LTS	20	0.635	12		
25	211 RCP+LTS	20	0.835	12	26	216 RCP+LTS	20	0.635	12		
27	215 RCP+LTS	20	1.407	12	28	218 RCP+LTS	20	0.635	12		
29	217 RCP+LTS	20	1.407	12	30	EXT SOFFIT LIGHTS	20	0.24	12		
31	219 RCP+LTS	20	1.407	12	32	WALL PACKS	20	0.1	12		
33	WTR HTR	20	0.09	12	34						
35					36	E1	100	16.71	1/0		
37					38						
39					40						
41					42						

NEW CIRCUITS SHOWN AS SHADED ON PANEL SCHEDULE ABOVE

EXTG. CIRCUITS TO REMAIN SHALL BE TIED INTO NEW PANEL FROM THE NEAREST LOCATION



BUILDING C
ELECTRICAL POWER PLAN
 1/4" - 1'-0"



BUILDING C
ELECTRICAL POWER PLAN
 1/4" - 1'-0"

RE-BID SET
 11/03/2025

ARCHITECT/ENGINEER STAMP
 PLAN EXAMINER STAMP

RVC ARCHITECTS
 131 WEST STATE STREET
 ATHENS, OHIO 45701
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 PROJ. #: 241101
 SHT #:

THE SUNSET SHELTER PROJECT
 HAPCAP
 135 COLUMBUS ROAD, ATHENS OHIO-45701
 RVC PROJECT #241101

E1.1C

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135 COLUMBUS ROAD, ATHENS OHIO-45701
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E1.2C

ELECTRIC SYMBOL KEY

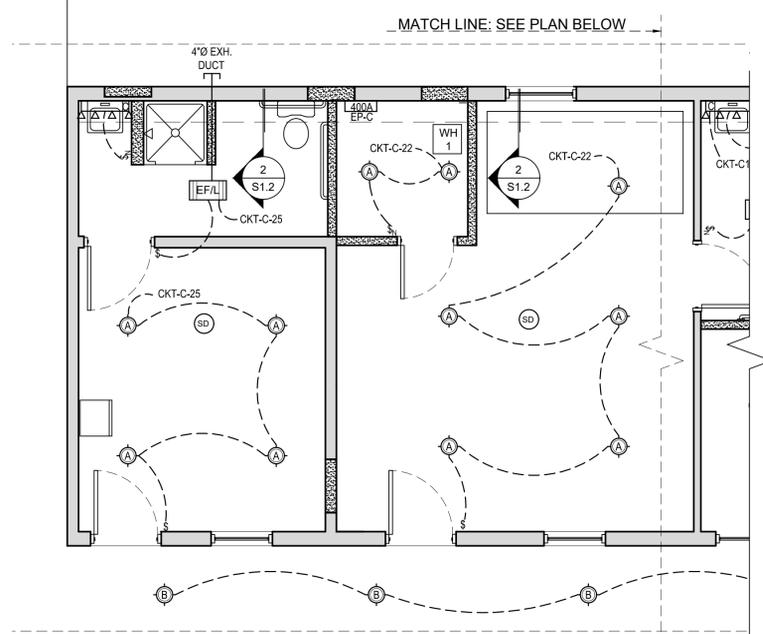
NOTE: ADJUST MOUNTING HEIGHTS OF DEVICES WHICH PROTRUDE MORE THAN 4" INTO CORRIDORS AND WALKWAYS AS NECESSARY TO MEET A.D.A. CLEARANCE REQUIREMENTS.

- NEW SWITCH, SINGLE POLE, EXISTING SWITCH LOCATION (EXISTING RECEPTACLE SWITCH)
- NEW SWITCH, SINGLE POLE, 36"-48" A.F.F.
- NEW SWITCH, 3-WAY, 36"-48" A.F.F.
- NEW SWITCH, SINGLE POLE, EXISTING SWITCH LOCATION
- NEW 120V GFI DUPLEX RECEPTACLE 18" MIN. A.F.F. UNLESS NOTED OTHERWISE ON PLAN
- NEW RECEPTACLE, DUPLEX, 120V, 18" MIN. A.F.F. UNLESS NOTED OTHERWISE ON PLAN
- NEW RECEPTACLE, 220V, 3 WIRE, APPLIANCE
- EXTG. GFI RECEPTACLE TO REMAIN
- NEW 16W LED INTERIOR DOWNLIGHT
- NEW 16W LED EXTERIOR GRADE LED DOWNLIGHT
- NEW 29W LED WALL MOUNTED VANITY LIGHTING
- NEW 90W LED SURFACE MOUNTED, IMPACT RESISTANT 8'-0" STRIP LIGHTING
- NEW 100W LED WALL PACK LIGHT
- NEW PHOTO CELL
- NEW SURVEILLANCE CAMERA - PROVIDE 4" SQUARE GALVANIZED ELECTRICAL BOX AND CONDUIT TO EACH PLAN LOCATION
- NEW ELECTRONIC ENTRY - PROVIDE 1-GANG ELECTRICAL BOX, CONDUIT AND COVER PLATE AT EACH PLAN LOCATION FOR FUTURE CALL STATION (BY OTHERS)
- NEW 80 CFM EXHAUST FAN WITH LED LIGHT 120V, 60HZ, 22W BROAN BEL8 OR APPROVED EQ.
- NEW EMERGENCY/EXIT LIGHT COMBO, WIRED TO AREA LIGHT CKT. AHEAD OF LT. SWITCH, WITH BATT. BACK UP, DUAL HEAD REMOTE EM LIGHT SLAVE HEAD WIRED TO EM FIXTURE AS SHOWN.
- EMERGENCY LIGHT, WIRED TO AREA LIGHT CKT. AHEAD OF LT. SWITCH, WITH BATT. BACK UP, DUAL HEAD
- SMOKE DETECTOR
- CARBON MONOXIDE ALARM
- ELECTRIC METER
- DISCONNECT SWITCH
- ELECTRIC PANEL
- NEW DATA PORT CONDUIT AND DATA WIRE TO BE RUN BY ELECTRICIAN

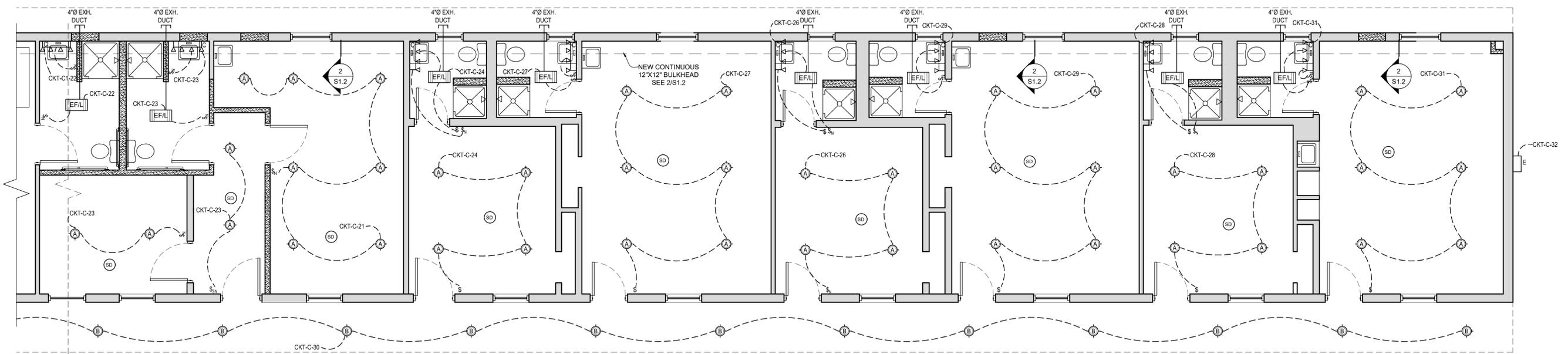
ELECTRICAL PANEL SCHEDULE

PANEL: NEW C1				MOUNTING SURFACE					
120/240 VOLTS.		1 PHASE.		3 WIRE.					
NO.	DESCRIPTION	AMP	KW	AWG	NO.	DESCRIPTION	AMP	KW	AWG
1	MINISPLIT	40	4.26	8	2	212 RCP	20	1.44	12
3	MINISPLIT	40	4.26	8	4				
5					6	MINISPLIT	40	4.26	8
7	MINISPLIT	40	4.26	8	8				
9					10	212 FRIDGE	20	1.8	12
11	211 FRIDGE	20	1.8	12	12	214 FRIDGE	20	1.8	12
13	213 FRIDGE	20	1.8	12	14	216 FRIDGE	20	1.8	12
15	215 FRIDGE	20	1.8	12	16	218 FRIDGE	20	1.8	12
17	217 FRIDGE	20	1.8	12	18				
19	219 FRIDGE	20	1.8	12	20	MINISPLIT	40	4.26	8
21	213A RCP+LTS	20	1.372	12	22	212 RCP+LTS	20	0.635	12
23	213B RCP+LTS	20	0.983	12	24	214 RCP+LTS	20	0.635	12
25	211 RCP+LTS	20	0.835	12	26	216 RCP+LTS	20	0.635	12
27	215 RCP+LTS	20	1.407	12	28	218 RCP+LTS	20	0.635	12
29	217 RCP+LTS	20	1.407	12	30	EXT SOFFIT LIGHTS	20	0.24	12
31	219 RCP+LTS	20	1.407	12	32	WALL PACKS	20	0.1	12
33	WTR HTR	20	0.09	12	34	E1	100	16.71	1/0
35					36				
37					38				
39					40				
41					42				

NEW CIRCUITS SHOWN AS SHADED ON PANEL SCHEDULE ABOVE
EXTG. CIRCUITS TO REMAIN SHALL BE TIED INTO NEW PANEL FROM THE NEAREST LOCATION



BUILDING C
ELECTRICAL LIGHTING PLAN
1/4" = 1'-0"



BUILDING C
ELECTRICAL LIGHTING PLAN
1/4" = 1'-0"

ELECTRIC NOTES & SPECS

- ALL WORK SHALL BE DONE BY A STATE OF OHIO LICENSED ELECTRICIAN TO THE MANUFACTURERS SPECIFICATIONS AND THE HIGHEST TRADE STANDARDS.
- ELECTRICAL WIRING, EQUIPMENT, AND INSTALLATION SHALL CONFORM TO THE REQUIREMENTS OF THE LATEST VERSION O.B.C., N.E.C., LOCAL CODES AND SHALL BE SUBJECT TO THE APPROVAL OF THE DISTRICT INSPECTOR & CODE OFFICE.
- ALL EXITS SIGNS SHALL HAVE BATTERY 90 MIN. BACK UP AND BE CONNECTED TO THE NEAREST LIGHTING CKT. AHEAD OF THE SWITCH.
- THE MAIN SERVICE ENTRANCE GROUND INCLUDING BUT NOT LIMITED TO ALL FIXTURE AND EQUIPMENT GROUNDS SHALL COMPLY WITH ARTICLE 250 OF THE N.E.C.
- ALL EQUIPMENT AND FIXTURES SHALL BE U.L. APPROVED.
- THE EC SHALL COORDINATE ALL WORK WITH THE POWER COMPANY.
- THE EC SHALL SUBMIT SHOP DRAWINGS OR PRODUCT CUT SHEETS FOR ANY ITEM NOT SPECIFIED ON THE DRAWINGS OR IN THE SPECIFICATIONS AS A SUBSTITUTION. THE SUBSTITUTION SHALL ALSO LIST THE AMOUNT OF CONTRACT REBATE TO OWNER.
- THE EC SHALL MARK UP A CLEAN SET OF DRAWINGS SHOWING ALL CHANGES TO THE WORK AND FIXTURES NOT SHOWN ON THE BID SET. THE ARCH. WILL PROVIDE ONE NEW SET OF DRAWINGS WHICH THE EC WILL AMEND PRIOR TO FINAL PAYMENT. ALL ADDITIONAL SETS SHALL BE AT THE G.C. EXPENSE.
- THE EC SHALL REVIEW THE DRAWINGS AND JOB SITE PRIOR TO SUBMITTING A BID AND NOTE ALL CONFLICTS OR QUESTIONS WHICH CANNOT BE BID WITH CONFIDENCE.
- THE EC SHALL PROVIDE AND INSTALL ALL HIGH VOLTAGE WIRE, JUNCTION BOXES, SWITCHES, AND FIXTURES REQUIRED TO COMPLETE THE PROJECT, ALL FINAL HOOKUP AND TESTING OF FIXTURES OR EQUIPMENT SHALL BE DONE BY THE CONTRACTOR SUPPLYING THE ITEM.
- PHONE, CABLE, AND/OR COMPUTER JUNCTION BOXES SHALL HAVE CONDUIT STUBBED TO AN ACCESSIBLE AREA FOR FUTURE CHANGES UNLESS OTHERWISE SPECIFIED.
- THE EC SHALL PROVIDE AND INSTALL ALL FINISH COVER PLATES. COVER PLATES SHALL BE SELECTED BY THE ARCH. EC SHALL PROVIDE SAMPLES FOR SELECTION.
- THE E.C. SHALL CHECK WITH EACH TRADE AND VERIFY ALL ELECTRICAL NEEDS AND INCLUDE THESE REQUIREMENTS IN THE BID.
- PROVIDE ARC-FAULT CIRCUIT INTERRUPTER PROTECTION (RECEPTACLES) IN BEDROOMS AND ALL LOCATIONS. WHERE GFI ARE NOT REQUIRED PER NEC 210.12.
- PROVIDE TAMPER RESISTANT RECEPTACLES.

WIRING METHODS

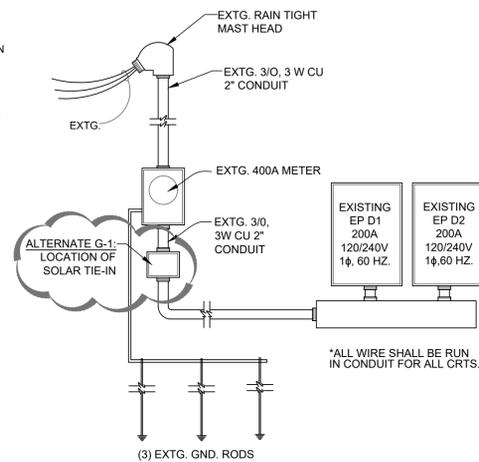
- WET AREAS (KITCHEN):**
- PROVIDE GFCI OUTLETS WITHIN 10'-0" OF ALL SINKS, LAVATORIES, WATER CLOSETS AND OTHER PLUMBING FIXTURES. CONDUCTORS AND CABLE SHALL BE MOISTURE IMPERVIOUS METAL SHEATHED. TYPES MTW, RHW, RHW-2, TW, THW, THW-2, THHW, XHHW, XHHW-2, Z AND ZW. ALL EXPOSED TO SUNLIGHT SHALL BE SUNLIGHT RESISTANT AND COVERED WITH INSULATING MATERIAL TAPE AND SLEEVES THAT ARE SUN RESISTANT.
- ALL OTHER SPACES:**
- WIRING: PROVIDE INSULATED CONDUCTORS AND CABLE TYPES: FEP, FEPB, MTW, PFA, RHH, RHW, RHW-2, THHN, THW, THW-2, THHW, THWN, THWN-2, THHW, THWN, THWN-2, TW, XHH, XHHW, XHHW-2, Z AND ZW. ALL EXPOSED TO SUNLIGHT SHALL BE SUNLIGHT RESISTANT AND COVERED WITH INSULATING MATERIAL TAPE AND SLEEVES THAT ARE SUN RESISTANT.

GENERAL:

NEW WIRING SHALL BE LOCATED IN EITHER METAL CONDUIT, SHALL BE METAL SHEATHED, OR RECEIVE A PROTECTIVE 1/16" INCH PROTECTIVE PLATE IN THE FOLLOWING CONDITIONS:

WHERE BORED HOLES ARE LESS THAN 1-1/4" FROM THE FACE OF THE WOOD STUD, TRUSS OR JOIST PER NEC 70 300.4, IN EXPOSED DROPPED OR SUSPENDED CEILING CAVITIES, WHERE EXPOSED TO CORROSIVE FUMES AND VAPORS, EMBEDDED IN CONCRETE, EMBEDDED IN MASONRY AND/OR UNDERGROUND.

ALL NEW RECEPTACLES OR BOXES THAT ARE TO BE INSTALLED ON EXISTING WALLS SHALL BE SURFACE MOUNTED IN EMT CONDUIT AND BOXES. UP TO THE ACCESSIBLE ATTIC SPACE



BUILDING D
ELECTRICAL SERVICE RISER
NO SCALE

ELECTRICAL PANEL SCHEDULE

PANEL: EXTG D1 MOUNTING: SURFACE

120/240 VOLTS			1 PHASE			3 WIRE			
NO.#	DESCRIPTION	200 AMP			NO.#	DESCRIPTION	200 AMP		
		AMP	KW	AWG			AMP	KW	AWG
1	WASHER	20	1.2	12	2	MECH RM HEATER	20	3	12
3	DRYER	40	5.4	8	4	LAUNDRY RM HEATER	20	3	12
5	WATER HEATER	20	0.09	12	6	LAUNDRY MECH RM LITS+FAN	20	0.647	12
7					8	WALL PACKS	20	0.1	12
9					10				
11	RM 218 PTAC	20	1.35	12	12	RM 219 PTAC	20	1.35	12
13	RM 220 PTAC	20	1.35	12	14	RM 221 PTAC	20	1.35	12
15	RM 222 PTAC	20	1.35	12	16	RM 223 PTAC	20	1.35	12
17	RM 224 PTAC	20	1.35	12	18	RM 225 PTAC	20	1.35	12
19	RM 226 PTAC	20	1.35	12	20	RM 227 PTAC	20	1.35	12
21					22				
23					24				
25					26				
27					28				
29					30				
31					32				
33					34				
35					36				
37					38				
39					40				
41					42				

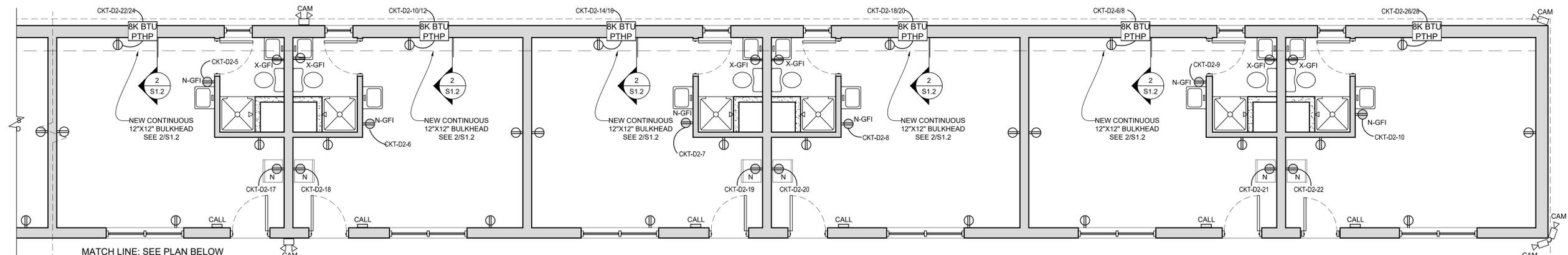
NEW CIRCUITS SHOWN AS SHADED ON PANEL SCHEDULE ABOVE
EXTG. CIRCUITS TO REMAIN SHALL BE TIED INTO NEW PANEL FROM THE NEAREST LOCATION

ELECTRICAL PANEL SCHEDULE

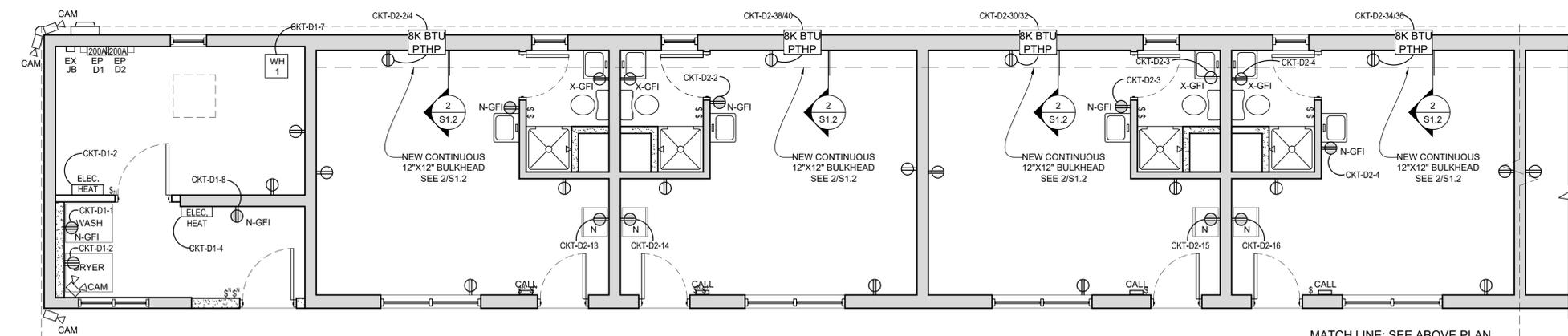
PANEL: EXTG D2 MOUNTING: SURFACE

120/240 VOLTS			1 PHASE			3 WIRE			
NO.#	DESCRIPTION	200 AMP			NO.#	DESCRIPTION	200 AMP		
		AMP	KW	AWG			AMP	KW	AWG
1	218 REC+LTS	20	1.031	12	2	219 REC+LTS	20	1.031	12
3	220 REC+LTS	20	1.031	12	4	221 REC+LTS	20	1.031	12
5	222 REC+LTS	20	1.031	12	6	223 REC+LTS	20	1.031	12
7	224 REC+LTS	20	1.031	12	8	225 REC+LTS	20	1.031	12
9	226 REC+LTS	20	1.031	12	10	227 REC+LTS	20	1.031	12
11	EXT LTS	20	0.32	12	12	SITE LTS	20	0.25	12
13	218 FRIDGE	20	1.8	12	14	219 FRIDGE	20	1.8	12
15	220 FRIDGE	20	1.8	12	16	221 FRIDGE	20	1.8	12
17	222 FRIDGE	20	1.8	12	18	223 FRIDGE	20	1.8	12
19	224 FRIDGE	20	1.8	12	20	225 FRIDGE	20	1.8	12
21	226 FRIDGE	20	1.8	12	22	227 FRIDGE	20	1.8	12
23					24				
25					26				
27					28				
29					30				
31					32				
33					34				
35					36				
37					38				
39					40				
41					42				

NEW CIRCUITS SHOWN AS SHADED ON PANEL SCHEDULE ABOVE
EXTG. CIRCUITS TO REMAIN SHALL BE TIED INTO NEW PANEL FROM THE NEAREST LOCATION



BUILDING D
ELECTRICAL POWER PLAN
1/4" - 1'-0"



BUILDING D
ELECTRICAL POWER PLAN (CONTINUED)
1/4" - 1'-0"

ELECTRIC SYMBOL KEY

NOTE: ADJUST MOUNTING HEIGHTS OF DEVICES WHICH PROTRUDE MORE THAN 4" INTO CORRIDORS AND WALKWAYS AS NECESSARY TO MEET A.D.A. CLEARANCE REQUIREMENTS.

- NEW SWITCH, SINGLE POLE, EXISTING SWITCH LOCATION (EXISTING RECEPTACLE SWITCH)
- NEW SWITCH, SINGLE POLE, 36"-48" A.F.F.
- NEW SWITCH, 3-WAY, 36"-48" A.F.F.
- NEW SWITCH, SINGLE POLE, EXISTING SWITCH LOCATION
- NEW 120V GFI DUPLEX RECEPTACLE
- 18" MIN. A.F.F. UNLESS NOTED OTHERWISE ON PLAN
- NEW RECEPTACLE, DUPLEX, 120V
- NEW WEATHER PROOF 120V GFI DUPLEX RECEPTACLE WITH GROUND FAULT INTERRUPTER
- NEW RECEPTACLE, QUADPLEX, 120V
- NEW RECEPTACLE, 220V, 3 WIRE, APPLIANCE
- EXTG. RECEPTACLE TO REMAIN, EXTG. CIRCUIT SHALL BE TIED INTO NEW PANEL FROM NEAREST LOCATION.
- EXTG. GFI RECEPTACLE TO REMAIN
- NEW 16W LED INTERIOR DOWNLIGHT
- NEW 16W LED EXTERIOR GRADE LED DOWNLIGHT
- NEW 29W LED WALL MOUNTED VANITY LIGHTING
- NEW 90W LED SURFACE MOUNTED, IMPACT RESISTANT 8"-0" STRIP LIGHTING
- NEW 100W LED WALL PACK LIGHT
- NEW PHOTO CELL
- NEW SURVEILLANCE CAMERA - PROVIDE 4" SQUARE GALVANIZED ELECTRICAL BOX AND CONDUIT TO EACH PLAN LOCATION
- NEW ELECTRONIC ENTRY - PROVIDE 1-GANG ELECTRICAL BOX, CONDUIT AND COVER PLATE AT EACH PLAN LOCATION FOR FUTURE CALL STATION (BY OTHERS)
- NEW 80 CFM EXHAUST FAN WITH LED LIGHT
- NEW EMERGENCY/EXIT LIGHT COMBO, WIRED TO AREA LIGHT CKT. AHEAD OF LT. SWITCH, WITH BATT. BACK UP, DUAL HEAD
- SMOKE DETECTOR
- CARBON MONOXIDE ALARM
- ELECTRIC METER
- DISCONNECT SWITCH
- ELECTRIC PANEL
- NEW DATA PORT CONDUIT AND DATA WIRE TO BE RUN BY ELECTRICIAN

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E1.1D

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- ALL EXITS SIGNS SHALL HAVE BATTERY 90 MIN. BACK UP AND BE CONNECTED TO THE NEAREST LIGHTING CKT. AHEAD OF THE SWITCH.
- THE MAIN SERVICE ENTRANCE GROUND INCLUDING BUT NOT LIMITED TO ALL FIXTURE AND EQUIPMENT GROUND SHALL COMPLY WITH ARTICLE 250 OF THE N.E.C.
- ALL EQUIPMENT AND FIXTURES SHALL BE U.L. APPROVED.
- THE EC SHALL COORDINATE ALL WORK WITH THE POWER COMPANY.
- THE EC SHALL SUBMIT SHOP DRAWINGS OR PRODUCT CUT SHEETS FOR ANY ITEM NOT SPECIFIED ON THE DRAWINGS OR IN THE SPECIFICATIONS AS A SUBSTITUTION. THE SUBSTITUTION SHALL ALSO LIST THE AMOUNT CONTRACT REBATE TO OWNER.
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- THE EC SHALL REVIEW THE DRAWINGS AND JOB SITE PRIOR TO SUBMITTING A BID AND NOTE ALL CONFLICTS O QUESTIONS WHICH CANNOT BE BID WITH CONFIDENCE.
- THE EC SHALL PROVIDE AND INSTALL ALL HIGH VOLTAGE WIRE, JUNCTION BOXES, SWITCHES, AND FIXTURES REQUIRED TO COMPLETE THE PROJECT, ALL FINAL HOOKUP AND TESTING OF FIXTURES OR EQUIPMENT SHALL DONE BY THE CONTRACTOR SUPPLYING THE ITEM.
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- THE EC SHALL PROVIDE AND INSTALL ALL FINISH COVER PLATES. COVER PLATES SHALL BE SELECTED BY THE ARCH. EC SHALL PROVIDE SAMPLES FOR SELECTION.
- THE E.C. SHALL CHECK WITH EACH TRADE AND VERIFY ALL ELECTRICAL NEEDS AND INCLUDE THESE REQUIREMENTS IN THE BID.
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- PROVIDE TAMPER RESISTANT RECEPTACLES.

WIRING METHODS

- WET AREAS (KITCHEN):**
- PROVIDE GFCI OUTLETS WITHIN 10'-0" OF ALL SINKS, LAVATORIES, WATER CLOSETS AND OTHER PLUMBING FIXTURES. CONDUCTORS AND CABLE SHALL BE MOISTURE IMPERVIOUS METAL SHEATHED , TYPES MTW, RHW, RHW-2, TW, THW, THW-2, THHW, THWN, THWN-2, XHHW, XHHW-2, ZW AND LISTED FOR USE IN WET LOCATIONS.
- ALL OTHER SPACES:**
- WIRING: PROVIDE INSULATED CONDUCTORS AND CABLE TYPES: FEP, FEPB, MTW, PFA, RHH, RHW, RHW-2, THHN, THW, THW-2, THHW, THWN, THWN-2, THHW, THWN-2, TW, XHH, XHHW, XHHW-2, Z AND ZW, ALL EXPOSED TO SUNLIGHT SHALL BE SUNLIGHT RESISTANT AND COVERED WITH INSULATING MATERIAL TAPE AND SLEEVES THAT ARE SUN RESISTANT.
- GENERAL:**
- NEW WIRING SHALL BE LOCATED IN EITHER METAL CONDUIT, SHALL BE METAL SHEATHED, OR RECEIVE A PROTECTIVE 1/16 INCH PROTECTIVE PLATE IN THE FOLLOWING CONDITIONS:
- WHERE BORED HOLES ARE LESS THAN 1-1/4" FROM THE FACE OF THE WOOD STUD, TRUSS OR JOIST PER NEC 70.300.4, IN EXPOSED DROPPED OR SUSPENDED CEILING CAVITIES, WHERE EXPOSED TO CORROSIVE FUMES AND VAPORS, EMBEDDED IN CONCRETE, EMBEDDED IN MASONRY AND/ OR UNDERGROUND.
- ALL NEW RECEPTACLES OR BOXES THAT ARE TO BE INSTALLED ON EXISTING WALLS SHALL BE SURFACE MOUNTED IN EMT CONDUIT AND BOXES, UP TO THE ACCESSIBLE ATTIC SPACE**

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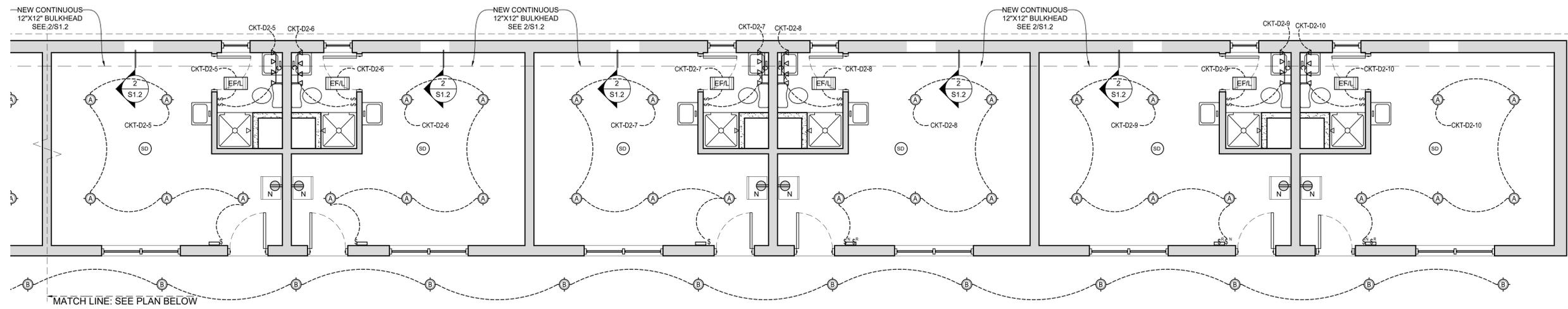
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E1.2D



BUILDING D
ELECTRICAL LIGHTING PLAN

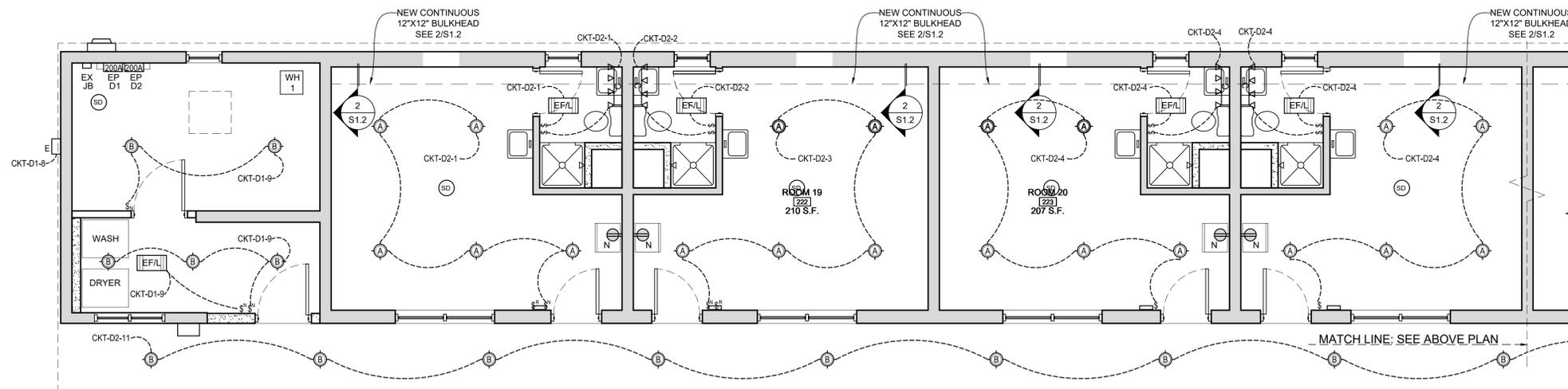
1/4" = 1'-0"



ELECTRIC SYMBOL KEY

NOTE: ADJUST MOUNTING HEIGHTS OF DEVICES WHICH PROTRUDE MORE THAN 4" INTO CORRIDORS AND WALKWAYS AS NECESSARY TO MEET A.D.A. CLEARANCE REQUIREMENTS.

- \$_R NEW SWITCH, SINGLE POLE, EXISTING SWITCH LOCATION (EXISTING RECEPTACLE SWITCH)
- \$_N NEW SWITCH, SINGLE POLE, 38" x 48" A.F.F.
- \$₃ NEW SWITCH, 3-WAY, 38" x 48" A.F.F.
- \$ NEW SWITCH, SINGLE POLE, EXISTING SWITCH LOCATION
- GFI NEW 120V GFI DUPLEX RECEPTACLE
- 18" MIN. A.F.F. UNLESS NOTED OTHERWISE ON PLAN
- NEW RECEPTACLE, DUPLEX, 120V
- 18" MIN. A.F.F. UNLESS NOTED OTHERWISE ON PLAN
- NEW WEATHER PROOF 120V GFI DUPLEX RECEPTACLE WITH GROUND FAULT INTERRUPTER
- NEW RECEPTACLE, QUADRUPEX, 120V, 18" MIN. A.F.F. UNLESS NOTED OTHERWISE ON PLAN
- NEW RECEPTACLE, 220V, 3 WIRE, APPLIANCE
- EXTG. RECEPTACLE TO REMAIN, EXTG. CIRCUIT SHALL BE TIED INTO NEW PANEL FROM NEAREST LOCATION.
- X-GFI EXTG. GFI RECEPTACLE TO REMAIN
- NEW 16W LED INTERIOR DOWNLIGHT
- NEW 16W EXTERIOR GRADE LED DOWNLIGHT
- C NEW 29W LED WALL MOUNTED VANITY LIGHTING
- D NEW 90W LED SURFACE MOUNTED, IMPACT RESISTANT 8'-0" STRIP LIGHTING
- E NEW 100W LED WALL PACK LIGHT
- PC NEW PHOTO CELL
- CAM NEW SURVEILLANCE CAMERA - PROVIDE 4" SQUARE GALVANIZED ELECTRICAL BOX AND CONDUIT TO EACH PLAN LOCATION
- CALL NEW ELECTRONIC ENTRY - PROVIDE 1-GANG ELECTRICAL BOX, CONDUIT AND COVER PLATE AT EACH PLAN LOCATION FOR FUTURE CALL STATION (BY OTHERS)
- ELI NEW 80 CFM EXHAUST FAN WITH LED LIGHT
- 120V, 60HZ, 22W BROAN BEL8 OR APPROVED EQ.
- EM NEW EMERGENCY/EXIT LIGHT COMBO, WIRED TO AREA LIGHT CKT. AHEAD OF LT. SWITCH, WITH BATT. BACK UP. DUAL HEAD
- EMOTE EM LIGHT SLAVE HEAD WIRED TO EM FIXTURE AS SHOWN. EMERGENCY LIGHT, WIRED TO AREA LIGHT CKT. AHEAD OF LT. SWITCH, WITH BATT. BACK UP. DUAL HEAD
- SD SMOKE DETECTOR
- CO CARBON MONOXIDE ALARM
- ELECTRIC METER
- DISCONNECT SWITCH
- EP ELECTRIC PANEL
- NEW DATA PORT CONDUIT AND DATA WIRE TO BE RUN BY ELECTRICIAN



BUILDING D
ELECTRICAL LIGHTING PLAN (CONTINUED)

1/4" = 1'-0"



ELECTRIC NOTES & SPECS

- ALL WORK SHALL BE DONE BY A STATE OF OHIO LICENSED ELECTRICIAN TO THE MANUFACTURES SPECIFICATIONS AND THE HIGHEST TRADE STANDARDS.
- ELECTRICAL WIRING, EQUIPMENT, AND INSTALLATION SHALL CONFORM TO THE REQUIREMENTS OF THE LATEST VERSION O.B.C., N.E.C., LOCAL CODES AND SHALL BE SUBJECT TO THE APPROVAL OF THE DISTRICT INSPECTOR & CODE OFFICE.
- ALL EXITS SIGNS SHALL HAVE BATTERY 90 MIN. BACK UP AND BE CONNECTED TO THE NEAREST LIGHTING CKT. AHEAD OF THE SWITCH.
- THE MAIN SERVICE ENTRANCE GROUND INCLUDING BUT NOT LIMITED TO ALL FIXTURE AND EQUIPMENT GROUNDS SHALL COMPLY WITH ARTICLE 250 OF THE N.E.C.
- ALL EQUIPMENT AND FIXTURES SHALL BE U.L. APPROVED.
- THE EC SHALL COORDINATE ALL WORK WITH THE POWER COMPANY.
- THE EC SHALL SUBMIT SHOP DRAWINGS OR PRODUCT CUT SHEETS FOR ANY ITEM NOT SPECIFIED ON THE DRAWINGS OR IN THE SPECIFICATIONS AS A SUBSTITUTION. THE SUBSTITUTION SHALL ALSO LIST THE AMOUNT OF CONTRACT REBATE TO OWNER.
- THE EC SHALL MARK UP A CLEAN SET OF DRAWINGS SHOWING ALL CHANGES TO THE WORK AND FIXTURES NOT SHOWN ON THE BID SET. THE ARCH. WILL PROVIDE ONE NEW SET OF DRAWINGS WHICH THE EC WILL AMEND PRIOR TO FINAL PAYMENT. ALL ADDITIONAL SETS SHALL BE AT THE G.C. EXPENSE.
- THE EC SHALL REVIEW THE DRAWINGS AND JOB SITE PRIOR TO SUBMITTING A BID AND NOTE ALL CONFLICTS OR QUESTIONS WHICH CANNOT BE BID WITH CONFIDENCE.
- THE EC SHALL PROVIDE AND INSTALL ALL HIGH VOLTAGE WIRE, JUNCTION BOXES, SWITCHES, AND FIXTURES REQUIRED TO COMPLETE THE PROJECT. ALL FINAL HOOKUP AND TESTING OF FIXTURES OR EQUIPMENT SHALL BE DONE BY THE CONTRACTOR SUPPLYING THE ITEM.
- PHONE, CABLE, AND/OR COMPUTER JUNCTION BOXES SHALL HAVE CONDUIT STUBBED TO AN ACCESSIBLE AREA FOR FUTURE CHANGES UNLESS OTHERWISE SPECIFIED.
- THE EC SHALL PROVIDE AND INSTALL ALL FINISH COVER PLATES. COVER PLATES SHALL BE SELECTED BY THE ARCH. EC SHALL PROVIDE SAMPLES FOR SELECTION.
- THE E.C. SHALL CHECK WITH EACH TRADE AND VERIFY ALL ELECTRICAL NEEDS AND INCLUDE THESE REQUIREMENTS IN THE BID.
- PROVIDE ARC-FAULT CIRCUIT INTERRUPTER PROTECTION (RECEPTACLES) IN BEDROOMS AND ALL LOCATIONS. WHERE GFI ARE NOT REQUIRED PER NEC 210.12.
- PROVIDE TAMPER RESISTANT RECEPTACLES.

WIRING METHODS

- WET AREAS (KITCHEN):**
- PROVIDE GFCI OUTLETS WITHIN 10'-0" OF ALL SINKS, LAVATORIES, WATER CLOSETS AND OTHER PLUMBING FIXTURES. CONDUCTORS AND CABLE SHALL BE MOISTURE IMPERVIOUS METAL SHEATHED. TYPES MTW, RHW, RHW-2, TW, THW, THW-2, THHW, THWN, THWN-2, XHHW, XHHW-2, 2W AND LISTED FOR USE IN WET LOCATIONS.

- ALL OTHER SPACES:**
- WIRING: PROVIDE INSULATED CONDUCTORS AND CABLE TYPES: FEP, FEPB, MTW, PFA, RHH, RHW, RHW-2, THHN, THW, THW-2, THHW, THWN, THWN-2, THHW, THWN-2, TW, XHH, XHHW, XHHW-2, Z AND ZW. ALL EXPOSED TO SUNLIGHT SHALL BE SUNLIGHT RESISTANT AND COVERED WITH INSULATING MATERIAL TAPE AND SLEEVES THAT ARE SUN RESISTANT.

- GENERAL:**
- NEW WIRING SHALL BE LOCATED IN EITHER METAL CONDUIT, SHALL BE METAL SHEATHED, OR RECEIVE A PROTECTIVE 1/16 INCH PROTECTIVE PLATE IN THE FOLLOWING CONDITIONS:
- WHERE BORED HOLES ARE LESS THAN 1'-11" FROM THE FACE OF THE WOOD STUD, TRUSS OR JOIST PER NEC 70.300.4, IN EXPOSED DROPPED OR SUSPENDED CEILING CAVITIES, WHERE EXPOSED TO CORROSIVE FUMES AND VAPORS, EMBEDDED IN CONCRETE, EMBEDDED IN MASONRY AND/OR UNDERGROUND.

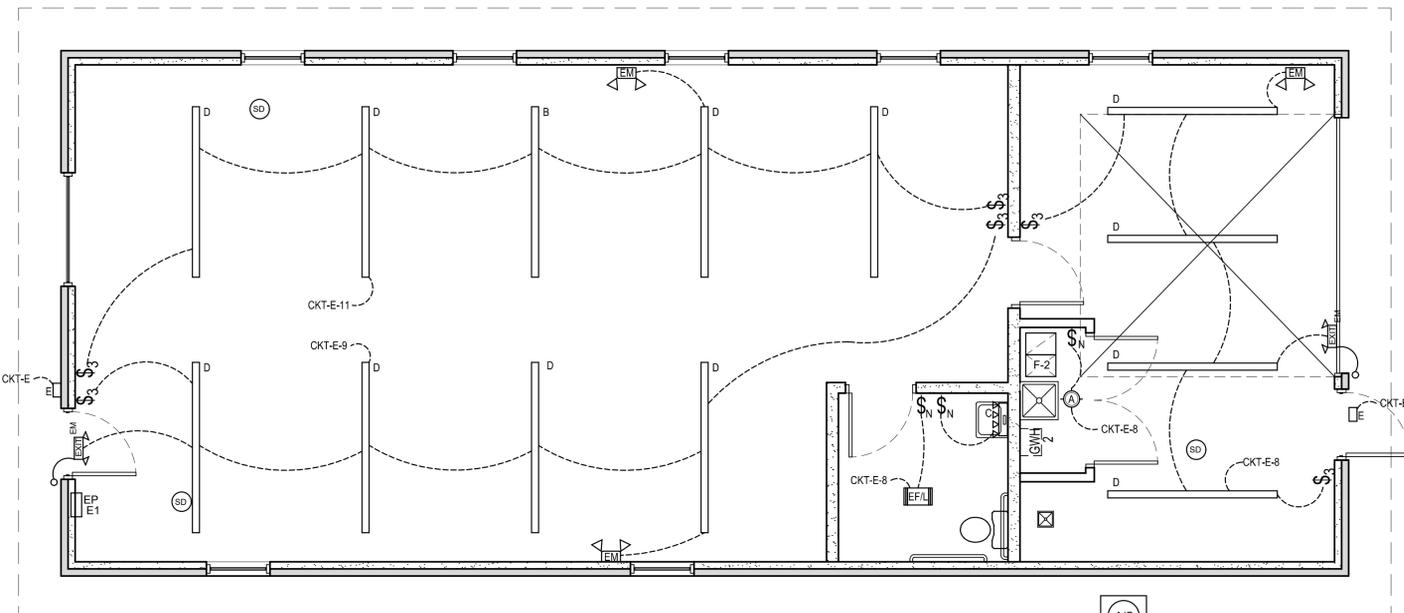
- ALL NEW RECEPTACLES OR BOXES THAT ARE TO BE INSTALLED ON EXISTING WALLS SHALL BE SURFACE MOUNTED IN EMT CONDUIT AND BOXES. UP TO THE ACCESSIBLE ATTIC SPACE**

PANEL: NEW E1				MOUNTING: SURFACE					
120/240 VOLTS		1 PHASE		120/240 VOLTS		1 PHASE			
NO. #	DESCRIPTION	AMP	KW	AWG	NO. #	DESCRIPTION	AMP	KW	AWG
1	WATER HEATER	20	0.09	12	2	A/C	40	0.6	8
3					4				
5	G1 REC	20	0.9	12	6	FURN REC	20	1.26	12
7	G1 REC	20	0.72	12	8	G2/G3 LTS	20	1.26	12
9	G1 LTS	20	0.81	12	10	G2 LTS	20	1.26	12
11	G1 LTS	20	0.81	12	12				
13					14				
15					16				
17					18				
19					20				
21					22				
23					24				
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35					36				
37					38				
39					40				
41					42				

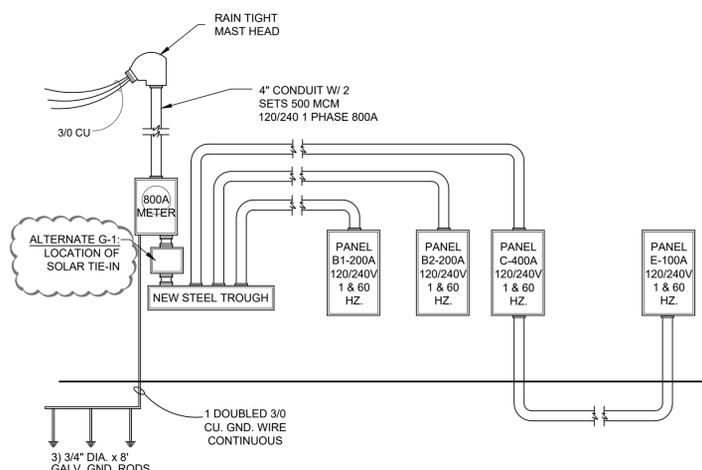
ELECTRIC SYMBOL KEY

NOTE: ADJUST MOUNTING HEIGHTS OF DEVICES WHICH PROTRUDE MORE THAN 4" INTO CORRIDORS AND WALKWAYS AS NECESSARY TO MEET A.D.A. CLEARANCE REQUIREMENTS.

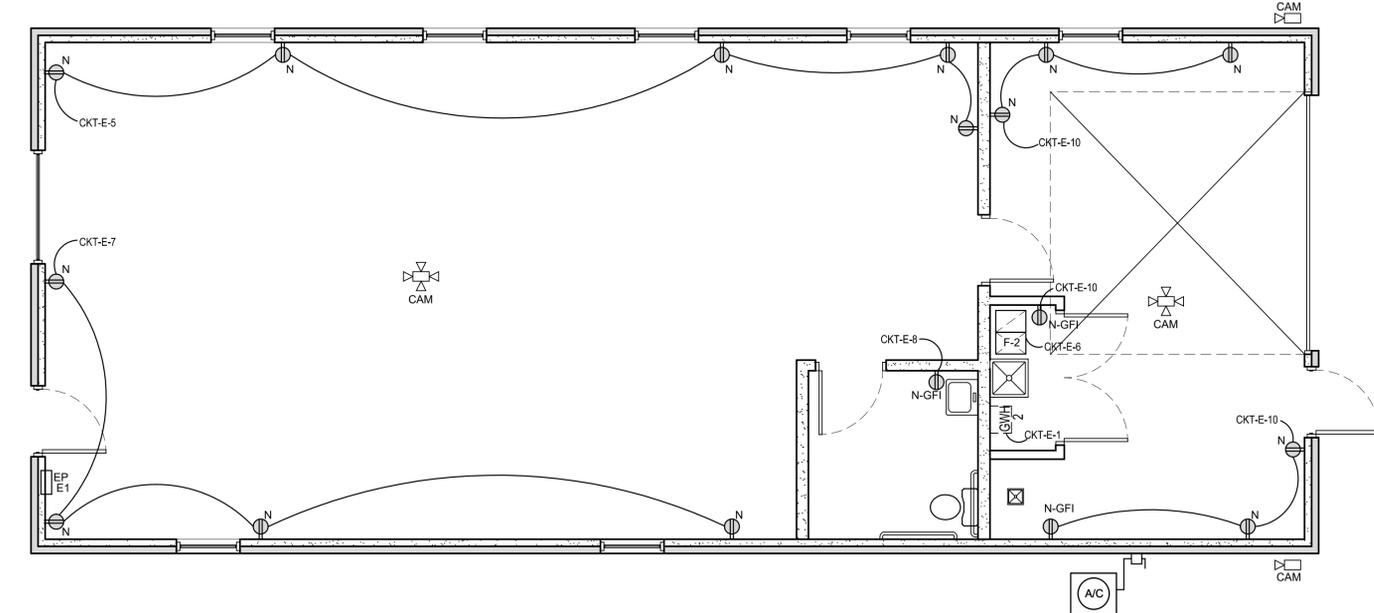
- NEW SWITCH, SINGLE POLE, EXISTING SWITCH LOCATION (EXISTING RECEPTACLE SWITCH)
- NEW SWITCH, SINGLE POLE, 36"-48" A.F.F.
- NEW SWITCH, 3-WAY, 36"-48" A.F.F.
- NEW SWITCH, SINGLE POLE, EXISTING SWITCH LOCATION
- NEW 120V GFI DUPLEX RECEPTACLE 18" MIN. A.F.F. UNLESS NOTED OTHERWISE ON PLAN
- NEW RECEPTACLE, DUPLEX, 120V, 18" MIN. A.F.F. UNLESS NOTED OTHERWISE ON PLAN
- NEW WEATHER PROOF 120V GFI DUPLEX RECEPTACLE WITH GROUND FAULT INTERRUPTER
- NEW RECEPTACLE, QUADRIplex, 120V, 18" MIN. A.F.F. UNLESS NOTED OTHERWISE ON PLAN
- NEW RECEPTACLE, 220V, 3 WIRE, APPLIANCE
- EXTG. RECEPTACLE TO REMAIN, EXTG. CIRCUIT SHALL BE TIED INTO NEW PANEL FROM NEAREST LOCATION.
- EXTG. GFI RECEPTACLE TO REMAIN
- NEW 16W LED INTERIOR DOWNLIGHT
- NEW 16W EXTERIOR GRADE LED DOWNLIGHT
- NEW 29W LED WALL MOUNTED VANITY LIGHTING
- NEW 90W LED SURFACE MOUNTED, IMPACT RESISTANT 8'-0" STRIP LIGHTING
- NEW 100W LED WALL PACK LIGHT
- NEW PHOTO CELL
- NEW SURVEILLANCE CAMERA - PROVIDE 4" SQUARE GALVANIZED ELECTRICAL BOX AND CONDUIT TO EACH PLAN LOCATION
- NEW ELECTRONIC ENTRY - PROVIDE 1-GANG ELECTRICAL BOX, CONDUIT AND COVER PLATE AT EACH PLAN LOCATION FOR FUTURE CALL STATION (BY OTHERS)
- NEW 80 CFM EXHAUST FAN WITH LED LIGHT 120V, 60HZ, 22V BROWN BELLS OR APPROVED EQ.
- NEW EMERGENCY/EEXIT LIGHT COMBO, WIRED TO AREA LIGHT CKT. AHEAD OF LT. SWITCH, WITH BATT. BACK UP, DUAL HEAD REMOTE EM LIGHT SLAVE HEAD WIRED TO EM FIXTURE AS SHOWN. EMERGENCY LIGHT, WIRED TO AREA LIGHT CKT. AHEAD OF LT. SWITCH, WITH BATT. BACK UP, DUAL HEAD
- SMOKE DETECTOR
- ELECTRIC METER
- ELECTRIC PANEL
- CARBON MONOXIDE ALARM
- DISCONNECT SWITCH
- NEW DATA PORT CONDUIT AND DATA WIRE TO BE RUN BY ELECTRICIAN



BUILDING E
ELECTRICAL LIGHTING PLAN
1/8" = 1'-0"



BUILDINGS B/C/E
ELECTRICAL SERVICE RISER
NO SCALE



BUILDING E
ELECTRICAL POWER PLAN
1/8" = 1'-0"

RE-BID SET
11/03/2025

ARCHITECT/ENGINEER STAMP

PLAN EXAMINER STAMP

RVC ARCHITECTS
131 WEST STATE STREET
ATHENS, OHIO 45701
(740) 592-5615
rvccarchitects.com

Electronic files are not contract documents. Original signed and sealed drawings are the only authorized contract documents. Use of information contained in the electronic files is at the user's sole risk without warranty of any kind, either expressed or implied and without any liability to Architect and their consultants.

DRAWN BY: TBG
CHECKED BY: JS
DATE: RE-BID SET 11-03-2025
REV.:
REV.:
REV.:
REV.:
REV.:
REV.:
REV.:
PROJ. #: 241101
SHT #:

THE SUNSET SHELTER PROJECT
HAPCAP
135 COLUMBUS ROAD, ATHENS OHIO-45701
RVC PROJECT #241101

E1.1E

DAVIS-BACON WAGE DETERMINATIONS

SECTION E

"General Decision Number: OH20250033 08/15/2025

Superseded General Decision Number: OH20240033

State: Ohio

Construction Type: Building

County: Athens County in Ohio.

BUILDING CONSTRUCTION PROJECTS (does not include single family homes or apartments up to and including 4 stories).

Note: Contracts subject to the Davis-Bacon Act are generally required to pay at least the applicable minimum wage rate required under Executive Order 14026 or Executive Order 13658. Please note that these Executive Orders apply to covered contracts entered into by the federal government that are subject to the Davis-Bacon Act itself, but do not apply to contracts subject only to the Davis-Bacon Related Acts, including those set forth at 29 CFR 5.1(a)(1).

If the contract is entered into on or after January 30, 2022, or the contract is renewed or extended (e.g., an option is exercised) on or after January 30, 2022:	Executive Order 14026 generally applies to the contract. The contractor must pay all covered workers at least \$17.75 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in 2025.
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If the contract was awarded on or between January 1, 2015 and January 29, 2022, and the contract is not renewed or extended on or after January 30, 2022:	Executive Order 13658 generally applies to the contract. The contractor must pay all covered workers at least \$13.30 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on that contract in 2025.
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The applicable Executive Order minimum wage rate will be adjusted annually. If this contract is covered by one of the Executive Orders and a classification considered necessary for performance of work on the contract does not appear on this

wage determination, the contractor must still submit a conformance request.

Additional information on contractor requirements and worker protections under the Executive Orders is available at <http://www.dol.gov/whd/govcontracts>.

Modification Number	Publication Date
0	01/03/2025
1	02/07/2025
2	03/14/2025
3	03/21/2025
4	07/11/2025
5	07/18/2025
6	07/25/2025
7	08/08/2025
8	08/15/2025

ASBE0080-001 02/24/2025

Rates	Fringes
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ASBESTOS WORKER/HEAT & FROST INSULATOR.....	\$ 38.05	30.87
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BROH0052-004 06/01/2023

Rates	Fringes
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BRICKLAYER.....	\$ 32.43	20.44
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BROH0055-007 06/01/2023

Rates	Fringes
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TILE FINISHER.....	\$ 28.31	10.45
TILE SETTER.....	\$ 29.92	16.77

CARP0356-002 05/01/2025

Rates	Fringes
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CARPENTER.....	\$ 35.69	23.38
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ELEC0972-007 06/01/2024

Rates	Fringes
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ELECTRICIAN (Includes Low Voltage Wiring and Alarm Installation).....	\$ 40.00	33.32
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ELEV0011-002 01/01/2025

	Rates	Fringes
ELEVATOR MECHANIC.....	\$ 57.41	38.435+a+b

PAID HOLIDAYS:

a. New Year's Day, Memorial Day, Independence Day, Labor Day, Vetern's Day, Thanksgiving Day, the Friday after Thanksgiving, and Christmas Day.

b. Employer contributes 8% of regular hourly rate to vacation pay credit for employee who has worked in business more than 5 years; 6% for less than 5 years' service.

ENGI0018-022 05/01/2024

	Rates	Fringes
POWER EQUIPMENT OPERATOR		
Bobcat/Skid Steer/Skid Loader; Bulldozer.....	\$ 44.02	16.41
Crane.....	\$ 44.14	16.41
Forklift.....	\$ 42.98	16.41

IRON0550-012 05/01/2025

	Rates	Fringes
IRONWORKER, ORNAMENTAL.....	\$ 36.00	23.57

IRON0769-001 06/01/2025

	Rates	Fringes
IRONWORKER, STRUCTURAL.....	\$ 39.70	29.59

LABO0083-003 06/01/2024

	Rates	Fringes
LABORER		
Common or General; Mason Tender - Brick & Cement/Concrete.....	\$ 40.97	14.10

PAIN0093-003 12/01/2024

	Rates	Fringes
PAINTER (Brush and Roller).....	\$ 30.28	24.46

PAIN1195-001 12/01/2024

	Rates	Fringes
GLAZIER.....	\$ 32.89	14.33

PLAS0132-011 06/01/2025

	Rates	Fringes
CEMENT MASON/CONCRETE FINISHER...	\$ 35.12	17.40

PLUM0577-001 06/01/2025

	Rates	Fringes
PIPEFITTER (Excludes HVAC Pipe Installation).....	\$ 38.89	28.56

PLUM0577-003 06/01/2025

	Rates	Fringes
PLUMBER (Includes HVAC Pipe Installation).....	\$ 38.89	28.56

* SFOH0669-009 04/01/2025

	Rates	Fringes
SPRINKLER FITTER (Fire Sprinklers).....	\$ 48.28	28.08

SHEE0024-010 06/01/2022

	Rates	Fringes
SHEET METAL WORKER (HVAC Duct and Unit Installation Only).....	\$ 33.53	26.36

SHEE0033-008 06/01/2022

	Rates	Fringes
SHEET METAL WORKER (Excludes HVAC Duct and Unit Installation).....	\$ 31.73	27.44

* UAVG-OH-0001 01/01/2019

	Rates	Fringes
IRONWORKER, REINFORCING.....	\$ 29.44	22.68

* UAVG-OH-0002 01/01/2019

	Rates	Fringes
ROOFER.....	\$ 30.19	15.73

SUOH2012-035 08/29/2014

	Rates	Fringes
DRYWALL FINISHER/TAPER.....	\$ 20.66	4.91
DRYWALL HANGER AND METAL STUD INSTALLER.....	\$ 22.27	14.40
LABORER: Pipelayer.....	\$ 18.37	4.79
OPERATOR: Backhoe/Excavator/Trackhoe.....	\$ 29.18	10.69
OPERATOR: Loader.....	\$ 22.69	8.01
OPERATOR: Paver (Asphalt, Aggregate, and Concrete).....	\$ 23.91	10.42
TRUCK DRIVER: Dump (All Types)...	\$ 19.33	6.55

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

Note: Executive Order (EO) 13706, Establishing Paid Sick Leave for Federal Contractors applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2017. If this contract is covered by the EO, the contractor must provide employees with 1 hour of paid sick leave for every 30 hours they work, up to 56 hours of paid sick leave each year. Employees must be permitted to use paid sick leave for their own illness, injury or other health-related needs, including preventive care; to assist a family member (or person who is like family to the employee) who is ill, injured, or has other health-related needs, including preventive care; or for reasons resulting from, or to assist a family member (or person who is like family to the employee) who is a victim of, domestic violence, sexual assault, or stalking. Additional information on contractor requirements and worker protections under the EO is available at <https://www.dol.gov/agencies/whd/government-contracts>.

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses

(29CFR 5.5 (a) (1) (iii)).

The body of each wage determination lists the classifications and wage rates that have been found to be prevailing for the type(s) of construction and geographic area covered by the wage determination. The classifications are listed in alphabetical order under rate identifiers indicating whether the particular rate is a union rate (current union negotiated rate), a survey rate, a weighted union average rate, a state adopted rate, or a supplemental classification rate.

Union Rate Identifiers

A four-letter identifier beginning with characters other than ""SU"", ""UAVG"", ?SA?, or ?SC? denotes that a union rate was prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2024. PLUM is an identifier of the union whose collectively bargained rate prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. The date, 07/01/2024 in the example, is the effective date of the most current negotiated rate.

Union prevailing wage rates are updated to reflect all changes over time that are reported to WHD in the rates in the collective bargaining agreement (CBA) governing the classification.

Union Average Rate Identifiers

The UAVG identifier indicates that no single rate prevailed for those classifications, but that 100% of the data reported for the classifications reflected union rates. EXAMPLE: UAVG-OH-0010 01/01/2024. UAVG indicates that the rate is a weighted union average rate. OH indicates the State of Ohio. The next number, 0010 in the example, is an internal number used in producing the wage determination. The date, 01/01/2024 in the example, indicates the date the wage determination was updated to reflect the most current union average rate.

A UAVG rate will be updated once a year, usually in January, to reflect a weighted average of the current rates in the collective bargaining agreements on which the rate is based.

Survey Rate Identifiers

The ""SU"" identifier indicates that either a single non-union rate prevailed (as defined in 29 CFR 1.2) for this

classification in the survey or that the rate was derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As a weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SUFL2022-007 6/27/2024. SU indicates the rate is a single non-union prevailing rate or a weighted average of survey data for that classification. FL indicates the State of Florida. 2022 is the year of the survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. The date, 6/27/2024 in the example, indicates the survey completion date for the classifications and rates under that identifier.

?SU? wage rates typically remain in effect until a new survey is conducted. However, the Wage and Hour Division (WHD) has the discretion to update such rates under 29 CFR 1.6(c)(1).

State Adopted Rate Identifiers

The ""SA"" identifier indicates that the classifications and prevailing wage rates set by a state (or local) government were adopted under 29 C.F.R 1.3(g)-(h). Example: SAME2023-007 01/03/2024. SA reflects that the rates are state adopted. ME refers to the State of Maine. 2023 is the year during which the state completed the survey on which the listed classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. The date, 01/03/2024 in the example, reflects the date on which the classifications and rates under the ?SA? identifier took effect under state law in the state from which the rates were adopted.

WAGE DETERMINATION APPEALS PROCESS

1) Has there been an initial decision in the matter? This can be:

- a) a survey underlying a wage determination
- b) an existing published wage determination
- c) an initial WHD letter setting forth a position on a wage determination matter
- d) an initial conformance (additional classification and rate) determination

On survey related matters, initial contact, including requests for summaries of surveys, should be directed to the WHD Branch of Wage Surveys. Requests can be submitted via email to davisbaconinfo@dol.gov or by mail to:

Branch of Wage Surveys
Wage and Hour Division

U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

Regarding any other wage determination matter such as conformance decisions, requests for initial decisions should be directed to the WHD Branch of Construction Wage Determinations. Requests can be submitted via email to BCWD-Office@dol.gov or by mail to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2) If an initial decision has been issued, then any interested party (those affected by the action) that disagrees with the decision can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Requests for review and reconsideration can be submitted via email to dba.reconsideration@dol.gov or by mail to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210.

END OF GENERAL DECISION"

BID FORMS

SECTION F

BID OPENING

PLACE: _____

DATE: _____

Proposal of _____ (hereinafter called "Bidder") a (circle one) Corporation / Partnership / LLC / Sole Proprietor, organized and existing under the laws of the State of _____, doing business as _____.

TO Hocking Athens Perry Community Action (HAPCAP) (hereinafter called "Owner"):

The Bidder, in compliance with your invitation for bids for the furnishing of materials and/or equipment for the _____ project, having examined the specifications with related documents, hereby proposes to furnish all materials and supplies in accordance with the contract documents, within the time set forth therein, and at the process stated below. These prices are to cover all expenses incurred in performing the work required under the contract documents of which this proposal is a part.

Bidder hereby agrees to commence work under the contract on or before a date to be specified in written "Notice to Proceed" of the Owner and to fully complete the project within ___ consecutive calendar days thereafter as stipulated in the specifications. Bidder further agrees to pay liquidated damages, the sum of \$100.00 for each consecutive calendar day thereafter as provided in Paragraph 29 of the General Contract Conditions.

Bidder acknowledges receipt of the following addendum(s):

Bidder agrees to provide all of the _____ Project materials and/or equipment described in the _____ specifications and shown on the plans (if applicable) for the total amount of the bid based on the approximate quantities listed on the following pages. The unit prices specified by the Bidder amount to the sum of:

TOTAL BID PER UNIT PRICE \$ _____

PROPOSAL IN WORDS _____

Total Bid Alternate G-1: Solar Panel Deduct Alternate: \$ _____

IN WORDS _____

Total Bid Alternate G-2: Playground Deduct Alternate: \$ _____

IN WORDS _____

Amounts are to be shown in both words and figures. In case of a discrepancy, the amount shown in words will govern.

All unit prices shall include all labor, materials, bailing, shoring, removal, overhead, profit, insurance, etc., to cover providing the materials/equipment called for.

The Bidder understands that the Owner reserves the right to reject any or all bids and to waive any informalities, in whole or in part, in the bidding process.

The Bidder agrees that this bid shall be good and may not be withdrawn for a period of 90 calendar days after the scheduled closing time for receiving bids.

Upon receipt of written notice of the acceptance of this bid, Bidder will execute the contract provided by HAPCAP within 10 days and deliver a Surety Bond or Bonds as required by Article 12, Section C of the General Contract Conditions. The bid security attached in the sum of \$_____ (in words) _____ is to become the property of the Owner in the event the contract and bond are not executed within the time above set forth, as liquidated damages for the delay and additional expense to the Owner caused thereby.

RESPECTFULLY SUBMITTED:

BY _____

TITLE _____

BUSINESS NAME AND ADDRESS:

PHONE _____

FED. ID OR SS# _____

SEAL
(If Applicable)

BID GUARANTY AND CONTRACT BOND

(SECTION 153.571 Ohio Revised Code)

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

(Name and Address)

as Principal and _____

(Name of Surety)

_____ as Surety,

are hereby held and firmly bound unto Hocking Athens Perry Community Action (HAPCAP) as Obligee in the penal sum of the dollar amount of the bid submitted by the Principal to the Obligee on _____ to undertake the project known as: _____.

The penal sum referred to herein shall be the dollar amount of the Principal's bid to the Obligee, incorporating any additive or deductive alternate proposals made by the Principal on the date referred to above to the Obligee, which are accepted by the Obligee. In no case shall the penal sum exceed the amount of dollars (\$_____). (If the above line is left blank, the penal sum will be the full amount of the Principal's bid including alternates, in dollars and cents. A percentage is not acceptable.) For the payment of the penal sum well and truly to be made, we hereby jointly and severally bind ourselves, our heirs, executors, administrators, successors, and assigns.

THE CONDITION OF THE ABOVE OBLIGATION IS SUCH, that whereas the above named Principal has submitted a bid on the above referred to project;

NOW, THEREFORE, if the Obligee accepts the bid of the Principal and the Principal fails to enter into a proper contract in accordance with bid, plans, details, specifications, and bills of material; and in the event the Principal pays to the Obligee the difference not to exceed ten percent of the penalty hereof between the amount specified in the bid, or the costs, in connection with the resubmission, of printing new contract documents, required advertising and printing and mailing notices to prospective bidders, whichever is less, then this obligation shall be null and void, otherwise to remain in full force and effect. If the Obligee accepts the bid of the Principal and the Principal, within ten (10) days after the awarding of the contract, enters into a proper contract in accordance with the bid, plans, details, specifications, and bills of material, which said contract is made a part of this bond the same as though set forth herein; and IF THE SAID Principal shall well and faithfully perform each and every condition of such contract; and indemnify the Obligee against all damage suffered by failure to perform such contract according to the provisions thereof and in accordance with the plans, details, specifications, and bills of material therefore; and shall pay all lawful claims of subcontractors, materialmen, and laborers, for labor performed and materials furnished in the carrying forward, performing, or completing of said contract; we agreeing and assenting that this undertaking shall be for benefit of any materialman or laborer having a just claim, as well as for the Obligee herein; then this obligation shall be void; otherwise the same shall remain in full force and effect; it being expressly understood and agreed that the liability of the Surety for any and all claims hereunder shall in no event exceed the penal amount of this obligation as herein stated.

THE SAID Surety hereby stipulates and agrees that no modifications, omissions, or additions, in or to the terms of said contract or in or to the plans and specifications therefore shall in any way affect the obligations of said Surety on this bond, and it does hereby waive notice of any such modifications, omissions or additions to the term of the contract or to the work or to the specifications.

SIGNED AND SEALED This _____ day of _____, _____.

Principal

By: _____

Title: _____

Surety

By: _____
Attorney-in-Fact

Surety Company Address:

Surety Agent's Name and Address:

**AFFIDAVIT OF CONTRACTOR OR SUPPLIER OF NON-DELINQUENCY OF
PERSONAL PROPERTY TAXES**

O.R.C. 5919.042

STATE OF OHIO:

SS:

TO:

The undersigned, being first duly sworn, having been awarded a contract by you for _____ hereby states that we are not charged at the time the proposal was submitted with any delinquent personal property taxes on the general tax list of personal property of any county in which you as a taxing district have territory and that we were not charged with delinquent personal property taxes on any such tax list.

In consideration of the award of the above contract, the above statement is incorporated in said contract as a covenant of the undersigned.

Subscribed and sworn to before me this ____ day of _____, _____.

Notary Public

My Commission Expires

SEAL

NON-COLLUSION AFFIDAVIT

State of Ohio

County of Athens

BID Identification _____

CONTRACTOR _____

being duly sworn, deposed and says that he/she/it is _____ (Sole owner, a partner, president, secretary, etc.) of _____, the party making the foregoing BID; that such BID is not made in the interest of or on behalf of any undisclosed person, partnership, company, association, organization, or corporation; that such BID is genuine and not collusive or sham; that said BIDDER has not directly or indirectly induced or solicited any other BIDDER to put in a fake or sham BID and has not directly or indirectly colluded, conspired, connived, or agreed with any BIDDER or anyone else to put in a sham BID, or that any one shall refrain from bidding; that said BIDDER has not in any manner directly or indirectly, sought by agreement, communication or conference with anyone to fix the BID price of said BIDDER or of any other BIDDER, or to fix any overhead, profit, or cost element of such BID price, or of that of any other BIDDER, or to secure any advantage against the OWNER awarding the contract or anyone interested in the proposed contract; that all statements contained in such BID are true; and, further, that said BIDDER has not, directly or indirectly, submitted his/her/its BID price or any breakdown thereof, or the contents thereof, or divulged information or data relative thereto, or paid and will not pay any fee in connection therewith, to any corporation, partnership, company, association, organization, BID depository, or to any member or agent thereof, or to any other individual except to such person or persons as have a partnership or other financial interest with said BIDDER in his/her/its general business.

Signed:

Subscribed and sworn to before me this ____ day of _____, _____.

Notary Public

My Commission Expires

SEAL

**CERTIFICATION REGARDING
DEBARMENT, SUSPENSION, AND OTHER RESPONSIBILITY MATTERS
PRIMARY COVERED TRANSACTIONS**

This certification is required by the regulations implementing Executive Order 12549, Debarment and Suspension, 34 CFR Part 85, Section 85.510, Participant's responsibilities. The regulations were published as Part VII of the May 26, 1988 Federal Register (pages 19160 - 19211). Copies of the regulation may be obtained by contacting the U.S. Department of Education, Grants and Contracts Service, 400 Maryland Avenue, S.W. (Room 3633 GSA Regional Office Building No. 3), Washington, DC. 20202-4725, telephone (202) 732-2505.

- (1) The prospective primary participant certifies to the best of its knowledge and belief, that it and its principals:
- (a) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal department or agency;
 - (b) Have not within a three-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State, or Local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;
 - (c) Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State, or Local) with commission of any of the offenses enumerated in paragraph (1)(b) of this certification; and
 - (d) Have not within a three-year period preceding this application/proposal had one or more public transactions (Federal, State, or Local) terminated for cause or default.
- (2) Where the prospective primary participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

Organization Name

PR/Award Number or Project Name

Name and Title of Authorized Representative

Signature
ED Form GCS-008 (REV.12/88)

Date

ADDITIONAL CERTIFICATIONS

Project Name: _____

Grant Number: _____

I certify that my company has the *facilities* to complete this job.

I certify that my company has the *labor force* to complete this job.

I certify that my company has the *equipment* to complete this job.

I certify that my company has the *administrative capacity* to complete this job.

I certify that my company has the *knowledge* to complete this job.

I certify that my company maintains a *drug free workplace*.

Name and Title of Authorized Representative

Signature & Date

BONDING AND INSURANCE REQUIREMENTS

A state or local unit of government receiving a grant from the Federal government which requires contracting for construction of facility improvement shall follow its own requirement relating to bid guarantees, performance bonds, and payment bonds, except for contracts or subcontracts exceeding \$100,000.00. For contracts or subcontracts exceeding \$100,000.00, the Federal agency may accept the bonding policy requirement of the grantee provided the Federal agency has made a determination that the Government's interest in adequately protected. If such a determination has not been made, the minimum requirements shall be as follows:

- A. A bid guarantee from each bidder equivalent to ten percent of the bid price. The "bid guarantee" shall consist of a firm commitment such as a bid bond, certified check, or other negotiable instrument accompanying a bid as assurance that the bidder will, upon acceptance of his/her/its bid, execute such contractual documents as may be required within the time specified.

- B. A performance bond on the part of the contractor for 100 percent of the contract price. A "performance bond" is one executed in connection with a contract to secure fulfillment of all the contractor's obligations under such contract.

- C. A payment bond on the part of the contractor for 100 percent of the contract price. A "payment bond" is one executed in connection with a contract to assure payment as required by law of all persons supplying labor and material in the execution of the work provided for in the contract.

EXPERIENCE STATEMENT OF BIDDER

The BIDDER/CONTRACTOR is required to state in detail, in the space provided below, what work of character similar to that included in this proposed Contract Documents it has done, to give reference and such other detailed information as it will enable the OWNER to determine responsibility including experience, skill and financial standing.

PROJECT NAME: _____ CONTACT: _____
ADDRESS: _____
PHONE: _____ FAX: _____
EMAIL: _____ DATE OF PROJECT: _____
DESCRIPTION OF WORK: _____

PROJECT NAME: _____ CONTACT: _____
ADDRESS: _____
PHONE: _____ FAX: _____
EMAIL: _____ DATE OF PROJECT: _____
DESCRIPTION OF WORK: _____

PROJECT NAME: _____ CONTACT: _____
ADDRESS: _____
PHONE: _____ FAX: _____
EMAIL: _____ DATE OF PROJECT: _____
DESCRIPTION OF WORK: _____

PROJECT NAME: _____ CONTACT: _____
ADDRESS: _____
PHONE: _____ FAX: _____
EMAIL: _____ DATE OF PROJECT: _____
DESCRIPTION OF WORK: _____

Request for Taxpayer Identification Number and Certification

**Give Form to the
 requester. Do not
 send to the IRS.**

Print or type See Specific Instructions on page 2.	1 Name (as shown on your income tax return). Name is required on this line; do not leave this line blank.	
	2 Business name/disregarded entity name, if different from above	
	3 Check appropriate box for federal tax classification; check only one of the following seven boxes: <input type="checkbox"/> Individual/sole proprietor or single-member LLC <input type="checkbox"/> C Corporation <input type="checkbox"/> S Corporation <input type="checkbox"/> Partnership <input type="checkbox"/> Trust/estate <input type="checkbox"/> Limited liability company. Enter the tax classification (C=C corporation, S=S corporation, P=partnership) ▶ _____ Note. For a single-member LLC that is disregarded, do not check LLC; check the appropriate box in the line above for the tax classification of the single-member owner. <input type="checkbox"/> Other (see instructions) ▶ _____	
	4 Exemptions (codes apply only to certain entities, not individuals; see instructions on page 3): Exempt payee code (if any) _____ Exemption from FATCA reporting code (if any) _____ <i>(Applies to accounts maintained outside the U.S.)</i>	
	5 Address (number, street, and apt. or suite no.)	Requester's name and address (optional)
	6 City, state, and ZIP code	
	7 List account number(s) here (optional)	

Part I Taxpayer Identification Number (TIN)

Enter your TIN in the appropriate box. The TIN provided must match the name given on line 1 to avoid backup withholding. For individuals, this is generally your social security number (SSN). However, for a resident alien, sole proprietor, or disregarded entity, see the Part I instructions on page 3. For other entities, it is your employer identification number (EIN). If you do not have a number, see *How to get a TIN* on page 3.

Social security number									
-				-					
or									
Employer identification number									
-									

Note. If the account is in more than one name, see the instructions for line 1 and the chart on page 4 for guidelines on whose number to enter.

Part II Certification

Under penalties of perjury, I certify that:

1. The number shown on this form is my correct taxpayer identification number (or I am waiting for a number to be issued to me); and
2. I am not subject to backup withholding because: (a) I am exempt from backup withholding, or (b) I have not been notified by the Internal Revenue Service (IRS) that I am subject to backup withholding as a result of a failure to report all interest or dividends, or (c) the IRS has notified me that I am no longer subject to backup withholding; and
3. I am a U.S. citizen or other U.S. person (defined below); and
4. The FATCA code(s) entered on this form (if any) indicating that I am exempt from FATCA reporting is correct.

Certification instructions. You must cross out item 2 above if you have been notified by the IRS that you are currently subject to backup withholding because you have failed to report all interest and dividends on your tax return. For real estate transactions, item 2 does not apply. For mortgage interest paid, acquisition or abandonment of secured property, cancellation of debt, contributions to an individual retirement arrangement (IRA), and generally, payments other than interest and dividends, you are not required to sign the certification, but you must provide your correct TIN. See the instructions on page 3.

Sign Here	Signature of U.S. person ▶	Date ▶
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General Instructions

Section references are to the Internal Revenue Code unless otherwise noted.

Future developments. Information about developments affecting Form W-9 (such as legislation enacted after we release it) is at www.irs.gov/fw9.

Purpose of Form

An individual or entity (Form W-9 requester) who is required to file an information return with the IRS must obtain your correct taxpayer identification number (TIN) which may be your social security number (SSN), individual taxpayer identification number (ITIN), adoption taxpayer identification number (ATIN), or employer identification number (EIN), to report on an information return the amount paid to you, or other amount reportable on an information return. Examples of information returns include, but are not limited to, the following:

- Form 1099-INT (interest earned or paid)
- Form 1099-DIV (dividends, including those from stocks or mutual funds)
- Form 1099-MISC (various types of income, prizes, awards, or gross proceeds)
- Form 1099-B (stock or mutual fund sales and certain other transactions by brokers)
- Form 1099-S (proceeds from real estate transactions)
- Form 1099-K (merchant card and third party network transactions)

- Form 1098 (home mortgage interest), 1098-E (student loan interest), 1098-T (tuition)
- Form 1099-C (canceled debt)
- Form 1099-A (acquisition or abandonment of secured property)

Use Form W-9 only if you are a U.S. person (including a resident alien), to provide your correct TIN.

If you do not return Form W-9 to the requester with a TIN, you might be subject to backup withholding. See What is backup withholding? on page 2.

By signing the filled-out form, you:

1. Certify that the TIN you are giving is correct (or you are waiting for a number to be issued),
2. Certify that you are not subject to backup withholding, or
3. Claim exemption from backup withholding if you are a U.S. exempt payee. If applicable, you are also certifying that as a U.S. person, your allocable share of any partnership income from a U.S. trade or business is not subject to the withholding tax on foreign partners' share of effectively connected income, and
4. Certify that FATCA code(s) entered on this form (if any) indicating that you are exempt from the FATCA reporting, is correct. See *What is FATCA reporting?* on page 2 for further information.

Note. If you are a U.S. person and a requester gives you a form other than Form W-9 to request your TIN, you must use the requester's form if it is substantially similar to this Form W-9.

Definition of a U.S. person. For federal tax purposes, you are considered a U.S. person if you are:

- An individual who is a U.S. citizen or U.S. resident alien;
- A partnership, corporation, company, or association created or organized in the United States or under the laws of the United States;
- An estate (other than a foreign estate); or
- A domestic trust (as defined in Regulations section 301.7701-7).

Special rules for partnerships. Partnerships that conduct a trade or business in the United States are generally required to pay a withholding tax under section 1446 on any foreign partners' share of effectively connected taxable income from such business. Further, in certain cases where a Form W-9 has not been received, the rules under section 1446 require a partnership to presume that a partner is a foreign person, and pay the section 1446 withholding tax. Therefore, if you are a U.S. person that is a partner in a partnership conducting a trade or business in the United States, provide Form W-9 to the partnership to establish your U.S. status and avoid section 1446 withholding on your share of partnership income.

In the cases below, the following persons must give Form W-9 to the partnership for purposes of establishing its U.S. status and avoiding withholding on its allocable share of net income from the partnership conducting a trade or business in the United States:

- In the case of a disregarded entity with a U.S. owner, the U.S. owner of the disregarded entity and not the entity;
- In the case of a grantor trust with a U.S. grantor or other U.S. owner, generally, the U.S. grantor or other U.S. owner of the grantor trust and not the trust; and
- In the case of a U.S. trust (other than a grantor trust), the U.S. trust (other than a grantor trust) and not the beneficiaries of the trust.

Foreign person. If you are a foreign person or the U.S. branch of a foreign bank that has elected to be treated as a U.S. person, do not use Form W-9. Instead, use the appropriate Form W-8 or Form 8233 (see Publication 515, Withholding of Tax on Nonresident Aliens and Foreign Entities).

Nonresident alien who becomes a resident alien. Generally, only a nonresident alien individual may use the terms of a tax treaty to reduce or eliminate U.S. tax on certain types of income. However, most tax treaties contain a provision known as a "saving clause." Exceptions specified in the saving clause may permit an exemption from tax to continue for certain types of income even after the payee has otherwise become a U.S. resident alien for tax purposes.

If you are a U.S. resident alien who is relying on an exception contained in the saving clause of a tax treaty to claim an exemption from U.S. tax on certain types of income, you must attach a statement to Form W-9 that specifies the following five items:

1. The treaty country. Generally, this must be the same treaty under which you claimed exemption from tax as a nonresident alien.
2. The treaty article addressing the income.
3. The article number (or location) in the tax treaty that contains the saving clause and its exceptions.
4. The type and amount of income that qualifies for the exemption from tax.
5. Sufficient facts to justify the exemption from tax under the terms of the treaty article.

Example. Article 20 of the U.S.-China income tax treaty allows an exemption from tax for scholarship income received by a Chinese student temporarily present in the United States. Under U.S. law, this student will become a resident alien for tax purposes if his or her stay in the United States exceeds 5 calendar years. However, paragraph 2 of the first Protocol to the U.S.-China treaty (dated April 30, 1984) allows the provisions of Article 20 to continue to apply even after the Chinese student becomes a resident alien of the United States. A Chinese student who qualifies for this exception (under paragraph 2 of the first protocol) and is relying on this exception to claim an exemption from tax on his or her scholarship or fellowship income would attach to Form W-9 a statement that includes the information described above to support that exemption.

If you are a nonresident alien or a foreign entity, give the requester the appropriate completed Form W-8 or Form 8233.

Backup Withholding

What is backup withholding? Persons making certain payments to you must under certain conditions withhold and pay to the IRS 28% of such payments. This is called "backup withholding." Payments that may be subject to backup withholding include interest, tax-exempt interest, dividends, broker and barter exchange transactions, rents, royalties, nonemployee pay, payments made in settlement of payment card and third party network transactions, and certain payments from fishing boat operators. Real estate transactions are not subject to backup withholding.

You will not be subject to backup withholding on payments you receive if you give the requester your correct TIN, make the proper certifications, and report all your taxable interest and dividends on your tax return.

Payments you receive will be subject to backup withholding if:

1. You do not furnish your TIN to the requester,
2. You do not certify your TIN when required (see the Part II instructions on page 3 for details),

3. The IRS tells the requester that you furnished an incorrect TIN,

4. The IRS tells you that you are subject to backup withholding because you did not report all your interest and dividends on your tax return (for reportable interest and dividends only), or

5. You do not certify to the requester that you are not subject to backup withholding under 4 above (for reportable interest and dividend accounts opened after 1983 only).

Certain payees and payments are exempt from backup withholding. See *Exempt payee code* on page 3 and the separate Instructions for the Requester of Form W-9 for more information.

Also see *Special rules for partnerships* above.

What is FATCA reporting?

The Foreign Account Tax Compliance Act (FATCA) requires a participating foreign financial institution to report all United States account holders that are specified United States persons. Certain payees are exempt from FATCA reporting. See *Exemption from FATCA reporting code* on page 3 and the Instructions for the Requester of Form W-9 for more information.

Updating Your Information

You must provide updated information to any person to whom you claimed to be an exempt payee if you are no longer an exempt payee and anticipate receiving reportable payments in the future from this person. For example, you may need to provide updated information if you are a C corporation that elects to be an S corporation, or if you no longer are tax exempt. In addition, you must furnish a new Form W-9 if the name or TIN changes for the account; for example, if the grantor of a grantor trust dies.

Penalties

Failure to furnish TIN. If you fail to furnish your correct TIN to a requester, you are subject to a penalty of \$50 for each such failure unless your failure is due to reasonable cause and not to willful neglect.

Civil penalty for false information with respect to withholding. If you make a false statement with no reasonable basis that results in no backup withholding, you are subject to a \$500 penalty.

Criminal penalty for falsifying information. Willfully falsifying certifications or affirmations may subject you to criminal penalties including fines and/or imprisonment.

Misuse of TINs. If the requester discloses or uses TINs in violation of federal law, the requester may be subject to civil and criminal penalties.

Specific Instructions

Line 1

You must enter one of the following on this line; **do not** leave this line blank. The name should match the name on your tax return.

If this Form W-9 is for a joint account, list first, and then circle, the name of the person or entity whose number you entered in Part I of Form W-9.

a. **Individual.** Generally, enter the name shown on your tax return. If you have changed your last name without informing the Social Security Administration (SSA) of the name change, enter your first name, the last name as shown on your social security card, and your new last name.

Note. ITIN applicant: Enter your individual name as it was entered on your Form W-7 application, line 1a. This should also be the same as the name you entered on the Form 1040/1040A/1040EZ you filed with your application.

b. **Sole proprietor or single-member LLC.** Enter your individual name as shown on your 1040/1040A/1040EZ on line 1. You may enter your business, trade, or "doing business as" (DBA) name on line 2.

c. **Partnership, LLC that is not a single-member LLC, C Corporation, or S Corporation.** Enter the entity's name as shown on the entity's tax return on line 1 and any business, trade, or DBA name on line 2.

d. **Other entities.** Enter your name as shown on required U.S. federal tax documents on line 1. This name should match the name shown on the charter or other legal document creating the entity. You may enter any business, trade, or DBA name on line 2.

e. **Disregarded entity.** For U.S. federal tax purposes, an entity that is disregarded as an entity separate from its owner is treated as a "disregarded entity." See Regulations section 301.7701-2(c)(2)(iii). Enter the owner's name on line 1. The name of the entity entered on line 1 should never be a disregarded entity. The name on line 1 should be the name shown on the income tax return on which the income should be reported. For example, if a foreign LLC that is treated as a disregarded entity for U.S. federal tax purposes has a single owner that is a U.S. person, the U.S. owner's name is required to be provided on line 1. If the direct owner of the entity is also a disregarded entity, enter the first owner that is not disregarded for federal tax purposes. Enter the disregarded entity's name on line 2, "Business name/disregarded entity name." If the owner of the disregarded entity is a foreign person, the owner must complete an appropriate Form W-8 instead of a Form W-9. This is the case even if the foreign person has a U.S. TIN.

Line 2

If you have a business name, trade name, DBA name, or disregarded entity name, you may enter it on line 2.

Line 3

Check the appropriate box in line 3 for the U.S. federal tax classification of the person whose name is entered on line 1. Check only one box in line 3.

Limited Liability Company (LLC). If the name on line 1 is an LLC treated as a partnership for U.S. federal tax purposes, check the "Limited Liability Company" box and enter "P" in the space provided. If the LLC has filed Form 8832 or 2553 to be taxed as a corporation, check the "Limited Liability Company" box and in the space provided enter "C" for C corporation or "S" for S corporation. If it is a single-member LLC that is a disregarded entity, do not check the "Limited Liability Company" box; instead check the first box in line 3 "Individual/sole proprietor or single-member LLC."

Line 4, Exemptions

If you are exempt from backup withholding and/or FATCA reporting, enter in the appropriate space in line 4 any code(s) that may apply to you.

Exempt payee code.

- Generally, individuals (including sole proprietors) are not exempt from backup withholding.
- Except as provided below, corporations are exempt from backup withholding for certain payments, including interest and dividends.
- Corporations are not exempt from backup withholding for payments made in settlement of payment card or third party network transactions.
- Corporations are not exempt from backup withholding with respect to attorneys' fees or gross proceeds paid to attorneys, and corporations that provide medical or health care services are not exempt with respect to payments reportable on Form 1099-MISC.

The following codes identify payees that are exempt from backup withholding. Enter the appropriate code in the space in line 4.

- 1—An organization exempt from tax under section 501(a), any IRA, or a custodial account under section 403(b)(7) if the account satisfies the requirements of section 401(f)(2)
- 2—The United States or any of its agencies or instrumentalities
- 3—A state, the District of Columbia, a U.S. commonwealth or possession, or any of their political subdivisions or instrumentalities
- 4—A foreign government or any of its political subdivisions, agencies, or instrumentalities
- 5—A corporation
- 6—A dealer in securities or commodities required to register in the United States, the District of Columbia, or a U.S. commonwealth or possession
- 7—A futures commission merchant registered with the Commodity Futures Trading Commission
- 8—A real estate investment trust
- 9—An entity registered at all times during the tax year under the Investment Company Act of 1940
- 10—A common trust fund operated by a bank under section 584(a)
- 11—A financial institution
- 12—A middleman known in the investment community as a nominee or custodian
- 13—A trust exempt from tax under section 664 or described in section 4947

The following chart shows types of payments that may be exempt from backup withholding. The chart applies to the exempt payees listed above, 1 through 13.

IF the payment is for . . .	THEN the payment is exempt for . . .
Interest and dividend payments	All exempt payees except for 7
Broker transactions	Exempt payees 1 through 4 and 6 through 11 and all C corporations. S corporations must not enter an exempt payee code because they are exempt only for sales of noncovered securities acquired prior to 2012.
Barter exchange transactions and patronage dividends	Exempt payees 1 through 4
Payments over \$600 required to be reported and direct sales over \$5,000 ¹	Generally, exempt payees 1 through 5 ²
Payments made in settlement of payment card or third party network transactions	Exempt payees 1 through 4

¹ See Form 1099-MISC, Miscellaneous Income, and its instructions.

² However, the following payments made to a corporation and reportable on Form 1099-MISC are not exempt from backup withholding: medical and health care payments, attorneys' fees, gross proceeds paid to an attorney reportable under section 6045(f), and payments for services paid by a federal executive agency.

Exemption from FATCA reporting code. The following codes identify payees that are exempt from reporting under FATCA. These codes apply to persons submitting this form for accounts maintained outside of the United States by certain foreign financial institutions. Therefore, if you are only submitting this form for an account you hold in the United States, you may leave this field blank. Consult with the person requesting this form if you are uncertain if the financial institution is subject to these requirements. A requester may indicate that a code is not required by providing you with a Form W-9 with "Not Applicable" (or any similar indication) written or printed on the line for a FATCA exemption code.

A—An organization exempt from tax under section 501(a) or any individual retirement plan as defined in section 7701(a)(37)

B—The United States or any of its agencies or instrumentalities

C—A state, the District of Columbia, a U.S. commonwealth or possession, or any of their political subdivisions or instrumentalities

D—A corporation the stock of which is regularly traded on one or more established securities markets, as described in Regulations section 1.1472-1(c)(1)(i)

E—A corporation that is a member of the same expanded affiliated group as a corporation described in Regulations section 1.1472-1(c)(1)(i)

F—A dealer in securities, commodities, or derivative financial instruments (including notional principal contracts, futures, forwards, and options) that is registered as such under the laws of the United States or any state

G—A real estate investment trust

H—A regulated investment company as defined in section 851 or an entity registered at all times during the tax year under the Investment Company Act of 1940

I—A common trust fund as defined in section 584(a)

J—A bank as defined in section 581

K—A broker

L—A trust exempt from tax under section 664 or described in section 4947(a)(1)

M—A tax exempt trust under a section 403(b) plan or section 457(g) plan

Note. You may wish to consult with the financial institution requesting this form to determine whether the FATCA code and/or exempt payee code should be completed.

Line 5

Enter your address (number, street, and apartment or suite number). This is where the requester of this Form W-9 will mail your information returns.

Line 6

Enter your city, state, and ZIP code.

Part I. Taxpayer Identification Number (TIN)

Enter your TIN in the appropriate box. If you are a resident alien and you do not have and are not eligible to get an SSN, your TIN is your IRS individual taxpayer identification number (ITIN). Enter it in the social security number box. If you do not have an ITIN, see *How to get a TIN* below.

If you are a sole proprietor and you have an EIN, you may enter either your SSN or EIN. However, the IRS prefers that you use your SSN.

If you are a single-member LLC that is disregarded as an entity separate from its owner (see *Limited Liability Company (LLC)* on this page), enter the owner's SSN (or EIN, if the owner has one). Do not enter the disregarded entity's EIN. If the LLC is classified as a corporation or partnership, enter the entity's EIN.

Note. See the chart on page 4 for further clarification of name and TIN combinations.

How to get a TIN. If you do not have a TIN, apply for one immediately. To apply for an SSN, get Form SS-5, Application for a Social Security Card, from your local SSA office or get this form online at www.ssa.gov. You may also get this form by calling 1-800-772-1213. Use Form W-7, Application for IRS Individual Taxpayer Identification Number, to apply for an ITIN, or Form SS-4, Application for Employer Identification Number, to apply for an EIN. You can apply for an EIN online by accessing the IRS website at www.irs.gov/businesses and clicking on Employer Identification Number (EIN) under Starting a Business. You can get Forms W-7 and SS-4 from the IRS by visiting IRS.gov or by calling 1-800-TAX-FORM (1-800-829-3676).

If you are asked to complete Form W-9 but do not have a TIN, apply for a TIN and write "Applied For" in the space for the TIN, sign and date the form, and give it to the requester. For interest and dividend payments, and certain payments made with respect to readily tradable instruments, generally you will have 60 days to get a TIN and give it to the requester before you are subject to backup withholding on payments. The 60-day rule does not apply to other types of payments. You will be subject to backup withholding on all such payments until you provide your TIN to the requester.

Note. Entering "Applied For" means that you have already applied for a TIN or that you intend to apply for one soon.

Caution: A disregarded U.S. entity that has a foreign owner must use the appropriate Form W-8.

Part II. Certification

To establish to the withholding agent that you are a U.S. person, or resident alien, sign Form W-9. You may be requested to sign by the withholding agent even if items 1, 4, or 5 below indicate otherwise.

For a joint account, only the person whose TIN is shown in Part I should sign (when required). In the case of a disregarded entity, the person identified on line 1 must sign. Exempt payees, see *Exempt payee code* earlier.

Signature requirements. Complete the certification as indicated in items 1 through 5 below.

- 1. Interest, dividend, and barter exchange accounts opened before 1984 and broker accounts considered active during 1983.** You must give your correct TIN, but you do not have to sign the certification.
- 2. Interest, dividend, broker, and barter exchange accounts opened after 1983 and broker accounts considered inactive during 1983.** You must sign the certification or backup withholding will apply. If you are subject to backup withholding and you are merely providing your correct TIN to the requester, you must cross out item 2 in the certification before signing the form.
- 3. Real estate transactions.** You must sign the certification. You may cross out item 2 of the certification.
- 4. Other payments.** You must give your correct TIN, but you do not have to sign the certification unless you have been notified that you have previously given an incorrect TIN. "Other payments" include payments made in the course of the requester's trade or business for rents, royalties, goods (other than bills for merchandise), medical and health care services (including payments to corporations), payments to a nonemployee for services, payments made in settlement of payment card and third party network transactions, payments to certain fishing boat crew members and fishermen, and gross proceeds paid to attorneys (including payments to corporations).
- 5. Mortgage interest paid by you, acquisition or abandonment of secured property, cancellation of debt, qualified tuition program payments (under section 529), IRA, Coverdell ESA, Archer MSA or HSA contributions or distributions, and pension distributions.** You must give your correct TIN, but you do not have to sign the certification.

What Name and Number To Give the Requester

For this type of account:	Give name and SSN of:
1. Individual	The individual
2. Two or more individuals (joint account)	The actual owner of the account or, if combined funds, the first individual on the account ¹
3. Custodian account of a minor (Uniform Gift to Minors Act)	The minor ²
4. a. The usual revocable savings trust (grantor is also trustee) b. So-called trust account that is not a legal or valid trust under state law	The grantor-trustee ¹ The actual owner ¹
5. Sole proprietorship or disregarded entity owned by an individual	The owner ³
6. Grantor trust filing under Optional Form 1099 Filing Method 1 (see Regulations section 1.671-4(b)(2)(i)(A))	The grantor*
For this type of account:	Give name and EIN of:
7. Disregarded entity not owned by an individual	The owner
8. A valid trust, estate, or pension trust	Legal entity ⁴
9. Corporation or LLC electing corporate status on Form 8832 or Form 2553	The corporation
10. Association, club, religious, charitable, educational, or other tax-exempt organization	The organization
11. Partnership or multi-member LLC	The partnership
12. A broker or registered nominee	The broker or nominee
13. Account with the Department of Agriculture in the name of a public entity (such as a state or local government, school district, or prison) that receives agricultural program payments	The public entity
14. Grantor trust filing under the Form 1041 Filing Method or the Optional Form 1099 Filing Method 2 (see Regulations section 1.671-4(b)(2)(i)(B))	The trust

¹ List first and circle the name of the person whose number you furnish. If only one person on a joint account has an SSN, that person's number must be furnished.

² Circle the minor's name and furnish the minor's SSN.

³ You must show your individual name and you may also enter your business or DBA name on the "Business name/disregarded entity" name line. You may use either your SSN or EIN (if you have one), but the IRS encourages you to use your SSN.

⁴ List first and circle the name of the trust, estate, or pension trust. (Do not furnish the TIN of the personal representative or trustee unless the legal entity itself is not designated in the account title.) Also see *Special rules for partnerships* on page 2.

*Note. Grantor also must provide a Form W-9 to trustee of trust.

Note. If no name is circled when more than one name is listed, the number will be considered to be that of the first name listed.

Secure Your Tax Records from Identity Theft

Identity theft occurs when someone uses your personal information such as your name, SSN, or other identifying information, without your permission, to commit fraud or other crimes. An identity thief may use your SSN to get a job or may file a tax return using your SSN to receive a refund.

To reduce your risk:

- Protect your SSN,
- Ensure your employer is protecting your SSN, and
- Be careful when choosing a tax preparer.

If your tax records are affected by identity theft and you receive a notice from the IRS, respond right away to the name and phone number printed on the IRS notice or letter.

If your tax records are not currently affected by identity theft but you think you are at risk due to a lost or stolen purse or wallet, questionable credit card activity or credit report, contact the IRS Identity Theft Hotline at 1-800-908-4490 or submit Form 14039.

For more information, see Publication 4535, Identity Theft Prevention and Victim Assistance.

Victims of identity theft who are experiencing economic harm or a system problem, or are seeking help in resolving tax problems that have not been resolved through normal channels, may be eligible for Taxpayer Advocate Service (TAS) assistance. You can reach TAS by calling the TAS toll-free case intake line at 1-877-777-4778 or TTY/TDD 1-800-829-4059.

Protect yourself from suspicious emails or phishing schemes. Phishing is the creation and use of email and websites designed to mimic legitimate business emails and websites. The most common act is sending an email to a user falsely claiming to be an established legitimate enterprise in an attempt to scam the user into surrendering private information that will be used for identity theft.

The IRS does not initiate contacts with taxpayers via emails. Also, the IRS does not request personal detailed information through email or ask taxpayers for the PIN numbers, passwords, or similar secret access information for their credit card, bank, or other financial accounts.

If you receive an unsolicited email claiming to be from the IRS, forward this message to phishing@irs.gov. You may also report misuse of the IRS name, logo, or other IRS property to the Treasury Inspector General for Tax Administration (TIGTA) at 1-800-366-4484. You can forward suspicious emails to the Federal Trade Commission at: spam@uce.gov or contact them at www.ftc.gov/idtheft or 1-877-IDTHEFT (1-877-438-4338).

Visit IRS.gov to learn more about identity theft and how to reduce your risk.

Privacy Act Notice

Section 6109 of the Internal Revenue Code requires you to provide your correct TIN to persons (including federal agencies) who are required to file information returns with the IRS to report interest, dividends, or certain other income paid to you; mortgage interest you paid; the acquisition or abandonment of secured property; the cancellation of debt; or contributions you made to an IRA, Archer MSA, or HSA. The person collecting this form uses the information on the form to file information returns with the IRS, reporting the above information. Routine uses of this information include giving it to the Department of Justice for civil and criminal litigation and to cities, states, the District of Columbia, and U.S. commonwealths and possessions for use in administering their laws. The information also may be disclosed to other countries under a treaty, to federal and state agencies to enforce civil and criminal laws, or to federal law enforcement and intelligence agencies to combat terrorism. You must provide your TIN whether or not you are required to file a tax return. Under section 3406, payers must generally withhold a percentage of taxable interest, dividend, and certain other payments to a payee who does not give a TIN to the payer. Certain penalties may also apply for providing false or fraudulent information.

OHIO NEW HIRE REPORTING

Ohio Revised Code section 3121.89 to 3121.8910 requires all Ohio employers, both public and private, to report all contractors and newly hired employees to the state of Ohio within 20 days of the contract or hire date. Information about new hire reporting and online reporting is available on our website: www.oh-newhire.com

Send completed forms to:
Ohio New Hire Reporting Center
PO Box 15309
Columbus, OH 43215-0309
Fax: (614) 221-7088 or toll-free fax (888) 872-1611

To ensure the highest level of accuracy, please print neatly in capital letters and avoid contact with the edges of the boxes. The following will serve as an example:

A B C

1 2 3

EMPLOYER INFORMATION

Federal Employer ID Number (FEIN) (Please use the same FEIN as the listed employee's quarterly wages will be reported under):

Grid for Federal Employer ID Number (FEIN)

Employer Name:

Grid for Employer Name

Employer Address (Please indicate the address where the Income Withholding Orders should be sent).

Grid for Employer Address (Line 1)

Grid for Employer Address (Line 2)

Employer City:

Employer State:

Zip Code (5 digit):

Grid for Employer City

Grid for Employer State

Grid for Zip Code

Employer Phone (optional):

Extension:

Employer Fax (optional):

Grid for Employer Phone

Grid for Extension

Grid for Employer Fax

Email:

Grid for Email

EMPLOYEE OR CONTRACTOR INFORMATION

Social Security Number (SSN)

(Check here if using FEIN for the Contractor)

Grid for Social Security Number

State of Hire:

Grid for State of Hire

First Name:

Middle Initial:

Grid for First Name

Grid for Middle Initial

Last Name:

Grid for Last Name

Address:

Grid for Address (Line 1)

City:

State:

Zip Code (5 digit):

Grid for City

Grid for State

Grid for Zip Code

Date of Hire:

Date of Birth:

Is this a Contractor?

Grid for Date of Hire

Grid for Date of Birth

Yes No

Date payments will begin for Contractor:

Length of time the Contractor will be performing services:

Grid for Date payments will begin

Grid for Length of time (months)

REPORTS WILL NOT BE PROCESSED IF REQUIRED INFORMATION IS MISSING

Questions? Call us at (614) 221-5330 or toll-free (888) 872-1490



Sales and Use Tax Construction Contract Exemption Certificate

Identification of Contract:

Contractee's (owner's) name _____

Exact location of job/project _____

Name of job/project as it appears
on contract documentation _____

The undersigned hereby certifies that the tangible personal property purchased under this exemption certificate is purchased exempt of the tax for incorporation into:

A building used exclusively for charitable purposes by a nonprofit organization operated exclusively for charitable purposes as defined in Ohio Revised Code (R.C.) section 5739.02(B)(12);	Real property that is owned, or will be accepted for ownership at the time of completion, by the United States government, its agencies, the state of Ohio or an Ohio political subdivision;
A horticulture structure or livestock structure for a person engaged in the business of horticulture or producing livestock;	Real property under a construction contract with the United States government, its agencies, the state of Ohio, or an Ohio political subdivision;
The original construction of a sports facility under R.C. section 307.696;	A building under a construction contract with an organization exempt from taxation under section 501(c)(3) of the Internal Revenue Code of 1986 when the building is to be used exclusively for the organization's exempt purposes;
A hospital facility entitled to exemption under R.C. section 140.08;	
A computer data center entitled to exemption under R.C. 122.175; ___% exempt per OH Dept. of Development	A house of public worship or religious education;
A megaproject entitled to exemption as described in R.C. 5739.02(B)(13).	Building and construction materials and services sold for incorporation into real property comprising a convention center that qualifies for property tax exemption under R.C. 5709.084 (until one calendar year after the construction is completed).
Real property outside this state if such materials and services, when sold to a construction contractor in the state in which the real property is located for incorporation into real property in that state, would be exempt from a tax on sales levied by that state;	

The original of this certificate must be signed by the owner/contractee and/or government official and must be retained by the prime contractor. Copies must be maintained by the owner/contractee and all subcontractors. When copies are issued to suppliers when purchasing materials, each copy must be signed by the contractor or subcontractor making the purchase.

Prime Contractor

Name _____
Signed by _____
Title _____
Street address _____
City, state, ZIP code _____
Date _____

Owner/Contractee

Name _____
Signed by _____
Title _____
Street address _____
City, state, ZIP code _____
Date _____

Subcontractor

Name _____
Signed by _____
Title _____
Street address _____
City, state, ZIP code _____
Date _____

Political Subdivision

Name _____
Signed by _____
Title _____
Street address _____
City, state, ZIP code _____
Date _____