

NOTICE OF INVITATION FOR BID

NOTICE IS HEREBY GIVEN that sealed bids will be received by the City Clerk for the City of Page, Page City Hall, 697 Vista Avenue, Page, Arizona, for construction of a federally-funded **Substance Abuse Residential Facility**, until **4:00 PM on March 6, 2024**. At that time, bids will be opened and publicly read aloud and recorded by the City Clerk. Bidders are invited but not required to be present at the bid opening. Bids must be in the actual possession of the City Clerk's Office on or prior to the exact time and date indicated above. Late bids shall not be considered and will be returned unopened. The prevailing clock shall be the City Clerk's clock.

Bids must be submitted on the forms furnished and in a sealed envelope. The Invitation for Bid's project name and bidder's name and address should be clearly indicated on the outside of the envelope. Bids sent through Federal Express or other express mail agencies must have the bid documents sealed within an additional envelope inside the outer mailer.

The City of Page, Arizona is seeking bids from qualified contractors for construction of a new 5,144 square foot residential and treatment facility at Osprey and Coppermine Road in the City of Page, Arizona.

A mandatory pre-bid meeting will be held at 11:00 a.m. on February 21, 2024, at the Community Center, 699 South Navajo Drive, Page, AZ 86040, with a Zoom option. Notify Kevin Goss at the contact information below if you would like a Zoom link sent to you.

Questions and requests for bid documents shall be directed to: Kevin Goss, NACOG, 221 N. Marina Street, Suite 101, Prescott, AZ 86301; 928-445-0211 or kgoss@nacog.org. RFB packages may also be accessed on the City of Page website at www.cityofpage.org. Persons with disabilities may contact Kevin Goss at one of the options above regarding availability of information in alternative formats.

All bids must be accompanied by a bond or a cashier's check of the company, drawn on a national bank, in an amount equal to five percent (5%) of the Bid amount, as a guarantee on the part of the Bidder that it will, if called upon to do so, accept and enter into a contract based on the obligations and conditions set forth in the Bid Documents.

The successful Bidder, prior to entering into the contract, shall file with the City a Payment Bond in the amount equal to one hundred percent (100%) of the Contract Price, a Performance Bond in an amount equal to one hundred percent (100%) of the Contract price, and a certificate of Insurance. Bids may not be withdrawn for a period of sixty (60) days after the bid opening.

The City of Page reserves the right to reject any or all bids or parts thereto and to waive any informality in the bids received.

Kim Larson, City Clerk

Publish each week for two consecutive weeks in the Lake Powell Chronicle. See publications dated *January 31 and February 7, 2024*.



CONTRACT DOCUMENTS
FOR
SUBSTANCE ABUSE RESIDENTIAL FACILITY

City of Page
Department of Public Works

PO Box 1180
697 Vista Ave
Page, Arizona 86040

January 31, 2024

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The City of Page reserves the right to reject any or all bids or parts thereto and to waive any informality in the bids received.

Kary Holloway, City Clerk

Publish each week for two consecutive weeks in the Lake Powell Chronicle. See publications dated *January 31 and February 7, 2024*.

1-2 INSTRUCTIONS TO BIDDERS

1. PREPARATION OF BID. All Bids shall be on the forms provided in this Invitation for Bid package. It is the responsibility of all Bidders to examine the entire Bid Documents package and seek clarification of any requirement that may not be clear and to check all responses for accuracy before submitting a Bid.

The Bid Form shall be submitted with an original ink signature by the person authorized to sign the Bid. Erasures, interlineations, or other modifications in the Bid shall be initialed in original ink by the authorized person signing the Bid. CITY shall not reimburse the cost of developing, presenting, or submitting any response to this solicitation. Bids submitted should be prepared simply and economically, providing adequate information in the straightforward and concise manner.

2. PRE-BID MEETING. Mandatory Pre-Bid meeting on February 21, 2024, at 11:00 a.m. at the Community Center, 699 S. Navajo Drive, Page Arizona 86040. For Zoom link contact Kevin Goss at 928-445-0211 or kgoss@nacog.org.

3. SUBMISSION OF BID. Submission of a Bid shall be considered prima-facie evidence that the Contractor is familiar with and understands all the conditions under which the Bid and subsequent CONTRACT is to be awarded, performed, and administered. The CONTRACTOR, if awarded the CONTRACT, shall not be allowed extra compensation by reason of any matter or thing which such CONTRACTOR might have more fully explored or been informed prior to submitting a Bid. After the submission of the Bid, no complaint or claim that there was any misunderstanding as to the conditions or nature of the work will be entertained.

Submission of additional terms, conditions, or agreements with the Bid Documents may result in rejection of the Bid. Bidder shall return all Bid Documents, with the exception of Construction Documents, intact and completed as directed.

4. METHOD OF DELIVERY. There are five (5) methods by which Bidders can forward this bid package to CITY: Regular U.S. Postal Service (No delivery to CITY Hall-Use P.O. Box); U.S. Postal Express Mail (No delivery to CITY Hall-Use P.O. Box); Federal Express; United Parcel Service; hand delivery. Facsimile BIDs shall not be accepted.

The mailing address for CITY is:

City of Page
Office of the CITY Clerk
P.O. Box 1180
Page, AZ 86040-1180

The physical address for CITY is:

City of Page
Office of the CITY Clerk
697 Vista Avenue
Page, AZ 86040

5. QUESTIONS, OMISSIONS, DISCREPANCIES, INTERPRETATIONS AND ADDENDA. All questions regarding discrepancies in or omissions from, the Scope of Services, or other Bid Documents, or doubts as to their meaning should be submitted in writing to the Department Director specified in the Notice of Invitation for Bid.

No oral interpretations shall be made to any Bidder as to the meaning of any of the Bid Documents, and CITY shall not be bound by any oral interpretation of the Bid Documents. Oral interpretations or clarifications will be without legal effect.

Any amendment or addendum issued will be forwarded within 5 days to any known recipient of the original IFB. For purposes of receiving any addendum issued, it shall be the sole responsibility of each potential bidder to notify CITY that they have obtained a copy of the original IFB and intend to submit a Bid and provide contact information for the receipt of amendments or addendum. The City of Page hereby reserves the right to extend the period of time in which to submit bids.

6. WITHDRAWAL OF BID. At any time prior to the specified Bid submission deadline, a Bidder may withdraw or revise the Bid. Any withdrawal or revision request must be received in writing prior to said deadline. All revisions must be submitted in the same form and manner as the original Bid. No Bid may withdraw his Bid for Sixty (60) days after the time established for receiving Bids. The award of the CONTRACT to another party does not constitute a waiver of this condition.

7. LATE BIDS. Late Bids shall not be considered. Page is considered a rural area by most express delivery carriers and thus, they do not guarantee priority or next day delivery. Bidders are encouraged to keep this in mind when arranging delivery of their Bids and are advised herein that late Bids shall be rejected and returned to the Bidder regardless of reason for being late.

8. PRICES. In the event of discrepancy or conflict between the prices quoted in the Bid in words and those quoted in figures, the words shall control. The price quoted shall be the total cost the CITY will pay for the project, including furnishing of all materials, equipment, tools, and all other facilities, all applicable taxes, and the performance of all labor and services necessary or proper for completion of the work. Prices quoted shall also include any and all payment incentives available to the CITY.

9. REFERENCES. The Bidder shall provide a list of three (3) current and three (3) former clients. References should have similar scope and requirements to those outlined in these Bid Documents. Unacceptable references, as determined by the CITY of Page, may be sufficient reason to deny award of this project to Bidder.

10. STATEMENT OF QUALIFICATIONS. As evidence of his competency to perform the Work, Bidder shall complete and submit with his Bid the Statement of Bidder Qualifications. Low bidders may be asked to furnish additional data to demonstrate competency. By submitting a Bid, Bidder certifies that he is skilled and regularly engaged in the general class and type of work called for in the Bid Documents. Additionally, Bidder shall comply with all provisions of Arizona Revised Statutes, Title 32, Chapter 10.

11. SUBCONTRACTORS. The CONTRACTOR may subcontract any part of the work to be performed under this CONTRACT as long as resulting charges to CITY do not exceed the Lump Sum Bid quoted in the Bid Form and the subcontractor(s) is/are licensed to perform the work required by the CONTRACT. The Bidder shall submit the List of Subcontractors and Supplier form, listing all of the subcontractors and major suppliers it intends to use in the performance of the Work. CITY reserves the right to reject any Bid based on submission of an incomplete list of subcontractors and major material suppliers as non-responsive. CITY reserves the right to reject, prior to award of the CONTRACT, the Bidder's request for substitution of subcontractors or major material suppliers provided, however, substitute subcontractors may be considered as long as they comply with the requirements of the Contract Documents.

12. DETERMINATION OF SUCCESSFUL BIDDER. Except where CITY exercises the reserved right herein, the CONTRACT shall be awarded by CITY to the Responsive and Responsible Bidder who has submitted the lowest lump sum Bid.

CITY may conduct such investigation as CITY deems necessary to assist in the evaluation of any BID and to establish the responsibility, qualifications, and financial ability of Bidders, proposed subcontractors and other persons and organizations to do the Work in accordance with the Bid Documents.

13. AWARD OF CONTRACT. Notwithstanding any other provision in these Bid Documents, CITY reserves the right to (a) waive any immaterial defect or informality; or (b) reject any or all Bids, or portions thereof; (c) withdraw, cancel, or reissue this IFB; (d) issue addenda or amend the IFB, including extending deadlines; (e) request additional information and/or clarification from Bidder; (f) accept any part/portion of any bid with exclusion to other parts/portions; (g) negotiate and/or award a contract only when it is in the best interest of the CITY; and/or (h) take other actions the CITY deems is in the best interest of the CITY. Within thirty (30) days after opening of the bids, CITY shall act upon them. The acceptance of a Bid shall be a written Notice of Award and no other act shall constitute acceptance.

14. BID SECURITY AND BONDING. Each bid must be accompanied by a bond or a cashier's check of the Company, drawn on a national bank, in an amount equal to five percent (5%) of the Bid, as a guarantee on the part of the CONTRACTOR that it will, if called upon to do so, accept and enter into a contract based on the obligations and conditions set forth herein to perform the work covered by such Bid and at the cost stated therein. Checks and bonds will be returned promptly after the CITY and the selected contractor have executed the CONTRACT, or, if no contractor's bid has been selected within thirty (30) days after the date of the opening of the Bids, upon demand of the contractor at any time thereafter, so long as he has not been notified of the acceptance of his proposal. Failure to execute the CONTRACT within ten (10) business days will, at the option of the CITY, constitute a breach and the CITY will be entitled to forfeiture of the required bond accompanying the Bid, not as a penalty, but as liquidated damages.

Pursuant to A.R.S. § 34-222, the CONTRACTOR shall post a 100% Performance Bond and 100% Labor and Material Payment Bond with the CITY before the CONTRACT is executed and Notice to Proceed issued.

15. TIME FOR EXECUTING CONTRACT. Any Bidder whose Bid has been accepted shall be required to execute the CONTRACT and return it to CITY within ten (10) days after receipt of the Notice of Award, complete with required bond forms and insurance certificates. Failure or neglect to do so shall constitute a breach of the agreement effected by the Notice of Award. The

rights and obligations provided for in the CONTRACT shall become effective and binding upon the parties only with its formal execution by the CITY.

The damages to CITY for such breach shall include loss from interference with its construction program and other items whose accurate amount shall be difficult or impossible to compute. The amount of the Bid Bond, if any, accompanying the Bid of such Bidder shall be retained by CITY as liquidated damages for such breach.

16. SUSPENSION & DEBARMENT. Construction contractors are required to be registered and current in the federal SAM (System of Award Management) system. The website for registration is: <https://sam.gov/content/home>. CITY reserves the right to reject the Bid of any person or corporation that has previously defaulted on any contract with CITY or has engaged in conduct that constitutes a cause for debarment or suspension.

17. PROTEST PROCEDURE. Bid protests shall be submitted in writing to: Kevin Goss, NACOG, 221 N. Marina Street, Suite 101, Prescott, AZ 86301, or kgoss@nacog.org, within 72 hours of bid award notification. Protests must contain at a minimum the name, address and telephone number of the protester, the signature of the protester or its representative and evidence of authority to sign; a detailed statement of the legal and factual grounds of the protest including copies of relevant data; and the form of relief requested. Within three (3) business days of receipt, and after consultation with legal counsel, ADOH, Project Manager, or others, CITY will respond to the protest. CITY reserves the right to reject any or all bids; to waive irregularities of information in any bid; and/or to take any steps determined prudent in order to resolve the protest.

18. PUBLIC RECORD. All Bids submitted in response to this invitation shall become the property of CITY and shall become a matter of public record; provided, however, that the Bidder shall clearly identify information that he considers to be confidential. To the extent that CITY agrees, and current Arizona law supports such designation, such information will be held in confidence whenever possible.

1-3 BID FORM

PROJECT **SUBSTANCE ABUSE RESIDENTIAL FACILITY (CDBG #128-22)**
CITY **CITY OF PAGE**
 697 VISTA AVENUE
 PAGE, ARIZONA 86040

Bidder's Company Name: _____

The undersigned bidder has carefully examined the Bid Documents and the site of the work for the Substance Abuse Residential Facility for the City of Page, and shall provide all necessary machinery, tools, apparatus, and other means of construction and do all the Work and furnish all materials called for in the Bid Documents.

Bidder has examined the following Addenda (receipt of which is hereby acknowledged):
(Provide date and # of each addendum): _____

BUILDING PERMIT FEES WILL BE WAIVED BY THE CITY AND ARE NOT TO BE INCLUDED

THE BIDDER AGREES TO PERFORM ALL OF THE NECESSARY WORK DESCRIBED IN THE BID DOCUMENTS FOR THE TOTAL BID PRICE OF:

(in words) _____

_____ Dollars (\$_____.____)

Accompanying this Bid is a Bid Bond for Five Percent (5%) of the lump sum bid payable to CITY, which is to be forfeited as liquidated damages, if, in the event that this bid is accepted, the undersigned fails to execute the CONTRACT and furnish satisfactory performance and payment bonds under the conditions and within the time specified in the Bid Documents; otherwise said Bid Bond is to be returned to the undersigned.

Date _____

Name of Bidder _____

Signature of Bidder _____

Title of Bidder _____

Address _____

Telephone Number _____

Fax Number _____

Bidder shall have the following License(s) to perform the Work specified herein:

Arizona General Contractor's License No. _____

Federal Tax ID No. _____

1-4 CONTRACTOR'S REFERENCE PAGE

To Submit with Bid. ALL REFERENCES WILL BE TREATED AS THE CONTRACTOR'S CONFIDENTIAL BUSINESS INFORMATION. CITY may contact some or all of the references provided in order to determine Bidder's Responsibility and performance record on work of similar scope. CITY reserves the right to contact references other than those provided in the response and to utilize the information gained from them in the evaluation process.

Previous work for CITY may be used as references. Complete each item for all 6 references (3 Current and 3 Former):

Current References:

1	Owner/Agency	
	Address	
	City, State, Zip	
	Phone	
	Contact Person	
	Project Name and Scope of Work	

2	Owner/Agency	
	Address	
	City, State, Zip	
	Phone	
	Contact Person	
	Project Name and Scope of Work	

3	Owner/Agency	
	Address	
	City, State, Zip	
	Phone	
	Contact Person	
	Project Name and Scope of Work	

Former References:

1	Owner/Agency	
	Address	
	City, State, Zip	
	Phone	
	Contact Person	
	Project Name and Scope of Work	

2	Owner/Agency	
	Address	
	City, State, Zip	
	Phone	
	Contact Person	
	Project Name and Scope of Work	

3	Owner/Agency	
	Address	
	City, State, Zip	
	Phone	
	Contact Person	
	Project Name and Scope of Work	

1-5 LIST OF SUBCONTRACTORS AND MATERIAL VENDORS

PROJECT **SUBSTANCE ABUSE RESIDENTIAL FACILITY (CDBG #128-22)**

CITY CITY OF PAGE
697 VISTA AVENUE
PAGE, ARIZONA 86040

To Submit with Bid. In compliance with the Instructions to Bidders, the undersigned submits the following names of subcontractors and material vendors to be used in performing the work for this project. Where subcontractor or material vendor does not apply, write "N/A."

Subcontractor's or Material Vendor's Trade	Subcontractor's Name	Vendor's Name
Demolition		
Earthwork		
Soil Treatment		
Paving and Surfacing		
Site Improvements		
Concrete Reinforcing		
Cast-in-Place Concrete		
Masonry		
Structural Steel		
Steel Joists		
Steel Decking		
Light Gage Metal Framing		
Metal Fabrication		
Rough Carpentry		
Architectural Woodwork		
Damp Proofing		
Insulation		
Roofing		
Flashing and Sheet Metal		
Sealants		
Sheet Metal Roofing		
Metal Doors and Frames		

Subcontractor's or Material Vendor's Trade	Subcontractor's Name	Vendor's Name
Wood Doors		
Special Doors		
Metal Windows		
Hardware		
Glazing		
Lath and Plaster		
Gypsum Wallboard		
Ceramic Tile		
Acoustical Panel Ceilings		
Resilient Flooring		
Carpeting		
Painting		
Signage		
Plumbing		
Fire Protection System		
HVAC		
Electrical		
Irrigation		
Landscape		
Other (specify)		

1-6 STATEMENT OF BIDDER QUALIFICATION

If bidder is a corporation, answer the following:

Date of Incorporation _____
State of Incorporation _____
President's Name _____
Vice President's Name _____
Secretary/Clerk's Name _____
Treasurer's Name _____

If bidder is a partnership, answer the following:

Date of Organization _____
General or Limited
Partnership _____

Name and Address of All Partners:

If other than a corporation or partnership, describe the organization and name principals:

Major types of work done by the organization:

How many years has your organization been in business as a contractor under your present business name? _____

How many years' experience in the proposed type and scale of construction work has your organization had? _____

A. As a general contractor: _____

B. As a subcontractor: _____

What is the construction experience of the principal individuals of your organization?

Individual's Name	Present Position or Office	Years Construction Experience	Magnitude and Type of Work	In What Capacity

1-7 ARIZONA STATUTORY BID BOND

PROJECT **SUBSTANCE ABUSE RESIDENTIAL FACILITY (CDBG #128-22)**

CITY CITY OF PAGE
697 VISTA AVENUE
PAGE, ARIZONA 86040

PURSUANT TO TITLE 34, ARIZONA REVISED STATUTES, (Penalty of this bond must not be less than 5% of bid amount), KNOW ALL MEN BY THESE PRESENTS THAT:

_____ (hereinafter "Principal"), as Principal, and
_____ (hereinafter "Surety"), a corporation organized
and existing under the laws of the State of _____, with its principal offices in the
City of _____, holding a certificate of authority to transact surety business in
Arizona issued by the Director of the Department of Insurance pursuant to Title 20, Chapter 2,
Article 1, as Surety, are held and firmly bound unto the City of Page, Arizona (hereinafter
"Obligee"), in the sum of Five Percent (5%) of the amount of the bid of Principal, submitted by
Principal to Obligee for the work described below, for payment of which sum, the Principal and
Surety bind themselves, and their heirs, administrators, executors, successors and assigns,
jointly and severally, firmly by these presents.

WHEREAS, the Principal has submitted a bid for the work titled above.

NOW, THEREFORE, if the obligee shall accept the proposal of the Principal and the Principal
shall enter into a contract with the Obligee in accordance with the terms of the proposal and
give the bonds and insurance as specified in the standard specifications with good and sufficient
surety for the faithful performance of this contract and for prompt payment of labor and materials
furnished in the prosecution of this contract, or in the event of the failure of the Principal to enter
into this contract and give the bonds and certificates of insurance, if the Principal pays to the
Obligee the difference not to exceed the penalty of the bond between the amount specified in
the proposal and such larger amount for which the Obligee may in good faith contract with
another party to perform the work covered by the proposal then this obligation is void.
Otherwise, it remains in full force and effect provided, however, that this bond is executed
pursuant to the provisions of Section 34-201, Arizona Revised Statutes, and all liabilities on this
bond shall be determined in accordance with the provisions of that section to the extent as if it
were copied at length herein.

Witness our hands this _____ day of _____, 20_____.

By _____ (Principal)

By _____ (Surety)

2 CONTRACT AGREEMENT DOCUMENTS

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2-1 NOTICE OF AWARD

PROJECT **SUBSTANCE ABUSE RESIDENTIAL FACILITY (CDBG #128-22)**

CITY CITY OF PAGE
697 VISTA AVENUE
PAGE, ARIZONA 86040

CONTRACTOR _____

DATE _____, 2024

The City of Page, having duly considered the bid submitted on March 6, 2024 for the City of Page **SUBSTANCE ABUSE RESIDENTIAL FACILITY (CDBG #128-22)** as outlined in the Contract Documents, and it appearing that your BID for performing the work is fair, equitable, and in the City's best interest, said Bid is hereby accepted at the lump sum price contained therein, and in accordance with all terms, conditions, covenants, and provisions set forth in the Contract Documents.

In accordance with the terms of the Contract Documents, you are required to execute the formal CONTRACT and furnish the required Payment and Performance Bonds within ten (10) consecutive calendar days from and including the date of receipt of this Notice.

In addition, you are requested to furnish at the same time, the required LS-3 Forms, Section 3 Forms, and certificates of insurance evidencing compliance with the requirements for insurance stated in the Contract Documents.

The Bid Bond submitted with your bid will be retained until the CONTRACT has been executed and the required Payment and Performance Bonds have been furnished and approved.

Kyle Christiansen
Director of Public Works

RECEIVED AND ACCEPTED BY CONTRACTOR:

By _____
Name _____
Date _____

2-2 CONTRACT

PROJECT **SUBSTANCE ABUSE RESIDENTIAL FACILITY (CDBG #128-22)**

CITY CITY OF PAGE
697 VISTA AVENUE
PAGE, ARIZONA 86040

CONTRACTOR _____

The following CONTRACT contains terms and conditions which CONTRACTOR must be prepared to accept upon receipt of a Notice of Award. If a Bidder requests modification to any of the terms and conditions contained in the CONTRACT, these must be identified specifically with Bid submission; otherwise by submitting a Bid, the Bidder indicates that it is willing to enter into the CONTRACT as written. Failure to identify contractual issues of dispute may be the basis for the CITY disqualifying a Bidder. Any exceptions to terms, conditions, or other requirements must be clearly stated.

This Contract ("CONTRACT") is made and entered into by and between the City of Page, an Arizona municipal corporation, (hereinafter "CITY"), and _____ (hereinafter "CONTRACTOR").

IN CONSIDERATION of the mutual promises and agreements set forth herein, it is agreed by and between the CITY and CONTRACTOR, as follows:

1. CONTRACT DOCUMENTS. The following documents are hereby incorporated by reference into this CONTRACT, and shall be referred to as the Contract Documents:

A. Bid Documents to include the (1) Notice of Invitation for Bid; (2) Instructions to Bidders; (3) Bid Form; (4) Bid Schedules; (5) Contractor's Reference Page; (6) List of Subcontractors and Material Vendors; (7) Statement of Bidder Qualification; (8) Arizona Statutory Bid Bond, and (9) All Davis Bacon Labor Standards documents including the wage rate decision, LS-2, LS-3s, payroll forms, and Section 3 documentation.

B. Contract Agreement Documents to include the (1) Notice of Award; (2) Contract; (3) Arizona Statutory Payment Bond; (4) Arizona Statutory Performance Bond; and (5) Notice to Proceed.

C. General Conditions

D. Technical Specifications

E. Addenda to the Plans and Specifications, if any

F. Project Construction Plans

G. Uniform Standard Specifications for Public Works Construction, latest edition as administered by the Maricopa Association of Governments.

H. Addendum I - Contractor Contract Additional Provisions

The above-named documents are essential parts of this CONTRACT, and a requirement occurring in one is as binding as though occurring in all. They are intended to be complimentary and to describe and provide for a complete work. CONTRACTOR agrees to be bound by all terms, conditions, covenants, and obligations in the Contract Documents as if each were again fully set forth verbatim herein. In the event any document conflicts or contradicts this instrument, this instrument shall control.

2. TIME. The date of commencement of the project shall be the date fixed in the "Notice to Proceed" issued by the CITY. The Contract Time shall be measured from the date of commencement.

The CONTRACTOR shall achieve substantial completion of the entire project not later than _____(TBD)_____, subject to adjustments of this contract time with approval of the CITY. The Parties acknowledge that time is of the essence and that completion of this project within the monetary and time constraints placed on the project is of utmost importance and CITY has considered and relied on CONTRACTOR's representations as to its quality of service commitment in entering into this CONTRACT. The Parties further recognize that quantified standards of performance are necessary and appropriate to ensure that the project is completed competently within budget and on time. The Parties further recognize that if CONTRACTOR fails to achieve the performance standards, CITY and its residents will suffer damages and that it is and will be impracticable and extremely difficult to ascertain and determine the exact amount of damages that CITY will suffer. Therefore, the Parties agree that in the event the CONTRACTOR fails to complete this CONTRACT on or before the completion date as specified herein, liquidated damage shall be assessed in the amount of \$250.00 per day that the CONTRACT remains unfinished. This amount represents a reasonable estimate of the amount of such damages considering all of the circumstances existing on the date of this CONTRACT, including the relationship of the sums to the range of harm to CITY and its residents that reasonably could be anticipated and recognition that proof of actual damages would be costly or inconvenient.

Permitting CONTRACTOR to continue and finish the Work or any part of it after the time fixed for its completion or after the date to which the time fixed for any completion may have been extended, does not operate as a waiver by CITY of any rights under the Contract Documents, law or equity.

3. SUBSTANTIAL COMPLETION. When CONTRACTOR considers that the Work, phase or a portion thereof, which CITY agrees to accept separately, is substantially complete, CONTRACTOR shall prepare and submit to the CITY a comprehensive Punch List of items to be completed or corrected prior to Final Acceptance and Final Payment. Failure to include an item on such Punch List does not alter the responsibility of CONTRACTOR to complete all Work in accordance with the Contract Documents.

Upon receipt of CONTRACTOR's Punch List, CITY will make an inspection to determine whether the Work or designated portion thereof is substantially complete. If the inspection by the CITY discloses any item, whether or not included on CONTRACTOR's Punch List, which is not sufficiently completed in accordance with the Contract Documents so that CITY can occupy or utilize the Work, phase or designated portion thereof for its intended use, CONTRACTOR shall, before issuance of the Certificate of Substantial Completion, complete or correct such

item upon notification by CITY. In such case, CONTRACTOR shall then submit a request for another inspection by CITY to determine Substantial Completion.

The CITY shall not issue a Certificate of Substantial Completion unless and until the Work (or separable units or phases as provided in the Contract Documents) is essentially and satisfactorily complete in accordance with the Contract Documents, such that the Project is ready for use by CITY for its intended purpose, opening to the general public, full occupancy or use by CITY (including, without limitation, all separate units, or rooms, facilities, access, income-generating areas, and/or all areas serving the general public, as applicable, shall be ready for full-operation without material inconvenience or discomfort), including, to the extent applicable to the Work, the following: all materials, equipment, systems, controls, features, facilities, accessories and similar elements are installed in the proper manner and in operating condition, inspected and approved; surfaces have been painted; masonry and concrete cleaned with any sealer or other finish applied; utilities and systems connected and functioning; site work complete; permanent heating, ventilation, air condition, vertical transportation and other systems properly operating with proper controls; lighting and electrical systems installed, operable and controlled; paving completed, signage installed, and/or other work as applicable, has been performed to a similar state of essential and satisfactory completion. A minor amount of Work, as determined by and at the discretion of the CITY, such as installation of minor accessories or items, a minor amount of painting, minor replacement of defective work, minor adjustment of controls or sound systems, or completion or correction of minor exterior work that cannot be completed as a result of weather conditions, will not delay determination of Substantial Completion. If prior written approval is obtained from CITY for purposes of Substantial Completion, specified areas of the entire Work or Project may be individually certified as Substantially Complete. In no event shall Substantial Completion be deemed to have occurred unless and until: (i) a temporary certificate of occupancy has been issued by the appropriate Governmental Authorities (as applicable) and (ii) all terms and Work required under this CONTRACT have been fulfilled by CONTRACTOR and same shall have also been approved and accepted by CITY, subject only to the Punch List items.

4. FINAL ACCEPTANCE. Unless otherwise expressly agreed to in writing by CITY, Final Acceptance must be obtained by no later than 30 calendar days after the date of Substantial Completion. Failure to timely obtain Final Acceptance will be a material breach of the CONTRACT.

Upon receipt of written notice that the Work is ready for final inspection and acceptance, CITY and CONTRACTOR will jointly inspect to verify that the remaining items of Work have been completed. There shall be no partial acceptance. Final Acceptance shall not occur until all items of Work, including Punch List Items, have been completed to CITY's satisfaction as reflected in the written Final Acceptance.

5. PAYMENT. In consideration of the services specified in this CONTRACT, CITY agrees to pay CONTRACTOR in the manner hereinafter specified.

CONTRACTOR shall provide detailed documentation in support of requested progress payments in accordance with A.R.S. § 34-221. CITY shall then make payments in accordance with its obligation as provided by A.R.S. § 34-221(C). Any payments made shall not prevent the Owner from subsequently objecting to charges after payment therefore in appropriate cases, or from seeking reimbursement for any such charges. Retention will be in accordance with A.R.S. § 34-221(C).

Subject to all of CITY's rights to withhold or offset payment, and other rights under the CONTRACT, Final Payment including remaining retainage shall be paid only after:

- a. the Work has been fully completed (including completion of all incorrect or incomplete work items) and the written Final Acceptance has been issued by CITY;
- b. necessary operating manuals, any excess materials and supplies necessary for matching materials and supplies incorporated into the Work, and complete "as-built" drawings have been delivered to CITY;
- c. full and unconditional lien waivers and releases by CONTRACTOR and any person performing labor or supplying material, machinery, fixtures, or tools for the Work have been delivered to CONTRACTOR; and
- d. CONTRACTOR delivers to CITY a Contractor Payment Request Form requesting Final Payment.

In no event shall the total payment(s) paid to the CONTRACTOR under this CONTRACT exceed \$_____.

Nothing in this CONTRACT shall create any obligation on the part of CITY to pay or see to the payment of any money due any subcontractor, except as may be required by law. CONTRACTOR shall make all payments, in the time required, of all labor and materials furnished to CONTRACTOR in the course of the Work and shall promptly furnish evidence of such payments as CITY may require. CONTRACTOR shall pay when due all claims arising out of performance of the Work covered by this CONTRACT for which a lien may be filed either against the real estate or leasehold interest of CITY, or against payments due from CITY to CONTRACTOR, or for which a claim may be made against any payment or performance bond or both. To the fullest extent permitted by law, CONTRACTOR agrees that no liens or other claims in the nature of a lien against the real estate, leasehold, or other interest of CITY, against payment due from CITY to CONTRACTOR, or against any payment or performance bond, shall be filed or made in connection with the Work by any party who has supplied professional services, labor, materials, machinery, fixtures, tools, or equipment used in or in connection with the performance of this CONTRACT, and CONTRACTOR agrees to remove or to cause to be removed any such liens or claims in the nature of a lien or bond claim within ten (10) calendar days upon receiving notice or obtaining actual knowledge of the existence of such liens or claim. In addition, CONTRACTOR agrees to defend, indemnify, and hold harmless CITY from and against any and all such liens and claims. This paragraph does not apply to claims and liens of CONTRACTOR due to non-payment for Work performed.

6. SCOPE OF SERVICES. CONTRACTOR shall provide for CITY all labor, materials and equipment necessary to perform the Work provided for in the Contract Documents. All work shall be done in a skillful and workmanlike manner per specifications called for in the Contract Documents.

7. CONTRACTOR/SUBCONTRACTOR PERFORMANCE. CONTRACTOR shall perform the work in accordance with the terms of this CONTRACT and to the best of CONTRACTOR'S ability. CONTRACTOR agrees to exercise the skill and care, which would be exercised by comparable professional Contractors performing similar services at the time and in the locality such services are performed. Furthermore, CONTRACTOR shall perform the work or services in accordance with generally accepted methods and standards.

CONTRACTOR shall employ suitably trained and skilled personnel to perform all work or services under this CONTRACT. If failure to meet acceptable standards results in faulty work,

CONTRACTOR shall undertake, at CONTRACTOR's own expense, corrective adjustments, modifications, or repair.

CONTRACTOR shall be fully responsible for all acts and omissions of its subcontractor(s) and of persons directly or indirectly employed by subcontractor(s).

8. INSURANCE. CONTRACTOR, at his own expense, shall purchase and maintain the herein stipulated minimum insurance with companies duly licensed and subject to legal process within the State of Arizona, possessing a current A.M. Best, Inc. Rating of A- or better.

All insurance required herein shall be maintained in full force and effect until all work or services required to be performed under the terms of this CONTRACT is satisfactorily completed; failure to do so may, at the sole discretion of CITY, constitute a material breach of this CONTRACT.

CONTRACTOR's insurance shall be primary insurance in regard to the CITY, and any insurance or self-insurance maintained by CITY shall not contribute to it. The insurance policies shall contain a waiver of transfer rights of recovery (subrogation) against CITY, its agents, officers, officials and employees for any claims arising out of CONTRACTOR's acts, errors, mistakes, omissions, work or services. The City shall be named as an additional insured.

Prior to commencing work or services under this CONTRACT, CONTRACTOR shall furnish the CITY with Certificates of insurance, or formal endorsements as required by this CONTRACT, issued by CONTRACTOR's insurer(s), as evidence that policies providing the required coverage, conditions and limits required herein are in full force and effect. All Certificates of Insurance shall be identified with the bid number and title.

If a policy does expire during the life of this CONTRACT, a renewal certificate must be sent to CITY fifteen days prior to the expiration date. Insurance required herein shall not expire, be cancelled, or materially changed without thirty (30) days written notice to CITY.

The CONTRACTOR shall carry at all times the following insurance coverage:

Comprehensive Commercial General Liability:

Limits: Combined single Limit Bodily Injury/Property damage- not less than \$1,000,000.

Automobile Liability:

Limits: Bodily Injury- \$250,000 each person
\$500,000 each occurrence

Property Damage- \$100,000 each occurrence

Workers' Compensation:

The CONTRACTOR shall carry Workers' Compensation insurance to cover obligations imposed by federal and state statutes having jurisdiction over the Contractor's employees engaged in the performance of the work or services; and Employer's Liability insurance of not less than \$100,000 for each accident, \$100,000 disease for each employee, and \$500,000 disease policy limit.

In case any work is subcontracted, this CONTRACT will require the Subcontractor to provide Workers' Compensation and Employer's Liability to at least the same extent as required of this CONTRACTOR.

9. INDEMNIFICATION. To the fullest extent permitted by law, the CONTRACTOR shall indemnify and hold harmless the CITY and each council member, officer, employee or agent thereof (the CITY and any such person being herein called an "Indemnified Party"), for, from and against any and all losses, claims, damages, liabilities, costs and expenses (including, but not limited to, reasonable attorneys' fees, court costs and the costs of appellate proceedings) to which any such Indemnified Party may become subject, under any theory of liability whatsoever ("Claims") to the extent that such Claims (or actions in respect thereof) are caused by the negligent acts, recklessness or intentional misconduct of the CONTRACTOR, its officers, employees, agents, or any tier of subcontractor in connection with CONTRACTOR's work or services in the performance of this CONTRACT.

The amount and type of insurance coverage requirements set forth within this CONTRACT shall in no way be construed as limiting the scope of the indemnity as set forth herein.

10. INDEPENDENT CONTRACTOR STATUS. Both parties agree that: (a) the work contracted for in this CONTRACT falls within the distinct nature of CONTRACTOR'S business; (b) the nature of the work contained within this CONTRACT is specialized, and CITY has elected to contract out the work rather than attempt to perform the work with its current workforce; (c) CONTRACTOR is an incorporated business that possesses the personnel and materials necessary to perform the work; (d) the relationship of the work provided by CONTRACTOR has no relationship to the regular business conducted by CITY; (e) it is understood and agreed that CONTRACTOR is an independent contractor, and nothing herein contained shall constitute, create, give rise to, or otherwise recognize an employment relationship, joint venture, partnership, or formal business association or organization of any kind between the parties hereto, other than as contracting parties, nor shall CONTRACTOR or any subcontractor, or any employee of CONTRACTOR or any subcontractor be deemed to be employed by CITY or entitled to any remuneration or other benefits from the CITY, other than as set forth in this CONTRACT.

11. ASSIGNMENT. CONTRACTOR shall not assign its rights to this CONTRACT, in whole or in part, without prior written approval of CITY. Approval may be withheld at the sole discretion of CITY, provided that such approval shall not be unreasonably withheld.

12. AUTHORITY TO CONTRACT. CONTRACTOR warrants its right and power to enter into this CONTRACT. If any court or administrative agency determines that CITY does not have authority to enter into this CONTRACT, CITY shall not be liable to CONTRACTOR or any third party by reason of such determination or by reason of this CONTRACT.

13. CANCELLATION FOR CONFLICT OF INTEREST. This CONTRACT is subject to cancellation for conflict of interest pursuant to A.R.S. § 38-511, the pertinent provisions of which are incorporated into this CONTRACT by reference.

14. TERMINATION OF CONTRACT FOR CAUSE. If, through any cause, CONTRACTOR shall fail to fulfill in timely and proper manner its obligations under this CONTRACT, or if CONTRACTOR shall violate any of the covenants, provisions, or stipulations of this CONTRACT, CITY shall thereupon have the right to terminate this CONTRACT by giving written notice to CONTRACTOR of such termination and specifying the effective date thereof, at least ten (10) days before the effective date of such termination.

In such event, all finished or unfinished documents, data, studies, surveys, drawings, maps, models, photographs, and reports prepared by CONTRACTOR shall, at the option of CITY,

become its property and CONTRACTOR shall be paid an amount based on time and expenses incurred by CONTRACTOR prior to the termination date; however, no payment shall be allowed for anticipated profits on unperformed work or services. Notwithstanding the above, CONTRACTOR shall not be relieved of liability to CITY for damages sustained by CITY by virtue of any breach of this CONTRACT by CONTRACTOR and CITY may withhold payments to CONTRACTOR for purpose of set-off until such time as the exact amount of damages due the CITY from CONTRACTOR are determined.

15. TERMINATION FOR CONVENIENCE. CITY may terminate this CONTRACT at any time by giving written notice to CONTRACTOR of such termination and specifying the effective date thereof, at least thirty (30) days before the effective date of such termination. If this CONTRACT is terminated by CITY as provided herein, CONTRACTOR shall be paid an amount based on the time and expense incurred by CONTRACTOR prior to the termination date, however, no payment shall be allowed for anticipated profit on unperformed work or services.

16. NON-APPROPRIATION OF FUNDS. Notwithstanding any other provision of this CONTRACT, this CONTRACT may be terminated without penalty to the CITY, if for any reason there are not sufficient appropriated and available monies for the purpose of maintaining CITY or other public entity obligations under this CONTRACT. CITY shall have no further obligation to CONTRACTOR, other than to pay for services rendered prior to termination.

17. REMEDIES. Either party may pursue any remedies provided by law for breach of this CONTRACT. No right or remedy is intended to be exclusive of any other right or remedy and each shall be cumulative and in addition to any other right or remedy existing at law or at equity or by virtue of this CONTRACT.

18. WAIVER. Failure of either party to insist on one or more instances upon the full and complete compliance with any of the terms or provisions of this CONTRACT to be performed on the part of the other, or to take any action permitted as a result thereof, shall not be construed as a waiver or relinquishment of the right to insist upon full and complete performance of the same, or any other covenant or condition, either in the past or in the future. The Acceptance by either party of sums less than may be due and owing it at any time shall not be construed as an accord and satisfaction.

No failure of the CITY during the progress of the work to discover or reject materials or work not in accordance with this CONTRACT shall be deemed an acceptance of, or a waiver of, defects in work or materials. No payment shall be construed to be an acceptance of work or materials which are not strictly in accordance with the CONTRACT.

19. CHOICE OF LAW/VENUE. The CONTRACT and all Contract Documents shall be deemed to be made under, and shall be construed in accordance with and governed by the laws of the State of Arizona without regard to the conflicts or choice of law provisions thereof. Any court action to enforce any provision of the CONTRACT or to obtain any remedy with respect hereto shall be brought in the Superior Court, Coconino County, Arizona, and for this purpose, each party hereby expressly and irrevocably consents to the jurisdiction and venue of such Court.

20. ENTIRE AGREEMENT. This CONTRACT constitutes the entire agreement between the parties pertaining to the subject matter hereof, and all prior or contemporaneous agreements and understandings, oral or written, are hereby superseded and merged herein. This CONTRACT may be modified, amended, altered or extended only by a written amendment

signed by the parties. Additionally, nothing in the CONTRACT shall be deemed to guarantee CONTRACTOR a minimum amount of rentals, services, or business to the CITY.

21. A.R.S. § 41-4401. The contractor warrants compliance with all Federal immigration laws and regulations relating to employees and subcontractors and warrants its compliance with A.R.S. § 41-4401 including the E-verify program. A breach of this section shall be deemed a material breach of the CONTRACT that is subject to penalties up to and including termination of the CONTRACT. CITY retains the legal right to inspect the papers of CONTRACTOR or any subcontractor employee who works on the CONTRACT to ensure compliance with this provision.

22. CONSTRUCTION OF THIS CONTRACT. This CONTRACT shall be construed and interpreted according to its plain meaning, and no presumption shall be deemed to apply in favor of, or against the party drafting this CONTRACT. The parties acknowledge and agree that each has had the opportunity to seek and utilize legal counsel in the review of and entry into this CONTRACT.

23. NOTICES. All notices, requests, demands, payments and other communications hereunder shall be in writing and shall be deemed given if personally delivered or mailed, certified mail, return receipt requested, or sent by overnight carrier to the following address on the date received:

City of Page

Contractor:

697 Vista Avenue
P.O. Box 1180
Page, Arizona 86040

24. A.R.S. § 35-393. Pursuant to A.R.S. § 35-393 et seq., CONTRACTOR certifies that it is not currently engaged in, and agrees for the duration of this CONTRACT not to engage in, a boycott of Israel.

25. NO THIRD-PARTY BENEFICIARIES. Nothing under the Contract Documents shall be construed to give any rights or benefits in the Contract Documents to anyone other than CITY and CONTRACTOR, and all duties and responsibilities undertaken pursuant to the Contract Documents will be for the sole and exclusive benefit of CITY and CONTRACTOR and not for the benefit of any other party, unless otherwise expressly set forth in the Contract Documents.

26. SEVERABILITY. If any provision of the Contract Documents or the application thereof to any person or circumstance shall be invalid, illegal or unenforceable to any extent, the remainder of the affected provision, the remainder of the Contract Documents, and the application thereof shall not be affected and shall be enforceable to the fullest extent permitted by law.

IN WITNESS WHEREOF, the parties have executed this CONTRACT on the dates set forth below.

City of Page

An Arizona municipal corporation

By: _____

Date: _____

Attested By:

Kary Holloway, City Clerk

Contractor:

By: _____

Date: _____

Approved as to Form:

City Attorney

2-3 ARIZONA STATUTORY PAYMENT BOND

PROJECT **SUBSTANCE ABUSE RESIDENTIAL FACILITY (CDBG #128-22)**

CITY **CITY OF PAGE**
 697 VISTA AVENUE
 PAGE, ARIZONA 86040

PURSUANT TO TITLE 34, ARIZONA REVISED STATUTES, (Penalty of this bond must be 100% of this CONTRACT amount), KNOW ALL MEN BY THESE PRESENTS THAT:

_____ (hereinafter "Principal"), as Principal, and
_____ (hereinafter "Surety"), a corporation organized
and existing under the laws of the State of _____, with its principal offices in the
City of _____, holding a certificate of authority to transact surety business in
Arizona issued by the Director of the Department of Insurance pursuant to Title 20, Chapter 2,
Article 1, as Surety, are held and firmly bound unto the City of Page, Arizona (hereinafter
"Obligee"), in the amount of \$_____, for the payment whereof, Principal and Surety
bind themselves, and their heirs, administrators, executors, successors and assigns, jointly and
severally, firmly by these presents.

WHEREAS, the Principal has entered into a certain written CONTRACT with Obligee, dated the
___ day of _____, 2024, for the work titled above, which contract is hereby referred
to and made part hereof as fully and to the same extent as if copied at length herein.

NOW, THEREFORE, THE CONDITION OF THE OBLIGATION IS SUCH, that if the Principal
promptly pays all monies due to all persons supplying labor or materials to the Principal or the
Principal's subcontractors in the prosecution of the work provided for in the contract, this
obligation is void. Otherwise, it remains in full force and effect.

PROVIDED, HOWEVER, that this bond is executed pursuant to the provisions of Title 34,
Chapter 2, Article 2, Arizona Revised Statutes, and all liabilities on this bond shall be determined
in accordance with the provisions, conditions and limitations of Title 34, Chapter 2, Article 2,
Arizona Revised Statutes, to the same extent as if it were copied at length in this agreement.

The prevailing party in a suit on this bond shall recover as part of the judgment reasonable
attorney fees that may be fixed by the court.

Witness our hands this _____ day of _____, 20_____.

By _____ (Principal)

By _____ (Surety)

2-4 ARIZONA STATUTORY PERFORMANCE BOND

PROJECT **SUBSTANCE ABUSE RESIDENTIAL FACILITY (CDBG #128-22)**

CITY **CITY OF PAGE**
 697 VISTA AVENUE
 PAGE, ARIZONA 86040

PURSUANT TO TITLE 34, ARIZONA REVISED STATUTES, (Penalty of this bond must be 100% of this CONTRACT amount), KNOW ALL MEN BY THESE PRESENTS THAT:

_____(hereinafter "Principal"), as Principal, and _____(hereinafter "Surety"), a corporation organized and existing under the laws of the State of _____, with its principal offices in the City of _____, holding a certificate of authority to transact surety business in Arizona issued by the Director of the Department of Insurance pursuant to Title 20, Chapter 2, Article 1, as Surety, are held and firmly bound unto the City of Page, Arizona (hereinafter "Obligee"), in the amount of \$_____, for the payment whereof, Principal and Surety bind themselves, and their heirs, administrators, executors, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal has entered into a certain written CONTRACT with the Obligee, dated the ____day of_____, 2024, for the work titled above, which contract is hereby referred to and made part hereof as fully and to the same extent as if copied at length herein.

WHEREAS, payment shall be made by Surety to Obligee upon failure of Principal to faithfully perform and fulfill all the undertakings, covenants, terms, conditions and agreements of the Contract regarding the performance of the contract and presentation of such to Surety by a claim, which has been prepared and signed by the Obligee's representative and witnessed by a notary, stating that: "The Principal is in default, such condition has existed for over 90 days, and the Obligee is hereby exercising its rights under bond no._____."

NOW, THEREFORE, THE CONDITION OF THE OBLIGATION IS SUCH, that if the Principal faithfully performs and fulfills all of the undertakings, covenants, terms, conditions and agreements of the contract during the original term of the contract and any extension of the contract, with or without notice to the Surety, and during the life of any guaranty required under the contract, and also performs and fulfills all of the undertakings, covenants, terms, conditions and agreements of all duly authorized modifications of the contract that may hereafter be made, notice of which modifications to the Surety being hereby waived, the above obligation is void. Otherwise, it remains in full force and effect.

PROVIDED, HOWEVER, that this bond is executed pursuant to the provisions of Title 34, Chapter 2, Article 2, Arizona Revised Statutes, and all liabilities on this bond shall be determined in accordance with the provisions, conditions and limitations of Title 34, Chapter 2, Article 2, Arizona Revised Statutes, to the same extent as if it were copied at length in this agreement.

The prevailing party in a suit on this bond shall recover as part of the judgment reasonable attorney fees that may be fixed by the court.

Witness our hands this _____ day of _____, 20_____.

By _____ (Principal)

By _____ (Surety)

2-5 NOTICE TO PROCEED

PROJECT SUBSTANCE ABUSE RESIDENTIAL FACILITY (CDBG #128-22)

CITY CITY OF PAGE
697 VISTA AVENUE
PAGE, ARIZONA 86040

CONTRACTOR _____

DATE _____

You are hereby authorized to proceed with work effective _____, 2024 and substantially complete all Work by or before _____, 2024. Liquidated damages of \$250.00 per day are applicable for each day past _____, 2024, for which work on this Project is not complete, unless otherwise provided.

Kyle Christiansen
Director of public works

RECEIVED AND ACCEPTED BY CONTRACTOR:

By _____
Name _____
Date _____

3 GENERAL CONDITIONS

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3-1 GENERAL CONDITIONS

The following Provisions are general in scope and may refer to conditions which will not be encountered in the performance of the Work included in the CONTRACT and which are not applicable thereto. Any requirements, provisions or other stipulation of these General Conditions which pertain to a non-applicable condition shall be excluded from the scope of the CONTRACT.

1. **DEFINITIONS.** Whenever in these Bid or Contract Documents, or in any document of instruction where these Bid or Contract Documents govern, the following terms or pronouns in place of them are used, the intent and meaning shall be interpreted as follows:

Bid: The offer of the Bidder for the work when properly made out on forms containing the Bid Form supplied by CITY and properly submitted signed and guaranteed.

Bid Documents: Consists of all the documents so identified in the CONTRACT and in the bid package.

Bidder: Any individual, firm or corporation, qualified as herein provided, legally submitting a Bid for the work contemplated, acting directly or through an authorized representative.

City: The City of Page, an Arizona municipal corporation.

Construction Documents: The plans, specifications, and drawings prepared, issued and approved by CITY for construction. All amendments and modifications to the Construction Documents must be approved in writing by CITY prior to incorporation into the CONTRACT.

Contract: The written agreement covering the performance of the Work and the furnishing of labor, equipment, and materials in the construction for the Work.

Contract Documents: Includes the Notice of Invitation for Bid, Definitions, Scope of Work and/or Plans, Drawings, and Technical Specifications, Instructions to Bidders, General Conditions, Special Conditions (if any), Arizona Statutory Bid Bond, Arizona Statutory Performance Bond, Arizona Statutory Payment Bond, Contract, Contractor's Reference List, List of Subcontractors & Material Vendors, Statement of Bidder Qualifications, Bid Form, Notice of Award, and Notice to Proceed, and All Davis Bacon Labor Standards documents including the wage rate decision, LS-2, LS-3s, payroll forms, and Section 3 documentation.

Contractor: The successful Bidder selected by the Council that enters into the CONTRACT to perform the Work.

Drawings (Plans): Documents, which visually represent the scope, extent and/or character of the Work to be furnished and performed by CONTRACTOR during the construction phase. These documents include Drawings that have reached a sufficient state of completion and released by a design professional solely for the purposes of review and/or use in performing constructability or bid-ability reviews by CONTRACTOR and in preparing cost estimates (e.g. Master Planning and Programming, Schematic Design, Design Development, and Construction Drawings), but "not for construction." Shop Drawings are not Drawings as so

defined.

Extra Work: Work, including materials, for which no price agreement is contained in the CONTRACT and which is deemed necessary for the proper completion of the work.

Final Acceptance: The CITY's acceptance of the facility or project from the CONTRACTOR after all Work is completed, tested, and inspected in accordance with the contract requirements. Final Acceptance results in a Letter of Acceptance (LOA).

Notice of Award: The official written notice from CITY to the Bidder selected by CITY to perform THE WORK.

Notice to Proceed: The official written notice from CITY to CONTRACTOR to begin performance of the Work.

Project: The Project specified in the Bid Documents.

Punch List: The list initially prepared by CONTRACTOR pursuant to the Contract Documents, reviewed and supplemented by the CITY (and at the sole option of the CITY, the design professional) and approved by CITY containing items of incomplete work not impacting Substantial Completion, if allowed for under the CONTRACT, and to be completed or corrected by CONTRACTOR after Substantial Completion and before Final Acceptance in accordance with the Contract Documents.

Responsible Bidder: A Bidder determined by CITY:

- A. To have the ability, capability, experience and skill to provide the goods and/or services in accordance with the bid specifications;
- B. To have the ability to provide the goods and/or services promptly, or within the time specified, without delay or interference;
- C. To have equipment, facilities and resources of such capacity and location to enable the BIDDER to provide the goods and/or services;
- D. To be able to provide future maintenance, repair, parts and service for the use of the goods purchased, when applicable;
- E. To have the quality and adaptability of the materials, supplies or services required or necessary to the particular use; and
- F. To possess the financial resources to perform the CONTRACT.

Responsive Bidder: A Bidder determined by CITY to have submitted a bid that conforms in all material respects to the requirements of the Bid Documents.

Shop Drawings: All drawings, diagrams, schedules and other data specifically prepared for the Work by CONTRACTOR or a Subcontractor, Sub-subcontractor, manufacturer, supplier or distributor to illustrate some portion of the Work.

Special Conditions: Additional conditions to the General Conditions, which are conditions or requirements peculiar to the project under consideration. In the event Special Conditions are in conflict with the General Conditions, the Special Conditions shall be controlling.

Substantial Completion: The date when the CITY determines that the Work (or separable units of Phases as provided in the Contract Documents) is essentially and satisfactorily complete in accordance with the Contract Documents such that the Project is ready for use by the CITY for its intended purpose, opening to the general public, full occupancy or use by CITY (including, without limitation, all separate units, or rooms, facilities, access, income generating areas, and/or all areas serving the general public, as applicable, shall be ready for full operation without material inconvenience or discomfort), including, to the extent applicable to the Work, the following: all materials, equipment, systems, controls, features, facilities, accessories, and similar elements are installed in the proper manner and in operating condition, inspected, and approved; surfaces have been painted; masonry and concrete cleaned with any sealer or other finish applied; utilities and systems connected and functioning; site work complete; permanent heating, ventilation, air conditioning, vertical transportation, and other systems properly operating with proper controls; lighting and electrical systems installed, operable and controlled; paving completed, signage installed, and/or other work as applicable, has been performed to a similar state of essential and satisfactory completion.

Surety: The corporate body, who is primarily liable, that agrees to be responsible for the payment of all debts pertaining to the acceptable performance of the work for which the CONTRACTOR has contracted.

The Work: All of the work or services, including the labor and materials, specified in the Contract Documents.

2. **CERTIFICATION.** By signature of the Bid Form, Bidder certifies:

A. The submission of the Bid did not involve collusion or other anti-competitive practices.

B. The Bidder shall not discriminate against any employee, or applicant for employment in violation of Federal Executive Order 11246, or A.R.S. § 31-1461 et seq.

C. The Bidder has not given, offered to give, nor intends to give at any time hereafter, any economic opportunity, future employment, gift, loan, gratuity, special discount, trip, favor, or service to a public servant in connection with the submitted Bid.

D. The Bidder submitting the offer hereby certifies that the individual signing the Bid is an authorized agent for the Bidder and has authority to bind the Bidder to the CONTRACT.

E. That no person has been employed or retained to solicit or secure this CONTRACT upon an agreement or understanding for a commission, percentage, brokerage or contingency fee, and that no member of the CITY Council or CITY employee has any interest, financial or otherwise, in the contracting firm.

3. **COMPLIANCE WITH LAW.** The CONTRACTOR, in the execution of the Work, shall conform to all applicable Federal, State, and local laws, rules and regulations. If CONTRACTOR observes that the Construction Documents are at variance therewith, it shall promptly notify CITY in writing, and any necessary changes shall be made as provided in this CONTRACT for changes in work. CONTRACTOR shall bear all costs arising from work performed contrary to such laws, rules and regulations, and without such notice to CITY.

CONTRACTOR shall obtain all necessary permits for the Work and pay all applicable fees, unless

otherwise noted on the plans and in the specifications.

4. LICENSES. The Work to be performed under the CONTRACT will be subject to the provisions on Title 34 of the Arizona Revised Statutes (A.R.S. § 34-101 through 34-461, as amended), if applicable. All Bidders and their subcontractors shall be duly licensed to perform the Work at the time the Bid is submitted pursuant to all applicable laws, rules and regulations. At all times thereafter, while performing the Work, CONTRACTOR shall maintain in current status all licenses, permits, certifications, approvals and authorizations necessary to perform all obligations as set forth in the Contract Documents. It shall be the CONTRACTOR's responsibility to verify that its subcontractors have all appropriate licenses, permits, certifications, approvals and authorizations prior to their performing CITY of Page work on behalf of the CONTRACTOR.

5. PROVISIONS REQUIRED BY LAW. All applicable Federal, State and local laws, rules and regulations of all authorities having jurisdiction over construction for the project shall apply to the CONTRACT throughout, and they shall be deemed to be included in the CONTRACT the same as if each were fully set forth verbatim herein. Contractor shall be familiar with and at all times shall observe said laws, rules and regulations.

6. CHANGE ORDERS FOR CHANGED OR EXTRA WORK. The CITY reserves the right at any time during the progress of the Work to make necessary alterations of, deviations from, additions to, or deletions from the CONTRACT, or may require the performance of Extra Work neither covered by the specifications nor included in the BID, but forming a part of the Work contracted for; provided however, the CONTRACTOR shall not proceed with any such change or Extra Work without a written Change Order approved by the CITY. Adjustments, if any, in the amount to be paid to the CONTRACTOR by reason of any such change shall be agreed upon by the Parties prior to issuance of the Change Order.

No claim for any changed or Extra Work of any kind shall be allowed unless the work is ordered and approved in writing by the CITY in the form of a Change Order. No anticipated profits shall be allowed for work deleted.

In the event any written instructions appear to the CONTRACTOR to involve a change or Extra Work for which, in his opinion, he should receive extra compensation, he shall make a written request to the Department Director named herein, or his properly authorized agent, for a written Change Order. The matter shall then be submitted to the CITY for final determination as to whether or not a change or Extra Work was involved, and if so, the amount due to the CONTRACTOR. Any claim for extra cost pursuant to this provision, together with supporting documents and receipts must be filed within ten (10) consecutive calendar days after performing the work for which the extra cost is claimed.

If CONTRACTOR, in the course of the Work, finds any discrepancy between the Construction Documents and the physical conditions of the locality, or any errors or omissions in the Construction Documents or in the layout as given by points and instructions, it shall be CONTRACTOR's duty to immediately inform CITY, in writing, and CITY shall promptly verify the same. Any work done after such discovery, until authorized in writing, shall be done at CONTRACTOR's risk. If CONTRACTOR, with the exercise of reasonable care, should have recognized such error, inconsistency, omission or difference and fails to report it to CITY, and if CONTRACTOR proceeds with the Work affected by such observed errors, discrepancies or omissions, without receiving such clarifications, it does so at its own risk and shall be liable to CITY for damages resulting from proceeding without clarification.

7. PROTECTION OF WORK/PROPERTY. The CONTRACTOR, at no additional expense to CITY, shall at all times safely guard and protect Contractor's own work; provide, erect, and maintain suitable barriers around all excavations or obstructions to prevent accidents; and provide, place and maintain during the night sufficient lights, signals, and signs for this purpose on or near the work. The CONTRACTOR shall at all times, until its completion and final acceptance, protect his work apparatus, equipment, and material from accidental or other damage; and make good any damages thus occurring at no additional cost to CITY.

The CONTRACTOR, at no additional expense to the CITY, shall at all times be responsible for the preservation of all public and private property on the surface and subsurface, along and adjacent to the work and shall conduct its operations so as to insure the prevention of injury or damage thereto. In the event damage or injury is done to public or private property on account of any act, omission, neglect, or misconduct in the execution of the Work, such property shall be restored by CONTRACTOR.

CONTRACTOR shall exercise care to protect from injury all water lines, sanitary sewer lines, gas mains, telephone cables, electric cables, services pipes, and all other utilities and fixtures which may be encountered during the progress of work. All utilities and other service facilities or fixtures if damaged, shall be repaired by CONTRACTOR without additional compensation.

Until written final acceptance of the work by CITY, CONTRACTOR shall be responsible for and take every precaution against injury or damage to any part of the Work from any cause, whether arising from the execution or non-execution of the Work. CONTRACTOR shall rebuild, repair, restore, and make good all injuries or damages of any portion of the Work occasioned by any cause, with the exception of negligence or willful misconduct of the CITY, before final acceptance and shall bear the expense thereof.

8. SUBCONTRACTS. CONTRACTOR agrees that it is as fully responsible to CITY for the acts and omissions of its subcontractors and of persons either directly or indirectly employed by them, as it is for the acts and omissions of persons directly employed by it.

9. CLEAN UP. CONTRACTOR shall, as directed by CITY, remove from CITY's property and from all public and private property, at its own expense, all temporary structures, rubbish, and waste materials resulting from its operation. All surplus materials and all materials and equipment removed and not reused as a condition of this CONTRACT shall remain or become the property of the CONTRACTOR, unless otherwise so stated in writing.

10. CITY'S RIGHT TO DO WORK. If CONTRACTOR should neglect to prosecute THE WORK properly or fail to perform any provision of this CONTRACT, CITY, after notice to CONTRACTOR, may, without prejudice to any other remedy it may have, make good such deficiencies and may deduct the cost thereof from the payment then or thereafter due CONTRACTOR.

11. SAFETY. Contractor is responsible for safety of the job site for employees of Contractor as well as for members of the general public and others who may drive or walk through or be at the site. Contractor and Subcontractors shall comply with all legal and regulatory requirements relating to safety

12. SCHEDULES. CONTRACTOR shall submit at such times as may be requested by CITY, schedules which shall show the order in which CONTRACTOR proposes to carry on the

Work with dates at which CONTRACTOR shall start the several parts of the Work and estimated dates of completion of the several parts.

13. PROJECT DOCUMENTS. During the construction period, CONTRACTOR shall maintain

at the jobsite a full-size set of prints of the Construction Document Drawings and Shop Drawings ("Project Record Documents"). CONTRACTOR shall mark these drawings to indicate the actual installation where the installation varies from the original Construction Documents. CONTRACTOR shall give particular attention to information on elements that will be concealed, which would be difficult to identify or measure and record later. Items required to be marked include but are not limited to:

- a. Dimensional changes to the Drawings.
- b. Revisions to details shown on Drawings.
- c. Locations and depths of underground utilities.
- d. Revisions to routing of piping and conduits.
- e. Actual equipment locations.
- f. Changes made by Change Order or Addendum.
- g. Details not on original Contract Drawings.

CONTRACTOR shall submit Project Record Drawing sets and Shop Drawings to CITY or its representative for review and comment. Upon receipt of the reviewed Project Record Drawings from CITY, CONTRACTOR shall correct any deficiencies and/or omissions to the drawings and submit the final original of the Project Record Drawings to CITY prior to Final Payment.

14. WARRANTY. CONTRACTOR warrants to CITY that the construction of the Work shall be of good and workmanlike quality and completed in strict conformance with all applicable laws, rules and regulations and the plans and specifications and all other terms and conditions of the Contract Documents, including all materials and equipment furnished as part of the construction, shall be new unless otherwise specified in the Contract Documents, of good quality, in conformance with the Contract Documents and free of defects in materials and workmanship.

In addition, unless otherwise specified in the Contract Documents, CONTRACTOR and Subcontractors shall provide to City all of the following written warranties that apply to the Work, in a form acceptable to CITY.

- a. General Warranty – One (1) year
- b. Mechanical Contractor – Two (2) years
- c. Plumbing Contractor – Two (2) years
- d. Electrical Contractor – Two (2) years
- e. Roofing Contractor – Two (2) years
- f. Roofing Manufacturer – Ten (10) years
- g. Caulking – One (1) year
- h. Steel Joists, Certificate of Manufacture
- i. Exterior Metal Wall System – Five (5) years
- j. Painting – One (1) year
- k. Termite – Five (5) years
- l. Sheet Metal – Zinc coating thickness on hot-dipped galvanized metals – One (1) year
- m. Acoustical Tile – Five (5) years
- n. Resilient Floor Covering – One (1) year

Nothing in the warranties contained in the Contract Documents are intended to limit any manufacturer's warranty which provides CITY with greater warranty rights than set forth in this section or the Contract Documents. CONTRACTOR will provide CITY with all manufacturers' warranties prior to Substantial Completion, if applicable, or Final Acceptance if Substantial Completion does not apply. CONTRACTOR shall remedy at CONTRACTOR's expense any failure to conform, or any defective work.

CONTRACTOR agrees that it shall be responsible to manage and administer the correction of any Work that is not in conformance with the Contract Documents during the warranty periods set forth above, or during any longer periods to the extent required by the Contract Documents. A progress payment, or partial or entire use or occupancy of the Project by CITY, shall not constitute acceptance of Work not in accordance with the Contract Documents.

When notified of a warranty issue, CONTRACTOR shall respond in writing within 48-hours and shall perform warranty work as soon as material for said repairs are available (as judged solely by CITY), and in any event CONTRACTOR shall, take immediate steps to commence and complete correction of nonconforming Work no later than the time period set forth in CITY's written notification in accordance with the Contract Documents. This includes the correction, removal or replacement of the nonconforming Work and any damage caused to other parts of the Work affected by the nonconforming Work. If defects develop which are determined by CITY to be an emergency, CITY shall notify CONTRACTOR, via the most expeditious means regarding the nature and condition of the defects. In turn, CONTRACTOR shall immediately dispatch necessary forces to correct the defect or the emergency condition in accordance with Contract Documents.

The time periods referenced in this Warranty section apply only to CONTRACTOR's obligation to correct nonconforming Work and is not intended to constitute a period of limitations for any other rights or remedies that CITY may have regarding CONTRACTOR's other obligations under the Contract Documents.

Without limiting the foregoing or anything in the CONTRACT to the contrary, CONTRACTOR shall obtain and provide to CITY all warranties for any portion of the Project offered by the manufacturer, installer or provider thereof. CITY and the user of the facility shall have the right to the full value and benefit of all such warranties. CONTRACTOR will ensure all such warranties are fully transferrable to facilitate the full value of this Warranty section.

CONTRACTOR's warranty excludes damages or defects caused by abuse, alterations to the Work not executed by or through CONTRACTOR, improper or insufficient maintenance, improper operation, or normal wear and tear and normal usage.

15. OWNERSHIP OF DOCUMENTS. All original drawings, boring logs, field data, estimates, field notes, plans, specifications, documents, reports, calculations, maps and models, and other information developed by CONTRACTOR under this CONTRACT shall vest in and become the property of CITY and shall be delivered to CITY upon completion or termination of the services, but CONTRACTOR may retain record copies thereof.

16. INSPECTION OF WORK. CITY representatives shall at all times have access to the Work wherever it is in preparation or progress. If the specifications, CITY's instructions, laws, ordinances, or any public authority, require any work be specifically tested or approved, CONTRACTOR shall give CITY timely notice of its readiness for inspection and if the inspection

is by an authority other than CITY, of the date fixed for such inspection. Inspections by CITY shall be promptly made, and where practicable at the source of the supply. If any Work should be covered up without approval or consent of CITY, it must, if required by CITY, be uncovered for inspection at CONTRACTOR's expense.

Re-examination of questioned Work may be ordered by CITY, and if so ordered the Work must be uncovered by CONTRACTOR. If such Work is found to be in accordance with the Construction Documents, CITY shall pay the costs of re-examination and replacement. If such work is found not to be in accordance with the Construction Documents, CONTRACTOR shall pay such costs.

CONSTRUCTION PLANS

Sheet List	
Sheet Number	Sheet Name

1-GENERAL

G-001	COVER SHEET
G-002	LIFE SAFETY PLAN
G-003	ADA1
G-004	ADA2
G-005	ADA3

2-CIVIL

C1.0	COVER SHEET
C2.0	SITE PLAN
C3.0	EROSION CONTROL PLAN
C3.1	EROSION CONTROL NOTES AND DETAILS
C4.0	GRADING AND DRAINAGE PLAN
C4.1	GRADING AND SITE DETAILS
C5.0	UTILITY PLAN
C5.1	UTILITY NOTES AND DETAILS

3-STRUCTURAL

S001	STRUCTURAL NOTES
S101	FOUNDATION PLAN
S103	ROOF FRAMING PLAN
S501	STRUCTURAL DETAILS
S801	STRUCTURAL SCHEDULES
S701	TYPICAL STRUCTURAL DETAILS

4-ARCHITECTURE

A-101	FLOOR, DIMENSION/WALL TYPES
A-111	ROOF PLAN
A-120	REFLECTED CEILING PLAN
A-201	EXTERIOR ELEVATIONS
A-202	EXTERIOR ELEVATIONS
A-212	INTERIOR ELEVATIONS
A-213	INTERIOR ELEVATIONS
A-301	BUILDING SECTIONS
A-501	DETAILS
A-502	DETAILS
A-503	DETAILS
A-504	DETAILS
A-601	SCHEDULES
F-101	FURNITURE PLAN

Sheet List	
Sheet Number	Sheet Name

5-MECHANICAL

M-000	MECHANICAL TITLE SHEET
M-001	MECHANICAL GENERAL NOTES
M-101	LEVEL 1 HVAC PLAN
M-120	ROOF MECHANICAL PLAN
M-501	MECHANICAL DETAILS
M-502	KITCHEN HOOD DETAIL
M-503	KITCHEN HOOD DETAIL
M-504	KITCHEN HOOD DETAIL
M-505	KITCHEN HOOD DETAIL
M-506	KITCHEN HOOD DETAIL
M-507	KITCHEN HOOD DETAIL
M-601	MECHANICAL SCHEDULES
M-701	MECHANICAL SPECIFICATIONS
M-702	MECHANICAL SPECIFICATIONS

6-PLUMBING

P-000	PLUMBING TITLE SHEET
P-101	LEVEL 1 PLUMBING PLAN
P-190	ROOF PLUMBING PLAN
P-401	PLUMBING ENLARGED PLAN
P-501	PLUMBING DETAILS
P-502	PLUMBING DETAILS
P-601	PLUMBING SCHEDULES
P-701	PLUMBING SPECIFICATIONS
P-702	PLUMBING SPECIFICATIONS

7-ELECTRICAL

E001	ELECTRICAL TITLE SHEET
ES102	SITE PHOTOMETRIC PLAN
ES101	ELECTRICAL SITE PLAN
E101	LEVEL 1 LIGHTING PLAN
E111	LEVEL 1 POWER PLAN
E112	ROOF POWER PLAN
E501	ELECTRICAL DIAGRAMS
E502	ELECTRICAL DIAGRAMS
E503	ELECTRICAL DIAGRAMS
E601	ONE LINE AND CALCS
E602	ELECTRICAL SCHEDULES
E603	ELECTRICAL SCHEDULES
E701	ELECTRICAL SPECIFICATIONS



CITY OF PAGE
CDBG GRANT #128-22
GRANT-RELATED DOCUMENTS
(FEDERAL REQUIREMENTS, LABOR STANDARDS AND SECTION 3)

FOR

SUBSTANCE ABUSE RESIDENTIAL FACILITY

City of Page
Department of Public Works

PO Box 1180
697 Vista Ave
Page, Arizona 86040

January 31, 2024

CDBG Grant Contact:

Northern Arizona Council of Governments
Kevin Goss, NACOG
221 N. Marina St., Suite 101
Prescott, AZ 86301
(928) 445-0211

**Encompass Substance Abuse Residential Facility
CDBG CONTRACT #128-22
FEDERAL REQUIREMENTS, LABOR STANDARDS & SECTION 3**

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Attachment I - Peregrine Falcon Management Guidelines

FEDERAL LABOR STANDARDS PROVISIONS

U.S. Department of Housing and Urban Development

Applicability

The Project or Program to which the construction work covered by this contract pertains is being assisted by the United States of America and the following Federal Labor Standards Provisions are included in this Contract pursuant to the provisions applicable to such Federal assistance.

A. 1. (i) Minimum Wages. All laborers and mechanics employed or working upon the site of the work (or under the United States Housing Act of 1937 or under the Housing Act of 1949 in the construction or development of the project), will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 CFR Part 3), the full amount of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor and such laborers and mechanics. Contributions made or costs reasonably anticipated for bona fide fringe benefits under Section 1 (b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of 29 CFR-5.5(a)(1)(iv); also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs, which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period.

Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in 29 CFR Part 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: Provided, That the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classification and wage rates conformed under 29 CFR Part 5.5(a)(1)(ii) and the Davis-Bacon poster (WH-1321) shall be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers.

(ii) (a) Any class of laborers or mechanics which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. HUD shall approve an additional classification and wage rate and fringe benefits therefore only when the following criteria have been met:

(1) The work to be performed by the classification requested is not performed by a classification in the wage determination, and

(2) The classification is utilized in the area by the construction industry, and

(3) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

(b) If the contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and HUD or its designee agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by HUD or its designee to the Administrator of the Wage and Hour Division, Employment Standards Administration, U.S. Department of Labor, Washington, DC. 20210. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise HUD or its designee or will notify HUD or its designee within the 30-day period that additional time is necessary. (Approved by the Office of Management and Budget under OMB control number 1215-0140.)

(c) In the event the contractor, the laborers or mechanics to be employed in the classification or their representatives, and HUD or its designee do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), HUD or its designee shall refer the questions, including the views of all interested parties and the recommendation of HUD or its designee, to the Administrator for determination. The Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise HUD or its designee or will notify HUD or its designee within the 30-day period that additional time is necessary. (Approved by the Office of Management and Budget under OMB Control Number 1215-0140.)

(d) The wage rate (including fringe benefits where appropriate) determined pursuant to subparagraphs (1)(b) or (c) of this paragraph, shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

(iii) Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.

(iv) If the contractor does not make payments to a trustee or other third person, the contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, Provided, That the Secretary of Labor has found, upon the written request of the contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the contractor to set aside in a separate account, assets for the meeting of obligations under the plan or program. (Approved by the Office of Management and Budget under OMB Control Number 1215-0140.)

2. Withholding. HUD or its designee shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld from the contractor under this contract or any other Federal contract with the same prime contractor, or any other Federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime contractor so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees and helpers, employed by the contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee or helper, employed or working on the site of the work (or under the United States Housing Act of 1937 or under the Housing Act of 1949 in the construction or development of the project), all or part of the wages required by the contract, HUD or its designee may, after written notice to the contractor, sponsor, applicant, or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased. HUD or its designee may, after written notice to the contractor, disburse such amounts withheld for and on account of the contractor or subcontractor to the respective employees to whom they are due. The Comptroller General shall make such disbursements in the case of direct Davis-Bacon Act contracts.

3. (i) Payrolls and basic records. Payrolls and basic records relating thereto shall be maintained by the contractor during the course of the work preserved for a period of three years* thereafter for all laborers and mechanics working at the site of the work (or under the United States Housing Act of 1937, or under the Housing Act of 1949, in the construction or development of the project). Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in Section 1(b)(2)(B) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid. Whenever the Secretary of Labor has found under 29 CFR 5.5 (a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in Section 1(b)(2)(B) of the Davis-Bacon Act the contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs. (Approved by the Office of Management and Budget under OMB Control Numbers 1215-0140 and 1215-0017.)

(ii) (a) The contractor shall submit weekly for each week in which any contract work is performed a copy of all payrolls to HUD or its designee if the agency is a party to the contract, but if the agency is not such a party, the contractor will submit the payrolls to the applicant, sponsor, or owner, as the case may be, for transmission to HUD or its designee. The payrolls submitted shall set out accurately and completely all of the information required to be maintained under 29 CFR Part 5.5(a)(3)(i). This information may be submitted in any form desired. Optional Form WH-347 is available for this purpose and may be purchased from the Superintendent of Documents (Federal Stock Number 029-005-00014-1), U.S. Government Printing Office, Washington, DC. 20402. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors. (Approved by the Office of Management and Budget under OMB Control Number 1215-0149.)

(b) Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the contractor or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:

(1) That the payroll for the payroll period contains the information required to be maintained under 29 CFR Part 5.5 (a)(3)(i) and that such information is correct and complete;

(2) That each laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in 29 CFR Part 3;

(3) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.

(c) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirement for submission of the "Statement of Compliance" required by paragraph A.3.(ii)(b) of this section.

(d) The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under Section 1001 of Title 18 and Section 231 of Title 31 of the United States Code.

(iii) The contractor or subcontractor shall make the records required under paragraph A.3. (i) of this section available for inspection, copying, or transcription by authorized representatives of HUD or its designee or the Department of Labor, and shall permit such representatives to interview employees during working hours on the job. If the contractor or subcontractor fails to submit the required records or to make them available, HUD or its designee may, after written notice to the contractor, sponsor, applicant or owner, take such action as may be necessary to cause the suspension of any further payment advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR Part 5.12.

4. (i) Apprentices and Trainees. Apprentices. Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Bureau of Apprenticeship and Training, or with a State Apprenticeship Agency recognized by the Bureau, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Bureau of Apprenticeship and Training or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice. The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the contractor's or subcontractor's registered program shall be observed. Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeymen hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination. In the event the Bureau of Apprenticeship and Training, or a State Apprenticeship Agency recognized by the Bureau, withdraws approval of an apprenticeship program, the contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(ii) Trainees. Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration. The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration. Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate on the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the

Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. In the event the Employment and Training Administration withdraws approval of a training program, the contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(iii) Equal employment opportunity. The utilization of apprentices, trainees and journeymen under this part shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR Part 30.

5. Compliance with Copeland Act requirements. The contractor shall comply with the requirements of 29 CFR Part 3 which are incorporated by reference in this contract

6. Subcontracts. The contractor or subcontractor will insert in any subcontracts the clauses contained in 29 CFR 5.5(a)(1) through (10) and such other clauses as HUD or its designee may by appropriate instructions require, and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in 29 CFR Part 5.5.

7. Contract termination; debarment. A breach of the contract clauses in 29 CFR 5.5 may be grounds for termination of the contract, and for debarment as a contractor and a subcontractor as provided in 29 CFR 5.12.

8. Compliance with Davis-Bacon and Related Act Requirements. All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR Parts 1, 3, and 5 are herein incorporated by reference in this contract.

9. Disputes concerning labor standards. Disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR Parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and HUD or its designee, the U.S. Department of Labor, or the employees or their representatives.

10. (i) Certification of Eligibility. By entering into this contract the contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of Section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1) or to be awarded HUD contracts or participate in HUD programs pursuant to 24 CFR Part 24.

(ii) No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of Section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1) or to be awarded HUD contracts or participate in HUD programs pursuant to 24 CFR Part 24.

(iii) The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 U.S.C. 1001. Additionally, U.S. Criminal Code, Section 1010, Title 18, U.S.C., "Federal Housing Administration transactions", provides in part: "Whoever, for the purpose of . . . influencing in any way the action of such Administration makes, offers or publishes any statement, knowing the same to be false . . . shall be fined not more than \$5,000 or imprisoned not more than two years, or both."

11. Complaints, Proceedings, or Testimony by Employees. No laborer or mechanic to whom the wage, salary, or other labor standards provisions of this Contract are applicable shall be discharged or in any other manner discriminated against by the Contractor or any subcontractor because such employee has filed any complaint or instituted or caused to be instituted any proceeding or has testified or is about to testify in any proceeding under or relating to the labor standards applicable under this Contract to his employer.

B. Contract Work Hours and Safety Standards Act. As used in this paragraph, the terms "laborers" and "mechanics" include watchmen and guards.

(1) Overtime requirements. No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek.

(2) Violation; liability for unpaid wages; liquidated damages. In the event of any violation of the clause set forth in subparagraph (1) of this paragraph, the contractor and any subcontractor responsible therefore shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in subparagraph (1) of this paragraph, in the sum of \$10 for each calendar day on which such individual was required or permitted to work in excess of eight

hours or in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in subparagraph (1) of this paragraph.

(3) Withholding for unpaid wages and liquidated damages. HUD or its designee shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any moneys payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contract or any other Federally-assisted contract subject to the Contract Work Hours and Safety Standards Act which is held by the same prime contractor such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in subparagraph (2) of this paragraph.

(4) Subcontracts. The contractor or subcontractor shall insert in any subcontracts the clauses set forth in subparagraph (1) through (4) of this paragraph and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in subparagraphs (1) through (4) of this paragraph.

C. Health and Safety

(1) No laborer or mechanic shall be required to work in surroundings or under working conditions which are unsanitary, hazardous, or dangerous to his health and safety as determined under construction safety and health standards promulgated by the Secretary of Labor by regulation.

(2) The Contractor shall comply with all regulations issued by the Secretary of Labor pursuant to Title 29 Part 1926 (formerly part 1518) and failure to comply may result in imposition of sanctions pursuant to the Contract Work Hours and Safety Standards Act (Public Law 91-54. 83 Stat 96).

(3) The Contractor shall include the provisions of this Article in every subcontract so that such provisions will be binding on each subcontractor. The Contractor shall take such action with respect to any subcontract as the Secretary of Housing and Urban Development or the Secretary of Labor shall direct as a means of enforcing such provisions.

(4010.doc)

"General Decision Number: AZ20240043 01/19/2024

Superseded General Decision Number: AZ20230043

State: Arizona

Construction Type: Building

Counties: Coconino, Mohave and Yavapai Counties in Arizona.

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 \$17.20 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 2024.	
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 \$12.90 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours performing on that contract in 2024.	

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

Modification Number	Publication Date
0	01/05/2024
1	01/19/2024

BRAZ0003-001 07/01/2023

	Rates	Fringes
BRICKLAYER.....	\$ 32.74	9.52

CARP1912-001 07/01/2023

	Rates	Fringes
CARPENTER.....	\$ 33.55	14.17

ELEC0640-002 01/01/2023

	Rates	Fringes
ELECTRICIAN.....	\$ 33.10	13.58

ENGI0428-017 06/01/2023

	Rates	Fringes
POWER EQUIPMENT OPERATOR		
Bulldozer.....	\$ 31.69	13.52
Crane.....	\$ 36.04	13.52
Loader.....	\$ 34.96	13.52

* IRON0075-012 10/01/2023

	Rates	Fringes
IRONWORKER.....	\$ 32.00	18.91

PLUM0469-010 07/01/2023

	Rates	Fringes
PIPEFITTER.....	\$ 45.65	18.00
PLUMBER.....	\$ 45.65	18.00

SHEE0359-001 07/01/2022

	Rates	Fringes
SHEET METAL WORKER.....	\$ 40.82	19.04

* SUAZ2019-006 06/12/2023

	Rates	Fringes
CEMENT MASON/CONCRETE FINISHER...	\$ 22.00	0.00

LABORER: Common or General.....\$ 16.00 ** 0.00

LABORER: Mason Tender -
Cement/Concrete.....\$ 18.90 0.00

LABORER: Pipelayer.....\$ 16.77 ** 1.05

OPERATOR:
Backhoe/Excavator/Trackhoe.....\$ 24.97 5.41

OPERATOR: Roller.....\$ 23.62 6.44

PAINTER.....\$ 16.48 ** 0.00

TILE SETTER.....\$ 21.50 0.00

WELDERS - Receive rate prescribed for craft performing
operation to which welding is incidental.

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** Workers in this classification may be entitled to a higher minimum wage under Executive Order 14026 (\$17.20) or 13658 (\$12.90). Please see the Note at the top of the wage determination for more information. Please also note that the minimum wage requirements of Executive Order 14026 are not currently being enforced as to any contract or subcontract to which the states of Texas, Louisiana, or Mississippi, including their agencies, are a party.

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 classification and wage rates that have been found to be prevailing for the cited type(s) of construction in the area covered by the wage determination. The classifications are listed in alphabetical order of ""identifiers"" that indicate whether the particular rate is a union rate (current union negotiated rate for local), a survey rate (weighted average rate) or a union average rate (weighted union average rate).

Union Rate Identifiers

A four letter classification abbreviation identifier enclosed in dotted lines beginning with characters other than ""SU"" or ""UAVG"" denotes that the union classification and rate were prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2014. PLUM is an abbreviation identifier of the union which 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. 07/01/2014 is the effective date of the most current negotiated rate, which in this example is July 1, 2014.

Union prevailing wage rates are updated to reflect all rate changes in the collective bargaining agreement (CBA) governing this classification and rate.

Survey Rate Identifiers

Classifications listed under the ""SU"" identifier indicate that no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As this weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SULA2012-007 5/13/2014. SU indicates the rates are survey rates based on a weighted average calculation of rates and are not majority rates. LA indicates the State of Louisiana. 2012 is the year of 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. 5/13/2014 indicates the survey completion date for the classifications and rates under that identifier.

Survey wage rates are not updated and remain in effect until a new survey is conducted.

Union Average Rate Identifiers

Classification(s) listed under the UAVG identifier indicate that no single majority rate prevailed for those classifications; however, 100% of the data reported for the classifications was union data. EXAMPLE: UAVG-OH-0010 08/29/2014. UAVG indicates that the rate is a weighted union

average rate. OH indicates the state. The next number, 0010 in the example, is an internal number used in producing the wage determination. 08/29/2014 indicates the survey completion date for the classifications and rates under that identifier.

A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CBA rate of the union locals from which the rate is based.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

- * an existing published wage determination
- * a survey underlying a wage determination
- * a Wage and Hour Division letter setting forth a position on a wage determination matter
- * a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour National Office because National Office has responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write 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 the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write 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 by 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

4.) All decisions by the Administrative Review Board are final.

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END OF GENERAL DECISION"

CONTRACTOR CONTRACT ADDITIONAL PROVISIONS

Upon submission of an Application for Payment, and upon approval by the ARCHITECT of the completed work, GRANTEE shall pay the CONTRACTOR ninety percent (90%) of the approved estimate of the work performed, and retain ten percent (10%) until final completion and acceptance of all material, equipment and work covered by the contract, less such amounts as the GRANTEE shall determine for all incomplete work and unsettled claims. After fifty percent (50%) completion, the GRANTEE may decrease the retainage to five percent (5%) providing CONTRACTOR is making satisfactory progress, coupled with such deductions as ARCHITECT determines are appropriate to cover claims requiring a greater sum to be retained. All payments to the CONTRACTOR shall be made within thirty (30) days of the submission of an Application for Payment, provided said Application for Payment is approved by the GRANTEE. GRANTEE shall not withhold payment except for non-compliance with the terms of this Contract, and the GRANTEE shall not request the CONTRACTOR to perform work outside the scope of this Contract as a condition of receiving payment.

CONTRACTOR agrees to the following recommendations made in the Environmental Assessment:

- Minimize impacts to vegetation during project construction. Staging areas should be located in previously disturbed sites, and kept as small as possible. Implement erosion and drainage control measures during the project to prevent the introduction of sediment-laden runoff into adjacent surface waters, and to prevent impacts to surface water quality. Stabilize exposed soils, particularly on slopes, with native vegetation as soon as possible to prevent excess erosion.
- Minimize the potential introduction or spread of exotic invasive species, including plants, animals, insects and pathogens. Precautions should be taken to wash and/or decontaminate all equipment utilized in the project activities before entering and leaving the site.
- To further limit the spread of non-native, invasive plant species, the Arizona Game and Fish Department recommends landscaping with drought-tolerant species that are native to Arizona.
- Peregrine Falcon Management Guidelines are to be included in the agreement with the procured contractor.
- Extra precautions should be taken during construction considering the groundwater table is shallow. Ensure no impacts to shallow groundwater table.
- Obtain an Air Quality Permit from ADEQ if the potential emissions from the facility exceed the permitting exemption threshold or if the equipment at the facility is subject to federal regulations that are not exempt from state rules (i.e. emergency engines, boilers, etc.)

Section 3 Clause

The work to be performed under this contract is subject to the requirements of Section 3 of the Housing and Urban Development Act of 1968, as amended, 12 U.S.C. 1701u (Section 3). The purpose of Section 3 is to ensure that the employment and other economic opportunities

generated by HUD assistance or HUD-assisted projects covered by Section 3, shall, to the greatest extent feasible, be directed to low - and very low-income persons in the project area.

The parties to this contract agree to comply with HUD's regulations in 24 CFR part 75, which implement Section 3. As evidenced by their execution of this contract, the parties to this contract certify that they are under no contractual or other impediment that would prevent them from complying with the part 75 regulations.

The contractor agrees to send to each labor organization or representative of workers with which the contractor has a collective bargaining agreement or other understanding, if any, a notice advising the labor organization or workers' representative of the contractor's commitments under this Section 3 clause, and will post copies of the notice in conspicuous places at the work site where both employees and applicants for training and employment positions can see the notice. The notice shall describe the Section 3 preference; job titles subject to hire; availability of apprenticeship and training positions; the qualifications for each; the name and location of the person(s) taking applications for each of the positions; and the anticipated date the work shall begin.

The contractor agrees to include this Section 3 clause in every subcontract subject to compliance with regulations in 24 CFR part 75 and agrees to take appropriate action, as provided in an applicable provision of the subcontract in this Section 3 clause, upon a finding that the subcontractor is in violation of the regulations in 24 CFR part 75.

The contractor will not subcontract with any subcontractor where the contractor has notice or knowledge that the subcontractor has been found in violation of the regulations in 24 CFR part 75.

The contractor will certify that any vacant employment positions, including training positions, that are filled: 1) after the contractor is selected but before the contract is executed; and 2) with persons other than those to whom the regulations of 24 CFR part 75 require employment opportunities to be directed, were not filled to circumvent the contractor's obligations under 24 CFR part 75.

Noncompliance with HUD's regulations in 24 CFR part 75 may result in sanctions, termination of this contract for default and debarment or suspension from future HUD assisted contracts.



Arizona
Department
of Housing

FORM LS-2
CONTRACTORS CERTIFICATION CONCERNING LABOR
STANDARDS AND PREVAILING WAGES

Recipient: City of Page

Contract No: 128-22

Activity Name: Encompass Substance Abuse Residential

1. **I, the undersigned, am submitting a bid to (name of recipient): City of Page for the construction of the (name of project): Encompass Substance Abuse Residential Facility and hereby acknowledge that the following items are included in the bid and will be incorporated by reference into the contract, should I be selected as the contractor for the project.**
 - a. Labor Standards Provisions (HUD 4010);
 - b. Wage Decision # AZ20240043 Modification # 1 Bid Open Date: March 6, 2024; and that
 - c. The correction of any infractions of the aforesaid conditions, including infractions by any of my sub-contractors and lower tier sub-contractors, is my responsibility.
2. **I hereby certify that:**
 - a. To the best of my knowledge, neither I nor any firm, partnership or association in which I have a substantial interest, is designated as an ineligible contractor by the Comptroller General of the United States pursuant to Section 5.6(b) of the Regulations of the Secretary of Labor, Part 5 (29 CFR Part 5) or pursuant to Section 3(a) of the Davis-Bacon Act, as amended [40 U.S.C. 276a-2(a)].
 - b. No part of the aforementioned contract is or will be sub-contracted to any sub-contractor, if such sub-contractor or firm, corporation, partnership or association in which such sub-contractor has a substantial interest is, to the best of my knowledge, designated as an ineligible contractor pursuant to any of the aforementioned regulatory or statutory provisions.
3. **I agree to obtain and forward to the aforementioned grantee a Sub-contractor's Certification Concerning Labor Standards and Prevailing Wage Requirements executed by each and every sub-contractor, preferably prior to or where circumstances do not allow within ten (10) days after the execution of any sub-contract, including those executed by his/her sub-contractors and any lower tier sub-contractors.**
4. **Further, I certify that:**
 - a. The demographic and business information of the undersigned are:

Contractor Information									
Amount of Contract	Type of Trade Code*	Racial Code*	Hispanic (Y/N)	Women Owned (Y/N)	IRS Tax ID #	DUNS #	Section 3 (Y/N)	Construction Firm Legal Name Address, City, State, Zip	AZ License #
\$									

**See Demographic and Trade Code table below for information*

LS-

2 (REV. 11/2019)

Demographic and Trade Codes	
<i>Race</i>	<i>Type of Trade Code</i>
11 White	1 New Construction
12 African American	2 Education/Training
13 Asian	3 Other (i.e. rehabilitation, administration, professional, public services)
14 American Indian or Alaskan Native	
15 Native Hawaiian or other Pacific Islander	
16 American Indian or Alaskan Native and White	
17 Asian and White	
18 African American and White	
19 American Indian or Alaskan Native and White	
20 Other Multi-racial	

b. The undersigned is:

- ☐ a sole proprietorship;
☐ a partnership;
☐ a corporation organized in the State of ____; or
☐ another organization (describe) ____

c. The name, title and address of the owners, partners or officers of the undersigned are (list any other legal names/doing business as (dba)):

NAME

TITLE

ADDRESS

- d. The names and addresses of all other persons, both natural and corporate, having a substantial interest in the undersigned and the nature of the interest, are: (indicate if NONE)

<u>NAME</u>	<u>ADDRESS</u>	<u>NATURE OF INTEREST</u>
_____	_____	_____

- e. The names, addresses and trade classifications of all other building construction contractors in which the undersigned has a substantial interest are: (indicate if NONE)

<u>NAME</u>	<u>ADDRESS</u>	<u>TRADE CLASSIFICATION</u>
_____	_____	_____

5. I hereby certify that I have the legal authority to complete and submit this document on behalf of:

a. Name of Contractor: _____

b. Signature (**in ink**):

c. Typed or Printed Name: _____

d. Title: _____

e. Date: _____

WARNING: U.S. Criminal Code, Section 1010, Title 18, U.S.C. provides in part:

“Whoever...makes, passes, utters or publishes any statement, knowing the same to be false...shall be fined under this title or imprisoned not more than two (2) years, or both.”



Arizona
Department
of Housing

FORM LS-3

SUB-CONTRACTORS CERTIFICATION CONCERNING LABOR STANDARDS AND PREVAILING WAGES

Recipient: City of Page

Contract No: 128-22

Activity Name: Encompass Substance Abuse Residential Facility

1. I, the undersigned, having submitted a bid or having executed a contract with:

(name of contractor or sub-contractor): _____

for (name of project): Encompass Substance Abuse Residential Facility

for (nature of work): _____

in the amount of \$ _____ certify that:

a. The Labor Standards Provisions (HUD 4010) are included in the aforementioned contract or bid;

b. Wage Decision # AZ20240043; Modification # 1 are included in the aforementioned contract or bid.

2. I hereby certify that:

a. To the best of my knowledge, neither I nor any firm, partnership or association in which I have a substantial interest, is designated as an ineligible contractor by the Comptroller General of the United States pursuant to Section 5.6(b) of the Regulations of the Secretary of Labor, Part 5 (29 CFR. Part 5) or pursuant to Section 3(a) of the Davis-Bacon Act, as amended [40 U.S.C. 276a-2(a)].

b. No part of the aforementioned contract has been or will be sub-contracted to any sub-contractor, if such sub-contractor or firm, corporation, partnership or association in which such sub-contractor has a substantial interest is, to the best of my knowledge, designated as an ineligible contractor pursuant to any of the aforementioned regulatory or statutory provisions.

3. Further, I certify that:

a. The demographic and business information of the undersigned are:

Contractor Information									
Amount of Contract	Type of Trade Code*	Racial Code*	Hispanic (Y/N)	Women Owned (Y/N)	IRS Tax ID #	DUNS #	Section 3 (Y/N)	Construction Firm Legal Name Address, City, State, Zip	AZ License #
\$									

* See Demographic and Trade Code table below for information

Demographic and Trade Codes	
<i>Race</i>	<i>Type of Trade Code</i>
11 White	1 New Construction
12 African American	2 Education/Training
13 Asian	3 Other (i.e. rehabilitation, administration, professional, public services)
14 American Indian or Alaskan Native	
15 Native Hawaiian or other Pacific Islander	
16 American Indian or Alaskan Native and White	
17 Asian and White	
18 African American and White	
19 American Indian or Alaskan Native and White	
20 Other Multi-racial	

b. The undersigned is:

- ☐ a sole proprietorship;
- ☐ a partnership;
- ☐ a corporation organized in the State of _____; or
- ☐ another organization (describe) _____

c. The name, title and address of the owners, partners or officers of the undersigned are (list any other legal names/doing business as (dba)):

<u>NAME</u>	<u>TITLE</u>	<u>ADDRESS</u>
_____	_____	_____

d. The names and addresses of all other persons, both natural and corporate, having a substantial interest in the undersigned and the nature of the interest, are: (indicate if NONE)

<u>NAME</u>	<u>ADDRESS</u>	<u>NATURE OF INTEREST</u>
_____	_____	_____

e. The names, addresses and trade classifications of all other building construction contractors in which the undersigned has a substantial interest are: (indicate if NONE)

NAME

ADDRESS

TRADE CLASSIFICATION

5. I hereby certify that I have the legal authority to complete and submit this document on behalf of:

a. Name of Contractor: _____

b. Signature (**in ink**):

c. Typed or Printed Name: _____

d. Title: _____

e. Date: _____

WARNING: U.S. Criminal Code, Section 1010, Title 18, U.S.C. provides in part:

“Whoever...makes, passes, utters or publishes any statement, knowing the same to be false...shall be fined under this title or imprisoned not more than two (2) years, or both.”

U.S. Department of Labor
Wage and Hour Division

PAYROLL

(For Contractor's Optional Use; See Instructions at www.dol.gov/whd/forms/wh347instr.htm)



Persons are not required to respond to the collection of information unless it displays a currently valid OMB control number.

OMB No.: 1235-0008
Expires: 07/31/2024

NAME OF CONTRACTOR <input type="checkbox"/> OR SUBCONTRACTOR <input type="checkbox"/>		ADDRESS		OMB No.: 1235-0008 Expires: 07/31/2024	
PAYROLL NO.		FOR WEEKENDING		PROJECT AND LOCATION	
				PROJECT OR CONTRACT NO.	

(1) NAME AND INDIVIDUAL IDENTIFYING NUMBER (e.g., LAST FOUR DIGITS OF SOCIAL SECURITY NUMBER) OF WORKER	(2) NO. OF WITHHOLDING EXEMPTIONS	(3) WORK CLASSIFICATION	OT OR ST.	(4) DAY AND DATE							(5) TOTAL HOURS	(6) RATE OF PAY	(7) GROSS AMOUNT EARNED	(8) DEDUCTIONS						(9) NET WAGES PAID FOR WEEK
				HOURS WORKED EACH DAY										FICA	WITH- HOLDING TAX			OTHER	TOTAL DEDUCTIONS	
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While completion of Form WH-347 is optional, it is mandatory for covered contractors and subcontractors performing work on Federally financed or assisted construction contracts to respond to the information collection contained in 29 C.F.R. §§ 3.3, 5.5(a). The Copeland Act (40 U.S.C. § 3145) contractors and subcontractors performing work on Federally financed or assisted construction contracts to "furnish weekly a statement with respect to the wages paid each employee during the preceding week." U.S. Department of Labor (DOL) regulations at 29 C.F.R. § 5.5(a)(3)(i) require contractors to submit weekly a copy of all payrolls to the Federal agency contracting for or financing the construction project, accompanied by a signed "Statement of Compliance" indicating that the payrolls are correct and complete and that each laborer or mechanic has been paid not less than the proper Davis-Bacon prevailing wage rate for the work performed. DOL and Federal contracting agencies receiving this information review the information to determine that employees have received legally required wages and fringe benefits.

Public Burden Statement

We estimate that it will take an average of 55 minutes to complete this collection, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. If you have any comments regarding these estimates or any other aspect of this collection, including suggestions for reducing this burden, send them to the Administrator, Wage and Hour Division, U.S. Department of Labor, Room S3502, 200 Constitution Avenue, N.W., Washington, D.C. 20210.

(over)

Date _____

I, _____
(Name of Signatory Party) (Title)

do hereby state:

(1) That I pay or supervise the payment of the persons employed by

_____ on the
(Contractor or Subcontractor)

_____ ; that during the payroll period commencing on the
(Building or Work)

_____ day of _____, _____, and ending the _____ day of _____, _____,

all persons employed on said project have been paid the full weekly wages earned, that no rebates have been or will be made either directly or indirectly to or on behalf of said

_____ from the full
(Contractor or Subcontractor)

weekly wages earned by any person and that no deductions have been made either directly or indirectly from the full wages earned by any person, other than permissible deductions as defined in Regulations, Part 3 (29 C.F.R. Subtitle A), issued by the Secretary of Labor under the Copeland Act, as amended (48 Stat. 948, 63 Stat. 108, 72 Stat. 967; 76 Stat. 357; 40 U.S.C. § 3145), and described below:

(2) That any payrolls otherwise under this contract required to be submitted for the above period are correct and complete; that the wage rates for laborers or mechanics contained therein are not less than the applicable wage rates contained in any wage determination incorporated into the contract; that the classifications set forth therein for each laborer or mechanic conform with the work he performed.

(3) That any apprentices employed in the above period are duly registered in a bona fide apprenticeship program registered with a State apprenticeship agency recognized by the Bureau of Apprenticeship and Training, United States Department of Labor, or if no such recognized agency exists in a State, are registered with the Bureau of Apprenticeship and Training, United States Department of Labor.

(4) That:

(a) WHERE FRINGE BENEFITS ARE PAID TO APPROVED PLANS, FUNDS, OR PROGRAMS

- ☐ — in addition to the basic hourly wage rates paid to each laborer or mechanic listed in the above referenced payroll, payments of fringe benefits as listed in the contract have been or will be made to appropriate programs for the benefit of such employees, except as noted in section 4(c) below.

(b) WHERE FRINGE BENEFITS ARE PAID IN CASH

- ☐ — Each laborer or mechanic listed in the above referenced payroll has been paid, as indicated on the payroll, an amount not less than the sum of the applicable basic hourly wage rate plus the amount of the required fringe benefits as listed in the contract, except as noted in section 4(c) below.

(c) EXCEPTIONS

EXCEPTION (CRAFT)	EXPLANATION

REMARKS:

--	--

NAME AND TITLE	SIGNATURE

THE WILLFUL FALSIFICATION OF ANY OF THE ABOVE STATEMENTS MAY SUBJECT THE CONTRACTOR OR SUBCONTRACTOR TO CIVIL OR CRIMINAL PROSECUTION. SEE SECTION 1001 OF TITLE 18 AND SECTION 3729 OF TITLE 31 OF THE UNITED STATES CODE.

SECTION 3 FORMS

THIS PROJECT IS IN WHOLE OR IN PART FEDERALLY FUNDED AND THE SUCCESSFUL BIDDER WILL BE REQUIRED TO ADHERE TO SECTION 3 PROVISIONS

NACOG will monitor compliance with such provisions and standards on behalf of the City of Page. The successful bidder will be required to complete the following forms in order to comply. A brief explanation of the form and when the form is to be submitted to NACOG is listed below. Should you have any questions concerning Section 3 or the forms to be submitted, please feel free to call *Kevin Goss at (928) 445-0211*.

S3B-1 SECTION 3 ASSURANCE (1 page)

This form is to be completed by the contractor and **submitted within three (3) days of contract Intent to Award.** Completion of this form provides assurance that the contractor will comply with Section 3 requirements.

S3B-2 ESTIMATED PROJECT WORK FORCE BREAKDOWN (1 page)

This form is to be completed by the contractor and **submitted within three (3) days of contract Intent to Award.**

S3B-3 SECTION 3 BUSINESS SELF-CERTIFICATION (1 page)

This form, if applicable, is to be completed by the contractor and **submitted within three (3) days of contract Intent to Award.** The bidder completes this form to qualify as a Section 3 business concern.

NACOG staff will assist contractor with any additional Section 3 requirements as outlined in the following forms

Section 3 Assurances (Form S3B-1)

Name of Official Representative	
Business/Contractor Name	
Project Name or Bid Number	

I, the undersigned, as official representative of the above-named business/contractor hereby certify that:

1. A complete permanent and project workforce breakdown form (S3B-2) has been submitted with this bid for the above-named business/contractor and each subcontractor that is known to be a party to this project.
2. The above-named business will comply with Section 3 requirements, to include recordkeeping and reporting, and will cause any subcontractor to comply with Section 3 requirements, to include recordkeeping and reporting, for the above-named project
3. The above-named business/contractor will make, and cause any subcontractor to make every attempt to hire qualified Section 3 and Targeted Section 3 workers for any unfilled positions.
4. The above-named business/contractor will make every attempt to hire subcontractors that are Section 3 businesses.
5. I understand that failure to comply may result, in whole or in part, in contract cancellation, termination of suspension.

Signature

Date

(Form revised 7.1.2021)

[illegible]

Section 3 Business Self-Certification Form (S3B-3)

A Section 3 Business shall certify and provide evidence the business is a Section 3 Business as defined in Section 24 CRF 75.

Business Name _____
Address _____
City, State, Zip Code _____
Federal ID Number _____
Contact Person _____

√	
	The business named above is 51% or more owned and controlled by very-low or low-income persons.
	The business named above is 51% or more owned and controlled by public housing residents or residents currently residing in Section-8 assisted housing.
	Over 75% of the labor hours worked during the past three months by employees of the business named above were performed by employees who are very-low or low-income, or YouthBuild participants.

I hereby certify that:

1. The undersigned has the legal authority to make these certifications on behalf of the named business.
2. Documentation exists to verify the basis for this self-certification.
3. Documentation will be made available to the recipient, the State of Arizona, the US Department of Housing and Urban Development, or their designated representatives during normal business hours upon request.
4. I am aware that both I and the business named above are liable for civil or criminal penalties for willful falsification of any information provided in this document.

Name of Person Completing Form _____
Title of Person Completing Form _____
Signature _____
Date _____

Section 3 Worker Self-Certification Form (S3C-1A)

A Section 3 Worker seeking preference in training and employment shall certify or submit evidence to the recipient, contractor, or subcontractor that the person is a Section 3 Worker, as defined in Section 24 CRF 75.

Name of Worker _____

√	
	I have reviewed the HUD income chart for my family size. My income for the previous year is below 80% of the median income for my family size.

I hereby certify that the information provided by me to be true and correct and understand any falsification of any of the information could subject me to disqualification from participation and punishment under the law.

Signature

Date

Section 3 Worker Employer Certification Form (S3C-1B)

An employer of a Section 3 Worker seeking preference in training and employment shall certify and maintain evidence the worker is a Section 3 Worker as defined in Section 24 CRF 75.

Name of Employee _____

√	
	I have reviewed the HUD income chart for the current year. The employee named above has an income that is currently below 80 percent of the median income for their family size based on my calculation of what the employee's wage rate would translate to if annualized on a full-time basis.
	The employee was hired within the past five (5) years. I have reviewed the HUD income chart for the year the employee named above was hired. At the time of hire, the employee named above had an income that was below 80 percent of the median income for their family size.

I hereby certify that the information provided by me to be true and correct and understand any falsification of any of the information could subject me to disqualification from participation and punishment under the law.

Employer Name _____

Employer Representative Name _____

Signature of Employer Representative _____

Date _____

Targeted Section 3 Worker Self-Certification Form (S3C-1C)

A Section 3 Worker seeking the preference in training and employment shall certify or submit evidence to the recipient, contractor, or subcontractor that the person is a Section 3 Worker, as defined in Section 24 CRF 75.

Name of Worker _____

√	
	I am a YouthBuild participant.
	I was hired within the past five years and at the time of my hire was a YouthBuild participant.

I hereby certify that the information provided by me to be true and correct and understand any falsification of any of the information could subject me to disqualification from participation and punishment under the law.

Signature _____ Date _____

Targeted Section 3 Worker Employer Certification Form
(S3C-1D)

An employer of a Section 3 Worker seeking the preference in training and employment shall certify and maintain evidence the worker is a Section 3 Worker as defined in Section 24 CRF 75.

Name of Employee _____

√	
	The employee named above resides within the project area as defined in the bid documents.
	The employee named above was hired within the past five years. At the time of hire, the employee resided within the project area as defined in the bid documents.
	I have certified this business as a Section 3 business and the employee is part of the business's permanent workforce.

I hereby certify that the information provided by me to be true and correct and understand any falsification of any of the information could subject me to disqualification from participation and punishment under the law.

Employer Name _____

Employer Representative Name _____

Signature of Employer Representative _____

Date _____

JOBS! JOBS! JOBS!

Section 3 Notice – Employment and Training Positions Available (Form S3P-1)

Name: *[recipient or contractor/sub-contractor]*

Project: *[describe project]*

Project Area: *[one-mile radius or larger if fewer than 5,000 people within one mile radius]*

To comply with the requirements of Section 3 of the Housing and Urban Development Act of 1968 as amended by the Housing and Community Development Act of 1992, and implementing regulations, *[name of recipient, contractor or sub-contractor]* hereby notifies all labor organizations or representatives of workers with whom it has a collective bargaining agreement or other understanding and all employees or applicants for training and employment that it will **give preference in filling new positions and in all training opportunities to persons who meet the requirements stated below.** *All persons must meet the minimum qualifications of the position to be considered for employment/training.*

1. Resides within the project area *[describe]*; or
2. Has an income for the previous or annualized calendar year that is below the HUD very- low or low-income limit; or
3. Is employed by a Section 3 business; OR
4. Is a YouthBuild participant.

It is the responsibility of the applicant to document his/her status in any of the categories described above.

[Contractor/sub-contractor] will be accepting applications for the following positions on *[date]* at *[location]*:

Positions that will be available:

<u>Title</u>	<u>Number</u>	<u>Minimum Qualifications</u>
--------------	---------------	-------------------------------

Training and apprenticeship positions that will be available:

<u>Title</u>	<u>Number</u>	<u>Minimum Qualifications</u>
--------------	---------------	-------------------------------

For further information, including requests relating to accessibility needs, please
contact: *[Name]*

[Address]

[Phone Number, TTY, E-mail]

[Recipient should consult with the ADOH to determine if this notice should be
posted in languages other than English.]

Sample Employment Survey (Form S3P-2)

NOTE: Consult the ADOH to determine if this form should be translated into another language.

The [recipient] anticipates receiving federal housing and community development funds from the State of Arizona Department of Housing to undertake activities to improve the community. As a result of this funding, the [recipient] will be hiring additional staff and/or contractors in the near future to do various types of construction and related work. The [recipient] and/or contractors will be employing people with various types and ranges of skills. If you are interested in this type of employment, please complete the form on the reverse side and return it to the address indicated below. This form also asks whether you would be interested in training in any of these occupations and any special work-related needs you may have. You may be notified at a later date as to any further action you must take to be considered for employment, training or work-related services.

If you have further questions or special accessibility needs, please contact [name] at [phone number or TTY].

Return this form to: [recipient name and address]

Name	
Address	
City, State, Zip Code	
Phone Number	
E-mail Address	

Please indicate any services you would need to enable you to accept employment or participate in job training:

√	
	Child care
	Transportation
	Clothing
	English as a second language
	Other:

Please indicate office skills that you have:

√	
	Typing. Words per minute:
	Filing
	Software programs (list):
	Other:
	Other:

Please indicate construction skills that you may have or would like training for in the table on the following page.

Job Category	I would like training in this area ✓	Length of Experience			
		0 – 3 Months ✓	4 – 6 months✓	7 months – 1 year ✓	More than 1 year ✓
Plumbing					
Carpentry					
Roofing					
Painting					
Interior					
Exterior					
Sewer					
Landscaping					
Sprinklers					
Plants					
Lawns					
Tree Pruning					
Tree Cutting					
Stump Removal					
Drywall					
Tile Flooring					
Carpet Laying					
Insulation					
Brick Layer					
Electrician					
Residential					
Commercial					
Laborer					
Cement Mason					

S3R-1C Instructions

Form S3R-1C includes four tabs and instructions for reporting by contractors to recipients/subrecipients and by subcontractors to contractors.

Tab 1 – Complete this Tab First: collects contractor/subcontractor information, the ADOH Contract Number and Activity Name and/or Number, and the beginning and ending dates of the payroll period. This information is carried forward to Tabs 2, 3, and 4. Tab 1 also requires contractors/subcontractors answer three (3) yes or no questions and provides further instructions on completing Tabs 2, 3, and/or 4.

Tab 2 – Labor Hours: must be completed with each payroll when any labor hours are worked by the contractor and/or subcontractor(s). This form collects information regarding each employee working on the project, whether they are a Section 3 or Targeted Section 3 worker, and the total project labor hours worked during the reporting period. Section 3 totals and percentages are automatically calculated.

Tab 3 – Subcontracts: must be completed when one or more subcontracts are awarded by any contractor during the reporting period. This form collects the Subcontractor Name, Federal ID Number, Address, type of contract (trade, service, professional service, or supply), whether the contracted entity is a Section 3 Business, the date of the contract, and the dollar amount of the contract.

Tab 4 – Qualitative Activities: must be completed when one or more employees were hired for the project workforce by a contractor/subcontractor, and/or if one or more subcontracts were awarded during the reporting period. This form allows contractors/subcontractors to select yes or no from a dropdown menu for specified qualitative activities. Contractors/subcontractors may also describe qualitative activities not specified.



Enter information only in green-shaded cells.

Recipient

ADOH Contract Number

Activity Name and/or Number

Contractor or Subcontractor report

Contractor Name

Section 3 Contractor

Payroll Period Begin Date

Payroll Period End Date

Information to be provided by Recipient.

Information to be provided by Recipient.

Information to be provided by Recipient.

Select contractor or subcontractor from dropdown menu.

Enter the Name of the Contractor or Subcontractor

Indicate if the named contractor/subcontractor is a Section 3 business by selecting yes or no from the dropdown menu.

Enter the beginning date of the payroll period being reported.

Enter the ending date of the payroll period being reported.

Select Yes or No from the
dropdown menu

Alternate Labor Hours Report Format in Use (Yes/No)

One or more subcontracts were awarded during the payroll period (Yes/No)

One or more employees were hired for the project workforce during the payroll period (Yes/No)

If yes, do *not* complete Tab 2 Labor Hours. If no, complete Tab 2 Labor Hours.

If yes, complete Tab 3 Subcontracts and Tab 4 Qualitative Activities (lines 18 through 23 as applicable).

If yes, complete Tab 4 Qualitative Activities (lines 12 through 15 as applicable).

Enter information only in green-shaded cells.

Contractor Name	0
Reporting Period Begin Date	0
Reporting Period End Date	0

Section 3 Workers and Targeted Section 3 workers

Conducted outreach to generate Section 3 worker applicants.

Held one or more job fairs.

Other (describe)

Other (describe)

Activity Conducted
(Select Yes or No
from the dropdown
menu)

Section 3 Businesses

Conducted outreach to identify and secure bids from qualified Section 3 businesses.

Provided technical assistance to Section 3 business to help them understand and bid on contracts.

Divided contracts into smaller jobs to facilitate participation by Section 3 businesses.

Provided bonding assistance, guarantees, or other efforts to support viable bids.

Other (describe)

Other (describe)

Activity Conducted
(Select Yes or No
from the dropdown
menu)

Enter information only in green-shaded cells.

Contractor Name	0
Reporting Period Begin Date	0
Reporting Period End Date	0

Section 3 Workers and Targeted Section 3 workers

Conducted outreach to generate Section 3 worker applicants.

Held one or more job fairs.

Other (describe)

Other (describe)

Activity Conducted
(Select Yes or No
from the dropdown
menu)

Section 3 Businesses

Conducted outreach to identify and secure bids from qualified Section 3 businesses.

Provided technical assistance to Section 3 business to help them understand and bid on contracts.

Divided contracts into smaller jobs to facilitate participation by Section 3 businesses.

Provided bonding assistance, guarantees, or other efforts to support viable bids.

Other (describe)

Other (describe)

Activity Conducted
(Select Yes or No
from the dropdown
menu)

Other (describe)

CERTIFICATIONS

CIVIL RIGHTS CERTIFICATION

The undersigned is fully aware that this contract is wholly or partially federally funded, and further, agrees to abide by the:

Civil Rights Act of 1964, Title VI, as amended, that provides no person on the basis of Race, Color, or National Origin shall be excluded from participation, denied program benefits, or subjected to discrimination;

And, Civil Rights Act of 1968, Title VIII, as amended, will not discriminate in housing on the basis of Race, Color, Religion, Sex, or National Origin;

And, Rehabilitation Act of 1973, Section 504, as amended, that no otherwise qualified individual shall solely by reason of his or her handicap be excluded from participation and/or employment, denied program benefits, subjected to discrimination under any program receiving federal funds;

And, Housing and Community Development Act of 1974, Section 109, as amended, that no person shall be excluded from participation (including employment), denied program benefits, or subjected to discrimination on the basis of Race, Color, National Origin, Sex, Age, and Handicap under any program or activity funded in whole or part under Title I (CDBG) of the Act;

And, Age Discrimination Act of 1975, as amended, that no person shall be excluded from participation, denied program benefits, or subjected to discrimination on the basis of age under any program or activity receiving federal funds;

And, Americans with Disabilities Act of 1990, as amended, that there shall be no employment discrimination against "qualified individuals with disabilities";

And, Executive Order 11063, that no person shall, on the basis of race, color, religion, sex, or national origin, be discriminated against in housing and related facilities provided with federal assistance, or lending practices with respect to residential property when such practices are connected with loans insured or guaranteed by the federal government;

And, Executive Order 11246, as amended, that no person shall be discriminated against, on the basis of race, color, religion, sex, or national origin, in any phase of employment during the performance of federal or federally assisted construction contracts in excess of \$10,000.

EQUAL EMPLOYMENT OPPORTUNITY CERTIFICATION

During the performance of the contract, the CONTRACTOR agrees as follows:

1. The CONTRACTOR will not discriminate against any employee or applicant for employment because of race, creed, sex, color, national origin, familial status, religious affiliation or handicap. The CONTRACTOR will take affirmative action to ensure that applicants are employed, and that employees are treated during employment, without regard to their race, creed, sex, color, national origin, familial status, religious affiliation or handicap. Such action shall include, but not be limited to, the following: employment, upgrading, demotion or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The CONTRACTOR agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided by the GRANTEE setting forth the provisions of this non-discrimination clause.
2. The CONTRACTOR will, in all solicitation or advertisements for employees placed by or on behalf of the CONTRACTOR for the GRANTEE, state that all qualified applicants will receive consideration for employment without regard to race, creed, sex, color, national origin, familial status, religious affiliation or handicap.
3. The CONTRACTOR will cause the foregoing provisions to be inserted in all subcontracts for any work covered by this contract so that such provisions will be binding upon each subcontractor, provided that the foregoing provisions shall not apply to contracts or subcontracts for standard commercial supplies or raw materials.
4. The CONTRACTOR will furnish all information and reports required by Executive Order 11246 of September 24, 1965, and by the rules, regulations and orders of the Secretary of Labor, or pursuant thereto, and will permit access to his/her books, records, and accounts by the GRANTEE's Department of Housing and/or Community Development and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations and orders.
5. In the event of the CONTRACTOR's non-compliance with any provision of this contract or with any of such rules, regulations or orders, this Agreement may be canceled, terminated, or suspended in whole or in part and the CONTRACTOR may be declared ineligible for further Government contracts in accordance with procedures authorized in Executive Order 11246 of September 24, 1965, and such other sanctions may be imposed and remedies invoked as provided in Executive Order 11246 of September 24, 1965, or by rule, regulation, or order of the Secretary of Labor, or as otherwise provided by law.
6. The CONTRACTOR will include the provisions of the subparagraphs 12 (a) through (f) in every subcontract or purchase order unless exempted by rules, regulations or orders of the Secretary of Labor issued pursuant to Section 204 of Executive Order 11246 of September 24, 1965, so that such provision will be binding upon each subcontractor or vendor. The CONTRACTOR will take such action with respect to any subcontract or purchase order as the GRANTEE's Department of Housing and/or Community Development may direct as a means of enforcing such provisions including sanctions for non-compliance: Provided, however, that in the event the CONTRACTOR becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction by the GRANTEE's Department of Housing and/or Community Development, the CONTRACTOR may request the United States to enter into such litigation to protect the interests of the United States.

AFFIRMATIVE ACTION FOR HANDICAPPED WORKERS
SECTION 503 CERTIFICATION
(if contract \$25,000 or over)

1. The CONTRACTOR will not discriminate against any employee or applicant for employment because of physical or mental handicap in regard to any position for which the employee or applicant for employment is qualified. The CONTRACTOR agrees to take affirmative action to employ, advance in employment and otherwise treat qualified handicapped individuals without discrimination based upon their physical or mental handicap in all employment practices such as the following: employment, upgrading, demotion or transfer, recruitment, advertising, layoff or termination, rates of pay or other forms of compensation, and selection for training, including apprenticeship.
2. The CONTRACTOR agrees to comply with the rules, regulations, and relevant orders of the Secretary of Labor issued pursuant to the Act.
3. In the event of the CONTRACTOR's non-compliance with the requirements of this clause, actions for non-compliance may be taken in accordance with the rules, regulations, and relevant orders of the Secretary of Labor issued pursuant to the Act.
4. The CONTRACTOR agrees to post in conspicuous places, available to employees and applicants for employment, notices in a form to be prescribed by the Director, provided by or through the contracting officer. Such notices shall state the CONTRACTOR's obligation under the law to take affirmative action to employ and advance in employment qualified handicapped employees and applicants for employment, and the rights of applicants and employees.
5. The CONTRACTOR will notify each labor union or representative of workers with which it has a collective bargaining agreement or other contract understanding, that the CONTRACTOR is bound by the terms of Section 503 of Rehabilitation Act of 1973, and is committed to take affirmative action to employ and advance in employment physically and mentally handicapped individuals.
6. The CONTRACTOR will include the provisions of this clause in every subcontract or purchase order of \$2,500 or more unless exempted by rules, regulations, or orders of the Secretary issued pursuant to Section 503 of the Act, so that such provisions will be binding upon each subcontractor with respect to any subcontract or purchase order as the Director of the Office of Federal Contract Compliance Programs may direct to enforce such provisions, including action for non-compliance.

PROCUREMENT OF RECOVERED MATERIALS

The undersigned is fully aware that this contract is wholly or partially federally funded and further by submission of this bid certifies that they will adhere to the requirements and specifications as outlined by the EPA at 40 CFR Part 247, Comprehensive Procurement Guideline for Products Containing Recovered Materials.

ACCESS TO RECORDS AND RECORDS RETENTION CERTIFICATION

The undersigned certifies, to the best of his or her knowledge and belief that:

1. The individual, sole proprietor, partnership, corporation, and/or association agrees to permit the City of Page], State of Arizona Department of Housing (ADOH), U. S. Department of Housing and Urban Development (HUD), and the Office of the Inspector General and/or their designated representatives to have access to all records for review, monitoring, and audit during normal working hours.
2. The individual, sole proprietor, partnership, corporation, and/or association agrees to retain all records for at least five years following the "official State of Arizona Department of Housing "Closeout" date of the grant or the resolution of all audit findings, whichever is later.

CONFLICT OF INTEREST CERTIFICATION

The undersigned is fully aware that this contract is wholly or partially federally funded and, further, by submission of the bid or proposal, that the individual or firm certifies that:

1. There is no substantial interest, as defined by Arizona Revised Statute §§38-503 through 505, with any public official, employee, agency, commission, or committee with the City of Page or NACOG.
2. Any substantial interest, as defined by Arizona Revised Statute §§38-503 through 505, with any public official, employee, agency, commission, or committee (including members of their immediate family) with the City of Page or NACOG that develops at any time during this contract will be immediately disclosed to the City of Page and NACOG.

ANTI-LOBBYING CERTIFICATION

The undersigned certifies, to the best of his or her knowledge and belief that:

1. No federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any federal contract, the making of any federal grant, the making of any federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any federal contract, grant, loan, or cooperative agreement.
2. If any funds other than federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form - LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.
3. The undersigned shall require that the language of this Certification be included in the award documents for all sub-awards to all tiers (including subcontracts, sub-grants, and contracts under grants, loans, and cooperative agreements) and that all sub-recipients shall certify and disclose accordingly.

CERTIFICATIONS SIGNATURE FORM

Return this page with Bid.

These Certifications (Civil Rights, Equal Employment Opportunity, Affirmative Action for Handicapped Workers - Section 503, Procurement of Recovered Materials, Access to Records and Records Retention, Conflict of Interest, and Anti-Lobbying) are a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of these Certifications is a prerequisite for making or entering into this transaction imposed by Section 1352, Title 31, U. S. Code.

(typed name of official)

(signature of official)

(typed name of firm)

(date)

BID CHECKLIST

CONTRACTOR: _____

THE FOLLOWING ITEMS MUST BE RETURNED WITH THE BID FOR A COMPLETE BID PACKAGE:

FROM CONTRACT DOCUMENTS PACKET:

- ☐ **BID FORM (1 PAGE)**
- ☐ **CONTRACTOR'S REFERENCE PAGE (2 PAGES)**
- ☐ **LIST OF SUBCONTRACTOR LIST AND MATERIAL VENDORS (2 PAGES)**
- ☐ **STATEMENT OF BIDDER QUALIFICATION (2 PAGES)**
- ☐ **STATUTORY BID BOND, CERTIFIED CHECK, OR CASHIER'S CHECK**

FROM FEDERAL REQUIREMENTS PACKET:

- ☐ **LS-2 CONTRACTOR'S CERTIFICATION CONCERNING LABOR STANDARDS AND PREVAILING WAGE REQUIREMENTS (3 PAGES)**
- ☐ **CERTIFICATIONS SIGNATURE FORM (1 PAGE)**

BIDS MUST BE SUBMITTED ON THE FORMS FURNISHED AND IN A SEALED ENVELOPE NO LATER THAN 4:00 PM, on MARCH 6, 2024, IN ACCORDANCE WITH THE INSTRUCTIONS IN THE BID PACKAGE.

THE INVITATION FOR BID'S PROJECT NAME "SUBSTANCE ABUSE AND RESIDENTIAL FACILITY" AND BIDDER'S NAME AND ADDRESS SHOULD BE CLEARLY INDICATED ON THE OUTSIDE OF THE ENVELOPE.

FAXES ARE NOT ACCEPTABLE.

LATE BIDS WILL BE RETURNED UNOPENED.

CITY OF PAGE

ENCOMPASS SHELTER FACILITY

OSPREY DRIVE PAGE, ARIZONA
86040

PROJECT MANUAL



DECEMBER 2023

Project #: 2110-042

Prepared by:



campbell architecture
A J&D COMPANY

DOCUMENT 00 01 10
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09 68 13	Tile Carpeting
09 90 01	Common Painting and Coating Requirements
09 91 13	Exterior Painted Galvanized Metal

Division 10 - Specialties

10 11 16	Fixed Markerboards
10 21 23	Cubicle Curtains and Track
10 28 00	Toilet Bath and Laundry Accessories
10 44 00	Fire Protection Specialties

Division 11 - Equipment

11 30 13	Residential Appliances
----------	------------------------

Division 12 – Furnishings

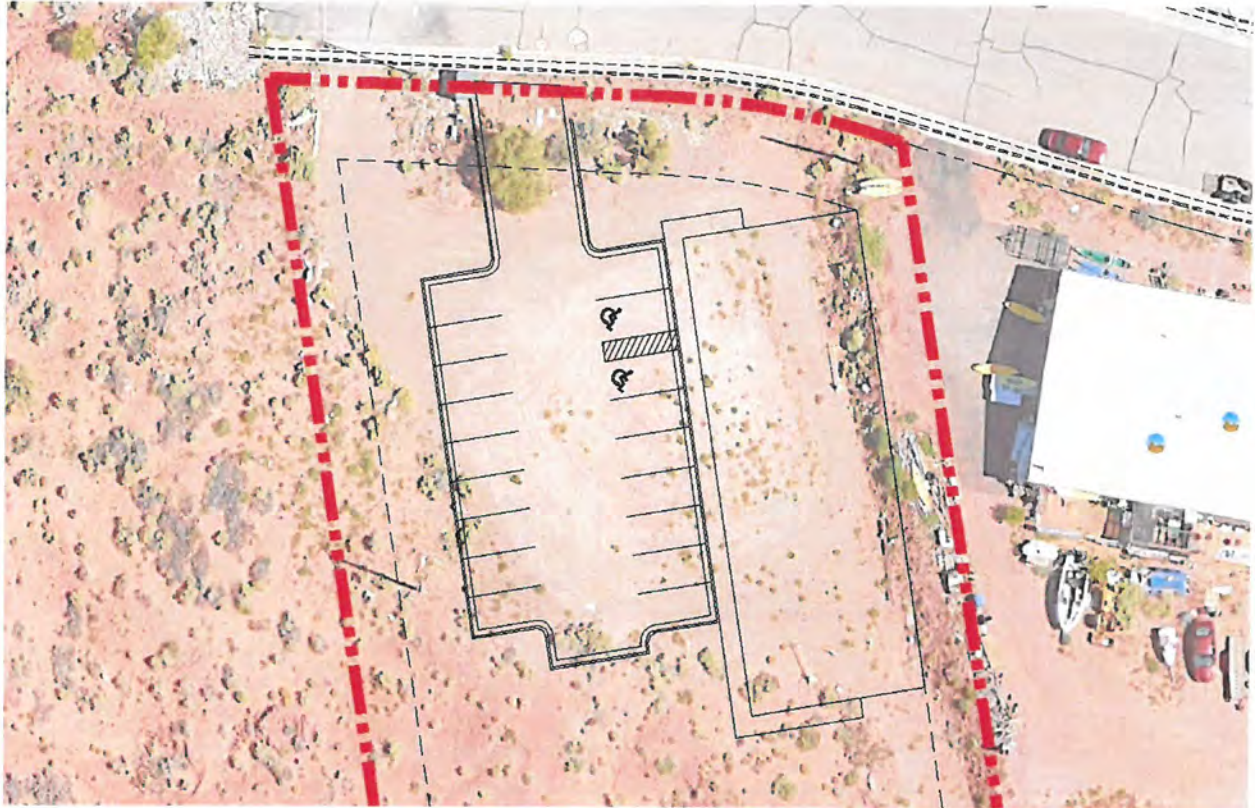
12 36 61	Solid Surfacing Countertops
----------	-----------------------------

Division 13 to 19 – Not Used**FACILITY SERVICES SUBGROUP (Division 20 to 29) - Not Used****Division 30 – Not Used****Division 31 - Earthwork**

31 31 16	Termite Control
----------	-----------------

Division 32 to 39 – Not Used**PROCESS EQUIPMENT SUBGROUP (Division 40 to 49) – Not Used**

GEOTECHNICAL INVESTIGATION
Proposed Page City Detox Center
Near Osprey Street and Coppermine Road
Page, Arizona.



Prepared for:

Campbell Architecture
46 North 200 East
St. George, UT 84770

Attn: Kim Campbell, Principal Architect



RA Project No. 12448-21-003
December 6, 2021

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December 6, 2021

12448-21-003

Campbell Architecture
46 North 200 East
St. George, UT 84770

Attn: Kim Campbell, Principal Architect

SUBJECT: Geotechnical Investigation
Proposed Page City Detox Center
Near Osprey Street and Coppermine Road, Page, Arizona

Dear Kim:

Enclosed are the findings of a geotechnical investigation conducted by Rosenberg Associates (RA) for the proposed Page City Detox Center to be constructed near Osprey Street and Coppermine Road in Page, Arizona. The objectives of RA services were to evaluate the nature and engineering properties of the on-site soils, and to provide geotechnical recommendations for the proposed facility including general site preparation and grading, and the design and construction of foundations, retaining walls, concrete slabs-on-grade, and asphaltic concrete pavements.

Conclusions and opinions provided in the accompanying report are based on our analysis of the data obtained from the field and laboratory investigations, and our previous geotechnical experience with similar soil conditions. If you have any questions concerning the information contained in this report, please contact us at your convenience at (435) 673-8586.

Sincerely,

ROSENBERG ASSOCIATES

David R. Black, P.E.
Principal Geotechnical Engineer



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DRAWING 1 – VICINITY MAP

DRAWING 2 - SITE PLAN

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ASFE BROCHURE

EXECUTIVE SUMMARY

The executive summary is not intended to replace the information presented in the accompanying report. The executive summary should not be used separately from the report and is only provided as an overview to summarize conclusions and recommendations. The executive summary may omit a number of details, any one of which could be crucial to the proper interpretation and application of the report and implementation of the recommendations.

Rosenberg Associates (RA) has performed a geotechnical investigation for the proposed Page City Detox Center to be constructed near Osprey Street and Coppermine Road in Page, Arizona. A Vicinity Map showing the location of the site is included as Drawing 1 following the text of this report.

At the time of our field investigations, the subject site was generally vacant and undeveloped. However, we understand the site had previously been developed with the City's Dog Pound Facility. The ground surface within the previously developed area had been disturbed by prior demolition activities and/or was covered with spread fill materials. To the best of our knowledge, there is no documentation available addressing the existing spread fill materials.

The subsurface conditions encountered at the site generally consisted of about ½ to 2 feet of undocumented spread fill materials and/or disturbed native soils overlying sandstone bedrock. The spread fill generally consisted of reddish-brown gravelly sand. Groundwater was not encountered within the explorations to the maximum depth explored (2 feet). The subsurface conditions are described in detail on the trench logs enclosed in Appendix A.

Based on the subsurface conditions encountered at the site, it is our opinion, from a geotechnical viewpoint, that the subject site will be suitable for the proposed construction provided that the recommendations contained herein are complied with. Specifically, it is RA's standard practice to recommend that permanent structures not be founded on undocumented fill due to a risk of random settlements and potential distress. Therefore, within the planned building area, and at least 5 feet beyond, we recommend that the existing undocumented fill and/or disturbed native soils be excavated to expose the underlying bedrock. Suitable materials may be stockpiled for reuse as compacted structural fill. Within pavement areas, we suggest that as a minimum the existing fill materials be reworked to a depth of at least 1 foot. The site may then be brought to rough grade with structural fill as described in Section 4.2.4.

The proposed building should receive adequate support from conventional strip and/or spread footings founded entirely on undisturbed bedrock or entirely on a zone of properly placed and compacted structural fill. Building foundation elements should not be founded on a combination of structural fill and in-situ bedrock. If these mixed conditions are encountered within the building area, it is recommended that either all foundation elements extend down to undisturbed bedrock, or the bedrock be over-excavated to a depth of at least 1 foot below the bottom of footing elevation and replaced with properly compacted structural fill.

This report presents geotechnical recommendations for general earthwork, foundation design, retaining walls, concrete slabs-on-grade, soil corrosion, asphaltic concrete pavements, moisture protection, design review, and construction observation.

1.0 INTRODUCTION

This report presents the results of a geotechnical investigation performed by Rosenberg Associates (RA) for the proposed Page City Detox Center to be constructed near Osprey Street and Coppermine Road in Page, Arizona. A Vicinity Map showing the location of the proposed site is included as Drawing 1 following the text of this report. The objectives of this investigation were to evaluate the nature and engineering properties of the subsurface soils, and to provide geotechnical recommendations for general site grading and the design and construction of foundations, retaining walls, concrete slabs-on-grade, and asphaltic concrete pavements.

It is our understanding the subject site will be developed with a single-story building having a footprint of 5,928 square feet, and with associated paved parking and landscaped areas. We understand the proposed structure will be supported by conventional foundations and concrete slab-on-grade floors. Structural loads are anticipated to be relatively low.

The recommendations contained in this report are subject to the limitations presented in the Section 5.1. In addition, a brochure prepared by ASFE (The Association of Engineering Firms Practicing in the Geosciences) has been included following this report. We recommend that all individuals reading this report read the limitations along with the attached document.

2.0 SCOPE OF WORK

Our scope of work included subsurface exploration, engineering evaluation, and preparation of this report. The following tasks were included in our scope of work.

1. A site reconnaissance was conducted to evaluate the general conditions at the site and locate the exploration locations.
2. The subsurface soil conditions at the site were explored by excavating 5 exploratory test pits to depths of approximately 1 to 2 feet below the existing site grade. Each test pit was terminated with backhoe refusal on sandstone bedrock. The approximate locations of the explorations are shown on Drawing 2. The subsurface conditions encountered during trenching were logged by our field engineer. A description of the equipment and procedures used during trenching is presented in Appendix A. Logs of the subsurface conditions, as encountered in the explorations, are presented on the enclosed trench logs in Appendix A.

3. Results of the field exploration were evaluated and engineering analyses were performed to develop appropriate recommendations for the design and construction of the proposed project.
4. This report was prepared to present the results of our findings, conclusions, and recommendations

3.0 GENERALIZED SITE CONDITIONS

3.1 Surface Description

At the time of our field investigations, the subject site was generally vacant and undeveloped. However, based on conversations with the City and review of historic aerial photographs we understand the site had previously been developed with the City Dog Pound Facility (see Photos 1 and 2).



Photo 1: 2013 Google Earth Photo showing prior Dog Pound Facility.



Photo 2: 2015 Google Earth Photo representative of current conditions.

The ground surface within the previously developed area had been disturbed by prior demolition activities and/or was covered with about ½ to 2 feet of spread fill materials. To the best of our knowledge, there is no documentation available (compaction tests etc.) addressing the existing spread fill materials. An existing fill slope, sloping up to the adjacent development to the east, was present along the eastern property line. It

appeared that most of the fill slope encroached on to the subject site (see Photos 3 and 4). The site was bordered on the south and west by a natural undeveloped ridge which slope down to the south and southwest, and Osprey Road on the north.



Photo 3: Looking southwest across the site.



Photo 4: Looking south along eastern property line.

3.2 Subsurface Conditions

The subsurface conditions encountered at the site generally consisted of about ½ to 2 feet of undocumented spread fill materials and/or disturbed native soils overlying sandstone bedrock. The spread fill generally consisted of reddish-brown gravelly sand. Groundwater was not encountered within the explorations to the maximum depth explored (2 feet). The subsurface conditions are described in detail on the trench logs enclosed in Appendix A. Stratification lines shown on the logs represent the approximate boundary between soil types. Care should be taken in interpolating subsurface conditions beyond the exploration locations.

3.3 Seismicity

Information and values obtained from the USGS U.S. Seismic Design Maps website, and ASCE 7-10, are provided below to aid in the seismic design:

Site Coordinates: 36.906746° N latitude, -111.456030° W longitude

Site Soil Classification: "C" (Soft Rock)

Risk Category: I/II

Seismic Site Coefficient, F_v : 1.5

Seismic Site Coefficient, F_a : 1.3

S_s = 0.31g S_1 = 0.097g S_{Ms} = 0.402g S_{M1} = 0.145g S_{Ds} = 0.2681g S_{D1} = 0.097g

4.0 ENGINEERING ANALYSIS AND RECOMMENDATIONS

4.1 General Evaluation

Based on the subsurface conditions encountered at the site, it is our opinion, from a geotechnical viewpoint, that the subject site will be suitable for the proposed construction provided that the recommendations contained herein are complied with. Specifically, it is RA's standard practice to recommend that permanent structures not be founded on undocumented fill due to a risk of random settlements and potential distress. Therefore, within the planned building pad area, it is our opinion that the existing fill soils should be overexcavated to expose the underlying bedrock and then replaced as documented (properly placed and compacted) structural fill. The proposed building should then receive adequate support from conventional strip and/or spread footings founded entirely on undisturbed bedrock or entirely on a zone of properly placed and compacted structural fill. Building foundation elements should not be founded on a combination of structural fill and in-situ bedrock. If these mixed conditions are encountered within the building area, it is recommended that either all foundation elements extend down to undisturbed bedrock, or the bedrock be over-excavated to a depth of at least 1 foot below the bottom of footing elevation and replaced with properly compacted structural fill. Within pavement areas, we suggest as a minimum that the existing fill materials be reworked to a depth of at least 1 foot through a combination of overexcavation, scarification, moisture conditioning and recompaction.

The following sections of this report present our recommendations for general site preparation and grading, foundation design, retaining walls, concrete slabs-on-grade, soil corrosion, moisture protection, and asphaltic concrete pavements. We recommend that the Geotechnical Consultant be allowed to review the final grading plans, when prepared, to evaluate the compatibility of these recommendations.

4.2 Earthwork

All earthwork including clearing, grubbing, excavation, grading, fill materials, and fill placement and compaction should be performed in accordance with the current "Uniform Standard Specifications and Details for Public Works Construction, sponsored and distributed by the Maricopa Association of Governments (MAG)", unless otherwise recommended in this report.

4.2.1 Site Preparation and Grading

Within the areas to be graded, any existing vegetation and debris should be removed and hauled off the site. Within the planned building area, and at least 5 feet beyond, the existing undocumented fill and/or disturbed native soils should be excavated to expose the underlying bedrock. Suitable materials may be stockpiled for reuse as compacted structural fill.

Within pavement areas, we suggest as a minimum that the existing fill materials be reworked to a depth of at least 1 foot through a combination of overexcavation, scarification, moisture conditioning and recompaction as outlined in the Structural Fill Section of this report. The Geotechnical Consultant should observe the excavation bottoms and the site grading operations to observe that unsuitable soils are identified and treated as recommended.

The site should then be brought to rough grade with structural fill as described in Section 4.2.4. Subgrade materials supporting concrete slab-on-grade floors, exterior flatwork and pavements should be kept moist and undisturbed. If the subgrade dries back or is disturbed, the exposed soils should be scarified, moisture-conditioned, and re-compacted as outlined in Section 4.2.4.

4.2.2 Excavations

Subsurface conditions encountered at the site generally consisted of about ½ to 2 feet of undocumented spread fill materials and/or disturbed native soils overlying sandstone bedrock. The measured depths to bedrock encountered within the explorations are summarized in Table 4.2.2.

Table 4.2.2: Measured Depths to Bedrock

Exploration Location	Depth to Bedrock (ft.)
T-1	1
T-2	2
T-3	1
T-4	2
T-5	½

The spread fill materials should be readily excavatable with conventional excavation equipment. Where sandstone bedrock is encountered during site grading and/or utility trench excavation, heavy-duty ripping, heavy-duty backhoe, ho-ram, or other rock excavation techniques should be anticipated. Temporary excavations should be

laid back to safe slopes or properly shored. Contractors should meet OSHA health and safety standards.

4.2.3 Permanent Cut and Fill Slopes

It is recommended that in general, the maximum permanent cut and fill slopes should not be made steeper than 2½:1 (horizontal to vertical). These requirements should be adequate for overall stability; however, flatter slopes may be desired for erosion control. To reduce the potential for erosion, all drainage above the slopes should be directed away from the slope face. Where steeper slopes are desired within the development, retaining structures, reinforced slopes and/or additional analysis will be required.

4.2.4 Structural Fill Material

All fill placed for the support of footings, concrete floor slabs, exterior flatwork, and pavements should consist of structural fill. Structural fill may consist of excavated on-site sands or approved imported fill materials. Structural fill should be granular, non-expansive, be free of vegetation and debris, and contain no inert materials larger than 4 inches in nominal size.

Structural fill should be placed in maximum 8-inch loose lifts and compacted on a horizontal plane, unless otherwise approved by the Geotechnical Engineer. Soils in compacted fills should be compacted to at least 95 percent of the maximum dry density as determined by ASTM D-1557. The moisture content should be at or above optimum. Any imported fill materials should be approved prior to importing. Prior to placing any fill, the excavations should be observed by the Geotechnical Engineer to observe that unsuitable materials have been removed.

4.3 Foundation Design

The proposed building should receive adequate support from conventional strip and/or spread footings founded entirely on undisturbed bedrock or entirely on a zone of properly placed and compacted structural fill. Building foundation elements should not be founded on a combination of structural fill and in-situ bedrock. If these mixed conditions are encountered within the building area, it is recommended that either all foundation elements extend down to undisturbed bedrock, or the bedrock be over-excavated to a depth of at least 1 foot below the bottom of footing elevation and replaced with properly compacted structural fill.

Conventional strip and/or spread footings for 1-story structures should be a minimum of 15 inches wide and embedded a minimum of 18 inches below the lowest adjacent

final grade. Footings may be proportioned for a maximum net allowable bearing pressure of 2,000 psf. A one-third increase may be used for transient wind or seismic loads.

Foundations should be reinforced with a minimum of one No. 4 bar near the top of the stem wall, and two No. 4 bars near the footing base. Additional reinforcing may be required as per the Structural Engineer's design.

Settlements of properly designed and constructed foundations are anticipated to be on the order of one inch, or less. Differential settlements should be on the order of $\frac{3}{4}$ the total settlements, or less. It is expected that the majority of the anticipated settlement will occur during construction.

Prior to constructing the foundations, the footing excavations should be observed by the Geotechnical Consultant to observe whether suitable bearing materials have been exposed and whether the excavation bottoms are free of loose or disturbed soils.

Horizontal loads acting on foundations formed in open excavations will be resisted by friction acting at the base of foundations and by passive earth pressures. If the design makes use of passive earth pressures, it is important that the Geotechnical Consultant be present during any footing backfill placement. The friction acting along the base of footings founded on suitable foundation soils may be computed by using a coefficient of friction of 0.4 with the normal dead load. An allowable lateral passive earth pressure may be computed by using an equivalent fluid weighing 250 pcf for the side of footings poured against properly placed and compacted structural fill. The maximum allowable passive pressure should not exceed 1,000 psf. The values given above may be increased by one-third for transient wind or seismic loads.

4.4 Retaining Walls

Lateral earth pressures acting on restrained and unrestrained retaining walls, supporting a level backfill, should be computed using equivalent fluid densities of 55 and 40 pcf, respectively. These equivalent fluid densities assume that there will be no build-up of hydrostatic pressure and that the backfill against the walls will consist of sandy soils. The on-site sands are suitable for wall backfill, provided they are processed to meet the requirements for Structural Fill. Any surcharge from adjacent floor slabs, footings, traffic loads, or sloping backfill should be added to this pressure. Surcharge effect may be computed by using an active pressure coefficient of 0.3 times the uniform load. Retaining wall footings should be designed as recommended in the Foundation section of this report.

4.5 Concrete Slabs-on-Grade

Satisfactory support for concrete slab-on-grade floors and exterior concrete flatwork may be provided by 6-inch and 4-inch layers of compacted gravel, respectively, overlying a 1-foot minimum zone of properly placed and compacted structural fill. The compacted gravel may consist of road base, or pit-run gravel with a 2-inch maximum particle size and no more than 12 percent fines passing the No. 200 sieve.

If moisture sensitive floor coverings are used, we suggest using an impervious membrane (visqueen) in conjunction with the gravel layer. If used, the visqueen moisture barrier should be at least 10 mils in thickness and either placed at the base of the gravel layer or covered with 2 inches of sand for puncture protection and to aid in concrete curing.

All concrete slabs should be designed to minimize cracking as a result of shrinkage. Concrete floor slabs should be reinforced with a minimum of No. 3 bars at 24-inches O.C. each way. Additional reinforcement may be required by the Structural Engineer.

Special precautions should be taken during the placement and curing of all concrete slabs. Excessive slump (high water-cement ratio) of the concrete and/or improper curing procedures used during either hot or cold weather conditions could lead to excessive shrinkage, cracking or curling in the slabs. All concrete placement and curing operations should be performed in accordance with the American Concrete Institute (ACI) guidelines. We further recommend that control joint and expansion joint spacing be in accordance with ACI recommendations.

4.6 Soil Corrosion

Soils on the site contain sulfates in sufficient concentration to be considered moderately corrosive to concrete and metal. We recommend all concrete in contact with the on-site soils should contain Type V sulfate-resistant cement and be designed in accordance with the provisions provided in the American Concrete Institute Manual of Concrete Practice (ACI) 318-19. Tables 19.3.1.1 and 19.3.2.1 of ACI 318-4 should be referenced for the design of concrete elements utilizing a Sulfate Exposure Class of S2. Consideration should be given to cathodic protection of buried metal pipes, or to the use of PVC pipe where permitted by local building codes.

4.7 Asphaltic Concrete Pavements

Asphaltic concrete pavement sections should receive adequate support from properly prepared subgrade consisting of structural fill and reworked native soils as discussed in Section 4.2. In developing recommendations for asphaltic pavement sections, a minimum R-value (based on soil classification) of 45 was used for recompacted on-site soils. A traffic index of 5.0 was assumed for normal automobile and parking areas and 6.0 for large truck and entrance areas. If the assumed T.I. values are not considered appropriate, this office should be notified. Our design procedures were in accordance with the Caltrans method of designing flexible pavement. Table No. 2 presents the minimum recommended structural pavement section for the assumed design traffic conditions.

Table 4.7: Recommended Minimum Asphaltic Pavement Sections

Traffic Condition	Traffic Index (T.I.)	Asphalt Thickness (inches)	Road Base Thickness (inches)	Structural Fill Thickness (inches)
Automobile / Parking	5.0	2½	6	12
Entrance / Large truck Areas	6.0	3	6	12

Base and asphaltic concrete materials should conform with current sections of the MAG "Uniform Standard Specifications and Details for Public Works Construction." It is important that pavement grades be set to provide positive drainage to suitable drainage structures.

4.8 Moisture Protection and Surface Drainage

Proper site drainage and moisture protection are essential for the project. Special precautions should be taken to minimize changes in moisture content of foundation soils. Positive drainage should be established away from the exterior walls of the building. The recommended minimum slope is 5% in landscape areas and 2% in flatwork and pavement areas, for a minimum distance of 10 feet from the structure. Watering adjacent to the structures should be eliminated or kept to a minimum and properly maintained to prevent over watering. Roof runoff and other sources of moisture should not be allowed to infiltrate the soils in the vicinity of, or up slope from, the structures.

4.9 Design Review

The recommendations presented in this report are based on preliminary design information for the proposed project and the subsurface conditions encountered during our geotechnical evaluation. The recommendations have been prepared to aid in the evaluation of this site and to assist in the design of the project. Prior to bid submittal, the Geotechnical Consultant should be provided the opportunity to review the final grading plans, design drawings, and specifications to determine whether the assumptions and recommendations presented in this report are valid and have been implemented. Review of the final grading plan, design drawings, and specifications should be noted in writing and should become a supplement to this report.

We recommend that a pre-construction meeting be held to discuss the project plans and requirements. The Owner or the Owner's representative, the Civil Engineer, the Geotechnical Consultant, and the Contractor should be in attendance at the meeting.

4.10 Construction Observation

Sufficient observation and review should be performed in order to permit correlation between the anticipated field conditions and the actual conditions encountered during construction, and to confirm that the recommendations presented herein are properly implemented. A final report of compliance, including all test results, should be prepared upon completion of the project. Rosenberg Associates does not provide construction observation and materials testing services, therefore, the Geotechnical Consultant selected to provide those services should complete an independent review of this geotechnical report to satisfy themselves that the recommendations presented herein are appropriate for the project site.

5.0 CLOSURE

5.1 Limitations

Our assumptions, conclusions, recommendations, and opinions contained in this report are: 1) based on the findings of the referenced field investigation program; 2) based on our geotechnical experience with similar soil conditions; 3) based on our understanding of the proposed construction; 4) subject to confirmation of the conditions encountered during construction, and 5) based upon the assumption that sufficient observation and testing will be provided during construction. If the actual construction changes from the assumptions presented in this report or if any conditions are encountered at this site

which are different from those described in this report, our firm should be immediately notified so that the recommendations presented herein can be re-evaluated for applicability to the new conditions.

This report was prepared in accordance with the generally accepted standard of practice existing at the time the report was written. No warranty, express or implied, is made. It is the Client's responsibility to see that all parties to the project, including the Designer, Contractor, Subcontractors, etc., are made aware of this report in its entirety. The use of information contained in this report for bidding purposes should be done at the Contractor's option and risk.

5.2 Closing

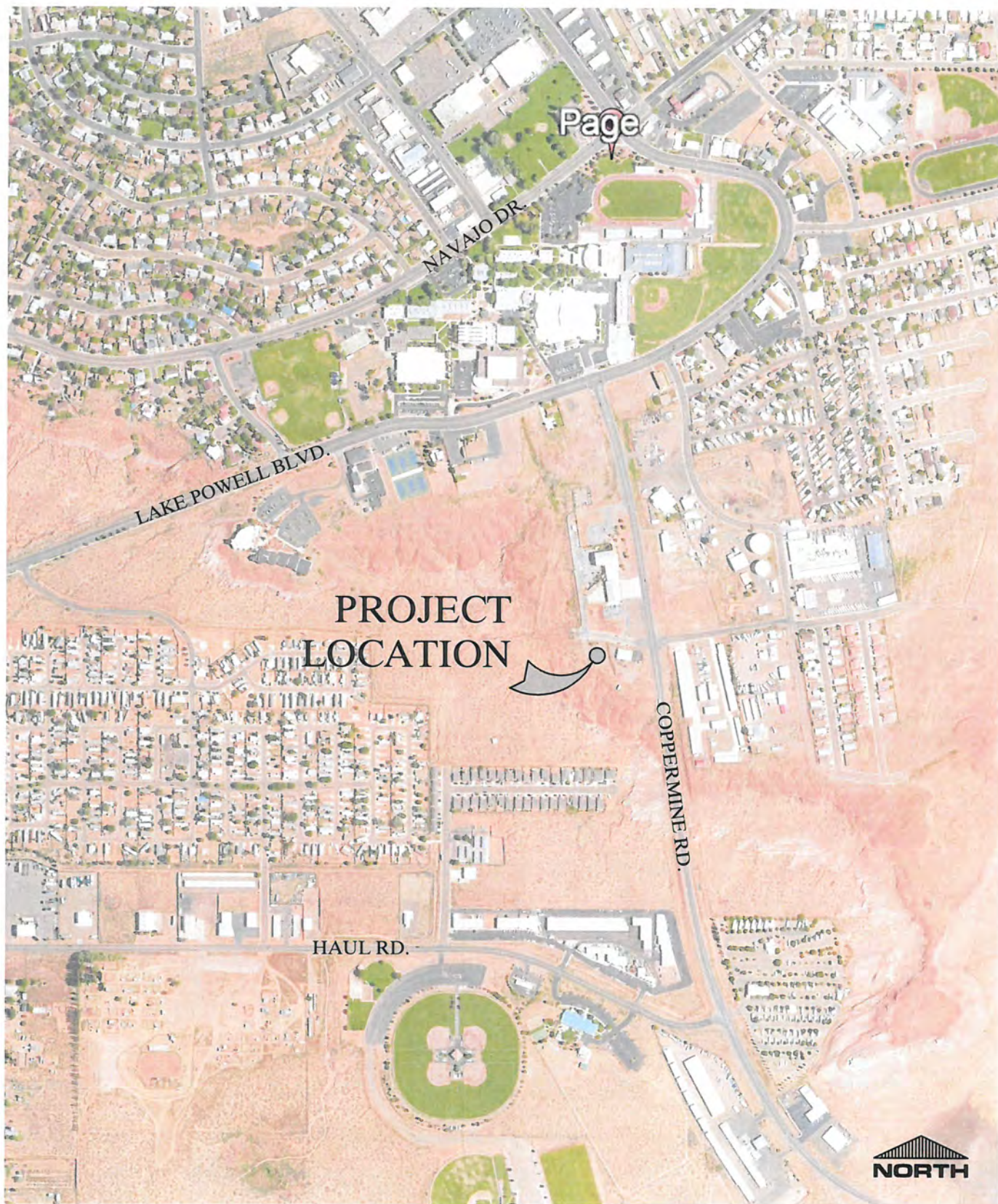
We appreciate the opportunity to be of service on this project. Should you have any questions regarding the report or wish to discuss additional services, please contact us at your convenience at (435) 673-8586.

Sincerely,
ROSENBERG ASSOCIATES

David R. Black, P.E.
Principal Geotechnical Engineer

DRB/21R-037.G





Scale: NTS


Drawn By: GLM

Drawing Number:

Checked By: DRB

1

Date: 12/6/21



ROSENBERG

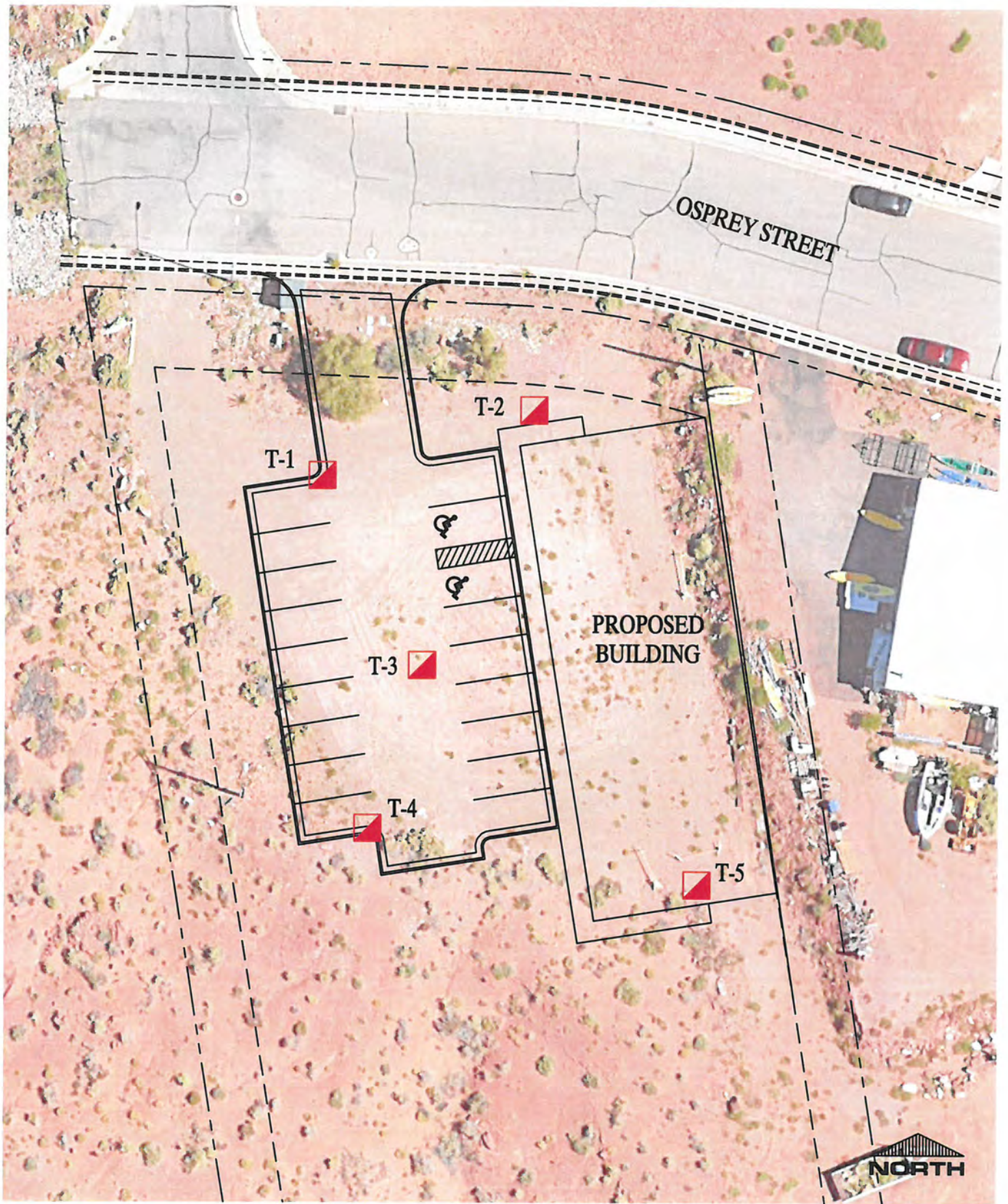
ASSOCIATES

CIVIL ENGINEERS • LAND SURVEYORS
222 East Riverside Drive Suite 400 El. George, Utah 84701 • (435) 879-0200

Job Number:

12448-21-003

Vicinity Map
Page City Detox Center
Page, Arizona



Scale: NTS

Drawn By: GLM

Drawing Number:

2

Checked By: DRB

Date: 12/6/21



ROSENBERG
ASSOCIATES
CIVIL ENGINEERS • LAND SURVEYORS
808 East Riverside Drive Suite A5 St. George, Utah 84790 - (408) 979-0000

Job Number:

12448-21-003

Site Plan
Page City Detox Center
Page, Arizona

APPENDIX A

FIELD INVESTIGATION

APPENDIX A

FIELD INVESTIGATION


The subsurface soil conditions at the site were explored by excavating 5 exploratory test pits to depths of approximately 1 to 2 feet below the existing site grade. Each test pit was terminated with backhoe refusal on sandstone bedrock. The locations of the explorations are shown on the enclosed Site Plan, Drawing 2. Continuous logs of the subsurface conditions, as encountered in the explorations, were recorded by our field engineer. The subgrade soils were visually classified in accordance with the Unified Soil Classification System. Summaries of subsurface conditions are presented in this appendix on Drawings A-1 through A-5. A key to the soil symbols and terms is presented on Drawing A-6.

Log of Trench No. T- 1

Date Trenched: 11/17/21

Logged By: DRB

Ground Surface Elevation: _____

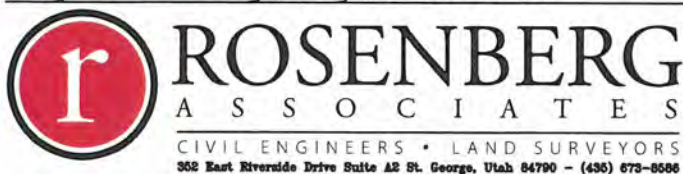
DEPTH (m)	DEPTH (ft.)	GRAPHIC LOG	SUMMARY OF SUBSURFACE CONDITIONS	DRIVE	BULK	MOISTURE	CONSISTENCY	FIELD MOISTURE (%)	FIELD DENSITY (pcf)
			The following is a summary of subsurface conditions encountered at the time of exploration. Subsurface conditions may differ at other locations and may vary at this location with the passage of time. The data contained in this log is a simplification of actual conditions.						
	1		FILL: GRAVELLY SAND (SP-SM) Reddish Brown			Slightly Moist			
	2		Refusal at 1' on Sandstone Bedrock						
	3								
1	4								
	5								
	6								
2	7								
	8								
	9								
3									

APPROVED BY _____ ON _____

Groundwater: NE

End of Trench at 1 Feet

Project Title: Page City Detox Center



Project No. _____
12448-21-003

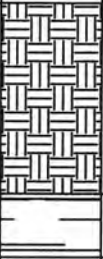

Drawing No. _____
A-1

Log of Trench No. T- 2

Date Trenched: 11/17/21

Logged By: DRB

Ground Surface Elevation: _____

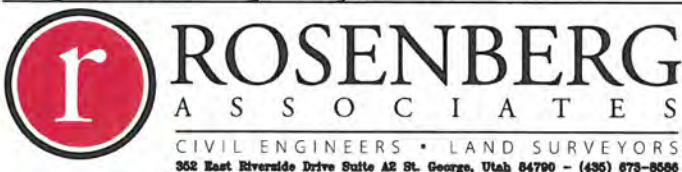
DEPTH (m)	DEPTH (ft.)	GRAPHIC LOG	SUMMARY OF SUBSURFACE CONDITIONS <small>The following is a summary of subsurface conditions encountered at the time of exploration. Subsurface conditions may differ at other locations and may vary at this location with the passage of time. The data contained in this log is a simplification of actual conditions.</small>	DRIVE	BULK	MOISTURE	CONSISTENCY	FIELD MOISTURE (%)	FIELD DENSITY (pcf)
	1		FILL: GRAVELLY SAND (SP-SM) Reddish Brown			Slightly Moist			
	2		Weathered Bedrock				Dense		
	3	Refusal at 2' on Sandstone Bedrock							
1	4								
	5								
	6								
2	7								
	8								
	9								
3									

APPROVED BY _____ ON _____

Groundwater: NE

End of Trench at 2 Feet

Project Title: Page City Detox Center



Project No. 12448-21-003
Drawing No. A-2


Log of Trench No. T- 3

Date Trenched: 11/17/21

Logged By: DRB

Ground Surface Elevation: _____

DEPTH (m)	DEPTH (ft.)	GRAPHIC LOG	SUMMARY OF SUBSURFACE CONDITIONS		DRIVE	BULK	MOISTURE	CONSISTENCY	FIELD MOISTURE (%)	FIELD DENSITY (pcf)
			<p>The following is a summary of subsurface conditions encountered at the time of exploration. Subsurface conditions may differ at other locations and may vary at this location with the passage of time. The data contained in this log is a simplification of actual conditions.</p>							
			<p>FILL: GRAVELLY SAND (SP-SM) Reddish Brown</p>				Slightly Moist	Disturbed		
			<p>Disturbed Native SILTY SAND (SM) Reddish Brown, Over Sewer Lateral</p>							
	1		<p>Refusal at 1' on Sandstone Bedrock</p>							
	2									
	3									
	4									
	5									
	6									
	7									
	8									
	9									
	3									



Groundwater: NE

End of Trench at 1 Feet

Project Title: Page City Detox Center



ROSENBERG
ASSOCIATES
CIVIL ENGINEERS • LAND SURVEYORS
352 East Riverside Drive Suite A2 St. George, Utah 84790 - (435) 678-0586

Project No.
12448-21-003

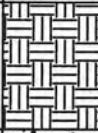


Drawing No.
A-3

Log of Trench No. T- 4

Date Trenched: 11/17/21

Logged By: DRB

Ground Surface Elevation: _____

DEPTH (m)	DEPTH (ft.)	GRAPHIC LOG	SUMMARY OF SUBSURFACE CONDITIONS <small>The following is a summary of subsurface conditions encountered at the time of exploration. Subsurface conditions may differ at other locations and may vary at this location with the passage of time. The data contained in this log is a simplification of actual conditions.</small>	DRIVE	BULK	MOISTURE	CONSISTENCY	FIELD MOISTURE (%)	FIELD DENSITY (pcf)
	1		FILL: GRAVELLY SAND (SP-SM) Reddish Brown			Slightly Moist			
	2		SILTY SAND (SM) Reddish Brown, and Fractured Sandstone				Disturbed		
	3		Refusal at 2' on Sandstone Bedrock						
	4								
	5								
	6								
	7								
	8								
	9								
3									

Groundwater: NE

End of Trench at 2 Feet

Project Title: Page City Detox Center



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Project No.
12448-21-003



Drawing No.
A-4

Log of Trench No. T- 5

Date Trenched: 11/17/21

Logged By: DRB

Ground Surface Elevation: _____

DEPTH (m)	DEPTH (ft.)	GRAPHIC LOG	SUMMARY OF SUBSURFACE CONDITIONS	DRIVE	BULK	MOISTURE	CONSISTENCY	FIELD MOISTURE (%)	FIELD DENSITY (pcf)
			FILL: GRAVELLY SAND (SP-SM) Reddish Brown			Slightly Moist			
			Refusal 0.5' on Sandstone Bedrock						
	1								
	2								
	3								
1	4								
	5								
	6								
2	7								
	8								
	9								
3	10								

Groundwater: NE

End of Trench at 0.5 Feet

Project Title: Page City Detox Center



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Project No.
12448-21-003

Drawing No.
A-5

KEY TO SOIL SYMBOLS AND TERMS

Terms used in this report for describing soils according to their texture or grain size distributions are generally in accordance with the Unified Soils Classification System.

TERMS DESCRIBING CONDITION, CONSISTENCY AND HARDNESS

COARSE GRAINED SOILS:

Major portion retained on No. 200 sieve. Includes: (1) clean gravels, (2) silty or clayey gravels and (3) silty, clayey or gravelly sands. Consistency is rated according to relative density, as determined by laboratory test.

DESCRIPTIVE TERM	BLOW COUNTS (N1)60
Very Loose	0 to 4
Loose	5 to 10
Medium Dense	11 to 30
Dense	31 to 50
Very Dense	Greater than 50

FINE GRAINED SOILS:

Major portion passing No. 200 sieve. Includes: (1) inorganic and organic silts and clays (2) gravelly, sandy or silty clays, and (3) clayey silts. Consistency is rated according to shearing strength as indicated by penetrometer readings or by direct shear tests.

DESCRIPTIVE TERM	Blows per 6"
Very Soft	Less than 2
Soft	2 - 4
Firm	5 - 8
Stiff	9 - 15
Very Stiff	16 - 30
Hard	Greater than 30

ROCK:

Includes gravels, cobbles, rock, caliche and bedrock materials. Hardness is related to field identification procedures described below.

DESCRIPTIVE TERM	FIELD IDENTIFICATION TEST
Soft	Can be dug by hand and crushed by fingers.
Moderate Hard	Friable, can be gouged deeply with knife and will crumble readily under light hammer blows.
Hard	Knife scratch leaves dust trace, will withstand a few hammer blows before breaking.
Very Hard	Scratched with knife with difficulty, difficult to break with hammer blows.

SOIL MOISTURE

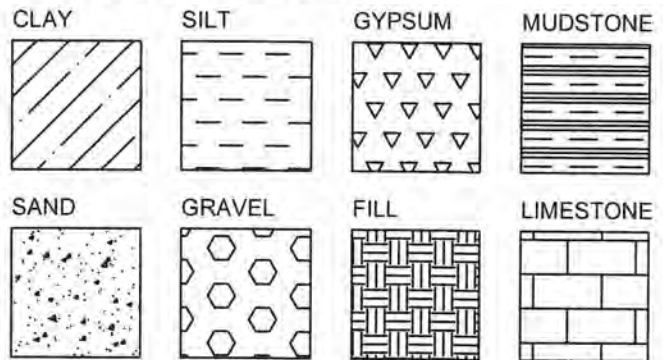
From low to high the soil moisture is indicated by:

Dry	-Absence of Moisture, Dusty, Dry to Touch
Slightly Moist	-Apparent Moisture but well below optimum Moisture Content
Moist	-Damp, but no visible water; at or near optimum Moisture Content
Very Moist	-Above optimum moisture content
Wet	-Visible Free Water; Substantially above optimum moisture content; at or above liquid limit

SIZE PROPORTIONS

DESCRIPTIVE TERM	PERCENT BY WEIGHT
Trace	0 to 10
With	10 to 20
Some	20 to 35
And	35 to 50

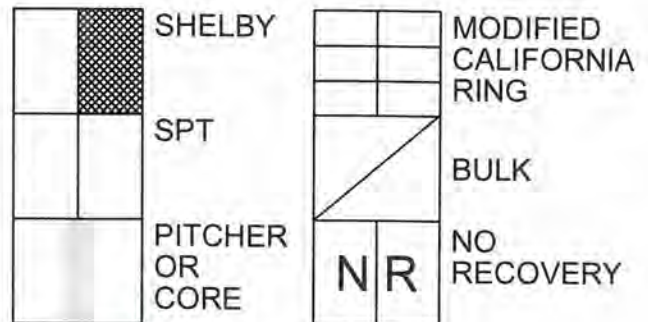
SOIL TYPE KEY



LEGEND OF LABORATORY TEST

G - Grain	CH - Chemical
S - Swell	N - Chemical Heave
DS - Direct Shear	C - Consolidation
A - Liquid & Plastic Limits	T - Triaxial
PP - Pocket Penetrometer	Sol - Solubility
U - Unconfined	P - Compaction

SAMPLER TYPES



Important Information About Your Geotechnical Engineering Report

Subsurface problems are a principal cause of construction delays, cost overruns, claims, and disputes

The following information is provided to help you manage your risks.

Geotechnical Services Are Performed for Specific Purposes, Persons, and Projects

Geotechnical engineers structure their services to meet the specific needs of their clients. A geotechnical engineering study conducted for a civil engineer may not fulfill the needs of a construction contractor or even another civil engineer. Because each geotechnical engineering study is unique, each geotechnical engineering report is unique, prepared *solely* for the client. No one except you should rely on your geotechnical engineering report without first conferring with the geotechnical engineer who prepared it. *And no one - not even you - should apply the report for any purpose or project except the one originally contemplated.*

Read the Full Report

Serious problems have occurred because those relying on a geotechnical engineering report did not read it all. Do not rely on an executive summary. Do not read selected elements only.

A Geotechnical Engineering Report Is Based on A Unique Set of Project-Specific Factors

Geotechnical engineers consider a number of unique, project-specific factors when establishing the scope of a study. Typical factors include: the client's goals, objectives, and risk management preferences; the general nature of the structure involved, its size, and configuration; the location of the structure on the site; and other planned or existing site improvements, such as access roads, parking lots, and underground utilities. Unless the geotechnical engineer who conducted the study specifically indicates otherwise, do not rely on a geotechnical engineering report that was:

- not prepared for you,
- not prepared for your project,
- not prepared for the specific site explored, or
- completed before important project changes were made.

Typical changes that can erode the reliability of an existing geotechnical engineering report include those that affect:

- the function of the proposed structure, as when it's changed from a parking garage to an office building, or from a light industrial plant to a refrigerated warehouse,

- elevation, configuration, location, orientation, or weight of the proposed structure,
- composition of the design team, or
- project ownership.

As a general rule, *always* inform your geotechnical engineer of project changes - even minor ones - and request an assessment of their impact. *Geotechnical engineers cannot accept responsibility or liability for problems that occur because their reports do not consider developments of which they were not informed.*

Subsurface Conditions Can Change

A geotechnical engineering report is based on conditions that existed at the time the study was performed. *Do not rely on a geotechnical engineering report* whose adequacy may have been affected by: the passage of time; by man-made events, such as construction on or adjacent to the site; or by natural events, such as floods, earthquakes, or groundwater fluctuations. *Always* contact the geotechnical engineer before applying the report to determine if it is still reliable. A minor amount of additional testing or analysis could prevent major problems.

Most Geotechnical Findings Are Professional Opinions

Site exploration identifies subsurface conditions only at those points where subsurface tests are conducted or samples are taken. Geotechnical engineers review field and laboratory data and then apply their professional judgment to render an opinion about subsurface conditions throughout the site. Actual subsurface conditions may differ-sometimes significantly from those indicated in your report. Retaining the geotechnical engineer who developed your report to provide construction observation is the most effective method of managing the risks associated with unanticipated conditions.

A Report's Recommendations Are *Not* Final

Do not overrely on the construction recommendations included in your report. *Those recommendations are not final*, because geotechnical engineers develop them principally from judgment and opinion. Geotechnical engineers can finalize their recommendations only by observing actual

subsurface conditions revealed during construction. The geotechnical engineer who developed your report cannot assume responsibility or liability for the report's recommendations if that engineer does not perform construction observation.

A Geotechnical Engineering Report Is Subject to Misinterpretation

Other design team members' misinterpretation of geotechnical engineering reports has resulted in costly problems. Lower that risk by having your geotechnical engineer confer with appropriate members of the design team after submitting the report. Also retain your geotechnical engineer to review pertinent elements of the design team's plans and specifications. Contractors can also misinterpret a geotechnical engineering report. Reduce that risk by having your geotechnical engineer participate in prebid and preconstruction conferences, and by providing construction observation.

Do Not Redraw the Engineer's Logs

Geotechnical engineers prepare final boring and testing logs based upon their interpretation of field logs and laboratory data. To prevent errors or omissions, the logs included in a geotechnical engineering report should *never* be redrawn for inclusion in architectural or other design drawings. Only photographic or electronic reproduction is acceptable, *but recognize that separating logs from the report can elevate risk.*

Give Contractors a Complete Report and Guidance

Some owners and design professionals mistakenly believe they can make contractors liable for unanticipated subsurface conditions by limiting what they provide for bid preparation. To help prevent costly problems, give contractors the complete geotechnical engineering report, *but* preface it with a clearly written letter of transmittal. In that letter, advise contractors that the report was not prepared for purposes of bid development and that the report's accuracy is limited; encourage them to confer with the geotechnical engineer who prepared the report (a modest fee may be required) and/or to conduct additional study to obtain the specific types of information they need or prefer. A prebid conference can also be valuable. *Be sure contractors have sufficient time to perform additional study.* Only then might you be in a position to give contractors the best information available to you, while requiring them to at least share some of the financial responsibilities stemming from unanticipated conditions.

Read Responsibility Provisions Closely

Some clients, design professionals, and contractors do not recognize that geotechnical engineering is far less exact than other engineering disciplines. This lack of understanding has created unrealistic expectations that have led

to disappointments, claims, and disputes. To help reduce the risk of such outcomes, geotechnical engineers commonly include a variety of explanatory provisions in their reports. Sometimes labeled "limitations" many of these provisions indicate where geotechnical engineers' responsibilities begin and end, to help others recognize their own responsibilities and risks. *Read these provisions closely.* Ask questions. Your geotechnical engineer should respond fully and frankly.

Geoenvironmental Concerns Are Not Covered

The equipment, techniques, and personnel used to perform a *geoenvironmental* study differ significantly from those used to perform a *geotechnical* study. For that reason, a geotechnical engineering report does not usually relate any geoenvironmental findings, conclusions, or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. *Unanticipated environmental problems have led to numerous project failures.* If you have not yet obtained your own geoenvironmental information, ask your geotechnical consultant for risk management guidance. *Do not rely on an environmental report prepared for someone else.*

Obtain Professional Assistance To Deal with Mold

Diverse strategies can be applied during building design, construction, operation, and maintenance to prevent significant amounts of mold from growing on indoor surfaces. To be effective, all such strategies should be devised for the express purpose of mold prevention, integrated into a comprehensive plan, and executed with diligent oversight by a professional mold prevention consultant. Because just a small amount of water or moisture can lead to the development of severe mold infestations, a number of mold prevention strategies focus on keeping building surfaces dry. While groundwater, water infiltration, and similar issues may have been addressed as part of the geotechnical engineering study whose findings are conveyed in this report, the geotechnical engineer in charge of this project is not a mold prevention consultant; ***none of the services performed in connection with the geotechnical engineer's study were designed or conducted for the purpose of mold prevention. Proper implementation of the recommendations conveyed in this report will not of itself be sufficient to prevent mold from growing in or on the structure involved.***

Rely on Your ASFE-Member Geotechnical Engineer For Additional Assistance

Membership in ASFE/The Best People on Earth exposes geotechnical engineers to a wide array of risk management techniques that can be of genuine benefit for everyone involved with a construction project. Confer with your ASFE-member geotechnical engineer for more information.



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SECTION 01 10 00 SUMMARY

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Contract description.
 - 2. Owner occupancy.
 - 3. Specification conventions.
- B. Related Requirements:
 - 1. Section 01 33 00 – Submittal Procedures.

1.2 CONTRACT DESCRIPTION

- A. Work of Project includes construction of the City Of Page Shelter Encompass Facility and site improvements.
- B. Perform Work of Contract under stipulated price Contract with Owner according to Conditions of Contract.

1.3 OWNER OCCUPANCY

- A. Owner will not occupy Site during period of construction.

1.4 SPECIFICATION CONVENTIONS

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

PART 2 PRODUCTS - Not Used

PART 3 EXECUTION - Not Used

END OF SECTION

SECTION 01 20 00
PRICE AND PAYMENT PROCEDURES

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Schedule of Values.
 - 2. Application for Payment.
 - 3. Change procedures.
 - 4. Defect assessment.
 - 5. Unit price schedule.

1.2 SCHEDULE OF VALUES

- A. Submit printed or electronic PDF file of Schedule of Values on Contractor's standard form.
- B. Submit Schedule of Values as required in General Conditions.
- C. Format: Use Table of Contents of this Project Manual. Identify each line item with number and title of major Specification Section. Also identify mobilization, bonds and insurance, and other related items.
- D. Include within each line item, direct proportional amount of Contractor's overhead and profit.
- E. Revise Schedule of Values to list approved Change Orders with each Application for Payment.

1.3 APPLICATION FOR PAYMENT

- A. Submit one copy of each Application for Payment on American Institute of Architects (AIA) Payment Application Form included in Contract Documents.
- B. Content and Format: Use Schedule of Values for listing items in Application for Payment.
- C. Submit updated Progress Schedule with each Application for Payment.
- D. Payment Period: Submit at monthly intervals as agreed upon at Preconstruction Meeting.
- E. Substantiating Data: When Architect requires substantiating information, submit data justifying dollar amounts in question.

1.4 CHANGE PROCEDURES

- A. Submit name of individual who is authorized to receive change documents and is responsible for informing others in Contractor's employ or Subcontractors of changes to Work.
- B. Carefully study and compare Contract Documents before proceeding with fabrication and installation of Work. Promptly advise Architect of any error, inconsistency, omission, or apparent discrepancy.
- C. Requests for Interpretation (RFI) and Clarifications: Allot time in construction scheduling for handling queries and clarifications.
- D. Use Contractor's standard form for requesting interpretations.
- E. Architect may respond with direct answer on Request for Interpretation form, Field Order, or Work Change Directive.
- F. Substitutions are to be requested and reviewed by Architect prior to submittal of bids as indicated in Instructions to Bidders.
- G. Execution of Change Orders: Architect will issue Change Orders for signatures of parties as provided in General Conditions.
- H. Correlation of Contractor Submittals:
 - 1. Promptly revise Application for Payment forms to record each authorized Change Order as separate line item and adjust Contract Price.
 - 2. Promptly revise Progress Schedule to reflect change in Contract Time, revise sub-schedules to adjust times for other items of Work affected by change, and resubmit.
 - 3. Promptly enter changes in Record Documents.

1.5 DEFECT ASSESSMENT

- A. Replace Work, or portions of Work, not conforming to specified requirements.
- B. If, in opinion of Architect, it is not practical to remove and replace Work, Architect will direct appropriate remedy or adjust payment.
 - 1. Defective Work may remain, but unit sum/price will be reduced up to 50 percent at discretion of Architect.
 - 2. Defective Work will be partially repaired according to instructions of Architect, and unit sum/price will be adjusted to new sum/price at discretion of Architect.
 - 3. Individual Specification Sections may modify these options or may identify specific formula or percentage sum/price reduction.

- C. Authority of Architect to assess defects and identify payment adjustments is final.
- D. Nonpayment for Rejected Products: Payment will not be made for rejected products for any of the following reasons:
 - 1. Products wasted or disposed of in manner that is not acceptable.
 - 2. Products determined as unacceptable before or after placement.
 - 3. Products not completely unloaded from transporting vehicle.
 - 4. Products placed beyond lines and levels of the required Work.
 - 5. Products remaining on hand after completion of Work.
 - 6. Loading, hauling, and disposing of rejected products.

PART 2 PRODUCTS - Not Used

PART 3 EXECUTION - Not Used

END OF SECTION

SECTION 01 33 00 SUBMITTAL PROCEDURES

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Definitions.
- B. Submittal procedures.
- C. Construction progress schedule.
- D. Product data.
- E. Shop Drawings.
- F. Samples.
- G. Closeout submittals.
- H. Test reports.
- I. Certificates.
- J. Manufacturer's instructions.
- K. Manufacturer's field reports.
- L. Contractor review.
- M. Architect review.

1.2 DEFINITIONS

- A. Action Submittals: Written and graphic information and physical samples that require Architect, Owner's or construction team's responsive action.
- B. Informational Submittals: Written and graphic information and physical Samples that do not require Architect responsive action. Submittals may be rejected for not complying with requirements.

1.3 SUBMITTAL PROCEDURES

- A. Transmit each submittal with transmittal or cover letter.
- B. Mark revised submittals with original number and sequential alphabetic suffix.

- C. Identify: Project, Contractor, Subcontractor and supplier, pertinent Drawing and detail number, and Specification Section number appropriate to submittal.
- D. Apply Contractor's stamp, signed or initialed, certifying that review, approval, verification of products required, field dimensions, adjacent construction Work, and coordination of information is according to requirements of Work and Contract Documents.
- E. Schedule submittals to expedite Project, and deliver to Architect at business address. Submit electronic submittals via email as PDF electronic files. Coordinate submission of related items.
- F. For each submittal for review, allow 14 days, excluding delivery time to and from Contractor.
- G. Identify variations in Contract Documents and product or system limitations that may be detrimental to successful performance of completed Work.
- H. Allow space on submittals for Contractor and Architect review stamps.
- I. When revised for resubmission, identify changes made since previous submission.
- J. Distribute copies of reviewed submittals as appropriate. Instruct parties to promptly report inability to comply with requirements.
- K. Submittals not requested will not be recognized nor processed.
- L. Incomplete Submittals: Architect will not review. Complete submittals for each item are required. Delays resulting from incomplete submittals are not responsibility of Architect.

1.4 CONSTRUCTION PROGRESS SCHEDULE

- A. Submit construction Progress Schedule before or at Preconstruction Meeting.
- B. Revise and resubmit at least monthly with each application for payment.
- C. Show complete sequence of construction by activity, identifying Work of separate stages/phases and other logically grouped activities.

1.5 PRODUCT DATA

- A. Product Data:
 - 1. Action submittal.

2. Submit to Architect/ for review for assessing conformance with information given and design concept expressed in Contract Documents.
3. Submit hard copies or electronic copies:
 - a. Hard Copies: Submit number of copies Contractor requires, plus two copies Architect will retain.
 - b. Electronic Copies: Submit via email as PDF electronic files.
- B. Mark each copy to identify applicable products, models, options, and other data. Supplement manufacturers' standard data to provide information specific to this Project.
- C. Indicate product utility and electrical characteristics, utility connection requirements, and location of utility outlets for service for functional equipment and appliances.
- D. After review, produce copies and distribute according to submittal procedures.

1.6 SHOP DRAWINGS

- A. Shop Drawings:
 1. Action submittal.
 2. Submit to Architect for assessing conformance with information given and design concept expressed in Contract Documents.
 3. Submit hard copies or electronic copies:
 - a. Hard Copies: Submit number of copies Contractor requires, plus two copies Architect will retain.
 - b. Electronic Copies: Submit via email as PDF electronic files.
- B. Indicate special utility and electrical characteristics, utility connection requirements, and location of utility outlets for service for functional equipment and appliances.
- C. When required by individual Specification Sections, provide Shop Drawings signed and sealed by professional engineer responsible for designing components shown on Shop Drawings.
 1. Include signed and sealed calculations to support design.
 2. Submit Shop Drawings and calculations in form suitable for submission to and approval by authorities having jurisdiction.
 3. Make revisions and provide additional information when required by authorities having jurisdiction.
- D. After review, produce copies and distribute according to submittal procedures.

1.7 SAMPLES

- A. Samples:
 - 1. Action submittal.
 - 2. Submit to Architect for assessing conformance with information given and design concept expressed in Contract Documents.
- B. Samples for Selection as Specified in Product Sections:
 - 1. Submit to Architect for aesthetic, color, and finish selection.
 - 2. Submit Samples of finishes, textures, and patterns for Architect selection.
- C. Submit Samples to illustrate functional and aesthetic characteristics of products, with integral parts and attachment devices. Coordinate Sample submittals for interfacing work.
- D. Include identification on each Sample, with full Project information.
- E. Submit number of Samples specified in individual Specification Sections; Architect will retain one Sample.
- F. Reviewed Samples that may be used in Work are indicated in individual Specification Sections.
- G. After review, produce copies and distribute according to submittal procedures.

1.8 CLOSEOUT SUBMITTALS

- A. Closeout Submittals: Comply with General Conditions and Section 01 70 00.
- B. Informational Submittal: Submit data for Architect's knowledge as Contract administrator or for Owner.
- C. Submit information for assessing conformance with information given and design concept expressed in Contract Documents.

1.9 TEST REPORTS

- A. Informational Submittal: Submit reports for Architect's knowledge as Contract administrator or for Owner.
- B. Submit test reports for information for assessing conformance with information given and design concept expressed in Contract Documents.

1.10 CERTIFICATES

- A. Informational Submittal: Submit one copy of certification by manufacturer, installation/application Subcontractor, or Contractor to Architect.
- B. Indicate material or product conforms to or exceeds specified requirements. Submit supporting reference data, affidavits, and certifications as appropriate.
- C. Certificates may be recent or previous test results on material or product but must be acceptable to Architect.

1.11 MANUFACTURER'S INSTRUCTIONS

- A. Informational Submittal: Submit manufacturer's installation instructions for Architect's knowledge as Contract administrator or for Owner.
- B. Submit one copy of printed instructions for delivery, storage, assembly, installation, startup, adjusting, and finishing to Architect.
- C. Indicate special procedures, perimeter conditions requiring special attention, and special environmental criteria required for application or installation.

1.12 MANUFACTURER'S FIELD REPORTS

- A. Informational Submittal: Submit reports for Architect's knowledge as Contract administrator or for Owner.
- B. Submit one copy of report within 5 days of observation to Architect for information.
- C. Submit reports for information for assessing conformance with information given and design concept expressed in Contract Documents.

1.13 CONTRACTOR REVIEW

- A. Review submittals for compliance with Contract Documents and approve submittals before transmitting to Architect, otherwise submittal will be returned to Contractor.
- B. Contractor is responsible for:
 - 1. Determination and verification of materials including manufacturer's catalog numbers.
 - 2. Determination and verification of field measurements and field construction criteria.
 - 3. Checking and coordinating information in submittal with requirements of Work and of Contract Documents.
 - 4. Determination of accuracy and completeness of dimensions and quantities.

5. Confirmation and coordination of dimensions and field conditions at Site.
 6. Construction means, techniques, sequences, and procedures.
 7. Safety precautions.
 8. Coordination and performance of Work of all trades.
- C. Stamp, sign or initial, and date each submittal to certify compliance with requirements of Contract Documents.
- D. Do not fabricate products or begin Work for which submittals are required until approved submittals have been received from Architect.

1.14 ARCHITECT REVIEW

- A. Informational submittals and other similar data are for Architect's information, do not require Architect's responsive action, and will not be reviewed or returned with comment.
- B. Submittals made by Contractor that are not required by Contract Documents may be returned without action.
- C. Submittal approval does not authorize changes to Contract requirements unless accompanied by Change Order, Field Order, or Work Change Directive.

PART 2 PRODUCTS - Not Used

PART 3 EXECUTION - Not Used

END OF SECTION

SUMMARY OF SUBMITTALS

Section	Submittal	Contractor's Anticipated Submission Date
03 20 00 CONCRETE REINFORCING	Shop Drawings: Indicate bar sizes, spacing, locations, splice locations, and quantities of reinforcing steel. Indicate bending and cutting schedules. Indicate supporting and spacing devices.	
03 20 00 CONCRETE REINFORCING	Manufacturer's Material Certificate: Certify that products meet or exceed specified requirements.	
03 30 00 CAST-IN-PLACE CONCRETE	Product Data: Submit data on joint devices, attachment accessories, admixtures, bonding agent, non-shrink grout, curing compound, and accessories.	
03 30 00 CAST-IN-PLACE CONCRETE	Design Data: Submit concrete mix design for each concrete class used. Submit prior test results for each concrete mix design. Submit separate mix designs if admixtures are required for following: Hot and cold weather concrete Work. Air entrained concrete Work. Identify mix ingredients and proportions, including admixtures. Identify chloride content of admixtures and whether chlorides were added during manufacturing.	
03 30 00 CAST-IN-PLACE CONCRETE	Concrete Placement Plan: Submit concrete placement plan minimum of 72-hours prior to placement of concrete or as determined by Engineer. See attachment at end of this Section. This requirement may be waived for minor concrete placements when accepted by Engineer.	
03 30 00 CAST-IN-PLACE CONCRETE	Batch Ticket: Submit to Engineer's onsite representative with each truck load delivered. Include information as follows: Name of batch plant. Name of Contractor and Project. Mix design number or designation. Class of concrete mix and type of cement. Time and date of batching.	

	<p>Cubic yards of concrete.</p> <p>Weights of cement and each size of aggregate.</p> <p>Amount of water added at plant and any additional water added.</p> <p>Amount of each admixture.</p>	
03 30 00 CAST-IN-PLACE CONCRETE	Project Record Documents: Record actual locations of embedded utilities and components concealed from view in finished construction.	
03 30 00 CAST-IN-PLACE CONCRETE	Warranty: Submit before or with final application for payment.	
03 39 20 PENETRATING CONCRETE SEALER	Manufacturer's product data sheets and recommended installation instructions.	
03 39 20 PENETRATING CONCRETE SEALER	A random sample of the penetrating concrete sealer for testing at the Engineer's discretion to verify product compliance.	
05 12 00 STRUCTURAL STEEL FRAMING	<p>Shop Drawings:</p> <p>Indicate profiles, sizes, spacing, locations of structural members, openings, attachments, and bolts.</p> <p>Connections.</p> <p>Indicate welded connections with AWS A2.4 welding symbols, and indicate net weld lengths.</p>	
05 12 00 STRUCTURAL STEEL FRAMING	Manufacturer's Certificate: Certify that products meet or exceed specified requirements.	
05 12 00 STRUCTURAL STEEL FRAMING	Welders Certificates: Certify welders employed on the Work, verifying AWS qualification within previous 12 months.	
05 12 00 STRUCTURAL STEEL FRAMING	Mill Test Reports: Submit indicating structural strength, destructive and non-destructive test analysis.	
05 12 00 STRUCTURAL STEEL FRAMING	Source Quality-Control Submittals: Indicate results of shop tests and inspections.	
05 12 00 STRUCTURAL STEEL FRAMING	Field Quality-Control Submittals: Indicate results of Contractor-furnished tests and inspections.	
05 12 00 STRUCTURAL STEEL FRAMING	<p>Qualifications Statements:</p> <p>Submit qualifications for fabricator, erector, shop painter, and welders.</p> <p>Indicate items that require submittals.</p>	

05 50 00 METAL FABRICATIONS	Product Data: Submit data for canopy steel.< >	
05 50 00 METAL FABRICATIONS	Shop Drawings: Submit shop drawings. for < >. Indicate profiles, sizes, connection at- tachments, reinforcing, anchorage, size and type of fasteners, and accessories. Include erection drawings, elevations, and details where applicable. Indicate welded connections using standard AWS A2.4 welding symbols.	
05 50 00 METAL FABRICATIONS	Welders Certificates: Certify welders employed on Work, verifying AWS qualification within pre- vious 12 months.	
05 50 00 METAL FABRICATIONS	Field Quality-Control Submittals: Indicate re- sults of Contractor-furnished tests and inspec- tions.	
06 10 00 ROUGH CARPENTRY	Product Data: Manufacturer information on in- sulated sheathing, wood preservative materials, and application instructions.	
06 10 00 ROUGH CARPENTRY	Shop Drawings for Site-Fabricated Truss Frame: Dimensions, wood species and grades, component profiles, drilled holes, fasteners, connectors, erection details, and sequence.	
06 10 00 ROUGH CARPENTRY	Manufacturer's Certificate: Products meet or ex- ceed specified requirements.	
06 17 53 SHOP- FABRICATED WOOD TRUSSES	Product Data: Submit truss plate connections, bearing plates, anchor connections, wind uplift connections, and bridging and bracing.	
06 17 53 SHOP- FABRICATED WOOD TRUSSES	Shop Drawings: Indicate truss sizes, dimen- sions, spacing of trusses, associated compo- nents, uplift connectors, web and chord sizes, plate sizes, fastener descriptions and spacings, loads and truss cambers, and framed openings.	
06 17 53 SHOP- FABRICATED WOOD TRUSSES	Design Calculations: Indicate design loads, truss reactions, and member forces, deflec- tions, and stresses.	
06 17 53 SHOP- FABRICATED WOOD TRUSSES	Manufacturer's/Fabricator's Certificate: Certify that products meet or exceed specified require- ments.	
06 17 53	Delegated Design Submittals: Submit signed and sealed Shop Drawings with design calcula- tions and assumptions for sizes, dimensions,	

SHOP-FABRICATED WOOD TRUSSES	spacing of trusses, associated components, up-lift connectors, web and chord sizes, plate sizes, fastener descriptions and spacings, design loads, truss cambers, and framed openings.	
06 17 53 SHOP-FABRICATED WOOD TRUSSES	Qualifications Statements: Submit qualifications for manufacturer/fabricator, erector, and licensed professional. Submit manufacturer's/fabricator's approval of erector. Only include submittals that affect Project cost or schedule.	
06 40 00 ARCHITECTURAL WOODWORK	Delegated Design Submittals: [Required] [Not required].	
06 40 00 ARCHITECTURAL WOODWORK	Source Quality-Control Submittals: [Required] [Not required].	
06 40 00 ARCHITECTURAL WOODWORK	Results of [Shop] [Factory] Tests and Inspections: [Required] [Not required].	
06 40 00 ARCHITECTURAL WOODWORK	Field Quality-Control Submittals: [Required] [Not required].	
07 11 13 BITUMINOUS DAMPPROOFING	Product Data: Submit for each type of product indicated.	
07 11 13 BITUMINOUS DAMPPROOFING	Manufacturer's Installation Instructions: Submit manufacturer's application instructions with any special procedures and perimeter conditions requiring special attention.	
08 11 00 METAL DOORS AND FRAMES	Product Data: Provide product information for doors, frames, hardware, closers and signs.	
08 11 00 METAL DOORS AND FRAMES	Samples: Submit two copies of color charts of paint manufacturer's standard colors for doors and frames.	
08 14 16 FLUSH WOOD DOORS	Product Data: For each type of door. Include details of core and edge construction and trim for openings. Include factory-finishing specifications.	
08 14 16 FLUSH WOOD DOORS	Shop Drawings: Indicate location, size, and hand of each door; elevation of each kind of door; construction details not covered in Product Data; and the following: Dimensions and locations of blocking.	

	<p>Dimensions and locations of mortises and holes for hardware.</p> <p>Dimensions and locations of cutouts.</p> <p>Undercuts.</p> <p>Requirements for veneer matching.</p> <p>Doors to be factory finished and finish requirements.</p> <p>Fire-protection ratings for fire-rated doors.</p>	
08 14 16 FLUSH WOOD DOORS	Samples for Initial Selection: For factory-finished doors.	
08 14 16 FLUSH WOOD DOORS	Sample Warranty: For special warranty.	
08 14 16 FLUSH WOOD DOORS	Quality Standard Compliance Certificates: AWI Quality Certification Program certificates.	
08 51 13 ALUMINUM WINDOWS	Product Data: Submit for each type of aluminum window indicated.	
08 51 13 ALUMINUM WINDOWS	<p>Shop Drawings: Include plans, elevations, sections, details, hardware, attachments to other work, operational clearances, and installation details.</p> <p>The following paragraph assumes the manufacturer's standard-size samples are acceptable. Revise to suit project.</p>	
08 51 13 ALUMINUM WINDOWS	Samples: Submit sample for each exposed finish.	
08 51 13 ALUMINUM WINDOWS	Product Schedule: Use same designations indicated on Drawings.	
08 51 13 ALUMINUM WINDOWS	Manufacturer's Certificate: Certify that products meet or exceed specified requirements. Provide supporting documentation and test reports.	
08 51 13 ALUMINUM WINDOWS	Maintenance Data. Provide manufacturer's recommended maintenance information.	
09 24 00 DIAMOND WALL ONE COAT STUCCO	Product Data: All product data sheets, evaluation reports, details, and warranty information that pertain to the project in accordance with Section 01 30 00 Submittal Procedures.	
09 24 00	<p>Samples: Submitted upon request.</p> <p>Samples of the finish coat shall be of an adequate size as required to represent each color</p>	

DIAMOND WALL ONE COAT STUCCO	and texture to be utilized on the project and produced using the same techniques and tools required to complete the project. Retain approved samples at the construction site throughout the application process.	
09 29 00 GYPSUM BOARD	Product Data: Submit data on gypsum board, joint tape; decorative finish, and acoustic accessories.	
09 29 00 GYPSUM BOARD	Samples: Submit one sample of textured surfacing; 24x24 inch in size illustrating textured finish.	
09 30 00 TILING	Product Data: For each type of product indicated. Samples: Each type and composition of tile and for each color and finish required. Assembled samples, with grouted joints, for each type and composition of tile and for each color and finish required. Stone thresholds in 6-inch lengths.	
09 30 00 TILING	Furnish extra materials that match and are from same production runs as products installed and that are packaged with protective covering and identified with labels describing contents.	
09 30 00 TILING	Tile and Trim Units: Furnish quantity of full-size units equal to 3 percent of amount installed for each type, composition, color, pattern, and size indicated.	
09 65 13 RESILIENT BASE AND ACCESSORIES	Product Data: For each type of product indicated.	
09 65 13 RESILIENT BASE AND ACCESSORIES	Samples: For each type of product indicated, in manufacturer's standard-size Samples but not less than 12 inches long, of each resilient product color, texture, and pattern required.	
09 68 13 TILE CARPETING	Product Data: Provide for each type of product indicated.	
09 68 13 TILE CARPETING	Shop Drawings: Show following: Columns, doorways, enclosing walls or partitions, built-in cabinets, and locations where cut-outs are required in carpet tiles. Type of subfloor. Type of installation. Pattern of installation. Pattern type, location, and direction.	

	Pile direction.	
09 68 13 TILE CARPETING	Samples: Provide for each exposed product and for each color and texture specified.	
09 68 13 TILE CARPETING	Product test reports.	
09 68 13 TILE CARPETING	Sample warranty.	
09 68 13 TILE CARPETING	Maintenance data.	
10 28 00 TOILET, BATH, AND LAUNDRY ACCESSORIES	Product Data: For each type of product indicated.	
10 28 00 TOILET, BATH, AND LAUNDRY ACCESSORIES	Product Schedule: Indicating types, quantities, sizes, and installation locations by room of each accessory required. Identify locations using room designations indicated. Identify products using designations indicated.	
10 28 00 TOILET, BATH, AND LAUNDRY ACCESSORIES	Maintenance data.	
10 28 00 TOILET, BATH, AND LAUNDRY ACCESSORIES	Warranty: Sample of special warranty.	

SECTION 01 40 00
QUALITY REQUIREMENTS

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Quality control.
- B. Tolerances.
- C. References.
- D. Labeling.
- E. Mockup requirements.
- F. Quality control testing.
- G. Acceptance testing and inspection services.
- H. Nonconforming Work.
- I. Manufacturer's field services.
- J. Related Requirements:
 - 1. Section 01 33 00 – Submittal Procedures

1.2 QUALITY CONTROL

- A. Monitor quality control over suppliers, manufacturers, products, services, Site conditions, and workmanship, to produce Work of specified quality.
- B. Comply with specified standards as minimum quality for Work except where more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.
- C. Perform Work using persons qualified to produce required and specified quality.
- D. Supervise performance of Work in such manner and by such means to ensure that Work, whether completed or in progress, will not be subjected to harmful, dangerous, damaging, or otherwise deleterious exposure during construction period.

1.3 TOLERANCES

- A. Monitor fabrication and installation tolerance control of products to produce acceptable Work. Do not permit tolerances to accumulate.

- B. Comply with manufacturers' recommended tolerances and tolerance requirements in reference standards. When such tolerances conflict with Contract Documents, request clarification from Architect before proceeding.
- C. Adjust products to appropriate dimensions; position before securing products in place.

1.4 REFERENCES

- A. For products or workmanship specified by association, trade, or other consensus standards; comply with requirements of standard except when more rigid requirements are specified or are required by applicable codes.
- B. When requirements of indicated reference standards conflict with Contract Documents, request clarification from Architect before proceeding.

1.5 LABELING

- A. Attach label from agency approved by authorities having jurisdiction for products, assemblies, and systems required to be labeled by applicable code.
- B. Label Information: Include manufacturer's or fabricator's identification, approved agency identification, and the following information, as applicable, on each label:
 - 1. Model number.
 - 2. Serial number.
 - 3. Performance characteristics.
- C. Manufacturer's Nameplates, Trademarks, Logos, and Other Identifying Marks on Products: Not allowed on surfaces exposed to view in public areas, interior or exterior.

1.6 MOCKUP REQUIREMENTS

- A. Tests will be performed under provisions identified in this Section and identified in individual product Specification Sections.
- B. Assemble and erect specified or indicated items with specified or indicated attachment and anchorage devices, flashings, seals, and finishes.
- C. Accepted mockups shall be comparison standard for remaining Work.
- D. Where mockup has been accepted by Architect and is specified in product Specification Sections to be removed, remove mockup and clear area when directed to do so by Architect.

1.7 QUALITY CONTROL TESTING

- A. Employ and pay for services of testing agency or laboratory acceptable to Architect to perform quality control testing.
 - 1. Before starting Work, submit testing laboratory name, address, and telephone number, and names of full-time Professional Engineer, specialist and responsible officer.
 - 2. Include information on laboratory's and personnel's qualifications and certifications for required testing.
- B. Other requirements for testing agency or laboratory:
 - 1. Laboratory: Authorized to operate in State of Utah.
 - 2. Laboratory Staff: Maintain full-time Professional Engineer or specialist on staff to review services.
 - 3. Testing Equipment: Calibrated at reasonable intervals with devices of accuracy traceable to National Bureau of Standards or accepted values of natural physical constants.
- C. Perform required off-Site testing and inspections for source quality control.
- D. Perform quality control testing at minimum frequency indicated in individual Specification Sections. Perform additional tests as required to ensure materials and Work are in accordance with requirements of Contract Documents. Perform testing during progress of Work, unless indicated otherwise.
- E. Submit testing reports to Architect within 24 hours of completion of tests. Include information as follows in report:
 - 1. Date issued.
 - 2. Project title and number.
 - 3. Name of inspector.
 - 4. Date and time of sampling or inspection.
 - 5. Identification of product and Specification Section.
 - 6. Location in Project.
 - 7. Type of inspection or test.
 - 8. Date of test.
 - 9. Results of tests.
 - 10. Conformance or noncompliance with Contract Documents.
 - 11. Observations.
 - 12. When requested, provide interpretation of test results.
- F. Submit testing reports in accordance with Section 01 33 00.
- G. Responsibilities of Testing Agency or Laboratory:
 - 1. Test Samples of mixes submitted by Contractor.
 - 2. Provide qualified personnel at Site. Cooperate with Engineer and Contractor in performance of services.
 - 3. Perform indicated sampling and quality control testing of products according to specified standards and as directed by Contractor.

4. Ascertain compliance of materials and mixes with requirements of Contract Documents.
 5. Promptly notify Contractor of observed irregularities or nonconformance of Work or products.
 6. Perform additional quality control tests as required by Contractor.
 7. When requested, attend preconstruction meetings and progress meetings.
- H. Limits on Testing Authority:
1. May not release, revoke, alter, or enlarge on requirements of Contract Documents.
 2. May not approve or accept any portion of Work.
 3. May not assume duties of Contractor.
 4. Has no authority to stop Work.

1.8 ACCEPTANCE TESTING AND INSPECTION SERVICES

- A. Owner will employ and pay for services of Engineer or independent firm to perform acceptance testing and inspection.
- B. Engineer or independent firm will perform acceptance tests, inspections, and other services specified in individual Specification Sections and as required by Owner and authorities having jurisdiction.
- C. Independent firm will promptly submit reports to Engineer within 24 hours of completion of tests and inspections. Engineer will submit reports to Owner, Contractor, and authorities having jurisdiction. Reports will include information as follows:
1. Date issued.
 2. Project title and number.
 3. Name of inspector.
 4. Date and time of sampling or inspection.
 5. Identification of product and Specification Section.
 6. Location in Project.
 7. Type of inspection or test.
 8. Date of test.
 9. Results of tests.
 10. Conformance or noncompliance with Contract Documents.
 11. Observations.
 12. When requested, provide interpretation of test results.
- D. Cooperate with Engineer and independent firm; furnish samples of materials, equipment, tools, storage, safe access, and assistance by incidental labor as requested.
1. Notify Engineer and independent firm 48 hours before expected time for operations requiring services.

2. Make arrangements with Engineer and independent firm, and pay for additional Samples and tests required for Contractor's use.
- E. Employment of Engineer or independent firm shall not relieve Contractor of obligation to perform Work according to requirements of Contract Documents.
- F. Payment for retesting or re-inspection may be charged to Contractor by deducting testing charges from Contract Price.
- G. Responsibilities of Engineer or Independent Firm:
 1. Provide qualified personnel at Site. Cooperate with Engineer and Contractor in performance of services.
 2. Perform indicated sampling and acceptance testing of products according to specified standards.
 3. Ascertain compliance of materials and mixes with requirements of Contract Documents.
 4. Promptly notify Engineer of observed irregularities or nonconformance of Work or products.
 5. Perform additional acceptance tests as required by Owner/Engineer.
 6. When requested, attend preconstruction meetings and progress meetings.
- H. Limits on Testing Authority by Independent Firm:
 1. May not release, revoke, alter, or enlarge on requirements of Contract Documents.
 2. May not approve or accept any portion of Work.
 3. May not assume duties of Contractor.
 4. Has no authority to stop Work.
- I. Acceptance testing will govern over quality control testing performed by Contractor.

1.9 NONCONFORMING WORK

- A. Whether discovered by Contractor or Architect, correct or replace nonconforming Work at no cost to Owner.
- B. Materials or Work which fail quality control or acceptance testing, shall be rejected. Make corrections or replace as necessary to meet requirements of Contract Documents.

1.10 MANUFACTURER'S FIELD SERVICES

- A. When specified in individual Specification Sections, use product supplier's or manufacturer's qualified representative to observe Site conditions, conditions of surfaces and installation, quality of workmanship, startup of equipment, testing, adjusting and balancing of equipment, commissioning, or other field services as applicable.
- B. Submit qualifications of observer to Architect 30 days in advance of required observations. Observer is subject to approval of Architect.
- C. Report observations and Site decisions or instructions given to applicators or installers that are supplemental or contrary to manufacturer's written instructions.
- D. Submit reports in accordance with Section 01 33 00.

PART 2 PRODUCTS - Not Used

PART 3 EXECUTION - Not Used

END OF SECTION

SECTION 01 50 00
TEMPORARY FACILITIES AND CONTROLS

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Temporary utilities.
- B. Construction Facilities:
 - 1. Vehicular access.
 - 2. Parking.
 - 3. Progress cleaning and waste removal.
 - 4. Traffic control.
 - 5. Signage
 - 6. Fire-prevention facilities.
- C. Temporary Controls:
 - 1. Barriers.
 - 2. Enclosures and fencing.
 - 3. Security.
 - 4. Water control.
 - 5. Dust control.
 - 6. Erosion and sediment control.
 - 7. Pollution control.
- D. Removal of utilities, facilities, and controls.
- E. Related Requirements:
 - 1. Section 01 55 26 – Traffic Control.
 - 2. Section 01 57 13 – Temporary Erosion and Sediment Control.
 - 3. Section 01 58 13 – Temporary Project Signage.

1.2 SUBMITTALS

- A. Traffic Control Plan: Provide traffic control plan that addresses all phases of Work and is stamped and signed by licensed professional engineer. Submit to allow Engineer's review prior to start of on-site Work.

1.3 TEMPORARY UTILITIES

- A. Provide and pay for temporary utilities such as, but not limited to: electricity, heat, telephone, water and sanitary facilities.
- B. Owner will provide water required for construction. Exercise measures to conserve water. Coordinate with Owner for location, metering and other requirements to obtain water for construction operations.

- C. Provide and maintain required sanitary facilities. Existing sanitary facility use is not permitted. Provide facilities at time of Project mobilization.
- D. At end of construction, return existing facilities used for construction operations to same or better condition as original condition.

1.4 VEHICULAR ACCESS

- A. Extend and relocate vehicular access as Work progress requires and provide detours as necessary for unimpeded traffic flow.
- B. Provide unimpeded access for emergency vehicles. Maintain 20 foot-wide driveways with turning space between and around combustible materials.
- C. Provide and maintain access to fire hydrants free of obstructions.
- D. Provide means of removing mud from vehicle wheels before entering streets.

1.5 PARKING

- A. Arrange for temporary parking areas as necessary to accommodate construction personnel.
- B. Locate as indicated on Drawings, or as reviewed and approved by Owner.
- C. Use of designated areas of existing parking facilities by construction personnel is not permitted.
- D. Do not allow heavy vehicles or construction equipment in parking areas. Avoid traffic loading beyond paving design capacity.
- E. Maintain existing gravel and paved areas used for construction; promptly repair breaks, potholes, low areas, standing water, and other deficiencies, to maintain surfacing and drainage in original condition.
- F. Provide means of removing mud from vehicle wheels before entering parking areas and streets.

1.6 PROGRESS CLEANING AND WASTE REMOVAL

- A. Maintain areas free of waste materials, debris, and rubbish. Maintain Site in clean and orderly condition.
- A. Collect and remove waste materials, debris, and rubbish from Site daily and dispose off-site.
- B. Sweep and clean paved areas.

1.7 TRAFFIC CONTROL

- A. Use traffic control equipment, devices, and personnel to direct traffic safely through or around construction areas.
- B. Signs, Signals, and Devices: Conform to Manual on Uniform Traffic Control Devices (MUTCD). Provide as required during construction operations.
 - 1. Post-Mounted Traffic Control and Informational Signs.
 - 2. Traffic Control Signals.
 - 3. Traffic Cones, Drums, Flares, and Lights.
 - 4. Flag Person Equipment.
- C. Flag Persons: Provide trained and equipped flag persons to regulate traffic when construction operations or traffic encroach on public traffic lanes.
- D. Flares and Lights: Use flares and lights during hours of low visibility to delineate traffic lanes and to guide traffic.
- E. Traffic Signs and Signals:
 - 1. Provide signs at approaches to Site and on Site, at crossroads, detours, parking areas, and elsewhere as needed to direct construction and affected public traffic.
 - 2. Provide, operate, and maintain traffic control signals to direct and maintain orderly flow of traffic in areas under Contractor's control and areas affected by Contractor's operations.
 - 3. Relocate signs and signals as Work progresses, to maintain effective traffic control.
- F. Removal:
 - 1. Remove equipment and devices when no longer required.
 - 2. Repair damage caused by installation.
 - 3. Remove post settings to depth of 2 feet.
- G. Haul Routes:
 - 1. Consult with authorities having jurisdiction and establish public thoroughfares to be used for haul routes and Site access.
 - 2. Confine construction traffic to designated haul routes.
 - 3. Provide traffic control at critical areas of haul routes to regulate traffic and to minimize interference with public traffic.

1.8 SIGNAGE

- A. Existing signage affected by Project construction is responsibility of Contractor.
 - 1. Coordinate with Owner and Engineer to verify if signage should be kept in use throughout construction process.
 - 2. Remove or cover signage as necessary to ensure lack of confusion and safety of general public.

3. Where possible, re-install or uncover signage as work progresses to maintain effective public information.
4. After construction is complete re-install or uncover signage promptly.
5. Restore signage to equal or better condition as existed prior to construction.

1.9 FIRE-PREVENTION FACILITIES

- A. Prohibit smoking within buildings under construction and demolition. Designate area on Site where smoking is permitted. Provide approved ashtrays in designated smoking areas.
- B. Establish fire watch for cutting, welding, and other hazardous operations capable of starting fires. Maintain fire watch before, during, and after hazardous operations until threat of fire does not exist.
- C. Portable Fire Extinguishers: NFPA 10; 10-pound capacity, 4A-60B: C UL rating.
 1. Provide one fire extinguisher at each stairway on each floor of buildings under construction and demolition.
 2. Provide minimum of one fire extinguisher in every construction trailer and storage shed.
 3. Provide minimum of one fire extinguisher on roof during roofing operations using heat-producing equipment.
- D. Take necessary actions to prevent fires on Site.
- E. Report fires to appropriate agency. Take immediate action to suppress fires. Continue fire suppression until fire has been mopped up and out, or until relieved by firefighting personnel.

1.10 BARRIERS

- A. Provide barriers to prevent unauthorized entry to construction areas and to protect public.
- B. Provide barriers to protect existing facilities and adjacent properties from damage from construction operations and demolition.
- C. Tree and Plant Protection: Preserve and protect existing trees and plants designated to remain.
 1. Protect areas within drip lines from traffic, parking, storage, dumping, chemically injurious materials and liquids, ponding, and continuous running water.
 2. Provide 6-foot high barriers around drip line, with access for maintenance.
 3. Replace trees and plants damaged by construction operations.

1.11 ENCLOSURES AND FENCING

- A. Exterior Enclosures:
 - 1. Provide temporary weathertight closure of exterior openings to accommodate acceptable working conditions and protection for products, to allow for temporary heating and maintenance of required ambient temperatures identified in individual Specification Sections, and to prevent entry of unauthorized persons.
 - 2. Provide access doors with self-closing hardware and locks.
- B. Fencing:
 - 1. Construction: Contractor's option.
 - 2. Provide [6]-foot high fence around construction Site; equip with vehicular [and pedestrian] gates with locks.

1.12 SECURITY

- A. Security Program:
 - 1. Protect Work from theft, vandalism, and unauthorized entry.
 - 2. Initiate program at Project mobilization.
 - 3. Maintain program throughout construction period.
- B. Entry Control:
 - 1. Restrict entrance of persons and vehicles to Project Site.
 - 2. Allow entrance only to authorized persons.

1.13 WATER CONTROL

- A. Grade Site to drain. Maintain excavations free of water. Provide, operate, and maintain necessary pumping equipment.
- B. Protect Site from puddles or running water. Provide water barriers as required to protect Site from soil erosion.
- C. Provide temporary drainage for storm water and irrigation water. Make repairs to correct damage caused by temporary or lack of temporary drainage.

1.14 DUST CONTROL

- A. Execute Work by methods that minimize raising dust from construction operations.
- B. Provide positive means to prevent airborne dust from dispersing into atmosphere and into occupied areas and adjacent properties.
- C. If water is used for dust control, provide adequate supply of water. Do not waste water or over saturate construction areas.

1.15 EROSION AND SEDIMENT CONTROL

- A. Plan and execute construction by methods to control surface drainage from cuts and fills from borrow and waste disposal areas. Prevent erosion and sedimentation.
- B. Minimize surface area of bare soil exposed at one time.
- C. Provide temporary measures including berms, dikes, drains, and other devices to prevent water flow.
- D. Construct fill and waste areas by selective placement to avoid erosive surface silts and clays.
- E. Periodically inspect earthwork to detect evidence of erosion and sedimentation. Promptly apply corrective measures.

1.16 POLLUTION CONTROL

- A. Provide methods, means, and facilities to prevent contamination of soil, water, and atmosphere from discharge of noxious, toxic substances and pollutants produced by construction operations.
- B. Comply with pollution and environmental control requirements of authorities having jurisdiction.

1.17 REMOVAL OF UTILITIES, FACILITIES, AND CONTROLS

- A. Remove temporary utilities, equipment, facilities, and materials before final inspection.
- B. Remove underground installations to minimum depth of 2 feet. Grade Site as indicated on Drawings.
- C. Clean and repair damage caused by installation or use of temporary Work.
- D. Restore existing and permanent facilities used during construction to original condition, unless indicated otherwise.

PART 2 PRODUCTS – Not Used

PART 3 EXECUTION - Not Used

END OF SECTION

SECTION 01 58 13
TEMPORARY PROJECT SIGNAGE

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Temporary construction project signage.
 - 2. Funding agency requirements for project sign.
- B. Related Requirements:
 - 1. Section 01 50 00 – Temporary Facilities and Controls.

1.2 REFERENCE STANDARDS

- A. APA – The Engineered Wood Association (APA).

1.3 SUBMITTALS

- A. Shop Drawings: Submit drawing indicating layout and size of graphics and lettering to be included on project sign. Include proposed materials and finish colors to be used. Indicate proposed location for installation of project sign.

PART 2 PRODUCTS

2.1 MATERIALS

- A. Plywood: 4 foot by 8 foot by $\frac{3}{4}$ inch thick plywood, APA rated A-B, exterior grade or approved equal.
- B. Posts: Minimum two cedar or treated wood posts nominal 4 inch by 4 inch by 8 feet long or approved equal.
- C. Fasteners: As necessary to assemble sign.
- D. Paint: Exterior grade with prime coat, intermediate coat and top coat. Use colors as directed.
- E. Alternative Materials: Plastic, vinyl or metal may be considered with Shop Drawing submittal.

PART 3 EXECUTION

3.1 PREPARATION

- A. Specific sign lettering and content will be specified at Preconstruction Meeting. Sign will generally include project name, Owner/Sponsor,

Architect, Engineer, Contractor, funding agency emblem and logo, and other information as directed by funding agency.

- B. No work will be allowed until sign is installed.
- C. Coordinate sign location with Architect and Owner.

3.2 CONSTRUCTION

- A. Construct sign as indicated on submittal drawings.
- B. Install sign at noticeable location. Maintain sign throughout duration of Project.
- C. Remove sign after construction is completed.
- D. Repair damage caused by installation and restore site to equal or better condition as existed prior to construction.

END OF SECTION

SECTION 01 70 00
EXECUTION AND CLOSEOUT REQUIREMENTS

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Field engineering.
- B. Closeout procedures.
- C. Starting of systems.
- D. Demonstration and instructions.
- E. Project record documents.
- F. Operation and maintenance data.
- G. Manual for materials and finishes.
- H. Manual for equipment and systems.
- I. Spare parts and maintenance products.
- J. Product warranties and product bonds.
- K. Examination.
- L. Preparation.
- M. Execution.
- N. Cutting and patching.
- O. Protecting installed construction.
- P. Final cleaning.

1.2 FIELD ENGINEERING

- A. Owner will employ surveyor registered in State of Utah and provide field engineering services as follows:
 - 1. Pipe culverts: Offset and elevation for inlet and outlet.
 - 2. Pavement Cut Line: Location of saw cut line on existing pavement.
 - 3. Pavement Markings: Location of paint striping.
 - 4. Signs and Delineators: Location of signs and delineators.
 - 5. Manholes and Drainage Structures: Offset and cut / fill to invert or reference elevation.

6. Fencing: Corners, angle points and points on line at 500 foot intervals.
 7. Buildings / Structures: Offset to corners and cut / fill to finish floor elevation.
 8. Other Site Improvements:
 - a. Excavation: Slope stakes at 100 foot stations on tangents and 50 foot stations as needed on curves.
 - b. Finish Grade: Red heads at 50 foot stations.
- B. Not all grade break points will be set. Set additional stakes as needed to construct Work.
- C. Prior to beginning Work, verify floor elevations of existing facilities to ensure that new Work will match existing elevations, except where specifically detailed or indicated otherwise.
- D. Promptly notify Engineer minimum of 48 hours prior to expected time for operations requiring field engineering services.
- E. Promptly notify Architect of discrepancies discovered.
- F. Protect survey control, reference and other staking during construction. Preserve permanent reference points. If due to neglect of Contractor, pay cost for re-staking.
- G. Preserve permanent reference points. Promptly notify Architect of loss or destruction of reference point or relocation required because of changes in grades or other reasons.

1.3 CLOSEOUT PROCEDURES

- A. Prerequisites to Substantial Completion: Complete following items before requesting Certification of Substantial Completion, either for entire Work or for portions of Work:
1. Complete facility startup, testing, adjusting, balancing of systems and equipment, demonstrations, and instructions to Owner's operating and maintenance personnel as specified in compliance with this Section.
 2. Conduct inspection to establish basis for request that Work is substantially complete. Create comprehensive list (initial punch list) indicating items to be completed or corrected, value of incomplete or nonconforming Work, reason for being incomplete, and date of anticipated completion for each item. Include copy of list with request for Certificate of Substantial Completion.
 3. Discontinue or change over and remove temporary facilities and services from Project Site, along with construction tools, mockups, and similar elements.
 4. Perform final cleaning according to this Section.

- B. Substantial Completion Inspection:
1. When Contractor considers Work to be substantially complete, submit to Architect and Owner:
 - a. Written certificate that Work, or designated portion, is substantially complete.
 - b. List of items to be completed or corrected (initial punch list).
 2. After receipt of request for Substantial Completion, Architect will schedule inspection with Owner and Contractor to determine whether Work or designated portion is substantially complete.
 3. When Architect and Owner find that Work is substantially complete, Architect will prepare Certificate of Substantial Completion accompanied by list of items to be completed or corrected (final punch list).
 4. After Work is substantially complete, Contractor shall:
 - a. Allow Owner occupancy of Project under provisions stated in Certificate of Substantial Completion.
 - b. Complete Work listed for completion or correction within time period stipulated.
- C. Prerequisites for Final Completion: Complete following items before requesting final acceptance and final payment.
1. When Contractor considers Work to be complete, submit written certification that:
 - a. Work has been examined for compliance with Contract Documents.
 - b. Work has been completed according to Contract Documents.
 - c. Work is completed and ready for final inspection.
 2. Submittals: Submit final punch list indicating all items have been completed or corrected
 3. Perform final cleaning for Contractor-soiled areas according to this Section.
- D. Final Completion Inspection:
1. After receipt of request for final inspection, Architect will schedule final inspection with Owner and Contractor to determine whether Work or designated portion is complete.
 2. Should Architect and Owner consider Work to be incomplete or defective:
 - a. Architect will promptly notify Contractor in writing, listing incomplete or defective Work.
 - b. Contractor shall remedy stated deficiencies.
 - c. Repeat as necessary until Work passes Architect's and Owner's inspection.

1.4 STARTING OF SYSTEMS

- A. Coordinate schedule for startup of various equipment and systems.

- B. Notify Architect and Owner at least seven days prior to startup of each item.
- C. Verify that each piece of equipment or system has been checked for proper lubrication, drive rotation, belt tension, control sequence, and for conditions which may cause damage.
- D. Verify that tests, meter readings, and electrical characteristics agree with those required by equipment or system manufacturer.
- E. Verify that wiring and support components for equipment are complete and tested.
- F. Execute startup under supervision of manufacturer's representative or Contractors' personnel according to manufacturer's instructions.
- G. When specified in individual Specification Sections, require manufacturer to provide authorized representative who will be present at Site to inspect, check, and approve equipment or system installation prior to startup and will supervise placing equipment or system in operation.

1.5 DEMONSTRATION AND INSTRUCTIONS

- A. Demonstrate operation and maintenance of products to Owner's personnel prior to Final Completion.
- B. For equipment or systems requiring seasonal operation, perform demonstration for each season.
- C. Use operation and maintenance manuals as basis for instruction. Review contents of manual with Owner's personnel in detail to explain all aspects of operation and maintenance.
- D. Demonstrate startup, operation, control, adjustment, troubleshooting, servicing, maintenance, and shutdown of each item of equipment at agreed time and location.
- E. Prepare and insert additional data in operations and maintenance manuals when need for additional data becomes apparent during instruction.
- F. Provide additional demonstrations and instructions for each item of equipment and system is specified in individual Specification Sections.

1.6 PROJECT RECORD DOCUMENTS

- A. Maintain on Site one set record documents as follows; record actual revisions to Work:
 - 1. Drawings.
 - 2. Specifications.

3. Addenda.
 4. Change Orders and other modifications to Contract.
 5. Reviewed Shop Drawings, product data, and samples.
 6. Manufacturer's instruction for assembly, installation, and adjusting.
- B. Ensure entries are complete and accurate, enabling future reference by Owner.
- C. Store record documents separate from documents used for construction.
- D. Record information concurrent with construction progress, not less than weekly.
- E. Specifications: Legibly mark and record, at each product Section, description of actual products installed, including the following:
1. Manufacturer's name and product model and number.
 2. Product substitutions or alternates used.
 3. Changes made by Addenda and modifications.
- F. Record Drawings and Shop Drawings: Legibly mark each item to record actual construction as follows:
1. Include Contract modifications such as Addenda, supplementary instructions, change directives, field orders, minor changes in Work, and change orders.
 2. Include locations of concealed elements of Work.
 3. Identify depth of buried utility lines and provide dimensions showing distances from permanent facility components that are parallel to utilities.
 4. Dimension ends, corners, and junctions of buried utilities to permanent facility components using triangulation.
 5. Identify and locate existing buried or concealed items encountered during Project.
 6. Measured depths of foundations in relation to finish main floor datum.
 7. Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.
 8. Measured locations of internal utilities and appurtenances concealed in construction, referenced to visible and accessible features of Work.
 9. Field changes of dimension and detail.
 10. Details not on original Drawings.
- G. Submit marked-up paper copy documents to Architect with claim for final Application for Payment.

1.7 OPERATION AND MAINTENANCE DATA

- A. Submit data in PDF composite electronic indexed file and 3 hard copies bound in 8-1/2 x 11-inch text pages, three ring binders and with durable plastic covers.
- B. Prepare binder cover with printed title "OPERATION AND MAINTENANCE INSTRUCTIONS," title of Project, and subject matter of binder when multiple binders are required.
- C. Internally subdivide binder contents with permanent page dividers, logically organized as described below; with tab titling clearly printed under reinforced laminated plastic tabs.
- D. Drawings: Provide with reinforced punched binder tab. Bind in with text; fold larger drawings to size of text pages. For large format drawings which cannot be reasonably folded or reduced in size, provide neat, clean, and organized set.
- E. Contents: Prepare table of contents for each volume, with each product or system description identified, typed on white paper, in three parts as follows:
 - 1. Part 1: Directory, listing names, addresses, and telephone numbers of Architect, Contractor, Subcontractors, and major equipment suppliers.
 - 2. Part 2: Operation and maintenance instructions, arranged by system and subdivided by Specification Section. For each category, identify names, addresses, and telephone numbers of Subcontractors and suppliers. Include information as follows:
 - a. Significant design criteria.
 - b. List of equipment.
 - c. Parts list for each component.
 - d. Operating instructions.
 - e. Maintenance instructions for equipment and systems.
 - f. Maintenance instructions for finishes, including recommended cleaning methods and materials, and special precautions identifying detrimental agents.
 - g. Safety precautions to be taken when operating and maintaining or working near equipment.
 - 3. Part 3: Project documents and certificates, including information as follows:
 - a. Shop Drawings and product data.
 - b. Air and water balance reports.
 - c. Certificates.
 - d. Photocopies of warranties and bonds.

1.8 MANUAL FOR MATERIALS AND FINISHES

- A. Submit two copies of preliminary draft or proposed formats and outlines of contents before start of Work. Architect will review draft and return one copy with comments.
- B. For equipment or component parts of equipment put into service during construction and operated by Owner, submit documents within ten days after acceptance.
- C. Submit one copy of completed volumes before Substantial Completion. Draft copy be reviewed and returned after Substantial Completion, with Engineer comments. Revise content of document sets as required prior to final submission.
- D. Submit PDF composite electronic indexed file of final manual or two sets of hard copies of revised final volumes within ten days after final inspection.
- E. Building Products, Applied Materials, and Finishes: Include product data, with catalog number, size, composition, and color and texture designations. Include information for re-ordering custom-manufactured products.
- F. Instructions for Care and Maintenance: Include manufacturer's recommendations for cleaning agents and methods, precautions against detrimental agents and methods, and recommended schedule for cleaning and maintenance.
- G. Moisture Protection and Weather Exposed Products: Include product data listing applicable reference standards, chemical composition, and details of installation. Include recommendations for inspections, maintenance, and repair.
- H. Additional Requirements: As specified in individual product Specification Sections.
- I. Include listing in table of contents for design data, with tabbed fly sheet and space for insertion of data.

1.9 MANUAL FOR EQUIPMENT AND SYSTEMS

- A. Submit two copies of preliminary draft or proposed formats and outlines of contents before start of Work. Architect will review draft and return one copy with comments.
- B. For equipment, or component parts of equipment put into service during construction and operated by Owner, submit documents within ten days after acceptance.
- C. Submit one copy of completed volumes before Substantial Completion. Draft copy will be reviewed and returned after Substantial Completion, with

Architect comments. Revise content of document sets as required prior to final submission.

- D. Submit PDF composite electronic indexed file of final manual or two sets of hard copies of revised final volumes within ten days after final inspection.
- E. Each Item of Equipment and Each System: Include description of unit or system and component parts. Identify function, normal operating characteristics, and limiting conditions. Include performance curves, with engineering data and tests, and complete nomenclature and model number of replaceable parts.
- F. Panelboard Circuit Directories: Provide electrical service characteristics, controls, and communications; typed.
- G. Include color-coded wiring diagrams as installed.
- H. Operating Procedures: Include startup, break-in, and routine normal operating instructions and sequences. Include regulation, control, stopping, shutdown, and emergency instructions. Include summer, winter, and special operating instructions.
- I. Maintenance Requirements: Include routine procedures and guide for preventative maintenance and troubleshooting; disassembly, repair, and reassembly instructions; and alignment, adjusting, balancing, and checking instructions.
- J. Include servicing and lubrication schedule and list of lubricants required.
- K. Include manufacturer's printed operation and maintenance instructions.
- L. Include sequence of operation by controls manufacturer.
- M. Include original manufacturer's parts list, illustrations, assembly drawings, and diagrams required for maintenance.
- N. Include control diagrams by controls manufacturer as installed.
- O. Include Contractor's coordination drawings with color-coded piping diagrams as installed.
- P. Include charts of valve tag numbers, with location and function of each valve, keyed to flow and control diagrams.
- Q. Include list of original manufacturer's spare parts, current prices, and recommended quantities to be maintained in storage.
- R. Include test and balancing reports as specified.

- S. Additional Requirements: As specified in individual product Specification Sections.
- T. Include listing in table of contents for design data with tabbed dividers and space for insertion of data.

1.10 SPARE PARTS AND MAINTENANCE PRODUCTS

- A. Furnish spare parts, maintenance, and extra products in quantities specified in individual Specification Sections.
- B. Deliver to Project Site and place in location as directed by Owner; obtain receipt prior to final payment.

1.11 PRODUCT WARRANTIES AND PRODUCT BONDS

- A. Obtain warranties and bonds executed in duplicate by responsible Subcontractors, suppliers, and manufacturers.
- B. Execute and assemble transferable warranty documents and bonds from Subcontractors, suppliers, and manufacturers.
- C. Verify documents are in proper form, contain full information, and are notarized.
- D. Co-execute submittals when required.
- E. Include table of contents and assemble in three ring binder with durable plastic cover.
- F. Submit prior to final Application for Payment.
- G. Time of Submittals:
 - 1. For equipment or component parts of equipment put into service during construction with Owner's permission, submit documents within ten days after acceptance.
 - 2. Make other submittals prior to final Application for Payment.
 - 3. For items of Work for which acceptance is delayed beyond Substantial Completion, submit within ten days after acceptance, listing date of acceptance as beginning of warranty or bond period.

PART 2 PRODUCTS - Not Used

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify that existing Site conditions and substrate surfaces are acceptable for subsequent Work. Beginning new Work means acceptance of existing conditions.
- B. Verify that existing substrate is capable of structural support or attachment of new Work being applied or attached.
- C. Examine and verify specific conditions described in individual Specification Sections.
- D. Verify that utility services are available with correct characteristics and in correct locations.

3.2 PREPARATION

- A. Clean substrate surfaces prior to applying next material or substance according to manufacturer's instructions.
- B. Seal cracks or openings of substrate prior to applying next material or substance.
- C. Apply manufacturer-required or -recommended substrate primer, sealer, or conditioner prior to applying new material or substance in contact or bond.

3.3 EXECUTION

- A. Comply with manufacturer's installation instructions, performing each step in sequence. Maintain one set of manufacturer's installation instructions at Project Site during installation and until completion of construction.
- B. When manufacturer's installation instructions conflict with Contract Documents, request clarification from Architect before proceeding.
- C. Verify that field measurements are as indicated on approved Shop Drawings or as instructed by manufacturer.
- D. Secure products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion, or disfigurement.
 - 1. Secure Work true to line and level and within specified tolerances, or if not specified, industry-recognized tolerances.
 - 2. Physically separate products in place, provide electrical insulation, or provide protective coatings to prevent galvanic action or corrosion between dissimilar metals.
 - 3. Exposed Joints: Provide uniform joint width and arrange to obtain best visual effect. Refer questionable visual-effect choices to Architect for final decision.

- E. Allow for expansion of materials and building movement.
- F. Climatic Conditions and Project Status: Install each unit of Work under conditions to ensure best possible results in coordination with entire Project.
 - 1. Isolate each unit of Work from incompatible Work as necessary to prevent deterioration.
 - 2. Coordinate enclosure of Work with required inspections and tests to minimize necessity of uncovering Work for those purposes.
- G. Mounting Heights: Where not indicated, mount individual units of Work at industry recognized standard mounting heights for particular application indicated.
 - 1. Refer questionable mounting heights choices to Architect for final decision.
 - 2. Elements Identified as Accessible to Handicapped: Comply with applicable codes and regulations.
- H. Adjust operating products and equipment to ensure smooth and unhindered operation.
- I. Clean and perform maintenance on installed Work as frequently as necessary through remainder of construction period. Lubricate operable components as recommended by manufacturer.

3.4 CUTTING AND PATCHING

- A. Employ skilled and experienced installers to perform cutting and patching.
- B. Submit written request in advance of cutting or altering elements affecting:
 - 1. Structural integrity of element.
 - 2. Integrity of weather-exposed or moisture-resistant elements.
 - 3. Efficiency, maintenance, or safety of element.
 - 4. Visual qualities of sight-exposed elements.
 - 5. Work of Owner or separate contractor.
- C. Execute cutting, fitting, and patching including excavation and fill to complete Work and to:
 - 1. Fit the several parts together, to integrate with other Work.
 - 2. Uncover Work to install or correct ill-timed Work.
 - 3. Remove and replace defective and nonconforming Work.
 - 4. Remove samples of installed Work for testing.
 - 5. Provide openings in elements of Work for penetrations of mechanical and electrical Work.
- D. Execute Work by methods to avoid damage to other Work and to provide proper surfaces to receive patching and finishing.
- E. Cut masonry and concrete materials using masonry saw or core drill.

- F. Restore Work with new products according to requirements of Contract Documents.
- G. Fit Work tight to pipes, sleeves, ducts, conduits, and other penetrations through surfaces.
- H. Maintain integrity of wall, ceiling, or floor construction; completely seal voids.
- I. At penetrations of fire-rated walls, partitions, ceiling, or floor construction, completely seal voids with fire-rated material to full thickness of penetrated element.
- J. Refinish surfaces to match adjacent finishes. For continuous surfaces, refinish to nearest intersection; for assembly, refinish entire unit.
- K. Identify hazardous substances or conditions exposed during the Work to Architect for decision or remedy.

3.5 PROTECTING INSTALLED CONSTRUCTION

- A. Protect installed Work and provide special protection where specified in individual Specification Sections.
- B. Provide temporary and removable protection for installed products. Control activity in immediate Work area to prevent damage.
- C. Provide protective coverings at walls, projections, jambs, sills, and soffits of openings.
- D. Use durable sheet materials to protect finished floors, stairs, and other surfaces from traffic, dirt, wear, damage, or movement of heavy objects.
- E. Prohibit traffic or storage upon waterproofed or roofed surfaces. When traffic or activity is necessary, obtain recommendations for protection from waterproofing or roofing material manufacturer.
- F. Prohibit traffic from landscaped areas.

3.6 FINAL CLEANING

- A. Execute final cleaning prior to final Project assessment. Employ experienced personnel or professional cleaning firm.
- B. Clean interior and exterior glass and surfaces exposed to view; remove temporary labels, stains, and foreign substances; polish transparent and glossy surfaces; and vacuum carpeted and soft surfaces.

- C. Clean equipment and fixtures to sanitary condition with appropriate cleaning materials.
- D. Clean furnishings and finishes in accordance with requirements set forth in associated Specification Sections.
- E. Clean or replace filters of operating equipment.
- F. Clean debris from roofs, gutters, downspouts, and drainage systems.
- G. Clean Site; sweep paved areas, rake clean landscaped surfaces.
- H. Remove waste and surplus materials, rubbish, and construction facilities from Site.

END OF SECTION

SECTION 01 71 13 MOBILIZATION

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Mobilizing personnel, equipment, supplies and other incidental items to and from Project Site.
 - 2. Providing, maintaining and removing temporary facilities and controls.
- B. Related Requirements:
 - 1. Section 01 50 00 – Temporary Facilities and Controls.

1.2 MOBILIZATION

- A. Conduct preparatory work and operations necessary to move personnel, equipment, supplies and incidentals to Project Site before beginning Work.
- B. Establish field offices, buildings, temporary utilities and other necessary facilities to complete Work.
- C. Remove equipment, supplies, temporary facilities, and temporary controls from Site when no longer required.

PART 2 PRODUCTS – Not Used

PART 3 EXECUTION – Not Used

END OF SECTION

SECTION 03 10 00
CONCRETE FORMING AND ACCESSORIES

- A. Section Includes:
 - 1. Formwork for cast-in-place concrete.
 - 2. Shoring, bracing, and anchorage.
 - 3. Form accessories.
 - 4. Form stripping.
- B. Related Requirements:
 - 1. Section 03 20 00 - Concrete Reinforcing.

1.2 REFERENCE STANDARDS

- A. American Concrete Institute (ACI):
 - 1. ACI 117 - Specification for Tolerances for Concrete Construction and Materials.
 - 2. ACI 301 - Specifications for Structural Concrete.
 - 3. ACI 318 - Building Code Requirements for Structural Concrete.
- B. American Forest & Paper Association (AF&PA):
 - 1. AF&PA - National Design Specification (NDS) for Wood Construction.
- C. APA - The Engineered Wood Association (APA):
 - 1. APA PS 1 - Voluntary Product Standard - Structural Plywood.
- D. ASTM International (ASTM):
 - 1. ASTM D1751 - Standard Specification for Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (Nonextruding and Resilient Bituminous Types).
- E. West Coast Lumber Inspection Bureau (WCLIB):
 - 1. WCLIB - Standard No. 17 Grading Rules for West Coast Lumber.

1.3 COORDINATION

- A. Coordinate Work of this Section with other Sections of Work in forming and placing openings, slots, reglets, recesses, sleeves, bolts, anchors, other inserts, and components of other Work.

1.4 QUALITY ASSURANCE

- A. Perform Work according to ACI 318.
- B. For wood products furnished for Work of this Section, comply with AF&PA.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Store materials off ground in ventilated and protected manner to prevent deterioration from moisture.

PART 2 PRODUCTS

2.1 PERFORMANCE AND DESIGN CRITERIA

- A. Design, engineer, and construct formwork, shoring, and bracing according to ACI 318 to conform to achieve concrete shape, line, and dimension as indicated on Drawings.

2.2 WOOD FORM MATERIALS

- A. Form Materials: At discretion of Contractor, except as indicated in Table 2 – Schedule for Formwork of this Section.

2.3 PREFABRICATED FORMS

- A. Preformed Steel and FRP Forms: Matched, tightly fitted, and stiffened to support weight of concrete without deflection detrimental to tolerances and appearance of finished surfaces.
- B. Tubular Column:
 - 1. Description: Round spirally wound laminated fiber or glass fiber.
 - 2. Surface Treatment: Release agent, non-reusable.
 - 3. Sizes: As indicated on Drawings.
- C. Void Forms:
 - 1. Moisture-resistant treated paper faces; biodegradable.
 - 2. Structurally sufficient to support weight of wet concrete mix until initial set.
 - 3. Thickness: As required.
- D. Form Liners: Smooth, durable, grainless, and non-staining hardboard unless otherwise indicated on Drawings.
- E. Framing, Studding, and Bracing: Stud or No. 3 structural light-framing grade.

2.4 COATINGS

- A. Coatings for Aluminum:
 - 1. Polyamide epoxy finish coat with paint manufacturer's recommended primer for aluminum substrate.
 - 2. Primer coat and top coat.

2.5 FORMWORK ACCESSORIES

- A. Form Ties: Be suitable material, type, size, shape, quality, and strength to ensure construction as designed.
- B. Spreaders:
 - 1. Description: Standard, non-corrosive metal-form clamp assembly, of type acting as spreaders and leaving no metal within **1-inch** of concrete face.
 - 2. Wire ties, wood spreaders, or through bolts are not permitted.
- C. Nails, Spikes, Lag Bolts, Through Bolts, Anchorages: Size, strength, and character to maintain formwork in place while placing concrete.
- D. Form Release Agent: Colorless mineral oil that will not stain concrete or absorb moisture or impair natural bonding or color characteristics of coating intended for use on concrete.
- E. Bituminous Joint Filler: Comply with ASTM D1751.
- F. Corners:
 - 1. Type: Chamfer per details on drawings

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify lines, levels, and centers before proceeding with formwork.
- B. Verify that dimensions agree with Drawings and Shop Drawings.
- C. If formwork is placed after reinforcement resulting in insufficient concrete cover over reinforcement, consult with Engineer before proceeding.

3.2 INSTALLATION

- A. Earth Forms: Not permitted.
- B. Formwork:
 - 1. Provide top form for sloped surfaces steeper than 1.5 horizontal to 1 vertical to hold shape of concrete during placement, unless demonstrated that top forms can be omitted.
 - 2. Construct forms to correct shape and dimensions, mortar-tight, braced, and of sufficient strength to maintain shape and position under imposed loads from construction operations.
 - 3. Camber forms where necessary to produce level finished soffits unless indicated otherwise on Drawings.
 - 4. Positioning:
 - a. Carefully verify horizontal and vertical positions of forms.

- b. Correct misaligned or misplaced forms before placing concrete.
- 5. Complete wedging and bracing before placing concrete.
- 6. Erect formwork, shoring, and bracing to achieve design requirements according to ACI 301.
- 7. Stripping:
 - a. Arrange and assemble formwork to permit dismantling and stripping.
 - b. Do not damage concrete during stripping.
 - c. Permit removal of remaining principal shores.
- 8. Obtain acceptance of Engineer before framing openings in structural members not indicated on Drawings.
- 9. Install chamfer strips on external corners as detailed in drawings
- 10. Install void forms according to manufacturer instructions.
- 11. Do not use wood or other formwork that is not structurally sound or that will not meet finish requirements.
- 12. Do not patch formwork.
- 13. Leave forms in place for minimum number of days according to Table 1 of this Section.

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Table 1 Form Stripping Time		
Structural Element Supported	Structural Live Load Not Greater Than Structural Dead Load	Structural Live Load Greater Than Structural Dead Load
Walls*	12 hours	12 hours
Columns*	12 hours	12 hours
Sides of beams and girder	12 hours	12 hours
Pan joist forms		
30 inches wide or less	3 days	3 days
Over 30 inches wide	4 days	4 days
Arch centers	14 days	7 days
Joist, beam or girder soffits		
Under 10 feet clear span between supports	7 days**	4 days
10 to 20 feet clear span between structural supports	14 days**	7 days
Over 20 feet clear span between structural supports	21 days**	14 days
One-way floor slabs		
Under 10 feet clear span between supports	4 days**	3 days
10 to 20 feet clear span between structural supports	7 days**	4 days
Over 20 feet clear span between structural supports	10 days**	7 days
Two-way slab systems	As indicated by Engineer	
Post tensioned slab system	As soon as post-tensioning operations have been completed and accepted	

*Where forms also support formwork for slab or beam soffits, removal times of latter will govern.

**Where forms can be removed without disturbing shores, use half of values shown but not less than 3-days.

C. Form Removal:

1. Do not remove forms or bracing until concrete has gained sufficient strength to carry its own weight and imposed loads.
2. Loosen forms carefully; do not wedge pry bars, hammers, or tools against finish concrete surfaces scheduled for exposure to view.
3. Store removed forms in manner that surfaces to be in contact with fresh concrete will not be damaged.
4. Discard damaged forms.
5. Form Release Agent:
 - a. Apply according to manufacturer instructions.
 - b. Apply prior to placement of reinforcing steel, anchoring devices, and embedded items.
 - c. Do not apply form release agent if concrete surfaces are indicated to receive special finishes or applied coverings that may be affected by agent.
 - d. Soak inside surfaces of untreated forms with clean water, and keep surfaces coated prior to placement of concrete.
6. Form Cleaning:

- a. Clean forms as erection proceeds to remove foreign matter within forms.
 - b. Clean formed cavities of debris prior to placing concrete.
 - c. Flush with water or use compressed air to remove remaining foreign matter.
 - d. Ensure that water and debris drain to exterior through cleanout ports.
 - e. Cold Weather:
 - 1) During cold weather, remove ice and snow from within forms.
 - 2) Do not use de-icing salts.
 - 3) Do not use water to clean out forms, unless formwork and concrete construction proceed within heated enclosure; use compressed air or other dry method to remove foreign matter.
- 7. Reuse and Coating of Forms:
 - a. Thoroughly clean forms and reapply form coating before each reuse.
 - b. For exposed Work, do not reuse forms with damaged faces or edges.
 - c. Apply form coating to forms according to manufacturer instructions.
 - d. Do not coat forms for concrete indicated to receive scored finish.
 - e. Apply form coatings before placing reinforcing steel.
- D. Forms for Smooth Finish Concrete:
 - 1. Use steel, plywood, or lined-board forms.
 - 2. Use clean and smooth plywood and form liners, uniform in size, and free from surface and edge damage capable of affecting resulting concrete finish.
 - 3. Install form lining with close-fitting square joints between separate sheets without springing into place.
 - 4. Use full-sized sheets of form liners and plywood wherever possible.
 - 5. Tape joints to prevent protrusions in concrete.
 - 6. Apply forming and strip wood forms in manner to protect corners and edges.
 - 7. Level and continue horizontal joints.
 - 8. Keep wood forms wet until stripped.
- E. Forms for Surfaces to Receive Membrane Waterproofing:
 - 1. Use plywood or steel forms.
 - 2. After erection of forms, tape form joints to prevent protrusions in concrete.
- F. Framing, Studding, and Bracing:
 - 1. Maximum Spacing of Studs:

- a. Boards: 16-inches on center.
 - b. Plywood: 12-inches on center.
 - 2. Size framing, bracing, centering, and supporting members for sufficient strength to maintain shape and position under imposed loads from construction operations.
 - 3. Construct beam soffits of material minimum 2-inches thick.
 - 4. Distribute bracing loads over base area on which bracing is erected.
 - 5. When placed on ground, protect against undermining, settlement, and accidental impact.
- G. Form Anchors and Hangers:
- 1. Do not use anchors and hangers leaving exposed metal at concrete surface.
 - 2. Symmetrically arrange hangers supporting forms from structural-steel members to minimize twisting or rotation of member.
 - 3. Penetration of structural-steel members is not permitted.
- H. Inserts, Embedded Parts, and Openings:
- 1. Install formed openings for items to be embedded in or passing through concrete Work.
 - 2. Locate and set in place items required to be cast directly into concrete.
 - 3. Install accessories straight, level, and plumb, and ensure that items are not disturbed during concrete placement.
 - 4. Openings:
 - a. Provide temporary ports or openings in formwork as required to facilitate cleaning and inspection.
 - b. Locate openings at bottom of forms to allow flushing water to drain.
 - 5. Close temporary openings with tight-fitting panels, flush with inside face of forms, and neatly fitted such that joints will not be apparent in exposed concrete surfaces.
- I. Form Ties:
- 1. Provide sufficient strength and quantity to prevent spreading of forms.
 - 2. Place ties at least 1-inch away from finished surface of concrete.
 - 3. Leave inner rods in concrete when forms are stripped.
 - 4. Space form ties equidistant, symmetrical, and aligned vertically and horizontally unless indicated otherwise on Drawings.
- J. Arrange formwork to allow proper erection sequence and to permit form removal without damage to concrete.
- K. Construction Joints:
- 1. Install surfaced pouring strip where construction joints intersect on exposed surfaces to provide straight line at joints.

2. Just prior to subsequent concrete placement, remove strip and tighten forms to conceal shrinkage.
 3. Appearance:
 - a. Show no overlapping of construction joints.
 - b. Construct joints to present same appearance as butted plywood joints.
 4. Arrange joints in continuous line straight, true, and sharp.
- L. Embedded Items:
1. Make provisions for pipes, sleeves, anchors, inserts, reglets, anchor slots, nailers, waterstops, and other features.
 2. Do not embed wood or uncoated aluminum in concrete.
 3. Obtain installation and setting information for embedded items furnished under other Sections.
 4. Securely anchor embedded items in correct location and alignment prior to placing concrete.
 5. Ensure that conduits and pipes, including those made of coated aluminum, meet requirements of ACI 318 regarding size and location limitations.
- M. Openings for Items Passing through Concrete:
1. Frame openings in concrete where indicated on Drawings.
 2. Establish exact locations, sizes, and other conditions required for openings and attachment of Work specified under other Sections.
 3. Coordinate Work to avoid cutting and patching of concrete after placement.
 4. Perform cutting and repairing of concrete required as result of failure to provide required openings.
- N. Screeds:
1. Set screeds and establish levels for top and finish on concrete slabs.
 2. Slope slabs to drain where required or as indicated on Drawings.
 3. Before depositing concrete, remove debris from space to be occupied by concrete and thoroughly wet forms; remove freestanding water.
- O. Screed Supports:
1. For concrete over waterproof membranes and vapor retarder membranes, use cradle-, pad-, or base-type screed supports that will not puncture membrane.
 2. Staking through membrane is not permitted.
- P. Cleanouts and Access Panels:
1. Provide removable cleanout sections or access panels at bottoms of forms to permit inspection and effective cleaning of loose dirt, debris, and waste material.
 2. Clean forms and surfaces against which concrete is to be placed.

3. Remove chips, sawdust, and other debris.
4. Thoroughly blow out forms with compressed air just before concrete is placed.

3.3 TOLERANCES

- A. Refer to ACI 301 and ACI 318 for tolerance references. If tolerances are not appropriate, include supplementary statements in this Article.
- B. Tolerances: Construct formwork to produce completed concrete surfaces within construction tolerances according to ACI 117.
- C. Refer to ASME A17.1 for elevator shaft hoistway plumb alignment requirements.
- D. Camber: As indicated on Drawings.

3.4 FIELD QUALITY CONTROL

- A. Inspection:
 1. Inspect erected formwork, shoring, and bracing to ensure that Work complies with formwork design and that supports, fastenings, wedges, ties, and items are secure.
 2. Notify Engineer after placement of reinforcing steel in forms but prior to placing concrete. For walls, notify Engineer after placement of reinforcing steel but prior to placement of forms on one side of wall.
 3. Schedule concrete placement to permit formwork inspection before placing concrete.

3.5 ATTACHMENTS

- A. Schedule for Formwork: In accordance with Table 2 of this Section.

Table 2 Schedule for Formwork	
Element	Form Type
Foundation walls not exposed to view	Site – fabricated plywood coated with form oil
Foundation walls exposed to view	Site – fabricated plywood coated with form oil.
Supported floor slabs	Prefabricated glass-fiber pan forms, treated for exposed-to-view finish, or metal decking where specified on drawings.

END OF SECTION

SECTION 03 20 00
CONCRETE REINFORCING

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Reinforcing bars.
 - 2. Reinforcement accessories.
- B. Related Requirements:
 - 1. Section 03 10 00 - Concrete Forming and Accessories.
 - 2. Section 03 30 00 - Cast-in-Place Concrete.

1.2 REFERENCE STANDARDS

- A. American Concrete Institute (ACI):
 - 1. ACI 117 - Specification for Tolerances for Concrete Construction and Materials.
 - 2. ACI 318 - Building Code Requirements for Structural Concrete.
 - 3. ACI SP-66 - ACI Detailing Manual.
- B. American Welding Society (AWS):
 - 1. AWS D1.4 - Structural Welding Code - Reinforcing Steel.
- C. ASTM International (ASTM):
 - 1. ASTM A615 - Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement.
 - 2. [ASTM A1064 - Standard Specification for Carbon-Steel Wire and Welded Wire Reinforcement, Plain and Deformed, for Concrete.]

1.3 COORDINATION

- A. Coordinate Work of this Section with placement of formwork, formed openings, and other Work.

1.4 SUBMITTALS

- A. Shop Drawings:
 - 1. Indicate bar sizes, spacing, locations, splice locations, and quantities of reinforcing steel.
 - 2. Indicate bending and cutting schedules.
 - 3. Indicate supporting and spacing devices.
- B. Manufacturer's Material Certificate: Certify that products meet or exceed specified requirements.

1.5 QUALITY ASSURANCE

- A. Prepare Shop Drawings according to ACI SP-66.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Inspection: Accept materials on Site in manufacturer's original packaging and inspect for damage.
- B. Store materials on skids above grade. Meet additional storage requirements according to manufacturer instructions.
- C. Protection:
 - 1. Protect materials from moisture by storing in clean, dry location remote from construction operations areas.
 - 2. Provide additional protection according to manufacturer instructions.

1.7 EXISTING CONDITIONS

- A. Field Measurements:
 - 1. Verify field measurements prior to fabrication.
 - 2. Indicate field measurements on Shop Drawings.

PART 2 PRODUCTS

2.1 REINFORCEMENT

- A. Reinforcing Steel:
 - 1. Comply with ASTM A615.
 - 2. Yield Strength: 60-kips per square inch.
 - 3. Billet Bars: Deformed.
 - 4. Finish: Uncoated.

2.2 FABRICATION

- A. Fabricate concrete reinforcement according to ACI 318.
- B. Form reinforcement bends and hooks with standard diameters and extension lengths according to ACI 318.
- C. Fabricate column reinforcement with offset bends at reinforcement splices.
- D. Where required, shop weld reinforcement according to AWS D1.4. Welding of reinforcement not permitted unless specifically detailed on Drawings or accepted in writing by Engineer.
- E. Splicing:

1. If not indicated on Drawings, locate reinforcement splices at point of minimum stress and stagger splice locations of adjacent parallel bars.
2. For splicing devices, follow manufacturer's instructions.

2.3 ACCESSORY MATERIALS

- A. Tie Wire: Minimum 16-gage, annealed type.
- B. Chairs, Bolsters, Bar Supports, and Spacers:
 1. Size and Shape: To strengthen and support reinforcement during concrete placement conditions.
 2. Where applicable, furnish load-bearing pad on bottom to prevent vapor retarder puncture.
- C. Special Chairs, Bolsters, Bar Supports, and Spacers Adjacent to Weather-Exposed Concrete Surfaces:
 1. Material: Plastic-tipped steel.
 2. Size and Shape: To meet Project conditions.

PART 3 EXECUTION

3.1 INSTALLATION

- A. Place, support, and secure reinforcement against displacement.
- B. Do not deviate from required position beyond specified tolerance.
- C. Do not weld reinforcement.
- D. Do not displace or damage vapor retarder.
- E. Accommodate placement of formed openings.
- F. Spacing:
 1. Space reinforcement bars with minimum clear spacing according to ACI 318.
 2. If bars are indicated in multiple layers, place upper bars directly above lower bars.
- G. Unless indicate otherwise on Drawings, maintain minimum concrete cover around reinforcement for cast-in-place non-prestressed concrete members according to ACI 318 as follows in Table 1 below.

[(Remainder of page intentionally left blank.)]

Table 1 Minimum Concrete Cover for Reinforcing Steel			
Concrete Exposure	Member	Reinforcement	Specified Cover (in.)
Cast against and permanently in contact with ground	All	All	3
Exposed to weather or in contact with ground	All	No. 6 through No. 18 bars	2
		No. 5 bar, W31 or D31 wire, and smaller	1-1/2
Not exposed to weather or in contact with ground	Slabs, joints, and walls	No. 14 and No. 18 bars	1-1/2
		No. 11 bars and smaller	3/4
	Beams, Columns, pedestals, and tension ties	Primary reinforcement, stirrups, ties, spirals, and hoops	1-1/2

3.2 TOLERANCES

- A. Install reinforcement within following tolerances for flexural members, walls, and compression members:
 1. Reinforcement Depth Greater Than 8-Inches:
 - a. Depth Tolerance: Plus, or Minus 3/8-inch.
 - b. Concrete Cover Tolerance: Minus 3/8-inch.
 2. Reinforcement Depth Less Than or Equal to 8-Inches:
 - a. Depth Tolerance: Plus, or Minus 1/2-inch.
 - b. Concrete Cover Tolerance: Minus 1/2-inch.
- B. Foundation Walls: Install reinforcement within tolerances according to ACI 117.

3.3 FIELD QUALITY CONTROL TESTING

- A. Perform field inspection of reinforcement according to ACI 318. Inspect for correct materials, fabrication, sizes, locations, spacing, concrete cover, and splicing.

3.4 FIELD ACCEPTANCE TESTING

- A. Field inspection testing will be performed by Owner's testing laboratory according to ACI 318.
- B. Provide unrestricted access to Work and cooperate with appointed inspection firm.
- C. Reinforcement Inspection:
 - 1. Periodic Placement Inspection: Inspect for correct materials, fabrication, sizes, locations, spacing, concrete cover, and splicing.
 - 2. Placement Acceptance: In accordance with ACI 318 material requirements and specified placement tolerances.

3.5 PROTECTION

- A. Protect reinforcement and accessories from damage and displacement until concrete is placed.

END OF SECTION

Concrete Placement Plan

PLAN NO. _____

PLACEMENT ITEM	_____	SUBMITTAL DATE	_____
SUBMITTED TO	Jones & DeMille Engineering	J&DE PM	_____
PROJECT NAME	_____	J&DE PROJECT NO.	_____
CONTRACTOR	_____	SUPERINTENDENT	_____
CONCRETE SUB	_____	CONTRACTOR PROJ NO.	_____
OWNER	_____	PROJECT LOCATION	_____
DISTRIBUTION	_____		

PLACEMENT MEANS & METHODS

MIX DESIGN REVIEWED (Y/N) _____ DATE _____ DESIGN STRENGTH _____ TARGET SLUMP _____

CONCRETE QUANTITY (YD³) _____ ADDITIVES _____ AIR (%) _____

NO. OF LABORERS _____ START DATE/TIME. _____ EST. FINISH DATE/TIME _____

EQUIPMENT TO BE USED _____

TOOLS TO BE USED _____

PRE-PLACEMENT CONFERENCE HELD (Y/N) _____ DATE _____ TESTING AGENCY _____

NOTES _____

WEATHER

FORECAST WEATHER CONDITIONS DAY OF PLACEMENT _____

TEMPERATURE FORECAST DAY OF PLACEMENT: HIGH TEMP _____ LOW TEMP _____

5-DAY TEMPERATURE FORECAST AFTER PLACEMENT: 5-DAY HIGH TEMP _____ 5-DAY LOW TEMP _____

PROPOSED HEATING PLAN _____

PROPOSED COOLING PLAN _____

FINISH & CURING PLAN

NO. OF LABORERS _____ START DATE/TIME. _____ EST. FINISH DATE/TIME _____

PROPOSED FINISH _____ MEANS TO ACHIEVE FINISH _____

PRODUCT(S) TO BE USED _____

METHOD(S) TO BE USED _____

TOOLS TO BE USED _____

CURING PRODUCT(S) SUBMITTAL(S) REVIEWED (Y/N) _____ DATE REVIEWED _____

NOTES _____

PLACEMENT PLAN SKETCH – Indicate start and finish locations, screed direction, position of pump truck and other key equipment, location of control joints, and other pertinent information (attach additional sheets & sketches as needed):

SUBMITTED BY _____

RECEIVED BY _____

SIGNATURE _____

SIGNATURE _____

POST-PLACEMENT NOTES OF CONFORMANCE W/ SUBMITTED PLAN

CONSTRUCTION OBSERVER _____

DATE _____

SECTION 03 30 00
CAST-IN-PLACE CONCRETE

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes Cast-in-Place Concrete for Items as Follows:
1. Foundation walls.
 2. Footings.
 3. Supported slabs and slabs on grade.
- B. Related Requirements:
1. Section 03 10 00 – Concrete Forming and Accessories.
 2. Section 03 20 00 – Concrete Reinforcing.
 3. Section 07 26 00 – Vapor Retarders.
 4. Section 32 16 00 – Curbs, Gutters, Sidewalks, and Driveways

1.2 PRICE REDUCTION

- A. Price Reduction for Compressive Strength:
1. If compressive strength test of concrete does not meet requirement of Table 3 of this Section, Engineer may allow price reduction pending review of affected structural element. If allowed, Engineer will calculate price reduction using Table 1 of this Section.
 2. Price reduction will be dollar reduction per cubic yard from Table 1 of this Section multiplied by cubic yards of concrete place for compressive strength test represented.
 3. If test results for compressive strength are more than 400-pounds per square inch below specified compressive strength in Table 3 of this Section, Engineer will reject concrete and require removal.

(Remainder of page intentionally left blank.)

Table 1. Price Reduction for Compressive Strength	
Compressive Strength Below Specified Strength (psi)	Reduction per Cubic Yard
1-100	\$10.00
101-200	\$25.00
201-300	\$50.00
301-400	\$100.00
Greater than 400	Reject

1.3 REFERENCE STANDARDS

- A. American Concrete Institute (ACI):
 - 1. ACI 301 – Specifications for Structural Concrete.
 - 2. ACI 305.1 – Specification for Hot Weather Concreting.
 - 3. ACI 306.1 – Standard Specification for Cold Weather Concreting.
 - 4. ACI 308.1 – Specification for Curing Concrete.
 - 5. ACI 309R – Guide for Consolidation of Concrete.
 - 6. ACI 318 – Building Code Requirements for Structural Concrete.

- B. ASTM International (ASTM):
 - 1. ASTM C31 - Standard Practice for Making and Curing Concrete Test Specimens in the Field.
 - 2. ASTM C33 - Standard Specification for Concrete Aggregates.
 - 3. ASTM C39 - Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens.
 - 4. ASTM C42 - Standard Test Method for Obtaining and Testing Drilled Cores and Sawed Beams of Concrete.
 - 5. ASTM C94 - Standard Specification for Ready-Mixed Concrete.
 - 6. ASTM C143 - Standard Test Method for Slump of Hydraulic-Cement Concrete.
 - 7. ASTM C150 - Standard Specification for Portland Cement.
 - 8. ASTM C172 - Standard Practice for Sampling Freshly Mixed Concrete.
 - 9. ASTM C231 - Standard Test Method for Air Content of Freshly Mixed Concrete by the Pressure Method.
 - 10. ASTM C260 - Standard Specification for Air-Entraining Admixtures for Concrete.
 - 11. ASTM C309 - Standard Specification for Liquid Membrane-Forming Compounds for Curing Concrete.
 - 12. ASTM C494 - Standard Specification for Chemical Admixtures for Concrete.
 - 13. ASTM C618 - Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete.
 - 14. ASTM C685 - Standard Specification for Concrete Made by Volumetric Batching and Continuous Mixing.
 - 15. ASTM C1017 - Standard Specification for Chemical Admixtures for Use in Producing Flowing Concrete.
 - 16. ASTM C1064 - Standard Test Method for Temperature of Freshly Mixed Hydraulic-Cement Concrete.
 - 17. ASTM C1107 - Standard Specification for Packaged Dry, Hydraulic-Cement Grout (Nonshrink).
 - 18. ASTM C1116 - Standard Specification for Fiber-Reinforced Concrete.
 - 19. ASTM C1602 - Standard Specification for Mixing Water Used in the Production of Hydraulic Cement Concrete.

20. ASTM D1751 - Standard Specification for Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (Nonextruding and Resilient Bituminous Types).

1.4 COORDINATION

- A. Coordinate placement of joint devices with erection of concrete formwork and placement of form accessories.

1.5 SUBMITTALS

- A. Product Data: Submit data on joint devices, attachment accessories, admixtures, bonding agent, non-shrink grout, curing compound, and accessories.
- B. Design Data:
 1. Submit concrete mix design for each concrete class used.
 2. Submit prior test results for each concrete mix design.
 3. Submit separate mix designs if admixtures are required for following:
 - a. Hot and cold weather concrete Work.
 - b. Air entrained concrete Work.
 4. Identify mix ingredients and proportions, including admixtures.
 5. Identify chloride content of admixtures and whether chlorides were added during manufacturing.
- C. Concrete Placement Plan: Submit concrete placement plan minimum of 72-hours prior to placement of concrete or as determined by Engineer. See attachment at end of this Section. This requirement may be waived for minor concrete placements when accepted by Engineer.
- D. Batch Ticket: Submit to Engineer's onsite representative with each truck load delivered. Include information as follows:
 1. Name of batch plant.
 2. Name of Contractor and Project.
 3. Mix design number or designation.
 4. Class of concrete mix and type of cement.
 5. Time and date of batching.
 6. Cubic yards of concrete.
 7. Weights of cement and each size of aggregate.
 8. Amount of water added at plant and any additional water added.
 9. Amount of each admixture.

1.6 CLOSEOUT SUBMITTALS

- A. Project Record Documents: Record actual locations of embedded utilities and components concealed from view in finished construction.
- B. Warranty: Submit before or with final application for payment.

1.7 QUALITY ASSURANCE

- A. Perform Work according to ACI 318, unless indicated otherwise.
- B. Acquire cement and aggregate from one source for Work.

1.8 AMBIENT CONDITIONS

- A. Hot Weather Concreting: Comply with ACI 305.1, except as modified herein.
 - 1. From mixing to placement, maintain concrete temperature not to exceed 90 degrees Fahrenheit.
 - 2. When ambient air temperature exceeds 90-degrees Fahrenheit, moist cure concrete for minimum of 5-days following placement.
 - 3. Cool surfaces that will come in contact with concrete to below 95 degrees Fahrenheit.
- B. Cold Weather Concreting: Comply with ACI 306.1, except as modified herein.
 - 1. When ambient air temperature is above 45-degrees Fahrenheit, maintain concrete temperature at minimum equal to air temperature, but not greater than 90-degrees Fahrenheit.
 - 2. When ambient air temperature is below 45-degrees Fahrenheit, maintain concrete temperature at or above but not more than 10-degrees Fahrenheit above minimum temperatures shown in Table 2 of this Section.
 - 3. Do not place concrete without using blankets and heaters, or other accepted protective measures when ambient air temperature is less than 20-degrees Fahrenheit.
 - 4. Adequately vent combustion-type heaters that produce carbon monoxide. Position heaters and ducts so hot air does not cause areas of concrete surface to overheat or over-dry. Maintain most conditions to avoid excessive loss of moisture from external heat.
 - 5. Do not place concrete against adjacent concrete, foundations, formwork, reinforcing, or other items that are frozen or have surface temperature less than 40-degrees Fahrenheit.

Table 2. Concrete Temperature (Degrees Fahrenheit) for Cold-Weather Construction					
Condition		Sections less than 12 inches	Sections 12 to 36 inches	Sections 36 to 72 inches	Sections over 72 inches
Minimum temperature fresh concrete as mixed in weather indicated	Above 30 °F	60	55	50	45
	0 °F to 30 °F	65	60	55	50
	Below 0 °F	70	65	60	55
Minimum temperature fresh concrete as placed and maintained (protection period)		55	50	45	40
Maximum allowable gradual drop in temperature in first 24 hours after end of protection		50	40	30	20

- C. Measure concrete temperature with surface thermometer insulated from surrounding air.
- D. Protection Period:
 - 1. Maintain concrete temperature after placement at minimum temperatures shown in Table 2 of this Section for minimum six days.
 - 2. For high-early strength concrete, maintain concrete temperature after installation at minimum temperatures shown in Table 2 of this Section for minimum three days.

1.9 WARRANTY

- A. Provide written guarantee to promptly remove and/or repair defective concrete for two-year period after date of substantial completion.

PART 2 PRODUCTS

2.1 MATERIALS

- A. Concrete:
 - 1. Cement:
 - a. Portland cement complying with ASTM C150.
 - b. Use Type II - Moderate Sulfate Resistant or Type II-V blend for Class A through C concrete.
 - c. Use Type V - High Sulfate Resistant for Class S2 and S3 concrete. Meet or exceed sulfate Exposure Class S2 Severe in accordance with Tables 4.2.1 and 4.3.1 of ACI 318.
 - 2. Coarse Aggregate:
 - a. Comply with ASTM C33.

- b. Maximum Size: According to ACI 318.
 - 1) Not larger than 1/5 narrowest dimension between sides of form.
 - 2) Not larger than 1/3 depth of slab.
 - 3) Not larger than 3/4 minimum clear distance between reinforcing bar or between reinforcing bars and forms, whichever is smallest.
 - 3. Fine Aggregate: Comply with ASTM C33.
 - 4. Water:
 - a. Comply with ASTM C1602.
 - b. Potable.
- B. Admixtures:
 - 1. Do not use calcium chloride or admixtures that contain calcium chloride.
 - 2. Air Entrainment: Comply with ASTM C260. Use pre-measured admixtures for air entrainment added on site.
 - 3. Chemical: Submit with mix design for review prior to use.
 - a. Comply with ASTM C494.
 - b. Type A - Water Reducing. Slump requirements on Table 3 of this Section may be changed to 5-inches maximum for all classes of concrete.
 - c. Type D - Water Reducing and Retarding. Slump requirements on Table 3 of this Section may be changed to 5-inches maximum for all classes of concrete.
 - d. Type F - Water Reducing, High Range. Slump requirements on Table 3 of this Section may be changed to 9-inches maximum for all classes of concrete.
 - e. Set retarding admixtures may be used when haul time will be exceeded. Establish effective life of concrete mix by trial batch.
 - 4. Fly Ash: Comply with ASTM C618, Class F, and not exceed 3-percent loss on ignition and do not exceed 15-percent CaO content. May be used to replace cement. Limit content of fly ash to 30-percent of required cement content by weight. Submit with mix design for review prior to use.
 - 5. Plasticizing: Comply with ASTM C1017 and submit with mix design for review prior to use.
- C. Fibrous Reinforcing: ASTM C1116, 100-percent virgin polypropylene fibrillated, MD graded, fibers containing no reprocessed olefin materials. Minimum application rate shall be 4.0-pounds per cubic yard. Manufactured by Fibermesh or equal.
 - 1. Schedule: Where indicated on Drawings.

2.2 CONCRETE MIX

- A. Determine mix design with required portions of cement, aggregate, admixtures, and water. Verify mix design with trial batch.
- B. Provide concrete complying with Table 3 of this Section.

(Remainder of page intentionally left blank.)

Table 3. Concrete Class and Requirements							
Class	Coarse Aggregate Size (inches)	Maximum Water/ Cement	Minimum Cement Content (Sacks/ C. Y.)	Slump (inches)	Air Content (Percent)	Mix Design Compressive Strength (PSI)	28 Day Minimum Compressive Strength (PSI)
		Max Ratio (lb. /lb.)					
S3 or S3(AE)	1" to No. 4	0.45	7.0	1-3.5	5.0-7.5	6520	5000
S2 or S2(AE)	1" to No. 4	0.45	6.5	1-3.5	5.0-7.5	5870	4500
AA(AE)	2" to No. 4	0.44	6.0	1-3.5	5.0-7.5	5210	4000
	1 1/2" to No.4	0.44	6.0	1-3.5	5.0-7.5	5210	4000
	1" to No. 4	0.44	6.5	1-3.5	5.0-7.5	5210	4000
	3/4" to No. 4	0.44	6.5	1-3.5	5.0-7.5	5210	4000
A or A(AE)	1 1/2" to No. 4	0.45	5.0	1-3.5	4.5-7.5	3910	3000
	1" to No. 4	0.45	5.0	1-3.5	4.5-7.5	3910	3000
	3/4" to No. 4	0.45	5.25	1-3.5	4.5-7.5	3910	3000
B or B(AE)		0.62	4.0	2-5	3.0-6.0	3260	2500
C or C(AE)		0.71	4.0	2-5	3.0-6.0	2610	2000

(AE) = Air-Entrainment

- C. Ready-Mixed Concrete: Mix and deliver concrete according to ASTM C94. For remote locations where ready mixed concrete is not readily available, mix and deliver concrete according to ASTM C685.
- D. Site-Mixed Concrete: Request and obtain acceptance from Engineer prior to using site-mixed concrete. Mix concrete according to ACI 318.

2.3 ACCESSORIES

- A. Non-shrink Grout:
 - 1. Description: Premixed compound consisting of non-metallic aggregate, cement, and water-reducing and plasticizing agents.
 - 2. Comply with ASTM C1107.
 - 3. Minimum Compressive Strength: 2,400-pounds per square inch in 48-hours and 7,000-pounds per square inch in 28-days.
- B. Joint Devices and Filler:
 - 1. Joint Filler:
 - a. Description: Asphalt-impregnated fiberboard or felt.
 - b. Comply with ASTM D1751.
 - c. Thickness: 1/2-inch.
 - d. Sealant: Where indicated on Drawings.
 - 2. Construction Joint Devices: As indicated on Drawings or as accepted by Engineer.
 - 3. Expansion and Contraction Joint Devices: As indicated on Drawings or as accepted by Engineer.
- C. Curing Materials:
 - 1. Membrane Curing Compound Type A: ASTM C309, Type 1, Class A.
 - 2. Absorptive Mats: Burlap-polyethylene, minimum 9-ounces per square yard bonded to prevent separation during handling and placing.
 - 3. Polyethylene Film: 4-mil thick, white opaque color.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify requirements for concrete cover over reinforcement.
- B. Verify that anchors, seats, plates, reinforcement, and other items to be cast into concrete are accurately placed, positioned securely, and will not interfere with placing concrete.

3.2 PREPARATION

- A. Previously Placed Concrete:

1. Prepare previously placed concrete by cleaning with steel brush and applying bonding agent in accordance with manufacturer's recommendations.
 2. Remove laitance, coatings, and unsound materials.
- B. In locations where new concrete is doweled to existing work, drill holes in existing concrete, insert steel dowels, and pack solid with epoxy.
- C. If concrete subgrade is dry, dampen with water prior to placing concrete. Keep subgrade firm and free from excess water.
- D. Remove debris and ice from formwork, reinforcement, and concrete substrates.
- E. Remove water from areas receiving concrete before concrete is placed.

3.3 INSTALLATION

- A. Placing Concrete:
1. Place concrete according to ACI 318.
 2. Notify Engineer minimum 48-hours prior to commencement of operations.
 3. Ensure that reinforcement, inserts, embedded parts, formed expansion and contraction joints, and other materials are not disturbed during concrete placement.
 4. Where indicated on Drawings, install vapor barrier under interior slabs on grade.
 5. Joint Filler:
 - a. Separate slabs on grade from vertical surfaces with 1/2-inch-thick joint filler or 30-pound felt.
 - b. Place joint filler in slab pattern placement sequence; set top to required elevations; secure to resist movement by wet concrete.
 - c. Extend joint filler from bottom of slab to within 1/2-inch of finished slab surface, unless indicated otherwise on Drawings.
 - d. Apply sealant in joints where indicated on Drawings.
 6. Convey concrete from mixer to place of final position by methods that will prevent segregation of mix or loss of materials. Use tremie or other accepted method. Do not allow concrete to free fall more than 5 feet, or less if segregation of mix occurs.
 7. After concrete has been conveyed from mixer, do not add water. Adding water to place concrete will be cause for rejection.
 8. Place concrete in continuous operation for each panel or section as determined by predetermined joints.
 9. Consolidate concrete during placement using hand tools, mechanical vibrators, vibrating screeds, and finishing machines in

accordance with ACI 309R. Consolidation techniques will be reviewed and accepted with Concrete Placement Plan.

- a. Do not use vibrator to move concrete horizontally.
 - b. Do not vibrate high slump (greater than 6-inches) concrete, unless accepted by Engineer.
 - c. Do not over vibrate concrete.
 - d. Provide sufficient vibrators to consolidate concrete within 15-minutes after placement of concrete in forms.
 - e. Provide at least two vibrators for each concrete placement greater than 25-cubic yards.
 - f. Do not attach vibrators to or against forms or reinforcing steel.
 - g. Do not allow vibrators to penetrate concrete layers that have taken initial set.
10. Maintain records of concrete placement, including date, location, quantity, air temperature, and test samples taken.
 11. Place concrete continuously between predetermined expansion, control, and construction joints.
 12. Do not interrupt successive placement and do not permit cold joints to occur.
 13. Place floor slabs with saw-cut pattern indicated on Drawings.
 14. Saw-Cut Joints: Diangle at 24" on center
 - a. Saw-cut joints within 12-hours after placing.
 - b. Use 3/16-inch-thick blade.
 - c. Cut 1/4 depth of slab thickness.
 15. Screeding:
 - a. Screed floors and slabs on grade level, unless indicated otherwise on Drawings.
 - b. Minimum Surface Flatness: Minimum FF 25
 - c. Minimum Surface Levelness: Minimum FL 20

B. Concrete Finishing:

1. Finish concrete as indicated in schedule.
2. Finish concrete floor surfaces according to ACI 318.
3. Wood float surfaces receiving quarry tile, ceramic tile, terrazzo with full bed setting system.
4. Steel trowel surfaces receiving carpeting, resilient flooring, seamless flooring, and tile.
5. Steel trowel interior surfaces as indicated in finish schedule. Consolidate concrete surface by final hand troweling operation, free of trowel marks, uniform in texture and appearance.
6. Provide non-slip broom finish to exterior concrete platforms and slabs. Slightly roughen concrete surface by grooming with fiber-bristle broom.
7. Do not use steel trowels or fresno to finish exterior concrete.
8. Do not use jitter bugs for concrete consolidation.

C. Curing and Protection:

1. Immediately after placement, protect concrete from premature drying, excessively hot, or cold temperatures, and mechanical injury.
2. Maintain concrete with minimal moisture loss at relatively constant temperature for period as necessary for hydration of cement and hardening of concrete.
3. Cure horizontal concrete surfaces according to ACI 308.1 using one of following methods:
 - a. Ponding: Maintain 100-percent coverage of water over slab continuously for seven days.
 - b. Spraying: Spray water over slab and maintain wet for seven days.
 - c. Absorptive Matt: Cover slab with saturated mat lapping ends and sides. Maintain saturated condition for seven days.
 - d. Membrane Curing Compound: Apply curing compound in two coats with second coat applied at right angles to first.
 - e. Polyethylene Film: Spread over slab, lap edges and sides, seal with pressure sensitive tape and cover with plywood as necessary to secure film. Maintain in place for seven days.
4. Cure vertical surfaces according to ACI 308.1 using one of following methods:
 - a. Spraying: Spray water over surface and maintain wet for seven days.
 - b. Membrane Curing Compound: Apply curing compound in two coats with second coat applied at right angles to first.
5. Provide additional protection as necessary to prevent freezing during cold weather.
6. Use curing method which is compatible with finish coat of concrete surface.

3.4 FIELD QUALITY CONTROL TESTING

- A. Perform in accordance with ACI 318 and referenced standards.
- B. Field Testing: Comply with ASTM C172. Sample and test concrete at least once for every 50-cubic yards or less of each class of concrete placed each day.
 1. Slump Test: Comply with ASTM C143.
 2. Air Content Test: Comply with ASTM C231.
 3. Perform initial air and slump test on first truck of each day prior to placing concrete in forms.
 - a. If initial air and slump test are acceptable, proceed with placement of concrete.
 - b. If initial air and slump tests are not acceptable, reject concrete and remove from site or make required corrections to make concrete acceptable.
 4. Perform final air and slump tests on middle portion of batch in accordance with ASTM C172.

5. Temperature Test: Comply with ASTM C1064.
6. Compressive Strength Test: Comply with ASTM C31 and C39.
 - a. Cast four cylinders.
 - b. Test one cylinder at 7-days.
 - c. Test three cylinders at 28-days. Compressive strength will be average of three cylinders.
7. If tests are not acceptable, make adjustments in mix design and/or production. If necessary, remove and replace Work.

3.5 NON-CONFORMING WORK

- A. Optional Core Compressive Strength Testing: If compressive strength test fails, compressive strength testing by core samples may be requested. Submit detailed request to Engineer.
 1. Sampling and Testing Procedures: Comply with ASTM C42.
 2. Drill three cores for each failed strength test from failed concrete.
 3. If compressive strength test of cores does not meet requirements of Table 3 of this Section, Engineer may reject concrete and require removal or allow concrete to remain with price reduction. Price reduction or replacement will be at discretion of Owner and Engineer.
- B. Patching:
 1. Allow Engineer to observe concrete surfaces immediately upon removal of forms.
 2. Honeycombing or Embedded Debris in Concrete:
 - a. Not acceptable.
 - b. Notify Engineer upon discovery.
 3. Patch imperfections as indicated by Engineer.
- C. Defective Concrete:
 1. Description: Concrete not conforming to required lines, details, dimensions, tolerances, or specified requirements.
 2. Repair or replacement of defective concrete will be indicated by Engineer.
 3. Do not patch, fill, touch up, repair, or replace exposed concrete, except as indicated by Engineer for each individual area.

3.6 ATTACHMENTS

- A. Concrete Schedule: See Table 4 of this Section.

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Table 4. Concrete Schedule			
Element	Class	Finish	Other Notes
Columns	AA(AE)	Form Finish	
Fence Footings	B(AE)	Form Finish	
Interior Floor Slabs	AA	See architectural Drawings	Slope to floor drain(s)
Exterior Floor Slabs	AA(AE)	See architectural Drawings	
Footings	AA(AE)	Form Finish	
Foundation Walls	AA(AE)	Form Finish	
Headwalls	AA(AE)	Form Finish	
Thrust Blocks	B or B(AE)	Form Finish	
Valve Collars	AA(AE)	Light Broom Finish	

B. Concrete Placement Plan: See attached document consisting of 2 pages.

END OF SECTION

SECTION 03 39 20
PENETRATING CONCRETE SEALER

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Penetrating concrete sealer applied to concrete, masonry, or stone surface.

1.2 REFERENCES

- A. ASTM D 3960: Volatile Organic Compound (VOC) Content of Paints and Related Coatings.

1.3 SUBMITTALS

- A. Manufacturer's product data sheets and recommended installation instructions.
- B. A random sample of the penetrating concrete sealer for testing at the Engineer's discretion to verify product compliance.

PART 2 PRODUCTS

2.1 PENETRATING CONCRETE SEALERS

- A. Choose from the following list:
 - 1. Silane
 - 2. Siloxane
 - 3. Silicate
 - 4. Siliconate
 - 5. Organo Silane Ester
 - 6. Styrene Acrylic Copolymer
 - 7. Organo Siloxane
 - 8. Alkylalkoxy Siloxane
 - 9. Alkylalkoxy Silane
- B. Meet VOC content of 350 g/L or less for Reactive Penetrating Sealer and 100 g/L or less for others. Refer to ASTM D 3960.
- C. Can be applied to either new or existing surfaces.
- D. Dries clear without significant change in surface appearance.
- E. Maximum drying time of 1½ hours.

- F. Product can be applied in horizontal, vertical and overhead surfaces.

PART 3 EXECUTION

3.1 PREPARATION

- A. Keep surfaces dry and free of release agents, laitance, dirt, dust, paint, grease, oil, rust and other contaminants.
- B. Remove any curing compound or other incompatible products from the surface of the concrete before applying penetrating sealer.
- C. Use one of the following cleaning methods:
 - 1. Pressure washing – 700 psi min.
 - 2. Shotblasting
 - 3. Sandblasting
 - 4. Etching
- D. Keep concrete surface matrix intact without exposing any large aggregate.
- E. Cure concrete for 28 days before sealer application.
- F. Obtain approval from the Engineer before applying material.
- G. Apply only when the outside air temperature will remain between 45 and 90 degrees F for 24 hours or the manufacturer's recommended cure time, whichever is longer.
- H. Do not apply within 24 hours of a rain event or pressure washing, nor if a rain event is forecasted within 24 hours.

3.2 APPLICATION

- A. Application Rate
 - 1. Apply according to manufacturer's recommendations for each of the following surfaces:
 - a. Horizontal
 - b. Vertical
 - c. Overhead
- B. Apply the penetrating concrete sealer evenly at an application rate recommended by the manufacturer.
- C. Do not apply penetrating concrete sealer to portland cement concrete pavement (PCCP) or other roadway surface.
- D. The sealer is considered defective if clouding or chalking occurs after placement.

END OF SECTION

SECTION 05 12 00
STRUCTURAL STEEL FRAMING

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Structural shapes.
 - 2. Channels and angles.
 - 3. Hollow structural sections.
 - 4. Structural pipe.
 - 5. Structural plates.
 - 6. Floor plates.
 - 7. Bolts, connectors, and anchors.
 - 8. Grout.

1.2 SUBMITTALS

- A. Shop Drawings:
 - 1. Indicate profiles, sizes, spacing, locations of structural members, openings, attachments, and bolts.
 - 2. Connections.
 - 3. Indicate welded connections with AWS A2.4 welding symbols, and indicate net weld lengths.
- B. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.
- C. Welders Certificates: Certify welders employed on the Work, verifying AWS qualification within previous 12 months.
- D. Mill Test Reports: Submit indicating structural strength, destructive and non-destructive test analysis.
- E. Source Quality-Control Submittals: Indicate results of shop tests and inspections.
- F. Field Quality-Control Submittals: Indicate results of Contractor-furnished tests and inspections.
- G. Qualifications Statements:
 - 1. Submit qualifications for fabricator, erector, shop painter, and welders.

1.3 QUALITY ASSURANCE

- A. Perform Work according to following:
 - 1. Structural Steel: AISC 360.
 - 2. Architecturally Exposed Structural Steel: AISC 303, Section 10.
 - 3. High-Strength Bolted Connections: RCSC - Specification for Structural Joints Using ASTM A325 or ASTM A490 Bolts.
 - 4. Steel Cable Structures: ASCE 19.
- B. Fabricator:
 - 1. Company specializing in fabricating products specified in this Section with minimum three years' documented experience with following current AISC Certification:
 - a. Standard Steel Building Structures (STD).
 - b. Conventional Steel Building Structures (SBD).
 - c. Complex Steel Building Structures (CBD).
- C. Erector:
 - 1. Company specializing in performing Work of this Section with minimum three years documented experience with following current AISC Certification:
 - a. Certified Steel Erector (CSE).
 - b. Advanced Certified Steel Erector (ACSE).
- D. Shop Painter:
 - 1. Company specializing in performing Work of this Section with minimum three documented experience with following current AISC Certification:
 - a. Sophisticated Paint Endorsement - Enclosed (P1).
 - b. Sophisticated Paint Endorsement - Covered (P2).
 - c. Sophisticated Paint Endorsement - Outside (P3).
- E. Welders and Welding Procedures: AWS D1.1 qualified within previous 12 months.

PART 2 PRODUCTS

2.1 STRUCTURAL STEEL

- A. Structural W Shapes: ASTM A992.
- B. Structural M Shapes: ASTM A36
- C. Structural S Shapes: ASTM A36
- D. Structural T Shapes: Cut from structural W shapes
- E. Channels and Angles: ASTM A36
- F. Round, Hollow Structural Sections: ASTM A500, Grade B

- G. Rectangular, Hollow Structural Sections: ASTM A500, Grade B
- H. Structural Pipe: ASTM A53, Grade B
- I. Structural Plates and Bars: ASTM A36

2.2 BOLTS, CONNECTORS, AND ANCHORS

- A. Bolts: Heavy-hex, structural type.
 - 1. ASTM A325; Type 1, galvanized, or Type 3, plain.
 - 2. ASTM A490; Type 1 or 3, plain.
- B. Nuts: ASTM A563; Grade 36; heavy-hex type.
 - 1. Finish: Plain
- C. Forged Structural Steel Hardware:
 - 1. Clevises and Turnbuckles: ASTM A108; Grade 1085.
 - 2. Eye Nuts and Eye Bolts: ASTM A108; Grade 1030.
 - 3. Sleeve Nuts: ASTM A108; Grade 1018.
 - 4. Rod Ends, Yoke Ends and Pins, Cotter Pins, and Coupling Nuts: Carbon steel.

2.3 WELDING MATERIALS

- A. Welding Materials:
 - 1. AWS D1.1.
 - 2. Type required for materials being welded.

2.4 FABRICATION

- A. Space shear stud connectors as indicated otherwise on Drawings.
- B. Continuously seal joined members by intermittent welds and plastic filler, continuous welds. Grind exposed welds smooth.
- C. Fabricate connections for bolt, nut, and washer connectors.
- D. Develop required camber for members.

2.5 FINISHES

- A. Prepare structural component surfaces according to SSPC SP 3
- B. Shop-prime structural steel members. Do not prime surfaces that will be fireproofed, field welded, in contact with concrete, or high-strength bolted.

2.6 ACCESSORIES

- A. Grout:

1. Non-shrink type; premixed compound consisting of nonmetallic aggregate, cement, water-reducing, and plasticizing additives.
- B. Shop Primer: SSPC Paint 15, Type 1, red oxide
- C. Touchup Primer: Match shop primer.

2.7 SOURCE QUALITY CONTROL

- A. Testing: Test bolted and welded connections as specified in PART 3 for field quality control tests.
- B. Certificate of Compliance: When fabricator is approved by authorities having jurisdiction, submit certificate of compliance indicating Work performed at fabricator's facility conforms to Contract Documents.
 1. Specified shop tests are not required for Work performed by approved fabricator.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify that bearing surfaces are at correct elevation.
- B. Verify that anchor rods are set in correct locations and arrangements, with correct exposure for steel attachment.

3.2 PREPARATION

- A. Furnish templates for installation of anchor rods and embedments in concrete and masonry work.

3.3 ERECTION

- A. Allow for erection loads and for sufficient temporary bracing to maintain structure safe, plumb, and in alignment until completion of erection and installation of permanent bracing.
- B. Field-weld components and shear connectors as indicated on Drawings.
- C. Field-connect members with threaded fasteners; torque to required resistance and snug-tighten for bearing-type connections.
- D. Do not field-cut or alter structural members without approval of Architect/Engineer.
- E. After erection, touch up welds and abrasions to match shop finishes.

3.4 GROUT INSTALLATION

- A. Grout under base plates
- B. Fill void under bearing surface with grout; install and pack grout to remove air pockets.
- C. Moist-cure grout.
- D. Remove forms after grout is set; trim grout edges to form smooth surface, splayed 45 degrees.
- E. Tighten anchor bolts after grout has cured for a minimum of three days.

3.5 TOLERANCES

- A. Maximum Variation from Plumb: ¼ inch per story, noncumulative.
- B. Maximum Offset from Alignment: ¼ inch.

3.6 FIELD QUALITY CONTROL

- A. Bolted Connections: Inspect according to AISC 303.
 - 1. Visually inspect all bolted connections.
 - 2. Direct Tension Indicators: Comply with requirements of ASTM F959, and verify that gaps are less than gaps specified in Table 2.
- B. Welding: Inspect welds according to AWS D1.1.
 - 1. Use certified welders, and conduct inspections and tests as required. Record types and locations of defects found in Work. Record work required and performed to correct deficiencies.
 - 2. Visually inspect all welds.
 - 3. Ultrasonic Inspection: ASTM E164; perform on each full-penetration weld.
 - 4. Liquid Penetrant Inspection: ASTM E165.
- C. Correct defective bolted connections and welds.

END OF SECTION

SECTION 05 50 00
METAL FABRICATIONS

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Shop-fabricated metal items.
 - 2. Loose steel lintels.
 - 3. Bollards.
 - 4. Ladders.
 - 5. Fabricated trash enclosure gates.
 - 6. Concrete embeds and inserts.
- B. Related Requirements:
 - 1. Section 03 30 00 - Cast-In-Place Concrete.
 - 2. Section 05 12 00 - Structural Steel Framing.
 - 3. Section 09 22 16 Non-Structural Metal Framing
 - 4. Section 09 90 00 – Painting and Coating.
 - 5.

1.2 REFERENCE STANDARDS

- A. American Architectural Manufacturers Association (AAMA):
- B. American National Standards Institute (ANSI):
 - 1. ANSI A14.3 - American National Standard (ASC) for Ladders - Fixed - Safety Requirements.
- C. American Welding Society (AWS):
 - 1. AWS D1.1 - Structural Welding Code - Steel.
 - 2. AWS D1.6 - Structural Welding Code - Stainless Steel.
- D. ASTM International (ASTM):
 - 1. ASTM A36 - Standard Specification for Carbon Structural Steel.
 - 2. ASTM A53- Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless.
 - 3. ASTM A123 - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.
 - 4. ASTM A153 - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware.
 - 5. ASTM A193 - Standard Specification for Alloy-Steel and Stainless Steel Bolting for High Temperature or High Pressure Service and Other Special Purpose Applications.
 - 6. ASTM A194 - Standard Specification for Carbon Steel, Alloy Steel, and Stainless Steel Nuts for Bolts for High Pressure or High Temperature Service, or Both.

7. ASTM A240 - Standard Specification for Chromium and Chromium-Nickel Stainless Steel Plate, Sheet, and Strip for Pressure Vessels and for General Applications.
 8. ASTM A269 - Standard Specification for Seamless and Welded Austenitic Stainless Steel Tubing for General Service.
 9. ASTM A276 - Standard Specification for Stainless Steel Bars and Shapes.
 10. ASTM A307 - Standard Specification for Carbon Steel Bolts, Studs, and Threaded Rod 60 000 PSI Tensile Strength.
 11. ASTM A312 - Standard Specification for Seamless, Welded, and Heavily Cold Worked Austenitic Stainless Steel Pipes.
 12. ASTM A354 - Standard Specification for Quenched and Tempered Alloy Steel Bolts, Studs, and Other Externally Threaded Fasteners.
 13. ASTM A500 - Standard Specification for Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes.
 14. ASTM A563 - Standard Specification for Carbon and Alloy Steel Nuts.
 15. ASTM A653 - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
 16. ASTM A992 - Standard Specification for Structural Steel Shapes.
 17. ASTM B26 - Standard Specification for Aluminum-Alloy Sand Castings.
 18. ASTM B85 - Standard Specification for Aluminum-Alloy Die Castings.
 19. ASTM B209 - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate.
 20. ASTM B210 - Standard Specification for Aluminum and Aluminum-Alloy Drawn Seamless Tubes.
 21. ASTM B211 - Standard Specification for Aluminum and Aluminum-Alloy Rolled or Cold Finished Bar, Rod, and Wire.
 22. ASTM B221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes.
 23. ASTM B695 - Standard Specification for Coatings of Zinc Mechanically Deposited on Iron and Steel.
 24. ASTM F436 - Standard Specification for Hardened Steel Washers.
- E. Builders Hardware Manufacturers Association (BHMA):
1. ANSI/BHMA A156.20 - American National Standard for Strap and Tee Hinges and Hasps.
- F. National Association of Architectural Metal Manufacturers (NAAMM):
1. NAAMM AMP 510 – Metal Stairs Manual.
 2. NAAMM MBG 531 – Metal Bar Grating Manual.
- G. SSPC: The Society for Protective Coatings:
1. SSPC Paint 15 - Steel Joist Shop Primer/Metal Building Primer.

1.3 SUBMITTALS

- A. Product Data: Submit data for canopy steel.
- B. Shop Drawings: Submit shop drawings. Indicate profiles, sizes, connection attachments, reinforcing, anchorage, size and type of fasteners, and accessories. Include erection drawings, elevations, and details where applicable. Indicate welded connections using standard AWS A2.4 welding symbols.
- C. Welders Certificates: Certify welders employed on Work, verifying AWS qualification within previous 12 months.
- D. Field Quality-Control Submittals: Indicate results of Contractor-furnished tests and inspections.

1.4 DELIVERY, STORAGE, AND HANDLING

- A. Inspection: Accept metal fabrications on-Site in labeled shipments. Inspect for damage.
- B. Protect metal fabrications from damage by exposure to weather or by ground contact.

1.5 BOLLARDS

- A. Description:
 - 1. Steel pipe, concrete filled.
 - 2. Pipe Size: 6-inch diameter, length as indicated on Drawings.
 - 3. Pipe Finish: Prime coat, intermediate coat and top coat. Use color for intermediate and top coat as indicated on Drawings or as selected by Owner.
 - 4. Concrete Fill: Class A(AE) as indicated in Section 03 30 00 with dome shaped finish at top of pipe.

1.6 TRASH ENCLOSURES AND GATES

- A. Description:
 - 1. Steel sections, size and configuration as indicated on Drawings.
 - 2. Finish for Exterior Locations: Prime coat and top coat.
- B. Infill Panels:
 - 1. Description: Corrugated steel panels.
 - 2. Deep Deck Panel:
 - a. Thickness: 24 gage.
 - b. Finish:
 - 1) Manufacturer's standard Kynar 500 polyvinylidene fluoride resin-based coating.

- 2) Color: As selected by Architect from manufacturer's standard colors.
- 3) Prime coat and top coat.

C. Gate Hardware:

1. Finish: Galvanized or zinc plated.
2. Heavy-Duty Steel Hinges Rating:
 - a. Gate leaf weight of 250 lb., minimum.
 - b. ANSI/BHMA A156.20.
3. Drop Bolt and Keeper: Minimum 1/2 inch, for pairs of gates.

1.7 ANCHORS

A. Description:

1. ASTM F1554; Grade 36, unless indicated otherwise on Drawings.
2. Shape: Straight, headed or threaded, unless indicated otherwise on Drawings.
3. Furnish with double nut and washer for threaded anchors.
4. Grout: As indicated in Section 03 30 00.

B. Epoxy Adhesive Anchors:

1. Manufacturer: Hilti or equivalent.
2. Threaded Rod:
 - a. Stainless Steel: Type 316.
 - b. Mild Steel: ASTM A36.

1.8 MATERIALS

A. Steel:

1. Structural W Shapes: ASTM A992.
2. Structural Shapes: ASTM A36 unless noted otherwise.
3. Channels and Angles: ASTM A36.
4. Steel Plate: ASTM A36.
5. Hollow Structural Sections: ASTM A500, Grade B.
6. Steel Pipe: ASTM A53, Grade B, Schedule 40.
7. Floor Plates: ASTM A53; raised pattern.
8. Sheet Steel: ASTM A653, Grade 33 Structural Quality.
9. Conventional Bolts: ASTM A307; Grade A.
10. High Strength Bolts: ASTM A325N
11. Nuts: ASTM A563; heavy-hex type.
12. Washers: ASTM F436; Type 1.
13. Welding Materials: AWS D1.1; type required for materials being welded.

B. Bolts, Nuts, and Washers for Equipment and Piping:

1. Carbon Steel:
 - a. Structural Connections: ASTM A307, Grade A.

- b. Anchor Bolts: ASTM A307, Grade A, hot-dip galvanized.

1.9 FABRICATION

- A. Fit and shop-assemble items in largest practical sections for delivery to Site.
- B. Fabricate items with joints tightly fitted and secured.
- C. Continuously seal joined members by continuous welds.
- D. Grind exposed joints flush and smooth with adjacent finish surface. Make exposed joints butt tight, flush, and hairline. Ease exposed edges to small, uniform radius.
- E. Exposed Mechanical Fastenings: Flush countersunk screws or bolts; unobtrusively located; consistent with design of component, except where specifically noted otherwise.
- F. Supply components required for anchorage of fabrications. Fabricate anchors and related components of same material and finish as fabrication, except where specifically noted otherwise.
- G. Fabricate support framing for openings.
- H. Fabrication Tolerances:
 - 1. Squareness: 1/8-inch maximum difference in diagonal measurements.
 - 2. Maximum Offset between Faces: 1/16 inch.
 - 3. Maximum Misalignment of Adjacent Members: 1/16 inch.
 - 4. Maximum Bow: 1/8 inch in 48 inches.
 - 5. Maximum Deviation from Plane: 1/16 inch in 48 inches.

1.10 FINISHES

- A. Steel:
 - 1. Clean surfaces of rust, scale, grease, and foreign matter prior to finishing.
 - 2. Do not prime surfaces in direct contact with concrete or where field welding is required.
 - 3. Prime coat except where galvanizing is specified.
 - 4. Galvanizing: ASTM A123; hot-dip galvanize after fabrication.
 - 5. Galvanizing for Fasteners, Connectors, and Anchors:
 - a. Hot-Dip Galvanizing: ASTM A153.
 - b. Mechanical Galvanizing: ASTM B695; Class 50 minimum.
 - 6. Sheet Steel: Galvanized with G coating class.
 - 7. Bolts: Hot-dip galvanized.
 - 8. Nuts: Hot-dip galvanized.
 - 9. Washers: Hot-dip galvanized.

10. Shop Primer: SSPC Paint 15, Type 1, red oxide.
11. Touchup Primer: Match shop primer.

PART 2 EXECUTION

2.1 EXAMINATION

- A. Verify that field conditions are acceptable and are ready to receive Work.

2.2 PREPARATION

- A. Clean and strip primed steel items to bare metal and aluminum where Site welding is required.
- B. Supply steel items required to be cast into concrete or embedded in masonry with setting templates to appropriate sections.

2.3 INSTALLATION

- A. Install items plumb and level, accurately fitted, and free from distortion or defects.
- B. Install anchors and other required accessories.
- C. Make provisions for erection stresses. Install temporary bracing to maintain alignment until permanent bracing and attachments are installed.
- D. Field-weld components indicated on Drawings.
- E. Perform field welding according to AWS D1.1.
- F. Obtain approval of Architect prior to Site cutting or making adjustments not scheduled.

2.4 TOLERANCES

- A. Maximum Variation from Plumb: 1/4 inch per story or for every 12 feet in height, whichever is greater, non-cumulative.
- B. Maximum Variation from Level: 1/16 inch in 3 feet and 1/4 inch in 10 feet.
- C. Maximum Offset from Alignment: 1/4 inch.
- D. Maximum Out-of-Position: 1/4 inch.

2.5 FIELD QUALITY CONTROL

- A. Welding: Inspect welds according to AWS D1.1.

- B. Replace damaged or improperly functioning hardware.
- C. After erection, touch up welds, abrasions, and damaged finishes with prime paint or galvanizing repair paint to match shop finishes.
- D. Touch up factory-applied finishes according to manufacturer-recommended procedures.

2.6 ADJUSTING

- A. Adjust operating hardware and lubricate as necessary for smooth operation.

END OF SECTION

SECTION 06 10 00 ROUGH CARPENTRY

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Structural wall and roof framing.
 - 2. Roof sheathing.
 - 3. Miscellaneous framing and sheathing.

SUBMITTALS

- B. Product Data: Manufacturer information on insulated sheathing, wood preservative materials, and application instructions.
- C. Shop Drawings for Site-Fabricated Truss Frame: Dimensions, wood species and grades, component profiles, drilled holes, fasteners, connectors, erection details, and sequence.
- D. Manufacturer's Certificate: Products meet or exceed specified requirements.

1.2 QUALITY ASSURANCE

- A. Perform Work according to:
 - 1. Lumber Grading Agency: Certified by DOC PS 20.
 - 2. Wood Structural Panel Grading Agency: Certified by APA - The Engineered Wood Association.
 - 3. Lumber: DOC PS 20.
 - 4. Wood Structural Panels: DOC PS 1 or PS 2.

1.3 DELIVERY, STORAGE, AND HANDLING

- A. Store materials according to manufacturer instructions.
- B. Protection: Protect trusses from warping or other distortion by stacking in vertical position and bracing to resist movement.

PART 2 PRODUCTS

2.1 MATERIALS

- A. Sheathing:
 - 1. Wood Structural Panel Roof Sheathing:
 - a. Description: APA rated.
 - b. Material: Oriented strand board (OSB).

- c. Exposure Durability: 1.

2.2 SHEATHING AND UNDERLAYMENT LOCATIONS

- A. Roof Sheathing:
 - 1. Thickness: As indicated on drawings.
 - 2. Sheet Size: 48 by 96 inches.
 - 3. Span Rating: As indicated on drawings .
 - 4. Edges: Square.

2.3 ACCESSORIES

- A. Fasteners and Anchors:
 - 1. Fasteners:
 - a. High-Humidity and Treated Wood Locations: ASTM A153, hot-dip galvanized steel.
 - b. Elsewhere: Unfinished steel.
 - 2. Nails and Staples: Comply with ASTM F1667.

PART 3 EXECUTION

3.1 APPLICATION

- A. Sheathing:
 - 1. Fasten sheathing according to applicable code.
 - 2. Secure roof sheathing with longer edge (strength axis) perpendicular to framing members, with ends staggered and sheet ends over bearing.
 - 3. Structurally Rigid Building Corners:
 - a. Place wood structural panel sheeting at building corners for horizontal distance of **[48]** inches.

END OF SECTION

SECTION 06 1100

WOOD FRAMING

PART 1 - GENERAL

1.1 SUMMARY

- A. Includes But Not Limited To:
 - 1. Furnish and install wood framing and blocking as described in Contract Documents.
- B. Products Installed But Not Furnished Under This Section:
 - 1. Glue-laminated structural units.
 - 2. Miscellaneous structural steel elements.
 - 3. Roof related blocking, wood nailers, and curbs.
 - 4. Structural composite lumber.
 - 5. Wood panel product sheathing.
 - 6. Wood trusses.
- C. Related Requirements:
 - 1. Section 06 1753: Shop fabricated wood trusses.
 - 2. Section 08 4113: 'Aluminum-Framed Entrances And Storefronts':

1.2 REFERENCES

- A. Reference Standards:
 - 1. National Institute of Standards and Technology (NIST), Technology Administration, U. S. Department of Commerce:
 - a. Voluntary Product Standard DOC PS 20-05, 'American Softwood Lumber Standard.'
 - 2. Truss Plate Institute / Wood Truss Council of America:
 - a. TPI / WTCA Building Component Safety Information BCSI 2008, 'Guide to Good Practice for Handling, Installing, Restraining & Bracing of Metal Plate Connected Wood Trusses.'

1.3 SUBMITTALS

- A. Informational Submittals:
 - 1. Test And Evaluation Reports:
 - a. Technical and engineering data on nails to be set by nailing guns for Architect's approval of types proposed to be used as equivalents to specified hand set nails and adjusted number and spacing of pneumatically-driven nails to provide equivalent connection capacity.
 - 2. Manufacturer Instructions:

- a. Copies of pamphlets specified in REFERENCE Article. After Architect's examination, keep pamphlets on Project site with approved shop drawings. Pamphlets may be obtained from Truss Plate Institute, Wood Truss Council of America, or from Truss Fabricator.

1.4 DELIVERY, STORAGE, AND HANDLING

- A. Delivery And Acceptance Requirements:
 1. Protect lumber and plywood and keep under cover in transit and at job site.
 2. Do not deliver material unduly long before it is required.
- B. Storage And Handling Requirements:
 1. Store lumber and plywood on level racks and keep free of ground to avoid warping.
 2. Stack to insure proper ventilation and drainage.
 3. Handle and store wood trusses in accordance with ANSI / WTCA Booklet BSCI except trusses may be unloaded by dumping if trusses are shipped horizontally, are rolled off low profile roller bed trailer, and no part of any truss is required to drop more than 18 inches (450 mm).

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Dimension Lumber:
 1. Meet requirements of PS 20 and National Grading Rules for softwood dimension lumber.
 2. Bear grade stamp of WWP, SPIB, or other association recognized by American Lumber Standards Committee identifying species of lumber by grade mark or by Certificate of Inspection.
 3. Lumber 2 inches (50 mm) or less in nominal thickness shall not exceed 19 percent in moisture content at time of fabrication and installation and be stamped 'S-DRY', 'K-D', or 'MC15.'
 4. Lumber shall be S4S.
 5. Preservative Treated Plates / Sills:
 - a. 2x4 (38 mm by 64 mm): Standard and better Douglas Fir, Southern Pine, or HemFir, or StrandGuard by iLevel by Weyerhaeuser Boise, ID www.ilevel.com. (LSL 1.3 E)
 - b. 2x6 (38 mm by 140 mm) And Wider: No. 2 or or MSR 1650f - 1.5e Douglas Fir, Southern Pine, HemFir, or StrandGuard by iLevel by Weyerhaeuser, Boise, ID www.ilevel.com. (LSL 1.3 E).
- B. Posts, Beams, And Timbers 5 Inches by 5 Inches (125 mm by 125 mm) And Larger:
 1. No. 1 or better Douglas Fir or Southern Pine.
- C. Lumber Ledgers:
 1. No. 2 Douglas Fir-Larch, or Southern Pine.

D. See drawings for additional requirements.

2.2 ACCESSORIES

A. Blocking:

1. Sound lumber without splits, warps, wane, loose knots, or knots larger than 1/2 inch (13 mm).

B. Furring Strips:

1. Utility or better.

C. Sill Sealer:

1. Closed-cell polyethylene foam, 1/4 inch (6 mm) thick by width of plate.

PART 3 - EXECUTION

3.1 INSTALLERS

A. Installers shall be pre-approved and included in Contract Documents by Addendum.

3.2 INSTALLATION

A. General:

1. Use preservative treated wood for wood members in contact with concrete or masonry, including wall, sill, and ledger plates, door and window subframes and bucks, etc.

B. Interface With Other Work:

1. Coordinate with other Sections for location of blocking required for installation of equipment and building specialties. Do not allow installation of gypsum board until required blocking is in place.
2. Where manufactured items are to be installed in framing, provide rough openings of dimensions within tolerances required by manufacturers of such items. Confirm dimensions where not shown on Drawings.

C. Tolerances:

1. Walls:
 - a. 1/4 inch (6 mm) in 20 feet (6 meters), non-cumulative in length of wall.
 - b. 1/8 inch (3 mm) in 10 feet (3 meters) with 1/4 inch (6 mm) maximum in height of wall.
 - c. Distances between parallel walls shall be 1/4 inch (6 mm) maximum along length and height of wall.

D. Walls:

1. Openings: Single, bearing stud supporting header and one adjacent (king) stud continuous between top and bottom plates, unless shown otherwise.
2. Corners And Partition Intersections: Triple studs.

3. Top Plates In Bearing Partitions: Doubled or tripled and lapped. Stagger joints at least 48 inches (1 200 mm).
4. Firestops:
 - a. Horizontal or vertical concealed spaces in walls, light coves, soffits, drop ceilings, and other features over 10 feet (3 000 mm) in length or height, and at stairs, ceiling levels, floor levels, and other junctures of horizontal to vertical concealed spaces.
 - b. Within concealed spaces of exterior wall finishes and exterior architectural elements, such as trims, cornices or projections, at maximum intervals of 20 feet (6 000 mm), length or height.
5. Sill Plates:
 - a. Shear Walls And Bearing Walls:
 - 1) Provide specified anchor 12 inches (300 mm) maximum and 4 inches (100 mm) minimum from each end of each plate.
 - 2) Shear Walls: Fasten with anchor bolts embedded in concrete or with screw anchors.
 - 3) Bearing Walls: Fasten with anchor bolts embedded in concrete, or with screw anchors or expansion bolts in drilled holes.
 - b. Non-Structural Walls: Fasten with powder actuated fasteners.
 - c. In addition to requirements of paragraphs 'a' and 'b' above, set sill plates of interior walls measuring less than 36 inches (900 mm) in length in solid bed of specified construction adhesive, except where sill sealer is used.
 - d. Install specified seal sealer under sill plates of exterior walls of main building and of acoustically insulated interior walls.
6. Posts And Columns:
 - a. Unless shown otherwise, nail members of multiple member columns together with 16d at 6 inches (150 mm) on center from each side.
7. Beams And Girders:
 - a. Built-Up Members:
 - 1) Stagger individual members of multiple span beams and girders so, over any one support, no more than half the members will have a joint. In all cases, however, joints shall occur over supports.
 - 2) Unless shown otherwise on Drawings, nail two-ply built-up members with 10d nails 12 inches (300 mm) on center top and bottom, staggered on opposite sides. Nail three-ply built-up members with 16d nails at 12 inches (300 mm) on center, top and bottom, staggered, on opposite sides. Set with crown edge up with full bearing at ends and intermediate supports.
 - b. Pre-Fabricated Members:
 - 1) Solid glu-lam, LVL, LSL, or PSL members may be used in place of built-up 2x (38 mm) framing members. Size shall be same as built-up member.
 - 2) Solid LVL or PSL members may be used in place of built-up LVL members. Size shall be same as sum of built-up members.
 - c. Wood shims are not acceptable under ends.
 - d. Do not notch framing members unless specifically shown in Drawing detail.
8. Nailing:
 - a. Stud to plate:

2 by 4 inch nominal	38 by 89 mm	End nail, two 16d OR toe nail,
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		four 8d
2 by 6 inch nominal	38 by 140 mm	End nail, three 16d OR toe nail, four 8d
2 by 8 inch nominal	38 by 184 mm	End nail, four 16d OR toe nail, six 8d
2 by 10 inch nominal	38 by 235 mm	End nail, five 16d OR toe nail, six 8d
1-3/4 by 5-1/2 inch LVL	44 by 140 mm LVL	End nail, three 16d OR toe nail, four 8d
1-3/4 by 7-1/4 inch LVL	44 by 184 mm LVL	End nail, four 16d OR toe nail, six 8d
1-3/4 by 9-1/4 inch LVL	44 by 235 mm LVL	End nail, five 16d OR toe nail, six 8d
1-3/4 by 11-1/4 inch LVL	44 by 286 mm LVL	End nail, six 16d OR toe nail eight 8d

- b. Top plates: Spiked together, 16d, 16 inches (400 mm) on center.
- c. Top plates: Laps, lap members 48 inches (1200 mm) minimum and nail with 16d nails 4 inches (100 mm) on center
- d. Top plates: Intersections, three 16d.
- e. Backing And Blocking: Three 8d, each end.
- f. Corner studs and angles: 16d, 16 inches (400 mm) on center.

E. Roof And Ceiling Framing:

1. Place with crown side up at 16 inches (400 mm) on center unless noted otherwise.
2. Install structural blocking and bridging as necessary and as described in Contract Documents.
3. Special Requirements:
 - a. Roof And Ceiling Joists: Lap joists 4 inches (100 mm) minimum and secure with code approved framing anchors.
 - b. Roof Rafters And Outlookers:
 - 1) Cut level at wall plate and provide at least 2-1/2 inches (64 mm) bearing where applicable. Spike securely to plate with three 10d nails.
 - 2) Attach to trusses or other end supports with framing anchors described in Contract Documents.
 - 3) Provide for bracing at bearing partitions.
4. Installation of Wood Trusses:
 - a. Handle, erect, and brace wood trusses in accordance with TPI / WTCA Booklet BCSI.
 - b. Do not install damaged or broken wood trusses. Replace wood trusses that are broken, damaged, or have had members cut out during course of construction.
 - c. Provide construction bracing for trusses in accordance with TPI DSB-89.
 - d. Provide continuous 2x4 horizontal web bracing as shown on truss shop drawings.
 - 1) Secure bracing to each truss with two 10d or 16d nails.
 - 2) Lap splice bracing by placing bracing members side by side on common web member. Butt splices are not acceptable.

- e. Unless directed or shown otherwise, provide diagonal 2x4 bracing between trusses at each line of horizontal web bracing.
 - 1) This diagonal bracing shall be continuous and extend from junction of web and top chord of one truss to junction of web and bottom chord of different truss.
 - 2) Install bracing at approximately 45 degree angle. Bracing will extend over three trusses minimum or more as determined by height of trusses and 45 degree installation angle.
 - 3) Install brace on side of web opposite horizontal web bracing and nail to each web with two 10d or 16d nails.
 - 4) Install one brace every 20 feet as measured from top of brace to top of next brace.
- 5. Installation of Glue-Laminated Structural Units:
 - a. Install work in accordance with Fabricators instructions and Glue-Lam Erection Safety Practices.
 - b. Adequately support and brace work until tied into building structure to insure against collapse due to wind or other forces.
 - c. Maintain protection of beams until roofing has been installed.
- 6. Installation of Structural Composite Lumber:
 - a. Install temporary horizontal and cross bracing to hold members plumb and in safe condition until permanent bracing is installed.
 - b. Install permanent bracing and related components before application of loads to members.
- 7. Installation of wood Web Joists:
 - a. Handle, erect, and brace plywood web joists in accordance with Manufacturer's instructions.
 - b. Do not install damaged or broken wood web joists.
 - c. Install temporary horizontal and cross bracing to hold members plumb and in safe condition until permanent bracing is installed.
 - d. Cut holes through webs at locations or of sizes shown on Drawings and as recommended by Manufacturer.
- F. Accessory / Equipment Mounting And Gypsum Board Back Blocking (nailers):
 - 1. Furnish and install blocking in wood framing required for hardware, specialties, equipment, accessories, and mechanical and electrical items, etc.
 - 2. Furnish and install back blocking in wood framing required for joints in gypsum wallboard.
 - a. Install back blocking between I-joist framing members with equivalent of Simpson Z2 clips attached with four 10d x 1-1/2 inches (38 mm) nails at each end, two into 'I' joist and two into blocking.
 - b. Attach back blocking at trusses, stick framing, or walls with two 10d nails in each end of each piece of blocking.
- G. Accessory / Equipment Mounting And Standing & Running Trim Blocking (nailers):
 - 1. Furnish and install blocking in wood framing required for hardware, specialties, equipment, accessories, and mechanical and electrical items, etc.
 - 2. Attach blocking not installed with clips with two fasteners in each end of each piece of blocking.

H. Furring Strips

1. On Wood or Steel: Nail or screw as required to secure firmly.

END OF SECTION

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SECTION 06 17 53
SHOP-FABRICATED WOOD TRUSSES

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Shop-fabricated wood trusses for:
 - a. Roof framing.
 - b. Bridging, bracing, and anchorage.
 - 2. Preservative treatment of wood.

1.2 SUBMITTALS

- A. Product Data: Submit truss plate connections, bearing plates, anchor connections, wind uplift connections, and bridging and bracing.
- B. Shop Drawings: Indicate truss sizes, dimensions, spacing of trusses, associated components, uplift connectors, web and chord sizes, plate sizes, fastener descriptions and spacings, loads and truss cambers, and framed openings.
- C. Design Calculations: Indicate design loads, truss reactions, and member forces, deflections, and stresses.
- D. Manufacturer's/Fabricator's Certificate: Certify that products meet or exceed specified requirements.
- E. Delegated Design Submittals: Submit signed and sealed Shop Drawings with design calculations and assumptions for sizes, dimensions, spacing of trusses, associated components, uplift connectors, web and chord sizes, plate sizes, fastener descriptions and spacings, design loads, truss cambers, and framed openings.
- F. Qualifications Statements:
 - 1. Submit qualifications for manufacturer/fabricator, erector, and licensed professional.
 - 2. Submit manufacturer's/fabricator's approval of erector.

1.3 QUALITY ASSURANCE

- A. Perform Work as follows:
 - 1. Lumber Grading: Certified by DOC PS 20.
 - 2. Plywood Grading Agency: Certified by APA/EWA.
 - 3. Lumber: Comply with DOC PS 20.
 - 4. Wood Structural Panels: DOC PS 1 or DOC PS 2.

- B. Truss Design, Fabrication, and Installation: Comply with TPI BSCI, TPI DSB, and TPI 1.
- C. Apply label from agency approved by authority having jurisdiction to identify each preservative-treated and fire-retardant-treated material.
- D. Perform Work according to applicable standards.
- E. Manufacturer/Fabricator: Company specializing in manufacturing products specified in this Section with three years' experience.
- F. Erector: Company specializing in performing Work of this Section with three years' experience.
- G. Licensed Professional: Professional engineer experienced in design of specified Work and licensed in State of Utah.

1.4 DELIVERY, STORAGE, AND HANDLING

- A. Storage:
 - 1. Do not lay trusses flat.
 - 2. Store truss depth in vertical position resting on intermittent bearing pads.

1.5 EXISTING CONDITIONS

- A. Field Measurements:
 - 1. Verify field measurements prior to fabrication.
 - 2. Indicate field measurements on Shop Drawings.

PART 2 PRODUCTS

2.1 PERFORMANCE AND DESIGN CRITERIA

- A. Design Loads: As indicated on Drawings.
- B. Maximum Deflection: As indicated on Drawings.

2.2 MATERIALS

- A. Lumber Grading Rules: Comply with WWP A G-5.
- B. Wood Members:
 - 1. Top Chord:
 - a. Species: Douglas Fir-Larch.
 - b. Grade: #2.
 - c. Size Classification: 2" & Wider.
 - 2. Bottom Chord:
 - a. Species: Douglas Fir-Larch.

- b. Grade: #2.
 - c. Size Classification: 2" & Wider.
 - 3. Webs:
 - a. Species: as recommended by truss manufacturer/fabricator.
 - b. Grade: as recommended by truss manufacturer/fabricator.
 - c. Size Classification: 2" & Wider.
 - 4. Moisture Content:
 - a. Maximum: 19 percent.
 - b. Minimum: 7 percent.
- C. Steel Plate Connectors:
 - 1. Comply with TPI 1, Section 6.
 - 2. Die stamped with integral teeth.
 - 3. Finish: galvanized.
- D. Truss Bridging: Type, size, and spacing as recommended by truss manufacturer/fabricator.

2.3 FABRICATION

- A. Fabricate trusses to achieve specified structural requirements.
- B. Fabricate bottom and top chord extensions as indicated.
- C. Frame special sized openings in web framing as indicated.

2.4 ACCESSORIES

- A. Fasteners and Anchors:
 - 1. Material:
 - a. High Humidity and Treated Wood Locations: ASTM A153, hot dipped galvanized steel.
 - b. Elsewhere: Unfinished steel.
 - 2. Nails and Staples: Comply with ASTM F1667.
 - 3. Anchors Type: As indicated on Drawings.
- B. Bearing Plates:
 - 1. Material: as recommended by truss manufacturer/fabricator.

2.5 SOURCE QUALITY CONTROL

- A. Inspection: Inspect Work performed at manufacturer's/fabricator's facility to verify conformance to Contract Documents.
- B. Certificate of Compliance:
 - 1. If manufacturer/fabricator is approved by authorities having jurisdiction, submit certificate of compliance indicating Work

- performed at manufacturer's/fabricator's facility conforms to Contract Documents.
2. Specified shop tests are not required for Work performed by approved manufacturer/fabricator.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify that supports and openings are ready to receive trusses.

3.2 PREPARATION

- A. Coordinate placement of bearing and support items.

3.3 ERECTION

- A. Make provisions for erection loads and sufficient temporary bracing to maintain plumb and aligned structure until completion of erection and installation of permanent bracing.
- B. Do not field cut or alter structural members without approval of Engineer.
- C. Frame openings between trusses with lumber as specified in Section 06 10 00 - Rough Carpentry
- D. After erection, touch up damaged surfaces with primer consistent with shop coat.

3.4 TOLERANCES

- A. Maximum Variation from Indicated Position:
 1. Framing Members: 1/4 inch.

END OF SECTION

SECTION 06 40 00
ARCHITECTURAL WOODWORK

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Custom casework.
 - a. Plastic-laminate-finished casework.
 - 2. Counter tops and Backsplashes.
 - a. Solid Surface.
 - 3. Cabinet hardware.

1.2 REFERENCE STANDARDS

- A. American National Standards Institute (ANSI):
 - 1. ANSI A135.4 – Basic Hardboard Standard.
 - 2. ANSI A208.1 – Particle Board.
 - 3. ANSI A208.2 – Medium Density Fiberboard.
- B. American Society of Civil Engineers (ASCE):
 - 1. ASCE 7 – Minimum design Loads for Buildings and Other Structures.
- C. ASTM International (ASTM):
 - 1. ASTM A153 - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware.
 - 2. ASTM B695 - Standard Specification for Coatings of Zinc Mechanically Deposited on Iron and Steel.
 - 3. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials.
 - 4. ASTM F1667 - Standard Specification for Driven Fasteners: Nails, Spikes, and Staples.
- D. Architectural Woodwork Standards (AWS):
 - 1. AWS Section 5 – Finishing.
 - 2. AWS Section 6 – Millwork.
 - 3. AWS Section 7 – Stairwork and Rails.
 - 4. AWS Section 10 – Casework.
 - 5. AWS Section 11 – Countertops.
- E. Builders Hardware Manufacturers Association (BHMA):
 - 1. BHMA A156.9 – Cabinet Hardware.
- F. Hardwood Plywood and Veneer Association (HPVA):
 - 1. HPVA HP-1 – American National Standard for Hardwood and Decorative Plywood.

- G. National Electrical Manufacturers Association (NEMA):
 - 1. NEMA LD 3 – High-Pressure Decorative Laminates.
- H. National Institute of Standards and Technology (NIST):
 - 1. PS 20 - American Softwood Lumber Standard.
- I. The Engineered Wood Association, formerly American Plywood Association (APA/EWA):
 - 1. PS 1 – Structural Plywood.

1.3 SUBMITTALS

- A. Delegated Design Submittals: Required.
- B. Source Quality-Control Submittals: Not required.
- C. Field Quality-Control Submittals: **Required.**

1.4 MOCKUPS

PART 2 PRODUCTS

2.1 CUSTOM CASEWORK

- A. Plastic-Laminate-Finished Custom Casework:
 - 1. **Frameless** construction.
 - 2. AWS Section 10
 - 3. Premium grade.
 - 4. Exterior and Interior Exposed Surfaces: High-pressure decorative laminate over particleboard.
 - 5. Semi-Exposed Surfaces: High-pressure decorative laminate over particleboard.
- B. Casework Construction Details:
 - 1. Drawer Side Joinery: Multiple dovetailed.
 - 2. Drawer and Door Edge: Plastic Laminate.
 - 3. Toe Base Finish: Rubber Base.
 - 4. Grain Direction: Vertical.
- C. Solid Surface Tops, Backsplashes and Window Stools:
 - 1. Architect shall select color from manufacturer's full color range including stone look series.

2.2 CASEWORK MATERIALS

- A. Softwood Lumber: **[DOC PS 20;] [Douglas fir] [ponderosa pine] [sugar**

- B. Decorative Overlay Plywood: APA/EWA PS 1 and HPVA HP-1; particleboard.

2.3 FABRICATION

- A. Fabricate interior finish carpentry to AWS Section 6 premium grade.
- B. Fabricate casework to AWS Section 10 premium grade.
- C. Fabricate solid surface counter tops to AWS Section 11 premium grade.
- D. Shop-assemble casework for delivery to Site in units easily handled and to permit passage through building openings.
- E. Cap exposed high-pressure decorative laminate finish edges with material of same finish and pattern.
- F. Door and Drawer Fronts: 3/4 inch thick plywood with plastic laminate.
- G. Apply high-pressure decorative laminate finish in full, uninterrupted sheets consistent with manufactured sizes. Fit corners and joints hairline; secure with concealed fasteners.
- H. Apply wood laminate by grain matching adjacent sheets to book.
- I. Apply laminate backing sheet to reverse side of plastic laminate-finished surfaces where required by AWS for specified grade.
- J. Fabricate cabinets and counter tops with cutouts for plumbing fixtures inserts appliances outlet boxes fixtures and fittings. Verify locations of cutouts from on-Site dimensions. Prime paint and seal cut edges.

2.4 ACCESSORIES

- A. Grommets: Plastic material for cutouts.
- B. Hardware: European.
- C. Shelf Rests: In-line bored holes top and bottom of opening with four support pins for each shelf.
- D. Drawer and Door Pulls:
 - 1. Extruded aluminum 4" pull, full width of drawer, satin finish.
- E. Catches: **Magnetic**
- F. Drawer Slides: Self-closing, accuride full extension. Accuride full extension.

PART 3 EXECUTION

3.1 INSTALLATION

- A. Install interior finish carpentry according to AWS Section 6 premium grade.
- B. Install counter tops according to AWS Section 11 premium grade.
- C. Set and secure casework, interior finish carpentry, and counter tops in place; rigid, plumb, and level.
- D. Use fixture attachments in concealed locations for wall-mounted components.
- E. Use concealed joint fasteners to align and secure adjoining cabinet units, counter tops, and woodwork.
- F. Secure woodwork cabinet and counter bases to floor using appropriate angles and anchorages.

END OF SECTION

SECTION 07 11 13
BITUMINOUS DAMPPROOFING

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Cold applied, emulsified-asphalt dampproofing.

1.2 REFERENCE STANDARDS

- A. A. ASTM International (ASTM):
 - 1. ASTM D1227 – Standard Specification for Emulsified Asphalt Used as a Protective Coating for Roofing.

1.3 AMBIENT CONDITIONS

- A. Do not apply dampproofing when air and surface temperatures are below 35 degrees F.
- B. Do not apply to frozen concrete.
- C. Do not apply when rain is imminent.

PART 2 PRODUCTS

2.1 DAMPPROOFING

- A. Manufacturers: Subject to compliance with requirements. Manufacturers offering products that may be incorporated into Work include, but are not limited to:
 - 1. ChemMasters Corp.
 - 2. Degussa Building Systems; Sonneborn Brand Products.
 - 3. Gardner Gibson, Inc.
 - 4. Henry Company.
 - 5. Karnak Corporation.
 - 6. Koppers Inc.
 - 7. Malarkey Roofing Products.
 - 8. Meadows, W.R., Inc.
 - 9. Tamms Industries, Inc.
- B. Emulsified Asphalt: ASTM D1227, Type III, Class 1, zero VOC content.

2.2 MISCELLANEOUS MATERIALS

- A. Emulsified-Asphalt Primer: ASTM D1227, Type III, Class 1, except diluted with water as recommended by manufacturer.

PART 3 EXECUTION

3.1 PREPARATION

- A. Clean substrates of projections and substances detrimental to work, fill voids, seal joints, and apply bond breakers if any, as recommended by material manufacturer.
- B. Ventilation: Provide adequate ventilation during application of dampproofing in enclosed spaces. Maintain ventilation until dampproofing has cured.

3.2 APPLICATION

- A. Comply with manufacturer's written recommendations unless more stringent requirements are indicated or required by Project conditions to ensure satisfactory performance of dampproofing and protection course.
- B. Apply dampproofing to footings and foundation walls where opposite side of wall faces building interior. Apply from finished grade line to top of footing, extend over top of footing, and down minimum of 6 inches over outside face of footing.
- C. On concrete foundations apply dampproofing using one of following methods:
 - 1. Apply 2 brush or spray coats at not less than 1.5 gallon per 100 square foot for first coat and 1 gallon per 100 square foot for second coat.
 - 2. Apply 1 fibered brush or spray coat at not less than 3 gallons per 100 square foot.
 - 3. Apply 1 trowel coat at not less than 4 gallons per 100 square foot.
- D. Backfill using care and caution to avoid damage to waterproofing system.

3.3 CLEANING

- A. Remove dampproofing that is visible on foundation walls after final backfilling. Do not dampproof above final grade.

3.4 PROTECTION

- A. Protect waterproofing system from damage. Make repairs as necessary and in accordance with manufacturer's recommendations.

END OF SECTION

SECTION 07 3113
ASPHALT SHINGLES

PART 1 - GENERAL

1.1 SUMMARY

- A. Includes But Not Limited To:
 - 1. Furnish and install roofing system as described in Contract Documents.
- B. Products Installed But Not Furnished Under This Section:
 - 1. Roof flashing.

1.2 REFERENCES

- A. Reference Standards:
 - 1. ASTM International:
 - a. ASTM D226/D226M-09, 'Standard Specification for Asphalt-Saturated Organic Felt Used in Roofing and Waterproofing.'
 - b. ASTM D412 - 06ae2, 'Standard Test Methods for Vulcanized Rubber and Thermoplastic Elastomers—Tension.'
 - c. ASTM D1970-09, 'Standard Specification for Self-Adhering Polymer Modified Bituminous Sheet Materials Used as Steep Roofing Underlayment for Ice Dam Protection.'
 - d. ASTM D3018/D3018M-09, 'Standard Specification for Class A Asphalt Shingles Surfaced with Mineral Granules.'
 - e. ASTM D3462/D3462M-09a, 'Standard Specification for Asphalt Shingles Made from Glass Felt and Surfaced with Mineral Granules.'
 - f. ASTM D4869-05e1, 'Standard Specification for Asphalt-Saturated Organic Felt Underlayment Used in Steep Slope Roofing.'
 - 2. International Code Council (ICC):
 - a. ICC / ESR-1322 (Issued August 1, 2008), 'Weather Watch, Leak Barrier and Stormguard Leak Barrier.'
 - b. ICC / ESR-1492 (Reissued June 1, 2008), 'Certainteed Winterguard Series Roof Underlayment: Winterguard Granular, Winterguard HT and Winterguard Sand.'
 - 3. United Laboratories:
 - a. UL 790, 'Standard Test Methods for Fire Tests of Roof Coverings.'

1.3 SUBMITTALS

- A. Action Submittals:
 - 1. Product Data:
 - a. Color and style selection.

2. Samples:
 - a. Full size shingle.
- B. Informational Submittals:
 1. Manufacturer Instructions:
 - a. Manufacturer's installation instructions and details for installation of secondary underlayment at penetrations, dormers, eaves, rakes, etc, to fit environmental conditions at Project.
- C. Closeout Submittals:
 1. Include following in Operations And Maintenance Manual
 - a. Warranty Documentation:
 - 1) Include copy of final, executed warranties.
 - b. Record Documentation:
 - 1) Manufacturers Documentation:
 - a) Manufacturer's literature.
 - b) Color selections.
 - 2) Roofing Inspection Documentation:
 - a) Include copy of roof inspection report.
- D. Maintenance Material Submittals:
 1. Extra Stock Materials:
 - a. Provide one square minimum of bundled shingles.

1.4 QUALITY ASSURANCE

- A. Regulatory Agency Sustainability Approvals:
 1. Shingles:
 - 1) CertainTeed:
 - a) Standard: Landmark Plus: NOA No.: 06-0914.05, Expiration Date: 02/28/12.
 - b) Hip And Ridge Shingles: Shadow Ridge. NOA No.: 07 0907.09, Expiration Date: 11/15/12.
 - 2) GAF-Elk:
 - a) Standard: Timberline Prestique 40: NOA No.: 09-0922.12, Expiration Date: 04/22/13.
 - b) Hip And Ridge Shingles: TimberTex: NOA No.: 09-0604.15, Expiration Date: 09/07/11.
 2. Underlayments:
 - 1) CertainTeed:
 - a) WinterGuard HT, WinterGuard Granular, and WinterGuard Sand: NOA No.: 08-0807.18, Expiration Date 11/24/14.
 - 2) GAF-Elk:
 - a) Weatherwatch and StormGuard: NOA No.: 07-1010.19, Expiration Date: 07/05/12.
 - 3) CertainTeed:
 - a) WinterGuard HT, WinterGuard Granular, and WinterGuard Sand Roof Underlayments: FL11288-R4. Revision 5: 03/05/2010.
 - 4) GAF-Elk:
 - a) Weatherwatch and StormGuard Underlayments: Approval #

1.5 FIELD CONDITIONS

A. Ambient Conditions:

1. Do not install shingles at lower temperatures than allowed by Manufacturer for application.

1.6 WARRANTY

A. Warranty:

1. Shingle Manufacturer's special 20-year minimum labor and material warranty and 10 year history on product manufacturing.
 - a. Roofing system will resist blow-offs in winds up to 110 mph for 5 years when installed as specified below.
 - b. Contractor minimum workmanship warranty 5 years.
 - c. Contractor must have 5 years experience as a roofer.
 - d. Contractor must have 5 years experience with specified product.
 - e. Contractor must be a manufacture certified installer of this roofing system.
 - f. Contractor must document continuing education for the foreman that will daily oversee the work. (A minimum of 12 hours per year)
 - g. Superintendent and foreman must be able to clearly communicate with building owner and architect.
 - h. Contractor must provide a 24 hour phone number to project manager.
 - i. Contractor must be licensed in Arizona and carry Liability Insurance as required by Utah State Law.

PART 2 - PRODUCTS

2.1 SYSTEM

A. Components:

1. Shingles And Underlayment:
 - a. Fiberglass mat shingles meeting or exceeding requirements of ASTM D3018/D3018M, Type I and UL Class A.
 - 1) Color as selected by Architect from Manufacturer's full color line.
 - b. Products And Manufacturers.
 - 1) CertainTeed Roofing Products, Valley Forge, PA.
 - a) Shingles:
 - (1) Standard: Landmark Plus / Architect 80.
 - b) Underlayment Under Shingles meeting the requirements of ASTM D1970: WinterGuard Granular, WinterGuard Sand, or WinterGuard High Tack/High Temperature.
 - 2) GAF Materials Corp, Wayne, NJ.
 - a) Shingles:
 - (1) Standard: Timberline Prestique 40.
 - (2) Underlayment Under Shingles:

- b) Underlayment Under Shingles meeting requirements of ASTM D1970: Weatherwatch or StormGuard. High Temperature.

2.2 ACCESSORIES

A. Fasteners:

- 1. Underlayment:
 - a. Corrosion resistant roofing nails with **one inch (25 mm)** diameter head and **3/4 inch (19 mm)** long shank minimum.
 - 1) If shingles applied as underlayment is laid, use metal or plastic head Simplex nails or **one inch (25 mm)** long shingle roofing nails.
 - 2) If shingles not applied as underlayment is laid, use plastic head only.
- 2. Shingles:
 - a. Eleven gauge hot-dipped galvanized roofing nails with **3/8 inch (9.5 mm)** nominal diameter head and of sufficient length to penetrate through roof sheathing **1/4 inch (6 mm)** or **3/4 inch (19 mm)** minimum into solid wood decking.
 - b. Coil type non-corrosive gun-driven nails of same size as hand-driven nails are acceptable.
 - c. Staples not permitted.

B. Elastomeric Roofing Sealant: Any manufacturer's product meeting requirements of ASTM D412 and acceptable to Shingle Manufacturer.

- 1. Flexseal Commercial Grade Roofing Sealant by GAF.
- 2. Flintbond SBS Modified Bitumen Caulk by CertainTeed.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verification Of Conditions:

- 1. Examine deck to determine if it is satisfactory for installation of roofing system. Conditions include, but are not limited to, moisture on deck, protruding deck fasteners, specified gaps between sheathing, and other items affecting issuance of roofing warranty.
- 2. Report unsatisfactory conditions in writing to Architect.

3.2 PREPARATION

A. Protection Of In-Place Conditions:

- 1. Install only as much roofing as can be made weathertight each day, including flashing and detailwork.

B. Surface Preparation:

- 1. Clean roof sheathing, including removal of dirt and debris, before installation of underlayment.

3.3 INSTALLATION

A. General:

1. Schedule and execute work without exposing interior building areas to effects of inclement weather. Protect existing building and its contents against all risks.

B. Underlayment:

1. General:

- a. Do not use permanent underlayment installation as temporary roof. If temporary roof is used, remove completely before installation of permanent underlayment.
 - b. Follow Roofing Manufacturer's recommendations for installation of primary and secondary underlayment, particularly at eaves, rakes, and penetrations, unless specified installation procedures and Drawing details are more stringent.
 - c. Weather conditions:
 - 1) Do not leave underlayment exposed to weather more than 14 days after beginning of underlayment installation.
 - 2) If underlayment is exposed for more than 14 days after beginning of underlayment installation, treat as temporary roof under first paragraph above.
 - 3) If moisture is deposited on exposed underlayment, obtain written approval from Manufacturer's Representative before installing shingles.
 - d. Install valley underlayment, and valley metal. Refer to valley details.
- ##### 2. Secondary:
- a. Under Shingles:
 - 1) Lap end joints **6 inches (150 mm)** and side joints **3 inch (76 mm)** minimum.
 - 2) Apply continuous **12 inches (300 mm)** wide strip at edge of eaves and rakes before installing drip edge.
 - 3) Apply two **36 inch (900 mm)** wide courses along eaves and rakes with first course overlapping drip edge and **12 inches (300 mm)** wide previously applied strip.
 3. Valleys:
 - a. Refer to valley details.
 - b. Install **12 inches (300 mm)** wide strips of secondary underlayment lapping nailed edge of formed valley metal **3 inches (75 mm)**.
 4. Primary:
 - a. Apply **36 inch (900 mm)** wide courses over complete deck, including areas covered with secondary underlayment unless specified otherwise.
 - 1) Maintain end laps of **8 inches (200 mm)** and side laps of **19 inches (480 mm)**.
 - 2) Stop primary underlayment between **3 and 6 inches (75 and 150 mm)** of inside edge of strip of secondary underlayment installed over edge of formed valley metal.
 - b. Nailing:
 - 1) Secure primary underlayment to deck with roofing nails **one inch (25**

- mm) if from edge and 18 inches (450 mm) on center.
- 2) Do not nail through metal flashing, except drip edge, when installing primary underlayment.
- 3) Nails must be driven properly. Improperly driven fasteners such as over-driving, under-driving and nails driven at an angle are not permitted.

3.4 INSTALLATION

A. Shingles (Standard Shingle Installation):

1. Before installing shingles, inspect underlayment and metal installation with Architect and Owner. Correct improperly installed and damaged material before beginning shingle installation.
2. Starter shingles:
 - a. Cut starter strip shingles on slotted end to 9 inch (230 mm) width.
 - b. Nail to eave granule side up in continuous mastic bed with slot end down-slope and edge overhanging eave 3/8 inch (9 mm) so sealing tabs are at edge of eave.
 - c. Install shingles with maximum exposure recommended by Manufacturer.
 - d. Lay first course directly over starter strip with ends flush with starter strip at eaves and so joints in starter strip are offset 4 inches (100 mm) minimum from joints in first course.
3. Insure alignment by snapping chalk line at least each fifth course to control horizontal alignment.
4. Lay shingles so end joints are offset in accordance with Manufacturer's installation procedures.
5. Nailing:
 - a. Manufacturer's recommender number of nails in each shingle.
 - b. Place in relation to top edge of shingle as required by Shingle Manufacturer.
 - c. Place nails one inch (25 mm) from each end of shingle and remainder evenly spaced between.
 - d. Should any nail fail to penetrate sheathing by 1/4 inch (6 mm) minimum, drive additional nail nearby.
 - e. Adjust nail gun pressure for nailing flush and tight to deck without cutting shingle surface.
 - f. Drive nails perpendicular to shingle surface so nail head is flat against shingle.
 - g. If ambient temperature or exposure to sun will not be sufficient to secure adhesive strip to underlying shingle within one week, hand seal shingles with elastomeric roofing sealant.
6. Over valley metal:
 - a. Do not drive nails through valley metal.
 - b. Run chalk line so valley metal will be exposed 6 inches (150 mm) wide at top and diverge 3/32 inch (2.5 mm) per ft (300 mm) down to eaves.
 - c. Neatly trim shingles to this line.
 - d. Seal trimmed shingle edges to valley metal with continuous bead of elastomeric roofing sealant applied within one inch (25 mm) of shingle edge.
7. Hip and ridge shingles:
 - a. Install specified ridge vent style shingles in accordance with Shingle Manufacturer's instructions.
 - b. Run ridge shingles as directed by Architect.
8. Vent pipe sleeve flange:

- a. Vent pipe sleeve flange minimum width **6 inches (150 mm)**.
 - b. Fit shingles under lower edge and over sides and upper edge.
 - c. Set vent pipe flange in elastomeric roofing sealant.
 - d. Embed shingles in elastomeric roofing sealant where they overlap flange.
 - e. Apply bead of elastomeric roofing sealant at junction of vent pipe and vent flashing.
9. Run courses true to line with end joints properly placed. Leave shingles flat without wave and properly placed.

3.5 CLEANING

A. General:

1. All tools and unused materials must be collected at end of each workday and stored properly off finished roof surface and protected from exposure to elements.
2. Leave metals clean and free of defects, stains, and damaged finish.
 - a. Replace fascia metal that is scratched through finish to base metal.
3. Properly clean finished roof surface after completion.
4. Clean shingles and building of soiling caused by this installation.
5. Clean and restore all damaged surfaces to their original condition.

B. Waste Management:

1. Disposal:
 - a. All work areas are to be kept clean, clear and free of debris at all times.
 - b. Do not allow trash, waste, or debris to collect on roof. These items shall be removed from roof on a daily basis.
 - c. Remove debris resulting from work of this Section from roof and site. Dispose of or recycle all trash and excess material in manner conforming to current EPA regulations and local laws.

END OF SECTION

SECTION 07 9213
ELASTOMERIC JOINT SEALANTS

PART 1 - GENERAL

1.1 SUMMARY

- A. Includes But Not Limited To:
 - 1. Furnish and install sealants not specified to be furnished and installed under other Sections.
 - 2. Quality of sealants to be used on Project not specified elsewhere, including submittal, material, and installation requirements.
- B. Related Requirements:
 - 1. Furnishing and installing of sealants is specified in Sections specifying work to receive new sealants.
 - 2. Section 07: Sealants for 3/8" stucco..
- C. Products Furnished But not Installed Under This Section:
 - 1. Interior Ceramic Tile Joint Sealants:
- D. Related Requirements:
 - 1. Section 09 3013: 'Ceramic Tiling'.

1.2 REFERENCES

- A. Association Publications:
 - 1. American Architectural Manufacturers Association (AAMA):
 - a. 'Voluntary Specifications and Test Methods for Sealants'.
 - 2. ASM International:
 - a. 'Adhesives and Sealants', Volume 3, ASM International Handbook Committee, (May 1999).
 - b. Committee C24 on Building Seals and Sealants for various Specifications, Guides, Test Methods, and Practices related to sealant specifying and application.
 - c. Committee E6 on Building Performance for various Specifications, Guides, Test Methods, and Practices related to sealant use with air barriers, vapor retarders, and exterior enclosure systems and materials.
 - 3. The Adhesive and Sealing Council, Inc. (ASC) / Sealant, Waterproofing & Restoration Institute (SWR Institute):
 - a. 'Sealants: The Professional's Guide'.
 - b. 'Joint Sealants, Whole Building Design Guide'.
- B. Definitions:

1. Adhere: To cause two surfaces to be held together by adhesion.
2. Adhesive: An adhesive, as defined by The American Society for Testing and Materials (ASTM), is 'a substance capable of holding materials together by surface attachment'.
3. Caulk: Caulks have variety of definitions but are generally recognized as materials used in applications where only minor elastomeric properties are needed.
4. Elastomer: Rubbery material which returns to approximately its original dimensions in short time after relatively large amount of deformation.
5. Flow: Movement of adhesive during bonding process before adhesive is set.
6. Joint: Location at which two substrates are held together with layer of adhesive.
7. Primer: Coating applied to surface, prior to application of an adhesive, to improve performance of the bond.
8. Sealant. Sealants are generally used in applications where elastic properties are needed while adhesives are generally used in applications where bonding strength and rigidity are needed. With technology advancements both sealants and adhesives can be used interchangeably depending on applications performance requirements.
9. Sealant Types and Classifications:
 - a. ASTM Specifications:
 - 1) Type:
 - a) Type S: Single-component sealant.
 - b) Type M: Multi-component sealant.
 - 2) Grade:
 - a) Grade P: Pourable or self-leveling sealant used for horizontal traffic joints.
 - b) Grade NS: Non-sag or gunnable sealant used for vertical and non-traffic joints.
 - 3) Classes: Represent movement capability in percent of joint width.
 - a) Class 100/50: Sealant that, when tested for adhesion or cohesion under cyclic movement shall withstand of at least 100 percent increase and decrease of at least 50 percent of joint width as measured at time of application.
 - b) Class 50: Sealant that, when tested for adhesion or cohesion under cyclic movement shall withstand increase and decrease of at least 50 percent of joint width as measured at time of application.
 - c) Class 25: Sealant that, when tested for adhesion or cohesion under cyclic movement shall withstand increase and decrease of at least 25 percent of joint width as measured at time of application.
 - d) Class 12: Sealant that, when tested for adhesion and cohesion under cyclic movement shall withstand increase and decrease of at least 12 percent of joint width as measured at time of application.
 - 4) Use:
 - a) T (Traffic): Sealant designed for use in joints in pedestrian and vehicular traffic areas such as walkways, plazas, decks and parking garages.
 - b) NT (Non-Traffic): Sealant designed for use in joints in non-traffic areas.

- c) I (Immersion): Sealant that meets bond requirements when tested by immersion (Immersion rated sealant applications require primer).
 - d) M (Mortar): Sealant that meets bond requirements when tested on mortar specimens.
 - e) G (Glass): Sealant that meets bond requirements when tested on glass specimens.
 - f) A (Aluminum): Sealant that meets bond requirements when tested on aluminum specimens.
 - g) O (Other): Sealant that meets bond requirements when tested on substrates other than standard substrates, being glass, aluminum, mortar.
- b. Federal Specifications:
- 1) Type:
 - a) Type I: Self-leveling, pour grade.
 - (1) Compound which has sufficient flow to give smooth level surface when applied in horizontal joint at 40 deg F (4.4 deg C).
 - b) Type II: Non-sag, gun grade
 - (1) Compound which permits application in joints on vertical surfaces without sagging (slumping) at temperatures 40 deg F (4.4 deg C) and 122 deg F (50 deg C).
 - c) Type NS: Non-sag, gun grade.
 - (1) Non-sag shall be a compound which permits application in joints on vertical surfaces without sagging (slumping) at temperatures between -20 deg F and 122 deg F (- 29 and 50 deg C).
 - 2) Class:
 - a) Class A: Compounds resistant to 50 percent total joint movement (includes Type I and Type II).
 - (1) Capable of resisting compression-extension cycling of plus and minus 25 percent of nominal half inch width.
 - b) Class B: Compounds resistant to 25 percent total joint movement (includes Type I and Type II).
 - (1) Capable of resisting compression-extension cycling of plus and minus 12 1/2 percent of nominal half inch width.
10. Shelf Life: Period of time, usually beginning with date of manufacture, during which stored adhesive will remain effective or useful.
11. Silicone: Any member of family of polymeric products whose molecular backbone is made up of alternating silicon and oxygen atoms and which has pendant hydrocarbon groups attached to silicon atoms. Used primarily as a sealant. Offers excellent resistance to water and large variations in temperature (minus 100 deg F to + 600 deg F) (minus 73.3 deg C to + 316 deg C).
12. Stability: Ability of material to remain unchanged.
13. Storage Life: Period of time during which packaged adhesive can be stored under specified temperature conditions and remain suitable for use.
14. Substrate: Material upon surface of which an adhesive-containing substance is spread for any purpose, such as bonding or coating.
15. Surface Preparation: Physical and /or chemical preparation of substrate to render it suitable for adhesive joining. Same as substrate preparation or pre-bond preparation.

16. Toxicity: Material shall have no adverse effect on health of personnel when used for its intended purpose.

C. Reference Standards:

1. ASTM International:

- a. ASTM C639-01(2011), 'Standard Test Method for Rheological (Flow) Properties of Elastomeric Sealants'.
- b. ASTM C661-06(2011), 'Standard Test Method for Indentation Hardness of Elastomeric-Type Sealants by Means of a Durometer'.
- c. ASTM C679-03(2009)e1, 'Standard Test Method for Tack-Free Time of Elastomeric Sealants'.
- d. ASTM C719-93(2010), 'Standard Test Method for Adhesion and Cohesion of Elastomeric Joint Sealants Under Cyclic Movement (Hockman Cycle)'.
- e. ASTM C794-10, 'Standard Test Method for Adhesion-in-Peel of Elastomeric Joint Sealants'.
- f. ASTM C920-11, 'Standard Specification for Elastomeric Joint Sealants'.
- g. ASTM C1135-00(2011), 'Standard Test Method for Determining Tensile Adhesion Properties of Structural Sealants'.
- h. ASTM C1184-05, 'Standard Specification for Structural Silicone Sealants'.
- i. ASTM C1193-09, 'Standard Guide for Use of Joint Sealants'.
- j. ASTM C1248-08, 'Standard Test Method for Staining of Porous Substrate by Joint Sealants'.
- k. ASTM C1330-02(2007), 'Standard Specification for Cylindrical Sealant Backing for Use with Cold Liquid Applied Sealants'.
- l. ASTM C1481-11 'Standard Guide for Use of Joint Sealants with Exterior Insulation & Finish Systems (EIFS)'.
- m. ASTM D412-06ae2, 'Standard Test Methods for Vulcanized Rubber and Thermoplastic Elastomers-Tension'.
- n. ASTM D2202-00(2010), 'Standard Test Method for Slump of Sealants'.
- o. ASTM D2240-05(2010), 'Standard Test Method for Rubber Property- Durometer Hardness'.

2. Federal Specifications:

- a. Federal Specification TT-S-001543A (CON-NBS), 'Sealing Compound: Silicone Rubber Base (for Calking, Sealing & Glazing in Buildings and Other Structures)' (9 Jun 1971).
- b. TT-S-00230C (CON-NBS), 'Sealing compound: Elastomeric Type, Single Component (For Calking, Sealing, And Glazing In Buildings And Other Structures.' (2 Feb 1970).

3. Government Services Administration (GSA), Commercial Item Descriptions (CID):

- a. GSA CID A-A-272A, 'Sealing Compound: Silicone Rubber Base (For Caulking, Sealing, and Glazing in Buildings and Other Structures)'.
- b. GSA CID A-A-1556, 'Sealing Compound Elastomeric Type, Single Component (For

1.3 ADMINISTRATIVE REQUIREMENTS

A. Scheduling:

1. Schedule work so waterproofing, water repellents and preservative finishes are installed after sealants, unless sealant manufacturer approves otherwise in writing.
2. Ensure sealants are cured before covering with other materials.

1.4 QUALITY ASSURANCE

A. Qualifications:

1. Manufacturer: Company specializing in manufacturing products specified in this section with minimum ten (10) years documented experience.
2. Applicator Qualifications:
 - a. Company specializing in performing work of this section.
 - b. Provide if requested, reference of projects with minimum three (3) years documented experience, minimum three (3) successfully completed projects of similar scope and complexity, and approved by manufacturer.
 - c. Designate one (1) individual as project foreman who shall be on site at all times during installation.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Delivery and Acceptance Requirements:

1. Deliver and keep in original containers until ready for use.
2. Inspect for damage or deteriorated materials.

B. Storage and Handling Requirements:

1. Handle, store, and apply materials in compliance with applicable regulations and material safety data sheets (MSDS).
2. Handle to prevent inclusion of foreign matter, damage by water, or breakage.
3. Store in a cool dry location, but never under 40 deg F (4 deg C) or subjected to sustained temperatures exceeding 90 deg F (32 deg C) or as per Manufacturer's written recommendations.
4. Do use sealants that have exceeded shelf life of product.

1.6 FIELD CONDITIONS

A. Ambient Conditions:

1. Do not install sealant during inclement weather or when such conditions are expected. Allow wet surfaces to dry.
2. Follow Manufacturer's temperature recommendations for installing sealants.

1.7 WARRANTY

A. Manufacturer Warranty:

1. Signed warranties against adhesive and cohesive failure of sealant and against infiltration of water and air through sealed joint for period of three (3) years from date of Substantial Completion.

- a. Manufacturer's standard warranty covering sealant materials.
- b. Applicator's standard warranty covering workmanship.

PART 2 - PRODUCTS

2.1 SYSTEMS

A. Manufacturers:

1. Manufacturer Contact List:

- a. Dow Corning Corp., Midland, MI www.dowcorning.com.
- b. Franklin International, Inc. Columbus, OH www.titebond.com.
- c. GE Sealants & Adhesives (see Momentive Performance Materials Inc.).
- d. Laticrete International Inc., Bethany, CT www.laticrete.com.
- e. Momentive Performance Materials Inc. (formally GE Sealants & Adhesives), Huntersville, NC www.siliconeforbuilding.com.
- f. Sherwin-Williams, Cleveland, OH www.sherwin-williams.com.
- g. Sika Corporation, Lyndhurst, NJ www.sikaconstruction.com or Sika Canada Inc, Pointe Claire, QC www.sika.ca.
- h. Tremco, Beachwood, OH www.tremcosealants.com or Tremco Ltd, Toronto, ON (800) 363-3213.

B. Materials:

1. Design Criteria:

- a. Compliance: Meet or exceed requirements of these standards:
 - 1) ASTM C920: Elastomeric joint sealant performance standard.
 - 2) ASTM C639 or ASTM D2202: Flow (sag or slump).
 - 3) ASTM C661 or ASTM D2240: Durometer hardness (shore A).
 - 4) ASTM C679 or ASTM C794: Tack free time.
 - 5) ASTM C719: Joint movement capability.
 - 6) ASTM C1135 or ASTM D412: Tensile adhesion strength.
 - 7) ASTM C1184: Structural silicone sealants.
 - 8) ASTM C1248: Staining.
 - 9) Federal Specification TT-S-001543A.
 - 10) Federal Specification TT-S-00230C.
 - 11) GSA CID A-A-272A.
 - 12) GSA CID A-A-1556.
- b. Comply with Manufacturer's ambient condition requirements.
- c. Sealants must meet Manufacturer's shelf-life requirements.
- d. Sealants must adhere to and be compatible with specified substrates.
- e. Sealants shall be stable when exposed to UV, joint movements, and particular environment prevailing at project location.
- f. Primers (Concrete, stone, masonry, and other nonporous surfaces typically do not require a primer. Aluminum and other nonporous surfaces except glass require use of a primer. Installer Option to use Adhesion Test to determine if primer is required or use primer called out in related sections):
 - 1) Adhesion Test:

- a) Apply silicone sealant to small area and perform adhesion test to determine if primer is required to achieve adequate adhesion. If necessary, apply primer at rate and in accordance with Manufacturer's instructions. See 'Field Quality Control' in Part 3 of this specification for Adhesive Test.
 - 2) If Primer required, shall not stain and shall be compatible with substrates.
 - 3) Allow primer to dry before applying sealant.
- 2. Sealants At Exterior Building Elements:
 - a. Description:
 - 1) Weathersealing expansion, contraction, perimeter, and other movement joints which may include all or part of the following for project:
 - a) Aluminum entrance perimeters and thresholds.
 - b) Columns.
 - c) Connections.
 - d) Curtainwalls.
 - e) Door frames.
 - f) EIFS to metal joints.
 - g) Joints and cracks around windows.
 - h) Louvers.
 - i) Masonry.
 - j) Parapet caps.
 - k) Wall penetrations.
 - l) Other joints necessary to seal off building from outside air and moisture.
 - b. Design Criteria:
 - 1) Meet following standards for Sealant:
 - a) ASTM C920: Type S Grade NS, Class 50 Use A, G, M.
 - c. Approved Products:
 - 1) Dow Corning:
 - a) Primer: 1200 Prime Coat.
 - b) Sealant: 791 Silicone Weatherproofing Sealant.
 - 2) GE Sealants & Adhesives:
 - a) Primer: SS4044 Primer.
 - b) Sealant: Silpruf SCS 2000 Silicone Sealant.
 - 3) Tremco:
 - a) Primer:
 - (1) Metal surface: No. 20 primer.
 - (2) Porous surfaces: No. 23 primer.
 - b) Sealant: Spectrum 1 Silicone Sealant.
- 3. Sealants At Exterior Sheet Metal And Miscellaneous:
 - a. Description:
 - 1) Weathersealing expansion, contraction, perimeter, and other movement joints which may include all or part of the following for project:
 - a) Flashings.
 - b) Gutters.
 - c) Penetrations in soffits and fascias.
 - d) Roof vents and flues.

- b. Design Criteria:
 - 1) Meet following standards for Sealant:
 - a) ASTM C920: Type S Grade NS, Class 25 (min) Use A.
- c. Approved Products.
 - 1) Dow Corning: 790 Silicone Building Sealant.
 - 2) Tremco: Tremsil 600 Silicone Sealant.
- 4. Sealants At Exterior Concrete:
 - a. Expansion Joints:
 - 1) Design Criteria:
 - a) Meet following standards for Sealant:
 - (1) ASTM C920: Type S Grade NS, Class 50 Use A, G, M, O.
 - 2) Weathersealing required at expansion for following areas:
 - a) Between entryway slabs and building foundations.
 - b) Between sidewalks and building foundations.
 - c) Within curbs and gutters.
 - d) Within flat drainage structures and at joints between flat drainage structures and other concrete elements.
 - 3) Weathersealing NOT required at expansion joints for following areas:
 - a) Within aprons and where apron abuts building foundation and sidewalks.
 - b) Within mow strips and where mow strip abuts building foundation and sidewalks.
 - c) Within sidewalks.
 - 4) Approved Products:
 - a) Dow Corning:
 - (1) Primer: 1200 Prime Coat.
 - (2) Sealant: 790 Silicone Building Sealant.
 - b) GE Sealants & Adhesives:
 - (1) Primer: SS4044 Primer.
 - (2) Sealant: Silpruf SCS 2000 Silicone Sealant.
 - b. VOC Content of Interior Sealants:
 - 1) Provide sealants and sealant primers for use inside the weatherproofing system that comply with the following limits for VOC content when calculated according to 40 CFR 59, Part 59, Subpart D (EPA Method 24):
 - a) Architectural Sealants: 250 g/L.
 - b) Sealant Primers for Nonporous Substrates: 250 g/L.
 - c) Sealant Primers for Porous Substrates: 775 g/L.
- c. Non-Paintable Sealant (Installer Option A):
 - 1) Category Four Approved Product. See Section 01 6200 for definitions of Categories:
 - a) Dow Corning: Tub, Tile, And Ceramic Silicone Sealant.
 - b) Laticrete: Latasil Silicone Sealant.
 - c) Sherwin Williams: White Lightning Silicone Ultra Low Odor Window and Door Sealant.
 - d) Tremco: Tremsil 200 Silicone Sealant.
 - e) Franklin International: Titebond 2601 (White) 2611 (Clear) 100% Silicone Sealant.

- d. Paintable Sealant (Installer Option B):
 - 1) Category Four Approved Product. See Section 01 6200 for definitions of Categories:
 - a) GE Sealants & Adhesives: GE Silicone II Paintable Silicone.
- 5. Sealants For Interior Joints:
 - a. General:
 - 1) Countertops and backsplash to wall.
 - 2) Sinks and lavatories to countertops.
 - 3) Joints between plumbing fixtures and other substrates
 - b. Interior Ceramic Tile Joints are furnished in Section 07 9213 and installed in Section 09 3013 'Ceramic Tiling' including the following:
 - 1) Ceramic tile inside corners.
 - 2) Ceramic tile and paver tile joints.
 - 3) Termination joints in showers.
 - c. Description:
 - 1) One-part acetoxy cure silicone sealant with fungicides to resist mold and mildew.
 - d. Design Criteria:
 - 1) Meet ASTM C920, Type S, Grade NS, NT, and Class 25 test requirements.
 - 2) 100 percent silicone sealant.
 - e. Color: As selected by Architect from Manufacturer's standard colors.
 - f. Category Four Approved Products. See Section 01 6200 for definitions of Categories:
 - 1) Dow Corning: Tub, Tile, And Ceramic Silicone Sealant.
 - 2) Laticrete: Latacil Tile and Stone Silicone Sealant.
 - 3) Momentive: Sanitary SCS1700 Silicone Sealant.
 - 4) Tremco: Tremsil 200 Silicone Sealant.

2.2 ACCESSORIES

- A. Bond Breaker Tape:
 - 1. Pressure sensitive tape as by Sealant Manufacturer to suit application.
 - 2. Provide tape to prevent adhesion to joint fillers or joint surfaces at back of joint and allow sealant movement.
- B. Joint Backing:
 - 1. Comply with ASTM C1330.
 - 2. Flexible closed cell, non-gassing polyurethane or polyolefin rod or bond breaker tape as recommended by Sealant Manufacturer for joints being sealed.
 - 3. Oversized 25 to 50 percent larger than joint width.
- C. Joint Cleaner:
 - 1. Non-corrosive and non-staining type as recommended by Sealant Manufacturer, compatible with joint forming materials.
- D. Masking Tape:

1. Non-staining, non-absorbent tape product compatible with joint sealants and adjacent joint surfaces.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verification Of Conditions:

1. Examine substrate surfaces and joint openings are ready to receive Work.
 - a. Verify each sealant is compatible for use with joint substrates.
 - b. Verify joint surfaces are clean and dry.
 - c. Ensure concrete surfaces are fully cured.
2. Sealants provided shall meet Manufacturer's shelf-life requirements.
3. Notify Architect of unsuitable conditions in writing.
 - a. Do not proceed until unsatisfactory conditions are corrected.
4. Commencement of Work by installer is considered acceptance of substrate.

3.2 PREPARATION

A. Surface Preparation:

1. Surfaces shall be clean, dry, free of dust, oil, grease, dew, or frost. Prepare substrates in accordance with Manufacturer's instructions:
 - a. Porous surfaces: Abrasive-clean followed by blasting with oil-free compressed air.
 - b. Nonporous surfaces: Use two-cloth solvent wipe in accordance with ASTM C1193.
 - c. High-pressure water cleaning: Exercise care that water does not enter through failed joints.
2. Field test joints in inconspicuous location.
 - a. Verify joint preparation and primer required to obtain optimum adhesion of sealants to joint substrate.
 - b. When test indicates sealant adhesion failure, modify joint preparation primer, or both and retest until joint passes sealant adhesion test.
3. Masking: Apply masking tape as required to protect adjacent surfaces and to ensure straight bead line and facilitate cleaning.

B. Joints:

1. Prepare joints in accordance with ASTM C1193.
 - a. Clean joint surfaces of contaminants capable of affecting sealant bond to joint surface using Manufacturer's recommended instructions for joint preparation methods.
 - b. Remove dirt, dust, oils, wax, paints, and contamination capable of affecting primer and sealant bond.
 - c. Clean concrete joint surfaces to remove curing agents and form release agents.

C. Protection:

1. Protect elements surrounding the Work of this section from damage or disfiguration.

3.3 APPLICATION

A. General:

1. Apply silicone sealant in accordance with Manufacturer's instructions.
2. Do not use damaged or deteriorated materials.
3. Install primer and sealants in accordance with ASTM C1193 and Manufacturer's instructions.
4. Apply primer where required for sealant adhesion.
5. Install sealants immediately after joint preparation.
6. Do not use silicone sealant as per the following:
 - a. Apply caulking/sealant at temperatures below 40 deg F (4 deg C).
 - b. Below-grade applications.
 - c. Brass and copper surfaces.
 - d. Materials bleeding oils, plasticizers, and solvents.
 - e. Structural glazing and adhesive.
 - f. Surfaces to be immersed in water for prolonged time.

B. Joint Backing:

1. Install joint backing to maintain sealant joint ratios recommended by Manufacturer.
2. Install without gaps, twisting, stretching, or puncturing backing material. Use gage to ensure uniform depth to achieve correct profile, coverage, and performance.
3. Rod for open joints shall be at least 1-1/2 times width of open joint and of thickness to give solid backing. Backing shall fill up joint so depth of sealant bite is no more than 3/8 inch (9.5 mm) deep.

C. Bond Breaker:

1. Install bond breaker where joint backing is not used or where backing is not feasible.
 - a. Apply bond-breaker tape in shallow joints as recommended by Sealant Manufacturer.

D. Sealant:

1. Apply sealant with hand-caulking gun with nozzle of proper size to fit joints. Use sufficient pressure to insure full contact to both sides of joint to full depth of joint. Apply sealants in vertical joints from bottom to top.
2. Fill joint opening to full and proper configuration.
3. Apply in continuous operation.
4. Tool joints immediately after application of sealant if required to achieve full bedding to substrate or to achieve smooth sealant surface. Tool joints in opposite direction from application direction, i.e., in vertical joints, from the top down. Do not 'wet tool' sealants.
5. Depth of sealant bite shall be 1/4 inch (6 mm) minimum and 1/2 inch (12.7 mm) maximum, but never more than one half or less than one fourth joint width.

- E. Caulk gaps between painted or coated substrates and unfinished or pre-finished substrates. Caulk gaps larger than **3/16 inch (5 mm)** between painted or coated substrates.

3.4 TOLERANCES

- A. Provide joint tolerances in accordance with Manufacturer's printed instructions.

3.5 CLEANING

- A. Remove masking tape and excess sealant.
- B. Clean adjacent materials, which have been soiled, immediately (before setting) as recommended by Manufacturer.
- C. Waste Management: Dispose of products in accordance with manufacturer's recommendation.

END OF SECTION

SECTION 07 9219
ACOUSTICAL JOINT SEALANTS

PART 1 - GENERAL

1.1 SUMMARY

- A. Includes But Not Limited To:
 - 1. Quality of sealants to be used at perimeters of and penetrations through acoustically insulated walls and associated ceilings.
- B. Related Requirements:
 - 1. Section 09 2900: Furnishing and installing of acoustical sealants.

1.2 REFERENCES

- A. Association Publications:
 - 1. American Architectural Manufacturers Association (AAMA):
 - a. "Voluntary Specifications and Test Methods for Sealants".
 - 2. ASM International:
 - a. "Adhesives and Sealants", Volume 3, ASM International Handbook Committee, May 1999.
 - b. Committee C24 on Building Seals and Sealants for various Specifications, Guides, Test Methods, and Practices related to sealant specifying and application.
 - c. Committee E6 on Building Performance for various Specifications, Guides, Test Methods, and Practices related to sealant use with air barriers, vapor retarders, and exterior enclosure systems and materials.
 - 3. The Adhesive and Sealing Council, Inc. (ASC) / Sealant, Waterproofing & Restoration Institute (SWR Institute):
 - a. "Sealants: The Professional's Guide".
 - b. "Joint Sealants, Whole Building Design Guide".
- B. Definitions:
 - 1. Adhesion: Bonding forces between two different materials (e.g. between an adhesive and substrate).
 - 2. Adhesive: An adhesive, as defined by The American Society for Testing and Materials (ASTM), is "a substance capable of holding materials together by surface attachment".
 - 3. Adhesive Failure: Loss of adhesion between adhesive and substrate. Adhesive pulls cleanly away from substrate.
 - 4. Caulk: Caulks have a variety of definitions but are generally recognized as materials used in applications where only minor elastomeric properties are needed.
 - 5. Primer: Coating applied to surface, prior to application of an adhesive, to improve performance of bond.

6. Sealant. Sealants are generally used in applications where elastic properties are needed while adhesives are generally used in applications where bonding strength and rigidity are needed. With technology advancements both sealants and adhesives can be used interchangeably depending on the applications performance requirements.
7. Sealant Types and Classes:
 - a. Federal Specifications:
 - 1) Type I: Self-leveling, pour grade.
 - 2) Type II: Non-sag, gun grade.
 - 3) Type NS: Non-sag, gun grade.
 - 4) Class A: +25 percent, -25 percent expansion – contraction.
 - b. ASTM Specifications:
 - 1) Type S: Single-component sealant.
 - 2) Type M: Multi-component sealant.
 - 3) Grade P: Pourable or self-leveling sealant for joints on horizontal surfaces.
 - 4) Grade NS: Non-sag or gunnable sealant for joints in vertical surfaces.
 - 5) Class 25: Sealant that, when tested for adhesion or cohesion under cyclic movement shall withstand increase and decrease of at least 25 percent of joint width as measured at time of application.
 - 6) Class 12: Sealant that, when tested for adhesion and cohesion under cyclic movement shall withstand increase and decrease of at least 12 percent of joint width as measured at time of application.
 - 7) T: Sealant designed for use in joints in pedestrian and vehicular traffic areas such as walkways, plazas, decks and parking garages.
 - 8) NT: Sealant designed for use in joints in non-traffic areas.
 - 9) M: Sealant will remain adhered to mortar.
 - 10) G: Sealant will remain adhered to glass.
 - 11) A: Sealant will remain adhered to aluminum.
 - 12) O: Sealant will remain adhered to substrates other than glass, aluminum, mortar.
8. Shelf Life: Usable storage time of material. Most adhesives have shelf-life of 6 to 12 months. Shelf-life of an adhesive may be increased by refrigeration and is usually shortened by exposure to heat.
9. Stability: Compound in original unopened container shall be stable for at least six months when stored at temperature not exceeding 80 degrees F. (26.7 degrees C.).
10. Toxicity: Material shall have no adverse effect on health of personnel when used for its intended purpose.

C. Reference Standards:

1. ASTM International:
 - a. ASTM C834-10, 'Standard Specification for Latex Sealants'.
 - b. ASTM C919-12, 'Standard Practice for Use of Sealants in Acoustical Applications'.
 - c. ASTM C1193-12, 'Standard Guide for Use of Joint Sealants'.
 - d. ASTM E84-12c, 'Standard Test Method for Surface Burning Characteristics of Building Materials'.

- e. ASTM E90-09, 'Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements'
- 2. Underwriters Laboratories, Inc.:
 - a. UL 723: 'Standard for Safety Test for Surface Burning Characteristics of Building Materials; Tenth Edition September 10 2008.' (Revision: September 13, 2010).'

1.3 DELIVERY, STORAGE, AND HANDLING

- A. Delivery And Acceptance Requirements:
 - 1. Deliver and keep in original containers until ready for use.
 - 2. Inspect for damage or deteriorated materials.
- B. Storage And Handling Requirements:
 - 1. Handle to prevent inclusion of foreign matter, damage by water, or breakage.
 - 2. Store in cool, dry location, and at temperatures never under 40 deg F (4 deg C) nor exceeding 80 deg F (26.7 C).

1.4 FIELD CONDITIONS

- A. Ambient Conditions:
 - 1. Do not apply caulking at temperatures below 40 deg F (4 deg C).

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Sealants:
 - 1. Design Criteria:
 - a. Meet requirements of ASTM C834.
 - b. Meet Class A flame spread rating.
 - 2. Approved Products:
 - a. OSI Pro-Series SC-175 Draft & Acoustical Sound Sealant by OSI Sealants Inc, Mentor, OH www.osisealants.com.
 - b. QuietZone Acoustic Caulk by Owens Corning, Toledo, OH www.owenscorning.com.
 - c. Acoustical Sealant by Tremco, Beachwood, OH www.tremcosealants.com or Toronto, ON (800) 363-3213.
 - d. Acoustical Sound Sealant by Titebond
 - e. Acoustical Sealant by U S Gypsum, Chicago, IL www.usg.com.

2.2 ACCESSORIES

- A. Bond Breaker: Pressure sensitive tape recommended by Sealant Manufacturer to suit application.

- B. Joint Backing:
 - 1. Flexible closed cell polyurethane or polyolefin rod or bond breaker tape as recommended by Sealant Manufacturer for joints being sealed.
 - 2. Oversized 25 to 50 percent larger than joint width.
- C. Joint Cleaner: Non-corrosive and non-staining type, recommended by Sealant Manufacturer, compatible with joint forming materials.
- D. Masking Tape: Pressure sensitive tape recommended by Sealant Manufacturer to suit application.
- E. Primer: Non-staining type, type, recommended by Sealant Manufacturer to suit application.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verification Of Conditions:
 - 1. Examine substrate surfaces and joint openings are ready to receive Work.
 - 2. Sealants provided shall meet Manufacturer's shelf-life requirements.
 - 3. Notify Architect of unsuitable conditions in writing.
 - a. Do not proceed until unsatisfactory conditions are corrected.
 - 4. Commencement of Work by installer is considered acceptance of substrate.

3.2 PREPARATION

- A. Surface Preparation:
 - 1. Prepare joints in accordance with ASTM C1193 and Manufacturer's instructions.
 - 2. Clean joint surfaces to remove dirt, dust, oils, wax, paints, and other contamination capable of affecting primer and sealant bond.
 - 3. Protect elements surrounding the Work of this section from damage or disfiguration. Apply masking tape to adjacent surfaces when required to prevent damage to finishes from sealant installation.
- B. Surface Preparation:
 - 1. Remove existing sealants where specified.
 - 2. Clean joint surfaces of residual sealant and other contaminates capable of affecting sealant bond to joint surface.
 - 3. Surfaces shall be clean, dry, and free of dust, oil, grease, dew, or frost.

3.3 INSTALLATION

- A. General:

1. Do not use damaged or deteriorated materials.
2. Install primer and sealants in accordance with ASTM C1193 and Manufacturer's instructions where required for sealant adhesion.
3. Install sealants immediately after joint preparation.
4. Do not apply caulking/sealant at temperatures below 40 deg F (4 deg C).

B. Joint Backing:

1. Rod for open joints shall be at least 1-1/2 times width of open joint and of thickness to give solid backing. Backing shall fill up joint so depth of sealant bite is no more than 3/8 inch (9.5 mm) deep.
2. Apply bond-breaker tape in shallow joints as recommended by Sealant Manufacturer.

C. Install at perimeter joints and mechanical and electrical penetrations in sound insulated rooms. Apply sealant with hand-caulking gun with nozzle of proper size to fit joints. Use sufficient pressure to insure full contact to both sides of joint to full depth of joint.

D. Tool joints immediately after application of sealant if required to achieve full bedding to substrate or to achieve smooth sealant surface.

E. Depth of sealant bite shall be 1/4 inch (6 mm) minimum and 1/2 inch (12.7 mm) maximum, but never more than one half or less than one fourth joint width.

3.4 FIELD QUALITY CONTROL

A. Inspection:

1. Examine sealant joints to verify compliance with Contract Document requirements.

B. Non-Conforming Work. Non-conforming work as covered in the General Conditions applies, but is not limited to the following:

1. Sealant material found to be contaminated or damaged or inadequate preparation of substrate results in deficiencies in joint sealant adhesion is considered defective or not complying with Contract Document requirements.
2. Correct any work found defective or not-complying with Contract Document requirements at no additional cost to Owner.

3.5 CLEANING

A. General:

1. Remove sealant from adjacent surfaces in accordance with Sealant Manufacturer and Substrate Manufacturer recommendations as work progresses.
2. Remove masking tape and any other foreign material.
3. Clean adjacent materials that have been soiled immediately (before setting) as recommended by Manufacturer.

- B. Waste Management: Dispose of products in accordance with Sealant Manufacturer's recommendation.

END OF SECTION

SECTION 08 06 01

HARDWARE GROUP AND KEYING SCHEDULES

PART 1 - GENERAL

1.1 SUMMARY

A. Includes But Not Limited To:

1. Furnish and install door hardware and keying as described in Contract Documents.

1.2 REFERENCES

A. Definitions:

1. Access Door Exit Device: See Exit Device.
2. Acoustic Seal: Attached to door to reduce external noise. Perimeter seals reduce potential for flanking noise, a term used to describe leakage of a sound across a barrier.
3. Active Door (or leaf): In paired or double doors, hinged door leaf that opens first and the one to which the lock is applied.
4. Astragal: Molding or strip whose purpose is to cover or close gap between edges of pair of doors. Astragals provide a weather or sound seal, minimize passage of light or retard passage of smoke or flame.
 - a. Overlapping Astragal: One-piece astragal attached to one door only and overlapping other door when in closed position.
 - b. Split Astragal: Two-piece astragal, one piece of which is surface mounted on each door and provided with means of adjustment to abut other piece and provide a seal.
5. Builders Hardware Manufacturer's Association (BHMA) Hardware Functions:
 - a. F-75 Passage Latch: Latch bolt operated by lever from either side at all times.
 - b. F-76 Privacy Lock: Latch bolt operated by lever from either side. Outside lever locked by push button inside and unlocked by emergency key from outside or rotating lever from inside.
 - c. F-81 Office Door Lock: Dead locking latch bolt operated by lever from either side, except when outside lever is locked by turn button in inside lever. When outside lever is locked, latch bolt is operated by key in outside lever or by rotating inside lever. Turn button must be manually rotated to unlock outside lever.
 - d. F-84 Classroom Deadlock: Dead locking latch bolt operated by lever from either side, except when outside lever is locked, latch bolt is operated by key in outside lever or by rotating inside lever.
 - e. F-86 Utility Space Door Lock: Dead locking latch bolt operated by key in outside lever or by rotating inside lever. Outside lever is always fixed.

- f. E-2142 Deadbolt: Dead bolt operated by key from either side. Bolt automatically dead locks when fully thrown.
 - g. E-2152 Deadbolt: Dead bolt operated by key from outside and turn unit from inside. Bolt automatically dead locks when fully thrown.
- 6. Change Key: Key that operates only one cylinder or one group of keyed alike cylinders in a keying system.
- 7. Closer: Device or mechanism to control closing of swing door. May be overhead or floor mounted and either exposed or concealed.
- 8. Coordinator: Device or mechanism which controls order of closing of pair of swing doors; used with doors equipped with overlapping astragals and certain panic and fire exit hardware which requires inactive leaf to close before active leaf.
- 9. Cylinder: Cylindrical-shaped assembly (complete operating unit) containing tumbler mechanism and keyway (plug, shell, tumblers, springs and actuating device), into which key is inserted to operate lock and can only be actuated by correct key.
 - a. Mortise: Threaded surface which screws directly into a lock case, with a cam engaging lock mechanism.
 - b. Rim: Mounted on surface of door independently of lock, usually by screws from reverse side, and engaging with lock mechanism by means of tailpiece or metal extension.
- 10. Deadbolt (of a lock): Lock bolt having no spring action nor bevel, and which is operated by key or turn piece.
- 11. Dummy Trim: Trim only, without lock; usually used on inactive door in pair of doors.
- 12. Dust-Proof Strike: Strike with spring plunger that completely fills bolt hole when bolt is not projected.
- 13. Emergency Egress Exit Device: See Exit Device.
- 14. Exit Device: Latching mechanism for swinging doors designed to be operable in direction of egress travel and to provide exiting for occupants in emergency. Latching mechanism release through pressure on touch or cross bar mortised or mounted on push side of door. There are two classifications: Panic Exit Hardware and Fire Exit Hardware, and three types within each classification:
 - a. Mortise Type: Lock mechanism mortised into edge of door or concealed with door.
 - b. Rim Type: Lock mechanism mounted on interior face of door.
 - c. Vertical Rod: Surface or concealed, having latches in or on top and/or bottom of door and activated by cross bar through rod linkage extending vertically on or in lock stile of door.
- 15. Fire Exit Hardware: Metal device attached to back of door frame jamb at its base, to secure frame to the floor, may be either fixed or adjustable in height. See Exit Device.
- 16. Flush Bolt: Rods or bolts that are mounted flush with edge or face of inactive door to lock door to frame at head and/or sill. Flush bolt mounted in edge is operated by means of recessed lever. May be manual or automatic.
- 17. Grand Master Key: Key that operates locks in several groups, each of which has its own master key.

18. Handleset: Term describing lock trim with handle and thumbpiece on exterior of door, and knob/lever on interior.
19. Hardware: Any mechanism which is designed to perform operable function in use of door and frame.
20. Hinge: Two plates joined together by pin and attached to door and its frame whereby door is supported and is enabled to swing or move.
21. Holder: Device that holds door open at one or more selected positions.
22. Inactive Door (or leaf): Leaf of pair of doors that does not contain lock, but is bolted when closed, and to which strike is fastened to receive latch or bolt of active door.
23. Kick Plate: Protective plate applied on lower rail of door to prevent door from being marred.
24. Latch Bolt: Beveled spring bolt, usually operated when either knob or lever is turned, or when thumbpiece which operates handleset is pushed down.
25. Latchset: Non-locking device which contains only a latch bolt, a means of operating said latch and all required trim.
26. Leaf (of pair of doors): One of two doors forming pair of doors.
27. Lever Handle: Bar-like grip which is rotated about horizontal axis at one of its ends to operate a latch.
28. Lockset: Lock, complete with trim, such as knobs, escutcheons or handles.
29. Low-Energy Swing Door Operators: Device that operates swing door that opens or helps open door automatically, waits then closes it at reduced speed to levels deemed safe for disabled users. Commonly referred to as a Handicap door operator.
30. Master Key: Key that operates all master keyed locks or cylinders in group, each lock or cylinder usually operated by its own change key.
31. Mullion: Fixed or movable post dividing opening vertically.
32. Panic Exit Hardware: Hardware similar to Exit Hardware, but which has been tested and labeled for use only on emergency exit doors which are not fire doors. See Exit Device.
33. Passage Function: Knob or lever set most commonly used in hallways where locking feature is not required.
34. Pivot: Hinging device embodying fixed pin and single joint.
35. Pull: Handle of grip designed for attachment to door to facilitate opening and closing.
36. Push: Plate applied to lock stile to protect door against soiling and wear.
37. Single Cylinder Entrance Handleset: Key operates deadbolt from outside; thumbpiece operates deadbolt from the inside.
38. Single Dummy: Knob/lever surface mounted on interior or exterior of door which does not turn any mechanism.
39. Silencer: Small piece of resilient material attached to stop on door frame to cushion closing of door.
40. Smoke Gasket: Brush seal used on doors to reduce passage of smoke and gasses.
41. Stop: Device to limit swing or movement of door at certain point.
42. Threshold: Strip fastened to floor beneath door, usually required to cover joint where two types of floor material meet.

43. Thumbpiece or Thumbturn: Lock trim component which typically is used to lock deadbolt from interior side of door.
44. Turnpiece: Small knob, lever or tee turn with spindle attached for operating deadbolt of lock or mortise bolt. Also termed Thumb Turn. Used only on single cylinder operations.
45. Weatherstrip: Material or device applied to door edges or to inner door frame edges to close clearance opening and minimize or restrict passage of air, moisture, sound, smoke, and/or dirt.

B. Reference Standards:

1. Builders Hardware Manufacturer's Association (BHMA):
 - a. BHMA A156.1, 'Butts and Hinges'.
 - b. BHMA A156.16, 'Auxiliary Hardware'.
 - c. BHMA A156.18, 'Materials and Finishes'.
 - d. BHMA A156.2, 'Bored and Preassembled Locks and Latches'.
 - e. BHMA A156.21, 'Thresholds'.
 - f. BHMA A156.22, 'Door Gasketing and Edge Seal Systems'.
 - g. BHMA A156.3, 'Exit Devices'.
 - h. BHMA A156.4, 'Door Controls - Closers'.
 - i. BHMA A156.5, 'Auxiliary Locks and Associated Products'.
 - j. BHMA A156.6, 'Architectural Trim'.
 - k. BHMA A156.7, 'Template Hinge Dimensions'.
 - l. BHMA A156.8, 'Door Controls – Overhead Stops and Holders'. Holders'.

1.3 DELIVERY, STORAGE, AND HANDLING

A. Delivery And Acceptance Requirements:

1. Materials shall be delivered in original, unopened packages with labels intact.

PART 2 - HARDWARE GROUPS

2.1 STOREFRONT ENTRY DOORS

A. Single Doors:

1. Group ST2:
 - a. 1 set: Pivots.
 - b. 1 each: Exit Device with dogging capability.
 - 1) Optional: Interior dogging cylinder.
 - c. 1 each: Closer.
 - d. 1 each: Pull.
 - e. 1 each: Threshold.
 - f. 1 set: Weatherstrip.
 - g. 1 each: Stop.
 - h. 1 each: Kick Plate.
2. Group ST3:
 - a. 1 set: Pivots.

- b. 1 each: Closer.
- c. 1 each: Push.
- d. 1 each: Pull.
- e. 1 set: Weatherstrip.
- f. 1 each: Stop.
- g. 1 each: Kick Plate.

2.2 EXTERIOR DOORS

A. Single Exterior Doors:

- 1. Group 2:
 - a. 3 each: Hinges.
 - b. 1 each: Emergency Egress Exit Device.
 - c. 1 each: Closer.
 - d. 1 each: Stop.
 - e. 1 each: Threshold.
 - f. 1 set: Weatherstrip.

2.3 INTERIOR DOORS

A. Single Interior Doors:

- 1. Group 20:
 - a. 3 each: Hinges.
 - b. 1 each: Latchset Function F-75.
 - c. 1 each: Stop.
 - d. 1 set: Smoke Gaskets.
- 2. Group 20C:
 - a. 3 each: Hinges.
 - b. 1 each: Lockset Function F-86.
 - c. 1 each: Stop.
 - d. 1 each: Kick Plate.
 - e. 1 set: Smoke Gaskets.
- 3. Group 23:
 - a. 3 each: Hinges.
 - b. 1 each: Lockset Function F-81.
 - c. 1 each: Stop.
 - d.
 - e. 1 each: Acoustic Seal.
 - f. 1 set: Smoke Gaskets.
- 4. Group 25:
 - a. 3 each: Hinges.
 - b. 1 each: Exit Device.
 - c. 1 each: Closer with hold open function.
 - d. 1 each: Kick Plate.
 - e. 1 each: Stop.
 - f. 1 set: Smoke Gaskets.
- 5. Group 26B:

- a. 3 each: Hinges.
- b. 1 each: Lockset, Function F-76.
- c. 1 each: Stop.
- d. 1 set: Smoke Gaskets.

END OF SECTION

SECTION 08 11 00
METAL DOORS AND FRAMES

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Steel doors, frames and hardware.
 - 2. Accessories: Sealants.
- B. Related Requirements:
 - 1. Section 09 90 00 – Painting and Coating.
 - 2. Section 09 91 13 – Exterior Painted Galvanized Metal
 - 3. Section 09 91 23 – Interior Painting.

1.2 REFERENCE STANDARDS

- A. Americans with Disabilities Act (ADA).
- B. Builders Hardware Manufacturers Association (BHMA):
 - 1. ANSI/BHMA A156.2 – American National Standard for Bored & Preassembled Locks and Latches.

1.3 SUBMITTALS

- A. Product Data: Provide product information for doors, frames, hardware, closers.

1.4 QUALITY ASSURANCE

- A. Doors, hardware and signs shall comply with ADA.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Accept doors on site in manufacturer's packaging. Inspect for damage.
- B. Protect units from damage by storing in dry, protected area.

PART 2 PRODUCTS

2.1 PRODUCTS

- A. Steel Doors:
 - 1. Constructed of 18-gauge hot dipped galvanized steel sheets with no seams or external molding.
 - 2. Be reinforced and stiffened. Fill void spaces with rock wool or polyurethane installation.
 - 3. Mortised for three 4.5-inch template hinges.

4. Provide exterior doors with ANSI/BHMA A156.2 Series 4000, grade 1, mortised lockset and other hardware as indicated.
 5. Finish: One coat baked on primer over bonderizing and two coats finish paint. Owner will select color.
 6. Provide complete with hardware and weather stripping.
 7. Where indicated, provide closures which allow door to be held in open position.
- B. Steel Frames: Timely Knocked Down
1. Constructed of 14-gauge hot dipped galvanized steel.
 2. Mitered, continuously welded, and ground smooth.
 3. Have mortised hinge and lock jambs.
 4. Provide minimum three anchors and silencers for each jamb.
 5. Finish: One coat primer and two coats finish paint to match door, unless indicated otherwise.

2.2 ACCESSORIES

- A. Sealant: **[In accordance with Section 07 90 00.] [Silicone base for exterior use.]**

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify framing or opening is complete and ready for frame and door.

3.2 INSTALLATION

- A. Install frames plumb and anchor securely.
- B. Install frames, doors, and hardware in accordance with manufacturer's recommendations.
- C. Paint doors and door frames.
- D. Apply sealant around door frames.

3.3 ADJUSTING

- A. Adjust doors and hardware to open and close smoothly.

3.4 PROTECTION

- A. Protect hardware, doors, and frames from damage until final acceptance.

END OF SECTION

SECTION 08 14 16 FLUSH WOOD DOORS

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Factory finishing flush wood doors.
- B. Related Requirements:
 - 1. Section 08 71 00 - Door Hardware.

1.2 ACTION SUBMITTALS

- A. Product Data: For each type of door. Include details of core and edge construction and trim for openings. Include factory-finishing specifications.
- B. Shop Drawings: Indicate location, size, and hand of each door; elevation of each kind of door; construction details not covered in Product Data; and the following:
 - 1. Dimensions and locations of blocking.
 - 2. Dimensions and locations of mortises and holes for hardware.
 - 3. Dimensions and locations of cutouts.
 - 4. Undercuts.
 - 5. Requirements for veneer matching.
 - 6. Doors to be factory finished and finish requirements.
 - 7. Fire-protection ratings for fire-rated doors.
- C. Samples for Initial Selection: For factory-finished doors.

1.3 INFORMATIONAL SUBMITTALS

- A. Sample Warranty: For special warranty.
- B. Quality Standard Compliance Certificates: AWI Quality Certification Program certificates.

1.4 DELIVERY, STORAGE, AND HANDLING

- A. Comply with requirements of referenced standard and manufacturer's written instructions.
- B. Package doors individually in plastic bags or cardboard cartons.
- C. Mark each door on bottom rail with opening number used on Shop Drawings.

1.5 FIELD CONDITIONS

- A. Environmental Limitations: Do not deliver or install doors until spaces are enclosed and weathertight, wet work in spaces is complete and dry, and HVAC system is operating and maintaining ambient temperature and humidity conditions at occupancy levels during remainder of construction period.

1.6 WARRANTY

- A. Special Warranty: Manufacturer agrees to repair or replace doors that fail in materials or workmanship within specified warranty period.
 - 1. Failures include, but are not limited to, the following:
 - a. Warping (bow, cup, or twist) more than 1/4 inch in a 42-by-84-inch section.
 - b. Telegraphing of core construction in face veneers exceeding 0.01 inch in a 3-inch span.
 - 2. Warranty shall also include installation and finishing that may be required due to repair or replacement of defective doors.
 - 3. Warranty Period for Solid-Core Interior Doors: Life of installation.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. Algoma Hardwoods, Inc.
 - 2. Eggers Industries.
 - 3. Marlite.
 - 4. Marshfield Door Systems, Inc.
 - 5. Mohawk Doors; a Masonite company.
 - 6. Oshkosh Door Company.
 - 7. VT Industries, Inc.
 - 8. Or equal.
- B. Source Limitations: Obtain flush wood doors from single manufacturer.

2.2 FLUSH WOOD DOORS, GENERAL

- A. Quality Standard: In addition to requirements specified, comply with AWI's, AWMAC's, and WI's "Architectural Woodwork Standards."
- B. WDMA I.S.1-A Performance Grade: Heavy Duty.
- C. Fire-Rated Wood Doors: Doors complying with NFPA 80 that are listed and labeled by a qualified testing agency, for fire-protection ratings indicated, based on testing at positive pressure according to NFPA 252 or UL 10C.
 - 1. Cores: Provide core specified or mineral core as needed to provide fire-protection rating indicated.

2. Edge Construction: Provide edge construction with intumescent seals concealed by outer stile. Comply with specified requirements for exposed edges.
 3. Pairs: Provide fire-retardant stiles that are listed and labeled for applications indicated without formed-steel edges and astragals. Provide stiles with concealed intumescent seals. Comply with specified requirements for exposed edges.
- D. Structural-Composite-Lumber-Core Doors:
1. Structural Composite Lumber: WDMA I.S.10.
 - a. Screw Withdrawal, Face: 700 lbf.
 - b. Screw Withdrawal, Edge: 400 lbf.

2.3 VENEER-FACED DOORS FOR TRANSPARENT FINISH

- A. Interior Solid-Core Doors:
1. Grade: Premium, with Grade A faces.
 2. Species: Walnut
 3. Cut: Quarter sliced.
 4. Match between Veneer Leaves: Slip match.
 5. Assembly of Veneer Leaves on Door Faces: Center-balance match.
 6. Pair and Set Match: Provide for doors hung in same opening or separated only by mullions.
 7. Room Match: Provide door faces of compatible color and grain within each separate room or area of building.
 8. Exposed Vertical Edges: Same species as faces - edge Type A.
 9. Core: Particleboard
 10. Construction: Five plies. Stiles and rails are bonded to core, then entire unit is abrasive planed before veneering. Faces are bonded to core using a hot press.
 11. Construction: Seven plies, either bonded or nonbonded construction.
 12. WDMA I.S.1-A Performance Grade: Heavy Duty.

2.4 FABRICATION

- A. Factory fit doors to suit frame-opening sizes indicated. Comply with clearance requirements of referenced quality standard for fitting unless otherwise indicated.
1. Comply with NFPA 80 requirements for fire-rated doors.
- B. Factory machine doors for hardware that is not surface applied. Locate hardware to comply with DHI-WDHS-3. Comply with final hardware schedules, door frame Shop Drawings, BHMA-156.115-W, and hardware templates.
1. Coordinate with hardware mortises in metal frames to verify dimensions and alignment before factory machining.

2.5 FACTORY FINISHING

- A. General: Comply with referenced quality standard for factory finishing. Complete fabrication, including fitting doors for openings and machining for hardware that is not surface applied, before finishing.
 - 1. Finish faces, all four edges, edges of cutouts, and mortises. Stains and fillers may be omitted on bottom edges, edges of cutouts, and mortises.
- B. Factory finish doors.
- C. Transparent Finish:
 - 1. Grade: Premium.
 - 2. Finish: AWI's, AWMAC's, and WI's "Architectural Woodwork Standards" System 11, catalyzed polyurethane.
 - 3. Staining: Match Architect's sample.
 - 4. Sheen: Satin.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Examine doors and installed door frames, with Installer present, before hanging doors.
 - 1. Verify that installed frames comply with indicated requirements for type, size, location, and swing characteristics and have been installed with level heads and plumb jambs.
 - 2. Reject doors with defects.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. Hardware: For installation, see Section 08 71 00.
- B. Installation Instructions: Install doors to comply with manufacturer's written instructions and referenced quality standard, and as indicated.
 - 1. Install fire-rated doors according to NFPA 80.
- C. Job-Fitted Doors: Align and fit doors in frames with uniform clearances and bevels as indicated below; do not trim stiles and rails in excess of limits set by manufacturer or permitted for fire-rated doors. Machine doors for hardware. Seal edges of doors, edges of cutouts, and mortises after fitting and machining.

- D. Clearances: Provide 1/8 inch at heads, jambs, and between pairs of doors. Provide 1/8 inch from bottom of door to top of decorative floor finish or covering unless otherwise indicated. Where threshold is shown or scheduled, provide 1/4 inch from bottom of door to top of threshold unless otherwise indicated.
 - 1. Comply with NFPA 80 for fire-rated doors.
 - a. Bevel non-fire-rated doors 1/8 inch in 2 inches at lock and hinge edges.
 - b. Bevel fire-rated doors 1/8 inch in 2 inches at lock edge; trim stiles and rails only to extent permitted by labeling agency.
- E. Factory-Fitted Doors: Align in frames for uniform clearance at each edge.
- F. Factory-Finished Doors: Restore finish before installation if fitting or machining is required at Project site.

3.3 ADJUSTING

- A. Operation: Rehang or replace doors that do not swing or operate freely.
- B. Finished Doors: Replace doors that are damaged or that do not comply with requirements. Doors may be repaired or refinished if Work complies with requirements and shows no evidence of repair or refinishing.

END OF SECTION

SECTION 08 4113

ALUMINUM-FRAMED ENTRANCES AND STOREFRONTS

PART 1 - GENERAL

1.1 SUMMARY

- A. Includes But Not Limited To:
 - 1. Furnish and install aluminum storefront entry and window systems, including hardware, glazing, and caulking, as described in Contract Documents and including the following:
- B. Related Requirements:
 - 1. Section 07 9213: Elastomeric Joint Sealants.
 - 2. Section 08 8100: Quality of glass glazing.

1.2 REFERENCES

- A. Association Publications:
 - 1. American Architectural Manufacturers Association (AAMA):
 - a. AAMA 506-06, 'Voluntary Specifications for Hurricane Impact and Cycle Testing of Fenestration Products.
 - b. AAMA 607.1-77, 'Voluntary Guide Specification and Inspection Methods for Clear Anodic Finishes for Architectural Aluminum'.
 - c. AAMA 611-98, 'Voluntary Standards for Anodized Architectural Aluminum'.
 - d. AAMA 701/702-04, 'Voluntary Specification for Pile Weatherstripping and Replaceable Fenestration Weatherseals'.
 - 2. Glass Association of North America (GANA):
 - a. *'Glazing Manual'*.
 - 3. National Association of Architectural Metal Manufacturers (NAAMM):
 - a. Metal Finishes Manual for Architectural and Metal Products.
- B. Definitions:
 - 1. Activation Device: Device that, when actuated, sends electrical signal to door operator to open door.
 - 2. Glass Surface:
 - a. Insulated glass unit:
 - 1) Surface 1: Exterior surface of outer lite.
 - 2) Surface 2: Interspace-facing surface of outer lite.
 - 3) Surface 3: Interspace-facing surface of inner lite.
 - 4) Surface 4: Interior surface of inner lite.
 - b. Monolithic glass:
 - 1) Surface 1: Exterior surface.
 - 2) Surface 2: Interior surface.
 - 3. Safety Device:

- a. Device that prevents door from opening or closing, as appropriate.
- C. Reference Standards:
 - 1. American National Standards Institute / Builders Hardware Manufacturers Association:
 - a. ANSI/BHMA A156.5-2010, 'Auxiliary Locks and Associated Products'.
 - b. ANSI/BHMA A156.18-2006, 'Materials and Finishes'.
 - c. ANSI/BHMA A156.19-2007, 'Power Assist and Low Energy Power Operated Doors'.
 - d. ANSI/BHMA A156.21-2009, "American National Standard for Thresholds'.
 - 2. ASTM International:
 - a. ASTM B209-10, 'Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate'.
 - b. ASTM B221-08, 'Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes'.
 - c. ASTM E1996-09, 'Standard Specification for Performance of Exterior Windows, Curtain Walls, Doors, and Impact Protective Systems Impacted by Windborne Debris in Hurricanes'.
 - d. ASTM E2112-07, 'Standard Practice for Installation of Exterior Windows, Doors and Skylights'.
 - 3. International Building Code (IBC):
 - a. Chapter 10, 'Means of Egress'.
 - 4. International Code Council / American National Standards Institute:
 - a. ICC / ANSI A117.1-2010, 'Accessible and Usable Buildings and Facilities'.
 - 5. National Fenestration Rating Council (NFRC):
 - a. NFRC 100-2004, 'Procedure for Determining Fenestration Product U-factors'.
 - 6. National Fire Protection Association / American National Standards Institute:
 - a. NFPA 101-2012, 'Life Safety Code'.

1.3 QUALITY ASSURANCE

- A. Qualifications: Requirements of Section 01 4301 applies, but not limited to following:
 - 1. Manufacturer Qualifications:
 - a. Provide aluminum entrances and storefront systems produced by a firm experienced in manufacturing systems that are similar to those indicated for this project and that have a record of successful in service performance.
 - 2. Fabricator Qualifications:
 - a. Provide aluminum entrances and storefront systems fabricated by a firm experienced in producing systems that are similar to those indicated for this Project, and that have a record of successful in service performance.
 - b. Fabricator shall have sufficient production capacity to produce components required without causing delay in progress of the Work.
 - 3. Installer Qualifications:
 - a. Minimum three (3) years experience in storefront installations.
 - b. Minimum five (5) satisfactorily completed projects of comparable quality, similar size, and complexity in past three (3) years before bidding.
 - c. Upon request, submit documentation.

1.4 DELIVERY, STORAGE, AND HANDLING

A. Delivery And Acceptance Requirements:

1. Deliver all parts of door, together with hardware, in original, unopened packages with labels intact to Project at same time.

B. Storage And Handling Requirements:

1. Store in clean, dry location, indoors in Manufacturer's unopened packaging until ready for installation and in accordance with Manufacturer's instructions.
2. Stack framing components in a manner that will prevent bending and avoid significant or permanent damage.
3. Protect materials and finish from damage during handling and installation.

1.5 WARRANTY

A. Manufacturer Warranty:

1. Storefront Entrances:
 - a. Manufacturer's Warranty to be free of defects in material and workmanship.
 - b. Manufacturer's Warranty against deterioration or fading.
 - c. Manufacturer's Lifetime Warranty for Door Construction for normal use.
2. Closers:
 - a. Closer Manufacturer's standard warranty, 10 years minimum.

PART 2 - PRODUCTS

2.1 ASSEMBLIES

A. Manufacturers:

1. Manufacturers.
 - a. Kawneer North America, Norcross, GA,
www.kawneer.com/kawneer/north_america.
 - b. Oldcastle BuildingEnvelope, Santa Monica, CA www.oldcastlebe.com.

B. Materials:

1. Frames:
 - a. Aluminum:
 - 1) 6063-T5 aluminum alloy or meet requirements of ASTM B221, alloy GS 10A-T6 or T6.
 - b. Sills:
 - 1) Match height of door bottoms.
 - c. Sealer Tape:
 - 1) 3M.
 - d. Fasteners:
 - 1) Aluminum or non-magnetic stainless steel.
 - 2) Concealed fastenings shall be cadmium or zinc-plated steel.
 - e. Finish:
 - 1) Match doors.

- f. Approved Products.
 - 1) Double Glazed:
 - a) Trifab '451' by Kawneer.
 - b) Series FG3000 2x4-1/2 by Oldcastle.
- 2. Manually Operated Doors:
 - a. Aluminum:
 - 1) 6063 T5 aluminum alloy, or meet requirements of ASTM B221, alloy GS 10A-T6 or T6.
 - b. Stiles:
 - 1) 3-1/2 inches by 1-3/4 inches by 0.125 inches (89 mm by 45 mm by 3.175 mm) thick nominal.
 - c. Top Rails and Mid Rail:
 - 1) 5-3/4 inches minimum by 1-3/4 inches by 0.125 inches (146 mm minimum by 45 mm by 3.175 mm) thick nominal.
 - d. Bottom Rails:
 - 1) 10 inches minimum by 1-3/4 inches by 0.125 inches (254 mm minimum by 45 mm by 3.175 mm) thick nominal.
 - e. Construction:
 - 1) Manufacturer's standard.
 - f. Glazing Stops:
 - 1) Snap-in type with neoprene bulb-type glazing. Units shall be glazed from exterior side.
 - g. Weatherstripping:
 - 1) Neoprene bulb-type.
 - 2) Approved Products.
 - a) Sealair by Kawneer.
 - b) D125 by Oldcastle.
 - h. Framing System Gaskets and Sealants:
 - 1) Manufacturer's standard, recommended by manufacturer for joint type.
 - a) Provide sealants for use inside of the weatherproofing system that have a VOC content of 250 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).
 - i. Finish:
 - 1) Dark bronzed anodized
- 3. Hardware:
 - a. See Hardware Groups

C. Fabrication:

- 1. Construction shall meet Manufacturer's recommendations.
- 2. Fabricate in factory to dimensions required to fit framed openings detailed on Contract Documents. Joints shall be tightly closed.
- 3. Mortise in manner to give maximum hardware-door connection strength and neatness of appearance. Adequately reinforce with backplates or rivnuts to hold pivots and closers.

D. Hardware Finishes:

- 1. Finishes for steel, brass, or bronze hardware items shall be dark bronze, Chromium plated, satin.

2. Materials other than steel, brass, or bronze shall be finished to match the appearance of dark bronze.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verification Of Conditions:
 1. Verify that framed openings will accommodate factory-fabricated storefront entry and window frames of dimensions agreed upon by Owner and Manufacturer and shown on Standard Plan documents.
 2. Verify floor is level across entire width of automatic door opening.
 3. Verify sill conditions are level and/or sloped away from openings as specified.
 4. Notify Architect and Owner in writing if framed openings are not as agreed upon.
 - a. Do not install storefront entry and window frames until deficiencies in framed openings have been corrected to allow installation of standard entries and windows.
 - b. Commencement of Work by installer is considered acceptance of substrate.

3.2 INSTALLATION

- A. General:
 1. Installation shall meet or exceed all applicable federal, state and local requirements, referenced standards and conform to codes and ordinances of authorities having jurisdiction.
 2. All installation shall be in accordance with manufacturer's published recommendations.
 3. Do not install damaged components. Fit frame joints tight, free of burrs and distortion. Rigidly secure non-movement joints.
 4. Isolate metal surfaces in contact with incompatible metal or corrosive substrates, including wood, by applying sealer tape to prevent electrolytic action.
- B. Set plumb, square, level, and in correct alignment and securely anchor to following tolerances:
 1. Variation from plane: Limit to 1/8 inch (3 mm) in 12 feet (3.6 meters); 1/4 inch (6 mm) over total length.
 2. Offset from Alignment: For surfaces abutting in line, limit offset to 1/16 inch (1.6 mm).
 3. Offset at Corners: For surfaces meeting at corner, limit offset to 1/32 inch (0.8 mm).
 4. Diagonal measurements: Limit difference between diagonal measurements to 1/8 inch (3 mm).
 5. Sidelites: Line up horizontal rail in sidelight with door rail.
- C. Install doors without warp or rack. Adjust doors and hardware to provide 90 degree operation, tight fit at contact points and smooth operation.

- D. Install exterior window units with through wall sill flashing.
- E. Thresholds:
 - 1. Accurately cut thresholds to fit profile of storefront frame. Bed exterior thresholds in specified sealant at contact points with floor and make watertight.
- F. Sealants:
 - 1. Apply in accordance with Section 07 9213 'Elastomeric Joint Sealant'.
 - 2. Caulk joints between frames and walls, both interior and exterior to provide weather tight installation.
- G. Glazing Characteristics:
 - 1. Interior Vestibule Glazing: Clear.
 - 2. Exterior Storefront Doors And Sidelights Opening Into vestibule:
 - a. Solarban 70.
 - 3. All Other Exterior Storefront Doors And Storefront:
 - a. Obscure interior pane with pattern on surface 3 and Clear exterior pane with Low E treatment on surface 2.

3.3 FIELD QUALITY CONTROL

- A. Field Tests And Inspections:
 - 1. Pull test doors to ensure security of opening.
 - 2. Pull test doors, especially pairs of single doors separated by permanent mullions, to ensure security of opening.
- B. Non-Conforming Work:: Non-conforming work as covered in the General Conditions applies, but is not limited to the following:
 - 1. Correct any work found defective or not complying with contract document requirements including removal and replacement of glass that has been broken, chipped, cracked, abraded, or damaged during construction period at no additional cost to the Owner.

3.4 ADJUSTING

- A. Adjust doors for proper operation after glazing entry. After repeated operation of completed installation, re-adjust door for optimum operating condition and safety if required.

3.5 PROTECTION

- A. During Installation:
 - 1. Installer's Responsibility:
 - a. During installation, all adjacent work shall be protected from damage.
- B. After Installation:
 - 1. General Contractor's Responsibility:

- a. Institute protective measures required throughout remainder of construction period to ensure that aluminum entrances and storefronts will be without damage or deterioration, other than normal weathering, at time of acceptance.

3.6 CLEANING

A. General:

1. Installer's Responsibility:

- a. Follow Manufacturer's written recommendations for cleaning and maintenance or guidelines of AAMA Publications #609 and #610-2 'Cleaning and Maintenance Guide for Architecturally Finished Aluminum' (combined documents).
- b. Clean glass and aluminum surfaces, inside and out, promptly after installation. Remove excess glazing and sealant compounds, dirt, and other substances. Exercise care to avoid damage to coatings.
- c. Remove nonpermanent labels, protective films, and clean surfaces following recommended procedures.
 - 1) Do NOT remove permanent ANSI/AAMA/CSA or NFRC labels.

B. Waste Management:

- 1. Upon completion and verification of performance of installation, remove surplus materials, excess materials, rubbish, tools and equipment.

END OF SECTION

SECTION 08 51 13
ALUMINUM WINDOWS

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Extruded aluminum windows.
 - 2. Factory glazing including infill panels.
 - 3. Operating hardware.
 - 4. Insect screens.
- B. Related Requirements:
 - 1. .
 - 2. Section 08 81 00 - Glazing.

1.2 REFERENCE STANDARDS

- A. American Architectural Manufacturers Association (AAMA):
 - 1. AAMA 101 - North American Fenestration Standard / Specification for Windows, Doors, and Skylights.
 - 2. AAMA 611 - Voluntary Specification for Anodized Architectural Aluminum.
 - 3. AAMA 1503 - Voluntary Test Method for Thermal Transmittance and Condensation Resistance of Windows, Doors and Glazed Wall Sections.
 - 4. AAMA 2603 - Voluntary Specification, Performance Requirements and Test Procedures for Pigmented Organic Coatings on Aluminum Extrusions and Panels.
 - 5. AAMA 2604 - Voluntary Specification, Performance Requirements and Test Procedures for High Performance Organic Coatings on Aluminum Extrusions and Panels.
 - 6. AAMA 2605 - Voluntary Specification, Performance Requirements and Test Procedures for Superior Performing Organic Coatings on Aluminum Extrusions and Panels.
- B. American Society of Civil Engineers (ASCE):
 - 1. ASCE 7 - Minimum Design Loads and Associated Criteria for Buildings and Other Structures.
- C. ASTM International (ASTM):
 - 1. ASTM A123 - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.
 - 2. ASTM A153 - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware.
 - 3. ASTM B209 - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate.

4. ASTM B221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes.
 5. ASTM D3656 - Standard Specification for Insect Screening and Louver Cloth Woven from Vinyl-Coated Glass Yarns.
 6. ASTM E283 - Standard Test Method for Determining Rate of Air Leakage Through Exterior Windows, Skylights, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen.
 7. ASTM E330 - Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference.
 8. ASTM E331 - Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Uniform Static Air Pressure Difference.
 9. ASTM E1886 - Standard Test Method for Performance of Exterior Windows, Curtain Walls, Doors, and Impact Protective Systems Impacted by Missile(s) and Exposed to Cyclic Pressure Differentials.
 10. ASTM E1996 - Standard Specification for Performance of Exterior Windows, Curtain Walls, Doors, and Impact Protective Systems Impacted by Windborne Debris in Hurricanes.
 11. ASTM - F588 Standard Test Methods for Measuring the Forced Entry Resistance of Window Assemblies, Excluding Glazing Impact.
- D. Glass Association of North America (GANA):
1. GANA Glazing Manual.
- E. International Code Council (ICC):
1. ICC IECC – International Energy Conservation Code.
- F. National Fenestration Rating Council (NFRC):
1. NFRC 100 - Procedure for Determining Fenestration Product U-factors.
- G. The Society for Protective Coatings (SSPC).

1.3 SUBMITTALS

- A. Product Data: Submit for each type of aluminum window indicated.
- B. Shop Drawings: Include plans, elevations, sections, details, hardware, attachments to other work, operational clearances, and installation details.
- C. Samples: Submit sample for each exposed finish.
- D. Product Schedule: Use same designations indicated on Drawings.
- E. Manufacturer's Certificate: Certify that products meet or exceed specified requirements. Provide supporting documentation and test reports.

- F. Maintenance Data. Provide manufacturer's recommended maintenance information.

1.4 QUALITY ASSURANCE

- A. Aluminum Windows: Fabricate window assemblies according to AAMA 101 for types of windows required.
- B. Manufacturer: Company specializing in manufacturing commercial aluminum windows with minimum three years' experience.
- C. Glazing: Comply with published recommendations of glass manufacturers and with GANA Glazing Manual unless more stringent requirements are indicated.
- D. Installer: Manufacturer or company specializing in installation of industrial commercial windows with minimum three years' experience.

1.5 FIELD CONDITIONS

- A. Do not install sealants when ambient temperature is less than 40 degrees Fahrenheit. Maintain minimum temperature during and after installation of sealants.

1.6 WARRANTY

- A. Furnish five-year manufacturer's warranty for insulated glass units from seal failure, interpane dusting and misting, and replacement of glass.
- B. Include coverage for degradation of color finish.

PART 2 PRODUCTS

2.1 ALUMINUM WINDOW

- A. Product Description: Aluminum windows thermally broken;] applied glass stops of screw fastened type, sash, glass and glazing, operating hardware, and insect screen.
 - 1. Glazing: Exterior.
- B. Window Configuration: Conform to AAMA 101 designations for windows required for Project; HS-horizontal sliding, sash.
- C. Performance / Design Criteria:
 - 1. Primary Performance Requirements: Provide aluminum windows meeting minimum performance criteria for AAMA 101 Designation CW30 Commercial

2. System Design: Design and size components to withstand dead loads and live loads caused by positive and negative wind loads acting normal to plane of window as calculated according to applicable code and as tested according to ASTM E330.
3. Wind Load Deflection: According to AAMA 101.
4. Assembly: To accommodate, without damage to components or deterioration of seals, movement between window and perimeter framing, deflection of lintel.
5. Air and Vapor Seal: Maintain continuous air barrier and vapor retarder throughout assembly, primarily in line with inside pane of glass and heel bead of glazing compound. Position thermal insulation on exterior surface of air barrier and vapor retarder.
6. System Internal Drainage: Drain water entering joints, condensation occurring in glazing channels, and migrating moisture occurring within system, to exterior by weep drainage network.
7. Air Infiltration: Limit air infiltration through assembly to 0.3-cubic feet per minute per square feet of wall area, measured at reference differential pressure across assembly of 1.57-pounds per square foot when tested according to ASTM E283.
8. Vapor Seal: Limit vapor seal with interior atmospheric pressure of 1-inch static pressure, 72 degrees Fahrenheit, 40 percent RH without seal failure.
9. Thermal Performance:
 - a. Condensation Resistance Factor (CRF) Class of not less than C45 when measured according to AAMA 1503.
 - b. Thermal Transmittance of Assembly: Maximum U-value of 0.69-British thermal units per square foot per hour per degree Fahrenheit when measured according to AAMA 1503.
 - c. Comply with ICC IEEC for climate zone in which project is located. Measure according to AAMA 1503.
10. Water Leakage: None, when measured according to ASTM E331 with test pressure difference as defined by AAMA 101.
11. Forced Entry Resistance: Conform to ASTM F588 Type [?], Grade 20.

2.2 COMPONENTS

- A. Extruded Aluminum: ASTM B221; 6063 alloy, T5 temper.
- B. Sheet Aluminum: ASTM B209; 5005 alloy, H15 or H34 temper.
- C. Steel Sections: Profiled to suit mullion sections.
- D. Insulating Glass: See Glazing Spec
 1. Refer to Glazing Specification.
- E. Hardware:

1. Sash lock: Lever handle with cam lock. Furnish pole handle of size to allow access to sash locks and operable windows where over 5-feet above floor.
 2. Operator: Lever action handle fitted to projecting sash arms with limit stops.
 3. Sash lock: Lever handle with cam lock.
 4. Bottom Rollers: Stainless steel, adjustable.
- F. Sills: Extruded aluminum; sloped for positive wash; fit under sash leg 1/2-inch beyond wall face; one-piece full width of opening jamb angles to terminate sill end.
- G. Operable Sash Weather Stripping: Wool pile; permanently resilient, profiled to effect weather seal.
- H. Insect Screen Frame: Rolled aluminum frame of rectangular sections; fit with adjustable hardware; nominal size similar to operable glazed unit.
- I. Insect Screens: ASTM D3656, Class 2, 18 by 14 mesh, charcoal color.

2.3 FABRICATION

- A. Permit internal drainage weep holes and channels to migrate moisture to exterior. Furnish internal drainage of glazing spaces to exterior through weep holes.
- B. Assemble insect screen frame, miter and reinforce frame corners. Fit mesh taut into frame and secure. Fit frame with four spring loaded steel pin retainers.
- C. Double weatherstrip operable units.
- D. Factory glaze window units. Install glass and infill panels according to Section 08 80 00, to glazing method required to achieve performance criteria exterior wet/dry method of glazing.

2.4 FINISHES

- A. Finish Coatings: Conform to AAMA 2603.AAMA 2604 or 2605. AAMA 611.
- B. Exterior Surfaces: Anodized, dark bronze finish.
- C. Interior Surfaces: Anodized, dark bronze finish.
- D. Locks, Operators, and Exposed Hardware: Enameled to match window finish.
- E. Pull Handles: Anodized aluminum, dark bronze finish.

- F. Screens: Black color.

PART 3 EXECUTION

3.1 INSTALLATION

- A. Comply with Drawings, Shop Drawings, and manufacturer's written instructions for installing windows, hardware, accessories, and other components.
- B. Install windows level, plumb, square, true to line, without distortion or impeding thermal movement, anchored securely in place to structural support, and in proper relation to wall flashing and other adjacent construction.
- C. Set sill members in bed of sealant or with gaskets, as indicated, for weathertight construction.
- D. Install windows and components to drain condensation, water penetrating joints, and moisture migrating within windows to exterior.
- E. Separate aluminum and other corrodible surfaces from sources of corrosion or electrolytic action at points of contact with other materials.
- F. Clean aluminum surfaces immediately after installing windows. Avoid damaging protective coatings and finishes. Remove excess sealants, glazing materials, dirt, and other substances.
- G. Remove and replace glass that has been broken, chipped, cracked, abraded, or damaged during construction period.

3.2 TOLERANCES

- A. Maximum Variation from Level or Plumb: 1/16-inch every 3-feet non-cumulative or 1/8-inches per 10-feet, whichever is less.

END OF SECTION

SECTION 08 7102

HANGING DEVICES

PART 1 - GENERAL

1.1 SUMMARY

A. Products Furnished But Not Installed Under This Section:

1. Hinges for flush wood and hollow metal doors.

B. Related Requirements:

1. Section 08 7101: Common Hardware Requirements.

PART 2 - PRODUCTS

2.1 MANUFACTURED UNITS

A. Manufacturers:

1. Manufacturer Contact List:
 - a. Hager Companies, St Louis, MO www.hagerhinge.com.
 - b. Ives, New Haven, CT www.iveshardware.com.
 - c. McKinney, Scranton, PA www.mckinneyhinge.com.
 - d. PBB, Ontario, CA www.pbbinc.com.
 - e. Stanley, New Britain, CT www.stanleyworks.com.

B. Hinges:

1. Sizes:
 - a. 1-3/4 inch (45 mm) doors and fire-rated doors in metal frames:
 - 1) Standard: 4-1/2 inches by 4-1/2 inches (115 mm by 115 mm).
 - 2) Wide Throw: 4-1/2 inches (115 mm) by width required.
 - b. 1-3/4 inch 44.5 mm non-fire-rated wood doors in wood frames: 4 inches by 4 inches (100 mm by 100 mm).
2. Use non-removable pins on exterior opening doors.
3. Hinges on exterior doors shall be solid brass, plated to achieve specified finish.
4. Approved Products.
 - a. Interior:
 - 1) Hager: BB 1279.
 - 2) Ives: 5BBI.
 - 3) McKinney: TA 2714.
 - 4) MacPro / McKinney: MPB79.
 - 5) PBB: BB81.
 - 6) Stanley: FBB 179.
 - b. Exterior:
 - 1) Hager: BB 1191.
 - 2) Ives: 5BBI.
 - 3) McKinney: TA 2314.
 - 4) PBB: BB21.
 - 5) Stanley: FBB 191.

PART 3 - EXECUTION: Not Used

END OF SECTION

SECTION 08 7103
SECURING DEVICES

PART 1 - GENERAL

1.1 SUMMARY

- A. Products Furnished But Not Installed Under This Section:
 - 1. Items for architectural wood or hollow metal doors:
 - a. Locksets and latchsets.
 - b. Deadbolts.
 - c. Cylinders.
 - d. Interior exit devices.
- B. Related Requirements:
 - 1. Section 08 7101: Common Hardware Requirements.

PART 2 - PRODUCTS

2.1 MANUFACTURED UNITS

- A. Manufacturers:
 - 1. Manufacturer List:
 - a. Glynn-Johnson, Indianapolis, IN www.glynn-johnson.com.
 - b. Hager, St Louis, MO www.hagerhinge.com.
 - c. Ives, New Haven, CT www.iveshardware.com.
 - d. Knappe & Vogt, Grand Rapids, MI www.knappeandvogt.com.
 - e. Precision Hardware, Romulus, MI www.precisionhardware.com.
 - f. Rockwood, Manufacturing Co, Rockwood, PA www.rockwoodmfg.com.
 - g. Sargent, New Haven, CT www.sargentlock.com.
 - h. Schlage, Colorado Springs, CO www.schlage.com.
 - i. Von Duprin, Indianapolis, IN www.vonduprin.com.
 - j. Yale Commercial Locks, Lenoir City, TN www.yalecommercial.com.
- B. General:
 - 1. Backsets shall be 2-3/4 inches (70 mm).
 - 2. Furnish lead shields where required.
- C. Locksets And Latchsets:
 - 1. Lever Operated:
 - a. Approved Products.
 - 1) 7 Series by Sargent.
 - 2) AL Series by Schlage.
 - 3) 5300LN by Yale.
- D. Deadbolts:
 - 1. Approved Products.
 - a. Match manufacturer of locksets.
- E. Standard Cylinders:
- F. Exit Devices:
 - 1. Use operable lever trim.

2. Provide labeled hardware where required by local code authority.
3. Approved Products.
 - a. Apex Series by Precision.
 - b. 80 Series by Sargent.
 - c. 99 or 98 Series by Von Duprin.
 - d. 7100 Series by Yale.

PART 3 - NOT USED

END OF SECTION

SECTION 08 7106

CLOSING DEVICES

PART 1 - GENERAL

1.1 SUMMARY

- A. Products Furnished But Not Installed Under This Section:
 - 1. Closers for flush wood doors and hollow metal doors.
- B. Related Requirements:
 - 1. Section 08 7101: 'Common Finish Hardware Requirements'.
 - 2. Section 08 7108: 'Stops And Holders'.

1.2 SUBMITTALS

- A. Closeout Submittals:
 - 1. Include following in Operations And Maintenance Manual
 - a. Warranty Documentation:
 - 1) Manufacturer's final, executed copy of warranty.

1.3 WARRANTY

- A. Manufacturer Warranty:
 - 1. Manufacturer's Standard Warranty, five (5) years minimum.

PART 2 - PRODUCTS

2.1 MANUFACTURED UNITS

- A. Manufacturers:
 - 1. Approved Manufacturers.
 - a. 7900 Series by Dorma Architectural Hardware, Reamstown, PA www.dorma.com/usa.
 - b. 1461 Series by LCN Closers, Princeton, IL www.lcnclosers.com.
 - c. 8501 Series by Norton Door Controls, Charlotte, NC www.nortondoorcontrols.com.
 - d. 1431 Series by Sargent, New Haven, CT www.sargentlock.com.
- B. Surface-Mounted Overhead Door Closers:
 - 1. Closers provided under this Section shall be from same Manufacturer.
 - 2. Provide parallel arms on closers unless door position in relation to adjacent wall requires otherwise. Provide covers.
 - 3. Door Closers on doors that swing 180 degree as shown on Contract Documents:
 - a. Closers shall allow for 180 degree opening and not be used as a stop. Wall stop or Floor stop is specified in Door Schedule and Section 08 7108, 'Stops And Holders'.
 - b. Closers shall have following features:
 - 1) Adjustable sweep speed.
 - 2) Adjustable backcheck.
 - 3) Non-handed, non-sized.
 - 4. Door Closers on doors that swing 90 degree as shown on Contract Documents:
 - a. Closers shall allow for 100 degree opening and not be used as a stop.
 - b. Closers shall have following features:

- 1) Adjustable sweep speed.
- 2) Adjustable backcheck.
- 3) Non-handed, non-sized.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Mount closers on stop side of door wherever conditions permit.
- B. Through-bolt hardware-to-door connections.

3.2 ADJUSTING

- A. Adjust closers to provide maximum opening force as required by governing code authority and proper backcheck and sweep speed.

END OF SECTION

SECTION 08 7107

PROTECTIVE PLATES AND TRIM

PART 1 - GENERAL

1.1 SUMMARY

- A. Products Furnished But Not Installed Under This Section:
 - 1. Kick plates.
- B. Related Requirements:
 - 1. Section 08 7101: Common Hardware Requirements and VMR Suppliers.

PART 2 - PRODUCTS

2.1 MANUFACTURED UNITS

- A. Manufacturers:
 - 1. Type Two Acceptable Manufacturers:
 - a. Glynn-Johnson, Indianapolis, IN www.glynn-johnson.com.
 - b. Hager, St Louis, MO (800) 255-3590 or (314) 772-4400 www.hagerhinge.com.
 - c. Ives, Wallingford, CT www.iveshardware.com.
 - d. Rockwood Manufacturing Co, Rockwood, PA www.rockwoodmfg.com.
 - e. Equal as approved by Architect before installation. See Section 01 6200.
- B. Protective Plates:
 - 1. Material: 0.050 inch (1.27) mm thick Stainless Steel.
 - 2. Sizes:
 - a. Kick Plates: 10 inches (255) mm high by width of door less 3/4 inch (19 mm) on each side.

PART 3 - EXECUTION: Not Used

END OF SECTION

SECTION 08 7108

STOPS AND HOLDERS

PART 1 - GENERAL

1.1 SUMMARY

- A. Products Supplied But Not Installed Under This Section:
 - 1. Door stops.
 - 2. Door stops and holders.
- B. Related Sections:
 - 1. Section 08 7101: Common Hardware Requirements.

PART 2 - PRODUCTS

2.1 MANUFACTURED UNITS

- A. Manufacturers:
 - 1. Manufacturer Contact List:
 - a. Glynn-Johnson, Indianapolis, IN www.glynn-johnson.com.
 - b. Hager, St Louis, MO www.hagerhinge.com.
 - c. Ives, Wallingford, CT www.iveshardware.com.
 - d. Rockwood Manufacturing Co, Rockwood, PA www.rockwoodmfg.com.
 - e. Sargent, New Haven, CT (800) 906-6606 or (203) 562-2151 www.sargentlock.com.
- B. Stops:
 - 1. Use wall type stops unless indicated otherwise on Door Schedule.
 - 2. Provide model appropriate for substrate. Wall stops may be either cast or wrought.
 - 3. Type Two Acceptable Products:

	Interior Wall	Exterior Wall	Floor Mount	Overhead.
b. Hager	236W	255W	243F	---
c. Ives	WS407CCV	WS447	FS438	---
d. Rockwood	409	474 / 475	440 / 441	---
e. Glynn Johnson	---	---	---	GJ 90S
f. Sargent	---	---	---	590S Series
 - g. Equal as approved by Architect before Installation. See Section 01 6200.
- C. Door Stops And Holders:
 - 1. Acceptable Products:
 - a. Hager: 268F, 268S or 256S, 256W.
 - b. Ives: WS444, WS449, FS446, FS450.
 - c. Rockwood: 472, 473, 476, 477.
 - d. Equal as approved by Architect before Installation..

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Interface With Other Work: When using overhead stops, coordinate installation with door closer and other door hardware.

END OF SECTION

SECTION 08 7109

ACCESSORIES

PART 1 - GENERAL

1.1 SUMMARY

- A. Products Furnished But Not Installed Under This Section:
 - 1. .
 - 2. Door Silencers.
 - 3. Smoke Gaskets.
 - 4. Thresholds (metal) where required for wood doors and hollow metal doors.
 - 5. Weatherstripping for exterior hollow metal doors.
- B. Related Requirements:
 - 1. Section 08 4113: Thresholds for 'Aluminum-Framed Entrances And Storefronts'.
 - 2. Section 08 7101: Common Hardware Requirements and Approved Suppliers.
 - 3. Section 09 3013: Ceramic Tiling

1.2 REFERENCES

- A. Association Publications:
 - 1. American Architectural Manufacturers Association (AAMA):
 - a. AAMA 607.1-77, 'Voluntary Guide Specification and Inspection Methods for Clear Anodic Finishes for Architectural Aluminum'.
 - b. AAMA 611-98. 'Voluntary Standards for Anodized Architectural Aluminum'.
 - c. AAMA 701/702-04 Voluntary Specification for Pile Weatherstripping and Replaceable Fenestration Weatherseals.
 - 2. National Association of Architectural Metal Manufacturers (NAAMM):
 - a. Metal Finishes Manual for Architectural and Metal Products.
- B. Reference Standards:
 - 1. American National Standards Institute / Builders Hardware Manufacturers Association:
 - a. ANSI / BHMA A156.18-2006, 'Materials and Finishes'.
 - b. ANSI / BHMA A156.21-2009, 'American National Standard for Thresholds'.

PART 2 - PRODUCTS

2.1 MANUFACTURED UNITS

- A. Manufacturers:
 - 1. Manufacturer Contact List:
 - a. Hager, St Louis, MO www.hagerhinge.com.
 - b. Ives, Wallingford, CT www.iveshardware.com.
 - c. NGP - National Guard Products, Memphis, TN www.ngpinc.com.
 - d. Pemko Manufacturing, Ventura, CA www.pemko.com.
- B. Door Silencers:
 - 1. Quality Standards:
 - a. For Metal Frames:
 - 1) 307D by Hager.
 - 2) SR64 by Ives.

- C. Smoke Gaskets:
 - 1. Color as selected by Architect.
 - 2. Acceptable Products:
 - a. 726 by Hager.
 - b. 5050 by NGP.
 - c. PK55 by Pemko.
 - d. Equal as approved by Architect before bidding.
- D. Weatherstripping:
 - 1. Acceptable Products:
 - a. Perimeter:
 - 1) 800S by Hager.
 - 2) A625A by NGP.
 - 3) 35041CP by Pemko.
 - b. Bottom:
 - 1) Equal by Hager.
 - 2) 198NA by NGP.
 - 3) Equal by Pemko.
 - c. Equal as approved by Architect before bidding. .

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install smoke gaskets eals in manner to give continuous air-tight fit.
 - 1. Install smoke gaskets as per Manufacturer's installation requirements:
 - a. Hinge Jamb: Install smoke gaskets on jamb face of door frame so door will compress smoke gasket.
 - b. Header and Strike Jamb: Install smoke gaskets on face of stop of door frame so door will compress smoke gasket.
 - 2. Install acoustical seal with seal under door.

END OF SECTION

SECTION 08 8100
GLASS GLAZING

PART 1 - GENERAL

1.1 SUMMARY

- A. Includes But Not Limited To:
 - 1. Quality of glazing used in entries, doors, windows and side lites.
- B. Related Requirements:
 - 1. Sections Under 08 1000 Heading: Furnishing and installing of flush wood door lites in new doors.
 - 2. Section 08 4113: Furnishing and installing of glazing in aluminum-framed storefront.
 - 3. Section 08 5113 or 08 5313: Furnishing and installing of glazing in windows.

1.2 REFERENCES

- A. Association Publications:
 - 1. Glass Association of North America (GANA):
 - a. *'Glazing Manual'*.
 - b. *'Laminated Glass Design Guide'*.
 - c. *'Engineering Standards Manual'*.
 - 2. The Insulating Glass Manufacturers Alliance (IGMA):
 - a. IGMA TB-3001 'Sloped Glazing Guidelines.
 - b. SIGMA TM-3000 'Glazing Guidelines for Sealed Insulating Glass Units'.
- B. Definitions:
 - 1. Airspace: Space between lites of insulating glass unit that contains dehydrated air or other inert specified gas.
 - 2. Emissivity: Ability of surface to absorb heat and to reflect it. Lower emissivity, the less room heat is absorbed and more heat is reflected back into the room.
 - 3. Glass Surface:
 - a. Insulated glass unit:
 - 1) Surface 1: Exterior surface of outer lite.
 - 2) Surface 2: Interspace-facing surface of outer lite.
 - 3) Surface 3: Interspace-facing surface of inner lite.
 - 4) Surface 4: Interior surface of inner lite.
 - b. Monolithic glass:
 - 1) Surface 1: Exterior surface.
 - 2) Surface 2: Interior surface.
 - 4. Insulation Glass: Two pieces of glass spaced apart and hermetically sealed to form single-glazed unit with air space between. Heat transmission through this type of glass may be as low as half that without air space. Also called double glazing, double pane, insulated unit, and thermal pane.

5. Laminated Glass: Two or more sheets with inner layer of transparent plastic to which glass adheres if broken. Used for overhead, safety glazing, and sound reduction.
6. Low-Emissivity Glass (Low-E): Reduces wintertime heat loss from interior with thin, almost colorless metallic coating that reflects heat back inside structure. Allows moderate solar heat gain while reducing harmful ultraviolet light in any season. Minimizes summertime air conditioning loss by reflecting radiated heat to outside. May be tempered for where safety glass is required. Available in single strength clear, gray and bronze (brown) color.
7. Muntins: Decorative design in cut-ups of glass lites, such as painted muntin grids (enamelite) applied to interior lite of glass in sealed insulating glass unit to simulate cut-ups of glass lites either in colonial or diamond patterns, or use of aluminum muntin bar between lites of glass in sealed insulating glass unit to simulate glass cut-ups, or use of actual vertical and horizontal bars to divide windows into smaller lites of glass. Bars are termed muntin bars.
8. Obscure Glass: Adds privacy where window coverings are impractical or undesirable. Various colors and texture patterns provide translucent or semi-opaque effect. May be tempered for use where safety glass is required.
9. Shading Coefficient: Ratio of solar heat gain passing through a glazing system to solar heat gain that occurs under the same conditions if the window was made of clear, unshaded double strength glass. Lower SC number, the better solar control efficiency of glazing system.
10. Solar Absorptance: Percent of incident solar radiation that is absorbed by window film/glass system. Lower the number, the less solar radiation absorbed.
11. Solar Heat Gain Coefficient (SHGC): Ratio of total solar heat passing through a given window relative to the solar heat incident on the projected window surface at normal solar incidence. (Percentage of solar energy directly transmitted or absorbed and re-radiated into a building). Lower SHGC, the better it is able to reduce heat.
12. Solar Reflectance (R): Percent of incident solar radiation that is reflected by window film/glass system. Lower the number, the less solar radiation reflected.
13. Solar Transmittance (T): Percent of incident solar radiation that is transmitted through window film/glass system. Lower the number, the less solar radiation transmitted.
14. Tempered Glass: Glass strengthened through process of heating, creating tensile strength that causes glass to resist breakage, yet disintegrate into small pieces if break occurs. Tempered glass is type of safety glass.
15. Tinted Glass: Special type glass with additives, usually metallic particles that reduce passage of sunlight. Tinted glass can be bronze, gray, green or blue as well as other more exotic colors.
16. U-Factor: Overall heat transfer coefficient of glazing system. Measure of heat transfer that occurs through glazing system, and its outer and inner surfaces. This value is a function of temperature, and is expressed in BTU per square foot per hour per degree Fahrenheit (BTU/sq ft/hr deg F). Lower the U-Factor, the better insulation qualities of glazing system.
17. U-Value: Measurement of heat transfer through film due to outdoor/indoor temperature differences. Lower U-value, less heat transfers. When using performance data, the lower U-value, better insulating qualities of window film/glass system.

18. Ultraviolet Transmittance: Percent of ultraviolet light (UV) that is transmitted by window film/glass system. Lower the number, the less ultraviolet transmitted.
19. Visible Light Transmitted (VLT): Percent of total visible light (380-780 nanometers) that passes through glass. Lower the number, the less visible light transmitted.

C. Reference Standards:

1. American Architectural Manufacturers Association / Window & Door Manufacturers Association / Canadian Standards Association:
 - a. AAMA 800-10, 'Voluntary Specifications and Test Methods for Sealants'.
2. American National Standards Institute:
 - a. ANSI Z97.1 Safety Glazing Materials Used in Buildings - Safety Performance Specifications and Methods of Test'.
3. ASTM International:
 - a. ASTM C1036-11, 'Standard Specification for Flat Glass'.
 - b. ASTM C1048-04, 'Standard Specification for Heat-Treated Flat Glass - Kind H, Kind FT Coated and Uncoated Glass'.
 - c. ASTM C1172-09e1, 'Standard Specification for Laminated Architectural Flat Glass'.
 - d. ASTM C1281-03(2009), 'Standard Specification for Preformed Tape Sealants for Glazing Applications'.
 - e. ASTM E2190-10, 'Standard Specification for Insulating Glass Unit Performance and Evaluation'.
4. National Fenestration Rating Council (NFRC):
 - a. NFRC 100 - Procedure for Determining Fenestration Product Thermal Properties.
 - b. NFRC 200 - Procedure for Determining Fenestration Product Solar Heat Gain Coefficients at Normal Incidence.
 - c. NFRC 300 - Procedures for Determining Solar Optical Properties of Simple Fenestration Products.
5. U.S. Consumer Product Safety Commission (CPSC):
 - a. Code of Federal Regulations: 16 CFR 1201, 'Safety Standard For Architectural Glazing Materials'.

1.3 SUBMITTALS

A. Action Submittals:

1. Product Data:
 - a. Manufacturer's data sheets for each glass product and glazing material.

B. Informational Submittals:

1. Qualification Statement:
 - a. Installer:
 - 1) Provide Qualification documentation if requested by Architect or Owner.

C. Closeout Submittals:

1. Include following in Operations And Maintenance Manual specified in Section 01 7800:
 - a. Warranty Documentation:

- 1) Final, executed copy of Warranty.

1.4 QUALITY ASSURANCE

- A. Regulatory Agency Sustainability Approvals:
 1. Glazing shall meet applicable requirements of Federal Consumer Product Safety Standard 16 CFR 1201.
 2. Comply with published recommendations of glass product Manufacturers and organizations, except where more stringent requirements are indicated.
- B. Qualifications:
 1. Installer: Requirements of Section 01 4301 applies, but not limited to following:
 - a. Satisfactorily completed at least three (3) installations of similar size, scope, and complexity in each of past two (2) years and be approved by glass product Manufacturer before bidding.
 - b. Upon request, submit documentation.
- C. Certifications:
 1. Labels showing strength, grade, thickness, type, and quality are required on each piece of glass.
 2. Manufacturers/Fabricators certifying products furnished comply with project requirements.
 3. Insulating-Glass Certification Program: Indicate compliance with requirements of Insulating Glass Certification Council on applicable glazing products.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Delivery And Acceptance Requirements:
 1. Follow Manufacturer's instruction for receiving, handling, and protecting glass & glazing materials to prevent breakage scratching, damage to seals, or other visible damage.
 2. Deliver materials in manufacturer's original, unopened, undamaged containers with identification labels intact.
- B. Storage And Handling Requirements:
 1. Follow Manufacturer's instruction for storing and protecting glass & glazing materials.
 2. Store materials protected from exposure to harmful environmental conditions and at temperatures and humidity conditions recommended by Manufacturer.
 3. Protect edge damage to glass, and damage/deterioration to coating on glass.

1.6 FIELD CONDITIONS

- A. Ambient Conditions:
 1. Do not proceed with glazing when ambient and substrate temperature conditions are outside the limits permitted by glazing material manufacturer or when joint substrates are wet due to rain, frost, condensation or other causes.

1.7 WARRANTY

A. Manufacturer Warranty:

1. Insulating Glass Warranty:

- a. Manufacturer's standard form, signed by insulating-glass product Manufacturer/Fabricator, agreeing to replace insulating-glass units that exhibit failure of hermetic seal under normal use evidenced by obstruction of vision by dust, moisture, or film on interior surfaces of glass, for ten [10] years of date of installation.

2. Installer's Warranty:

- a. Form acceptable to Owner, signed by glass product Installer, agreeing to replace glass products that deteriorate, or that exhibit damage or deterioration of glass or glazing products due to faulty installation, for two (2) years from date of installation.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Manufacturers:

1. Manufacturer Contact List for Low E Glazing:

- a. AFG Industries, Kingsport, TN www.afg.com.
- b. Oldcastle BuildingEnvelope, Santa Monica, CA www.oldcastlebe.com.
- c. Pilkington North America Inc., Toledo, OH www.pilkington.com.
- d. PPG Industries, Pittsburgh, PA www.ppgglass.com or PPG Canada Ltd, Glass Division, Toronto, ON (416) 789-3331.
- e. Versalux, Tulsa, OK www.versaluxglass.com.

B. Exterior Window and Storefront Glazing:

1. Thickness: $\frac{1}{4}$ inch minimum, Double Strength.

2. Exterior Glazing shall have following characteristics:

a. Low-Emissivity (or Low E):

1) Design Criteria:

- a) Clear:
- b) Insulated Glass.
- c) Meet requirements of ASTM C1036, Type I, Class I, Quality Q3.
- d) Location: Surface 2.

2) Type Two Acceptable Product:

a) Performance Standard:

- (1) 40 percent Visible Light Transmission (VLT).
- (2) 0.26 U-value winter. Night Time.
- (3) 0.21 Solar Heat Gain Coefficient (SHGC).
- (4) LSG 1.90
- (5) 7 percent Visible Light Reflectance.Exterior W112 Interior.

b) Quality Standard:

- (1) Solarban 70 XL Solar Bronze and Clear
- (2) Other low E glazing system standard with window manufacturer that meets or exceeds performance characteristics of specified

glazing is acceptable as approved by Architect before bidding.
See Section 01 6200.

3) Acceptable Manufacturers:

- a) AFG.
- b) Guardian.
- c) LOF.
- d) PPG.
- e) Visteon.
- f) Vitro.

b. Glazing in Windows within 24 inches (600 mm) of Exterior Doors:

1) Design Criteria:

- a) Tempered.
- b) Meet requirements of ASTM C1048, Kind FT, Condition A, Type I, Class I, Quality Q3.

C. Interior Glazing:

- 1. Thickness: 1/4 inch (6 mm).
- 2. Glazing shall have following characteristics:
 - a. Clear:
 - b. Tempered within 24 inches of doors or below 18 inches from floor.
 - 1) Acceptable Manufacturers:
 - a) AFG.
 - b) Guardian.
 - c) LOF.
 - d) PPG.
 - e) Visteon.
 - f) Vitro.

D. Rated Glazing

- 1. Provide 1 HR fire glazing in doors and side lites of rated doors.

E. Fabrication:

- 1. Except where glass exceeds 66 inches (1 675 mm) in width, cut clear glass so any wave will run horizontally when glazed.
- 2. Sealed, Insulating Glazing Units:
 - a. Double pane, sealed insulating glass units. Install at exterior windows and exterior aluminum-framed storefront.
 - b. Unit Thickness: 5/8 inch (16 mm) minimum, one inch (25 mm) maximum.
 - c. Type Seal:
 - 1) Metal-to-glass bond and separated by 1/2 inch (12.7 mm) dehydrated air space.
 - 2) Use non-hardening sealants.
 - d. Approved Fabricators.
 - 1) Members of Sealed Insulating Glass Manufacturer's Association.

2.2 ACCESSORIES

A. Cleaners, Primers, and Sealers: Types recommended by sealant or gasket manufacturer.

- B. Glazing Tape: Butyl-based elastomeric tape with integral resilient tube spacer, 10 to 15 Shore A durometer hardness, black color, coiled on release paper; widths required for specified installation, complying with ASTM C1281 and AAMA 800 for application.

PART 3 - EXECUTION: Not Used

END OF SECTION

SECTION 09 22 16

NON-STRUCTURAL METAL FRAMING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section Includes:
 - 1. Resilient metal ceiling channels.
- B. Related Requirements:

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Fire-Test-Response Characteristics: For fire-resistance-rated assemblies that incorporate non-load-bearing steel framing, provide materials and construction identical to those tested in assembly indicated, according to ASTM E119 by an independent testing agency.
- B. STC-Rated Assemblies: For STC-rated assemblies, provide materials and construction identical to those tested in assembly indicated on Drawings, according to ASTM E90 and classified according to ASTM E413 by an independent testing agency.
- C. Horizontal Deflection: For [composite] [non-composite] wall assemblies, limited to [1/240] [1/360] of the wall height based on horizontal loading of [5 lbf/sq. ft. (239 Pa)] [10 lbf/sq. ft. (480 Pa)] <Insert value>.

2.2 FRAMING SYSTEMS

- A. Resilient Furring Channels: 1/2-inch- (13-mm-) deep, steel sheet members designed to reduce sound transmission.
 - 1. Configuration: Asymmetrical.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

- A. Installation Standard: ASTM C754.
- B. Install framing and accessories plumb, square, and true to line, with connections securely fastened.

3.2 INSTALLING FRAMED ASSEMBLIES

- A. Install framing system components according to spacings indicated, but not greater than spacings required by referenced installation standards for assembly types.
 - 1. Fire-Resistance-Rated Partitions: Install framing to comply with fire-resistance-rated assembly indicated and support closures and to make partitions continuous from floor to underside of solid structure.
 - 2. Sound-Rated Partitions: Install framing to comply with sound-rated assembly indicated.

END OF SECTION

SECTION 09 24 00
DIAMOND WALL ONE COAT STUCCO

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes: Work includes all labor, materials, and equipment necessary to install all aspects of the Diamond Wall One Coat Stucco System.
- B. Related Sections
 - 1. 06 11 00 – Wood Framed Construction
 - 2. 06 16 00 – Sheathing
 - 3. 07 00 00 – Joint Sealers
 - 4. 09 29 00 – Gypsum Board

1.2 REFERENCES

- A. ASTM C150 – Portland Cement
- B. ASTM C79/C1396 - Gypsum Sheathing
- C. ASTM A641 - Zinc-Coated (Galvanized) Carbon Steel Wire
- D. ASTM C847 - Standard Specification for Metal Lath
- E. ASTM C897/C144 - Aggregate for Job-Mixed Portland Cement-Based Plaster
- F. ASTM C1032 - Woven Wire Plaster Base
- G. ASTM C920 - Elastomeric Joint Sealants
- H. ICC-ES ESR-1194
- I. Omega Diamond Wall One Coat Systems Details (DWS)

1.3 SYSTEM DESCRIPTION

- A. General: The Diamond Wall One Coat System is an exterior stucco system and is comprised of sheathing, a liquid water-resistive barrier, metal lath, Diamond Wall base coat, and an acrylic precolored finish coat.
- B. Methods: The Diamond Wall systems are applied directly to a structure at the construction site or may be applied to prefabricated panels.

1.4 SUBMITTALS

- A. Product Data: All product data sheets, evaluation reports, details, and warranty information that pertain to the project in accordance with Section 01 30 00 Submittal Procedures.
- B. Samples: Submitted upon request.
 - 1. Samples of the finish coat shall be of an adequate size as required to represent each color and texture to be utilized on the project and produced using the same techniques and tools required to complete the project.
 - 2. Retain approved samples at the construction site throughout the application process.

1.5 QUALITY ASSURANCE

- A. Qualifications:
 - 1. Manufacturer: System component materials shall be manufactured or approved by Omega Products International, Inc. and shall be distributed by the same or its authorized dealers.
- B. Plastering Contractor:
 - 1. Shall specialize in cement plasterwork with documented experience.
 - 2. Shall provide proof of current contractor's license and bond where required.
 - 3. Shall show proof of current Approved Applicator Certificate issued by Omega Products International, Inc.
- C. On-Site Mock-Ups: Produced upon request.
 - 1. Prior to commencement of work, provide a mock-up for approval.
 - 2. Mock-up suitable to represent the products to be installed for each color and texture constructed using the same tools and techniques to be utilized on the project.
 - 3. Retain approved mock-up at job site throughout the application process.
 - a. Where acceptable to the Architect, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Delivery: Deliver all materials to the construction site in their original, unopened packaging with labels intact.
- B. Inspection: Inspect the materials upon delivery to assure that specified products have been received. Report defects or discrepancies to the responsible party according to the construction documents; do not use reported material for application.

- C. Storage: Store all products per manufacturer's recommendations. Generally, store materials in a cool, dry location; away from direct contact with the ground and/or concrete; out of direct sunlight; and protect from weather and other damage.

1.7 PROJECT CONDITIONS

- A. Environmental Requirements: Follow product manufacturer's recommendations for environmental conditions and surface preparation.
 - 1. Temperatures: Before, during and following the application of the Diamond Wall One Coat System, the ambient and surface temperatures must remain above 40°F (4°C) for a minimum period of 24 hours. Protect stucco from uneven and excessive evaporation, especially during hot, dry, and/or windy weather. Protect Diamond Wall stucco from freezing for a period of not less than 24-hours after set has occurred.
 - 2. Substrates: Prior to installation, inspect the wall for surface contamination or other defects that may adversely affect the performance of the materials, and shall be free of residual moisture. Do not apply Diamond Wall stucco to substrates whose temperature are less than 40°F (4°C) or contain frost or ice.
 - 3. Inclement Weather: Protect applied material from inclement weather until dry.
- B. Existing Conditions:
 - 1. Jobsite Resources: Provide access to electrical outlets, clean, potable water, and a suitable work area at the construction site throughout the application of the Diamond Wall One Coat System.

1.8 SEQUENCING AND SCHEDULING

- A. Sequencing: Coordinate the installation of the Diamond Wall One Coat System with all other construction trades. To reduce the likelihood of the stucco cracking, it is recommended the building carry a minimum of 90 percent of the dead building load and the interior gypsum be installed prior to installation of the stucco.
- B. Staffing: Provide sufficient manpower to ensure continuous operation, free of cold joints, scaffolding lines, variations in texture, etc.

1.9 WARRANTY

- A. System Warranty: Submit documentation on Diamond Wall's standard system warranties. At completion of work, provide written system warranty documentation.
- B. Warranty Length: Ten (10) years commencing at the time of substantial completion. *[See Omega Product's System Warranties for more*

information. The warranty length depends upon the combination of products used in the system.]

1.10 MAINTENANCE

- A. The following materials shall be presented to the owner following the application of the Diamond Wall One Coat System:
1. One container of finish for each color and texture utilized on the project.
 2. A maintenance program for finishes as required.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Acceptable Manufacturer: Omega Products International, Inc.

2.2 ONE COAT STUCCO BASE COAT

- A. Diamond Wall Concentrate: A factory prepared blend of portland cement complying with C150, chopped fibers, and proprietary ingredients manufactured by Omega Products International, Inc.

OR

- B. Diamond Wall Sanded: A factory prepared blend of portland cement complying with C150, sand, chopped fibers, and proprietary ingredients manufactured by Omega Products International, Inc.

- C. Sand:
1. Sand must be clean and free from deleterious amounts of loam, clay, silt, soluble salts and organic matter.
 2. Sampling and testing must comply with ASTM C144 or C897.
 3. Sand must be graded in accordance with ASTM C144 or C897 or within the following limits:

RETAINED ON U.S. STANDARD SIEVE	PERCENT RETAINED BY WEIGHT ± 2 PERCENT	
	Natural Sand	Manufactured Sand
	Min. / Max	Min. / Max.
No. 4	0 / 0	0 / 0
No. 8	0 / 10	0 / 10
No. 16	10 / 40	10 / 40
No. 30	30 / 65	30 / 65
No. 50	70 / 90	60 / 80

No. 100	95 / 100	75/90
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- D. Water: Clean and potable without foreign matter.
1. [AkroLoc: A 100% acrylic polymer bonder or admixture manufactured by Omega Products International, Inc.]
OR
 2. [PolyLoc: Poly-vinyl acetate (PVA) bonder or admixture manufactured by Omega Products International, Inc.]
OR
 3. [Admix 500: A 100% acrylic polymer admixture manufactured by Omega Products International, Inc.]
OR
 4. [OmegaCure: A non-corrosive liquid admixture for accelerating the hydration of cement plaster manufactured by Omega Products International, Inc.]

2.3 WATER-RESISTIVE BARRIER

- 1.
- B. Over Wood-based Sheathing:
1. AkroGuard: Acrylic-based, vapor-permeable water-resistive/air barrier coating manufactured by Omega Products International, Inc.

2.4 LATH

- A. Woven-Wire Lath: Nominal No. 17 gauge (0.058 inch), 1.5-inch opening, galvanized steel complying with ASTM C1032. Furring crimps shall be provided at maximum 6-inch (152mm) intervals each way and shall fur the body of the lath a minimum of 1/4-inch (6.4mm) from the substrate after installation.

2.5 SHEATHING

- A. Wood-based Structural Panels: 1/2-inch-thick OSB. OSB must be Exposure 1 and comply with DOC PS-2, or UBC Standard 23-3, as applicable. *[Wood-based structural panels must be minimum 5/16-inch-thick (7.9 mm) plywood or OSB, for studs spaced 16 inches (406 mm) on center, and must be a minimum 3/8-inch-thick (9.5 mm) plywood or OSB for studs spaced 24 inches (610 mm) on center. Insert the thickness and choose plywood or OSB references.]*

2.6 ACCESSORIES

- A. Caulking: Acrylic latex complying with ASTM C834. Polyurethane, polyurethane modified, polysulfide, or silyl-terminated polyether elastomeric sealant complying with ASTM C920.

- B. Flashing: Flashing complying with UBC Section 1404.2, IBC Section 1405.3 or IRC Section R703.8, as applicable, must be provided. Where membrane flashing is used, it must be a self-adhering, flexible rubberized asphalt and polyethylene material, 0.020 inch (0.5 mm) thick minimum, shingle-lapped with the water-resistive barrier. Rigid flashings must be sloped towards the exterior, with an upturned leg on the interior side and at the ends, and must extend beyond the surface of the exterior wall.
- C. Fasteners: Nails, staples, or screws used to rigidly secure lath and associated accessories shall be corrosion-resistant and meet the minimum requirements of ICC-ES ESR-1194.
- D. Zinc and Zinc-Coated (Galvanized) Accessories: The following accessories shall be fabricated from zinc.
 - 1. Corner Aid: Minimum 26-gauge thick; expanded flanges shaped to permit complete embedding in plaster; minimum 2 in. wide; Square-edge style; use unless otherwise indicated.
 - 2. Strip Mesh: Metal Lath, 3.4 lb/yd² expanded metal; 6 in. wide x 18 in. long.
 - 3. Vent Screed: Minimum 26-gauge thick; thickness governed by plaster thickness; minimum 2-inch (102 mm) width, double "V" profile, with perforated expanse between "V's" of longest possible lengths.
 - 4. Casing Bead: Minimum 26-gauge thick; thickness governed by plaster thickness; maximum possible lengths; expanded metal flanges, with square edges.
 - 5. Drip Screed: Minimum 26-gauge thick, depth governed by plaster thickness, minimum 3-1/2 in. high flange, maximum possible lengths.
 - 6. Control and Expansion Joints: Depth to conform to plaster thickness; use maximum practical lengths.
 - a. Control Joints: One-piece-type, U-shape 3/4" reveal width painted configuration; removable protective tape on plaster face of control joint.

2.7 FOAM ARCHITECTURAL DETAILS

- A. Foam: EPS foam, 1.0 lb/ft² minimum density.
- B. Foam Mesh: Alkali resistant, 2.0 oz. or 4.5 oz., woven glass fiber fabrics specially manufactured by Omega Products International, Inc.
- C. Foam Base coat and Adhesive: DryBond, StyroGlue DryBond, StyroGlue, or Foamtek manufactured by Omega Products International, Inc.

2.8 PRIMER

- A. [Primer is optional, but is recommended when using acrylic-based finishes. Delete this section if primer will not be used on the project. The use of primer will increase the Diamond Wall standard warranty by three years.] OmegaFlex or AkroFlex primer manufactured by Omega Products International, Inc.

2.9 FINISHES

- A. [OmegaFlex <insert finish name>: 100% acrylic-based finish manufactured by Omega Products International, Inc. *[Standard system warranty is 7 years. See Omega Product's System Warranties for additional information.]*]
- B. [AkroFlex <insert finish name>: 100% acrylic-based finish manufactured by Omega Products International, Inc. *[Standard system warranty is 7 years. See Omega Product's System Warranties for additional information.]*]
- C. Color and Texture: Color and finish texture shall be as selected by the Architect.

2.10 MIXES

- A. Diamond Wall Base Coat: Mixing requirements are contained in the Diamond Wall Concentrate product data sheets by Omega Products International, Inc. and the ICC-ES ESR-1194.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Substrates:
 - 1. Acceptable substrates must be securely fastened per applicable building code requirements.
 - 2. Acceptable substrates and adjacent materials must be dry, clean, and sound. Substrate surface must be flat, free of fins or planar irregularities greater than 1/4-inch in 10-feet (6mm in 3m).
 - 3. Insure wood-based sheathing is properly gapped per APA guidelines.
- B. Flashings: All flashing around windows, at deck attachments, utility penetrations, roof lines, etc. and all kick-out flashing must be properly installed prior to application of Omega Diamond Wall One Coat System.
- C. Unsatisfactory conditions shall be reported to the general contractor and/or builder and/or architect and/or owner. Do not proceed until all unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Substrate: Clean the substrate to which the Diamond Wall One Coat System is to be applied, ensuring that there are no foreign materials present; including, but are not limited to, oil, dirt, dust form release agents, efflorescence, paint, wax, water repellants, moisture, frost, and or extended nails that may rupture the water-resistive barrier.
- B. Surrounding Areas: Protect surfaces near the work of this section from damage, disfiguration, and overspray. Mask off all dissimilar materials.

3.3 INSTALLATION

- A. General Installation: Refer to ICC-ES ESR-1194 or the appropriate manufacturer's product data sheet for additional installation requirements and recommendations.

3.4 INSTALLING WEATHER PROTECTION

- A. Water-Resistive Barrier: Apply water-resistive barrier complying with Section 1404.2 of the IBC, Section R703.2 of the IRC or Section 1402.1 of the UBC.
- B. Flashing: Install flashing and trim per

3.5 INSTALLING LATH

- A. General: The lath must be properly furred. When end laps occur between supports, lace or wire tie the ends of the sheets with 0.0475-inch (1.2 mm) galvanized annealed steel wire.
 - 1. [Wood Studs: Use No. 11 gage galvanized roofing nails or No. 16 gage corrosion-resistant staples spaced a maximum of 6 inches (152 mm) on center with a minimum 1-inch (25 mm) penetration into the wood studs. Staples must have a minimum crown width of 7/16-inch (11.1 mm). The wood species must have a minimum specific gravity of .42, such as Spruce-pine fir. Care must be taken to avoid overdriving fasteners.]
- B. Soffits: Use 3.4 lb/yd² metal lath or rib lath. Metal lath fastening must comply with ASTM C926 or C1063 (IBC), Section R703.6 of the IRC, or Table 25-C of the UBC, except the fastener length must be increased by the thickness of any substrate. *[Delete this section if soffits are not needed.]*

3.6 INSTALLING DIAMOND WALL BASE COAT

- A. Application: The exterior cementitious coating is applied by hand-troweling or machine-spraying, in one coat, to a minimum 3/8-inch (9.5 mm) thickness, unless noted otherwise. Nominal thickness around penetrations

is 3/8-inch (9.5 mm), backed by framing or blocking. The lath must be embedded in the minimum coating thickness and therefore cannot be exposed.

- B. Moist Curing: Moist curing must be provided for a minimum 24 hours after coating applications. The length of time and most effective procedure for moist curing will depend on climatic and job conditions.

3.7 INSTALLING CRACK ISOLATION SYSTEM

- A. [Brown Coat Method: Before final set has occurred, fully embed mesh into the brown coat. A minimum two-inch overlap is required. Brown coat surface shall be left suitable for the application of the finish.]

OR

- B. [Base Coat Method: After brown coat has properly cured, apply base coat to wall and fully embed mesh into base coat. See the appropriate Omega product data sheet for mixing and application instruction. A minimum two-inch (51 mm) overlap is required at all mesh joints. Base coat surface shall be left suitable for the application of the finish.]

3.8 INSTALLING FOAM ARCHITECTURAL DETAILS

- A. Attaching Foam: Apply foam shapes after Diamond Wall stucco has set. Use foam adhesive to attach EPS foam shapes to Diamond Wall. See base coat product data sheet for additional information.
- B. Coating Foam: Apply foam base coat and embed mesh. Overlap mesh onto Diamond Wall stucco a minimum of 1.5-inches (38mm).

3.9 INSTALLING FINISH COAT

- A. General: Apply per manufacturer's product data sheet.
- B. Verification: Verify the desired color and texture match the approved sample and/or mock-up prior to installation.

3.10 CLEANING

- A. Cleaning: Remove any and all materials used, overspray from adjacent surfaces, and all protective masking.

3.11 PROTECTION

- A. Protection: Protect applied material from inclement weather until dry and prevent it from freezing for a minimum of 24-hours after set and/or until dry. Refer to manufacturer's product data sheet for additional requirements.

END OF SECTION

SECTION 09 29 00 GYPSUM BOARD

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Interior gypsum board.
 - 2. Tile backing panels.
 - 3. Textured finishes.
- B. Related Requirements:
 - 1. Section 07 00 00 - Thermal Insulation.
 - 2. Section 09 91 23 - Interior Painting.

1.2 SUBMITTALS

- A. Product Data: Submit data on gypsum board, joint tape; decorative finish, and acoustic accessories.
- B. Samples: Submit one sample of textured surfacing; 24x24 inch in size illustrating textured finish.

1.3 DELIVERY, STORAGE AND HANDLING

- A. Store materials inside under cover and keep them dry and protected against weather, condensation, direct sunlight, construction traffic, and other potential causes of damage. Stack panels flat and supported on risers on a flat platform to prevent sagging.

1.4 FIELD CONDITIONS

- A. Environmental Limitations: Comply with ASTM C 840 requirements or gypsum board manufacturer's written recommendations, whichever are more stringent.
- B. Do not install paper-faced gypsum panels until installation areas are enclosed and conditioned.
- C. Do not install panels that are wet, those that are moisture damaged, and those that are mold damaged.
 - 1. Indications that panels are wet or moisture damaged include, but are not limited to, discoloration, sagging, or irregular shape.
 - 2. Indications that panels are mold damaged include, but are not limited to, fuzzy or splotchy surface contamination and discoloration.

PART 2 PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Fire-Resistance-Rated Assemblies: For fire-resistance-rated assemblies, provide materials and construction identical to those tested in assembly indicated according to ASTM E 119 by an independent testing agency.

2.2 GYPSUM BOARD, GENERAL

- A. Size: Provide maximum lengths and widths available that will minimize joints in each area and that correspond with support system indicated.

2.3 INTERIOR GYPSUM BOARD

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. American Gypsum.
 - 2. CertainTeed Corp.
 - 3. Georgia-Pacific Gypsum LLC.
 - 4. National Gypsum Company.
 - 5. USG Corporation.
- B. Gypsum Board, Type X: ASTM C 1396/C 1396M.
 - 1. Thickness: 5/8 inch.
 - 2. Long Edges: Tapered and featured (rounded or beveled) for prefilling.
- C. Gypsum Ceiling Board: ASTM C 1396/C 1396M Type X at Rated Ceilings.
 - 1. Thickness: 5/8 inch.
 - 2. Long Edges: Tapered.
- D. Moisture- and Mold-Resistant Gypsum Board: ASTM C 1396/C 1396M. With moisture- and mold-resistant core and paper surfaces.
 - 1. Core: 5/8 inch, Type X.
 - 2. Long Edges: Tapered.
 - 3. Mold Resistance: ASTM D 3273, score of 10 as rated according to ASTM D 3274.

2.4 TILE BACKING PANELS

- A. Water-Resistant Gypsum Backing Board: ASTM C 1396/C 1396M, with manufacturer's standard edges.
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. American Gypsum.
 - b. CertainTeed Corp.
 - c. Georgia-Pacific Gypsum LLC.
 - d. USG Corporation.
 - 2. Core: 5/8 inch, Type X.

2.5 TRIM ACCESSORIES

- A. Interior Trim: ASTM C 1047.
 - 1. Shapes:
 - a. Cornerbead.
 - b. Resilient ceiling channels at 16 inches on center.

2.6 JOINT TREATMENT MATERIALS

- A. General: Comply with ASTM C 475/C 475M.
- B. Joint Tape:
 - 1. Interior Gypsum Board: Paper.
 - 2. Tile Backing Panels: As recommended by panel manufacturer.
- C. Joint Compound for Interior Gypsum Board: For each coat use formulation that is compatible with other compounds applied on previous or for successive coats.
 - 1. Prefilling: At open joints, rounded or beveled panel edges, and damaged surface areas, use setting-type taping compound.
 - 2. Embedding and First Coat: For embedding tape and first coat on joints, fasteners, and trim flanges, use drying-type, all-purpose compound.
 - 3. Fill Coat: For second coat, use drying-type, all-purpose compound.
 - 4. Finish Coat: For third coat, use drying-type, all-purpose compound.
 - 5. Skim Coat: For final coat of Level 5 finish, use drying-type, all-purpose compound.
- D. Joint Compound for Tile Backing Panels:
 - 1. Water-Resistant Gypsum Backing Board: Use setting-type taping compound and setting-type, sandable topping compound.

2.7 AUXILIARY MATERIALS

- A. General: Provide auxiliary materials that comply with referenced installation standards and manufacturer's written recommendations.
- B. Steel Drill Screws: ASTM C 1002, unless otherwise indicated.
 - 1. Use screws complying with ASTM C 954 for fastening panels to steel members from 0.033 to 0.112 inch thick.
- C. Sound-Attenuation Blankets: ASTM C 665, Type I (blankets without membrane facing) produced by combining thermosetting resins with mineral fibers manufactured from glass, slag wool, or rock wool.

- D. Acoustical Joint Sealant: Manufacturer's standard nonsag, paintable, non-staining latex sealant complying with ASTM C 834. Product effectively reduces airborne sound transmission through perimeter joints and openings in building construction as demonstrated by testing representative assemblies according to ASTM E 90.
 - 1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Accumetric LLC.
 - b. Grabber Construction Products.
 - c. Pecora Corporation.
 - d. Specified Technologies, Inc.
 - e. USG Corporation.
- E. Thermal Insulation: In accordance with Section 07 00 00.
- F.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Examine areas and substrates including welded hollow-metal frames and framing, with Installer present, for compliance with requirements and other conditions affecting performance.
- B. Examine panels before installation. Reject panels that are wet, moisture damaged, and mold damaged.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 APPLYING AND FINISHING PANELS, GENERAL

- A. Comply with ASTM C 840.
- B. Install ceiling panels across framing to minimize the number of abutting end joints and to avoid abutting end joints in central area of each ceiling. Stagger abutting end joints of adjacent panels not less than one framing member.
- C. Install panels with face side out. Butt panels together for a light contact at edges and ends with not more than 1/16 inch of open space between panels. Do not force into place.
- D. Locate edge and end joints over supports, except in ceiling applications where intermediate supports or gypsum board back-blocking is provided behind end joints. Do not place tapered edges against cut edges or ends.

Stagger vertical joints on opposite sides of partitions. Do not make joints other than control joints at corners of framed openings.

- E. Form control and expansion joints with space between edges of adjoining gypsum panels.
- F. Cover both faces of support framing with gypsum panels in concealed spaces (above ceilings, etc.), except in chases braced internally.
 - 1. Unless concealed application is indicated or required for sound, fire, air, or smoke ratings, coverage may be accomplished with scraps of not less than 8 sq. ft. in area.
 - 2. Fit gypsum panels around ducts, pipes, and conduits.
 - 3. Where partitions intersect structural members projecting below underside of floor/roof slabs and decks, cut gypsum panels to fit profile formed by structural members; allow 1/4- to 3/8-inch- wide joints to install sealant.
- G. Isolate perimeter of gypsum board applied to non-load-bearing partitions at structural abutments, except floors. Provide 1/4- to 1/2-inch- wide spaces at these locations and trim edges with edge trim where edges of panels are exposed. Seal joints between edges and abutting structural surfaces with acoustical sealant.
- H. Wood Framing: Install gypsum panels over wood framing, with floating internal corner construction. Do not attach gypsum panels across the flat grain of wide-dimension lumber, including floor joists and headers. Float gypsum panels over these members or provide control joints to counteract wood shrinkage.
- I. Install sound attenuation blankets before installing gypsum panels unless blankets are readily installed after panels have been installed on one side.
- J. Acoustical Sealant: In walls and partitions containing sound attenuation blankets, seal construction at perimeters, behind control joints, and at openings and penetrations with a continuous bead of acoustical sealant. Install acoustical sealant at both faces of partitions at perimeters and through penetrations. Comply with ASTM C 919 and with manufacturer's written instructions for locating edge trim and closing off sound-flanking paths around or through assemblies, including sealing partitions above acoustical ceilings.

3.3 APPLYING INTERIOR GYPSUM BOARD

- A. Install interior gypsum board in the following locations:
 - 1. Type X: Vertical surfaces unless otherwise indicated.
 - 2. Ceiling Type: Ceiling surfaces. Type X at Rated Ceilings.
 - 3. Moisture- and Mold-Resistant Type: As indicated on Drawings.
- B. Single-Layer Application:

1. On ceilings, apply gypsum panels before wall/partition board application to greatest extent possible and at right angles to framing unless otherwise indicated.
2. On partitions/walls, apply gypsum panels horizontally (perpendicular to framing) unless otherwise indicated or required by fire-resistance-rated assembly, and minimize end joints.
 - a. Stagger abutting end joints not less than one framing member in alternate courses of panels.
 - b. At high walls, install panels horizontally unless otherwise indicated or required by fire-resistance-rated assembly.
3. Fastening Methods: Apply gypsum panels to supports with steel drill screws.

3.4 APPLYING TILE BACKING PANELS

- A. Water-Resistant Backing Board: Install where indicated with 1/4-inch gap where panels abut other construction or penetrations.
- B. Where tile backing panels abut other types of panels in same plane, shim surfaces to produce a uniform plane across panel surfaces.

3.5 INSTALLING TRIM ACCESSORIES

- A. General: For trim with back flanges intended for fasteners, attach to framing with same fasteners used for panels. Otherwise, attach trim according to manufacturer's written instructions.
- B. Control Joints: Install control joints according to ASTM C 840 and in specific locations approved by Architect for visual effect.
- C. Interior Trim: Install in the following locations:
 1. Cornerbead: Use at outside corners unless otherwise indicated.
- D. Install resilient channels at 16 inches on center on rated ceiling.

3.6 FINISHING GYPSUM BOARD

- A. General: Treat gypsum board joints, interior angles, edge trim, control joints, penetrations, fastener heads, surface defects, and elsewhere as required to prepare gypsum board surfaces for decoration. Promptly remove residual joint compound from adjacent surfaces.
- B. Prefill open joints, rounded or beveled edges, and damaged surface areas.
- C. Apply joint tape over gypsum board joints, except for trim products specifically indicated as not intended to receive tape.

- D. Gypsum Board Finish Levels: Finish panels to levels indicated below and according to ASTM C 840:
 - 1. Level 1: Ceiling plenum areas, concealed areas, and where indicated.
 - 2. Level 2: Panels that are substrate for tile.
 - 3. Level 4: At panel surfaces that will be exposed to view unless otherwise indicated.
 - a. Primer and its application to surfaces are specified in Section 09 91 23.
 - 4. Level 5: Meeting Room.
 - a. Primer and its application to surfaces are specified in Section 09 91 23.
- E. Texture:
 - 1. Ceilings: Troweled
 - 2. Walls Exposed to View: Troweled

3.7 PROTECTION

- A. Protect adjacent surfaces from drywall compound and promptly remove from floors and other non-drywall surfaces. Repair surfaces stained, marred, or otherwise damaged during drywall application.
- B. Protect installed products from damage from weather, condensation, direct sunlight, construction, and other causes during remainder of the construction period.
- C. Remove and replace panels that are wet, moisture damaged, and mold damaged.
 - 1. Indications that panels are wet or moisture damaged include, but are not limited to, discoloration, sagging, or irregular shape.
 - 2. Indications that panels are mold damaged include, but are not limited to, fuzzy or splotchy surface contamination and discoloration.

END OF SECTION

SECTION 09 30 00 TILING

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Ceramic tile.
 - 2. Stone thresholds.
 - 3. Waterproof membrane.
 - 4. Crack isolation membrane.
 - 5. Tile backing panels.
- B. Related Requirements:
 - 1. Section 07 00 00 - Joint Protection.

1.2 ACTION SUBMITTALS

- A. Product Data: For each type of product indicated.
 - 1. Samples:
 - a. Each type and composition of tile and for each color and finish required.
 - b. Assembled samples, with grouted joints, for each type and composition of tile and for each color and finish required.
 - c. Stone thresholds in 6-inch lengths.

1.3 MAINTENANCE MATERIAL SUBMITTALS

- A. Furnish extra materials that match and are from same production runs as products installed and that are packaged with protective covering and identified with labels describing contents.
- B. Tile and Trim Units: Furnish quantity of full-size units equal to 3 percent of amount installed for each type, composition, color, pattern, and size indicated.

1.4 QUALITY ASSURANCE

PART 2 PRODUCTS

2.1 TILE PRODUCTS

- A. ANSI Ceramic Tile Standard: Provide Standard grade tile that complies with ANSI A137.1 for types, compositions, and other characteristics indicated.
- B. Tile Type: Nonslip floors 2'x2" porcelain.

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - a. American Olean; Division of Dal-Tile International Inc.
 - b. Crossville, Inc.
 - c. Daltile; Division of Dal-Tile International Inc.
 - d. Deutsche Steinzeug America, Inc.
 - e. Interceramic.
 - f. Lone Star Ceramics Company.
 - g. Grupo Porcelanite.
 - h. Portobello America, Inc.
 - i. Seneca Tiles, Inc.
2. Composition: Porcelain.
3. Module Size: 2 by 2 inches.
4. Thickness: 1/4 inch.
5. Face: Plain with cushion edges.
6. Surface: Slip-resistant, with abrasive admixture.
7. Retain first subparagraph below for glazed tile. Descriptions are defined in ASTM C 242.
8. Tile Color and Pattern: Dark grey or black.
9. Grout Color: Coordinate with Architect/Owner from manufacturer's full range
10. Trim Units: Coordinated with sizes and coursing of adjoining flat tile where applicable. Provide shapes as follows, selected from manufacturer's standard shapes:

C. Tile Type: Porcelain wall tile:

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Basis of Design
 - b. Daltile-Volume 1.0
 - c. Field Color= Degrees
 - d. Silver Volume 71
 - e. Agency Color- Amplify
 - f. Black Volume 70 or equal
 - g. American Marazzi Tile, Inc.
 - h. American Olean; Division of Dal-Tile International Inc.
 - i. Daltile; Division of Dal-Tile International Inc.
 - j. Deutsche Steinzeug America, Inc.
 - k. Florida Tile Industries, Inc.
 - l. Florim USA.
 - m. Laufen.
 - n. Grupo Porcelanite.
 - o. Portobello America, Inc.
 - p. Seneca Tiles, Inc.
 - q. United States Ceramic Tile Company.

2. Module Size: 12 by 12 inches.
 3. Thickness: 5/16 inch.
 4. Face: Plain with modified square edges or cushion edges.
 5. Finish: Mat, opaque glaze.
 6. Grout Color: As selected by Architect from manufacturer's full range.
 7. Trim Units: Coordinated with sizes and coursing of adjoining flat tile where applicable and matching characteristics of adjoining flat tile. Provide shapes as follows, selected from manufacturer's standard shapes:
 - a. Base: Coved, module size 12 by 12 inches.
 - b. External Corners: Slicker metal corner.
 - c. Internal Corners: Field-butt square corners. For coved base and cap use angle pieces designed to fit with stretcher shapes.
- D. Accessories: Provide vitreous china accessories of type and size indicated, suitable for installing by same method as adjoining wall tile.
1. One soap holder with grab handle for each shower.
 2. Color and Finish: Match adjoining glazed wall tile.

2.2 THRESHOLDS

- A. General: Fabricate to sizes and profiles indicated or required to provide transition between adjacent floor finishes.
- B. Bevel edges at 1:2 slope, with lower edge of bevel aligned with or up to 1/16 inch above adjacent floor surface. Finish bevel to match top surface of threshold. Limit height of threshold to 1/2 inch or less above adjacent floor surface.
- C. Marble Thresholds: ASTM C 503, with a minimum abrasion resistance of 10 per ASTM C 1353 or ASTM C 241 and with honed finish.
- D. Description: Uniform, black in color

2.3 TILE BACKING PANELS

- A. Cementitious Backer Units: ANSI A118.9 or ASTM C 1325.
1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - a. C-Cure; C-Cure Board 990.
 - b. Custom Building Products; Wonderboard.
 - c. FinPan, Inc.; Util-A-Crete Concrete Backer Board.
 - d. USG Corporation; Durock Cement Board.
 2. Thickness: 5/8 inch.

2.4 WATERPROOF MEMBRANE

- A. General: Manufacturer's standard product, selected from the following, that complies with ANSI A118.10 and is recommended by the manufacturer for the application indicated.
- B. Fabric-Reinforced, Fluid-Applied Membrane: System consisting of liquid-latex rubber or elastomeric polymer and continuous fabric reinforcement.
 - 1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Boiardi Products, a QEP company; Elastiment 344 Reinforced Waterproofing and Anti-Fracture/Crack Suppression Membrane.
 - b. Bonsal American, an Oldcastle company; B 6000 Waterproof Membrane with Glass Fabric.
 - c. Bostik, Inc.; Hydroment Blacktop 90210.
 - d. Custom Building Products; 9240 Waterproofing and Anti-Fracture Membrane.
 - e. Laticrete International, Inc.; Laticrete 9235 Waterproof Membrane.
 - f. MAPEI Corporation; Mapelastic HPG with MAPEI Fiberglass Mesh.
 - g. Mer-Kote Products, Inc.; Hydro-Guard 2000.
 - h. Summitville Tiles, Inc.; S-9000.
- C. Latex-Portland Cement: Flexible mortar consisting of cement-based mix and latex additive.
 - 1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Boiardi Products, a QEP company; Elastiment 323 Cement Based Waterproofing, Anti-Fracture/Crack Suppression Membrane.
 - b. C-Cure; UltraCure 971.
 - c. MAPEI Corporation; Mapelastic (PRP 315).
 - d. Southern Grouts & Mortars, Inc.; Southcrete 1100.
 - e. TEC, a subsidiary of H. B. Fuller Company; Triple Flex Waterproofing, Crack Isolation Membrane & Mortar.
- D. Urethane Waterproofing and Tile-Setting Adhesive: One-part, liquid-applied urethane.

2.5 CRACK ISOLATION MEMBRANE

- A. General: Manufacturer's standard product, selected from the following that complies with ANSI A118.12 for standard performance and is recommended by the manufacturer for the application indicated.

- B. Fabric-Reinforced, Fluid-Applied Membrane: System consisting of liquid-latex rubber or elastomeric polymer and fabric reinforcement.
 - 1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Boiardi Products, a QEP company; Elastiment 344 Reinforced Waterproofing and Anti-Fracture/Crack Suppression Membrane.
 - b. Bonsal American, an Oldcastle company; B 6000 Waterproof Membrane with Glass Fabric.
 - c. Bostik, Inc.; Hydroment Blacktop 90210.
 - d. Custom Building Products; 9240 Waterproofing and Anti-Fracture Membrane.
 - e. Laticrete International, Inc.; Laticrete Blue 92 Anti-Fracture Membrane.
 - f. MAPEI Corporation; Mapelastic HPG with MAPEI Fiberglass Mesh.
 - g. Mer-Kote Products, Inc.; Hydro-Guard 2000.
 - h. Summitville Tiles, Inc.; S-9000.
- C. Latex-Portland Cement: Flexible mortar consisting of cement-based mix and latex additive.
 - 1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
 - a. C-Cure; UltraCure 971.
 - b. MAPEI Corporation; Mapelastic (PRP 315).
 - c. TEC, a subsidiary of H. B. Fuller Company; Triple Flex Waterproofing, Crack Isolation Membrane & Mortar.

2.6 SETTING MATERIALS

- A. Portland Cement Mortar (Thickset) Installation Materials: ANSI A108.02.
- B. Dry-Set Portland Cement Mortar (Thin Set): ANSI A118.1.
 - 1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Boiardi Products; a QEP company.
 - b. Bonsal American; an Oldcastle company.
 - c. Bostik, Inc.
 - d. C-Cure.
 - e. Custom Building Products.
 - f. Jamo Inc.
 - g. Laticrete International, Inc.
 - h. MAPEI Corporation.
 - i. Southern Grouts & Mortars, Inc.

- j. Summitville Tiles, Inc.
 - k. TEC; a subsidiary of H. B. Fuller Company.
 - 2. For wall applications, provide nonsagging mortar.
- C. Latex-Portland Cement Mortar (Thin Set): ANSI A118.4.
 - 1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Boiardi Products; a QEP company.
 - b. Bonsal American; an Oldcastle company.
 - c. Bostik, Inc.
 - d. C-Cure.
 - e. Custom Building Products.
 - f. Jamo Inc.
 - g. Laticrete International, Inc.
 - h. MAPEI Corporation.
 - i. Mer-Kote Products, Inc.
 - j. Southern Grouts & Mortars, Inc.
 - k. Summitville Tiles, Inc.
 - l. TEC; a subsidiary of H. B. Fuller Company.
 - 2. For wall applications, provide nonsagging mortar.

2.7 GROUT MATERIALS

- A. Sand-Portland Cement Grout: ANSI A108.10.
- B. Standard Cement Grout: ANSI A118.6.
 - 1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Boiardi Products; a QEP company.
 - b. Bonsal American; an Oldcastle company.
 - c. Bostik, Inc.
 - d. C-Cure.
 - e. Custom Building Products.
 - f. Jamo Inc.
 - g. Laticrete International, Inc.
 - h. MAPEI Corporation.
 - i. Southern Grouts & Mortars, Inc.
 - j. Summitville Tiles, Inc.
 - k. TEC; a subsidiary of H. B. Fuller Company.

2.8 ELASTOMERIC SEALANTS

- A. One-Part, Mildew-Resistant Silicone Sealant: ASTM C 920; Type S; Grade NS; Class 25; Uses NT, G, A, and, as applicable to nonporous joint

substrates indicated, O; formulated with fungicide, intended for sealing interior ceramic tile joints and other nonporous substrates that are subject to in-service exposures of high humidity and extreme temperatures.

1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
 - a. DAP Inc.; 100 percent Silicone Kitchen and Bath Sealant.
 - b. Dow Corning Corporation; Dow Corning 786.
 - c. GE Silicones, a division of GE Specialty Materials; Sanitary 1700.
 - d. Laticrete International, Inc.; Latacil Tile & Stone Sealant.
 - e. Pecora Corporation; Pecora 898 Sanitary Silicone Sealant.
 - f. Tremco Incorporated; Tremsil 600 White.

2.9 MISCELLANEOUS MATERIALS

- A. Trowelable Underlayments and Patching Compounds: Latex-modified, portland cement-based formulation provided or approved by manufacturer of tile-setting materials for installations indicated.
- B. Grout Sealer: Manufacturer's standard silicone product for sealing grout joints and that does not change color or appearance of grout.
 1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Bonsal American, an Oldcastle company; Grout Sealer.
 - b. Bostik, Inc.; CeramaSeal Grout & Tile Sealer.
 - c. C-Cure; Penetrating Sealer 978.
 - d. Custom Building Products; Surfaceguard Sealer.
 - e. Jamo Inc.; Matte Finish Sealer.
 - f. MAPEI Corporation; KER 003, Silicone Spray Sealer for Cementitious Tile Grout.
 - g. Southern Grouts & Mortars, Inc.; Silicone Grout Sealer.
 - h. Summitville Tiles, Inc.; SL-15, Invisible Seal Penetrating Grout and Tile Sealer.
 - i. TEC, a subsidiary of H. B. Fuller Company; TA-256 Penetrating Silicone Grout Sealer.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions where tile will be installed, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of installed tile.
 1. Verify that substrates for setting tile are firm, dry, clean, free of coatings that are incompatible with tile-setting materials including curing

compounds and other substances that contain soap, wax, oil, or silicone; and comply with flatness tolerances required by ANSI A108.01 for installations indicated.

3.2 PREPARATION

- A. Fill cracks, holes, and depressions in concrete substrates for tile floors installed with adhesives or thin-set mortar with trowelable leveling and patching compound specifically recommended by tile-setting material manufacturer.
- B. Where indicated, prepare substrates to receive waterproofing by applying a reinforced mortar bed that complies with ANSI A108.1A and is sloped 1/4 inch per foot toward drains.
- C. Blending: For tile exhibiting color variations, use factory blended tile or blend tiles at Project site before installing.
- D. Field-Applied Temporary Protective Coating: If indicated under tile type or needed to prevent grout from staining or adhering to exposed tile surfaces, precoat them with continuous film of temporary protective coating, taking care not to coat unexposed tile surfaces.

3.3 INSTALLATION

- A. Comply with TCA's "Handbook for Ceramic Tile Installation" for TCA installation methods specified in tile installation schedules. Comply with parts of the ANSI A108 Series "Specifications for Installation of Ceramic Tile" that are referenced in TCA installation methods, specified in tile installation schedules, and apply to types of setting and grouting materials used.
 - 1. For the following installations, follow procedures in the ANSI A108 Series of tile installation standards for providing 95 percent mortar coverage:
 - a. Tile floors in wet areas.
- B. Extend tile work into recesses and under or behind equipment and fixtures to form complete covering without interruptions unless otherwise indicated. Terminate work neatly at obstructions, edges, and corners without disrupting pattern or joint alignments.
- C. Accurately form intersections and returns. Perform cutting and drilling of tile without marring visible surfaces. Carefully grind cut edges of tile abutting trim, finish, or built-in items for straight aligned joints. Fit tile closely to electrical outlets, piping, fixtures, and other penetrations so plates, collars, or covers overlap tile.
- D. Provide manufacturer's standard trim shapes where necessary to eliminate exposed tile edges.

- E. Jointing Pattern: See drawings.
- F. Joint Widths: Unless otherwise indicated, install tile with the following joint widths:
 - 1. Ceramic Mosaic Tile: 1/16 inch.
 - 2. Glazed Wall Tile: 1/16 inch.
- G. Stone Thresholds: Install stone thresholds in same type of setting bed as adjacent floor unless otherwise indicated.
 - 1. At locations where mortar bed (thickset) would otherwise be exposed above adjacent floor finishes, set thresholds in latex-portland cement mortar (thin set).
- H. Grout Sealer: Apply grout sealer to cementitious grout joints in tile floors according to grout-sealer manufacturer's written instructions. As soon as grout sealer has penetrated grout joints, remove excess sealer and sealer from tile faces by wiping with soft cloth.
- I. Install cementitious backer units and treat joints according to ANSI A108.11 and manufacturer's written instructions for type of application indicated. Use latex-portland cement mortar for bonding material unless otherwise directed in manufacturer's written instructions.
- J. Install waterproofing to comply with ANSI A108.13 and manufacturer's written instructions to produce waterproof membrane of uniform thickness and bonded securely to substrate.
- K. Install crack isolation membrane to comply with ANSI A108.17 and manufacturer's written instructions to produce membrane of uniform thickness and bonded securely to substrate.

3.4 INTERIOR TILE INSTALLATION SCHEDULE

- A. Interior Floor Installations, Concrete Subfloor:
 - 1. Tile Installation F111: Cement mortar bed (thickset) with cleavage membrane; TCA F111.
 - a. Tile Type: Unglazed mosaic.
 - b. Thin-Set Mortar for Cured-Bed Method: Dry-set portland cement mortar.
 - c. Grout: Standard sanded cement grout.
- B. Interior Wall Installations, Wood Studs or Furring:
 - 1. Tile Installation W245: Thin-set mortar on coated glass-mat, water-resistant gypsum backer board; TCA W245.
 - a. Tile Type: Glazed wall tile.
 - b. Thin-Set Mortar: Dry-set portland cement mortar.
 - c. Grout: Standard unsanded cement grout.

END OF SECTION

SECTION 09 65 13
RESILIENT BASE AND ACCESSORIES

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Resilient base.
 - 2. Resilient molding accessories.

1.2 REFERENCE STANDARDS

- A. ASTM International (ASTM):
 - 1. ASTM F1861 - Standard Specification for Resilient Wall Base.
 - 2. ASTM F2169 - Standard Specification for Resilient Stair Treads.

1.3 FIELD CONDITIONS

- A. Maintain ambient temperatures within range recommended by manufacturer in spaces to receive resilient products.
- B. Until Substantial Completion, maintain ambient temperatures within range recommended by manufacturer.

PART 2 PRODUCTS

2.1 RESILIENT BASE

- A. Resilient Base:
 - 1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into Work include, but are not limited to, following:
 - a. Allstate Rubber Corp.; Stoler Industries.
 - b. Armstrong World Industries, Inc.
 - c. Burke Mercer Flooring Products; Division of Burke Industries, Inc.
 - d. Endura Rubber Flooring; Division of Burke Industries, Inc.
 - e. Estrie Products International; American Biltrite (Canada) Ltd.
 - f. Flexco, Inc.
 - g. Johnsonite.
 - h. Mondo Rubber International, Inc.
 - i. Musson, R. C. Rubber Co.
 - j. Nora Rubber Flooring; Freudenberg Building Systems, Inc.
 - k. PRF USA, Inc.
 - l. Roppe Corporation, USA.
 - m. VPI, LLC; Floor Products Division.

- B. Resilient Base Standard: ASTM F1861.
 - 1. Material Requirement: Type TS (rubber, vulcanized thermoset) or Type TP (rubber, thermoplastic).
 - 2. Manufacturing Method: Group I (solid, homogeneous).
 - 3. Style: Cove (base with toe).
 - 4. Minimum Thickness: 0.125 inch.
 - 5. Height: 4 inches.
 - 6. Lengths: Coils in manufacturer's standard length.
 - 7. Outside Corners: Preformed.
 - 8. Inside Corners: Preformed.
 - 9. Finish: Matte.
 - 10. Colors and Patterns: As selected by Architect from full range of industry colors.

2.2 RESILIENT MOLDING ACCESSORY

- A. Resilient Molding Accessory:
 - 1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into Work include, but are not limited to, following:
 - a. Burke Mercer Flooring Products; Division of Burke Industries, Inc.
 - b. Flexco, Inc.
 - c. Johnsonite.
 - d. R.C.A. Rubber Company (The).
 - e. Roppe Corporation, USA.
 - f. VPI, LLC; Floor Products Division.
- B. Resilient Molding Accessory Standard:
 - 1. Description: Carpet edge for glue-down applications and nosing for carpet transition strips.
 - 2. Material: Rubber.
 - 3. Profile and Dimensions: As required.
 - 4. Colors and Patterns: As selected by Architect from full range of industry colors.

2.3 INSTALLATION MATERIALS

- A. Trowelable Leveling and Patching Compounds: Latex-modified, portland cement based or blended hydraulic-cement-based formulation provided or approved by manufacturer for applications indicated.
- B. Adhesives: Water-resistant type recommended by manufacturer to suit resilient products and substrate conditions indicated.

PART 3 EXECUTION

3.1 PREPARATION

- A. Install resilient products after other finishing operations, including painting, have been completed.
- B. Prepare substrates according to manufacturer's written instructions to ensure adhesion of resilient products.
- C. Fill cracks, holes, and depressions in substrates with trowelable leveling and patching compound and remove bumps and ridges to produce uniform and smooth substrate.
- D. Do not install resilient products until resilient products are at same temperature as space intended for installation.
 - 1. Move resilient products and installation materials into spaces intended for installation at least 48 hours in advance of installation.
- E. Clean substrates to be covered by resilient products immediately before installation. Clean by sweeping and vacuuming.

3.2 RESILIENT BASE INSTALLATION

- A. Comply with manufacturer's written instructions for installing resilient base.
- B. Apply resilient base to walls, columns, pilasters, casework and cabinets in toe spaces, and other permanent fixtures in rooms and areas where base is required.
- C. Install resilient base in lengths as long as practicable. Install resilient base without gaps at seams and with tops of adjacent pieces aligned.
- D. Tightly adhere resilient base to substrate throughout length of each piece, with base in continuous contact with horizontal and vertical substrates.
- E. Do not stretch resilient base during installation.
- F. Resilient Molding Accessories: Butt to adjacent materials and tightly adhere to substrates throughout length of each piece. Install reducer strips at edges of carpet that would otherwise be exposed.

3.3 CLEANING AND PROTECTION

- A. Comply with manufacturer's written instructions for cleaning and protection of resilient products.
- B. Cover resilient products until Substantial Completion.

END OF SECTION

SECTION 09 68 13
TILE CARPETING

PART 1 GENERAL

1.1 SUMMARY

- A. Section includes modular, tufted carpet tile.

1.2 REFERENCE STANDARDS

- A. ASTM International (ASTM):
 - 1. ASTM D6859 - Standard Test Method for Pile Thickness of Finished Level Pile Yarn Floor Coverings.
 - 2. ASTM F710 - Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring.
- B. Carpet and Rug Institute, The (CRI):
 - 1. CRI 104 - Standard for Installation of Commercial Carpet.
- C. Code of Federal Regulations (CFR):
 - 1. 40 CFR Part 59 - National Volatile Organic Compound Emission Standards for Consumer and Commercial Products.
- D. Environmental Protection Agency (EPA):
 - 1. EPA Method 24 - Determination of Volatile Organic Compound (VOC) Content in Paints, Inks, and Related Coating Products.
- E. National Fire Protection Association (NFPA):
 - 1. NFPA 253 - Standard Method of Test for Critical Radiant Flux of Floor Covering Systems Using a Radiant Heat Energy Source.

1.3 ACTION SUBMITTALS

- A. Product Data: Provide for each type of product indicated.
- B. Samples: Provide for each exposed product and for each color and texture specified.

1.4 CLOSEOUT SUBMITTALS

- A. Maintenance data.

1.5 QUALITY ASSURANCE

- A. Installer Qualifications: Installer with minimum 3 years' experience and who is certified by International Certified Floorcovering Installers Association at Commercial II certification level.

- B. Fire-Test-Response Ratings: Where indicated, provide carpet tile identical to those of assemblies tested for fire response according to NFPA 253 by qualified testing agency.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Comply with CRI 104.

1.7 FIELD CONDITIONS

- A. Comply with CRI 104 for temperature, humidity, and ventilation limitations.

1.8 WARRANTY

- A. Special Warranty for Carpet Tiles: Manufacturer agrees to repair or replace components of carpet tile installation that fail in materials or workmanship within specified warranty period.
 - 1. Warranty does not include deterioration or failure of carpet tile due to unusual traffic, failure of substrate, vandalism, or abuse.
 - 2. Failures include, but are not limited to, more than 10 percent edge raveling, snags, runs, dimensional stability, excess static discharge, loss of tuft bind strength, loss of face fiber, and delamination.
 - 3. Warranty Period: 10 years from date of Substantial Completion.

PART 2 PRODUCTS

2.1 CARPET TILE

- A. Basis-of-Design Product: Sidestrip-Live and Learn by Mohawk.
 - 1. Substitutions Permitted.
- B. Tile Carpeting:
 - 1. Color: As selected by Architect.
 - 2. Pattern:
 - 3. Size: 24-inches by 24-inches.
 - 4. Applied Soil-Resistance Treatment: Manufacturer's standard material.
 - 5. Antimicrobial Treatment: Manufacturer's standard material.

2.2 INSTALLATION ACCESSORIES

- A. Trowelable Leveling and Patching Compounds: Latex-modified, hydraulic-cement-based formulation provided or recommended by carpet tile manufacturer.
- B. Adhesives:
 - 1. Water-resistant, mildew-resistant, non-staining, pressure-sensitive type to suit products and subfloor conditions indicated, complies with

- flammability requirements for installed carpet tile and is recommended by carpet tile manufacturer for releasable installation.
2. VOC content of 50-grams per liter or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

PART 3 EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for maximum moisture content, alkalinity range, installation tolerances, and other conditions affecting carpet tile performance. Examine carpet tile for type, color, pattern, and potential defects.
- B. Concrete Subfloors: Verify that concrete slabs comply with ASTM F710.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Preparation: Comply with CRI 104, Section 6.2 - Site Conditions; Floor Preparation, and with carpet tile manufacturer's written installation instructions for preparing substrates indicated to receive carpet tile.

3.3 INSTALLATION

- A. Comply with CRI 104, Section 14 - Carpet Modules, and with carpet tile manufacturer's written installation instructions.
- B. Use installation method recommended in writing by carpet tile manufacturer.
- C. Maintain dye lot integrity. Do not mix dye lots in same area.
- D. Cut and fit carpet tile to butt tightly to vertical surfaces, permanent fixtures, and built-in furniture including cabinets, pipes, outlets, edgings, thresholds, and nosings. Bind or seal cut edges as recommended by carpet tile manufacturer.
- E. Extend carpet tile into toe spaces, door reveals, closets, open-bottomed obstructions, removable flanges, alcoves, and similar openings.
- F. Maintain reference markers, holes, and openings that are in place or marked for future cutting by repeating on finish flooring as marked on subfloor. Use nonpermanent, non-staining marking device.

- G. Install pattern parallel to walls and borders.

3.4 CLEANING

- A. Perform following operations immediately after installing carpet tile:
 - 1. Remove excess adhesive, seam sealer, and other surface blemishes using cleaner recommended by carpet tile manufacturer.
 - 2. Remove yarns that protrude from carpet tile surface.
 - 3. Vacuum carpet tile using commercial machine with face-beater element.

3.5 PROTECTION

- A. Protect installed carpet tile to comply with CRI 104, Section 16 - Protecting Indoor Installations.

END OF SECTION

SECTION 09 9001

COMMON PAINTING AND COATING REQUIREMENTS

PART 1 - GENERAL

1.1 SUMMARY

- A. Includes But Not Limited To:
 - 1. Common procedures and requirements for field-applied painting and coating.
- B. Related Requirements:
 - 1. Section 05 0000: Quality of shop priming of steel and iron.
 - 2. Section 07 9213: Quality of Elastomeric Joint Sealants.
 - 3. Sections under 09 9000 heading 'Paints and Coatings'.
 - 4. Divisions 22 and 23: Painting of plumbing and HVAC identification, refrigerant line insulation, and duct interiors.
 - 5. Section 32 1723: 'Pavement Marking'.

1.2 REFERENCES

- A. Definitions:
 - 1. Damage Caused By Others: Damage caused by individuals other than those under direct control of Painting Applicator (MPI(a), PDCA P1.92).
 - 2. Gloss Levels:
 - a. Specified paint gloss level shall be defined as sheen rating of applied paint, in accordance with following terms and values, unless specified otherwise for a specific paint system.

Gloss Level '1'	Traditional matte finish - flat	0 to 5 units at 60 degrees to 10 units maximum at 85 degrees.
Gloss Level '2'	High side sheen flat '-velvet-like' finish	10 units maximum at 60 degrees and 10 to 35 units at 85 degrees.
Gloss Level '3'	Traditional 'eggshell- like finish	10 to 25 units at 60 degrees and 10 to 35 units at 85 degrees.
Gloss Level '4'	'Satin-like' finish	20 to 35 units at 60 degrees and 35 units minimum at 85 degrees.
Gloss Level '5'	Traditional semi- gloss	35 to 70 units at 60 degrees.
Gloss Level '6'	Traditional gloss	70 to 85 units at 60 degrees.
Gloss Level '7'	High gloss	More than 85 units at 60 degrees.

- 3. Properly Painted Surface:
 - a. Surface that is uniform in appearance, color, and sheen and free of foreign material, lumps, skins, runs, sags, holidays, misses, strike-through, and

- insufficient coverage. Surface free of drips, spatters, spills, and overspray caused by Paint Applicator. Compliance will be determined when viewed without magnification at a distance of 5 feet (1.50 m) minimum under normal lighting conditions and from normal viewing position (MPI(a), PDCA P1.92).
4. Latent Damage: Damage or conditions beyond control of Painting Applicator caused by conditions not apparent at time of initial painting or coating work.

B. Reference Standards:

1. The latest edition of the following reference standard shall govern all painting work:
 - a. MPI(a), 'Architectural Painting Specification Manual' by Master Painters Institute (MPI), as issued by local MPI Accredited Quality Assurance Association having jurisdiction.

1.3 SUBMITTALS

1. Samples: Provide two 4 inch by 6 inch (100 mm by 150 mm) minimum draw-down cards for each paint or coating color selected for this Project.

B. Informational Submittals:

1. Manufacturer Instructions:
 - a. Manufacturer's substrate preparation instructions and application instruction for each painting system used on Project.

C. Maintenance Materials Submittals:

1. Extra Stock Materials:
 - a. Provide painting materials in Manufacturer's original containers and with original labels in each color used. Label each can with color name, mixture instructions, date, and anticipated shelf life.
 - b. Provide one (1) quart of each finish coat and one (1) pint of each primer and of each undercoat in each color used.

1.4 QUALITY ASSURANCE

A. Regulatory Agency Sustainability Approval:

1. Conform to work place safety regulations and requirements of those authorities having jurisdiction for storage, mixing, application and disposal of all paint and related hazardous materials.
2. Paint and painting materials shall be free of lead and mercury, and have VOC levels acceptable to local jurisdiction.
3. Master Painters Institute (MPI) Standards:
 - a. Products: Comply with MPI standards indicated and listed in 'MPI Approved Products List'.
 - b. Preparation and Workmanship: Comply with requirements in 'MPI Architectural Painting Specification Manual' for products and coatings indicated.

B. Qualifications:

1. Applicator:

- a. Minimum five (5) years experience in painting installations.
- b. Minimum five (5) satisfactorily completed projects of comparable quality, similar size, and complexity in past three (3) years before bidding.
- c. Maintain qualified crew of painters throughout duration of the Work.
- d. Upon request, submit documentation.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Delivery And Acceptance Requirements:

1. Deliver specified products in sealed, original containers with Manufacturer's original labels intact on each container.
2. Deliver amount of materials necessary to meet Project requirements in single shipment.

B. Storage And Handling Requirements:

1. Store materials in single place.
2. Keep storage area clean and rectify any damage to area at completion of work of this Section.
3. Maintain storage area at 55 deg F (13 deg C) minimum.

1.6 FIELD CONDITIONS

A. Ambient Conditions:

1. Perform painting operations at temperature and humidity conditions recommended by Manufacturer for each operation and for each product for both interior and exterior work.
2. Apply painting systems at lighting level of 540 Lux (50 foot candles) minimum on surfaces to be painted.
 - a. Inspection of painting work shall take place under same lighting conditions as application.
 - b. If painting and coating work is applied under temporary lighting, deficiencies discovered upon installation of permanent lighting will be considered latent damage as defined in MPI Manual, PDCA P1-92.

PART 2 - PRODUCTS

2.1 SYSTEMS

A. Performance:

1. Design Criteria:

- a. Provide materials for use within each coating system that are compatible with one another and substrates indicated, under conditions of service and application as demonstrated by manufacturer, based on testing and field experience.
- b. All materials, preparation and workmanship shall conform to requirements of 'Architectural Painting Specification Manual' by Master Painters Institute (MPI).

- c. All paint manufacturers and products used shall be as listed under Approved Product List section of MPI Painting Manual.
- d. Provide products of same manufacturer for each coat in coating system.
- e. Color Levels:
 - 1) Color Level III:
 - a) Number and placement of interior and exterior paint colors and gloss levels shall be Color Level III from MPI Manual, PDCA P3-93 as modified in following paragraph.
 - b) Two several paint colors or gloss levels will be selected for same substrate within designated interior rooms 1 or 4 walls in each room will be an accent color.

B. Materials:

- 1. Materials used for any painting system shall be from single manufacturer unless approved otherwise in writing by painting system manufacturers and by Architect. Include manufacturer approvals in Product Data submittal.
- 2. Linseed oil, shellac, turpentine, and other painting materials shall be pure, be compatible with other coating materials, bear identifying labels on containers, and be of highest quality of an approved manufacturer listed in MPI manuals. Tinting color shall be best grade of type recommended by Manufacturer of paint or stain used on Project.
- 3. All paints and coatings used shall comply with VOC content limits..

PART 3 - EXECUTION

3.1 APPLICATORS

A. Approved Applicators:

- 1. Meet Quality Assurance Applicator Qualifications as specified in Part 1 of this specification.

3.2 EXAMINATION

A. Verification Of Conditions:

- 1. Directing applicator to begin painting and coating work will indicate that substrates to receive painting and coating materials have been previously inspected as part of work of other Sections and are complete and ready for application of painting and coating systems as specified in those Sections.

B. Pre-Installation Testing:

- 1. Before beginning work of this Section, examine, and test surfaces to be painted or coated for adhesion of painting and coating systems.
- 2. Report in writing to Architect of conditions that will adversely affect adhesion of painting and coating work.
- 3. Do not apply painting and coating systems until party responsible for adverse condition has corrected adverse condition.

C. Evaluation And Assessment:

1. Report defects in substrates that become apparent after application of primer or first finish coat to Architect in writing and do not proceed with further work on defective substrate until such defects are corrected by party responsible for defect.

3.3 PREPARATION

A. Protection Of In-Place Conditions:

1. Protect other finish work and adjacent materials during painting. Do not splatter, drip, or paint surfaces not intended to be painted. These items will not be spelled out in detail but pay special attention to the following:
 - a. Do not paint finish copper, bronze, chromium plate, nickel, stainless steel, anodized aluminum, or monel metal except as explicitly specified.

B. Surface Preparation:

1. Prepare surfaces in accordance with MPI requirements and requirements of Manufacturer for each painting system specified, unless instructed differently in Contract Documents. Bring conflicts to attention of Architect in writing.
2. Fill minor holes and cracks in wood surfaces to receive paint or stain.
3. Surfaces to be painted shall be clean and free of loose dirt. Clean and dust surfaces before painting or finishing.
4. Do no exterior painting while surface is damp, unless recommended by Manufacturer, nor during rainy or frosty weather. Interior surfaces shall be dry before painting. Moisture content of materials to be painted shall be within tolerances acceptable to Paint Manufacturer.
5. Sand woodwork smooth in direction of grain leaving no sanding marks. Clean surfaces before proceeding with stain or first coat application.

3.4 APPLICATION

A. Interface With Other Work:

1. Coordinate with other trades for materials and systems that require painting before installation.
2. Schedule painting and coating work to begin when work upon which painting and coating work is dependent has been completed. Schedule installation of pre-finished and non-painted items, which are to be installed on painted surfaces, after application of final finishes.

B. Paint or finish complete all surfaces to be painted or coated as described in Contract Documents, including but not limited to following items.

1. Paint mechanical, electrical, and audio/visual items that require field painting as indicated in Contract Documents. These include but are not limited to:
 - a. Gas pipe from gas meter into building.
 - b. Mechanical flues and pipes penetrating roof.
 - c. Electrical panel and disconnect enclosures.
 - d. Metal protective structures for refrigerant lines.
2. Metal reveals at ceiling access doors.

- C. \Apply sealant in gaps 3/16 inch (5 mm) and smaller between two substrates that are both to be painted or coated. Sealants in other gaps furnished and installed under Section 07 9213.
- D. In multiple coat paint work, tint each succeeding coat with slightly lighter color, but approximating shade of final coat, so it is possible to check application of specified number of coats. Tint final coat to required color.
- E. Spread materials smoothly and evenly. Apply coats to not less than wet and dry film thicknesses and at spreading rates for specified products as recommended by Manufacturer.
- F. Touch up suction spots after application of first finish coat.
- G. Paint shall be thoroughly dry and surfaces clean before applying succeeding coats.
- H. Use fine sandpaper between coats as necessary to produce even, smooth surfaces.
- I. Make edges of paint adjoining other materials or colors clean, sharp, and without overlapping.
- J. Finished work shall be a 'Properly Painted Surface' as defined in this Section.

3.5 FIELD QUALITY CONTROL

- A. Non-Conforming Work:
 - 1. Correct deficiencies in workmanship as required to leave surfaces in conformance with 'Properly Painted Surface,' as defined in this Section.
 - 2. Correction of 'Latent Damage' and 'Damage Caused By Others,' as defined in this Section, is not included in work of this Section.

3.6 CLEANING

- A. General:
 - 1. As work proceeds and upon completion of work of any painting Section, remove paint spots from floors, walls, glass, or other surfaces and leave work clean, orderly, and in acceptable condition.
- B. Waste Management:
 - 1. Remove rags and waste used in painting operations from building each night. Take every precaution to avoid danger of fire.
 - 2. Paint, stain and wood preservative finishes and related materials (thinners, solvents, caulking, empty paint cans, cleaning rags, etc.) shall be disposed of subject to regulations of applicable authorities having jurisdiction.
 - 3. Remove debris caused by work of paint Sections from premises and properly dispose.
 - 4. Retain cleaning water and filter out and properly dispose of sediments.

END OF SECTION

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SECTION 09 9113

EXTERIOR PAINTED METAL

PART 1 - GENERAL

1.1 SUMMARY

- A. Includes But Not Limited To:
 - 1. Preparing and painting new exterior exposed metal surfaces
- B. Related Requirements:
 - 1. Section 09 9001: 'Common Painting And Coating Requirements':

PART 2 - PRODUCTS

2.1 SYSTEM

- A. Manufacturers:
 - 1. Approved Products and Manufacturers.
 - a. Products listed in edition of MPI Approved Product List current at time of bidding and later are approved, providing they meet VOC requirements in force where Project is located.
- B. Description:
 - 1. Entry steel column and beams.
 - a. New Surfaces: Use MPI(a) EXT 5.3H Latex Finish system.
- C. Performance:
 - 1. Design Criteria:
 - a. New Surfaces: MPI Premium Grade finish requirements.
 - b. Gloss / Sheen Level Required: Gloss Level 4.
- D. Materials:
 - 1. Latex:
 - a. Waterborne Primer Coat: MPI Product 134: 'Primer, Galvanized, Water Based'.
 - b. Finish Coats: MPI Product 11: 'Latex, Exterior Semi-Gloss (MPI Gloss Level 5)'.

PART 3 - EXECUTION

3.1 APPLICATION

- A. General: See appropriate paragraphs of Section 09 9001.
- B. New Surfaces:
 - 1. Clean surfaces to be painted with mineral spirits or product recommended by Paint Manufacturer. Change to clean rags or wiping cloths regularly to reduce possibility of re-contamination of surface.
 - 2. Apply prime coat.
 - 3. Apply finish coats.

END OF SECTION

SECTION 10 1116
FIXED MARKERBOARDS

PART 1 - GENERAL

1.1 SUMMARY

- A. Products Furnished and Installed
 - 1. Markerboard units:
 - a. 4' x 4' in Intake 128
 - b. 4' x 8 ' in Conference Room 104

1.2 REFERENCES

- A. Association Publications:
 - 1. Porcelain Enamel Institute, Inc., Norcross, GA www.porcelainenamel.com.
 - a. PEI-1002, *Manual and Performance Specifications for Porcelain Enamel Writing Surfaces (Whiteboards and Chalkboards)* 2002.

1.3 SUBMITTALS

- A. Informational Submittals:
 - 1. Manufacturer Instructions:
 - a. Published installation instructions.
 - b. Printed cleaning instructions.
- B. Closeout Submittals:
 - 1. Include following in Operations And Maintenance Manual
 - a. Operations and Maintenance Data:
 - 1) Maintenance instructions.
 - 2) Printed cleaning instructions.
 - b. Warranty Documentation:
 - 1) Manufacturer Warranty.
 - c. Record Documentation:
 - 1) Manufacturer's documentation:
 - a) Manufacturer's product literature.

1.4 WARRANTY

- A. Manufacturer Warranty:
 - 1. Letter from Manufacturer certifying Contract Documents have been complied with and guarantee against faulty workmanship and materials for five (5) years.

PART 2 - PRODUCTS

2.1 OWNER FURNISHED PRODUCTS

A. National Contract Manufacturers.

1. Basis of Design Platinum Visual Systems, Corona, CA www.pvusa.com or equal

B. Description:

1. Color: White.

C. Markerboard:

1. Face shall be steel, 28 ga (0.4 mm) minimum, coated two (2) sides with fused ground coat, and finished one (1) side with vitreous porcelain enamel.
2. Coatings shall meet requirements of PEI-1002:
 - a. All Rooms:
 - 1) Coatings shall be for marker use.
3. Core shall be mat-formed particleboard.
 - a. 3/8 inch (9.5 mm) thick medium-density.
 - b. 1/2 inch (12.7 mm) thick low-density minimum.
4. Backing:
 - a. Backing shall be 0.005 inch (0.13 mm) minimum aluminum foil.
5. Trim:
 - a. Extruded 6063-T5 alloy aluminum with satin etched, natural aluminum anodized finish.
 - b. Extrusions shall match thickness of units without wedging.
 - c. Round all sharp edges.
 - d. 2 inch (50 mm) high map rail.
6. Trays:
 - a. Provide 2 inch (50 mm) radius rounded ends on marker trays.
 - b. Marker trays with squared, sharp ends are not acceptable.
7. Map Clips:
 - a. Manufacturer's standard.
 - b. Provide two map clips on markerboards.
8. Mounting Hardware:
 - a. Suitable for wall conditions.

D. Fabrication:

1. Prefabricate units at factory and ship to jobsite in one piece, except for marker trays.
2. Units shall be of first quality and lamination done by approved standards of industry.
3. Furnish printed cleaning instructions with each shipment.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Mount boards square and level.
 - 1. Shim as necessary to provide permanent installation and smooth operation.
 - 2. Anchor boards securely to wall following Manufacturer's printed installation instructions.
 - 3. Anchor concealed hangers with screws at 24 inches (600 mm) on center.
- B. Mounting fasteners shall penetrate framing lumber or blocking 1-1/2 inch (38 mm) minimum. Use toggle bolts or expansion bolts in masonry walls.
- C. After attaching map clips, apply permanently attached end cap or screw to prevent removal of map clips.

END OF SECTION

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SECTION 10 21 23
CUBICLE CURTAINS AND TRACK

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section Includes:

- 1. Cubicle-curtain tracks and carriers.
 - 2. Cubicle curtains.

- B. Related Requirements:

- 1. Section 061000 "Rough Carpentry" "Miscellaneous Rough Carpentry" for supplementary wood framing and blocking for mounting items requiring anchorage.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product.

- 1. For each type of curtain fabric indicated, include durability, laundry temperature limits, fade resistance, applied curtain treatments, and fire-test-response characteristics.

- B. Samples for Initial Selection: For each type of curtain material indicated.

1.4 CLOSEOUT SUBMITTALS

- A. Operation and Maintenance Data: For curtains, tracks, and hardware to include in operation and maintenance manuals.

1. Curtain Carriers and Track End Caps: Full-size units for each size indicated.
2. Curtains: Full-size units equal to for each size indicated.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Cubicle Curtains: Provide curtain fabrics with the following characteristics:
 1. Flame Resistance: Provide fabrics identical to those that have passed NFPA 701 when tested by a qualified testing agency acceptable to authorities having jurisdiction.
 - a. Identify fabrics with appropriate markings of a qualified testing agency.

2.2 CUBICLE-CURTAIN SUPPORT SYSTEMS

- A. Extruded-Aluminum Curtain Track: Not less than 1-1/4 inches wide by 3/4 inch high.
 1. Track Minimum Wall Thickness: 0.062 inch (1.57 mm),Manufacturer's standard.Finish: Clear anodized
- B. Curtain Track Accessories: Fabricate splices, end caps, connectors, end stops, coupling and joining sleeves, wall flanges, brackets, ceiling clips, and other accessories from same material and with same finish as track.
 1. End Stop: Nonremovable.
- C. Curtain Roller Carriers: Two nylon rollers and nylon axle with chrome-plated steel hook.
- D. Exposed Fasteners: Stainless steel.

2.3 CURTAINS

- A. Fabric: Curtain manufacturer's standard, 100 percent polyester; inherently and permanently flame resistant, stain resistant, and antimicrobial.
- B. Curtain Grommets: Two-piece, rolled-edge, rustproof, nickel-plated brass; spaced not more than 6 inches (152 mm) o.c.; machined into top hem.
- C. Mesh Top: Not less than 20-inch- (508-mm-) > high mesh top.
 1. Mesh: No. 40 nylon mesh.

- D. Curtain Tieback: Nickel-plated brass chain; one at each curtain termination.

2.4 CURTAIN FABRICATION

A. Continuous Curtain Panels:

1. Width: Equal to track length from which curtain is hung plus 10 percent of added fullness, but not less than 12 inches (305 mm) of added fullness.
2. Length: 6'- 10"
3. Top Hem: Not less than 1 inch (25.4 mm) and not more than 1-1/2 inches (38 mm) wide, triple thickness, reinforced with integral web, and double lockstitched.
4. Mesh Top: Top hem of mesh not less than 1 inch (25.4 mm) and not more than 1-1/2 inches (38 mm) wide, triple thickness, reinforced with integral web, and double lockstitched. Double lockstitch bottom of mesh directly to 1/2-inch (13-mm) triple thickness, top hem of curtain fabric.
5. Bottom Hem: Not less than 1 inch (25.4 mm) and not more than 1-1/2 inches (38 mm) wide, triple thickness, reinforced, and double lockstitched.
6. Side Hems: Not less than 1/2 inch (13 mm) and not more than 1-1/4 inches (32 mm) wide, with tripe turned edges, and single lockstitched.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. Install tracks level and plumb, according to manufacturer's written instructions.
- B. For tracks of up to 20 feet (6.0 m) in length, provide track fabricated from single, continuous length.
 1. Curtain-Track Mounting: Suspended
- C. Suspended-Track Mounting: Install track with manufacturer's standard tubular aluminum suspended supports at intervals and with fasteners recommended by manufacturer. Fasten supports to structure. Provide supports at each splice and

tangent point of each corner. Secure ends of track to wall with flanged fittings or brackets.

- D. Track Accessories: Install splices, end caps, connectors, end stops, coupling and joining sleeves, and other accessories as required for a secure and operational installation.

END OF SECTION

SECTION 10 28 00
TOILET, BATH, AND LAUNDRY ACCESSORIES

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Public-use washroom accessories.
 - 2.
 - 3. Custodial accessories.
 - 4. ADA Seat.

1.2 REFERENCE STANDARDS

- A. ASTM International (ASTM):
 - 1. ASTM F446 - Standard Consumer Safety Specification for Grab Bars and Accessories Installed in the Bathing Area.

1.3 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Product Schedule: Indicating types, quantities, sizes, and installation locations by room of each accessory required.
 - 1. Identify locations using room designations indicated.
 - 2. Identify products using designations indicated.
- C. Maintenance data.
- D. Warranty: Sample of special warranty.

1.4 WARRANTY

- A. Special Mirror Warranty: Manufacturer's standard form in which manufacturer agrees to replace mirrors that develop visible silver spoilage defects and that fail in materials or workmanship within specified warranty period.
 - 1. Warranty Period: 15 years from date of Substantial Completion.

PART 2 PRODUCTS

2.1 PUBLIC-USE WASHROOM ACCESSORIES

- A. Basis-of-Design Product: Subject to compliance with requirements, provide product indicated in schedule or comparable product by one of following:
 - 1. A & J Washroom Accessories, Inc.
 - 2. American Specialties, Inc.

3. Bobrick Washroom Equipment, Inc.
 4. Bradley Corporation.
 5. GAMCO Specialty Accessories; division of Bobrick Washroom Equipment, Inc.
 6. Tubular Specialties Manufacturing, Inc.
- B. Toilet Tissue (Roll) Dispenser: Owner Furnished, Owner Installed
- C. Paper Towel (Folded) Dispenser: Owner Furnished, Owner Installed
- D. Liquid-Soap Dispenser: Owner Furnished, Owner Installed
- E. Grab Bar:
1. Basis-of-Design Product: Bobrick B-6806 x 18, B-6806 x 36, and B-6806 x 42.
 2. Mounting: Flanges with concealed fasteners.
 3. Material: Stainless steel, 0.05 inch thick.
 4. Finish: Smooth, No. 4 finish (satin).
 5. Outside Diameter: 1-1/2 inches.
 6. Configuration and Length: As indicated on Drawings.
- F. Sanitary-Napkin Disposal Unit: Owner Furnished, Owner Installed
- G. Mirror Unit: Over every lavatory
1. Basis-of-Design Product: Bobrick B-166 2436.
 2. Frame: Stainless-steel channel.
 - a. Corners: Mitered and mechanically interlocked.
 3. Integral Shelf: 5 inches deep.
 4. Hangers: Produce rigid, tamper- and theft-resistant installation, using method indicated below.
 - a. Wall bracket of galvanized steel, equipped with concealed locking devices requiring special tool to remove.
 5. Size: 24 inches by 36 inches. Bottom at 40" above finished floor

2.2 CUSTODIAL ACCESSORIES

- A. Basis-of-Design Product: Subject to compliance with requirements, provide product indicated on Drawings or comparable product by one of following:
1. A & J Washroom Accessories, Inc.
 2. American Specialties, Inc.
 3. Bobrick Washroom Equipment, Inc.
 4. Bradley Corporation.
 5. GAMCO Specialty Accessories; division of Bobrick Washroom Equipment, Inc.
 6. Tubular Specialties Manufacturing, Inc.
- B. Mop and Broom Holder:
1. Basis-of-Design Product: Bobrick B-224 x 36.

2. Description: Unit with shelf, hooks, holders, and rod suspended beneath shelf.
3. Length: 36 inches.
4. Hooks: Five.
5. Mop/Broom Holders: Six, spring-loaded, rubber hat, cam type.
6. Material and Finish: Stainless steel, No. 4 finish (satin).
 - a. Shelf: Not less than nominal 0.05-inch thick stainless steel.
 - b. Rod: Approximately 1/4-inch diameter stainless steel.

2.3 SHOWER INSERT

- A. Basis of Design or Equal
 1. Architecutral Inc.
 2. Barrier Free (877-717-7033) Model #: 61-PH3201
 - a. Dimensions: 32" x 21"

PART 3 EXECUTION

3.1 INSTALLATION

- A. Install accessories according to manufacturers' written instructions, using fasteners appropriate to substrate indicated and recommended by unit manufacturer. Install units level, plumb, and firmly anchored in locations and at heights indicated.
- B. Grab Bars: Install to withstand downward load of at least 250 pounds, when tested according to ASTM F446.

END OF SECTION

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SECTION 10 4400
FIRE PROTECTION SPECIALTIES

PART 1 - GENERAL

1.1 SUMMARY

- A. Products Furnished But Not Installed Under This Section:
1. Extinguishers with cabinets.

1.2 QUALITY ASSURANCE

- A. Regulatory Agency Sustainability Approvals:
1. Fire extinguishers shall be inspected and have annual inspection tag attached before Substantial Completion.

1.3 WARRANTY

- A. Manufacturer Warranty:
1. Manufacturer's standard, written warranty on fire extinguisher.

PART 2 - PRODUCTS

2.1 EQUIPMENT

- A. Manufacturers:
1. Fire Extinguishers:
 - a. Approved Manufacturers.
 - 1) Amerex Corp, Trussville, AL www.amerex-fire.com.
 - 2) Ansul Incorporated, Marinette, WI www.ansul.com.
 - 3) Buckeye Fire Equipment, Kings Mountain, NC www.buckeyef.com.
 - 4) Extinguishers private-labeled by manufacturers approved above are approved, with appropriate documentation.
 2. Cabinets And Brackets:
 - a. Type One Acceptable Manufacturers:
 - 1) J L Industries, Bloomington, MN www.jlindustries.com.
 - 2) Larsen's Manufacturing Co, Minneapolis, MN www.larsensmfg.com.
 - 3) Modern Metal Products / Technico, Owatonna, MN www.modern-metal.com.
 - 4) National Fire Equipment Ltd, Scarborough, ON www.nationalfire.com.
 - 5) Potter-Roemer, Cerritos, CA www.potterroemer.com.

- 6) Samson Products Inc, City of Commerce, CA
www.samsonproducts.com.
- 7) Seton Inc, Richmond Hill, ON (905) 764-1122.
- 8) Equal as approved by Architect before bidding. See Section 01 6200.

B. Fire Extinguishers:

1. Ten pound dry chemical ABC stored pressurized type equipped with pressure gauge and which does not need recharging except after use.
2. Instructions for repairs, maintenance, and recharging shall be attached.
3. Unit shall be tested and approved by UL and have minimum 4A:60-B:C UL rating. UL rating shall appear on extinguisher labels and be attached to and a part of fire extinguisher units.

C. Fire Extinguisher Cabinets:

1. Two-piece, semi-recessed or flush type depending on wall thickness, and have white baked enameled steel tubs with white baked enamel return trim and doors, clear acrylic glazing, 'Safe-T-Lock,' and cylinder locks.
2. Supply each cabinet with one specified fire extinguisher.
3. Design Standard: Ambassador 1017 G10 by J L Industries.

D. Wall-Mounted Brackets:

1. Design Standard: No. 846 by Larsen's.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Special Techniques:

1. Securely mount cabinets and hangers plumb with wall surfaces.
2. Trim for cabinets shall be neat in appearance.

END OF SECTION

SECTION 11 3114

RESIDENTIAL SERVING AREA APPLIANCES

PART 1 - GENERAL

1.1 SUMMARY

- A. Products Installed But Not Furnished Under This Section:
 - 1. Electrical stove with oven drop-in style- Owner Furnished, Owner Installed.
 - 2. Dish washer- Owner Furnished, Owner Installed.
 - 3. Refrigerator and microwave- Owner Furnished, Owner Installed.
- B. Related Sections:
 - 1. Division 26: Outlets, range cord sets, and electrical service.

PART 2 - PRODUCTS

2.1 OWNER-FURNISHED PRODUCTS

PART 3 - EXECUTION: Not Used

END OF SECTION

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SECTION 12 3661.16
SOLID SURFACING COUNTERTOPS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section Includes:
 - 1. Solid surface material countertops.
 - 2. Solid surface material backsplashes.
 - 3. Solid surface material end splashes.
- B. Related Requirements:
 - 1. Section 22 "Plumbing Fixtures"

1.3 ACTION SUBMITTALS

- A. Product Data: For countertop materials
- B. Samples for Initial Selection: For each type of material exposed to view.
- C. Samples for Verification: For the following products:
 - 1. Countertop material, 6 inches (150 mm) square.

1.4 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For fabricator.

1.5 CLOSEOUT SUBMITTALS

- A. Maintenance Data: For solid surface material countertops to include in maintenance manuals. Include Product Data for care products used or

recommended by Installer and names, addresses, and telephone numbers of local sources for products.

1.6 QUALITY ASSURANCE

- A. Fabricator Qualifications: Shop that employs skilled workers who custom-fabricate countertops similar to that required for this Project, and whose products have a record of successful in-service performance.
- B. Installer Qualifications: Fabricator of countertops.

1.7 FIELD CONDITIONS

- A. Field Measurements: Verify dimensions of countertops by field measurements after base cabinets are installed but before countertop fabrication is complete.

1.8 COORDINATION

- A. Coordinate locations of utilities that will penetrate countertops or backsplashes.

PART 2 - PRODUCTS

2.1 SOLID SURFACE COUNTERTOP MATERIALS

- A. Solid Surface Material: Homogeneous-filled plastic resin complying with ICPA SS-1.
 - 1. Colors and Patterns: Stone patterns
- B. Plywood: Exterior softwood plywood complying with DOC PS 1, Grade C-C Plugged, touch sanded.

2.2 COUNTERTOP FABRICATION

- A. Fabricate countertops according to solid surface material manufacturer's written instructions and to the AWI/AWMAC/WI's "Architectural Woodwork Standards."
 - 1. Grade: Premium.
- B. Configuration:
 - 1. Front: Straight, slightly eased at top.
 - 2. Backsplash: Straight, slightly eased at corner.
 - 3. End Splash: Matching backsplash.

- C. Countertops: 1/4-inch- (6.4-mm-) thick, solid surface material laminated to 3/4-inch- (19-mm-) thick particleboard with exposed edges built up with 3/4-inch- (19-mm-) thick, solid surface material.
- D. Backsplashes: 1/2-inch- (12.7-mm-) thick, solid surface material.
- E. Fabricate tops with shop-applied edges and backsplashes unless otherwise indicated. Comply with solid surface material manufacturer's written instructions for adhesives, sealers, fabrication, and finishing.
 - 1. Fabricate with loose backsplashes for field assembly.
- F. Joints: Fabricate countertops without joints.
- G. Joints: Fabricate countertops in sections for joining in field.
 - 1. Joint Locations: Not within 18 inches (450 mm) of a sink or cooktop and not where a countertop section less than 36 inches (900 mm) long would result, unless unavoidable.
- H. Cutouts and Holes:
 - 1. Undercounter Plumbing Fixtures: Make cutouts for fixtures using template or pattern furnished by fixture manufacturer. Form cutouts to smooth, even curves.
 - a. Provide vertical edges, rounded to 3/8-inch (10-mm) radius at juncture of cutout edges with top surface of countertop, slightly eased at bottom, and projecting 3/16 inch (5 mm) into fixture opening.
 - 2. Counter-Mounted Plumbing Fixtures: Prepare countertops in shop for field cutting openings for counter-mounted fixtures. Mark tops for cutouts and drill holes at corners of cutout locations. Make corner holes of largest radius practical.
 - 3. Fittings: Drill countertops in shop for plumbing fittings, undercounter soap dispensers, and similar items.
 - 4. Counter-Mounted Cooktops: Prepare countertops in shop for field cutting openings for cooktops. Mark tops for cutouts and drill holes at corners of cutout locations. Make corner holes of largest radius practical.

2.3 INSTALLATION MATERIALS

- A. Adhesive: Product recommended by solid surface material manufacturer.
- B. Sealant for Countertops: Comply with applicable requirements in Section 079200 "Joint Sealants."

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates to receive solid surface material countertops and conditions under which countertops will be installed, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of countertops.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. Install countertops level to a tolerance of 1/8 inch in 8 feet (3 mm in 2.4 m), 1/4 inch (6 mm) maximum. Do not exceed 1/64-inch (0.4-mm) difference between planes of adjacent units.
- B. Fasten countertops by screwing through corner blocks of base units into underside of countertop. Predrill holes for screws as recommended by manufacturer. Align adjacent surfaces and, using adhesive in color to match countertop, form seams to comply with manufacturer's written instructions. Carefully dress joints smooth, remove surface scratches, and clean entire surface.
- C. Fasten subtops to cabinets by screwing through subtops into cornerblocks of base cabinets. Shim as needed to align subtops in a level plane.
- D. Secure countertops to subtops with adhesive according to solid surface material manufacturer's written instructions. Align adjacent surfaces and, using adhesive in color to match countertop, form seams to comply with manufacturer's written instructions. Carefully dress joints smooth, remove surface scratches, and clean entire surface.
- E. Bond joints with adhesive and draw tight as countertops are set. Mask areas of countertops adjacent to joints to prevent adhesive smears.
 - 1. Clamp units to temporary bracing, supports, or each other to ensure that countertops are properly aligned and joints are of specified width.
- F. Install backsplashes and end splashes by adhering to wall and countertops with adhesive. Mask areas of countertops and splashes adjacent to joints to prevent adhesive smears.
- G. Install aprons to backing and countertops with adhesive. Mask areas of countertops and splashes adjacent to joints to prevent adhesive smears. Fasten

by screwing through backing. Predrill holes for screws as recommended by manufacturer.

- H. Complete cutouts not finished in shop. Mask areas of countertops adjacent to cutouts to prevent damage while cutting. Make cutouts to accurately fit items to be installed, and at right angles to finished surfaces unless beveling is required for clearance. Ease edges slightly to prevent snipping.
 - 1. Seal edges of cutouts in particleboard subtops by saturating with varnish.
- I. Apply sealant to gaps at walls; comply with Section 079200 "Joint Sealants."

END OF SECTION

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SECTION 31 3116

TERMITE CONTROL

PART 1 - GENERAL

1.1 SUMMARY

- A. Includes But Not Limited To:
 - 1. Furnish and install complete soils treatment with termiticide under and adjacent to building to provide uniform toxic barrier continuous treated zone in all routes of termite entry.
- B. Related Requirements:
 - 1. Section 31: Earthwork.
 - a. Section 31 0501: 'Common Earthwork Requirements'.
 - b. Section 31 1123: 'Aggregate Base':
 - 1) Installation of below-grade vapor retarder.
 - c. Section 31 2216: 'Fine Grading'.

1.2 ADMINISTRATIVE REQUIREMENTS

- A. Coordination:
 - 1. Coordinate soil treatment application with excavation, filling, grading, and concreting operations. Treat soil under footings, grade beams, and ground-supported slabs before construction.
 - 2. Interior slab-on-grade concrete:
 - a. Coordinate work so vapor retarder can be installed as soon as possible after application of termite protection on top of soil base or aggregate base.
- B. Pre-Installation Conference:
 - 1. Participate in mandatory pre-installation conference.
 - 2. Schedule pre-installation conference for new Projects after completion of Fine Grading specified in Section 31 2216, but before beginning Aggregate Base as specified in Section 31 1123. This conference may be held jointly with pre-installation conference for Common Planting Requirements specified in Section 32 9001.
 - 3. In addition to agenda items specified in Section 01 3100, review following:
 - a. Review Applicator Qualification requirements.
 - b. Review Ambient Conditions for acceptability for application of termiticide products.
 - c. Review Delivery, Storage, and Handling requirements.
 - d. Review Examination, Preparation, and Application requirements as called out in Part 3 Execution.
 - e. Review Field Quality Control and Protection requirements as called out in Part 3 Execution.

C. Sequencing:

1. Application OPTION A:
 - a. Apply termite protection on top of soil base before aggregate base and vapor retarder is installed.
2. Application OPTION B:
 - a. Install vapor retarder after application of termite protection on top of aggregate base.
 - b. Increase application rate for volume as per Manufacturer's instruction.
 - c. Install below-grade vapor retarder on top of soil base or aggregate base.

1.3 SUBMITTALS

A. Action Submittals:

1. Product Data:
 - a. Submit Chemical Manufacturer's printed literature regarding chemical composition, concentration, and rates and method of application.
 - b. Submit MSDS information.

B. Informational Submittals:

1. Certificates:
 - a. Provide certificates required by any authorities having jurisdiction (AHJ).
2. Design Data Submittals:
 - a. Certified Applicator's statement indicating total amount of chemical required for Project to provide required amount of mix solution at specified concentration and application rates.
 - b. Certified Applicator to submit take-off showing amounts of square foot and lineal foot application at specified application rate. Also indicate total amount of mix solution required for Project.
3. Manufacturers' Instructions:
 - a. Manufacturer's printed label on product regarding chemical composition, concentration, and rates and method of application.
4. Qualification Submittals:
 - a. Provide BASF Partner Number and evidence of license from authorities having jurisdiction (AHJ).

C. Closeout Submittals:

1. Include following in Operations And Maintenance Manual specified in Section 01 7800:
 - a. Warranty Documentation:
 - 1) Include copy of final, executed warranty.
 - b. Record Documentation:
 - 1) Soil Treatment Application Report: After application of termiticide is complete, submit report including the following:
 - a) Date and time of application.
 - b) Moisture content of soil before application.
 - c) Termiticide brand name and batch number of concentrate.
 - d) Mix rate and quantity of diluted termiticide used.
 - e) Areas of application.
 - f) Weather at time of application.
 - g) Water source for application.

1.4 QUALITY ASSURANCE

- A. Regulatory Agency Sustainability Approvals:
 - 1. Formulate and apply termiticides and termiticide devices according to the EPA-Registered Label.
- B. Qualifications:
 - 1. Applicator: Requirements of Section 01 4301 applies but not limited to the following:
 - a. Applicator shall be licensed pest professional according to regulations of authorities having jurisdiction (AHJ) with Manufacturer's Certification training in correct application methods to apply termite control treatment and products in jurisdiction where Project is located.
- C. Source Limitations:
 - 1. Obtain termite control products from single source from single manufacturer.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Delivery, Storage, and Handling:
 - 1. Certified Applicator responsible for delivery, storage, handling, and dispose of specified products of this section.
- B. Storage And Handling Requirements:
 - 1. Storage:
 - a. Keep containers closed when not in use.
 - b. Store unused product in original container only, out of reach of children and animals.
 - c. Do not store near food or feed.
 - d. Protect from freezing.
 - 2. Spills or leaks:
 - a. General:
 - 1) In case of spill or leak on floor or paved surfaces, soak up with sand, earth, or synthetic absorbent.
 - 2) Avoid skin contact.
 - 3) Remove residue to chemical waste area.
 - 4) Ensure adequate decontamination of tools and equipment following cleanup.
 - b. All leaks resulting in application of this product in locations other than those prescribed must be cleaned up prior to leaving application site.
 - 1) DO NOT allow people or pets to contact contaminated areas until cleanup is completed.
- C. Packaging Waste Management:
 - 1. Disposal:
 - a. Dispose of empty containers in accordance with Manufacturer's and regulatory agency's requirements.
 - b. Do not contaminate water, food, or feed by storage or disposal.

1.6 FIELD CONDITIONS

A. Ambient Conditions

1. Comply with EPA-Registered Label and requirements of authorities having jurisdiction (AHJ) and Manufacturer's written recommendations regarding environmental conditions under which termiticide shall be applied.

B. Environmental Limitations:

1. To ensure penetration, do not treat soil that is water saturated or frozen.
2. Do not treat soil (or aggregate base) while precipitation is occurring or movement from treatment area (site) is likely to occur.
3. Do not treat soil (or aggregate base) while large precipitation is expected to occurring within two to four (2-4) hours after application.

1.7 WARRANTY

A. Manufacturer Warranty:

1. Provide Manufacturer's written warranty:
 - a. Warranty shall guarantee effectiveness of treatment against subterranean termite infestation for five years minimum from acceptance date of Project and be signed by applicator and Contractor as co-guarantors.
 - b. If subterranean termite activity or damage is discovered during warranty period, re-treat soil and repair or replace damage caused by termite infestation.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Termiticide:

1. Description:
 - a. Provide EPA-Registered termiticide, complying with requirements of authorities having jurisdiction (AHJ), in aqueous solution formulated to prevent termite infestation.
 - b. Provide quantity required for application at label volume and rate for maximum termiticide concentration allowed for each specific use, according to product's EPA-Registered Label.
2. Design Criteria:
 - a. Undetectable:
 - 1) Non-repellent or undetectable chemical technology.
 - b. Transfer Effect:
 - 1) Slow-acting treatment allowing individual termite's ample time to transfer treatment to other termites as they come in contact within the colony.
 - c. Service Life of Treatment:
 - 1) Soil treatment termiticide that is effective for not less than five (5) years against infestation of subterranean termites.
3. Mixes:

- a. Mix chemicals and water at Manufacturer's recommended requirements.
4. Approved Product. (No substitution of specified product or alteration of Manufacturer's application requirements is allowed):
 - a. Termidor by BASF Professional Pest Control, Research Triangle Park, NC
www.termidorhome.com, or www.pestcontrol.basf.us.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Evaluation And Assessment:

1. Examine substrates, areas, and conditions, with Applicator present, for compliance with requirements for moisture content of soil per termiticide label requirements, interfaces with earthwork, slab and foundation work, landscaping, utility installation, and other conditions affecting performance of termite control.
2. Proceed with application only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Protection Of In-Place Conditions:

1. Allow no disturbance of treated soil (aggregate base) between application of solution and placing of concrete. (Disturbed defined as removing fill and/or replacing fill).
2. Protect neighboring property, water sources, and personnel on site from contamination.
 - a. Use anti-backflow equipment or procedures.
 - b. Do not treat soil beneath structures that contain wells or cisterns.
 - c. Take extreme care to avoid runoff. Do not treat soil that is water-saturated or frozen.
3. Maintain, on job site, empirical name of chemical, Manufacturer's precautions, and phone numbers of proper authorities to notify in case of spillage or other accident.

B. General Preparation:

1. Comply with the most stringent requirements of authorities having jurisdiction (AHJ) and with Manufacturer's written instructions for preparation before beginning application of termite control treatment.
2. Remove all extraneous sources of wood cellulose and other edible materials such as wood debris, tree stumps and roots, stakes, formwork, trash, and construction waste wood from soil within and around foundations.
3. Do not apply application of termite control until location of air ducts, vents, water, and sewer lines are known and identified. Take extreme caution to avoid contamination of these structural elements and airways.

C. Soil Treatment Preparation:

1. Remove foreign matter and impermeable soil materials that could decrease treatment effectiveness on areas to be treated.
2. Loosen, rake, and level soil to be treated except previously compacted areas under slabs and footings.
3. Termiticides may be applied before placing compacted fill under slabs if recommended in writing by termiticide manufacturer.
4. Fit filling hose connected to water source at site with backflow preventer, complying with requirements of authorities having jurisdiction (AHJ).

3.3 APPLICATION

A. Interface With Other Work:

1. Interior slab-on-grade concrete:
 - a. Installation of vapor retarder, geomembrane if used, and aggregate base.

B. General:

1. Comply with the most stringent requirements of authorities having jurisdiction (AHJ) and with Manufacturer's EPA-Registered Label for products.
 - a. Application Restrictions:
 - 1) Do not apply while precipitation is occurring or large precipitation is expected to occurring within two to four (2-4) hours after application'.
 - 2) Do not contaminate water, food or feed. Cover or remove all exposed food, feed and drinking water.
 - 3) Do not apply with 15 feet (4.50 m) of bodies of fresh water lakes, reservoirs, rivers, permanent streams, marshes, and natural ponds.
 - 4) Do not allow residents, children, other persons or pets into immediate area during application.
 - 5) Do not allow residents, children, other persons or pets into treated area until sprays have dried. After application, applicator is required to check for leaks resulting in deposition of treatment dilution in locations other than those prescribed.
2. Application OPTION B as specified in Sequencing of this specification in Part 1 General:
 - a. Increase application rate for volume as per Manufacturer's instruction.

C. Applying Soil Treatment:

1. Mix treatment termiticide solution to a uniform consistency.
2. Provide quantity required for application at the label volume and rate for the maximum specified concentration of termiticide, according to manufacturer's EPA-Registered Label so that a continuous horizontal and vertical termiticidal barrier or treated zone is established around and under building construction. Distribute treatment evenly.
3. If impervious soils make reduction in volume of solution necessary, increase percentage of toxicant used in proportion to insure same amount of insecticide be used per linear or square foot (meter).
4. Apply overall treatment to entire surface to be covered by concrete slab.

D. Pre-Construction Treatment:

1. For Slab-on-Grade Construction:

- a. 4 gallons per 10 linear ft (15 liters per 3 000 linear mm) along outside of exterior foundation.
- b. 2 gallons per 10 linear ft (7.5 liters per 3 000 linear mm) in voids of unit masonry foundation walls or piers.
- c. One gallon per 10 sq ft (3.5 liters per one sq m) as overall treatment under slab and attached porches.
- d. 4 gallons per 10 linear ft (15 liters per 3 000 linear mm) along inside of exterior foundation walls, both sides of interior partition foundation walls, and around utility services and other features that will penetrate slab or where there will be break in concrete (grade changes, zip strips, cold joints, etc.).

3.4 RE-APPLICATION

- A. Reapply treatment solution to areas disturbed by subsequent excavation, grading, landscaping, or other construction activities following application.

3.5 FIELD QUALITY CONTROL

- A. Non-Conforming Work. Non-conforming work as covered in the General Conditions applies, but is not limited to the following:
 - 1. Applicator:
 - a. Substitution of specified product or alteration of Manufacturer's application requirements is considered defective or not complying with Contract Document requirements. Correct such work at no cost to the Owner.

3.6 PROTECTION

- A. Allow sufficient time (12 hours minimum) for drying after application before resuming construction activities.
- B. Keep off treated areas until completely dry. Do not allow workers or other personnel to enter treatment area until chemical has been absorbed into soil.
- C. Protect application areas from precipitation as recommended by Manufacturer.
- D. Protect temiticide solution, dispersed in treated soils and fill, from being diluted until ground-supported slabs are installed. Use waterproof barrier according to EPA-Registered Label instructions.
- E. Post signs in areas of application warning of poison application. Remove signs when areas with application are covered by other construction.

END OF SECTION

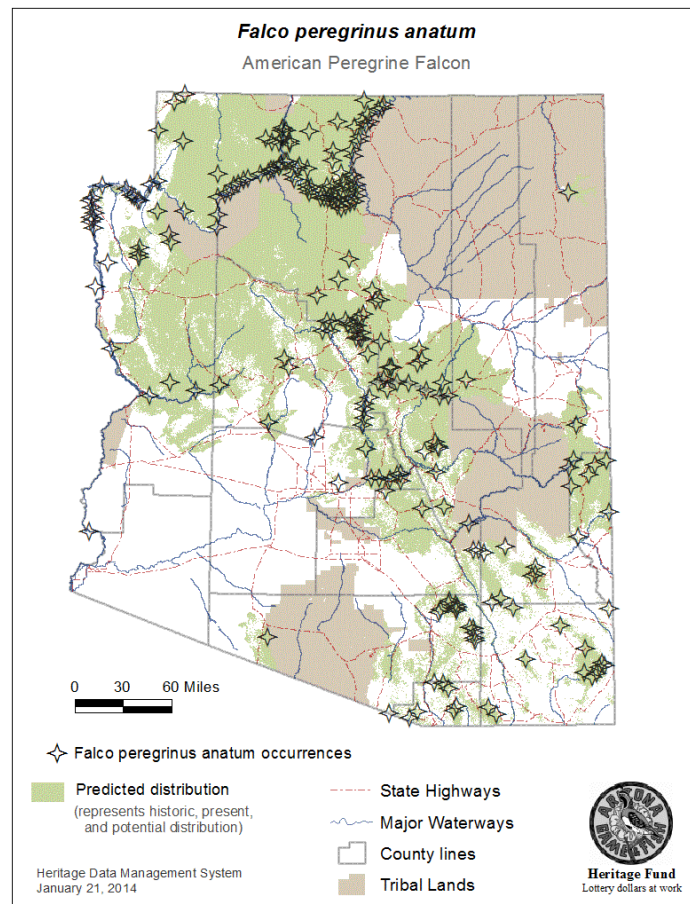
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AMERICAN PEREGRINE FALCON CONSERVATION GUIDELINES

INTRODUCTION

In North America, these falcons breed from Alaska and Canada south to western Mexico, including Baja California. In Arizona, the species has been documented to nest over a wide range of elevations in the state from 460 ft (140 m) within Topock Gorge along the lower Colorado River close to 9000 ft (2743 m) near Greer in the White Mountains. The Grand Canyon region supports the greatest concentration of breeding Peregrine Falcons in Arizona, where it was reported that the population may exceed 150 pairs (Snyder and Snyder, 1991). They have also been regularly documented from Lake Powell to Lake Mead, along the Mogollon Rim from the upper Verde River drainage and Sedona area to the New Mexico border. There are also noted sizable populations in the mountains and canyons of southwestern Arizona and northern Navajo and Hopi tribal lands. Major land owners within American Peregrine falcon habitat include the Bureau of Land Management (BLM), National Park Service (NPS), U.S. Forest Service (USFS), U.S. Fish and Wildlife Service (USFWS), Arizona State Land Department (ASLD), Tribal, non-governmental organization lands, and private lands.

Figure 1. Distribution of American Peregrine falcon in Arizona.



History

Peregrine falcon populations declined precipitously following World War II, the cause being attributed to the use of Organochlorines in pesticides, such as DDT. As a result, the USFWS listed the American Peregrine falcon as endangered on June 2, 1970, under the precursor of the Endangered Species Act (USFWS 1970: 35 FR 16047). In addition, use of DDT was banned in Canada in 1970 and in the United States in 1972 (USEPA 1972) and restriction of other similar pesticides soon ensued (USFWS 1999). Following listing, the American Peregrine falcon Rocky Mountains/Southwest Population Recovery Plan was established, outlining specific objectives to be met for delisting of the species. After years of surveys, monitoring and research, it was determined that the necessary objectives had been met, and that the species had been extensively recovered, and the species was delisted (USFWS 1999).

As evidenced by specific species surveys, Peregrine falcons are doing well in Arizona. Ward (1993) reported 179 known breeding areas, and Glinski (1988) indicated there were over 200 breeding pairs. Recent Arizona Game and Fish Department estimates suggest that there could be as many as 300 or more occupied breeding areas in the state, as many remote areas, particularly in the Grand Canyon region, still remain to be completely surveyed (Corman and Wise-Gervais 2005).

Although no longer federally listed as endangered, Arizona will continue to regulate take for falconry and other purposes, and other federal laws still apply, such as the Migratory Bird Treaty Act (MBTA, 16 USC §§703–712) the National Forest Management Act (16 U.S.C. 1600), and the Federal Land Management and Policy Act (43 U.S.C. 1701). Additionally, localized protection has been established; for example, the Prescott National Forest implemented a raptor management plan, which includes seasonal rock climbing restrictions to prevent disturbance of raptor nests from rock climbing activities. Pesticides will continue to be registered with the Environmental Protection Agency (EPA). Under the authority of the Federal Insecticide, Fungicide, and Rodenticide Act (7 U.S.C. 136), the EPA requires environmental testing of all new pesticides. Testing the effects of pesticides on representative wildlife species prior to pesticide registration is specifically required (USFWS 1999). Peregrines are also protected internationally by the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), in Appendix I.

GENERAL BIOLOGY

Adult plumage is variable in both color and pattern. Most birds have a dark blue-gray dorsum, and light breast with variably dark barring. A distinctive dark "helmet" covers the head to the nape of the neck, down the side of face in dark malar stripes. Juveniles have a dark brownish dorsum and "helmet," and light underparts are heavily streaked with brown. Males are usually bluer on the back and tend to have less barring on the breast. Wings are pointed and 99 cm (39 in) long in males and 117 cm (46 in) in females. Total length of males averages 36-41 cm (14-16 in) and weight of males averages 0.45-0.68 kg (J.0-1.5Ib). Females average 41-46 cm (16-18 in) in total length and weigh 0.72-0.95 kg (J.6-2.1Ib). Females are up to 33 percent longer than males. These birds have

direct flapping flight and vertical "stoops" or plunges used in pursuit of flying prey. Several calls are used, with the most common being a constant "*kak kak kak*" given to intruders near the eyrie or when the bird is irritated. During courtship, the nesting call is a whining wail that progresses into a prolonged "*kaak kaak*." This nesting call is used by females to solicit food from the males (Glinski 1998). Peregrines live anywhere from 4-5 years, and in some cases, up to 10-12 years. Studies have shown that mortality in the first year of life can be as high as 60-80%. Commonly, many are lost during initial flight attempts while others are lost during the first migration period. Generally, only one or two of every ten birds reaches maturity.

Reproduction

Peregrine falcons generally mate for life, but will accept a new partner if the current mate dies. Migratory pairs may separate for winter, while resident pairs maintain pair-bonds (in Arizona, resident birds are not uncommon). Both resident and migratory birds go through courtship rituals every spring. Males court females with aerobatic flight displays and repeated calls and courtship feeding is often used to strengthen the pair bond. Females are usually dominant and often aggressive toward the male partner. Once pair-bonded, the male selects several nest sites, from which the female chooses. Nesting sites, called eyries, usually consist of a shallow depression scraped into a ledge on the side of a cliff. With greater frequency, these birds are becoming urban, in which case, ledges in the side of a building are used. The pair may select a new nest site along the same cliff face each year, or if successful, the same nest site may be used for many years. Birds are generally sexually mature at age two, although breeding has been documented at one year of age. Under normal conditions only one clutch of eggs is laid per year, although if the first clutch is lost before hatching or the chicks die in the first few days, another attempt may be made. Once mature, females usually lay every year until they die.

In Arizona, Peregrine falcons return to breeding areas from mid-February to mid-March. Egg laying occurs anytime from mid-March through mid-May, and may even occur in June at higher elevations. There is usually only one clutch, although a replacement clutch is often laid within 14 days if the first is lost (Newton 1979). Female Peregrine Falcons often become lethargic approximately 5 days before egg-laying (White et al. 2002). Usually 3-4 eggs are laid, but as few as 2 and as many as 6 eggs can be laid (Baicich and Harrison 1997). Incubation lasts approximately 33-35 days (or about 32 according to Glinski 1998), occasionally longer if there are lengthy or frequent periods of interrupted incubation (White et al. 2002). Nestlings move around the nest at around 4 weeks, and fledge at 5-6 weeks or 35-42 days, from May to August but remain dependent on the parents for more than 5 weeks following nest departure (White et al. 2002, Glinski 1998). Captive breeding is relatively easy, and groups such as the Peregrine Fund has had good success with hacking captive bred birds into the wild in other areas. No captive bred birds were hacked in Arizona (K. Jacobson, 2015 pers. comm.).

Movement

While some of Arizona's Peregrine falcons will remain near their nesting cliffs year-round, others migrate south or move to lowlands for the winter. They will return to their breeding cliffs between mid-February to mid-March (Glinski 1998). Peak migration

through Arizona is from early September through October; however, some begin to appear in lowlands by late July or August.

On a local scale, flight speeds of more than 60 miles per hour allow Peregrine falcons to hunt large areas, up to 17 miles away from the eyrie in some cases (Porter and White 1973), and they take advantage of prey availability in agricultural lands, meadows, river bottoms, marshes, and lakes (USFWS 1984).

HABITAT REQUIREMENTS

Figure 2. Image of good habitat.



Within Arizona, pairs breed wherever sufficient prey is available in areas with cliffs, such as the Mogollon Rim, Grand Canyon, and Colorado Plateau (Figure 1). Optimum Peregrine habitat is generally considered to be steep, sheer cliffs with a mean height of 200 to 300 feet (USFS 2015) overlooking woodlands, riparian areas, or other habitats supporting avian prey species in abundance, in areas of Sonoran, Mohave, and Great Basin desertscrub up through areas of Rocky Mountain and Madrean Montane Conifer Forest (Figure 2). They prey primarily on birds found in wetlands, riparian areas, meadows, parklands, croplands, mountain valleys, and lakes within a 10 to 20 mile radius from the nest site. Habitat vegetation is not as important as topographic relief and abundance of prey in determining the areas which nesting Peregrine Falcons will occupy (Corman and Wise-Gervais 2005). In all habitat types the presence of an open expanse for hunting is critical (Glinski 1998).

Wintering Component

Wintering habitat during the non-breeding season can consist of high areas for perching and observing prey, such as tall transmission towers and urban skyscrapers, and areas that include a high-density of birds for prey, such as sewage ponds, canals, agricultural fields,

dairies, railroad tracks, apartment complexes, and farms; studies suggest daily travel distances can exceed 80 km from wintering home ranges as birds forage in outlying areas such as lakes (Garrison and Glinski 1992).

Nesting Component

In Arizona, most known Peregrine Falcon eyries are on cliff faces, canyon wall, spires and occasionally on steep rocky ridges or mountain outcrops. Males often explore many ledges, pockets, crevices, or small caves and usually make several shallow scrapes or bowls prior to the female making the final selection (Ponton 1983). They are, however, adaptable nesters; in addition to cliffs, they have been found on tall buildings, live trees and snags, cranes, and bridges, as long as abundant prey is nearby (Buchanan et al. 2014). Glinski (1998) reports on one Peregrine Falcon pair in Arizona that nested in an abandoned Golden Eagle nest placed on a ledge. Nest sites are often used year-after-year or alternate sites within a breeding area may be used in intermittent years. Within the Grand Canyon where Peregrine Falcons reach their highest nesting density, Brown (1991) found the average distance between eyries was 4.2 mi (6.8 km), with a minimum distance of 1.8 mi (2.9 km).

Optimal eyrie features must include protection from the weather, and tall cliffs that provide better perches as vantage points to keep watch against potential intrusions from conspecifics (reduced competition), predation, or to optimize aerial hunting (stronger updrafts, better sightlines). Distance to other nesting Peregrine falcons had a direct effect on whether to occupy an otherwise suitable cliff site (Wightman and Fuller 2006, Abbate 2012). Peregrine falcons near major water sources in Arizona generally nest low on cliffs, while pairs nesting far from water tend to nest higher (Luensmann 2010).

Land use and modifications to habitat are probably the biggest man-made threats to Peregrine falcons in Arizona. Due to the remoteness of most eyries, nesting locations are less likely to be affected, but foraging areas that can affect the quality or quantity of prey can have a direct impact to whether suitable nesting habitat is occupied (USFWS 2004).

- Nesting cliffs have a mean height of 200-300 feet. Arizona cliffs mostly vertical (80-90°), and all cliffs were at least 70° overall, with vertical sections below the eyrie (Ellis 1982).
- Nests in the Southwest that face south or west are often on deeply recessed ledges with a boulder or vegetation on the ledge or with overhanging rock that provides afternoon shade (Ellis 1982).
- Elevation- up to 9,000 feet (2,700 m) (Ellis 1982).
- Distance to water- within 3 miles (5 km) of permanent or near permanent surface water (Ellis 1982).
- Rainfall requirements- 6 to >30 inches (150-760 mm) of annual rainfall unless near extensive permanent water (Ellis 1982).
- Vegetation- primarily Fremont cottonwood-Goodding willow (*Populus fremontii*-*S. gooddingii*) woodlands were common in the Colorado River Delta. Upland terraces were vegetated with mesquite (*Prosopis* spp.) bosques. Marshlands associated with oxbows, backwaters, and seepages were common. More recently,

cottonwood-willow woodlands covered a limited area, upland areas were developed for agriculture, and some marshlands were partially maintained by agricultural runoff (Hinojosa-Huerta et al. 2005). Smoketree (*Psoralea arguta*) is also a major shrub species along large drainages along the western edge of the Sonoran Desert. Desert ironwood (*Olneya tesota*) and blue paloverde (*Parkinsonia florida*) are locally dominant (Ohmart and Anderson 1982).

- Distance to hunting- habitats supporting high concentrations of birds within a 10-mile (16 km) radius of nesting sites are considered essential (Luensmann 2010).
- Eyries are typically on broad, open cliff ledges or in shallow caves and range from 32 to 86 feet² (3-8m²) in area with scrapes 7 to 9 inches (17-22cm) in diameter and 1 to 2 inches (3-5 cm) deep (Ratcliffe 1993).

Food Component

Peregrines feed almost exclusively on birds, although they have been known to prey also upon bats (Glinski 1998), other small to medium mammals (Ellis et al. 2004; Hunter et al. 1988), fish (Hetzler 2013), carrion (Buchanan 1991), and even invertebrates (Stevens et al. 2009; Ellis et al. 2004). Usually individuals prey from above by folding wings and diving, sometimes at speeds of up to 200mph (320km/h). Peregrines do not grab the prey in mid-air but rather the impact itself is usually deadly. The victim is then allowed to tumble and is either picked up again in mid-air or retrieved from the ground. The average success rate in hunting seems to be in the 20-40% range.

MONITORING

Habitat

No formal state-wide monitoring of Peregrine falcon habitat is currently being conducted in Arizona, although site-specific monitoring occurs in conjunction with land management activities (USFS 2015).

Habitat monitoring protocols for raptor species can be found in the “Habitat Sampling” section beginning on page 153 of the Raptor Research and Management Techniques (Bird and Bildstein 2007). The section contains terminology needed for understanding how to measure raptor habitat, it also gives considerations when making a study design or choosing survey techniques. Additionally, descriptions of variables that can be measured for different purposes and brief comments on how to measure each variable can be found on pages 159-162.

Populations

The Delisting Monitoring Requirement of the ESA was established using the Monitoring Plan, and called for monitoring within six regions in the United States in five sampling periods, every three years, from 2003 to 2015 (USFWS 2003). Monitoring was to provide sufficient comparative data and trend information on territory occupancy, nest success and productivity. The goal was to measure effects from threats such as contaminants. USFWS is to review all the available information to determine if monitoring should be continued (USFWS 2003).

Under the monitoring plan territories were established randomly, if whole-range monitoring was not already being done, with each territory to be visited a minimum of two times at four-hours each, although more would be ideal. The goal of each visit was to determine occupancy, nest success, and productivity. The initial visit was to occur during late courtship, egg-laying, or early incubation in order to determine occupancy; if occupancy was negative, a second visit of four hours was required, ideally three to four weeks later, to confirm negative occupancy. The second visit of those territories with confirmed occupancy occurred during the early nestling state to determine the age of the nestlings. The third and/or consecutive visits for confirmed occupied territories needed to be made during the late nestling state, when young are 28-42 days old, in order to determine nest success and productivity (USFWS 2003).

The Monitoring Plan for the American Peregrine Falcon (USFWS 2003) includes guidelines on how to analyze data, such as calculating territory occupancy and nest success, also guidelines for collecting, preparing, and shipping egg and feather samples. These can be found in the “Methods” section, under subsection G. Monitoring Protocol, page 13.

According to the Monitoring Protocol, USFWS regards the Raptor Research and Management Techniques (Bird and Bildstein 2007) guide to be the standard when designing studies of raptor species. This guide outlines how to design a raptor survey and specific guidelines such as assessing nesting success and productivity or capture and marking techniques. It discusses different survey designs and what measurements should be taken depending on the objective of the study.

KEY THREATS

- Land use activities causing habitat loss, modification and fragmentation including but not limited to energy and communication infrastructure, dams and water management, forestry practices, agricultural practices, urbanization. When habitats are altered, the species that depend on those areas are displaced and may not find suitable habitat in surrounding areas. The results can be the loss of suitable prey, perching sites, and/or nesting sites.
 - Land use and modifications to habitat are probably the biggest man-made threats to Peregrine falcons in Arizona. Due to the remoteness of most eyries, nesting locations are less likely to be affected, but foraging areas that can affect the quality or quantity of prey can have a direct impact to whether suitable nesting habitat is occupied (USFWS 2004).
- Direct impacts (mortality) can occur from energy development and structures including electrocution from powerlines or collision with wind turbines.
- Release of toxins into the environment that can be consumed by the species, including pesticides or industrial contaminants. These can cause direct mortality or have indirect effects on population success.
- Climate change/drought: Peregrine falcons are flexible in habitat use, which will help them cope with climate change effects, but they are potentially vulnerable to shifts in prey levels. Also, their proximity to water is important, and they may be impacted by future drought.

- Recreational climbing causing mortality or abandoned nesting.

STANDARD MITIGATION MEASURES

Habitat Loss, modification or fragmentation from land use activities

- Managed activities, like trail clearing, logging, road construction, fire control measures and controlled burning, mining, and construction should, if possible, occur during the non-breeding season, or not occur within a ½ mile buffer zone of known eyrie locations, keeping in mind that Peregrine falcons appear more sensitive to above-eyrie disturbances to those that occur below the eyrie (Ellis 1982).
- Restrict human activities within approximately ½ mile of occupied nesting site March 1 through August 15. The ½ mile protection distance may vary depending on local topography, potential for disturbance, and location of important habitat components. Coordinate with local biologists to monitor nesting success to determine if restrictions are effective.
 - Restrict prescribed fire within 1 mile (0.6 km) of cliffs with occupied eyries and within 2 miles (3 km) from the base of cliffs with occupied eyries (Ellis 1982).
- Manage agricultural lands in habitat to maintain or improve species richness; an increase in the agricultural land area allocated to monoculture, such as corn or soybeans, could mean a decrease in the quality of hunting habitats (Lapointe et al. 2013).
- In areas where suitable nesting (i.e. cliffs) and foraging habitat occurs, but suitable nest sites are lacking or have been destroyed, cliff enhancement has been proven successful (Boyce et al. 1982).
- Peregrine falcons using man-made structures in metropolitan centers are often aided by alterations/enhancements to the chosen eyrie, to make the nesting areas safer for nestlings (Bell et al. 1996), such as artificial nest boxes, raised edges to platforms, or the addition of pea gravel to the existing structure, which provides nesting substrate.

Direct impact from energy structures

- To minimize electrocution risks, power poles should be constructed to meet current APLIC standards and old poles that pose electrocution risk should be retrofitted with raptor protective devices. For guidance, refer to *Suggested Practices for Avian Protection on Power Lines: State of the Art in 2006* (APLIC 2006).
- The USFWS has developed *Interim Guidelines to Avoid and Minimize Wildlife Impacts from Wind Turbines* (USFWS 2003) that are to be followed to avoid collision with turbines as well as evaluating and planning mitigation measures. Refer to this source for:
 - Site development recommendations
 - Turbine development and operation recommendations
 - How to rank site by their potential impact on wildlife using Potential Impact Index (PII)

- Determining pre-construction study needs
- Conducting post-construction studies and determining post-construction monitoring needs

Exposure to toxins in the environment

- Develop a pest management program that allows pesticides to be applied strategically and with caution. A pest management program should include:
 - Proper sanitation practices
 - Removal of food sources for pests
 - Use appropriate biological control
- In cases where the use of pesticides is necessary, they should be used in accordance with their legally binding labels.
- Granular formulations that are toxic to avian species should be limited because they are sometimes mistaken as grain by birds

Climate Change/Drought

- As climate change/drought dries up previously wet habitats, artificial waters will become more important (Bagne and Finch 2013). Peregrines are adept hunters of water-loving birds and are known to drink and bathe frequently, so maintaining water will be a key component to maintaining optimal habitat (White et al. 2002).

Recreational Climbing

- To avoid potential nest abandonment, implementing restrictions on climbing activities near nesting areas is recommended. Restrictions and closures of this type should be site specific, following seasonal or temporal parameters appropriate for the individual location.
- To maintain support and compliance of regulations, seasonal monitoring should occur to ensure only sites that are occupied by the species are closed.

If you have questions regarding site specific management recommendations, consult the AGFD Raptor Management Program

http://www.azgfd.gov/w_c/nongameandendangeredwildlifeprogram/Raptors/RaptorManagementProgram.shtml

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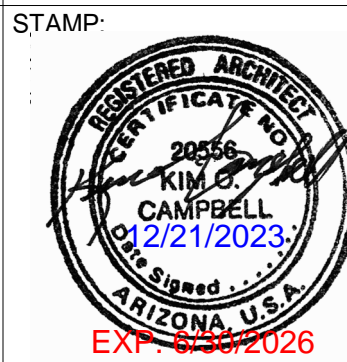
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CITY OF PAGE - ENCOMPASS SHELTER FACILITY

PROJECT LOCATION:
OSPREY DRIVE PAGE, ARIZONA
86040
DATE: 12-15-2023



SUBMITTAL:

NO.	DATE	REVISIONS

REVISIONS



CITY OF PAGE
COVER SHEET
ENCOMPASS SHELTER BUILDING

2110-042
PROJECT NUMBER
G-001
SHEET NO.

Sheet List	
Sheet Number	Sheet Name

1-GENERAL	
G-001	COVER SHEET
G-002	LIFE SAFETY PLAN
G-003	ADA1
G-004	ADA2
G-005	ADA3
2-CIVIL	
C1.0	COVER SHEET
C2.0	SITE PLAN
C3.0	EROSION CONTROL PLAN
C3.1	EROSION CONTROL NOTES AND DETAILS
C4.0	GRADING AND DRAINAGE PLAN
C4.1	GRADING AND SITE DETAILS
C5.0	UTILITY PLAN
C5.1	UTILITY NOTES AND DETAILS
3-STRUCTURAL	
S001	STRUCTURAL NOTES
S101	FOUNDATION PLAN
S103	ROOF FRAMING PLAN
S501	STRUCTURAL DETAILS
S601	STRUCTURAL SCHEDULES
S701	TYPICAL STRUCTURAL DETAILS
4-ARCHITECTURE	
A-101	FLOOR, DIMENSION/WALL TYPES
A-111	ROOF PLAN
A-120	REFLECTED CEILING PLAN
A-201	EXTERIOR ELEVATIONS
A-202	EXTERIOR ELEVATIONS
A-212	INTERIOR ELEVATIONS
A-301	BUILDING SECTIONS
A-501	DETAILS
A-502	DETAILS
A-503	DETAILS
A-504	DETAILS
A-601	SCHEDULES
F-101	FURNITURE PLAN

Sheet List	
Sheet Number	Sheet Name

5-MECHANICAL	
M-000	MECHANICAL TITLE SHEET
M-001	MECHANICAL GENERAL NOTES
M-101	LEVEL 1 HVAC PLAN
M-120	ROOF MECHANICAL PLAN
M-501	MECHANICAL DETAILS
M-502	KITCHEN HOOD DETAIL
M-503	KITCHEN HOOD DETAIL
M-504	KITCHEN HOOD DETAIL
M-505	KITCHEN HOOD DETAIL
M-506	KITCHEN HOOD DETAIL
M-507	KITCHEN HOOD DETAIL
M-601	MECHANICAL SCHEDULES
M-701	MECHANICAL SPECIFICATIONS
M-702	MECHANICAL SPECIFICATIONS
6-PLUMBING	
P-000	PLUMBING TITLE SHEET
P-101	LEVEL 1 PLUMBING PLAN
P-190	ROOF PLUMBING PLAN
P-401	PLUMBING ENLARGED PLAN
P-501	PLUMBING DETAILS
P-502	PLUMBING DETAILS
P-601	PLUMBING SCHEDULES
P-701	PLUMBING SPECIFICATIONS
P-702	PLUMBING SPECIFICATIONS
7-ELECTRICAL	
E001	ELECTRICAL TITLE SHEET
ES101	ELECTRICAL SITE PLAN
ES102	SITE PHOTOMETRIC PLAN
E101	LEVEL 1 LIGHTING PLAN
E111	LEVEL 1 POWER PLAN
E112	ROOF POWER PLAN
E501	ELECTRICAL DIAGRAMS
E502	ELECTRICAL DIAGRAMS
E503	ELECTRICAL DIAGRAMS
E601	ONE LINE AND CALCS
E602	ELECTRICAL SCHEDULES
E603	ELECTRICAL SCHEDULES
E701	ELECTRICAL SPECIFICATIONS

DEFERRED SUBMITTALS

- 1) PRE-ENGINEERED TRUSSES
- 2) FIRE SPRINKLING SYSTEM
- 3) FIRE ALARM SYSTEM
- 4)
- 5)

APPROVED

CODE REVIEW AND DESIGN CRITERIA

Code Item Reference	Code Requirement	Actual Building Design
Occupancy Chapter 3	I-1 OCCUPANCY	I-1 OCCUPANCY
Construction Type Section 602	5B SPRINKLED	5B SPRINKLED
Allowable Floor Area Table 506.2	9,000 SQ. FT. PER FLOOR MAX	5,144 SQ. FT.
Allowable Area Increase Section 506	N/A	N/A
Allowable Height Table 503, Section 504	1 STORY 40'	1 STORY 18' - 9"
Allowable Height Increase Section 504	N/A	N/A
Roof Covering Section 1505	CLASS "C" FIRE RESISTANCE	CLASS "C" FIRE RESISTANCE
Draft Stops Section 718.4	DRAFT STOP REQUIRED SO NO AREA < 3,000 SF	PROVIDED
Egress Width Section 1005	Without sprinkler system: (36" min.) Others 0.15/Per Occupants: 36" Required	PROVIDED
Restroom Accessibility	ANSI A117.1-2003	1 accessible fixture type for each accessible restroom

At least 50% but not less than 1 Provided Section 1105.1

PLUMBING FIXTURE COUNT					
WATER CLOSETS		LAVS	SHOWERS	DRINKING FOUNTAIN	SERVICE SINK
MEN	1 per 10	1 per 10 = 2	1 per 8 = 2	1/100	1 REQUIRED
WOMEN	1 per 10	1 per 10 = 1	1 per 8 = 2		
STAFF	1 per 10	1 per 10 = 1	N/A		
PROVIDED					
MEN	REQ.: 2 PROV.: 3	REQ.: 2 / PROV.: 3	REQ.: 2 / PROV.: 3	N/A	1
WOMEN	REQ.: 1 PROV.: 2	REQ.: 1 / PROV.: 2	REQ.: 2 / PROV.: 2		
STAFF	REQ.: 1 PROV.: 1	REQ.: 1 / PROV.: 1	N/A		

The 2018 Edition of the I B C was used by Architectual firm
The 2018 Edition of the I P C was used and the IFGC by the Plumbing
The 2017 NEC Edition by the Electrical
The 2018 Edition of the I F C was used.

ARCHITECT

Campbell Architecture
46 North 200 East (435) 628-5969
St. George, Utah 84770
ARCHITECT: Kim Campbell



CONSULTANTS

CIVIL

ROSENBERG ASSOCIATES
352 E. RIVERSIDE DR.
#A2, ST. GEORGE UT 84737
(435) 673-8586

STRUCTURAL

JONES & DEMILLE ENGINEERING, INC.
1535 S. 100 WEST
RICHFIELD, UT 84737
(435) 896-8266

MECHANICAL

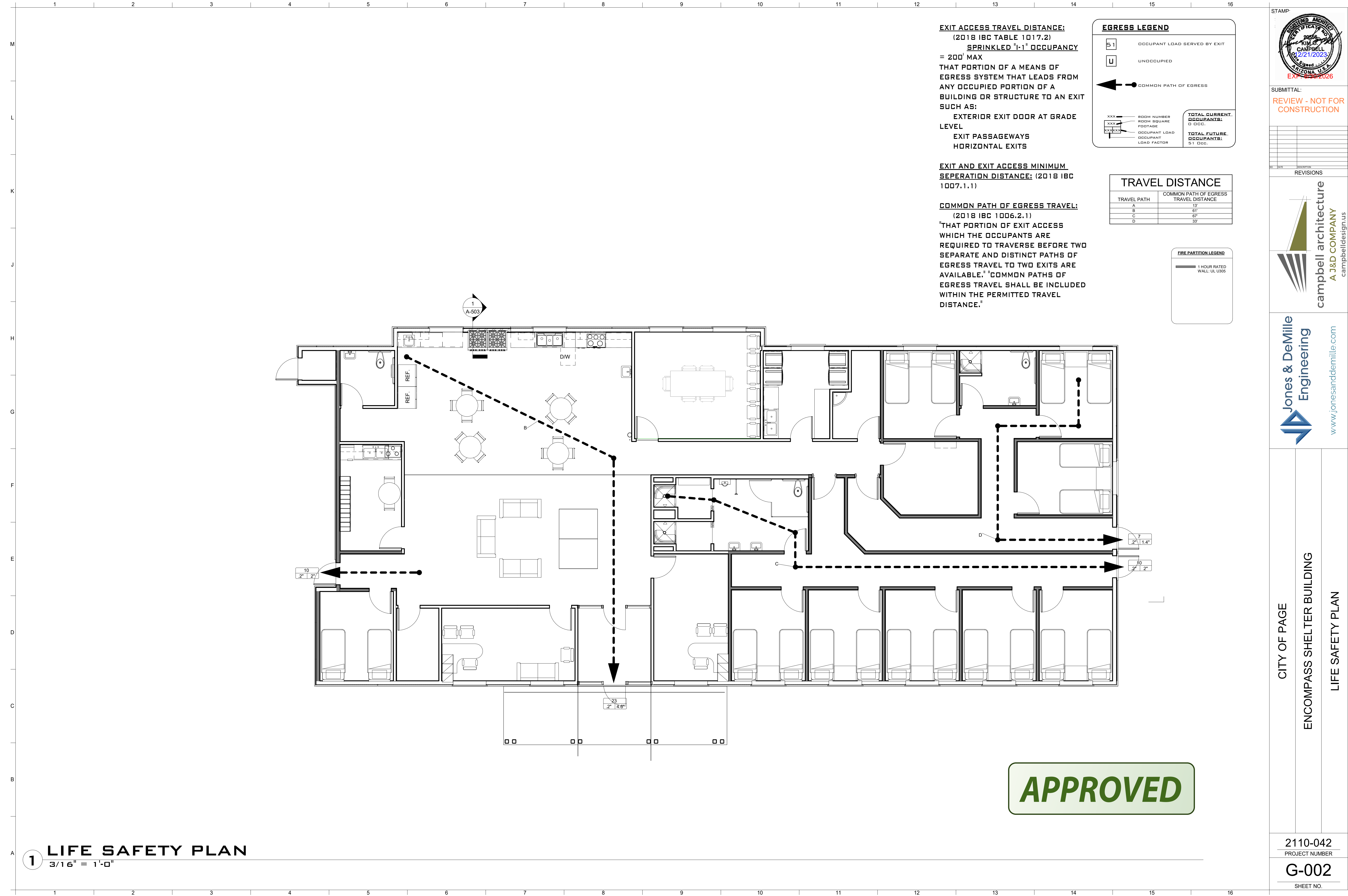
VBFA
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(435) 674-4800
Alt. SCOTT E.

PLUMBING

VBFA
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ST. GEORGE, UTAH 84790
(435) 674-4800
Alt. PAUL.

ELECTRICAL

VBFA
230 NORTH 1680 EAST, BUILDING V
ST. GEORGE, UTAH 84790
(435) 674-4800
Alt. LADD B.



EXIT ACCESS TRAVEL DISTANCE:
(2018 IBC TABLE 1017.2)
SPRINKLED "I-1" OCCUPANCY
= 200' MAX
THAT PORTION OF A MEANS OF
EGRESS SYSTEM THAT LEADS FROM
ANY OCCUPIED PORTION OF A
BUILDING OR STRUCTURE TO AN EXIT
SUCH AS:
EXTERIOR EXIT DOOR AT GRADE
LEVEL
EXIT PASSAGEWAYS
HORIZONTAL EXITS

**EXIT AND EXIT ACCESS MINIMUM
SEPERATION DISTANCE:** (2018 IBC
1007.1.1)

COMMON PATH OF EGRESS TRAVEL:
(2018 IBC 1006.2.1)
"THAT PORTION OF EXIT ACCESS
WHICH THE OCCUPANTS ARE
REQUIRED TO TRAVERSE BEFORE TWO
SEPARATE AND DISTINCT PATHS OF
EGRESS TRAVEL TO TWO EXITS ARE
AVAILABLE." "COMMON PATHS OF
EGRESS TRAVEL SHALL BE INCLUDED
WITHIN THE PERMITTED TRAVEL
DISTANCE."

EGRESS LEGEND

S 1 OCCUPANT LOAD SERVED BY EXIT

U UNOCCUPIED

← COMMON PATH OF EGRESS

XXX ROOM NUMBER
ROOM SQUARE
FOOTAGE
XXX OCCUPANT LOAD
OCCUPANT
LOAD FACTOR

**TOTAL CURRENT
OCCUPANTS:**
0 OCC.

**TOTAL FUTURE
OCCUPANTS:**
51 OCC.

TRAVEL DISTANCE

TRAVEL PATH	COMMON PATH OF EGRESS TRAVEL DISTANCE
A	13'
B	61'
C	67'
D	33'

FIRE PARTITION LEGEND

1 HOUR RATED
WALL-UL US05

STAMP

DESIGNED BY: KIM CAMPBELL
2/21/2023
EXP. DATE: 2/21/2026

SUBMITTAL:
REVIEW - NOT FOR
CONSTRUCTION

REVISIONS

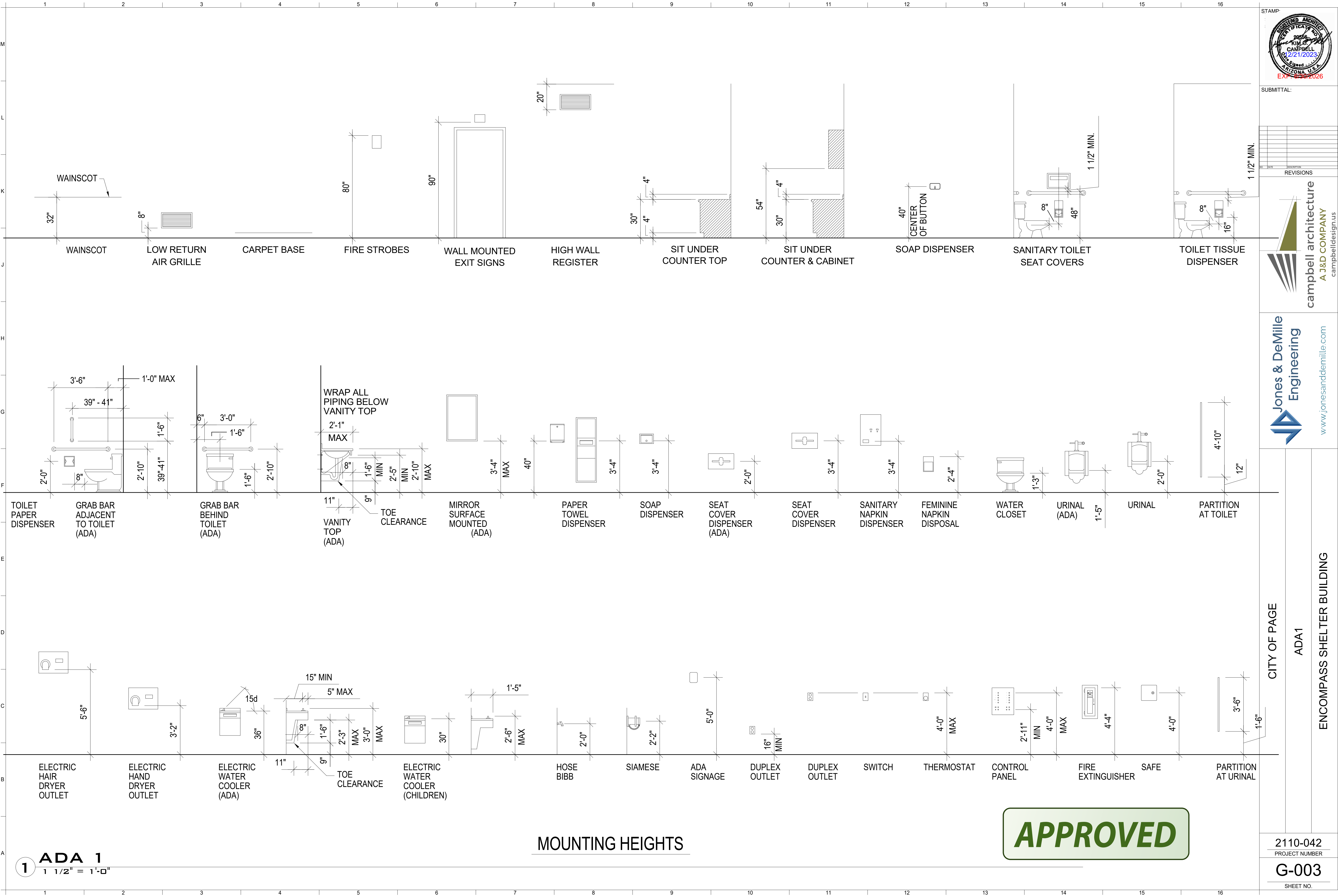
campbell architecture
A J&D COMPANY
campbelldesign.us

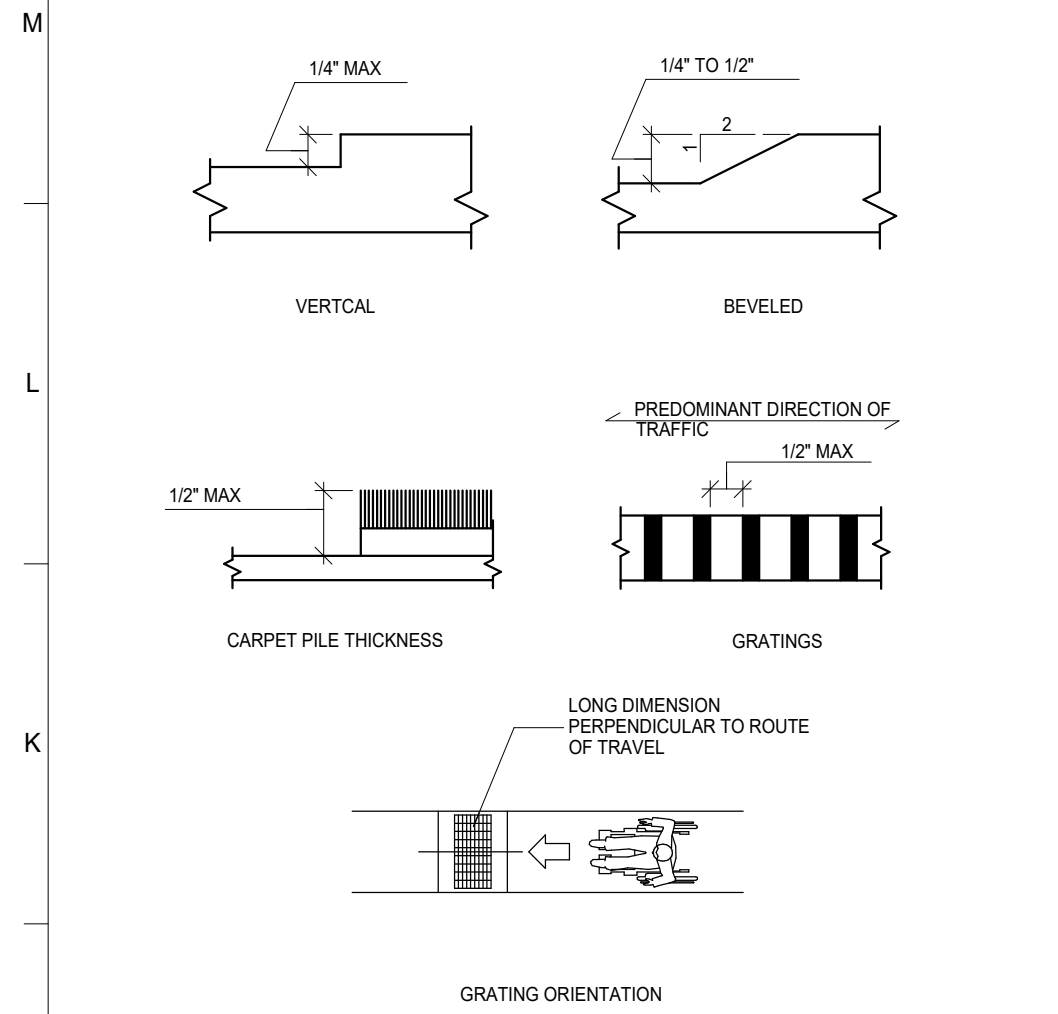
Jones & DeMille
Engineering
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CITY OF PAGE
ENCOMPASS SHELTER BUILDING
LIFE SAFETY PLAN

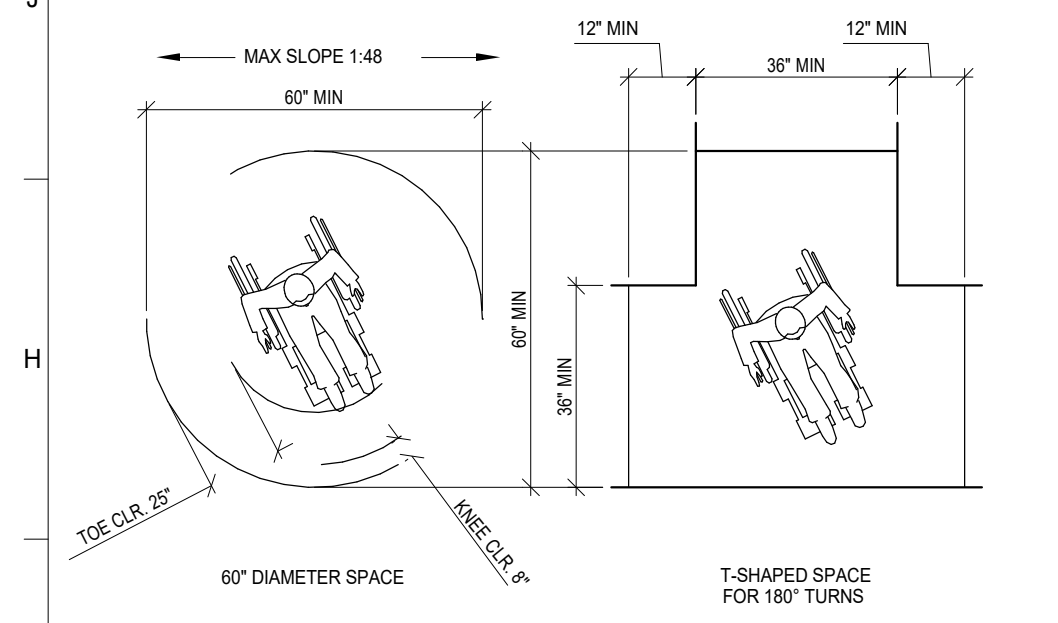
2110-042
PROJECT NUMBER

G-002
SHEET NO.

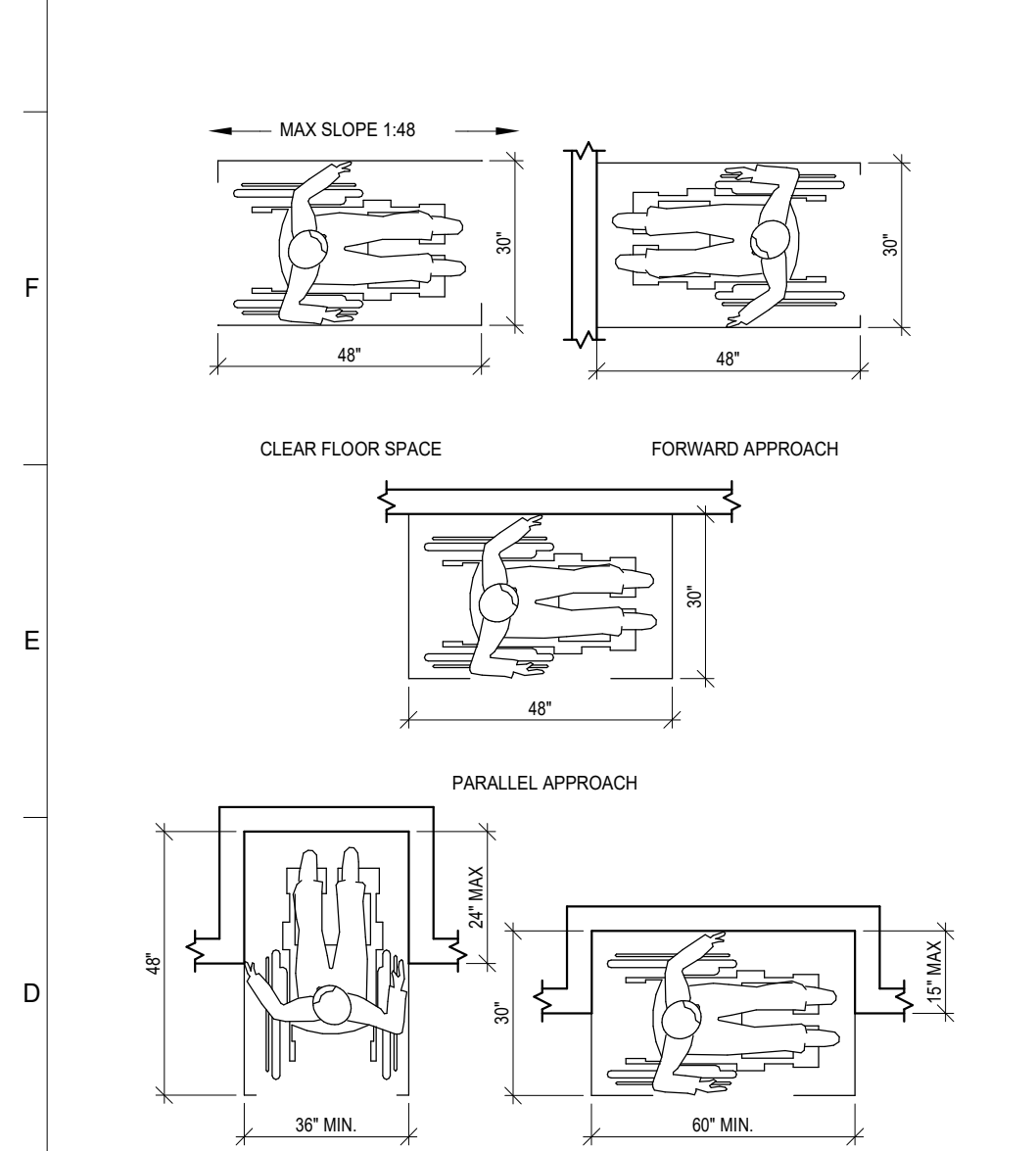




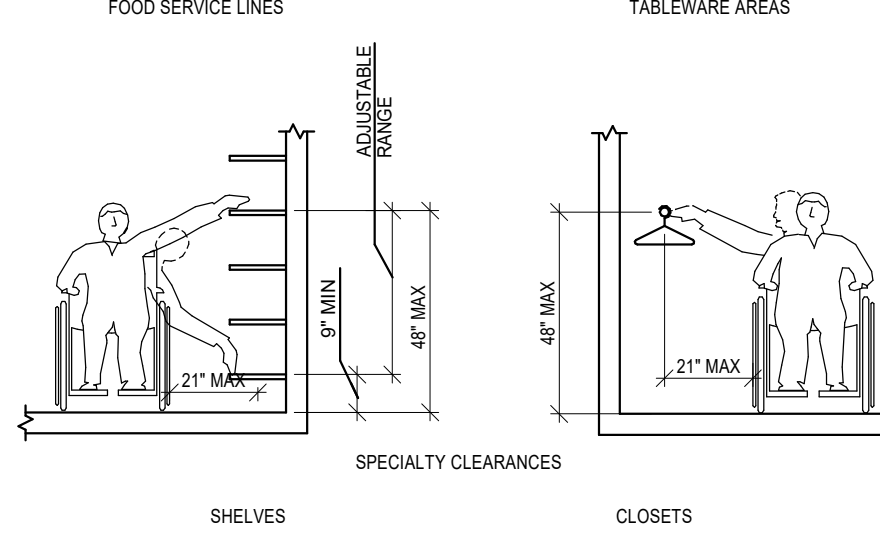
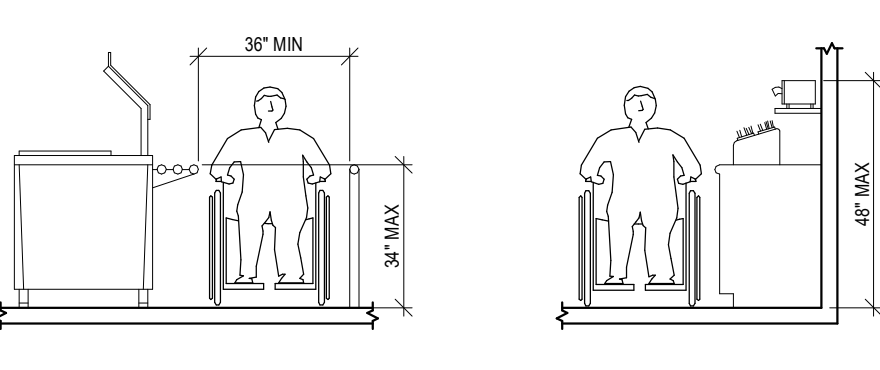
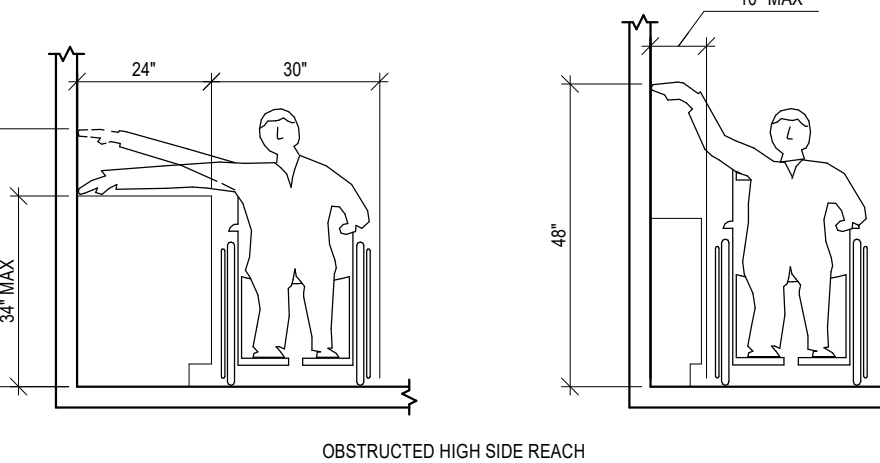
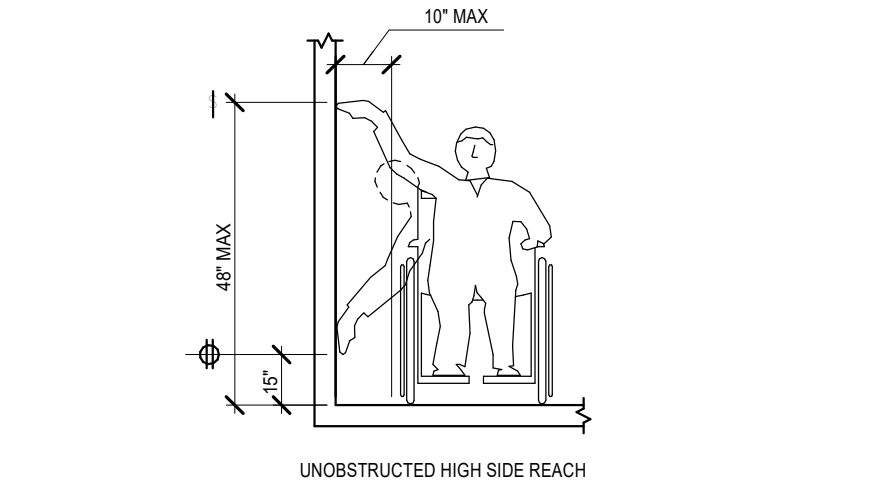
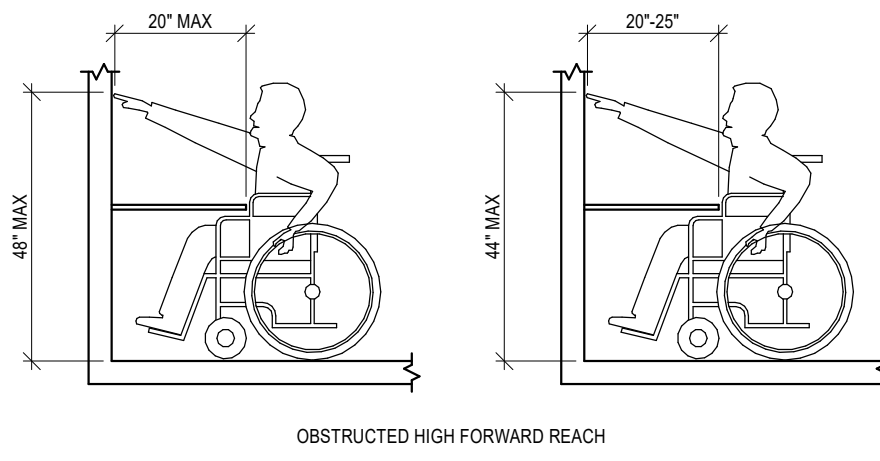
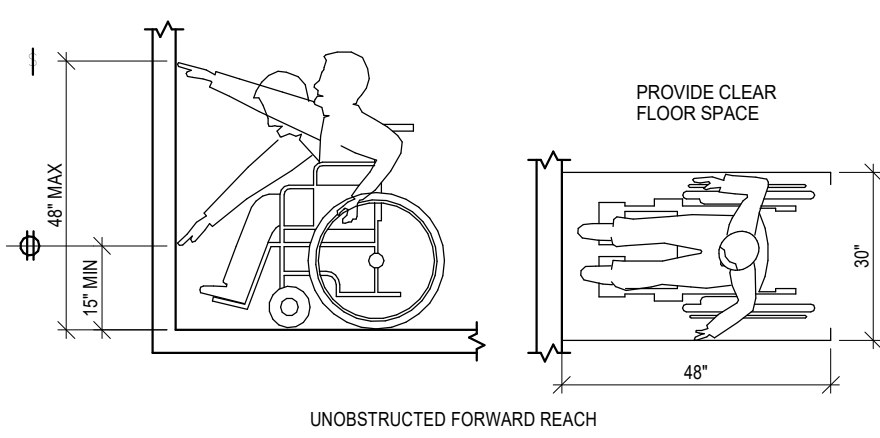
303. CHANGES IN LEVEL



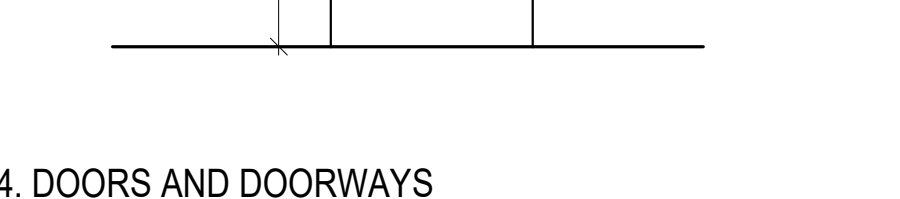
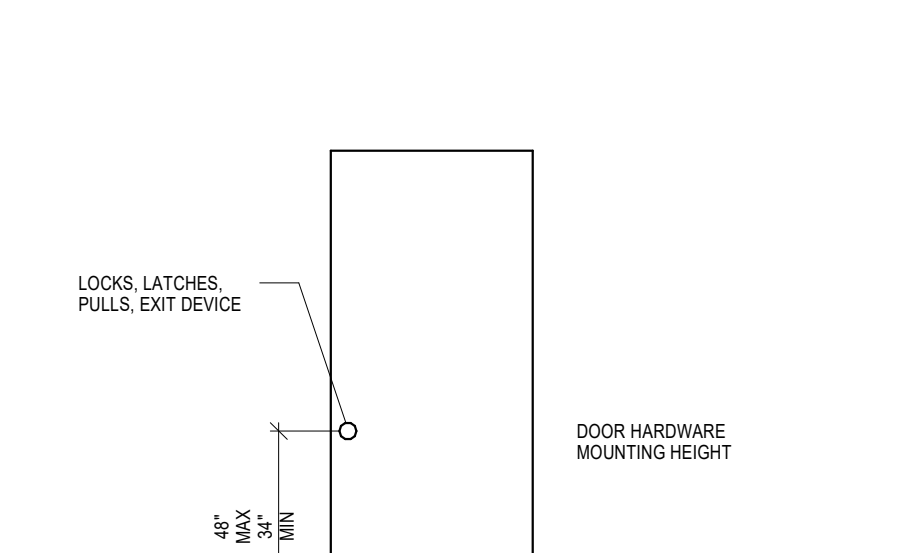
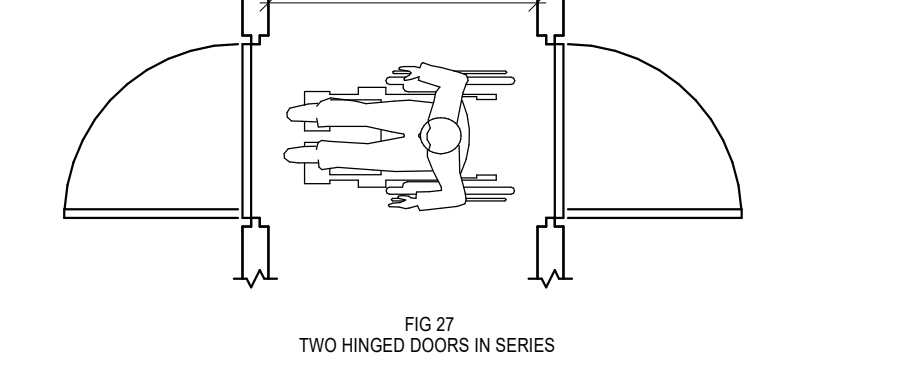
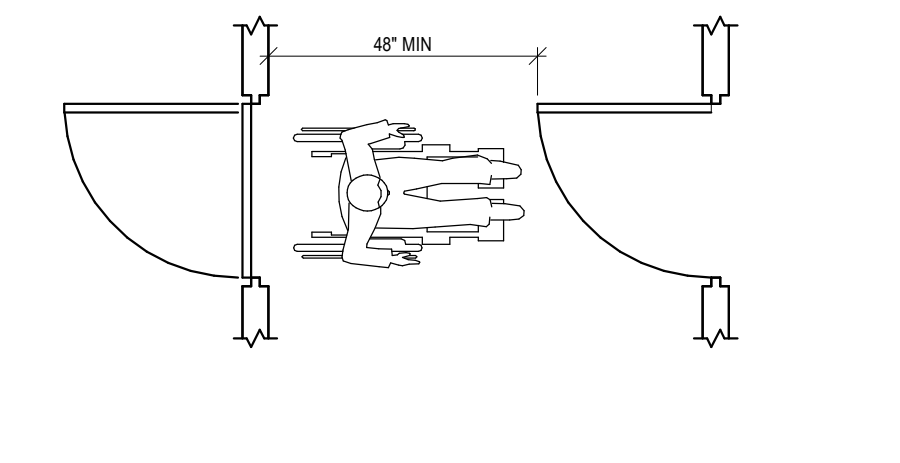
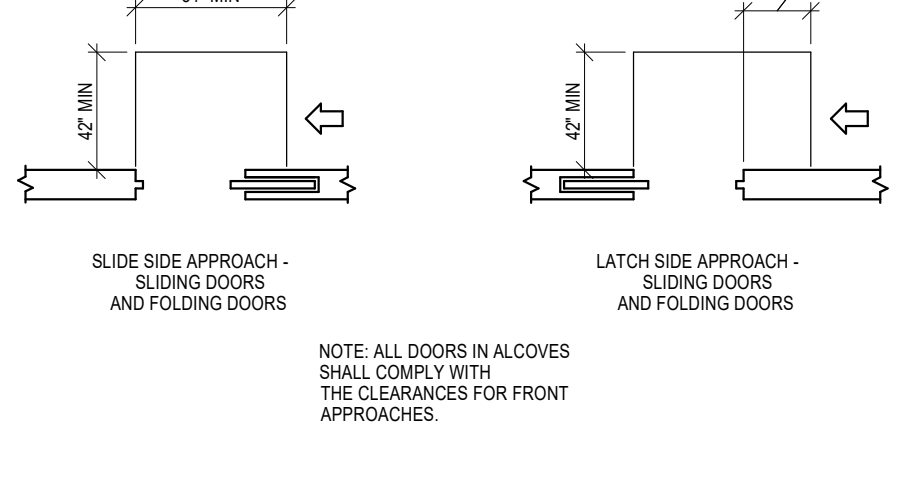
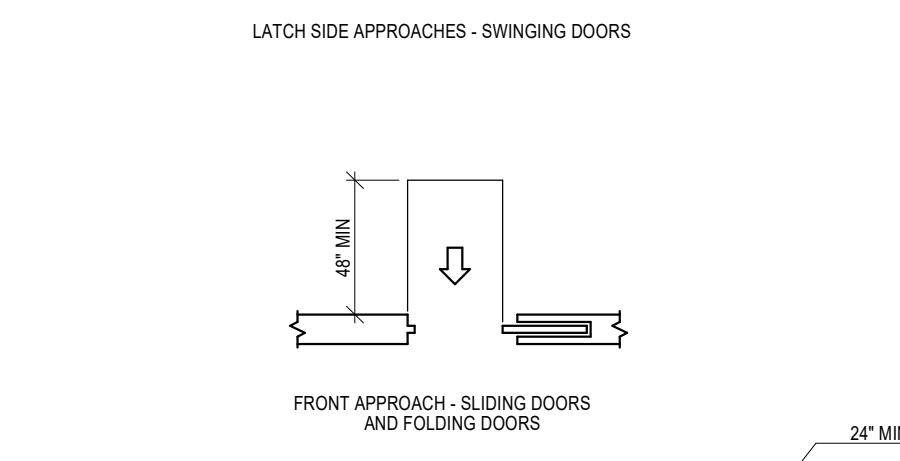
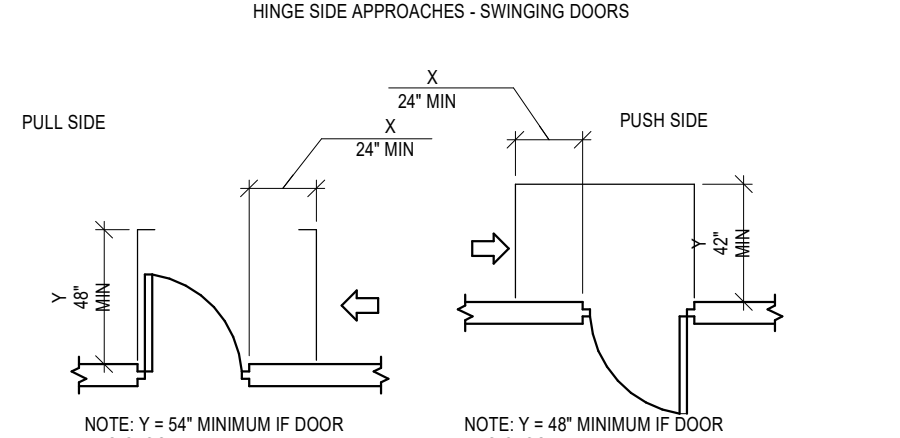
304. WHEELCHAIR TURNING SPACE



305. CLEAR FLOOR OR GROUND SPACE

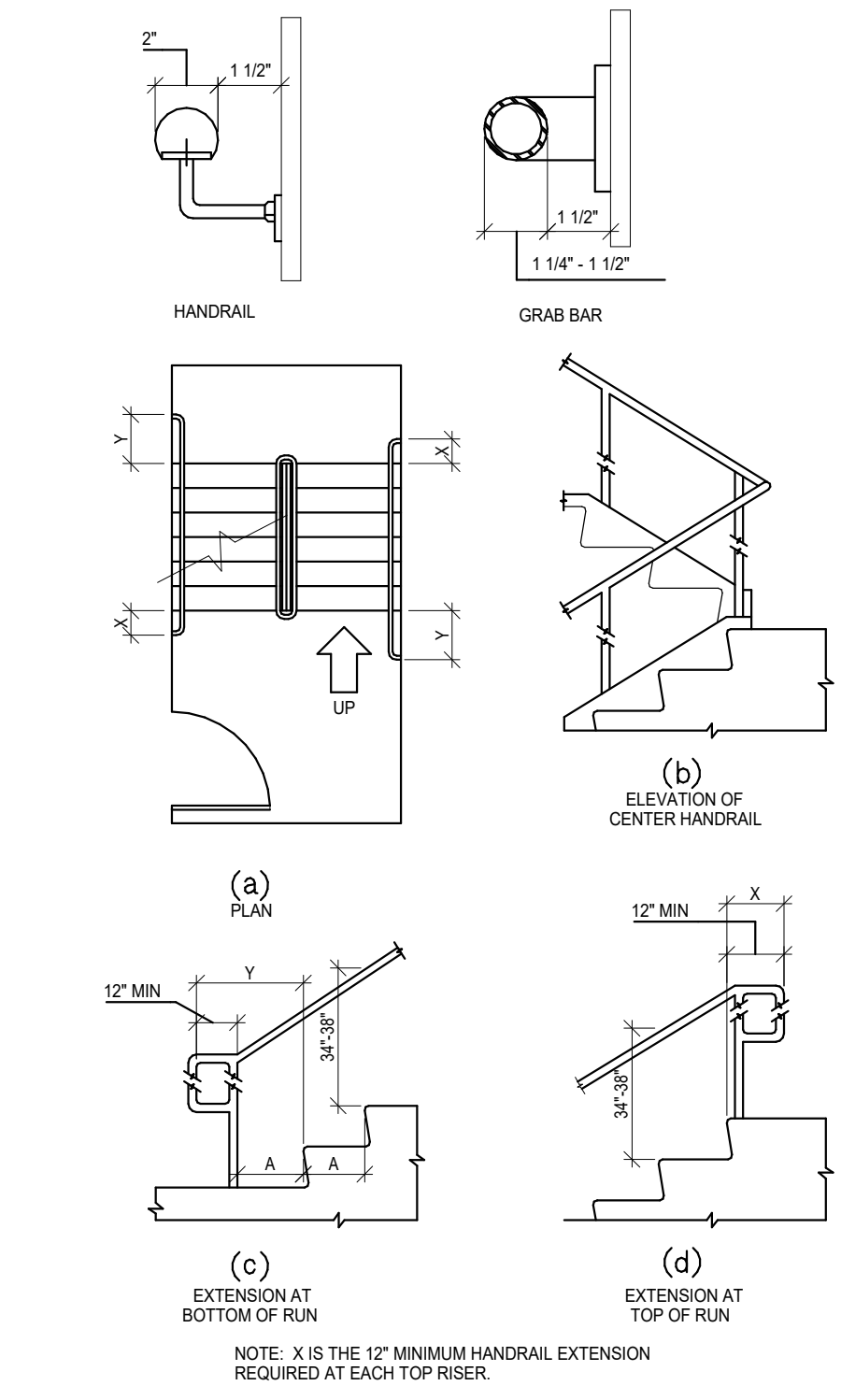


308. REACH RANGES

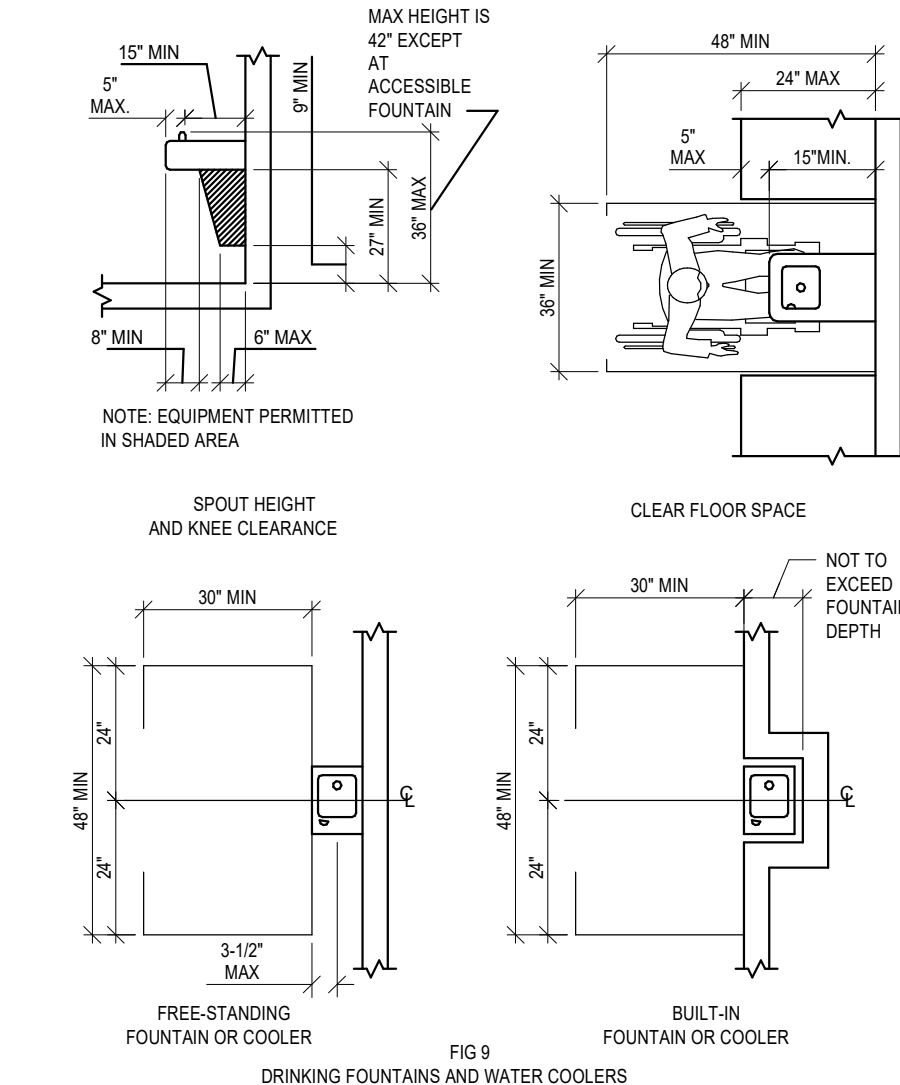


404. DOORS AND DOORWAYS

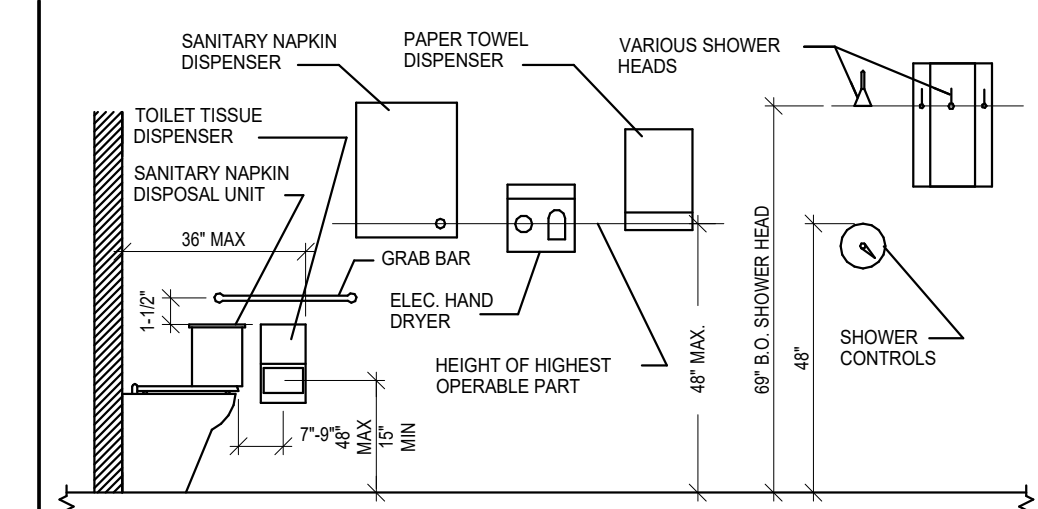
504.5 STAIR NOSINGS



505. HANDRAILS

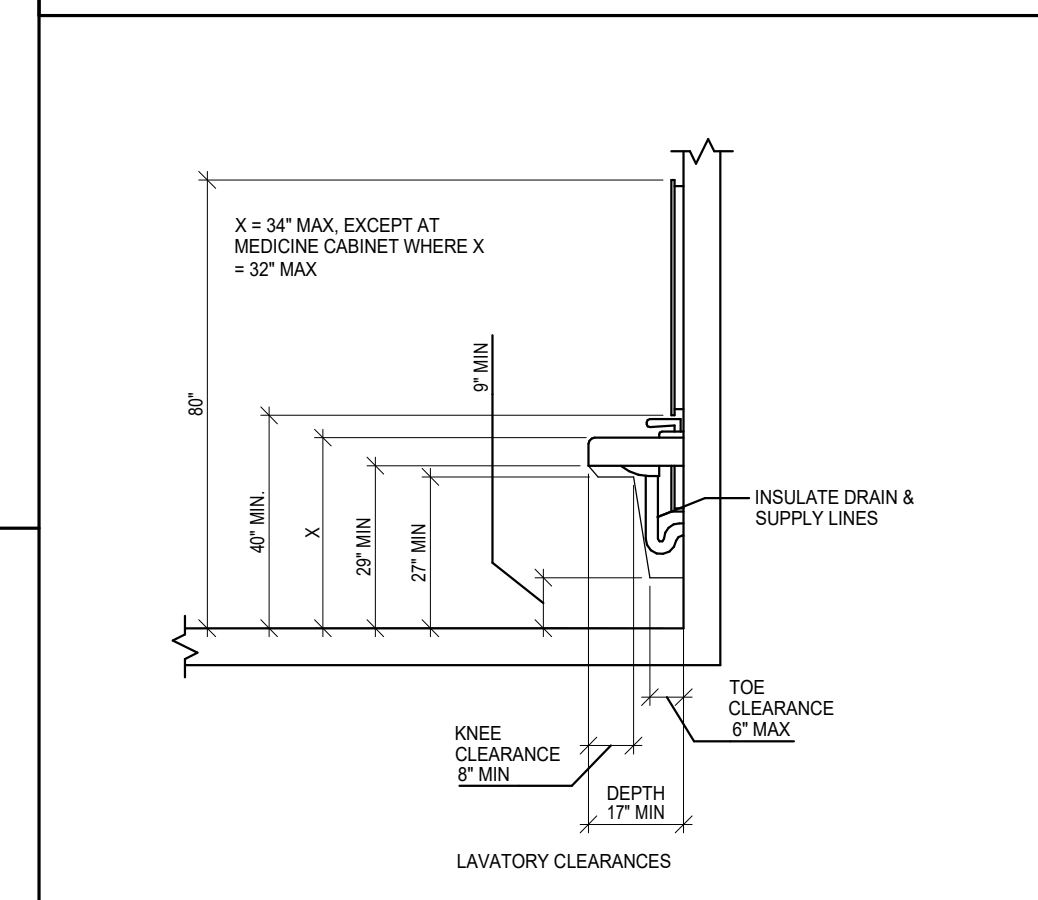


602. DRINKING FOUNTAINS

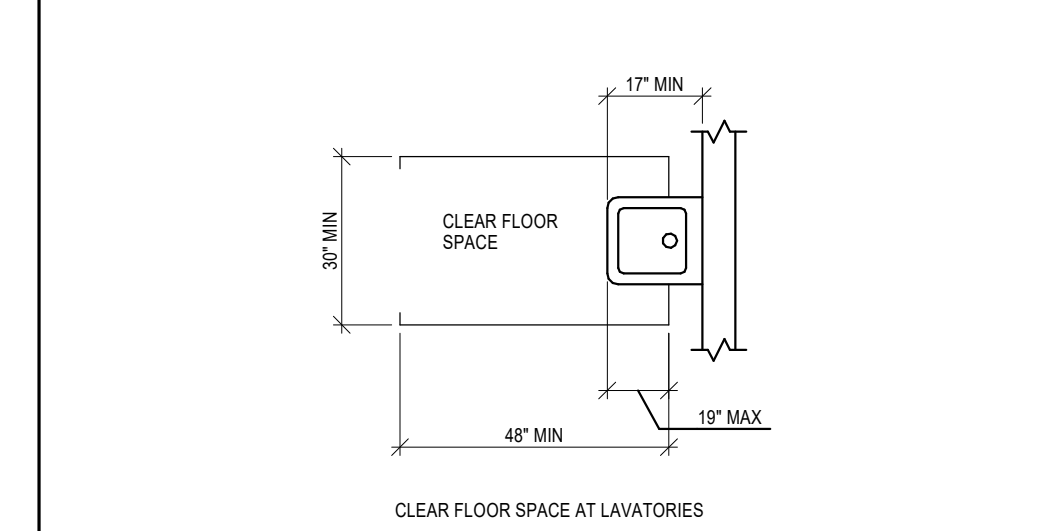


604.7 ACCESSORIES AND EQUIPMENT

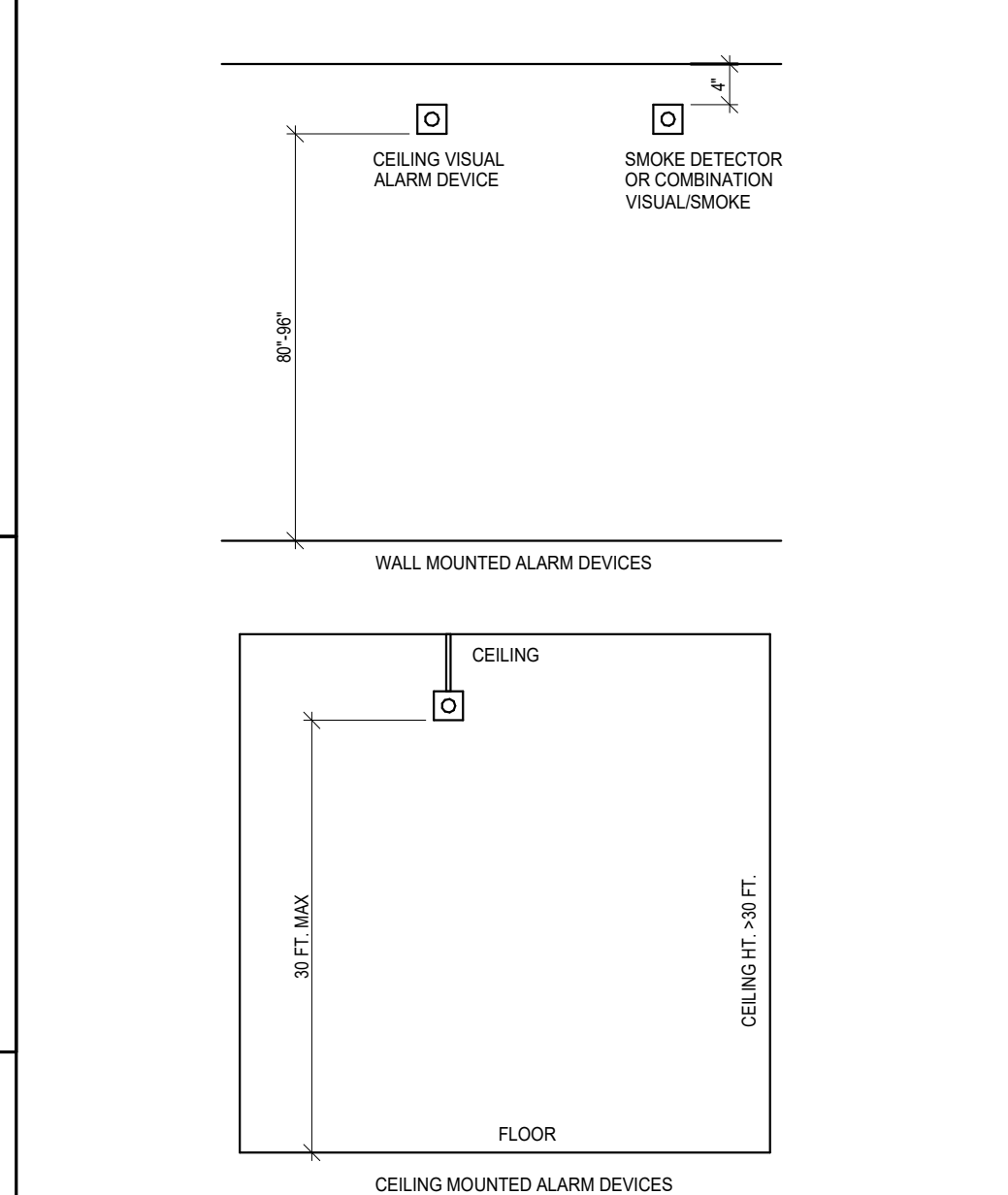
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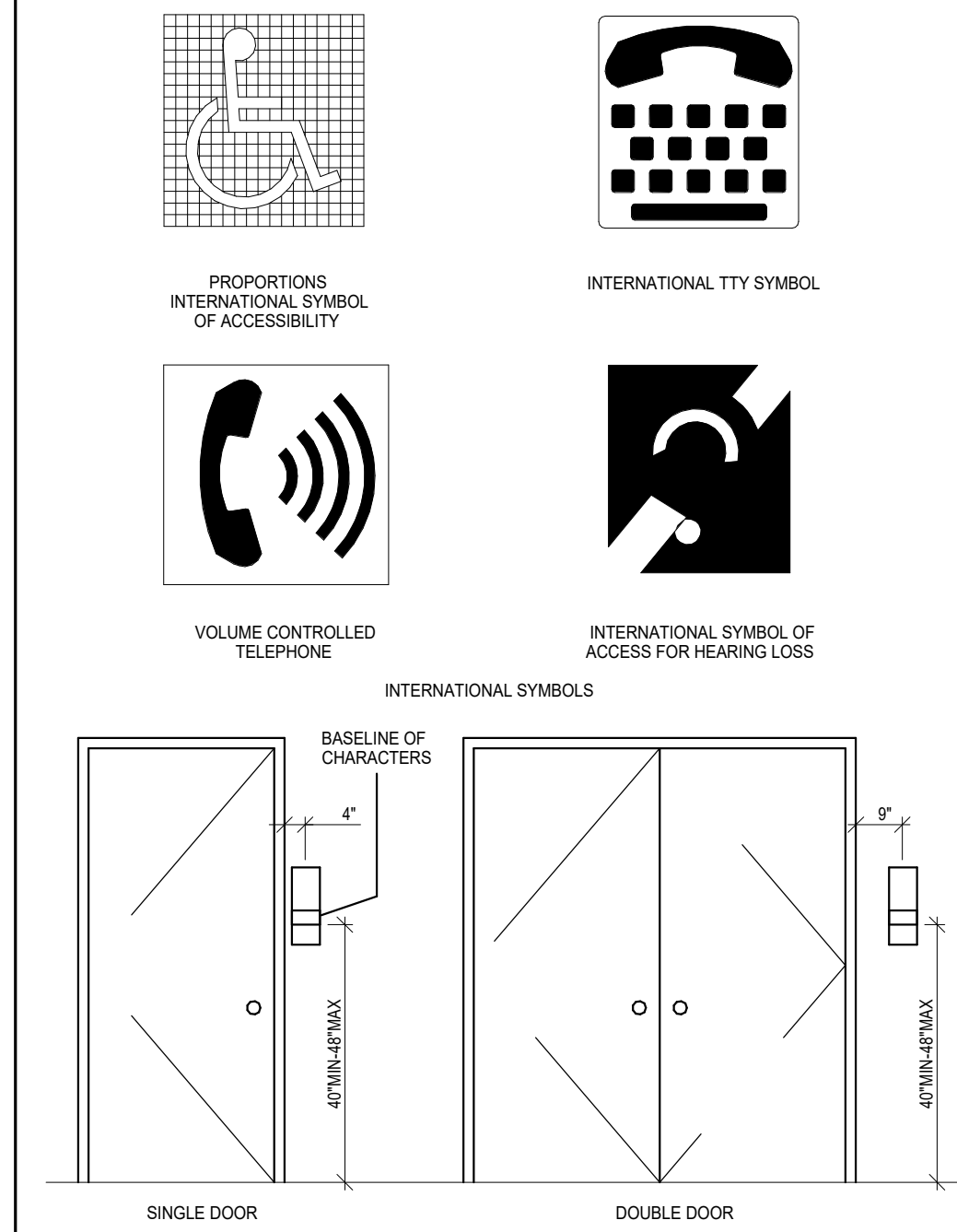
606. LAVATORIES AND SINKS



608. SHOWER COMPARTMENTS



702. ALARMS



703. SIGNS-TACTILE AND VISUAL

ADA DETAILS

1 ADA 2
1 1/2" = 1'-0"

APPROVED



SUBMITTAL:

REVISIONS

campbell architecture
A 3&D COMPANY
campbelldesign.us

Jones & DeMille
Engineering
www.jonesanddemille.com

CITY OF PAGE

ADA2

ENCOMPASS SHELTER BUILDING

2110-042

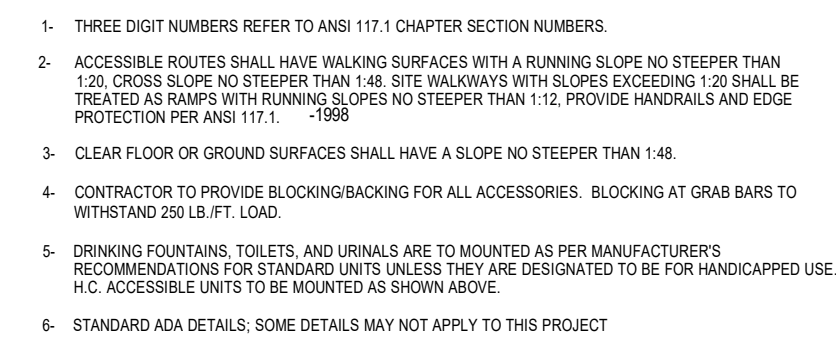
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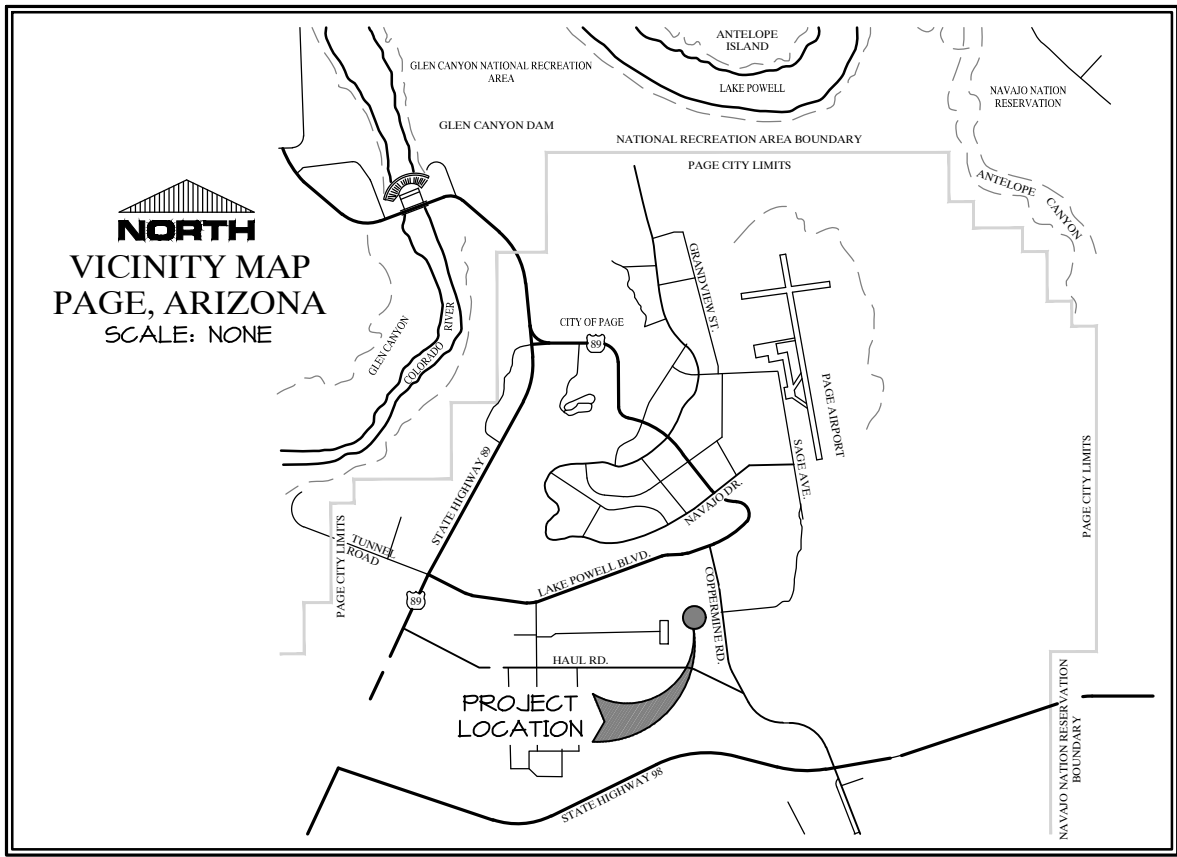
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REVISIONS

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PROJECT LOCATION

THE PROJECT IS LOCATED AT:
OSPREY DRIVE
PAGE, ARIZONA

POWER

PAGE UTILITY ENTERPRISE
640 HAIL ROAD
PAGE, ARIZONA 86040
(428) 645-2419

WATER

PAGE UTILITY ENTERPRISE
640 HAIL ROAD
PAGE, ARIZONA 86040
(428) 645-2419

SEWER

PAGE UTILITY ENTERPRISE
640 HAIL ROAD
PAGE, ARIZONA 86040
(428) 645-2419

PROPANE

ALLIANT GAS, LLC
2000 EAST FRONTAGE ROAD
PAGE, ARIZONA 86040
(428) 645-2341

CATV SERVICE

SOUTH CENTRAL COMMUNICATIONS
155 5TH AVENUE
PAGE, ARIZONA 86040
(428) 660-0512
CONTACT: GARRETT EDWARDS

TELEPHONE

QUEST COMMUNICATIONS
PAGE, ARIZONA 86040
(428) 714-4440

OWNER/DEVELOPER/CONTACT

THE OWNER FOR THIS PROJECT IS:
JOHNSON WALZER ASSOCIATES, LLC
17 NORTH SAN FRANCISCO STREET, SUITE 3A
FLAGSTAFF, AZ, 86001

PROJECT LOCATION

THE PROJECT IS LOCATED AT:
OSPREY DRIVE
PAGE, ARIZONA

PROJECT ENGINEER

THE ENGINEER FOR THIS PROJECT IS:
ROSENBERG ASSOCIATES
MICHAEL ROBINSON, P.E.
352 EAST RIVERSIDE DRIVE, SUITE A-2
ST. GEORGE, UTAH 84710 (435) 673-0506

GEOTECHNICAL ENGINEER

ROSENBERG ASSOCIATES
DAVID R. BLACK, P.E.
352 EAST RIVERSIDE DRIVE, SUITE A-2
ST. GEORGE, UTAH 84710 (435) 673-0506

ENCOMPASS DETOX CENTER



GENERAL NOTES:

- ALL PROPERTY CORNERS SHALL BE STAKED/PINNED.
- THE CONTRACTOR IS REQUIRED TO CALL THE CITY FOR INSPECTION OF ALL IMPROVEMENTS RELATED TO THIS PROJECT.
- THE CONTRACTOR IS REQUIRED TO OBTAIN AN ENCROACHMENT PERMIT FOR ANY WORK PERFORMED IN A PUBLIC RIGHT-OF-WAY.
- ANY NECESSARY MODIFICATIONS SHALL BE APPROVED BY THE DESIGN ENGINEER AND CITY PRIOR TO CONSTRUCTION.
- ALL WORK SHALL BE CONTAINED ON THE SUBJECT SITE ONLY. NO STOCKPILING OR CONSTRUCTION ACTIVITY SHALL OCCUR OFF OF THE APPROVED LOT AREA, WITHOUT PRIOR WRITTEN CONSENT.
- CONTRACTOR IS RESPONSIBLE FOR ALL ON-SITE DRAINAGE AND DETENTION.
- THE CONTRACTOR SHALL PROVIDE A TEMPORARY TRASH ENCLOSURE ON SITE DURING ALL CONSTRUCTION ACTIVITIES TO CONTAIN DEBRIS AND PREVENT AIRBORNE LITTERING OFF SITE.
- A WATER TRUCK SHALL BE USED ON SITE TO WET DOWN ALL EARTHWORK AND TO CONTROL AIRBORNE PARTICLES.
- UNLESS SHOWN OTHERWISE ON THESE PLANS, ALL CONSTRUCTION SHALL CONFORM TO THE INTERNATIONAL PLUMBING CODE, AND THE "INTERNATIONAL BUILDING CODE" LATEST EDITIONS AS ADMINISTERED BY THE CITY OF PAGE.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE LOCATION OF AND PROTECTION OF ALL EXISTING UNDERGROUND UTILITIES DURING CONSTRUCTION.
- ALL EXCAVATIONS AND GRADING SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF THE CITY OF PAGE, AND APPENDIX "J" OF THE "INTERNATIONAL BUILDING CODE", LATEST EDITION.
- OWNER/CONTRACTOR SHALL INSTALL AN INFORMATIONAL SIGN ON SITE BEFORE CONSTRUCTION BEGINS. THIS SIGN SHALL HAVE A MINIMUM SIZE, PLACEMENT LOCATION AND CONTENT INFORMATION WITH THE COMPANY NAME, PHONE CONTACT & GRADING PERMIT NUMBER.
- OWNER/CONTRACTOR SHALL SUBMIT A DUST CONTROL PLAN WITH DETAILS ON EQUIPMENT, SCHEDULING AND REPORTING OF DUST CONTROL ACTIVITIES.
- A MANDATORY PRE-CONSTRUCTION MEETING WILL BE REQUIRED ON ALL PROJECTS PRIOR TO ANY GRUBBING, GRADING, OR CONSTRUCTION ACTIVITIES. THE PERMIT HOLDER WILL BE REQUIRED TO NOTIFY ALL DEVELOPMENT SERVICES INSPECTORS.
- ALL WORK AND MATERIALS SHALL MEET CITY OF PAGE STANDARDS AND/OR M.A.G. STANDARDS.
- ALL OBJECTS SHALL BE KEPT OUT OF THE SIGHT DISTANCE CORRIDORS THAT MAY OBSTRUCT THE DRIVER'S VIEW.

APPROVED

ENGINEER'S ACKNOWLEDGMENT:

I, Michael S. Robinson, Santa Clara, Utah do hereby certify that I am a Registered Professional Engineer as prescribed by the laws of the State of Arizona and that I hold Certificate of Registration (License) Number 44894. I further certify that the design of this site plan was made under my direction and supervision and is accurately represented on these plans.

Date: 12/12/2023

Michael S. Robinson

Certificate No. 44894

GENERAL LEGEND

2840	EXISTING 5' CONTOUR	EXISTING EASEMENT	EXISTING WATER METER
2840	EXISTING 1' CONTOUR	PROPOSED SEWER LATERAL (SIZE INDICATED ON PLAN)	PROPOSED WATER METER
2840	PROPOSED 5' CONTOUR	EXISTING SEWER MAIN	EXISTING SEWER MANHOLE
	PROPOSED 1' CONTOUR	PROPOSED WATER LINE (SIZE INDICATED ON PLAN)	EXISTING STORM DRAIN MANHOLE
	PROPOSED PAVEMENT SHALE	EXISTING WATER MAIN	PROPOSED TELEPHONE PEDESTAL
50" 12"	PROPOSED STORM DRAIN PIPE	PROPOSED GAS LINE (SIZE INDICATED ON PLAN)	EXISTING CATV PEDESTAL
	EXISTING PAVEMENT	EXISTING GAS LINE	PROPOSED WATER VALVE
	PROPOSED PAVEMENT	TELEPHONE LINE	EXISTING WATER VALVE
	PROPOSED CONCRETE PAD/SIDEWALK	CATV LINE	PROPOSED FIRE HYDRANT
	PROPOSED ELEVATIONS	PROPOSED 3 PHASE POWER	EXISTING FIRE HYDRANT
4100.00 TBC		PROPOSED SECONDARY POWER	
1.0%	GRADING SLOPES	EXISTING POWER	
	FLOW DIRECTION		

THE CITY APPROVES THESE PLANS FOR CONCEPT ONLY.
THE CITY SHALL NOT BE LIABLE FOR ERRORS OR OMISSIONS OF THE DESIGN ENGINEER.

APPROVALS

PLANNING & ZONING	DATE
BUILDING & SAFETY	DATE

SHEET LAYOUT

SHEET NUMBER	SHEET DESCRIPTION
C1.0	COVER SHEET
C2.0	SITE PLAN
C3.0	EROSION CONTROL PLAN
C3.1	EROSION CONTROL NOTES AND DETAILS
C4.0	GRADING AND DRAINAGE PLAN
C4.1	GRADING AND SITE DETAILS
C5.0	UTILITY PLAN
C5.1	UTILITY NOTES AND DETAILS

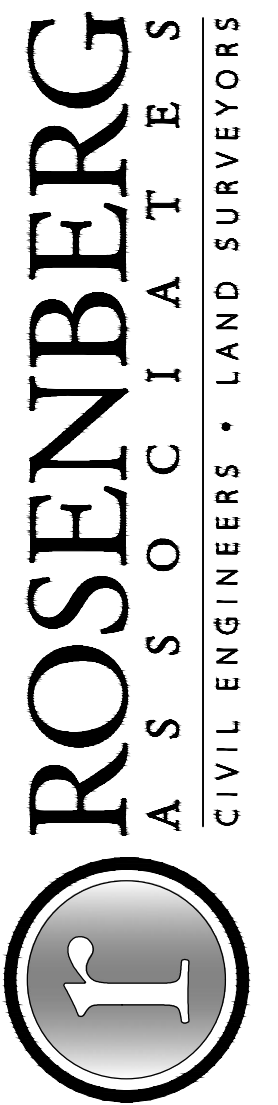
CALL BEFORE YOU DIG!



AT LEAST TWO WORKING DAYS BEFORE YOU DIG CALL: 800-782-5348

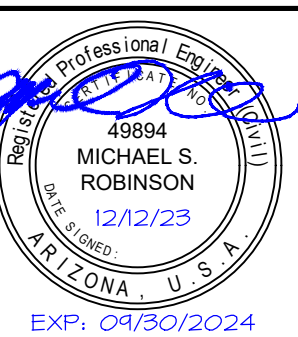
NOTICE!
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DATE:	12/12/2023
JOB NO.:	12448-21-001
DESIGNED BY:	PM
CHECKED BY:	MSR
DWG:	CONST DOCS
DATE:	
REVISIONS:	

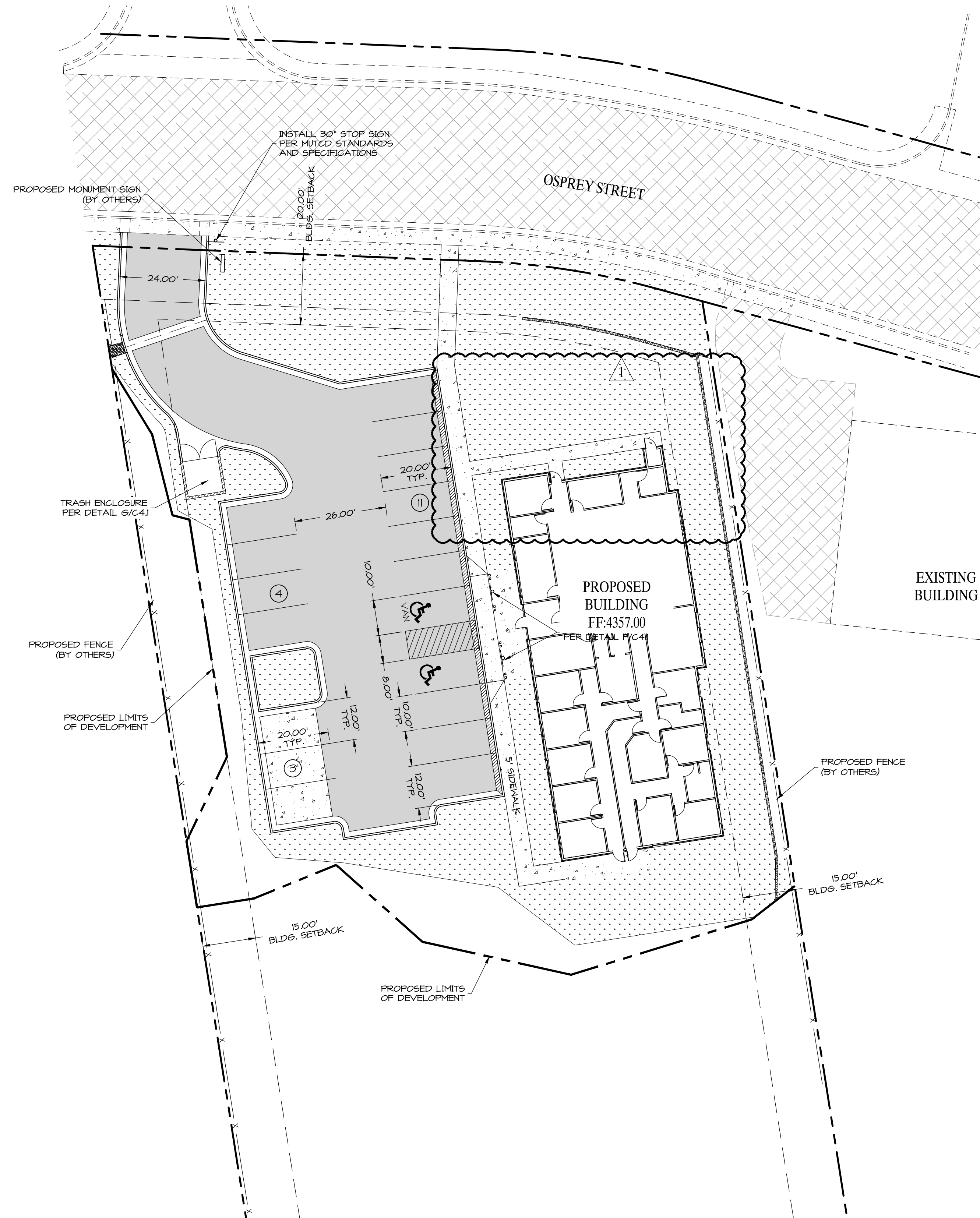


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COVER SHEET
FOR
ENCOMPASS DETOX CENTER
PAGE, ARIZONA



SHEET
C1.0
1 OF 8 SHEETS



LEGEND	
	PROPERTY LINE
	RIGHT-OF-WAY/ROAD EASEMENT
	PROPOSED CURB & GUTTER
	EXISTING CURB & GUTTER
	EXISTING PAVEMENT
	PROPOSED LANDSCAPE AREA
	PROPOSED ASPHALT PAVEMENT
	PROPOSED CONCRETE WALKWAY (REFER TO GEOTECH REPORT)
	NUMBER OF PARKING SPACES
	SIGN AS INDICATED ON PLANS
	PROPOSED SHED CURB & GUTTER
	PROPOSED CONCRETE FOR STORM WATER DETENTION AREA

GENERAL SITE INFORMATION

(ESTIMATED PARCEL AREA: 111,164 SF / 2.55 AC)
(DEVELOPED PARCEL AREA: 21,905 SF / 0.64 AC)
TOTAL NUMBER OF BUILDINGS: 1
BUILDING HEIGHT: 40' MAX.
BUILDING SETBACKS:
FRONT: 20'
SIDE: 15'
REAR: 15'
BUILDING (FOUNDATION): 5,175 SF
ALL BUILDINGS (F.A.R.): 17.3% (BASED ON DEVELOPED AREA)

PARKING CALCULATIONS

GENERAL REQUIREMENT:
MEDICAL OFFICE: 1 STALL PER 350 GFA
REQUIRED PARKING: 17
PROVIDED PARKING: 18
TOTAL A.D.A. PARKING STALLS REQUIRED (D.O.J. 2010)(1-25): 1
TOTAL VAN ACCESSIBLE STALLS REQUIRED (D.O.J. 2010)(1-25): 1
TOTAL A.D.A. PARKING STALLS PROVIDED: 2 (INCL. VAN)
TOTAL PARKING STALLS REQUIRED: 17
TOTAL PARKING STALLS PROVIDED: 18

SITE/BUILDING LIGHTING

SITE LIGHTING SHOWN FOR REFERENCE ONLY
(TO BE SUBMITTED WITH ELECTRICAL PLANS)

IMPERVIOUS SITE INFORMATION

PRE-DEVELOPMENT IMPERVIOUS AREA: 0 SF
(SITE IS CURRENTLY UNDEVELOPED)
POST-DEVELOPMENT IMPERVIOUS AREA: 16,585 SF (55.4% OF DEV. SITE)
(INCLUDES ALL HARDSCAPE & BUILDING FOUNDATION)

LANDSCAPE INFORMATION

PROVIDED LANDSCAPING: 10,760 SF (36.0% OF DEV. SITE)
NON-LANDSCAPE CUT SLOPE: 2,560 SF (8.6% OF DEV. SITE)

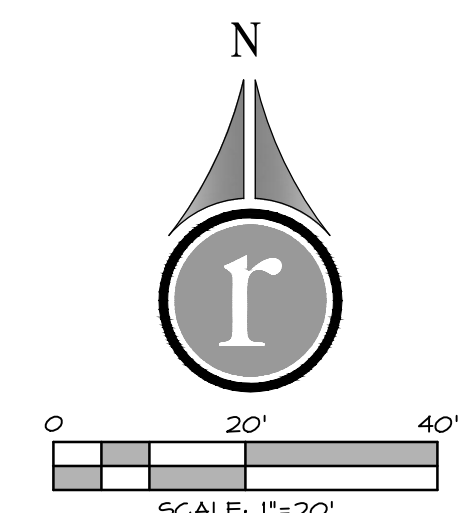
FEMA INFORMATION

ACCORDING TO THE FEMA FLOOD INSURANCE RATE MAP
NUMBERED 04050504000, DATED SEPTEMBER 3, 2010,
THE SITE IS LOCATED IN ZONE "X", WHICH IS DEFINED AS AN
AREA OF MINIMAL FLOOD HAZARD.

RETENTION/DETENTION INFORMATION

PROPOSED RETENTION/DETENTION FOR THIS PROJECT WILL
CONSIST OF ABOVE GROUND FACILITY LOCATED IN THE
SOUTHWEST CORNER OF THE PARKING LOT.

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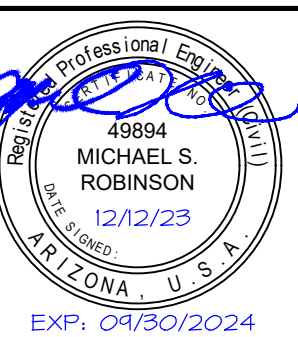


DATE:	12/12/2023
JOB NO.:	12448-21-001
DESIGNED BY:	PMD
CHECKED BY:	MSR
DWG:	CONST DOCS
DATE:	12/12/23
REVISIONS:	1-RECEIVE BLDG FOUNDATION LAYOUT AND UPDATE ASSOCIATED DATA



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SITE PLAN
FOR
ENCOMPASS DETOX CENTER
PAGE, ARIZONA



SHEET
C2.0
2 OF 8 SHEETS



LEGEND

- EXISTING 1' CONTOUR
- EXISTING 5' CONTOUR
- PROPERTY LINE
- SILT FENCE PER DETAIL A/C31
- INSTALL VEHICLE TRACKING CONTROL PER DETAIL D/C31
- INSTALL STRAW BALES PER DETAIL B/C31
- INSTALL CURB INLET BARRIER PER DETAIL C/C31

SEDIMENT EROSION CONTROL NOTES

- PROVIDE SEDIMENT BASINS AT THE BOTTOM OF EVERY DRAINAGE AREA PRODUCING SEDIMENT RUNOFF. THE BASINS SHALL BE MAINTAINED AND CLEANED AFTER EVERY STORM EVENT. THE BASINS MAY BE REMOVED AFTER SOIL STABILIZATION AND VEGETATION IS ESTABLISHED ON ERODABLE SLOPES.
- PROVIDE SEDIMENT CONTROL AROUND EVERY STORM DRAIN INLET TO PREVENT SEDIMENT FROM ENTERING THE STORM DRAIN SYSTEM.
- ALL EROSION CONTROL BEST MANAGEMENT PRACTICES (BMP'S) SHALL BE INSPECTED AND MAINTAINED REGULARLY AND AFTER EVERY STORM EVENT.
- ANY ALTERNATIVE CONTROL MEASURES MUST BE APPROVED IN ADVANCE BY THE ENGINEER AND THE CITY OF PAGE.
- THE CONTRACTOR SHOULD FOLLOW A WORK SCHEDULE THAT COORDINATES THE TIMING OF LAND-DISTURBING ACTIVITIES.
- LIMIT LAND CLEARING AND RESTORE ALL GRADINGS AS SOON AS POSSIBLE.
- PRACTICE STAGED SEEDING TO RE-VEGETATE CUT AND FILL SLOPES AS THE WORK IS IN PROGRESS.
- AT ALL TIMES DURING CONSTRUCTION, THE CONTRACTOR SHALL BE RESPONSIBLE FOR PREVENTING AND CONTROLLING EROSION DUE TO WIND AND OTHER EROSION HAZARDS. THE CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR MAINTAINING ALL EROSION CONTROL BMP'S.
- ADDITIONAL EROSION CONTROL MEASURES MAY BE REQUIRED BY THE ENGINEER OR CITY OF PAGE.
- THE CONTRACTOR IS RESPONSIBLE FOR KEEPING THE STREETS CLEAN AND FREE FROM DEBRIS.
- THE CONTRACTOR SHALL USE VEHICLE TRACKING CONTROL AT ALL ENTRANCES AND EXITS.
- ALL WASH WATER (CONCRETE TRUCKS, VEHICLE CLEANING, ETC.) SHALL BE DISPOSED OF AS TO NOT ENTER THE STORM WATER SYSTEM.
- THE CONTRACTOR SHALL PROVIDE DUST CONTROL AT ALL TIMES DURING CONSTRUCTION. DUST COMPLAINTS WILL RESULT IN THE SHUTTING DOWN OF THE PROJECT UNTIL THE PROBLEM IS REMEDIED.
- THE LIMITS OF DISTURBANCE SHALL BE STAKED BEFORE CONSTRUCTION BEGINS.
- CONTRACTOR SHALL COMPLY WITH ALL REQUIREMENTS FROM CITY OF PAGE.
- A COPY OF THIS EROSION CONTROL PLAN SHALL BE KEPT ON SITE DURING ALL CONSTRUCTION ACTIVITY.

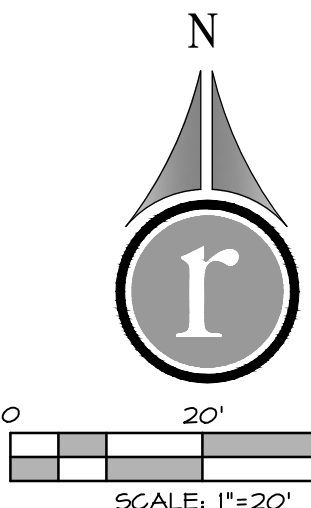
LONG TERM MAINTENANCE (POST CONSTRUCTION)

- EROSION CONTROL STRUCTURES MAY BE REMOVED ONCE FINAL LANDSCAPING IS IN PLACE. EROSION CONTROL STRUCTURES BELOW SEEDED AREAS MUST REMAIN IN PLACE UNTIL THE ENTIRE AREA HAS BEEN ESTABLISHED. EROSION CONTROL IN PROPOSED PAVEMENT AREAS SHALL REMAIN IN PLACE UNTIL PAVEMENT IS COMPLETE.
- THE PROPERTY OWNER IS RESPONSIBLE TO COMPLY WITH ALL APPLICABLE STORM WATER REGULATIONS AT ALL TIMES. ALL BMP'S SHALL BE MAINTAINED TO EFFECTIVELY PREVENT THE IMPACTS OF THIS PROJECTS CONSTRUCTION AND USE ON STORM WATER QUALITY.
- THE FOLLOWING PRECAUTIONS SHALL BE PERFORMED BY OWNER:
- PERIODIC INSPECTION OF CATCH BASIN SEDIMENT TRAPS AND CLEANING WHEN THE BASIN IS MORE THAN 1/4 FULL. INSPECTIONS SHALL BE PERFORMED AFTER EVERY MAJOR RAINFALL AND EVERY 6 MONTHS AS A MINIMUM. DISPOSAL OF ANY GREASE OR OIL MUST BE DONE IN ACCORDANCE WITH CURRENT ENVIRONMENTAL REGULATIONS.
- LITTER, DEBRIS, AND CHEMICALS MUST BE PICKED UP AND KEPT IN A LOCATION TO PREVENT POLLUTION OF STORM WATER DISCHARGE.
- PARKING AREAS SHALL BE KEPT FREE FROM AUTOMOBILE FLUIDS AS TO NOT WASH INTO THE STORM DRAIN SYSTEM.

EROSION CONTROL NOTES

- SILT FENCE TO BE INSTALLED PRIOR TO COMMENCEMENT OF CONSTRUCTION.
- DROP INLET SILT BARRIERS TO BE INSTALLED IMMEDIATELY AFTER INSTALLATION OF EACH CATCH BASIN. SEE EROSION CONTROL DETAIL SHEET.

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CALL BEFORE YOU DIG!

AT LEAST TWO WORKING DAYS BEFORE YOU DIG CALL: 800-782-5348

NOTICE!
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JOB NO.:	12448-21-001
DESIGNED BY:	PMD
CHECKED BY:	MSR
DWG:	CONST DOCS
DATE:	12/12/23
REVISIONS	
1-REDUCE BLDG FOUNDATION	

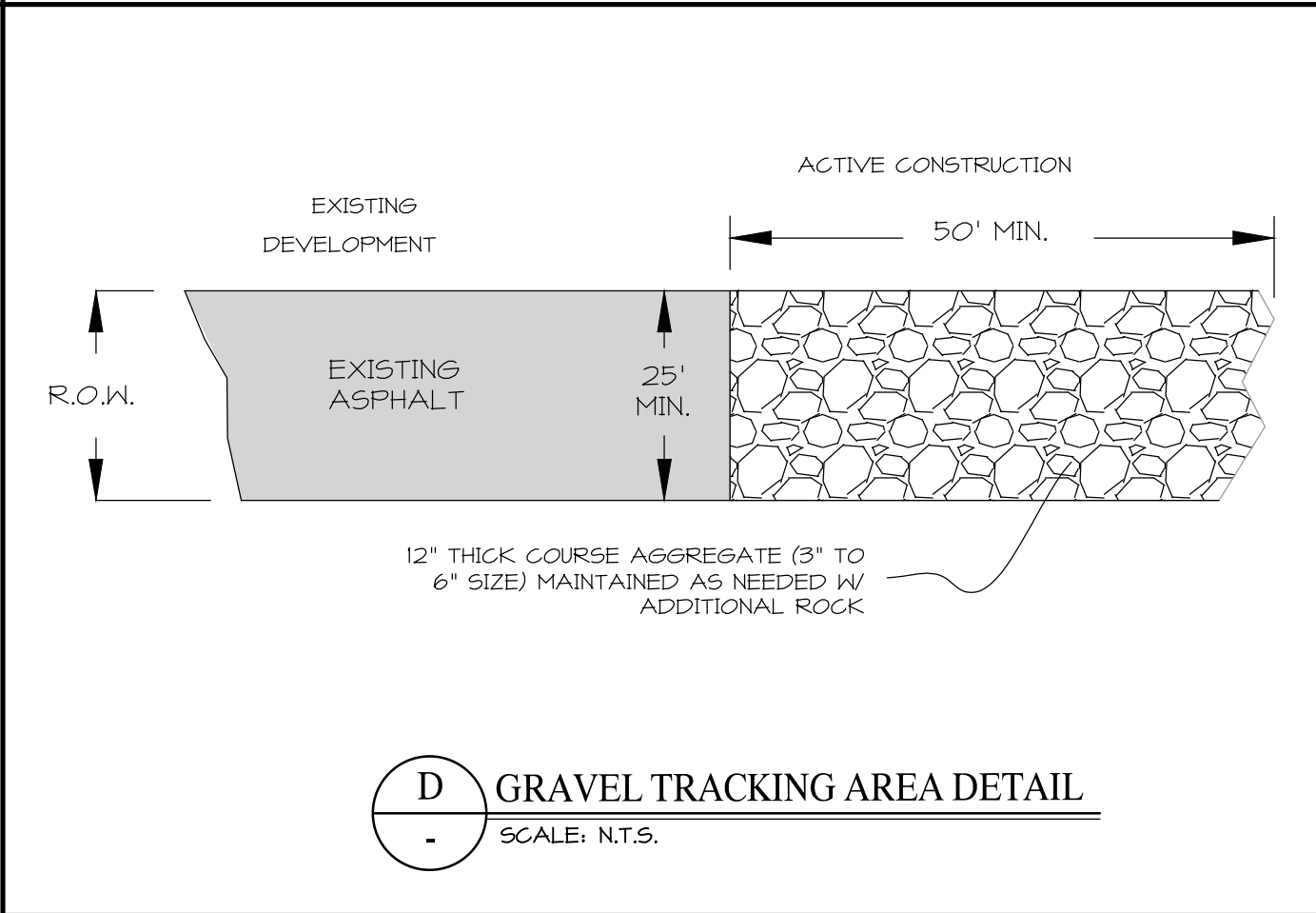
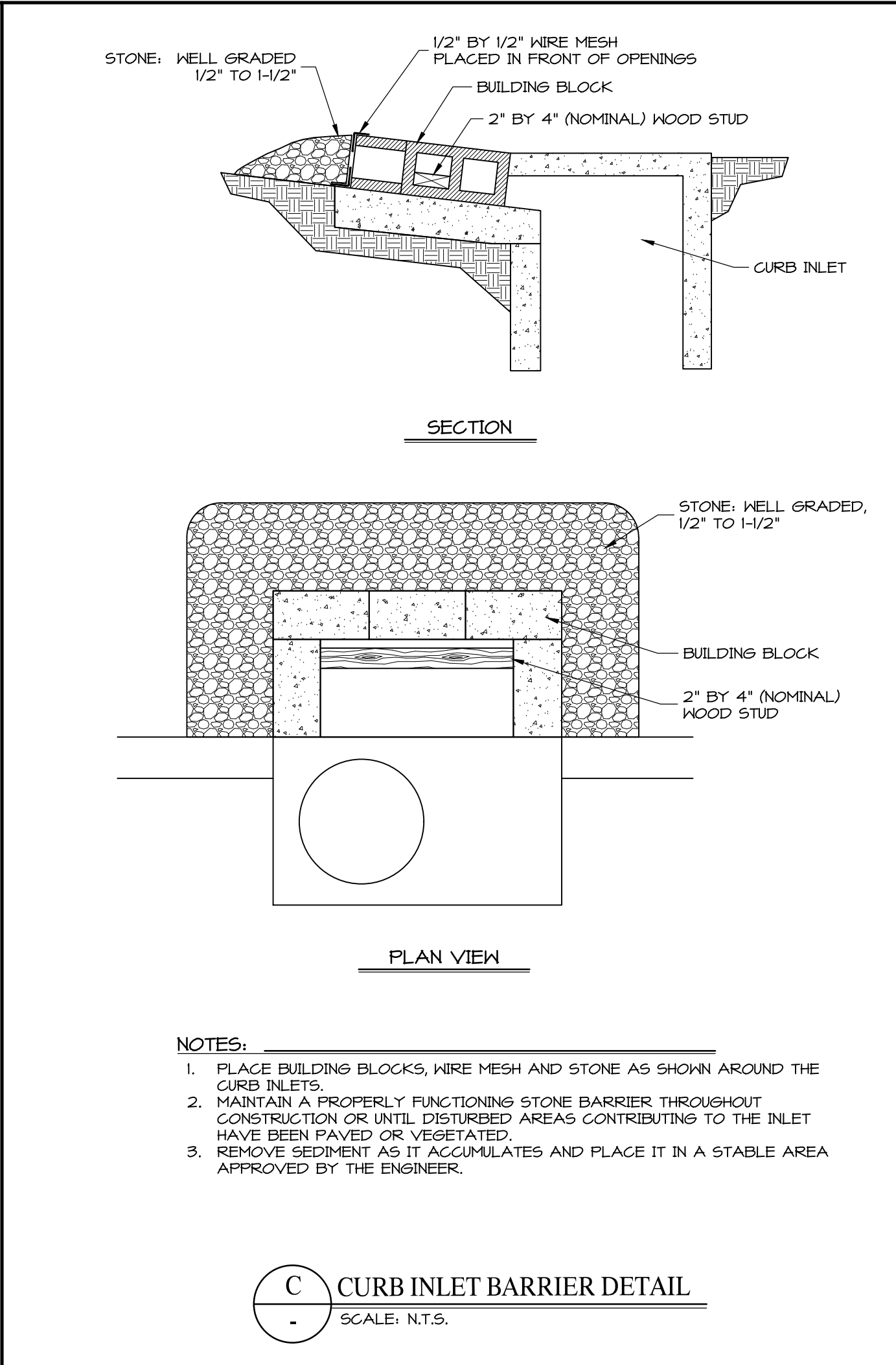
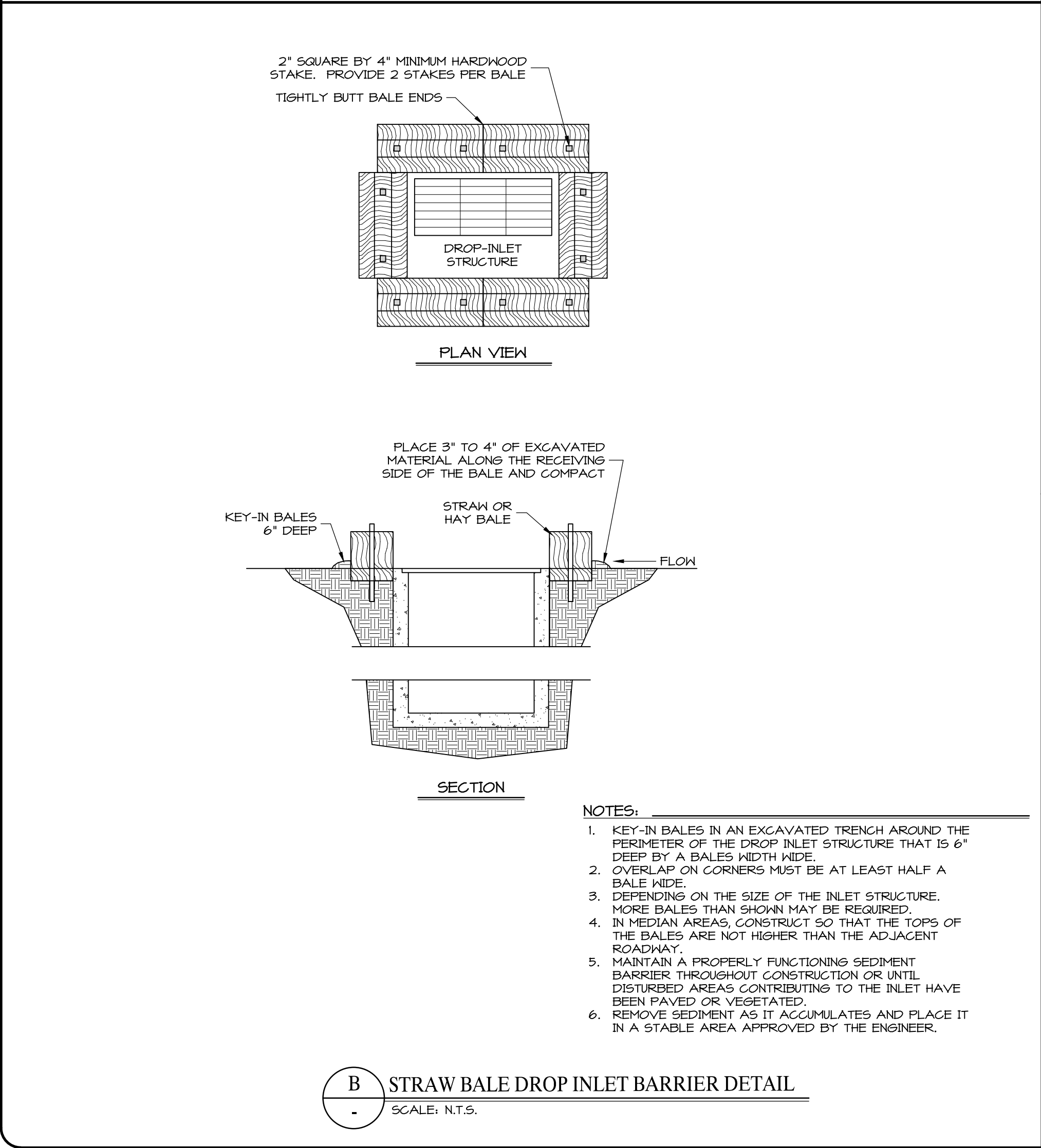
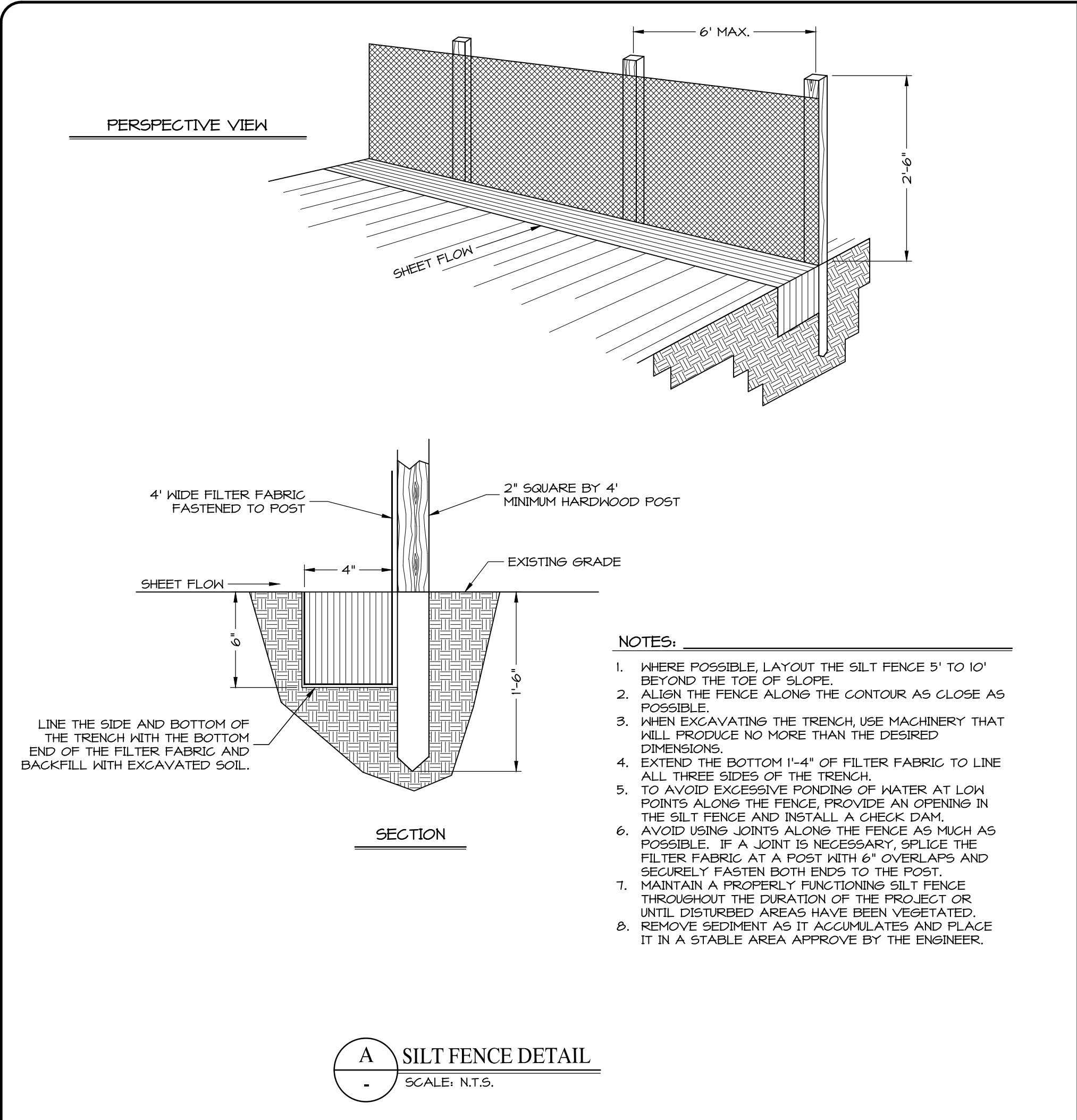
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CIVIL ENGINEERS • LAND SURVEYORS

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EROSION CONTROL PLAN
FOR
ENCOMPASS DETOX CENTER
PAGE, ARIZONA

EXP: 04/30/2024

SHEET
C3.0
3 OF 8 SHEETS



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EROSION & SEDIMENTATION CONTROL NOTES:

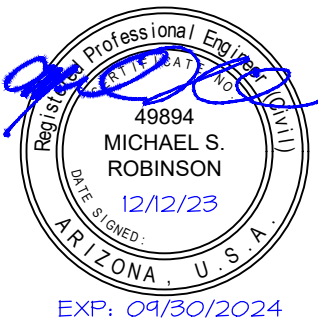
- AT ALL TIMES DURING CONSTRUCTION, THE CONTRACTOR SHALL BE RESPONSIBLE FOR PREVENTING AND CONTROLLING EROSION DUE TO WIND AND RUNOFF. THE CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR MAINTAINING EROSION CONTROL FACILITIES SHOWN.
- THE CONTRACTOR SHALL REMOVE LITTER, CONSTRUCTION DEBRIS, AND CONSTRUCTION CHEMICALS EXPOSED TO STORM WATER, FROM THE SITE ON A DAILY BASIS, OR AS A MINIMUM, PRIOR TO ANY ANTICIPATED STORM EVENT; OR OTHERWISE PREVENT SUCH MATERIAL FROM BECOMING A POLLUTANT SOURCE FOR STORM WATER DISCHARGES.
- CONTRACTOR SHALL USE VEHICLE TRACKING CONTROL AT ALL LOCATIONS WHERE VEHICLES WILL ENTER OR EXIT THE SITE. VEHICLE TRACKING CONTROL FACILITIES, SILT FENCE, AND INLET PROTECTION WILL BE MAINTAINED WHILE CONSTRUCTION IS IN PROGRESS, MOVED WHEN NECESSARY FOR PHASING OF THE WORK, UNTIL ALL WORK IS COMPLETE.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR KEEPING STREETS CLEAN OF DEBRIS FROM TRAFFIC FROM THE SITE. IF SEDIMENT ESCAPES THE CONSTRUCTION SITE, THE CONTRACTOR SHALL REMOVE OFF-SITE ACCUMULATIONS OF SEDIMENT IMMEDIATELY TO MINIMIZE OFFSITE IMPACTS. AT NO TIME SHALL SEDIMENT BE WASHED DOWN UNPROTECTED INLETS INTO THE STORM SEWER SYSTEM.
- CONTRACTOR SHALL BE RESPONSIBLE FOR CLEANING DRAINAGE AND EROSION CONTROL FACILITIES AS REQUIRED, AND SHALL REMOVE SEDIMENT FROM SEDIMENT TRAPS OR PONDS WHEN THE DESIGN CAPACITY HAS BEEN REDUCED BY 50%.
- EXCEPT AS PROVIDED IN (A), (B) AND (C) BELOW, THE CONTRACTOR SHALL INITIATE STABILIZATION MEASURES AS SOON AS PRACTICAL. IN PORTIONS OF THE SITE WHERE CONSTRUCTION ACTIVITIES HAVE TEMPORARILY OR PERMANENTLY CEASED, BUT IN NO CASE MORE THAN 14 DAYS AFTER THE CONSTRUCTION ACTIVITY IN THAT PORTION OF THE SITE HAS TEMPORARILY OR PERMANENTLY CEASED.
 - WHERE THE INITIATION OF STABILIZATION MEASURES BY THE 14TH DAY AFTER CONSTRUCTION ACTIVITY TEMPORARILY OR PERMANENTLY CEASES IS PRECLUDED BY SNOW COVER OR FROZEN GROUND CONDITIONS, STABILIZATION MEASURES SHALL BE INITIATED AS SOON AS PRACTICABLE.
 - WHERE CONSTRUCTION ACTIVITY ON A PORTION OF THE SITE IS TEMPORARILY CEASED, AND EARTH DISTURBING ACTIVITIES WILL BE RESUMED WITHIN 21 DAYS, TEMPORARY STABILIZATION MEASURES DO NOT HAVE TO BE INITIATED ON THAT PORTION OF THE SITE.
 - IN ARID AREAS (AREAS WITH AN AVERAGE ANNUAL RAINFALL OF 0-10 INCHES), SEMI-ARID AREAS (AREAS WITH AN AVERAGE ANNUAL RAINFALL OF 10 TO 20 INCHES), AND AREAS EXPERIENCING DROUGHTS WHERE THE INITIATION OF STABILIZATION MEASURES BY THE 14TH DAY AFTER CONSTRUCTION ACTIVITY HAS TEMPORARILY OR PERMANENTLY CEASED IS PRECLUDED BY SEASONAL ARID CONDITIONS, STABILIZATION SHALL BE INITIATED AS SOON AS PRACTICABLE.
- EROSION CONTROL STRUCTURES BELOW SODDED AREAS MAY BE REMOVED ONCE SOD AND FINAL LANDSCAPING IS IN PLACE. EROSION CONTROL STRUCTURES BELOW SEEDED AREAS MUST REMAIN IN PLACE UNTIL THE ENTIRE AREA HAS ESTABLISHED A MATURE COVERING OF HEALTHY VEGETATION. EROSION CONTROL IN PROPOSED PAVED AREAS SHALL REMAIN IN PLACE UNTIL PAVEMENT IS COMPLETE.
- ALL AREAS DISTURBED DURING CONSTRUCTION SHALL BE PAVED OR LANDSCAPED. REFER TO LANDSCAPE PLANS FOR PLANTING SPECIFICATIONS.
- ADDITIONAL EROSION CONTROL MEASURES MAY BE REQUIRED DUE TO UNFORESEEN PROBLEMS OR IF THE PLAN DOES NOT FUNCTION AS INTENDED. A REPRESENTATIVE OF THE CITY OF PAGE PUBLIC WORKS DEPARTMENT MAY REQUIRE ADDITIONAL CONTROL DEVICES UPON INSPECTION OF PROPOSED FACILITIES.
- THIS PLAN IS ONLY TO BE USED FOR INSTALLATION OF EROSION CONTROL FACILITIES. DO NOT USE THIS PLAN FOR FINISH GRADING OR STORM SEWER CONSTRUCTION. PLEASE NOTE THAT CONTOURS SHOWN ON THIS PLAN ARE NOT FINISHED GRADES.
 - THE CONTRACTOR SHALL EMEND THE EROSION CONTROL PLAN WHENEVER:
 - THERE IS A CHANGE IN DESIGN, CONSTRUCTION, OPERATION, OR MAINTENANCE, WHICH HAS A SIGNIFICANT EFFECT ON THE DISCHARGE OF POLLUTANTS TO THE WATERS OF THE STATE AND WHICH HAS NOT OTHERWISE BEEN ADDRESSED IN THE PLAN;
 - INSPECTIONS OR INVESTIGATIONS BY SITE OPERATORS, LOCAL, STATE OR FEDERAL OFFICIALS INDICATE THE EROSION CONTROL PLAN IS PROVING INEFFECTIVE IN ELIMINATING OR SIGNIFICANTLY MINIMIZING POLLUTANTS FROM SOURCES IDENTIFIED UNDER PART III.D. OF THE PERMIT, OR IS OTHERWISE NOT ACHIEVING THE GENERAL OBJECTIVES OF CONTROLLING POLLUTANTS IN STORM WATER DISCHARGES ASSOCIATED WITH CONSTRUCTION ACTIVITY;
 - A NEW CONTRACTOR AND/OR SUBCONTRACTOR WILL IMPLEMENT A MEASURE OF THE EROSION CONTROL PLAN IN ORDER TO IDENTIFY THEIR ROLE AND RESPONSIBILITY FOR THE EROSION CONTROL PLAN. AMENDMENTS TO THE PLAN MAY BE REVIEWED BY THE EXECUTIVE SECRETARY (OR AUTHORIZED REPRESENTATIVE) IN THE SAME MANNER AS PART III.B.2. OF THE PERMIT.
- THE CONTRACTOR SHALL KEEP A RECORD OF THE DATES WHEN MAJOR GRADING ACTIVITIES OCCUR, WHEN CONSTRUCTION ACTIVITIES TEMPORARILY OR PERMANENTLY CEASE ON A PORTION OF THE SITE, AND WHEN STABILIZATION MEASURES ARE INITIATED, AND INCLUDE THIS INFORMATION IN THE SWPPP.
- THE TOTAL AREA TO BE DISTURBED CONTAINS 1.48 ACRES.
- THERE ARE NO SURFACE WATER FEATURES LOCATED ON THIS SITE.
- DUST CONTROL-CONSTRUCTION TRAFFIC MUST ENTER AND EXIT THE SITE AT THE STABILIZED CONSTRUCTION EXIT. THE PURPOSE IS TO TRAP DUST AND MUD THAT WOULD OTHERWISE BE CARRIED OFF-SITE BY CONSTRUCTION TRAFFIC.
- WATER TRUCKS WILL BE USED AS NEEDED DURING CONSTRUCTION TO REDUCE DUST GENERATED ON THE SITE. DUST CONTROL MUST BE PROVIDED BY THE GENERAL CONTRACTOR TO A DEGREE THAT IS ACCEPTABLE TO THE CONSTRUCTION MANAGER OR ON-SITE OWNER REPRESENTATIVE, AND IN COMPLIANCE WITH APPLICABLE LOCAL AND STATE DUST CONTROL REGULATIONS. AFTER CONSTRUCTION, THE SITE WILL BE PERMANENTLY STABILIZED (AS DESCRIBED ELSEWHERE), WHICH WILL REDUCE THE POTENTIAL FOR DUST GENERATION.
- BETWEEN THE TIME THIS EROSION CONTROL PLAN IS IMPLEMENTED AND FINAL SITE STABILIZATION IS ACHIEVED, ALL DISTURBED AREAS AND POLLUTANT CONTROLS MUST BE INSPECTED AT LEAST ONCE EVERY SEVEN CALENDAR DAYS AND WITHIN 24 HOURS FOLLOWING A RAINFALL OF 0.25 INCHES OR GREATER. THE PURPOSE OF SITE INSPECTIONS IS TO ASSESS PERFORMANCE OF POLLUTANT CONTROLS. THE GENERAL CONTRACTOR'S DESIGNATED REPRESENTATIVE WILL CONDUCT THE INSPECTIONS. BASED ON THESE INSPECTIONS, THE GENERAL CONTRACTOR WILL DECIDE WHETHER IT IS NECESSARY TO MODIFY THIS EROSION CONTROL PLAN, ADD OR RELOCATE SEDIMENT BARRIERS, OR WHATEVER ELSE MAY BE NEEDED IN ORDER TO PREVENT POLLUTANTS FROM LEAVING THE SITE VIA STORM WATER RUNOFF. THE GENERAL CONTRACTOR HAS THE DUTY TO CAUSE POLLUTANT CONTROL MEASURES TO BE REPAIRED, MODIFIED, MAINTAINED, SUPPLEMENTED, OR WHATEVER ELSE IS NECESSARY IN ORDER TO ACHIEVE EFFECTIVE POLLUTANT CONTROL.
- EXAMPLES OF PARTICULAR ITEMS TO EVALUATE DURING SITE INSPECTIONS ARE LISTED BELOW. THIS LIST IS NOT INTENDED TO BE COMPREHENSIVE. DURING EACH INSPECTION THE INSPECTOR MUST EVALUATE OVERALL POLLUTANT CONTROL SYSTEM PERFORMANCE AS WELL AS PARTICULAR DETAILS OF INDIVIDUAL SYSTEM COMPONENTS. ADDITIONAL FACTORS SHOULD BE CONSIDERED AS APPROPRIATE TO THE CIRCUMSTANCES.
 - LOCATIONS WHERE VEHICLES ENTER AND EXIT THE SITE MUST BE INSPECTED FOR EVIDENCE OF OFF-SITE SEDIMENT TRACKING. A STABILIZED CONSTRUCTION EXIT WILL BE CONSTRUCTED WHERE VEHICLES EXIT AND ENTER THE PROJECT. THIS EXIT WILL BE MAINTAINED OR SUPPLEMENTED AS NECESSARY TO PREVENT SEDIMENT FROM LEAVING THE SITE ON VEHICLES.
 - SEDIMENT BARRIERS AND FENCES MUST BE INSPECTED AND, IF NECESSARY, THEY MUST BE ENLARGED OR CLEANED IN ORDER TO PROVIDE ADDITIONAL CAPACITY. ALL MATERIAL EXCAVATED FROM BEHIND SEDIMENT BARRIERS WILL BE STOCKPILED ON THE UP SLOPE SIDE. ADDITIONAL SEDIMENT BARRIERS / FENCES SHALL BE INSTALLED AS NEEDED.
 - INSPECTIONS WILL EVALUATE DISTURBED AREAS AND AREAS USED FOR STORING MATERIALS WHICH ARE EXPOSED TO RAINFALL FOR EVIDENCE OF, OR THE POTENTIAL FOR, POLLUTANTS ENTERING THE DRAINAGE SYSTEM. AS NECESSARY, THE MATERIALS MUST BE COVERED OR ORIGINAL COVERS MUST BE REPAIRED OR SUPPLEMENTED. ALSO, PROTECTIVE BERMS MUST BE CONSTRUCTED, AS NEEDED, IN ORDER TO CONTAIN RUNOFF FROM MATERIAL STORAGE AREAS.
 - GRASSSED AREAS WILL BE INSPECTED TO CONFIRM THAT A HEALTHY STAND OF GRASS IS MAINTAINED. THE SITE HAS ACHIEVED FINAL STABILIZATION ONCE ALL AREAS ARE COVERED WITH BUILDING FOUNDATION OR PAVEMENT OR HAVE A STAND OF MATURE GRASS WITH AS LEAST 10 PERCENT UNIFORM DENSITY. THE DENSITY OF 10 PERCENT OR GREATER MUST BE MAINTAINED TO BE CONSIDERED AS STABILIZED. AREAS MUST BE WATERED, FERTILIZED, AND RESEED AS NEEDED TO ACHIEVE THIS GOAL.
 - ALL DISCHARGE POINTS MUST BE INSPECTED TO DETERMINE WHETHER EROSION CONTROL MEASURES ARE EFFECTIVE IN PREVENTING SIGNIFICANT IMPACTS TO RECEIVING WATERS.
- BASED ON INSPECTION RESULTS, ANY MODIFICATION NECESSARY TO INCREASE EFFECTIVENESS OF THIS EROSION CONTROL PLAN TO AN ACCEPTABLE LEVEL MUST BE MADE WITHIN SEVEN CALENDAR DAYS OF THE INSPECTION. THE INSPECTION REPORTS MUST BE COMPLETED ENTIRELY, AND ADDITIONAL REMARKS SHOULD BE INCLUDED IF NEEDED TO FULLY DESCRIBE A SITUATION. AN IMPORTANT ASPECT OF THE INSPECTION REPORT IS THE DESCRIPTION OF ADDITIONAL MEASURES THAT NEED TO BE TAKEN TO ENHANCE PLAN EFFECTIVENESS. THE INSPECTION REPORT MUST IDENTIFY WHETHER THE SITE WAS IN COMPLIANCE WITH THE EROSION CONTROL PLAN AT THE TIME OF INSPECTION AND SPECIFICALLY IDENTIFY ALL INCIDENTS OF NON-COMPLIANCE.
- INSPECTION REPORTS MUST BE KEPT ON FILE BY THE GENERAL CONTRACTOR AS AN INTEGRAL PART OF THIS PLAN FOR AT LEAST THREE YEARS FROM THE DATE OF COMPLETION OF THE PROJECT.
- ULTIMATELY, IT IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR TO ASSURE THE ADEQUACY OF SITE POLLUTANT DISCHARGE CONTROLS. ACTUAL PHYSICAL SITE CONDITIONS OR CONTRACTOR PRACTICES COULD MAKE IT NECESSARY TO INSTALL MORE STRUCTURAL CONTROLS THAN ARE SHOWN ON THE PLANS. (FOR EXAMPLE, LOCALIZED CONCENTRATIONS OF RUNOFF COULD MAKE IT NECESSARY TO INSTALL ADDITIONAL SEDIMENT BARRIERS.) ASSESSING THE NEED FOR ADDITIONAL CONTROLS AND IMPLEMENTING THEM OR ADJUSTING EXISTING CONTROLS WILL BE A CONTINUING ASPECT OF THIS EROSION CONTROL PLAN UNTIL THE SITE ACHIEVES FINAL STABILIZATION.

DATE:	12/12/2023
JOB NO.:	12448-21-001
DESIGNED BY:	PMD
CHECKED BY:	MSR
DWG:	CONST DOCS
DATE:	
REVISIONS:	

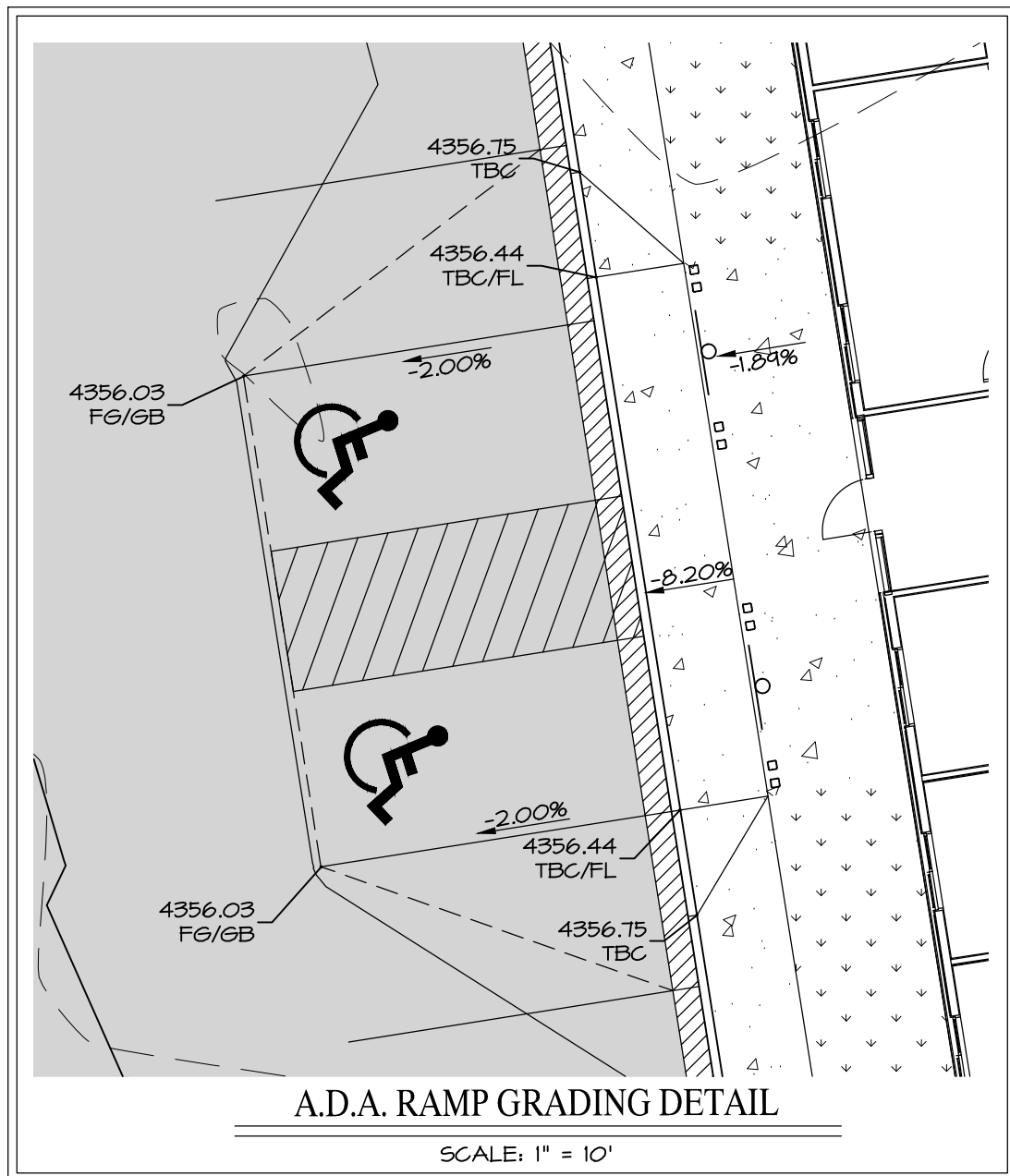
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EROSION CONTROL NOTES AND DETAILS
FOR
ENCOMPASS DETOX CENTER
PAGE, ARIZONA



SHEET
C3.1
4 OF 8 SHEETS



CALL BEFORE YOU DIG!



NOTICE!
EXISTING UTILITIES ARE SHOWN ON PLANS FOR THE CONVENIENCE OF THE CONTRACTOR ONLY. THE CONTRACTOR IS RESPONSIBLE FOR THE LOCATION AND PROTECTION OF ALL UTILITIES. THE ENGINEER BEARS NO RESPONSIBILITY FOR UTILITIES NOT SHOWN OR SHOWN INCORRECTLY.

CONSTRUCTION NOTES

- 24" VERTICAL PAN/SLED CURB AND GUTTER PER DETAIL B/C4.1
- 24" VERTICAL CATCH CURB AND GUTTER PER MAG. STD. DWG. #220-1 (TYPE A)
- 36" CONCRETE WATERWAY PER DETAIL C/C4.1
- ASPHALT PAVEMENT PER DETAIL D/C4.1
- 36" WIDE RIP-RAP SWALE PER DETAIL E/C4.1
- 12" NYOPLAST DRAIN BASIN PER DETAIL J/C4.1
- 5' WIDE SIDEWALK PER MAG. STD. DWG. #230

LEGEND

- EXISTING 1' CONTOUR
- EXISTING 5' CONTOUR
- PROPOSED 1' CONTOUR
- PROPOSED 5' CONTOUR
- PROPOSED DRAINAGE SWALE
- PROPERTY LINE
- PROPOSED CURB & GUTTER
- EXISTING CURB & GUTTER
- PROPOSED STORM DRAIN PIPE (SIZE INDICATED ON PLAN)
- EXISTING STORM DRAIN PIPE
- PROPOSED SHED CURB & GUTTER
- EXISTING PAVEMENT
- PROPOSED ASPHALT PAVEMENT (REFER TO GEOTECH. REPORT)
- PROPOSED CONCRETE/SIDEWALK (REFER TO GEOTECHNICAL REPORT)
- PROPOSED CONCRETE FOR STORM WATER DETENTION AREA
- PROPOSED ELEVATIONS
- GRADING SLOPES
- CONCRETE RETAINING WALL PER DETAIL K/C4.1
- PROPOSED WALL ELEVATIONS

GRADING NOTES

- ALL EXCAVATION AND GRADING SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF CITY OF PAGE, AND APPENDIX "J" OF THE "INTERNATIONAL BUILDING CODE," LATEST EDITION.
- THE CONTRACTOR SHALL PROVIDE SUITABLE EQUIPMENT TO CONTROL DUST AND AIR POLLUTION CAUSED BY CONSTRUCTION OPERATIONS. THE CONTRACTOR SHALL ALSO PROVIDE SUITABLE MUD AND DIRT CONTAINMENT TO MAINTAIN THE WORK SITE, ACCESS ROADWAYS AND ADJACENT PROPERTIES IN A CLEAN CONDITION.
- ALL IMPORTED STRUCTURAL FILL SHALL BE APPROVED BY THE GEOTECHNICAL ENGINEER PRIOR TO DELIVERY TO THE SITE. ALL STRUCTURAL FILL SHALL BE PLACED AND COMPACTED PER THE GEOTECHNICAL ENGINEER'S RECOMMENDATIONS.
- ALL EXCAVATIONS, GRADING AND FILL OPERATIONS SHOULD BE OBSERVED BY THE GEOTECHNICAL ENGINEER TO VERIFY SUB-SOIL CONDITIONS AND DETERMINE ADEQUACY OF SITE PREPARATION SUITABILITY OF FILL MATERIALS AND COMPLIANCE WITH COMPACTION REQUIREMENTS.
- OWNER IS RESPONSIBLE FOR ALL ON-SITE DRAINAGE.
- PERMISSION WILL NEED TO BE OBTAINED FROM ADJOINING PROPERTY OWNERS BEFORE GRADING ACROSS PROPERTY LINES.

EXPANSION AND CONTROL JOINTS

- EXPANSION JOINTS SHALL BE INSTALLED AT ALL RADII POINTS AND CHANGES IN CONCRETE DEPTH.
- THE MAXIMUM DISTANCE BETWEEN EXPANSION JOINTS IS 20 FEET.
- EXPANSION JOINTS SHALL BE PLACED TO MATCH JOINTS IN ADJACENT CONCRETE.
- EXPANSION JOINTS SHALL BE CONSTRUCTED TO THE FULL DEPTH AND WIDTH OF THE CONCRETE WITH THE TOP OF THE MATERIAL ONE-QUARTER INCH BELOW THE TOP SURFACE OF THE CONCRETE.
- REFER TO MAG. STD. DWG. #230 FOR EXPANSION AND CONTROL JOINT DETAILS.
- CONTROL JOINTS SHALL BE SPACED AT A MAXIMUM OF 5 FEET APART.
- ALL EXPANSION AND CONTROL JOINTS SHALL BE FILLED WITH A REINFORCED JOINT FILLER PER ASTM D-1751, 1/2" BITUMINOUS TYPE

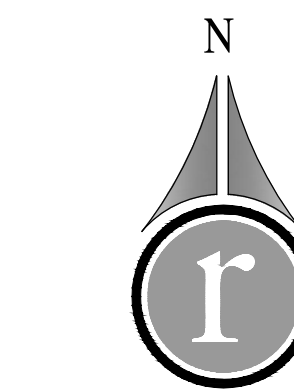
ESTIMATED EARTHWORK VOLUMES

122	(C) CU. YD. CUT
506	(F) CU. YD. FILL
216	(C) CU. YD. NET

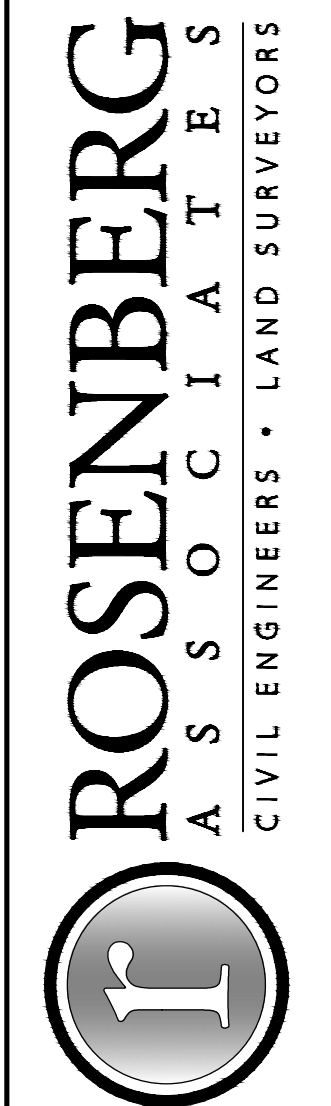
GUT AND FILL VOLUMES SHOWN ARE BASED ON DIGITAL TERRAIN MODELING COMPUTATIONS. VOLUMES SHOWN ARE COMPACTED IN PLACE VOLUMES AND DO NOT REFLECT EXPANSION AND SHRINKAGE CONDITIONS EXPERIENCED DURING CONSTRUCTION. THESE VOLUMES ARE SHOWN AS REFERENCE ONLY.

THE CONTRACTOR SHALL BE RESPONSIBLE TO EVALUATE THE ON-SITE SOILS, REVIEW THE GEOTECHNICAL INVESTIGATION AND DETERMINE THE ANTICIPATED EARTHWORK FOR THIS PROJECT.

APPROVED

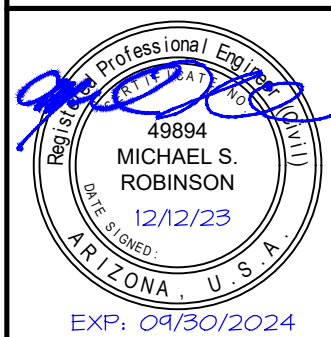


DATE:		12/12/2023	
JOB NO.:		12448-21-001	
DESIGNED BY:		PMD	
CHECKED BY:		MSR	
DWG:		CONST DOCS	
REVISIONS	DATE		
	12.12.23	1-REDUCE BLDG FOUNDATION AND UPDATE GRADING/STORM DRAIN	

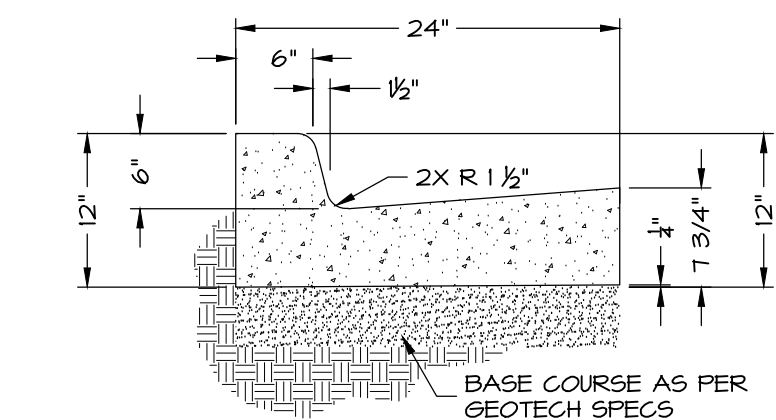


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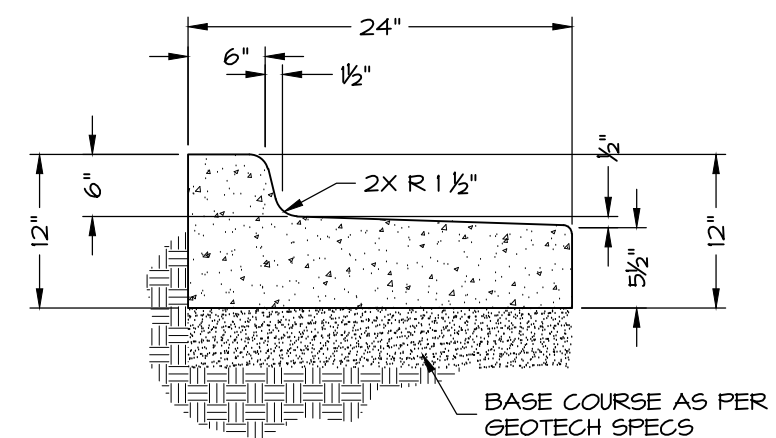
GRADING AND DRAINAGE PLAN
FOR
ENCOMPASS DETOX CENTER
PAGE, ARIZONA



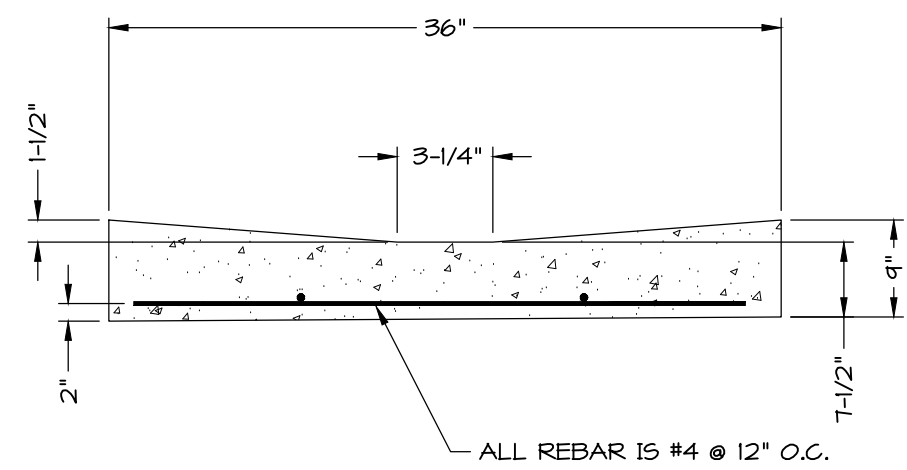
SHEET
C4.0
5 OF 8 SHEETS



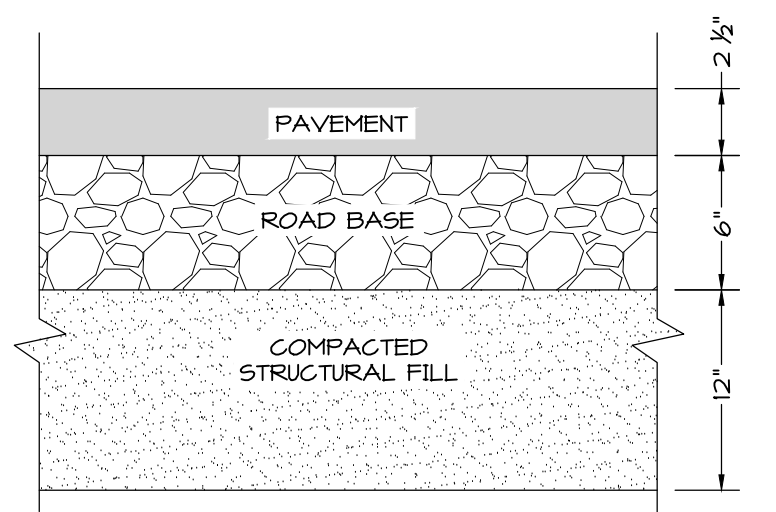
A TYPICAL CURB AND GUTTER DETAIL
SCALE: N.T.S.



B 24" REVERSE PAN/SHED CURB
SCALE: N.T.S.

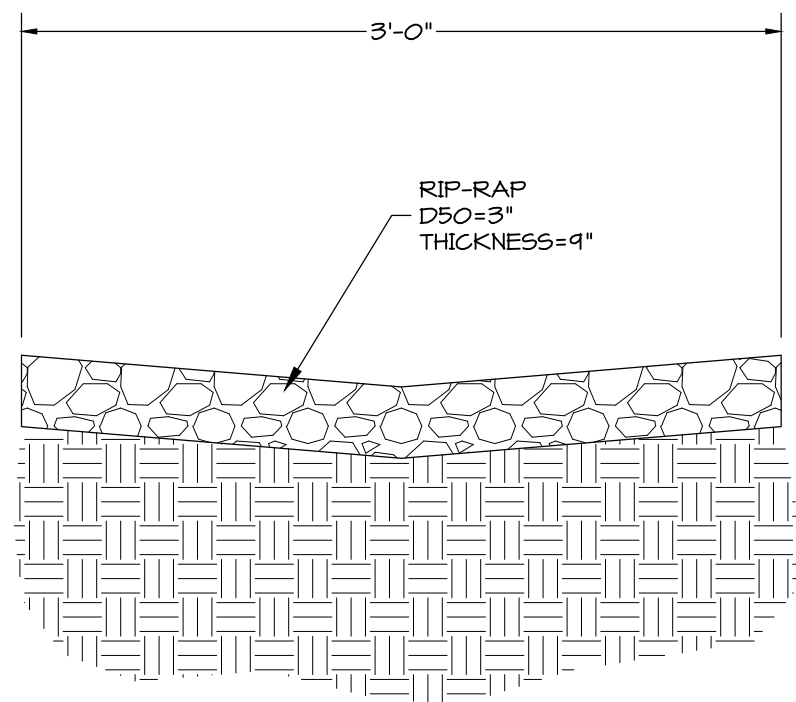


C 36" CONCRETE WATERWAY DETAIL
SCALE: N.T.S.

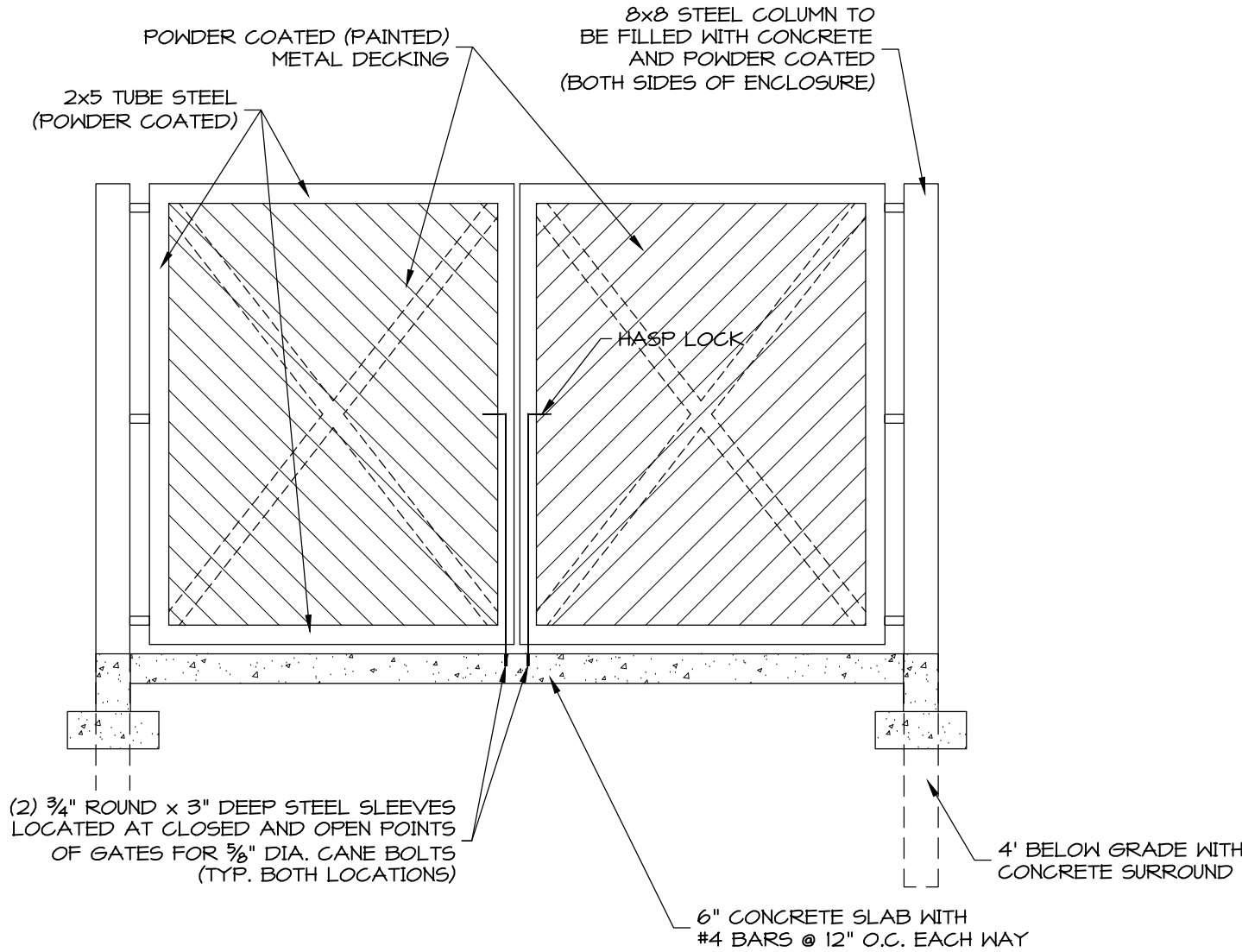
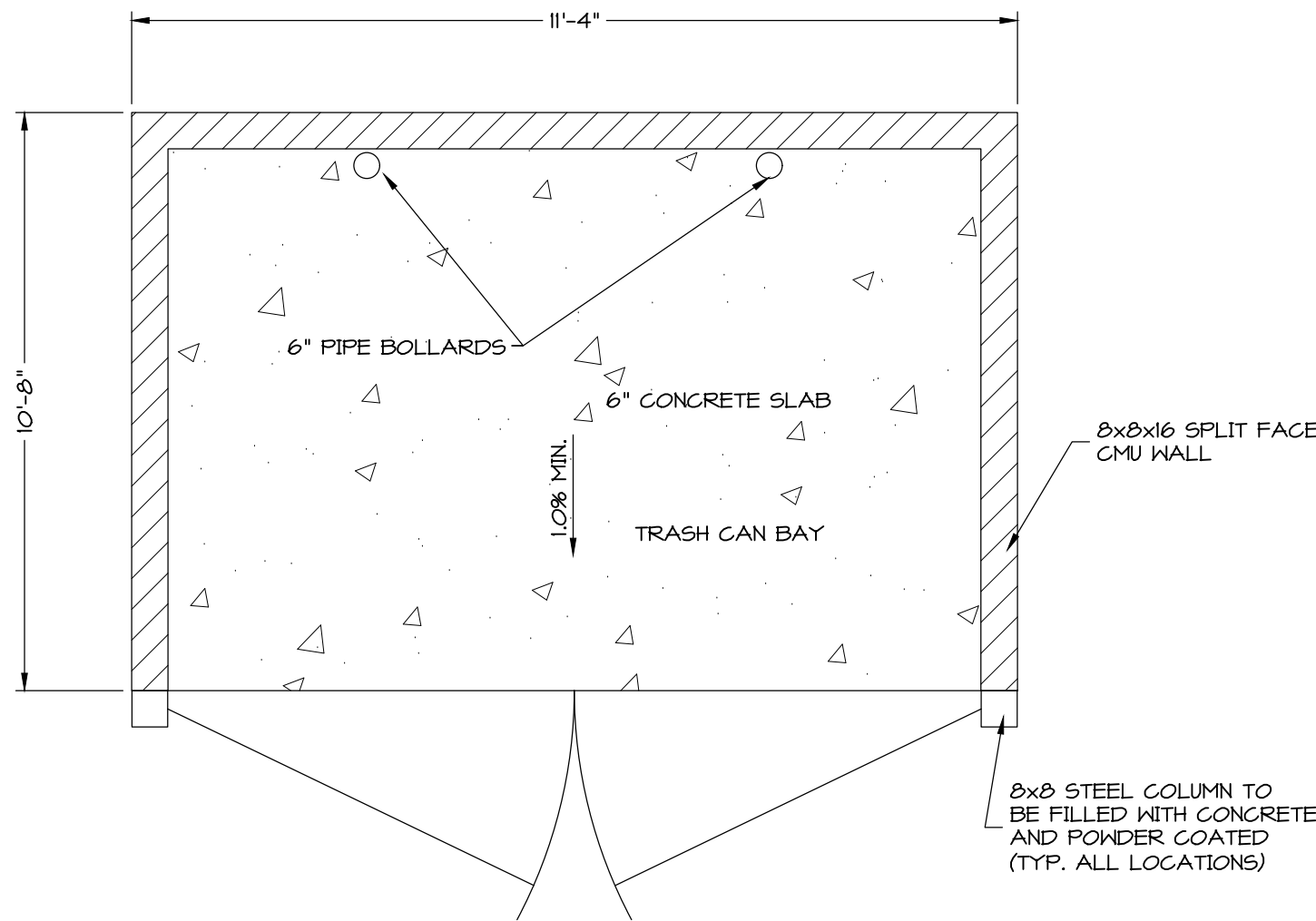


D PAVEMENT SECTION
SCALE: N.T.S.

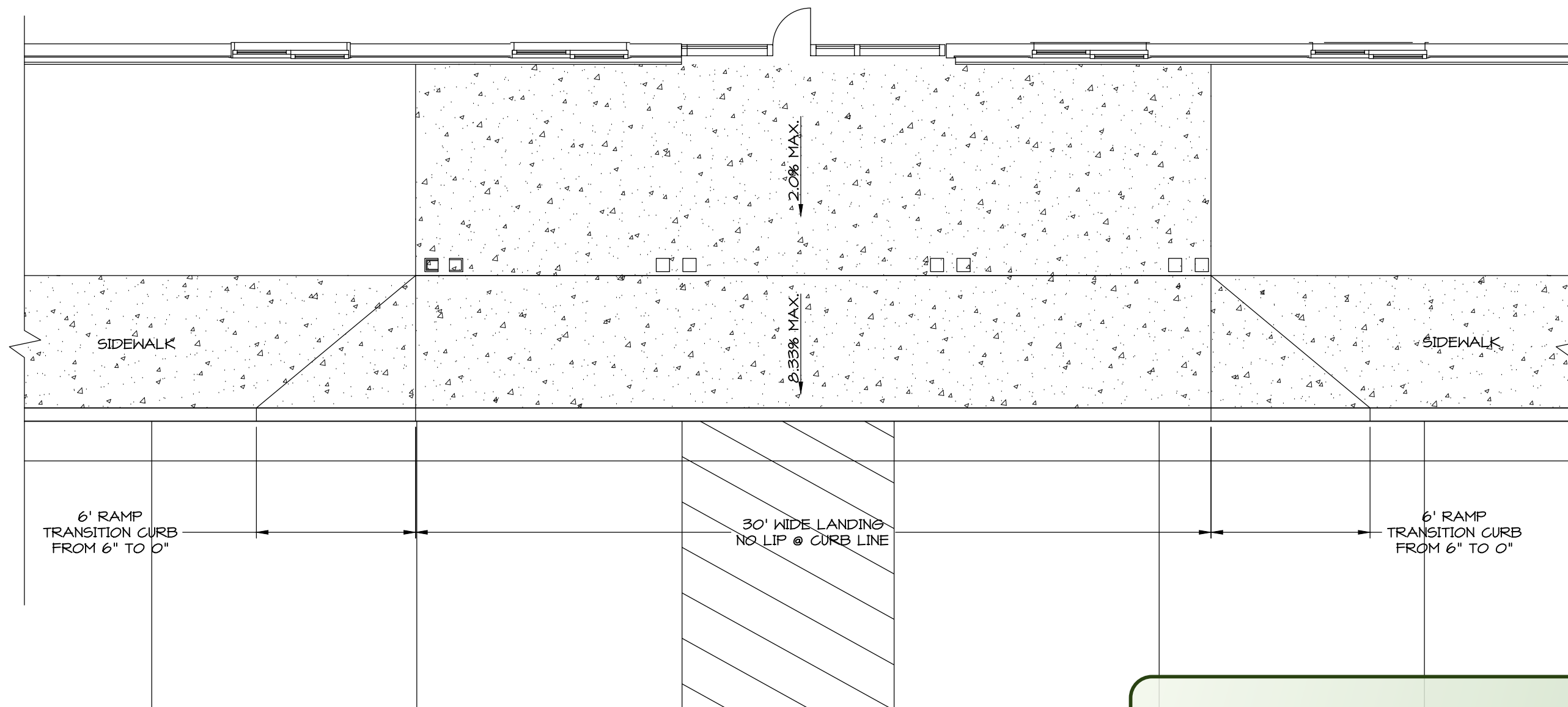
IT IS THE CONTRACTOR'S RESPONSIBILITY TO BECOME FAMILIAR WITH THE GEOTECHNICAL REPORT PRIOR TO STARTING ANY CONSTRUCTION.



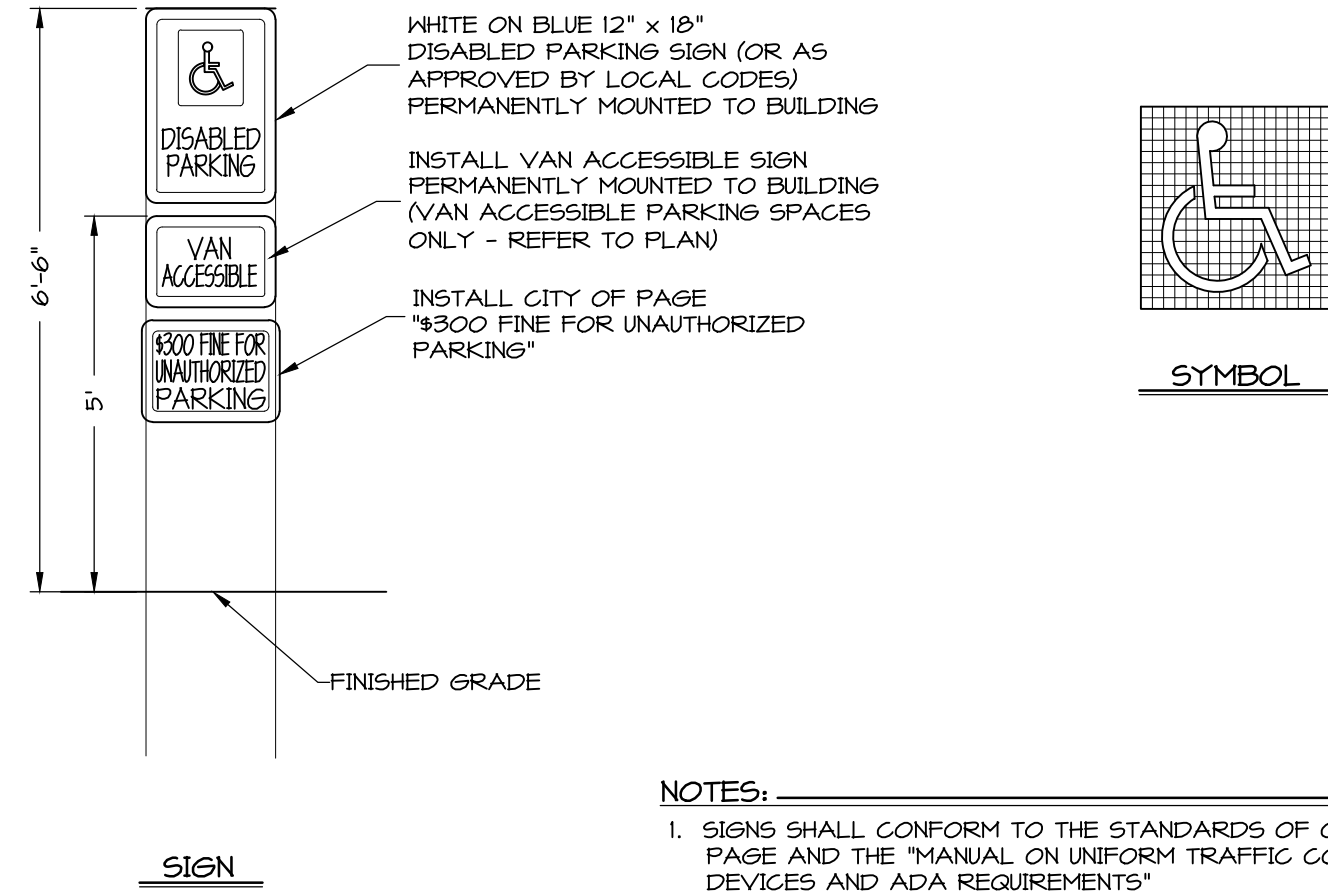
E 36" WIDE RIP-RAP SWALE
SCALE: N.T.S.



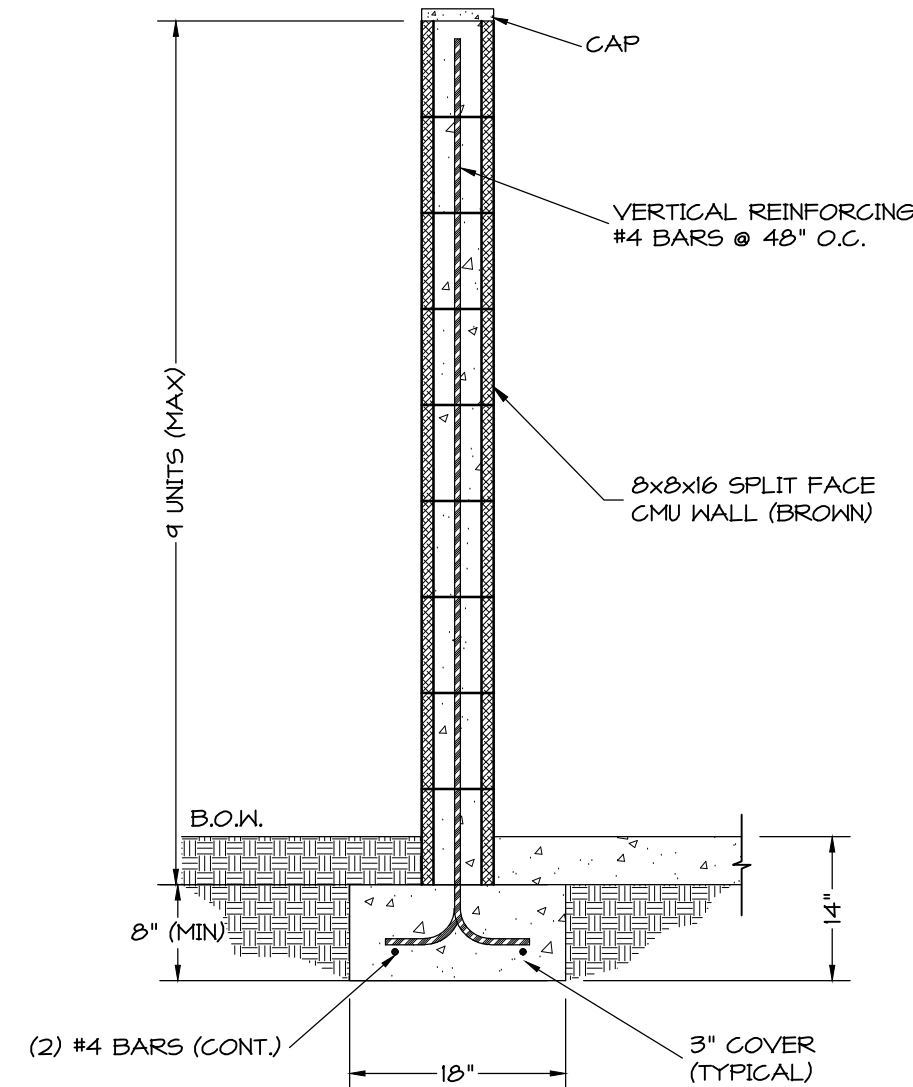
G TRASH ENCLOSURE DETAIL
SCALE: N.T.S.



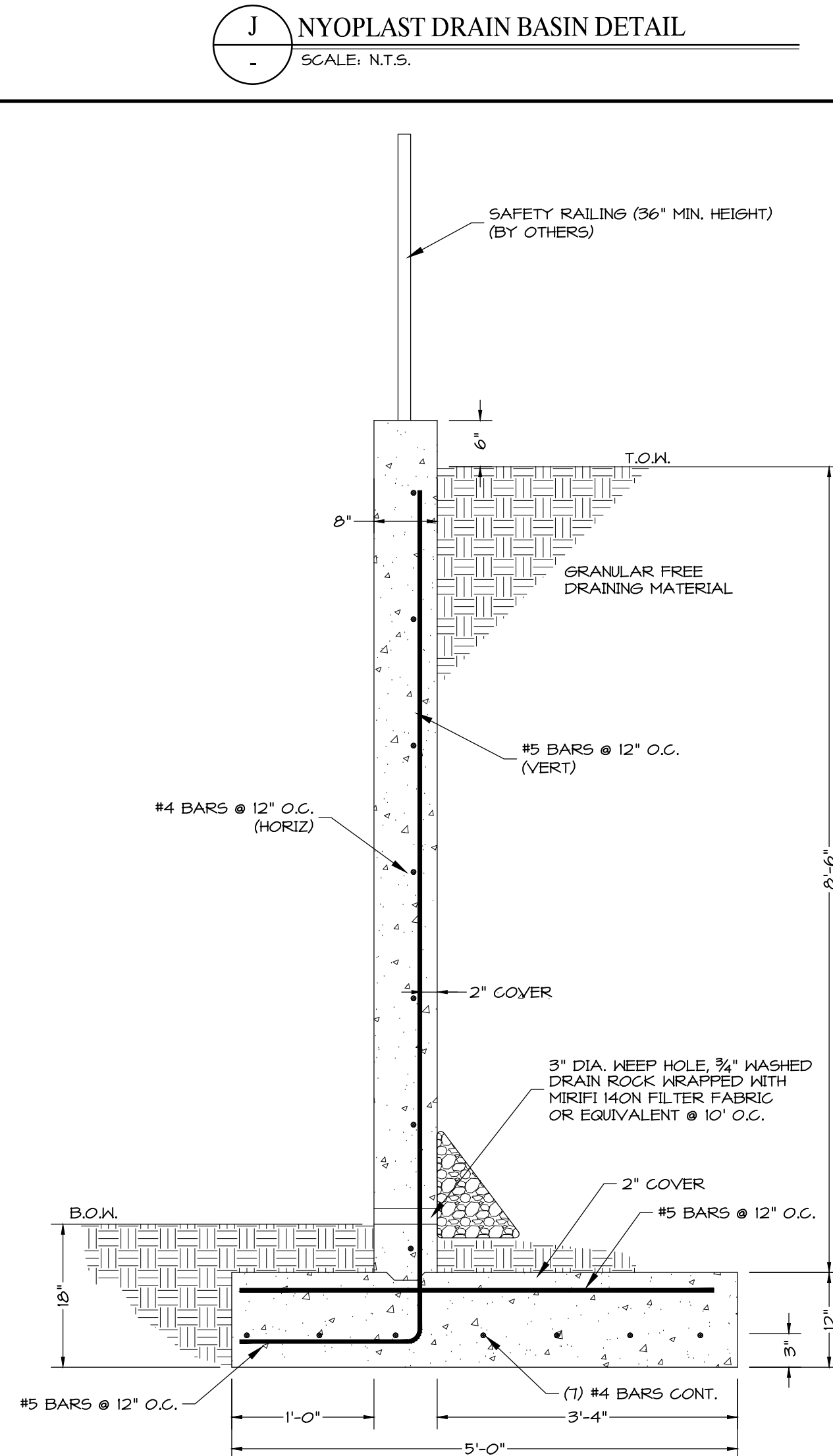
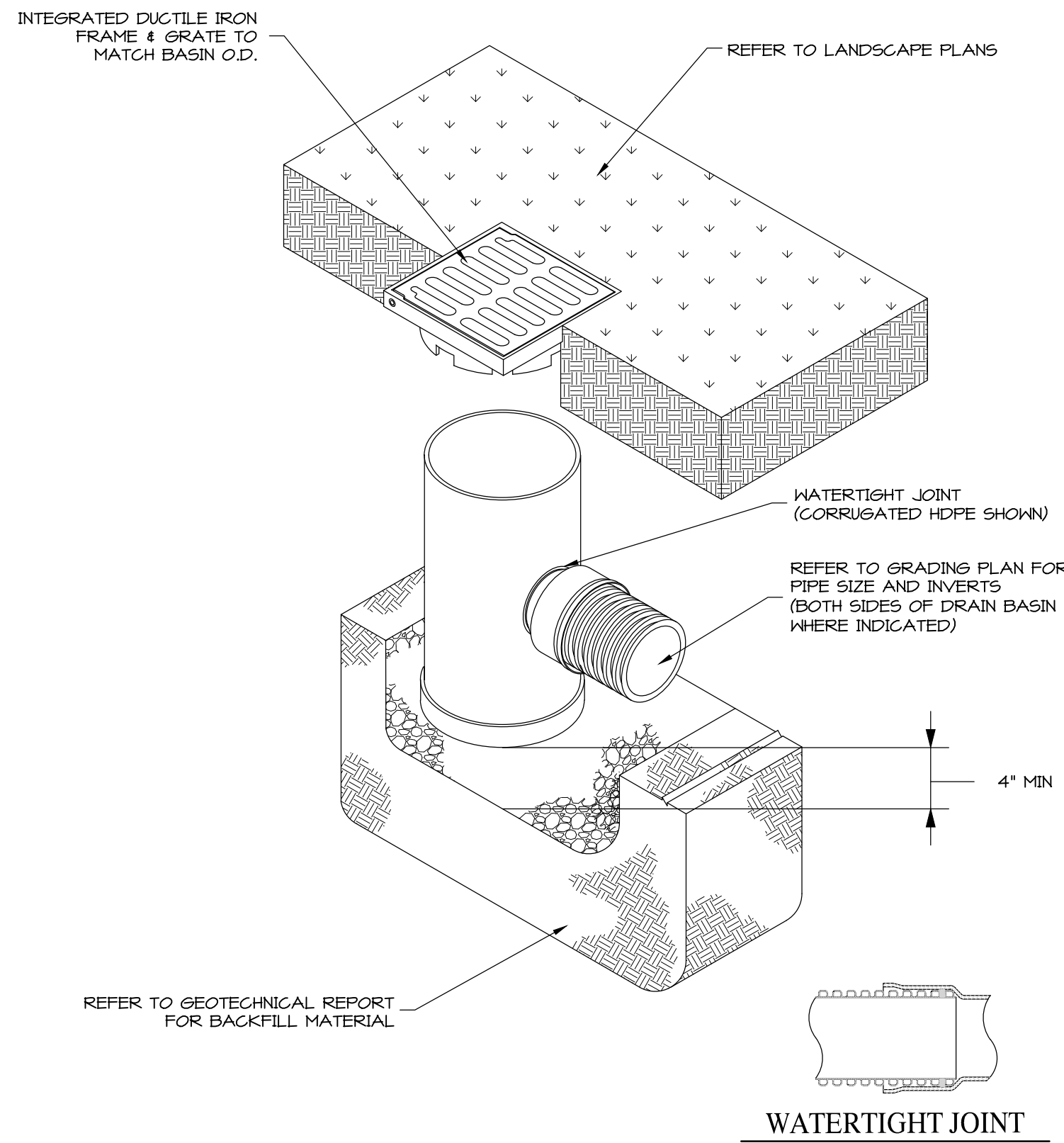
H A.D.A. RAMP DETAIL
SCALE: N.T.S.



F A.D.A. SIGNAGE DETAIL
SCALE: N.T.S.



J NYOPLAST DRAIN BASIN DETAIL
SCALE: N.T.S.



K 8'-0" CONCRETE RETAINING WALL
SCALE: N.T.S.

APPROVED

DATE: 12/12/2023
JOB NO.: 12448-21-001
DESIGNED BY: PMD
CHECKED BY: MSR
DWG: CONST DOCS

REVISIONS

DATE

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GRADING AND SITE DETAILS
FOR
ENCOMPASS DETOX CENTER
PAGE, ARIZONA

Professional Engineer
48894
MICHAEL S. ROBINSON
12/12/23
EXP. 04/30/2024

SHEET
C4.1
6 OF 8 SHEETS

WATER CONSTRUCTION NOTES

- 1 FIRE HYDRANT ASSEMBLY PER MAG. STD. DWG. #360-1
- 2 8"x8"x6" TEE WITH GATE VALVE AND THRUST BLOCKS (TEE THRUST BLOCKS PER MAG. STD. DWG. #380) (GATE VALVE THRUST BLOCKS PER MAG. STD. DWG. #301)
- 3 11.25" BEND WITH THRUST BLOCKS PER MAG. STD. DWG. #380 (MATCH PIPE SIZE SHOWN ON PLANS)
- 4 45° BEND WITH THRUST BLOCKS PER MAG. STD. DWG. #380 (MATCH PIPE SIZE SHOWN ON PLANS)
- 5 90° BEND WITH THRUST BLOCKS PER MAG. STD. DWG. #380 (MATCH PIPE SIZE SHOWN ON PLANS)
- 6 3/4" WATER METER WITH BOX PER MAG. STD. DWG. #320 WITH BACKFLOW PREVENTER (IRRIGATION)
- 7 1 1/2" WATER METER AND BOX PER MAG. STD. DWG. #320 WITH 2" POLY SERVICE LINE
- 8 WATER AND SEWER SEPARATION PER MAG. STD. DWG. #404-1
- 9 REMOTE FIRE DEPARTMENT CONNECTION PER FIRE DEPARTMENT STANDARDS
- 10 INSTALL GATE VALVE WITH REDUCER (8" TO 6")

SEWER CONSTRUCTION NOTES

- 1 SEWER WYE CONNECTION PER MAG. STD. DWG. #440-3
- 2 SEWER CLEANOUT PER MAG. STD. DWG. #441 (SIZE INDICATED ON PLANS)
- 3 60" SEWER MANHOLE PER MAG. STD. DWG. #420-1
- 4 1200 GALLON GREASE INTERCEPTOR PER DETAIL E/C5.1

WATER MATERIAL QUANTITIES

ITEM	QUANTITY
4" C-400 DR-14 PVC WATERLINE	90 LF
6" C-400 DR-14 PVC WATERLINE	105 LF
6" FIRE HYDRANT ASSEMBLY 1/2" 6" GATE VALVE	1 EA
8" GATE VALVES	1 EA
2" DOMESTIC WATER METER	1 EA
3/4" IRRIGATION WATER METER WITH BACKFLOW PREVENTER	1 EA

SEWER MATERIAL QUANTITIES

ITEM	QUANTITY
6" SEWER CLEANOUT	3 EA
6" SDR 35 PVC SEWER	221 LF
60" SEWER MANHOLE	1 EA

NOTE:
QUANTITIES SHOWN ARE FOR REFERENCE ONLY.
IT WILL BE THE CONTRACTOR'S RESPONSIBILITY
TO DETERMINE THE EXACT QUANTITIES.

POWER

PAGE UTILITY ENTERPRISE
640 HAIL ROAD
PAGE, ARIZONA 86040
(928) 645-2419

PROPANE

ALLIANT GAS, LLC
2000 EAST FRONTAGE ROAD
PAGE, ARIZONA 86040
(928) 645-2391

WATER

PAGE UTILITY ENTERPRISE
640 HAIL ROAD
PAGE, ARIZONA 86040
(928) 645-2419

CATV SERVICE

SOUTH CENTRAL COMMUNICATIONS
155 5TH AVENUE
PAGE, ARIZONA 86040
(928) 660-0512
CONTACT: GARRETT EDWARDS

SEWER

PAGE UTILITY ENTERPRISE
640 HAIL ROAD
PAGE, ARIZONA 86040
(928) 645-2419

TELEPHONE

QUEST COMMUNICATIONS
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(928) 711-4440

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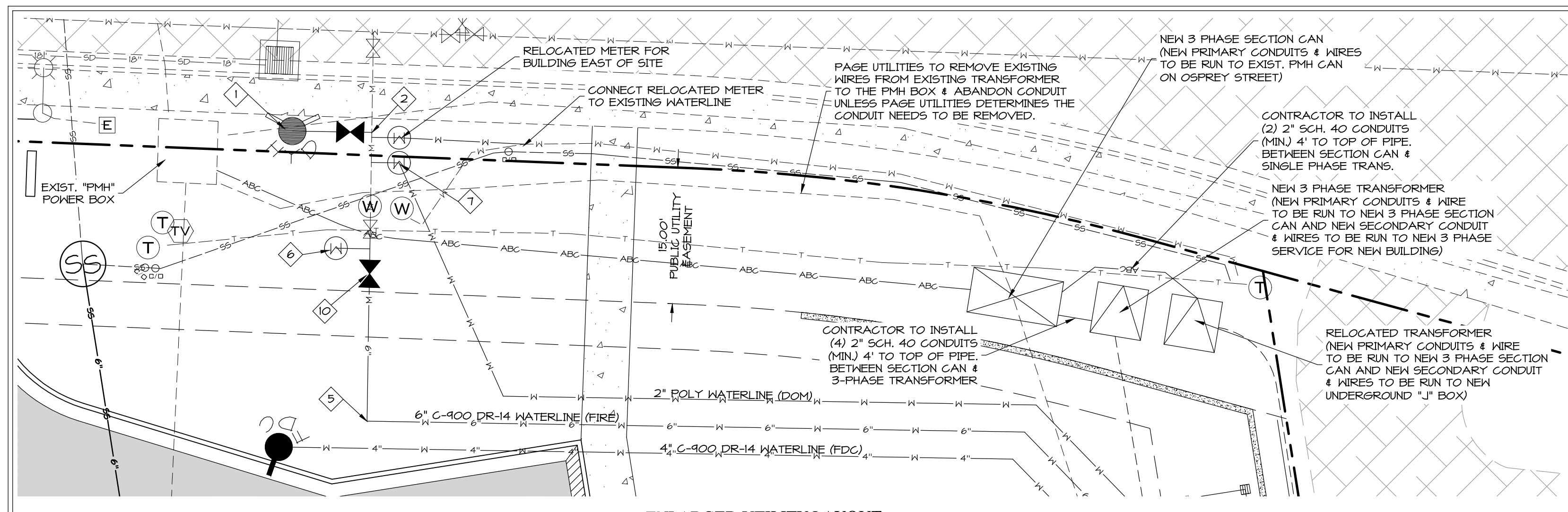
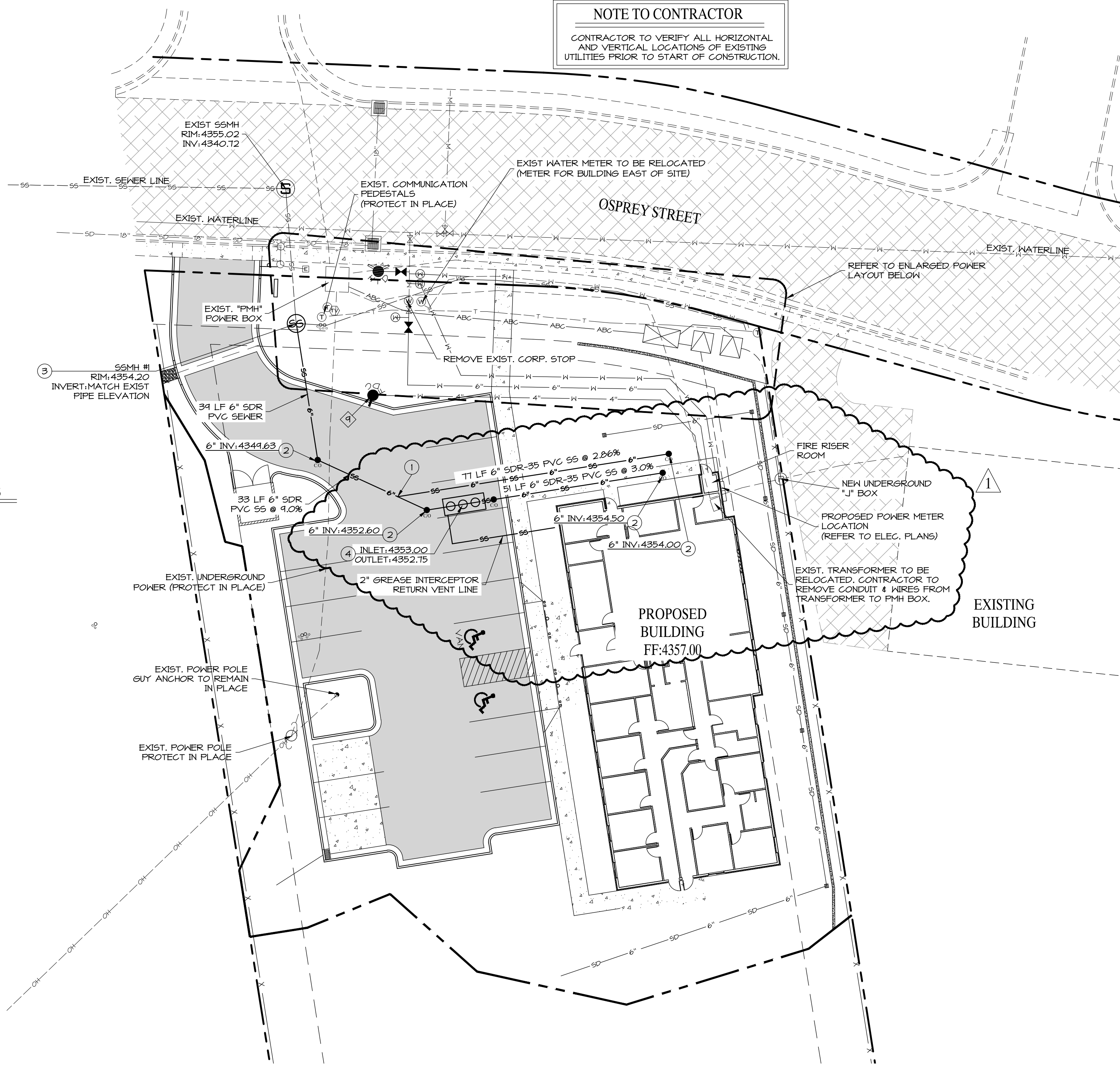


AT LEAST TWO WORKING
DAYS BEFORE YOU DIG CALL:
800-782-5348

NOTICE!
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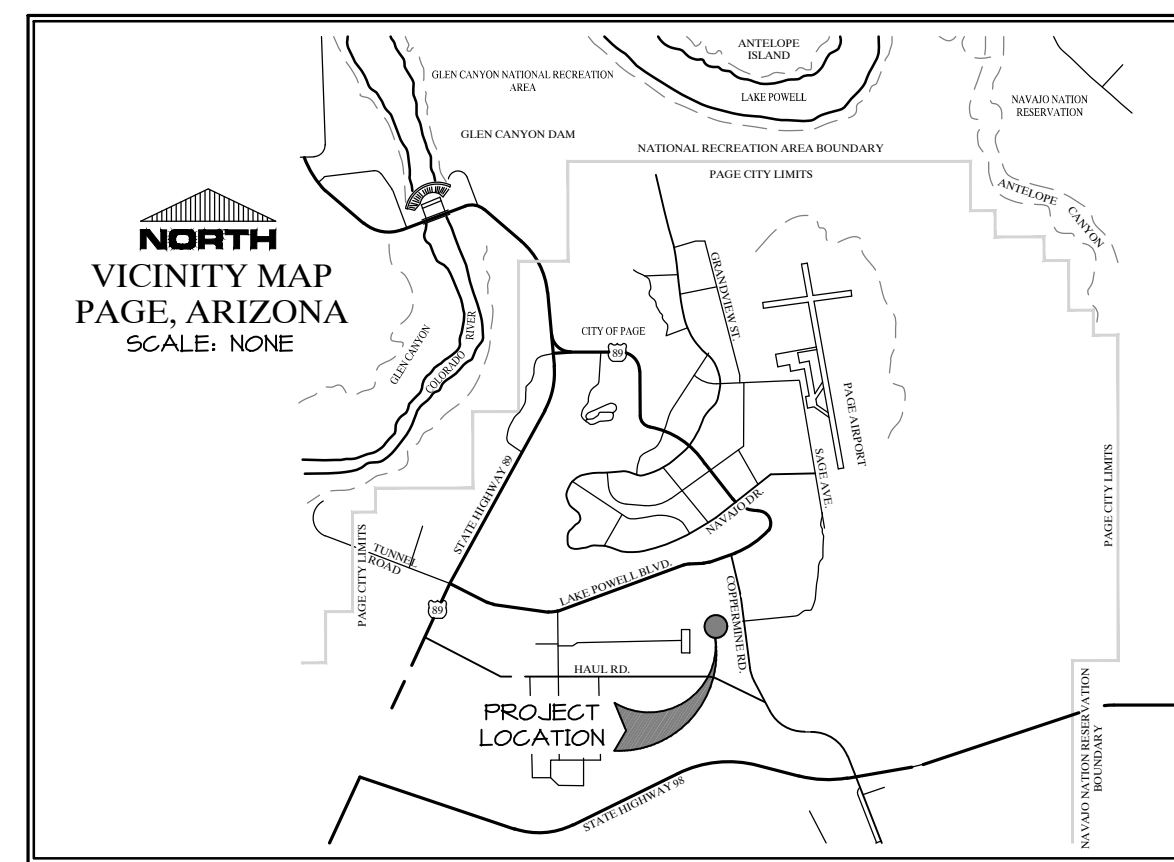
NOTE TO CONTRACTOR

CONTRACTOR TO VERIFY ALL HORIZONTAL
AND VERTICAL LOCATIONS OF EXISTING
UTILITIES PRIOR TO START OF CONSTRUCTION.



ENLARGED UTILITY LAYOUT

SCALE: 1" = 10'



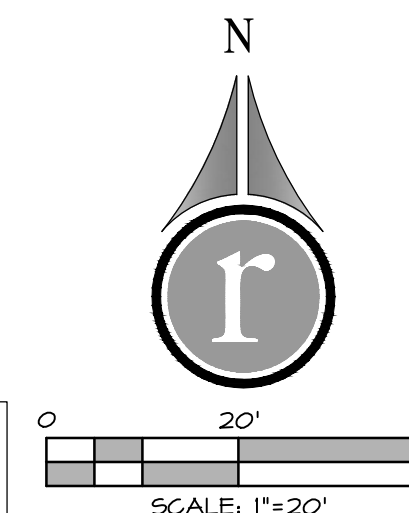
PROJECT LOCATION

THE PROJECT IS LOCATED AT:
OSPREY DRIVE
PAGE, ARIZONA

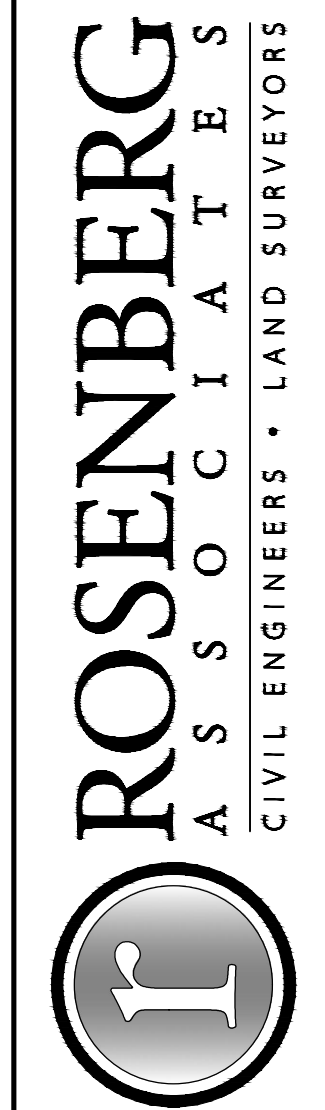
LEGEND

- EXISTING EASEMENT
- PROPOSED SEWER LINE (SIZE INDICATED ON PLAN)
- EXISTING SEWER MAIN
- PROPOSED WATER LINE (SIZE INDICATED ON PLAN)
- EXISTING WATER MAIN
- PROPOSED GAS LINE (SIZE DETERMINED BY OWNER)
- EXISTING GAS LINE
- TELEPHONE LINE
- CATV LINE
- PROPOSED 3 PHASE POWER
- PROPOSED SECONDARY POWER
- EXISTING POWER
- EXISTING WATER METER
- PROPOSED WATER METER
- EXISTING SEWER MANHOLE
- PROPOSED SEWER MANHOLE PER M.A.G. STD. DWG. #420-1
- PROPOSED TELEPHONE PEDESTAL
- EXISTING CATV PEDESTAL
- PROPOSED WATER VALVE
- EXISTING WATER VALVE
- PROPOSED FIRE HYDRANT
- EXISTING FIRE HYDRANT

APPROVED



DATE:	12/12/2023
JOB NO.:	12448-21-001
DESIGNED BY:	PMI
CHECKED BY:	MSR
DWG.:	CONST DOCS
DATE:	
REVISIONS:	
1-REDUCE BLDG FOUNDATION AND UPDATE	12/12/23
SEWER & WATER CONNECTIONS	

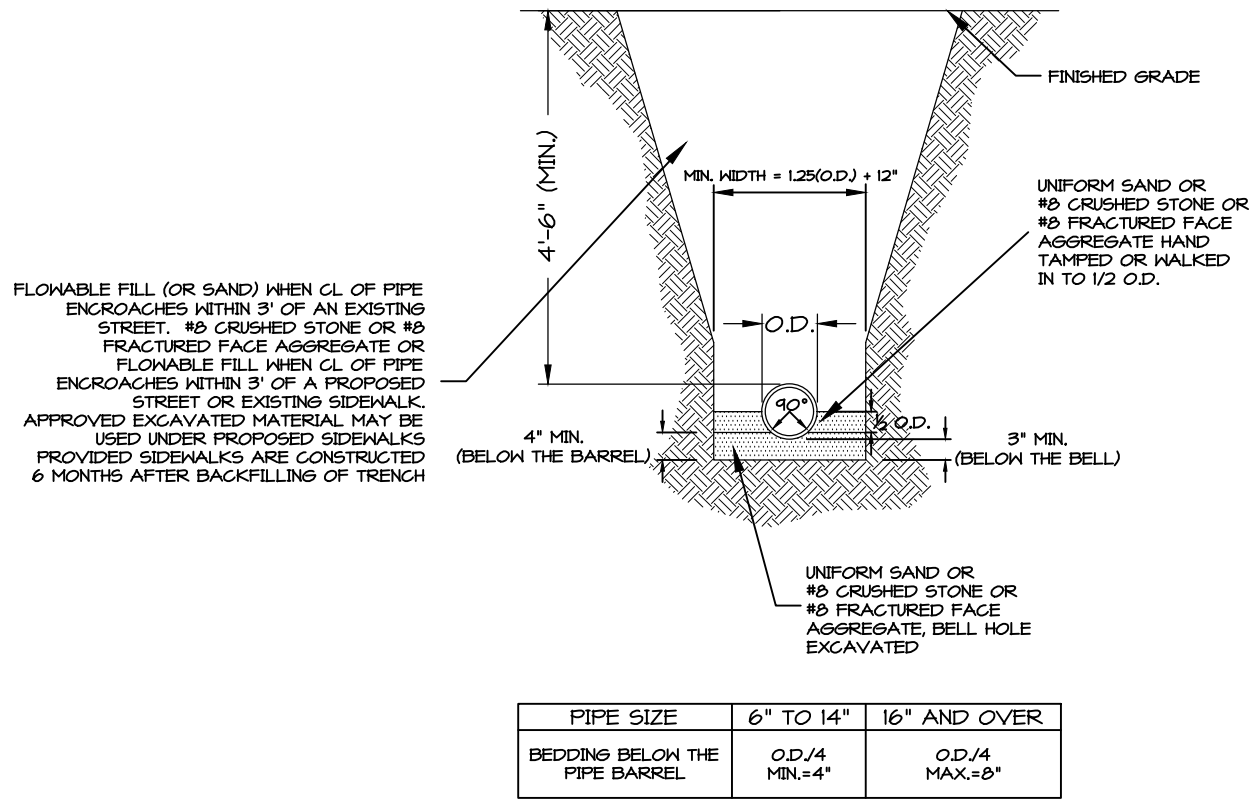


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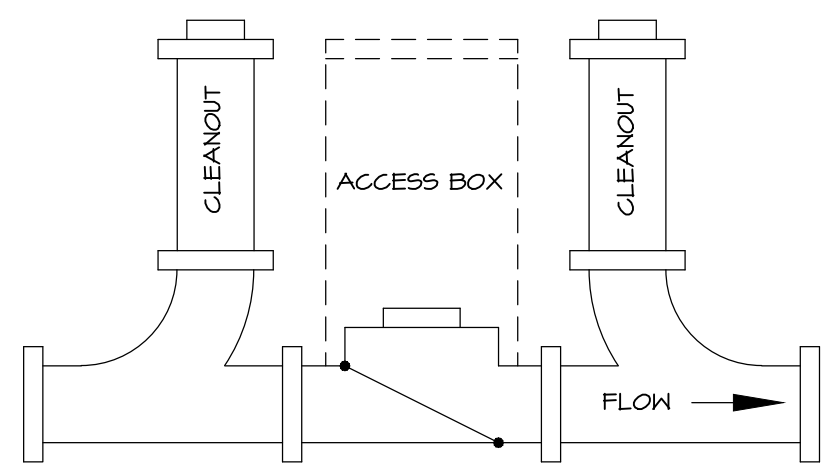
UTILITY PLAN
FOR
ENCOMPASS DETOX CENTER
PAGE, ARIZONA



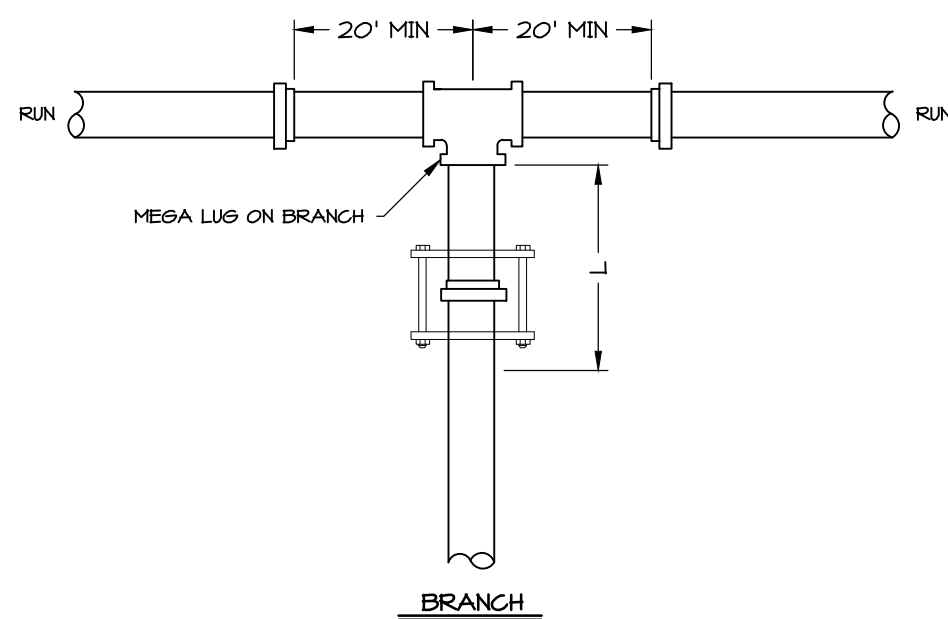
SHEET
C5.0
7 OF 8 SHEETS



A PIPE BEDDING DETAIL
SCALE: N.T.S.



B SEWER BACKWATER VALVE DETAIL
SCALE: N.T.S.



BRANCH SIZE DIAMETER	RUN SIZE DIAMETER											
	4	6	8	10	12	14	16	18	20	24		
4	*	*	*	*	*	*	*	*	*	*		
6	*	*	*	*	*	*	*	*	*	*		
8	*	*	*	*	*	*	*	*	*	*		
10			*	*	*	*	*	*	*	*		
12				*	*	*	*	*	*	*		
14					*	*	*	*	*	*		
16						*	*	*	*	*		
18							*	*	*	*		
20								*	*	*		
24									*	*		

* - FOR THIS CONDITION NEED ONLY RESTRAIN THE BRANCH OUTLET OF THE TEE.

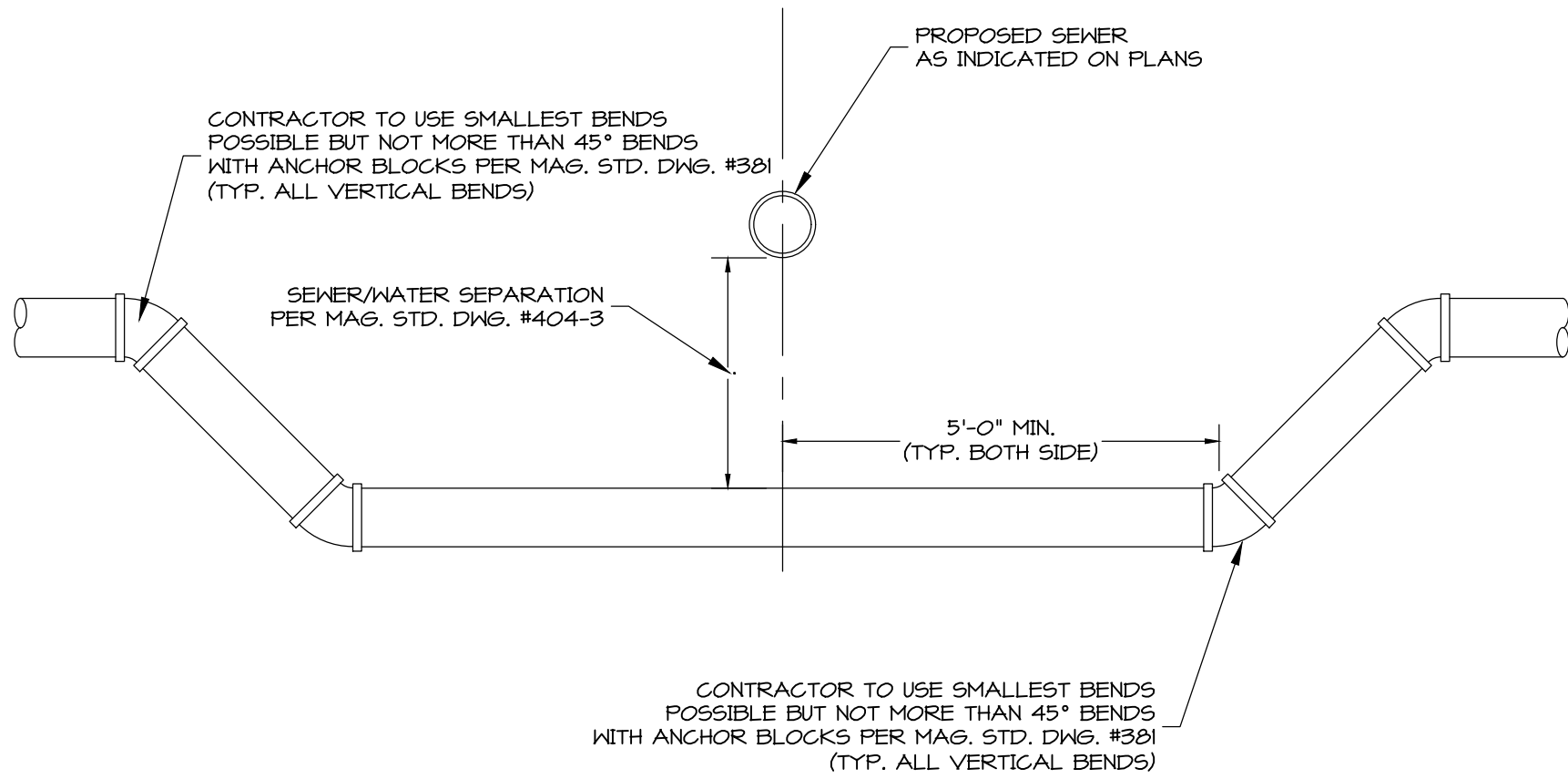
RESTRAINED LENGTHS, "L" (IN FEET).

1. RESTRAIN THE TWO MECHANICAL JOINTS ON THE RUN SIDES OF THE TEE. THERE SHOULD BE A FULL 20' LENGTH OF PIPE INSTALLED ON EACH SIDE OF THE RUN.

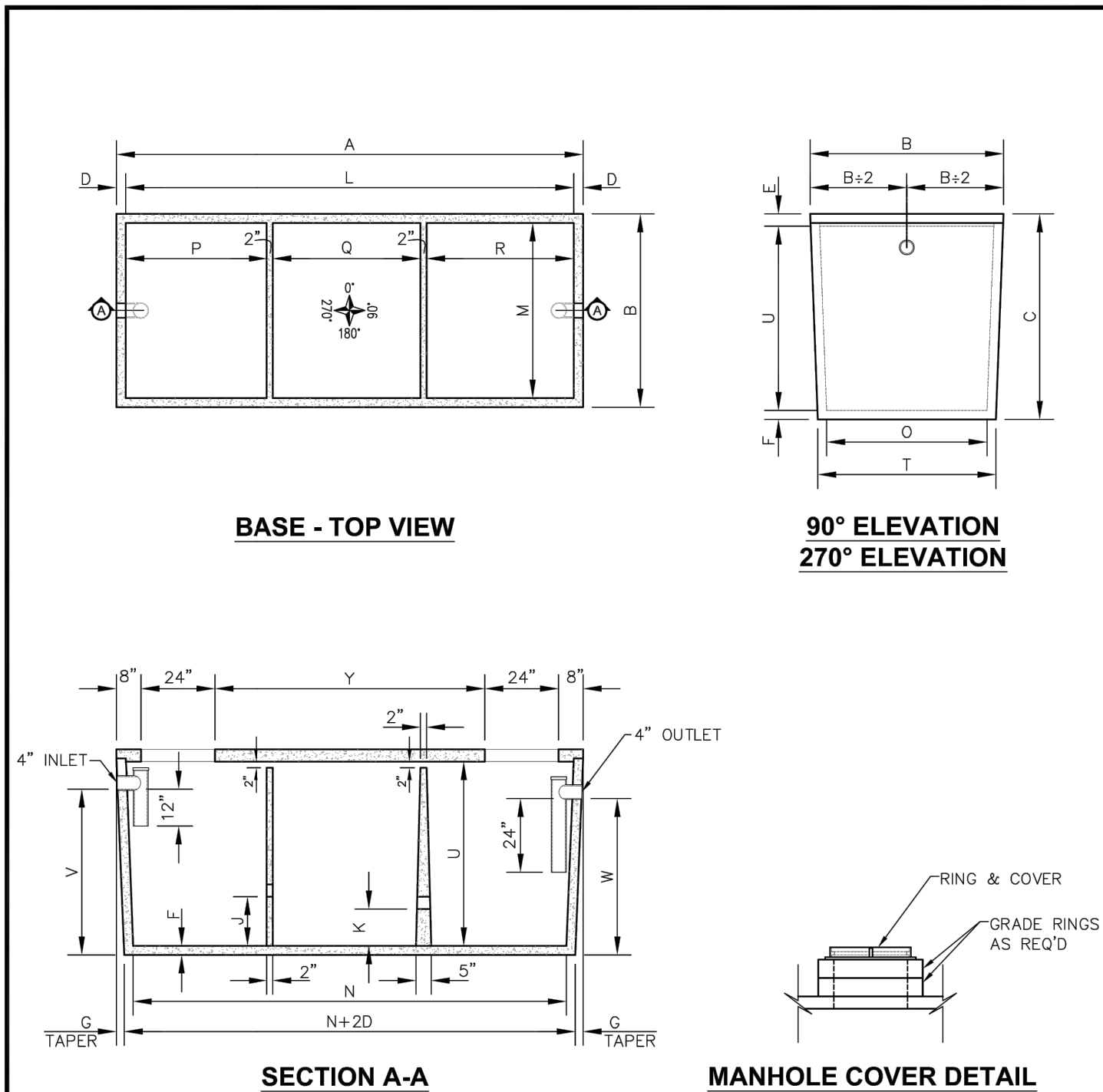
2. ALL JOINTS WITHIN THE LENGTH "L" ON THE BRANCH MUST BE RESTRAINED. USE RETAINER GLAND AT MECHANICAL JOINTS AND WARESS ON PUSH-ON PIPE PER CITY SPECIFICATION.

3. FOR TEST PRESSURES AND LAYING CONDITIONS SEE SECTION ON GENERAL NOTES FOR USE OF RESTRAINED JOINT LENGTHS.

C STANDARD TEE PVC RESTRAINING SYSTEM
SCALE: N.T.S.



D VERTICAL WATER/SEWER CROSSING
SCALE: N.T.S.



E PRECAST GREASE INTERCEPTOR
SCALE: N.T.S.

GENERAL NOTES

- NO CONTRACTOR IS ALLOWED TO OPERATE WATER VALVES IN THE EXISTING WATER SYSTEM ON ANY CITY WATER MAIN UNLESS APPROVED BY THE CITY WATER & SEWER SUPERVISOR OR THEIR DESIGNEE. MAG-SPECS. 610.4.
- THE CITY OF PAGE USES THE MAG SPECIFICATION AND DETAILS FOR PUBLIC WORKS CONSTRUCTION, KNOWN AS THE MARICOPA ASSOCIATION OF GOVERNMENTS OR MAG-SPECS. PLEASE ABIDE BY THOSE STANDARDS AND DETAILS SO THAT THERE WILL BE NO MISUNDERSTANDINGS DURING YOUR CONSTRUCTION PROJECT.
- WATER LINES IN MAJOR STREETS SHALL BE LAID ON BEDDED MATERIAL AND SHADED WITH EARTH AS PER MAG-SPECS. AT A MINIMUM DEPTH OF 4 FEET FROM FINISHED GRADE TO THE TOP OF PIPE. ANY PIPE FOUND TO BE LESS THAN THE 4' DEPTH SHALL BE REJECTED, REMOVED, THE TRENCH DEEPENED AND THE PIPE REPLACED. WATER MAINS IN OTHER LOCATIONS AND SMALLER THAN 12" SHALL HAVE A MINIMUM COVER OF 36". MAINS LARGER THAN 12" SHALL HAVE A COVER OF 48" OR AS SPECIFIED BY THE ENGINEER.
- THE CITY SHALL PERFORM HOT TAPS INTO THE CITY WATER MAIN. ALL MATERIALS SHALL BE SPECIFIED BY THE CITY AND SUPPLIED BY THE CONTRACTOR. HOT TAP TRENCH SHALL BE MADE BY THE CONTRACTOR AS SPECIFIED IN THE CONTRACTORS OBLIGATION FOR HOT TAPPING FORM.
- WATER AND SEWER FEES WILL NOT BE SPLIT-UP (WATER FEES PAID ONE DAY BY ONE CONTRACTOR AND THE SEWER FEES PAID BY ANOTHER A MONTH LATER) FOR ALL FEES ARE TO BE PAID FOR METERS, SEWER CAPACITY AND HOT-TAPS AT THE SAME TIME. HYDRANT METER FEES CAN BE PAID INDIVIDUALLY.
- ALL WATER METERS SHALL BE PROVIDED/SUPPLIED BY THE CITY OF PAGE AND CHARGED TO THE CONTRACTOR AS STATED IN THE WATER AND SEWER CONNECTION FEE SCHEDULE. ALL WATER METERS SHALL BE INSTALLED TO MAG-SPECS BY THE CONTRACTOR.
- FIRE HYDRANTS AND HARD SURFACE FIRE ACCESS AROUND BUILDING SHALL BE PROVIDED PRIOR TO COMBUSTIBLES BEING STORED OR INSTALLED ON SITE.
- UTILITIES LOCATED OUTSIDE OF RECORDED EASEMENTS ARE THE RESPONSIBILITY OF THE OWNER.
- ANY WATER VALVES, MANHOLES OR OTHER UTILITIES AFFECTED BY FILLING OR CUTTING SHALL BE ADJUSTED TO FIT FINAL GRADE. ANY WATER VALVES OR MANHOLES OUTSIDE OF PAVED AREAS SHALL BE MARKED WITH A CARSONITE MARKER AND LABELED.
- FIRE HYDRANTS SHALL BE NMB 61-250 AND PAINTED YELLOW.
- ALL SEWER LINES SHALL BE SDR 35 PVC.
- ALL WATER LINES SHALL BE C400 DR-14.
- ALL VALVES AND MANHOLES LOCATED OUTSIDE OF THE ASPHALT SHALL HAVE CASONITE MARKERS.
- THE CONTRACTOR SHALL INSTALL CONDUIT FOR ELECTRIC FROM EXISTING SECTION CAN ON HIGHWAY 89 TO SITE. CONTRACTOR SHALL CONTACT PAGE UTILITY FOR EXACT LOCATION, SIZE AND QUANTITY.
- THE CONTRACTOR SHALL PROVIDE PAGE UTILITY ENTERPRISES MATERIAL SUBMITTAL SHEETS FOR UTILITY MATERIALS FOR APPROVAL PRIOR TO INSTALLATION.

WATER NOTES

- ACCORDING TO BULLETIN NO. 10, CHAPTER 1.B, PIPE, FITTINGS, VALVES, FIRE HYDRANTS, AND OTHER APPURTENANCES SHALL CONFORM TO THE CURRENT STANDARDS OF THE AMERICAN WATER WORKS ASSOCIATION (AWWA), AMERICAN STANDARDS ASSOCIATION.
- ACCORDING TO BULLETIN NO. 10 CHAPTER 1.C.4, IN NO CASE SHALL THE DEPTH OF COVER TO THE TOP OF PIPE BE LESS THAN 3 FEET, UNLESS ADEQUATE STRUCTURAL PROTECTION IS PROVIDED AND JUSTIFIED BY THE ENGINEER. AS PER MAG SPEC 610.4(B), CONSTRUCTION METHODS, THE DEPTH OF COVER TO THE TOP OF PIPE IS TO BE 48 INCHES FOR PIPE DIAMETERS 12 INCHES AND LARGER.
- ACCORDING TO BULLETIN NO. 10 CHAPTER 1.C.2, THE WATER SYSTEM SHALL BE DESIGNED TO MAINTAIN A MINIMUM PRESSURE OF 20 PSI AT GROUND LEVEL AT ALL POINTS IN THE DISTRIBUTION SYSTEM UNDER ALL CONDITIONS OF FLOW. THE MAXIMUM ALLOWABLE WATER PRESSURE FOR THE DISTRIBUTION SYSTEM SHALL NOT EXCEED 100 PSI.
- ALL NEW, CLEANED, OR REPAIRED ELEMENTS OF A DISTRIBUTION SYSTEM SHALL BE DISINFECTED IN ACCORDANCE WITH ENGINEERING BULLETIN NO. 8, DISINFECTION OF WATER SYSTEMS.
- A PRESSURE AND LEAKAGE TEST MUST BE PERFORMED ON THE COMPLETED DISTRIBUTION SYSTEM. TEST SPECIFICATIONS ARE INCLUDED IN AWWA STANDARD C600.
- THE CONTRACTOR SHALL SUPPLY SPECIFICATIONS SHEETS TO THE WATER DEPARTMENT FOR APPROVAL OF ANY MATERIALS TO BE USED ON CITY OWNED UTILITIES.
- AS PER AAC R18-4-213.B ANY MATERIAL OR PRODUCT THAT COMES INTO CONTACT WITH WATER OR A WATER TREATMENT CHEMICAL SHALL CONFORM TO "ANSI/ASME STANDARD 61".
- AS PER AAC R 18-5-502.C, WATER AND SEWER SEPARATION DISTANCE MEETS THIS RULE IN ORDER TO PROTECT THE PUBLIC WATER SYSTEMS FROM POSSIBLE CONTAMINATION.
- ACCORDING TO BULLETIN NO. 10, CHAPTER 1.B, ALL PLASTIC PIPE AND FITTINGS MUST BEAR THE SEAL OF THE NATIONAL SANITATION FOUNDATION AND AAC R18-4-213.C, REQUIRES THAT EVIDENCE THAT A PRODUCT CONFORMS TO THE REQUIREMENTS OF THIS SECTION SHALL BE THE APPEARANCE ON THE PRODUCT OR PRODUCT PACKAGE OF A SEAL OF A CERTIFYING ENTITY THAT IS ACCREDITED BY THE AMERICAN NATIONAL STANDARDS INSTITUTE TO PROVIDE CERTIFICATION.
- BLUE "BURIED WATERLINE" TAPE SHALL BE INSTALLED APPROXIMATELY 2' ABOVE THE WATER LINES.
- TRACER WIRE SHALL BE INSTALLED ON ALL WATERLINES.

WATER MAIN PRESSURE AND LEAKAGE TESTING

- THE CITY OF PAGE UTILITIES DEPARTMENT (428) 645-4317 SHALL BE GIVEN 48 HOURS WRITTEN NOTICE OF THE REQUIRED PRESSURE AND LEAKAGE TEST TO BE PERFORMED BY THE CONTRACTOR. THE PRESSURE AND LEAKAGE TEST SHALL BE PERFORMED IN ACCORDANCE WITH THE BASIC PROVISIONS OF AWWA C600. THE TESTING PROCEDURE SHALL ASSUME A 200 PSIG WORKING PRESSURE. THE TEST PRESSURE SHALL NOT BE LESS THAN 1.25 TIME THE WORKING PRESSURE AT THE HIGHEST POINT ALONG THE TEST SECTION, BUT NOT LESS THAN 200 PSIG AT THE POINT OF TESTING. TEST PRESSURE SHALL NOT EXCEED PIPE OR THRUST-RESTRAINT DESIGN PRESSURES OR RATED PRESSURE OF THE VALVES.
- VALVES SHALL NOT BE OPERATED IN EITHER DIRECTION AT DIFFERENTIAL PRESSURES EXCEEDING THE RATED VALVE WORKING PRESSURE.
- REFER TO AWWA STANDARD C600 FOR TEST SPECIFICATIONS.
- WATERLINE TESTING SHALL BE WITNESSED BY ENGINEER AND PAGE CITY UTILITY DEPARTMENT.
- THE FORMULA FOR THE ALLOWABLE LEAKAGE IS:
 $L = 2 \times \text{DIAMETER} \times \text{NUMBER OF JOINTS} \times 50 \text{ ROOT PRESSURE} / 1400$.

TRENCHING NOTE

ALL UTILITY TRENCHING SHALL BE DONE IN ACCORDANCE TO M.A.G. STANDARD DETAIL NO. 200-2 AND M.A.G. SPECIFICATIONS 601.

APPROVED

DATE:	12/12/2023
JOB NO.:	12448-21-001
DESIGNED BY:	PMO
CHECKED BY:	MSR
DWG:	CONST DOCS
DATE:	
REVISIONS:	

ROSENBERG
A S S O C I A T E S
CIVIL ENGINEERS • LAND SURVEYORS

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UTILITY NOTES AND DETAILS
FOR
ENCOMPASS DETOX CENTER
PAGE, ARIZONA

Professional Engineer
48894
MICHAEL S. ROBINSON
12/12/23
EXP. 04/30/2024
SHEET
C5.1
8 OF 8 SHEETS

GENERAL NOTES

- NOTES AND TYPICAL DETAILS SHALL APPLY UNLESS OTHERWISE SHOWN OR NOTED ON PLANS.
- DETAILS OF CONSTRUCTION NOT FULLY SHOWN SHALL BE OF THE SAME NATURE AS SHOWN FOR THE SAME.
- CONSTRUCTION SHALL CONFORM TO ALL APPLICABLE CODES AND REGULATIONS.
- CONTRACTOR SHALL VERIFY ALL DIMENSIONS, ELEVATIONS, PROPERTY LINES ETC. ON THE JOB.
- CONTRACTOR SHALL NOTIFY THE ARCHITECT AND ENGINEER WHERE CONFLICT OCCURS ON ANY OF THE CONTRACT DRAWINGS OR DOCUMENTS. CONTRACTOR IS NOT TO ORDER MATERIAL OR CONSTRUCT ANY PORTION OF THE STRUCTURE THAT IS IN CONFLICT UNTIL CONFLICT IS RESOLVED WITH AFFECTED PARTIES.
- IF CONTRACTORS WORK IS NOT CONSTRUCTED ACCORDING TO APPROVED CONSTRUCTION DOCUMENTS (INCLUDING STAMPED DRAWINGS AND COMMUNICATIONS), CONTRACTOR SHALL BE CONSIDERED PART OF THE APPROVED CONSTRUCTION DOCUMENTS.

DESIGN CRITERIA

BUILDING CODE: 2018 INTERNATIONAL BUILDING CODE

CLASSIFICATION: RISK CATEGORY II

LIVE LOADING: RFD: 20 PSF (REDUCIBLE)

DEAD LOADING:

RFD: 15 PSF (INCLUDES 5 PSF FOR SELF WEIGHT OF TRUSSES)

SNOW LOADING (BASED ON 19 PSF FOR SELF WEIGHT LOAD MAP)

ELEVATION: 4370 FT (APPROX.)

GROUND SNOW LOAD: $P_g = 20$ PSF

EXPOSURE FACTOR: $C_e = 0.8$

SNOW IMPORTANCE FACTOR: $I_s = 1.0$

TEMPERATURE FACTOR: $C_t = 1.0$

CALCULATED SNOW LOAD: $P = 20.0$ PSF

MIN. SNOW LOAD DESIGNATED BY BUILDING OFFICIAL: 20 PSF

DESIGN SNOW LOAD: $P = 20.0$ PSF

WIND LOADING:

WIND EXPOSURE: C

WIND SPEED: 105 MPH

WIND IMPORTANCE FACTOR: $I_w = 1.0$

SEISMIC LOADING:

LOCATION: 36.806° LAT., -111.4558° LN.

SEISMIC IMPORTANCE CATEGORY: II

MAPPED SPECTRAL RESPONSE ACCELERATIONS: $S_s = 0.31g$ $S_1 = 0.097g$

SEISMIC DESIGN CATEGORY: C

SEISMIC FORCE RESISTING SYSTEM: LIGHT FRAME WALLS SHEATHED WITH WOOD STRUCTURAL PANELS RATED FOR SHEAR RESISTANCE.

OUT-OF-PLANE FORCE: $P_o = 10724$ LB

SEISMIC RESPONSE COEFFICIENT: $C_w = 0.041$

RESPONSE MODIFICATION FACTOR: $R = 0.85$

OVERSTRENGTH FACTOR: $O = 2.5$

ANALYSIS PROCEDURE: USE EQUIVALENT LATERAL FORCE METHOD

SOILS

PROBECT GEOTECHNICAL INVESTIGATION: ROSENBERG ASSOCIATES

GEOTECHNICAL REPORT (PROJECT #)

EARTHWORK

- ENGINEER SHALL VERIFY CONDITION AND/OR ADEQUACY OF ALL SUBGRADES, FILLS, AND BACK FILLS. ETC.
- SHORE AND BRACE AS REQUIRED.
- DE-WATER AS REQUIRED TO REMOVE STANDING WATER FROM EXCAVATIONS.
- FOUNDATIONS ARE SHOWN AND DIMENSIONED AS BEING FORMED. INCREASE FOOTING WIDTHS BY 2" FOR FOOTINGS PLACED IN NEAT EXCAVATIONS. CLEAN ALL DEBRIS FROM EXCAVATIONS.
- NOTIFY ENGINEER 48 HOURS IN ADVANCE OF PLACING CONCRETE. PROVIDE 12" MINIMUM FOOTING EMBEDMENT FROM FINISH GRADE FOR FROST PROTECTION AT EXTERIOR FOOTINGS.
- PROVIDE 12" OF STRUCTURAL FILL BENEATH ALL FOOTINGS.
- EXTEND STRUCTURAL FILL LATERALLY A DISTANCE EQUAL TO 1/2 THE STRUCTURAL FILL DEPTH BEYOND EDGE OF FOOTING ON EACH SIDE.
- COMPACT STRUCTURAL FILL BENEATH FOOTINGS TO 95% OF MAXIMUM DRY DENSITY DETERMINED BY ASTM D1557.
- PLACE AND COMPACT FILL W/ MAXIMUM 8" LIFTS

SAFETY

- IT IS THE CONTRACTOR'S RESPONSIBILITY TO COMPLY WITH ALL STATE OF UTAH SAFETY STANDARDS AND OSHA REQUIREMENTS AS THEY APPLY TO THE PROJECT.
- ENGINEER DOES NOT ACCEPT ANY RESPONSIBILITY FOR CONTRACTORS FAILURE TO COMPLY WITH THESE REQUIREMENTS.
- CONTRACTOR SHALL BE RESPONSIBLE FOR DESIGN AND CONSTRUCTION OF ALL FORMS AND SHORING REQUIRED.

STATEMENT OF SPECIAL INSPECTIONS

- STRUCTURAL STEEL (1705.2.1, AISC 360)
- COLD-FORMED STEEL DECK (1705.2.2, AISI 900A/C)
- OPEN-WEB STEEL JOISTS AND JOIST GIRDERS (TABLE 1705.2.3)
- COLD-FORMED STEEL TRUSSES SPANNING 60 FEET OR GREATER (1705.2.4)
- CONCRETE CONSTRUCTION (TABLE 1705.3)
- WELDING OF REINFORCING BARS (AWS D1.4)
- MASONRY CONSTRUCTION (TMS 402/ACI 530/ASCE 5 AND TMS 602/ACI 530.1/ASCE 6) (PROTECTED)
- EMPIRICALLY DESIGNED MASONRY, GLASS UNIT MASONRY AND MASONRY VENEER IN RISK CATEGORY IV (TMS 401/ACI 530/ASCE 5, LEVEL B QUALITY ASSURANCE)
- VERTICAL MASONRY FOUNDATION ELEMENTS (TMS401/ACI 530/ASCE 5 AND TMS 602/ACI 530/ASCE 6)
- HIGH-LOAD DIAPHRAGMS (1705.5.1)
- METAL-PLATE CONNECTED WOOD TRUSSES (1705.5.2)
- SOILS (TABLE 1705.6)
- DRIVEN DEEP FOUNDATIONS (TABLE 1705.7)
- CAST-IN-PLACE DEEP FOUNDATIONS (TABLE 1705.8)
- HELICAL PILE FOUNDATIONS (1705.9)
- SPECIAL INSPECTIONS FOR WIND RESISTANCE (1705.11)
- STRUCTURAL WOOD (1705.11.1)
- COLD-FORMED STEEL LIGHT-FRAME CONSTRUCTION (1705.11.2)
- WIND-RESISTING COMPONENTS (1705.11.3)
- STRUCTURAL STEEL (1705.12.1)
- SEISMIC FORCE-RESISTING SYSTEMS (1705.12.1.1)
- STRUCTURAL STEEL ELEMENTS BETWEEN REINFORCED DRIFWAY AND UNREINFORCED SIDEWALKS
- COLD-FORMED STEEL LIGHT-FRAME CONSTRUCTION (1705.12.3)
- DESIGNATED SEISMIC SYSTEMS (1705.12.4)
- ARCHITECTURAL COMPONENTS (1705.12.5)
- PLUMBING, MECHANICAL AND ELECTRICAL COMPONENTS (1705.12.6)
- STORAGE RACKS (1705.12.7)
- SEISMIC ISOLATION SYSTEMS (1705.12.8)
- COLD-FORMED STEEL SPECIAL BOLTED MOMENT FRAMES (1705.12.9)
- TESTING FOR SEISMIC RESISTANCE (1705.13)
- SPRAYED FIRE-RESISTANT MATERIALS (1705.14)
- MASTIC AND INTUMESCENT FIRE-RESISTANT COATINGS (1705.15)
- EXTERIOR INSULATION AND FINISH SYSTEMS (EIFS) (1705.16)
- FIRE-RESISTANT PENETRATIONS AND JOINTS (1705.17)
- TESTING FOR SMOKE CONTROL (1705.18)
- OTHER INSPECTIONS AS REQUIRED BY THE DESIGN PROFESSIONAL OR THE BUILDING OFFICIAL (1705.1).

GENERAL CONTRACTOR NOTES

- KING STUDS AT ALL OVERHEAD DOORS MAY BE 2x8 DF#2, OR 3x8 DF#1 AND BETTER OR 2x8 LSL 1.55E.

CONCRETE

- GENERAL
 - DO NOT PLACE PIPES OR DUCTS IN CONCRETE SLABS OR WALLS UNLESS SPECIFICALLY DETAILED.
 - REFER TO ARCHITECTURAL, STRUCTURAL, CIVIL, ELECTRICAL AND MECHANICAL DRAWINGS FOR ALL HOLES, GROOVES, ORNAMENTS, CLIPS AND GROUNDS TO BE CAST IN CONCRETE.
 - CONTRACTOR SHALL NOTIFY ALL AFFECTED TRADES PRIOR TO PLACING CONCRETE.
- DIMENSIONS SHOWN FOR LOCATION OF REINFORCING ARE TO FACE OF MAIN BARS AND DENOTE CLEAR COVERAGE.
- CONCRETE MIX DESIGN: PREPARED BY INDEPENDENT LABORATORY AND APPROVED BY ENGINEER.
- REINAINING WALLS
 - PROVIDE 3/4" CHAMFER OR 3/4" RADIUS ON EXPOSED WALL CORNERS.
 - CONSTRUCT CONSTRUCTION JOINTS ROUGH, OR ROUGHEN JOINTS BY CHIPPING ENTIRE SURFACE, SANDBLASTING, OR HOISING SURFACE 4 TO 6 HOURS AFTER PLACEMENT WITH FINE SPAT. REMOVE ALL LANTANCE FROM SURFACE.

CONCRETE REINFORCEMENT LAP SPLICES

$f_c = 3,000$ PSI										
REINFORCEMENT SIZE										
LOCATION	#3	#4	#5	#6	#7	#8	#9	#10	#11	
TOP	28	37	47	56	81	93	105	119	131	
OTHER	23	29	37	43	63	72	81	91	102	

$f_c = 4,000$ PSI										
REINFORCEMENT SIZE										
LOCATION	#3	#4	#5	#6	#7	#8	#9	#10	#11	
TOP	24	32	40	48	70	80	91	102	113	
OTHER	20	25	31	38	55	62	70	79	87	

$f_c = 4,500$ PSI										
REINFORCEMENT SIZE										
LOCATION	#3	#4	#5	#6	#7	#8	#9	#10	#11	
TOP	23	30	38	45	66	76	85	96	107	
OTHER	18	23	30	35	52	59	66	74	83	

- TENSION DEVELOPMENT LENGTHS AND TENSION LAP SPlice LENGTHS ARE BASED ON 40, 31.8 AND 12.5 PERCENTS DEVELOPMENT LENGTHS. TABULATED VALUES FOR BEAMS OR COLUMNS ARE BASED ON TRANSVERSE REINFORCEMENT AND CONCRETE COVER MEETING MINIMUM CODE REQUIREMENTS.
- LAP SPlice LENGTHS SHOWN ARE FOR CLASS B AND CASE 1. TOP REINFORCEMENT IN HORIZONTAL REINFORCEMENT THAT HAS MORE THAN TWELVE INCHES OF FRESH CONCRETE CAST BELOW IT. THIS INCLUDES HORIZONTAL REINFORCEMENT IN WALLS. ALL VERTICAL BARS ARE CONSIDERED AS "OTHER".
- FOR LIGHTWEIGHT CONCRETE AGGREGATE CONCRETE, MULTIPLY TABULATED VALUES BY 1.3.
- FOR EPOXY-COATED BARS, MULTIPLY TABULATED VALUES BY:
- A. TOP BARS: 1.31
- B. OTHER BARS: 1.5
- FOR BARS WITH COVER OF LESS THAN 1" BAR DIAMETER OR WITH CLEAR SPACING OF LESS THAN 2 BAR DIAMETERS, MULTIPLY TABULATED VALUES BY 2.0.

CONCRETE REINFORCING

- PROVIDE LAP SPlice UNO. SEE TABLE "CONCRETE REINFORCEMENT LAP SPLICES".
- LAP SPlice WELDING WIRE FORTH TWO SQUARES MIN. EACH DIRECTION. SECURELY POSITION REINFORCING DOWELS, BOLTS, ANCHORS, SLEEVES, ETC. TO BE EMBEDDED IN CONCRETE BEFORE PLACING CONCRETE (WET SETTING IS PROHIBITED).
- DRILL THROUGH STEEL COLUMNS AND BEAMS TO PASS CONTINUOUS REINFORCING (1" DIA. MAX).

CONCRETE FORM REMOVAL AND LOADING

- FORM REMOVAL:
 - A. WALLS: 12 HOURS
 - B. COLUMNS: 12 HOURS
 - C. SIDES OF BEAMS AND GIRDERS: 12 HOURS
 - D. JOIST, BEAM, OR GIRDER SOFFITS:
 - a. UNDER 10 FEET CLEAR SPAN BETWEEN SUPPORTS: 7 DAYS
 - b. 10 TO 20 FEET CLEAR SPAN BETWEEN SUPPORTS: 14 DAYS
 - c. OVER 20 FEET CLEAR SPAN BETWEEN SUPPORTS: 21 DAYS
 - E. ONE-WAY FLOOR SLABS:
 - a. UNDER 10 FEET CLEAR SPAN BETWEEN SUPPORTS: 7 DAYS
 - b. 10 TO 20 FEET CLEAR SPAN BETWEEN SUPPORTS: 14 DAYS
 - c. OVER 20 FEET CLEAR SPAN BETWEEN SUPPORTS: 21 DAYS
 - F. TWO-WAY SLAB SYSTEMS, AS INDICATED BY ENGINEER
 - G. POST-TENSIONED SLAB SYSTEM, AS INDICATED BY ENGINEER
- BACKFILLING:
 - A. CONCRETE ELEMENTS MAY BE BACKFILLED IMMEDIATELY AFTER FORM REMOVAL PROVIDED THAT THE FOLLOWING CONDITIONS ARE MET:
 - a. BACKFILL OCCURS SMALL, CONTINUOUSLY AND EVENLY ON BOTH SIDES OF ELEMENT.
 - b. DO NOT BACKFILL ON ONE SIDE HIGHER THAN OTHER SIDE.
 - B. DO NOT APPLY EARTH LOADS, WATER LOADS, OR LIVE LOADS TO STRUCTURAL CONCRETE UNTIL CONCRETE REACHES DESIGN COMPRESSIVE STRENGTH.
 - C. IF CONTRACTOR DESIRES TO LOAD STRUCTURAL CONCRETE ELEMENTS PRIOR TO 28 DAYS AFTER PLACEMENT:
 - a. CONTRACTOR SHALL PAY FOR ADDITIONAL CONCRETE CYLINDERS TO BE BROKEN AT SCHEDULE DETERMINED BY CONTRACTOR.
 - b. STRENGTH LEVEL IS ACCEPTABLE IF THE FOLLOWING ARE SATISFIED:
 - a. AVERAGE OF THREE CONSECUTIVE STRENGTH TESTS EQUALS OR EXCEEDS f_c .
 - b. NO STRENGTH TEST FALLS BELOW f_c BY MORE THAN 500 PSI.

CONCRETE SLAB-ON-GRADE JOINTS

- PROVIDE CONTROL JOINTS IN ALL REINFORCED AND UNREINFORCED SLABS-ON-GRADE ACCORDING TO TYPICAL CONCRETE JOINTS DETAIL.
- WHERE TWO REINFORCED SLABS ADJUT, OR WHERE ONE REINFORCED SLAB IS DIVIDED INTO MULTIPLE PLACEMENTS, PROVIDE PLATE DOWELS AT COLD JOINT PER TYPICAL CONCRETE JOINTS DETAIL.
- PROVIDE EXPANSION JOINTS BETWEEN REINFORCED DRIFWAY AND UNREINFORCED SIDEWALKS.
- PROVIDE EXPANSION JOINTS EVERY 25' IN UNREINFORCED SLABS (E.G. SIDEWALKS).
- PROVIDE EXPANSION JOINTS AT BUILDING CORNERS IN BOTH DIRECTIONS IN SLABS TOUCHING BUILDING.
- TOOL CONTROL JOINTS INTO HARDENED CONCRETE OR SAW CUT CONTROL JOINTS INTO HARDENED CONCRETE.
- SAW-CUT JOINTS AS SOON AS POSSIBLE AFTER PLACEMENT, BEFORE SHRINKAGE CRACKS CAN DEVELOP.
- CONTROL JOINT MINIMUM DEPTH: 1/4 OF SLAB THICKNESS.
- CONTROL JOINT LAYOUT:
 - A. PLACE CONTROL JOINTS TO PRODUCE PANELS THAT ARE AS SQUARE AS POSSIBLE AND NOT EXCEEDING A LENGTH-TO-WIDTH RATIO OF 1.5 TO 1.
 - B. PLACE CONTROL JOINTS AT ALL ABRUPT CHANGES IN GEOMETRY.
 - C. AVOID WEDGE-SHAPED PANELS WITH INTERIOR ANGLES LESS THAN 45 DEGREES.
 - D. AVOID T/Y SHAPED JOINTS.
 - E. AVOID L/S SHAPED PANELS.
 - F. IF CONTROL JOINT LAYOUT VIOLATES THESE REQUIREMENTS, EVEN IF NO CRACKING IS VISIBLE, OWNER MAY REJECT WORK.

MAXIMUM CONTROL JOINT SPACING		
SLAB THICKNESS, IN.	MAXIMUM JOINT SPACING, FT.	
	UNREINFORCED	REINFORCED
4	8	10
5	10	12
6	12	15
8	16	20

DEFERRED SUBMITTAL ITEMS

- DEFERRED SUBMITTAL ITEMS:
 - A. SHORT-FABRICATED WOOD TRUSSES
 - B. ALUMINUM STOREFRONTS
 - C. ENGINE-DESIGNED BUILDING
 - D. CONCRETE FOUNDATION
 - E. COLD-FORMED STEEL FRAMING
 - F. METAL STAIRS
 - G. METAL GATE
- PROVIDE CONSTRUCTION DETAILS AND ERECTION DRAWINGS PRIOR TO CONSTRUCTION.
- PROVIDE DRAWINGS AND CALCULATIONS PREPARED AND STAMPED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF UTAH FOR ALL DEFERRED SUBMITTAL ITEMS.
- SUBMIT ALL DEFERRED SUBMITTAL ITEMS TO ENGINEER AND BUILDING OFFICIAL.
- CONTRACTOR SHALL OBTAIN APPROVAL FROM ENGINEER AND BUILDING OFFICIAL PRIOR TO OBTAIN APPROVAL.
- RECOMMENDATIONS UNO:
 - A. FOLLOW MANUFACTURER'S SPECIFICATIONS FOR HOLES AND NOTCHES IN ENGINEERED LUMBER AND I-JOISTS.
 - B. FOLLOW MANUFACTURER'S SPECIFICATIONS FOR HOLES AND NOTCHES IN ENGINEERED LUMBER AND I-JOISTS.
 - C. GLUED LAMINATED MEMBERS: COMBINATION 24F-V4 FOR SIMPLE SPANS AND COMBINATION 24F-V4 FOR CANTILEVERS AND CONTINUOUS CONDITIONS. PROVIDE 1800 FT RADIUS CAMBER FOR ALL BEAMS. UNO. (SUBMIT SHOP DRAWINGS BEFORE FABRICATION OF GLU-LAM MEMBERS).
 - D. LAMINATED VENEER LUMBER: MICRO-LAM LVL 2.0E

FRAMING

- REFER TO ALL NOTES, DETAILS & SCHEDULES.
- REFER TO ARCHITECTURAL DRAWINGS FOR INFORMATION NOT SHOWN.
- REFER TO WOOD WALL SCHEDULE FOR SILL BOLT SIZE & SPACING AT SHEAR WALLS.
- DIMENSIONS FOR SHEAR WALLS ARE TO EDGE OF SHEAR WALL, NOT TO FACE OF HOLDDOWN.
- INSTALL ALL HANGERS, CLIPS, ANCHORS, AND OTHER HARDWARE PER MANUFACTURER'S RECOMMENDATIONS.
- COORDINATE MECHANICAL UNIT WEIGHTS AND LOCATIONS WITH JOIST MANUFACTURER.
- PROVIDE BRIDGING AS REQ'D TO PREVENT CHORD BUCKLING.
- PROVIDE TRUSS BLOCKING AT ALL BEARING WALLS WHERE TRUSS HEAD HEIGHT PROHIBITS BRIDGING.
- DESIGN TRUSS BLOCKING TO RESIST A LATERAL LOAD (WIND OR SEISMIC) OF 250 PLF.
- PROVIDE ATTIC VENTILATION AT TRUSS HEEL TO WALL CONNECTIONS BY OMITTING BLOCKING EVERY FOURTH TRUSS WALL. MAINTAIN A MINIMUM OF 3 CONSECUTIVE BAYS W/ BLOCKING.

FASTENER REQUIREMENTS

- SIMPSON HARDWARE: USE ONLY PNEUMATIC FASTENERS APPROVED BY SIMPSON.
- INSTALL PNEUMATIC FASTENERS INTO PLYWOOD SHEATHING WITHIN THE 10% TOLERANCE LIMIT FOR HAND DRIVEN NAILS PER ASTM F1667-05 FOR HEAD DIAMETER.
- NAIL HEADS: FULL ROUND HEAD.
- INSTALL SILL BOLTS WITH MINIMUM 1" EMBEDMENT IN SILL PLATE.
- INSTALL PLATE WASHERS FOR SILL BOLTS SUCH THAT EDGE OF JOIST WASHING WITHIN 1/4" OF JOIST.
- LAY ALL STRUCTURAL PLYWOOD ON ROOF WITH FACE GRAIN PERPENDICULAR TO SUPPORTS.
- BLOCK STRUCTURAL PLYWOOD JOINTS WITH 3X4 FLAT BLOCKING WHERE NOTED ON FRAMING PLANS AND WITH BLOCKING SAME SIZE AS STUDS AT WALLS.
- CONSTRUCTION ADHESIVE: ASTM D3498 OR AFG-01.
- CROSS BRIDGING BETWEEN JOISTS OR RAFTERS: SEE FRAMING PLANS AND TYPICAL DETAILS.
- PROVIDE SINGLE JOIST UNDER PARTITION WALLS LONGER THAN 5 FT THAT RUN PARALLEL TO JOISTS.
- PROVIDE BLOCKING AT ALL CEILING LEVELS.
- WHERE FRAMING HANGERS ARE REQUIRED AND ARE NOT SHOWN ON SECTIONS, DETAILS, OR PLANS, USE THE FOLLOWING SIMPSON HANGERS: SLOPE, SKEW, TURN IN FLANGES AND PROVIDE TOP FLANGE HANGERS AS REQUIRED.

FASTENING SCHEDULE

CONNECTION	FASTENING	LOCATION
JOIST TO JOIST OR GIRDER	(2) 8d COMMON (3-10" @ 12" O.C.) (3) 3" x 10" NAILS (3) 3" x 14 GAGE STAPLES	TENONAIL
BROGING TO JOIST	(2) 8d COMMON (3-10" @ 12" O.C.) (3) 3" x 10" NAILS (3) 3" x 14 GAGE STAPLES	TENONAIL EACH END
2" SUBFLOOR TO JOIST OR GIRDER	(2) 16d COMMON (3-10" @ 12" O.C.) (3) 3" x 10" NAILS (3) 3" x 14 GAGE STAPLES	BLIND AND FACE NAIL
SLAB PLATE TO JOIST OR BLOCKING	(2) 16d COMMON (3-10" @ 12" O.C.) (3) 3" x 10" NAILS (3) 3" x 14 GAGE STAPLES	TYPICAL FACE NAIL
TOP PLATE TO STUD	(2) 16d COMMON (3-10" @ 12" O.C.) (3) 3" x 10" NAILS (3) 3" x 14 GAGE STAPLES	TYPICAL FACE NAIL
STUD TO SILL PLATE	(4) 8d COMMON (3-10" @ 12" O.C.) (3) 3" x 10" NAILS (3) 3" x 14 GAGE STAPLES	TENONAIL
EDGE TO SILL PLATE	(4) 8d COMMON (3-10" @ 12" O.C.) (3) 3" x 10" NAILS (3) 3" x 14 GAGE STAPLES	END NAIL
DOUBLE STUDS	(16) 8d COMMON (3-10" @ 12" O.C.) @ 24" O.C. (3) 3" x 10" NAILS (3) 3" x 14 GAGE STAPLES	FACE NAIL
DOUBLE TOP PLATES	(16) 8d COMMON (3-10" @ 12" O.C.) (3) 3" x 10" NAILS (3) 3" x 14 GAGE STAPLES	TYPICAL FACE NAIL
DOUBLE JOISTS	(16) 8d COMMON (3-10" @ 12" O.C.) (3) 3" x 10" NAILS (3) 3" x 14 GAGE STAPLES	LAP SPlice
BLOCKING BETWEEN JOISTS OR RAFTERS TO TOP PLATE	(16) 8d COMMON (3-10" @ 12" O.C.) (3) 3" x 10" NAILS (3) 3" x 14 GAGE STAPLES	TENONAIL
RIM JOIST TO TOP PLATE	(16) 8d COMMON (3-10" @ 12" O.C.) (3) 3" x 10" NAILS (3) 3" x 14 GAGE STAPLES	TENONAIL
TOP PLATE/RAILS AND INTERSECTIONS	(16) 8d COMMON (3-10" @ 12" O.C.) (3) 3" x 10" NAILS (3) 3" x 14 GAGE STAPLES	FACE NAIL
CONTINUOUS HEADER, TWO PREGES	(16) 8d COMMON (3-10" @ 12" O.C.) (3) 3" x 10" NAILS (3) 3" x 14 GAGE STAPLES	1/4" O.C. ALONG EDGE
CEILING JOIST TO PLATE	(16) 8d COMMON (3-10" @ 12" O.C.) (3) 3" x 10" NAILS (3) 3" x 14 GAGE STAPLES	TENONAIL
CONTINUOUS HEADER TO STUD	(16) 8d COMMON (3-10" @ 12" O.C.) (3) 3" x 10" NAILS (3) 3" x 14 GAGE STAPLES	24" O.C. 1/4" O.C. 1/4" O.C.
BULK-UP CORNER STUDS	(16) 8d COMMON (3-10" @ 12" O.C.) (3) 3" x 10" NAILS (3) 3" x 14 GAGE STAPLES	24" O.C. 1/4" O.C. 1/4" O.C.
BULK-UP GIRDER AND BEAMS	(20) 8d COMMON (3-10" @ 12" O.C.) (3) 3" x 10" NAILS (3) 3" x 14 GAGE STAPLES	FACE NAIL @ TOP & BOTTOM FLANGES ON OPPOSITE SIDES
COLLAR TIE TO RAFTER	(20) 8d COMMON (3-10" @ 12" O.C.) (3) 3" x 10" NAILS (3) 3" x 14 GAGE STAPLES	FACE NAIL @ ENDS & AT EACH BRACE
JACK RAFTER TO HIP	(16) 8d COMMON (3-10" @ 12" O.C.) (3) 3" x 10" NAILS (3) 3" x 14 GAGE STAPLES	TENONAIL
ROOF RAFTER TO 2x6 RIDGE BEAM	(16) 8d COMMON (3-10" @ 12" O.C.) (3) 3" x 10" NAILS (3) 3" x 14 GAGE STAPLES	FACE NAIL
JOIST TO BAND JOIST	(16) 8d COMMON (3-10" @ 12" O.C.) (3) 3" x 10" NAILS (3) 3" x 14 GAGE STAPLES	FACE NAIL
LEADER STRIP	(16) 8d COMMON (3-10" @ 12" O.C.) (3) 3" x 10" NAILS (3) 3" x 14 GAGE STAPLES	FACE NAIL @ EACH JOIST
WOOD STRUCTURAL PANELS AND ANCHORS (UNDER ROOF AND WALL SHEATHING TO FRAMING)	12" & LESS: 2-3/8" x 0.113" nail 2-3/8" x 0.113" nail 160P TO 3/4": 8d or 6d 2-3/8" x 0.113" nail 7" 160P 10d or 8d 7/8" TO 1-1/4": 10d or 8d	
SINGLE FLOOR COMBINATION STUDS (UNDER FLOOR TO FRAMING)	3/4" & LESS: 6d 7/8" TO 1": 8d 1-1/8" TO 1-1/4": 10d or 8d	

SHEAR WALLS

- REFER TO ROOF FRAMING PLAN FOR LOCATION AND LENGTHS OF ALL SHEAR WALLS.
- REFER TO WOOD WALL SCHEDULE FOR SHEATHING SIZE, NAIL SIZE AND SPACING. SILL BOLT SIZE AND SPACING, HOLDINGS, ETC.
- HOLDINGS SHALL BE PROVIDED AT EACH END OF EACH SHEAR WALL SEGMENT SHOWN ON THE ROOF FRAMING PLAN.
- PROVIDE 2x BLOCKING AT ALL HORIZONTAL PANEL JOINTS WHEN REQUIRED IN WOOD WALL SCHEDULE.
- PROVIDE EDGE NAILING AND BLOCKING AT ALL OPENINGS.
- UPSET THREADS ON SILL BOLTS ARE NOT ALLOWED.
- HOLES IN SILL PLATES SHALL BE 1/16" MAXIMUM LARGER THAN BOLT DIAMETER.

WOOD

- STRUCTURAL WOOD SPECIFICATIONS:
 - A. DOUGLAS FIR: COAST REGION WEST COAST LUMBER INSPECTION BUREAU GRADING RULES #16
 - B. REDWOOD: CALIFORNIA REDWOOD ASSOC. GRADING RULES, 1987 EDITION.
 - C. GLUED LAMINATED BEAMS: STANDARD SPECIFICATION FOR STRUCTURAL GLUE LAMINATED TIMBER, ATC 117-01
 - D. SHEATHING: U.S. PRODUCT STANDARD PS 1-83 FOR SOFT PLYWOOD
- MINIMUM GRADES:
 - A. WALL STUDS: DF#2
 - B. TRIMMERS: DF#2
 - C. SOLID-SAWN BEAMS: DF#2
 - D. SOLID-SAWN JOISTS: DF#2
 - E. MINIMUM GRADES: FREE OF HEART CENTER
 - F. WALL SHEATHING: 7/16" APA RATED SHEATHING, EXPOSURE 1.
 - G. ROOF SHEATHING: 5/8" APA RATED SHEATHING, EXPOSURE 1.
 - H. CONSTRUCT WALLS WITH DOUBLE TOP PLATES, LAPPED AT WALL AND PARTITION INTERSECTION WITH 3-1/4" NAILS. UPPER AND LOWER PLATES AS SHOWN IN TYPICAL DETAIL.
 - I. PROVIDE SOLID BLOCKING BETWEEN JOISTS OR RAFTERS AT ALL PORTS.
 - J. CUTTING OF WOOD JOISTS SHALL BE LIMITED TO CUTS AND BORED HOLES NOT DEEPER THAN ONE-FIFTH THE JOIST DEPTH FROM THE TOP, AND NOTICED FARTHER FROM THE END THAN THREE TIMES THE JOIST DEPTH. SEE TYPICAL DETAIL.
 - K. WHEN TOP PLATES ARE NOTCHED, SEE TYPICAL DETAIL.
 - L. BORE HOLES FOR BOLTS IN WOOD WITH BIT OF SAME NOMINAL DIAMETER SHALL BE 1/16" LARGER.
 - M. BORE HOLES FOR LAG SCREWS FIRST TO SAME NOMINAL DIAMETER AND DEPTH AS SHANK. BORE REMAINDER OF HOLE NO LARGER THAN RACE OF THREAD.
 - N. SCREW, DO NOT DRIVE. LAG SCREWS AND WOOD SCREWS INTO PLATE. PROVIDE METAL WASHERS UNDER HEADS OR END NUTS WHICH BEAR ON WOOD. APPLIES ALSO TO INSERTED EXPANDING FASTENERS - RED HEAD, ETC.

BOLT DIAM.	ML WASHER	STEEL WASHER
1/2" DIA.	2" x 2" x 1/4"	2-1/2" x 2-1/2" x 1/4"
5/8" DIA.	2-3/4" x 2-3/4" x 1/4"	2-3/4" x 2-3/4" x 1/4"
3/4" DIA.	3" x 3" x 1/4"	3" x 3" x 1/4"
7/8" DIA.	3-1/2" x 3-1/2" x 1/4"	3-1/2" x 3-1/2" x 1/4"
1" DIA.	4" x 4" x 1/4"	4" x 4" x 1/4"
1-1/4" DIA.	5" x 5" x 1/4"	5" x 5" x 1/4"

- ALL BOLT AND LAG SCREWS SHALL TIGHTENED AT TIME OF INSTALLATION AND RE-TIGHTENED BEFORE CLOSING IN OR AT COMPLETION OF JOB.
- INSTALL SILL BOLTS WITH

STRUCTURAL PLAN LEGEND

- JOIST OR TRUSS
BEAM OR GIRDER
PURLIN
STEEL COLUMN
- MASONRY COLUMN
CONCRETE COLUMN
CONCRETE FOOTING
RECESSED FOUNDATION WALL
NON-BEARING STRUCTURAL WALL
BEARING WALL
BEAM IN WALL
STEEL STRAP
STEEL DECK
OWS JOIST CROSS BRIDGING
STEEL JOIST CROSS BRIDGING
SHEARWALL, TYPE AND LENGTH, SEE
SHEARWALL SCHEDULE
STRUCTURAL CONNECTOR, SEE
CONNECTOR SCHEDULE
HOLDOWN, SEE HOLDOWN SCHEDULE. "H" INDICATES LOCATION OF HOLDOWN IDENTIFIED ON LEVEL ABOVE
SNOW DRIFT AREA AND LOAD, ON TOP OF
BASE SNOW LOAD, DRIFT LOAD IS 0
PSF AT DOTTED LINE AND INCREASES
LINEARLY TO MAXIMUM LOAD.
SHEATHING
PERMANENT EQUIPMENT

FOUNDATION NOTES

1. REFER TO TECHNICAL NOTES, DETAILS & SCHEDULES.
2. SEE CIVIL & ARCH PLANS FOR EXTERIOR CONCRETE WORK AND SITE GRADING.
3. SEE ARCHITECTURAL DRAWINGS FOR SLAB SLOPES, DEPRESSIONS, DIMENSIONS AND ELEVATIONS.
4. WHERE SLAB DEPRESSION IS INDICATED FOR TILE OR SIMILAR FLOORING, RECESS FLOOR 2".
5. SEE STRUCTURAL FILL BENEATH FOOTINGS & BUILDING SLABS FOR TYPICAL DETAIL "STRUCTURAL FILL PLACEMENT" AND PER EARTHWORK NOTES.
6. PROVIDE TEMPORARY SHORING UNTIL MAIN FLOOR FRAMING IS COMPLETE FOR ANY WALL OVER 8' TALL THAT RETAINS SOIL TO RESIST INDUCED LATERAL LOADS.

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FOUNDATION PLAN	

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ROOF FRAMING PLAN

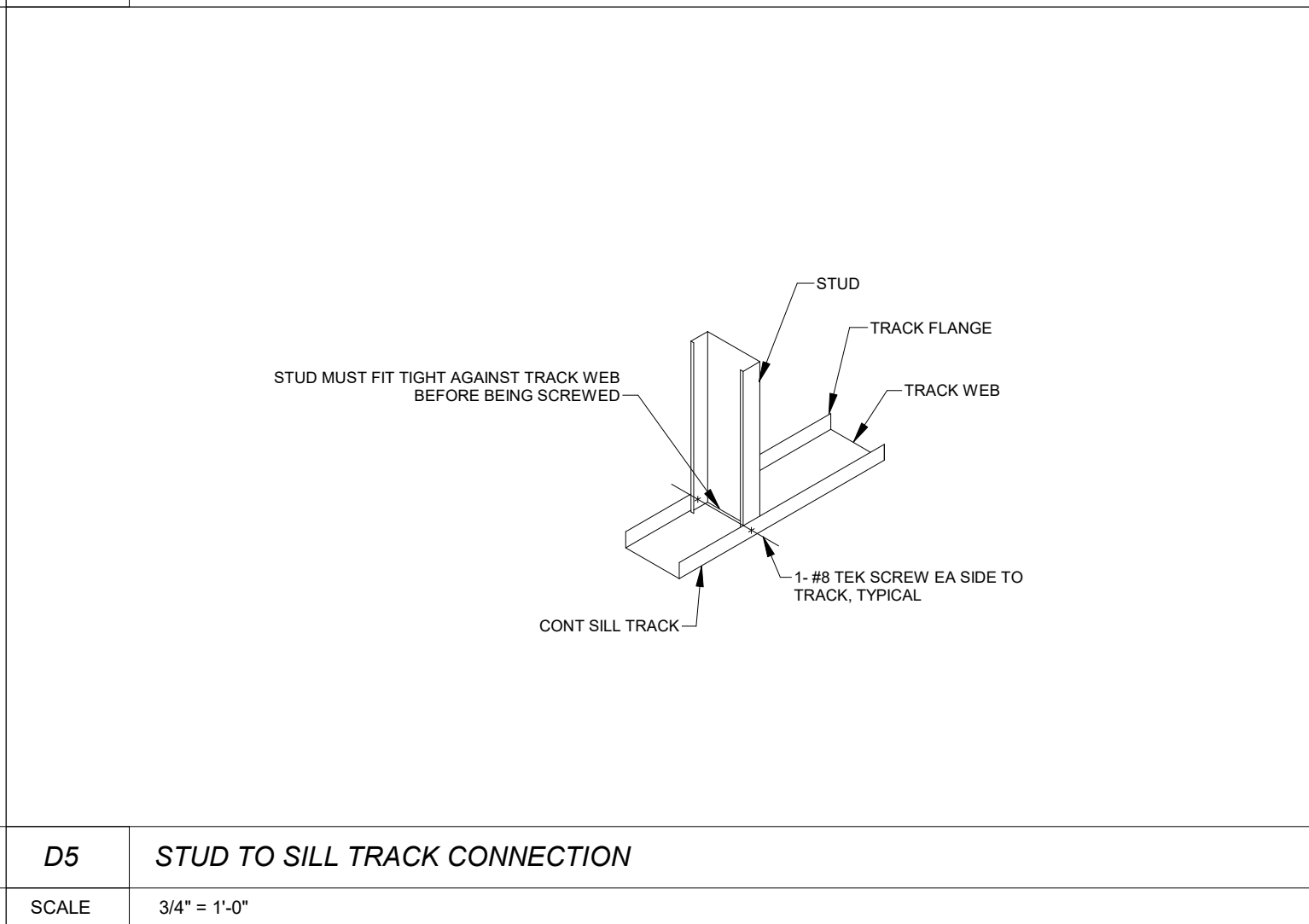
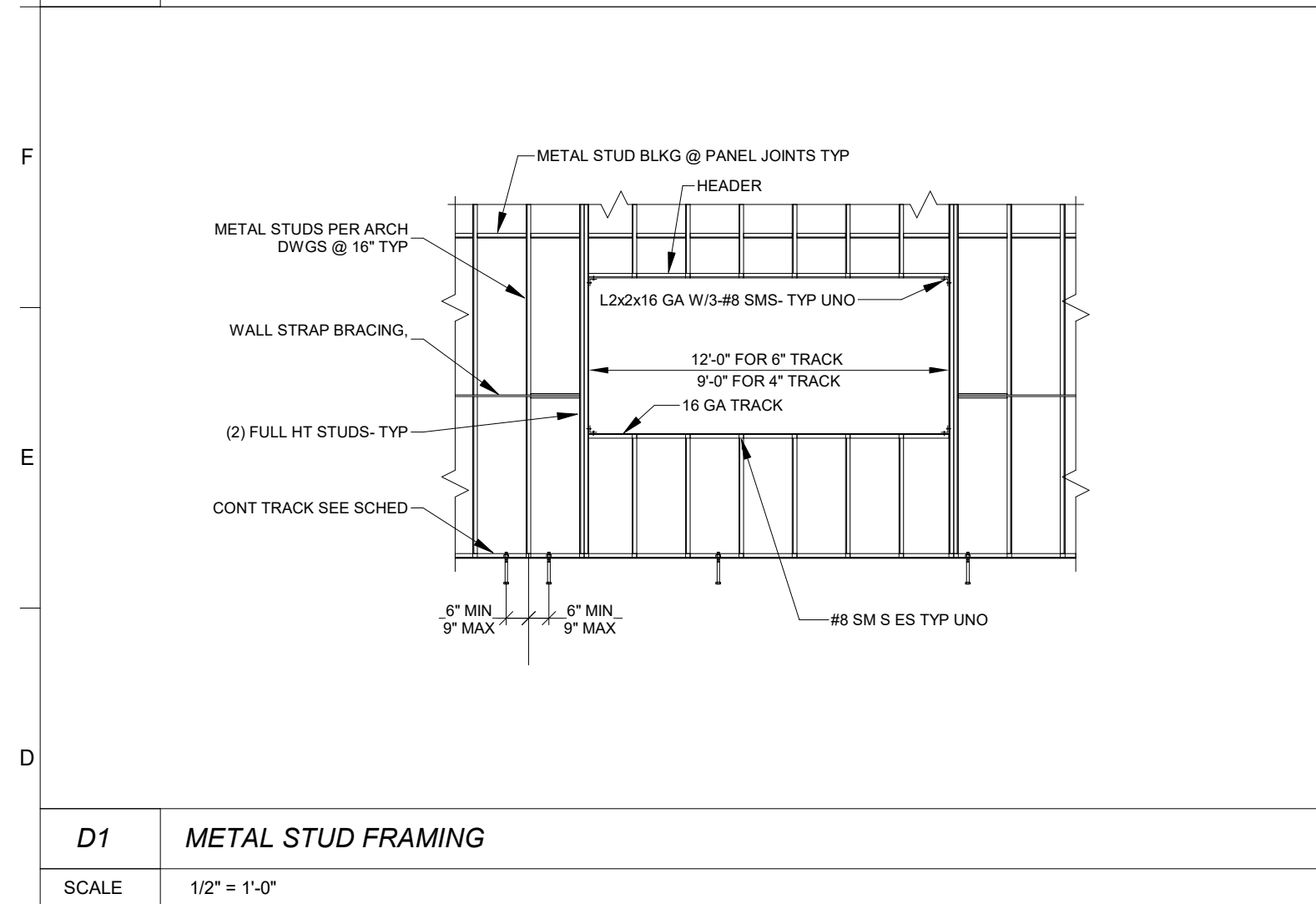
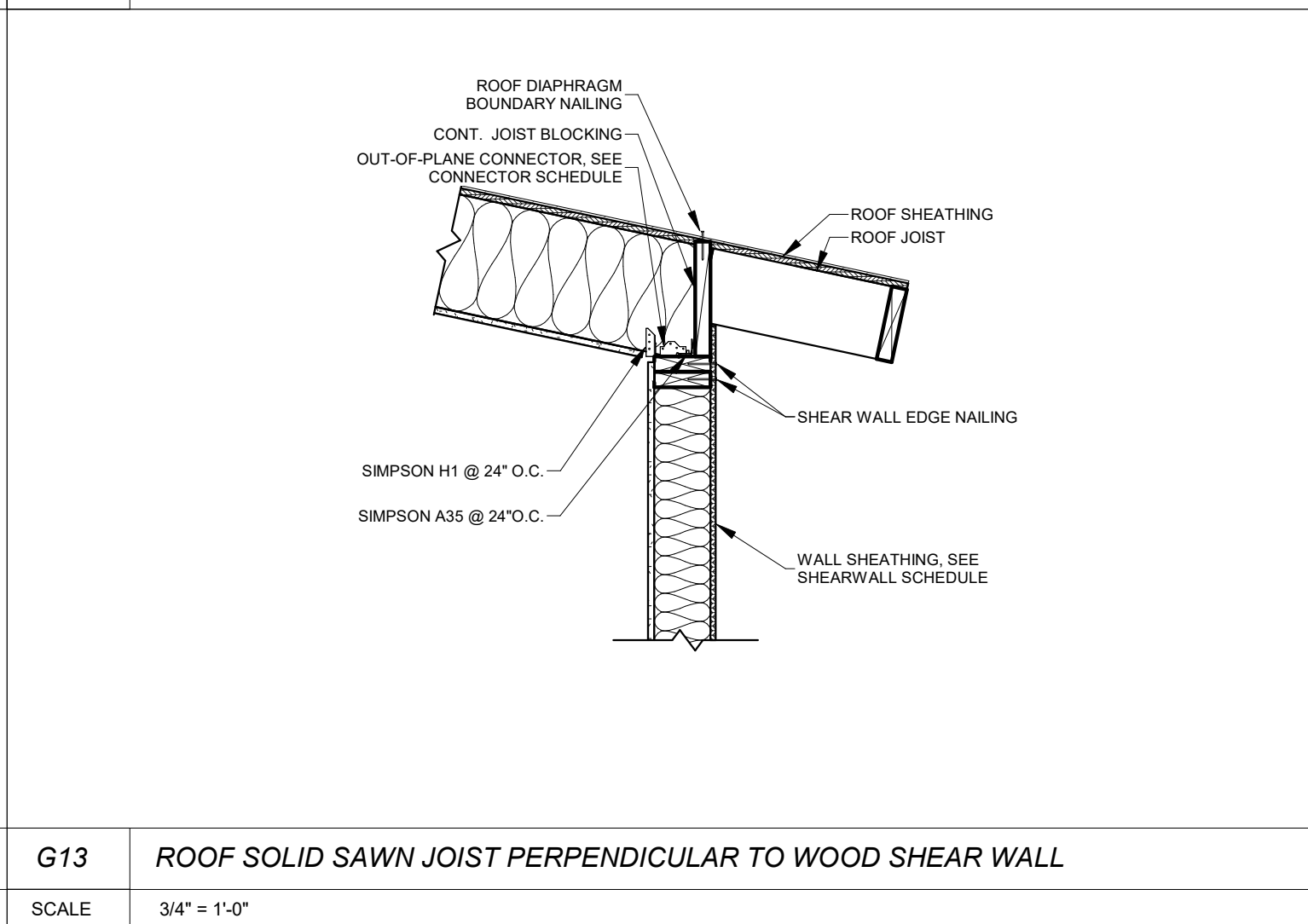
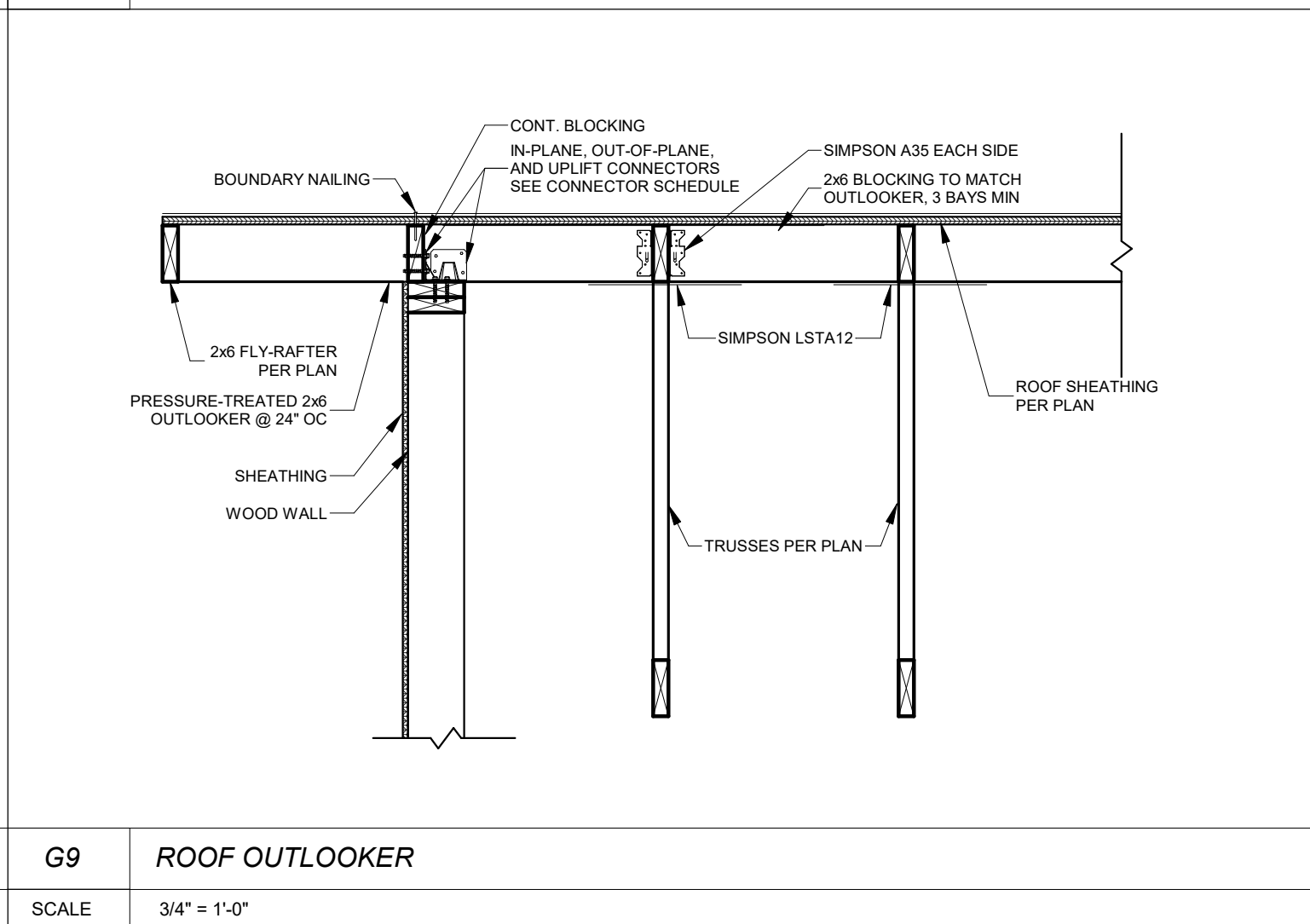
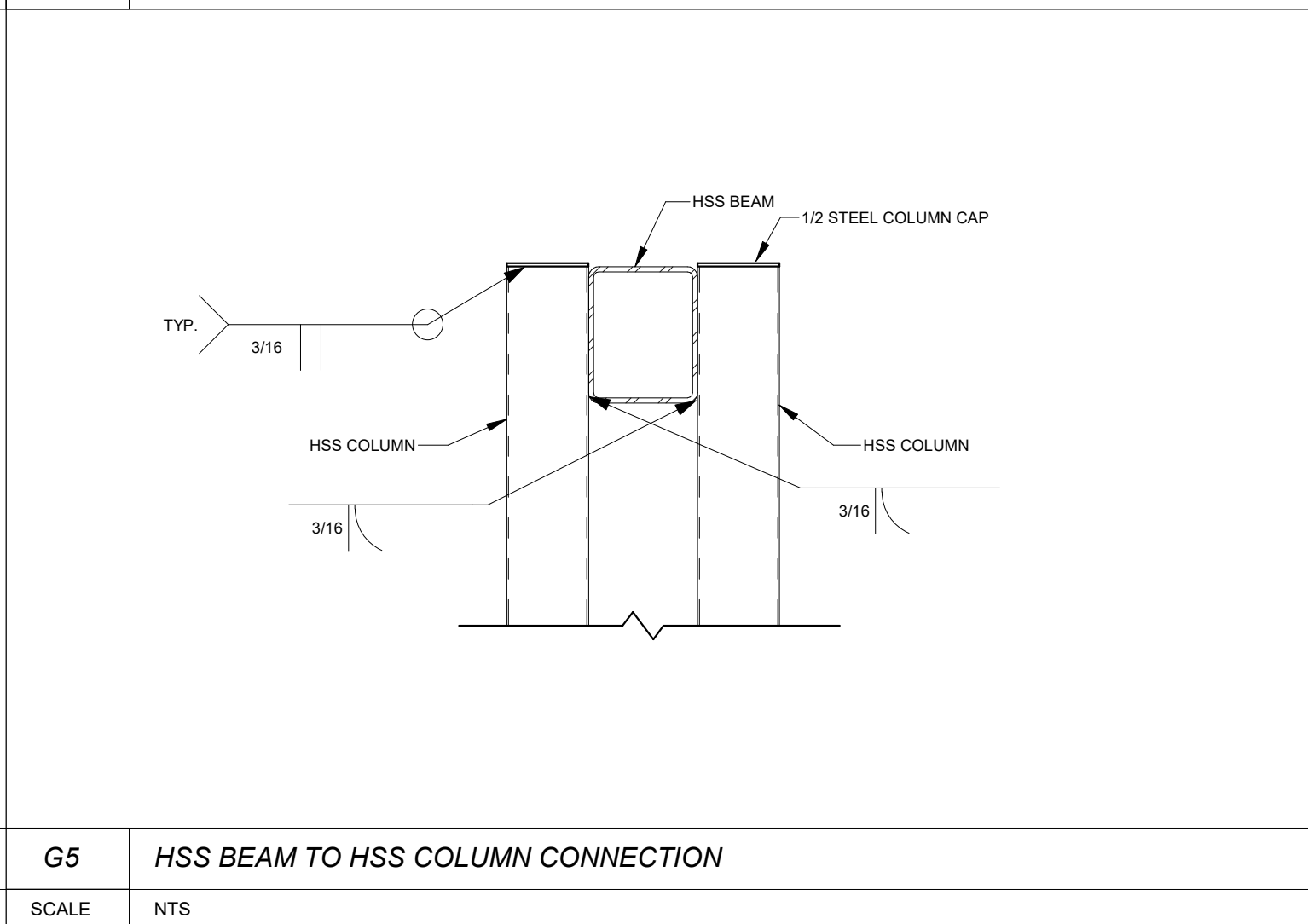
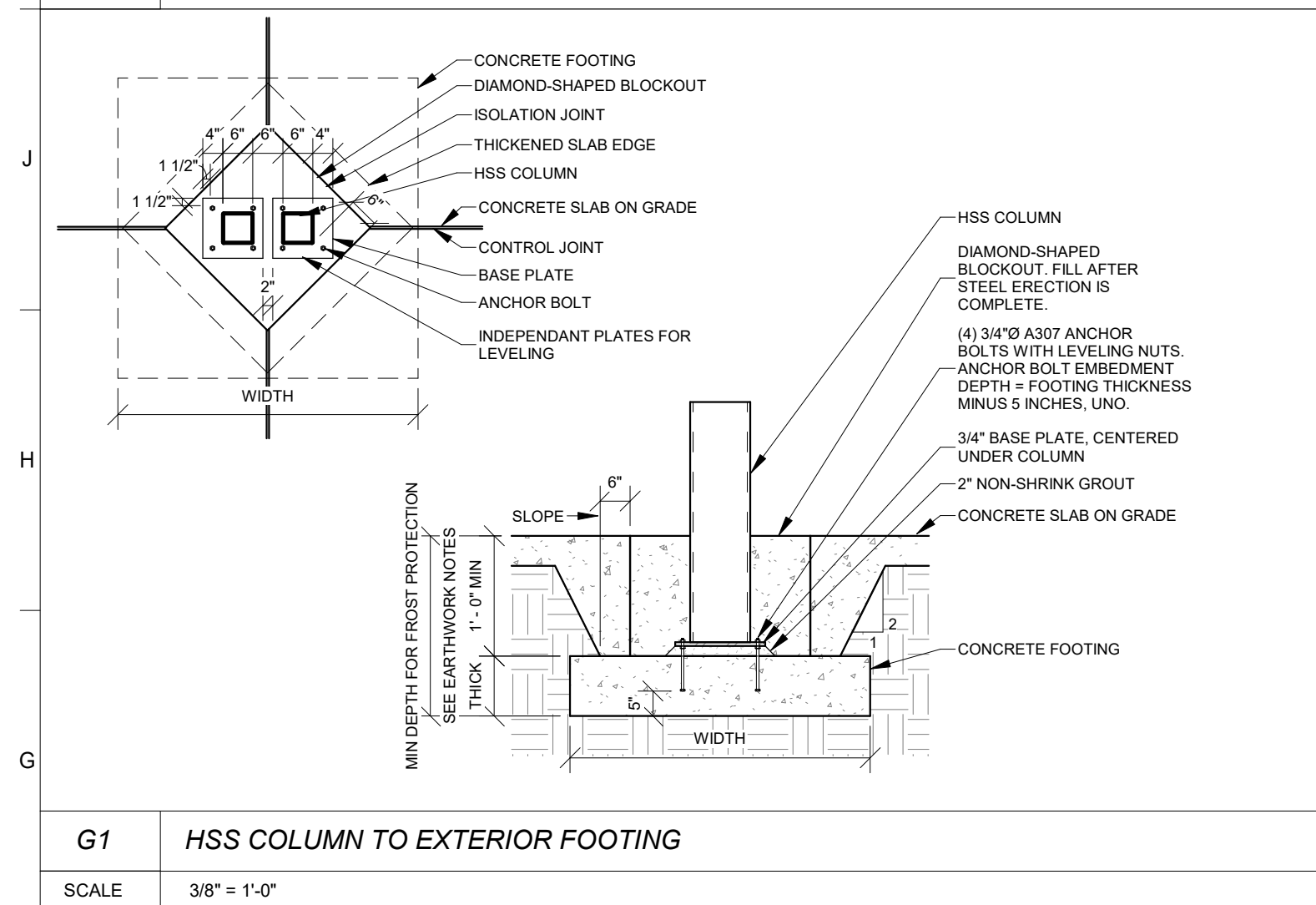
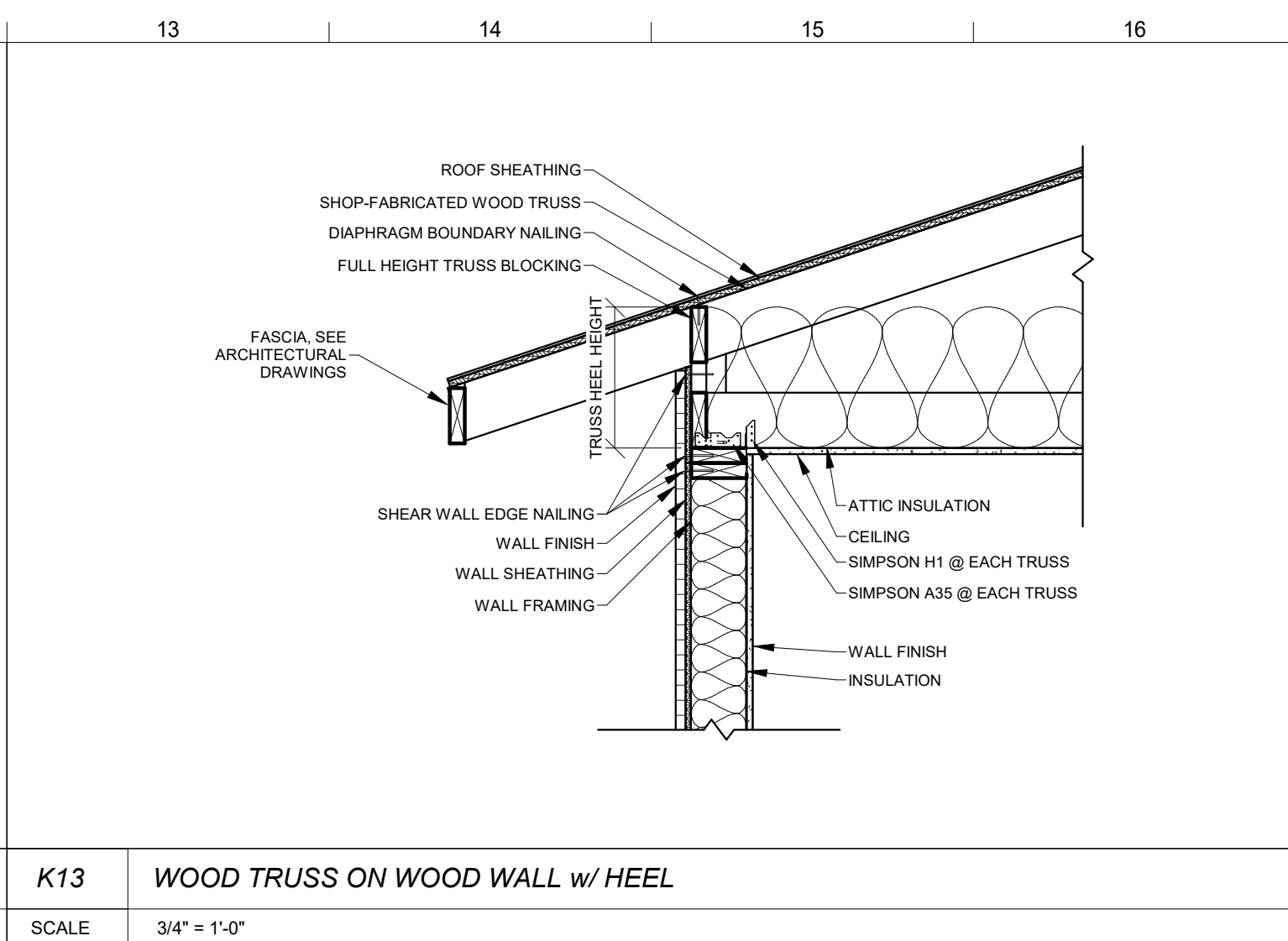
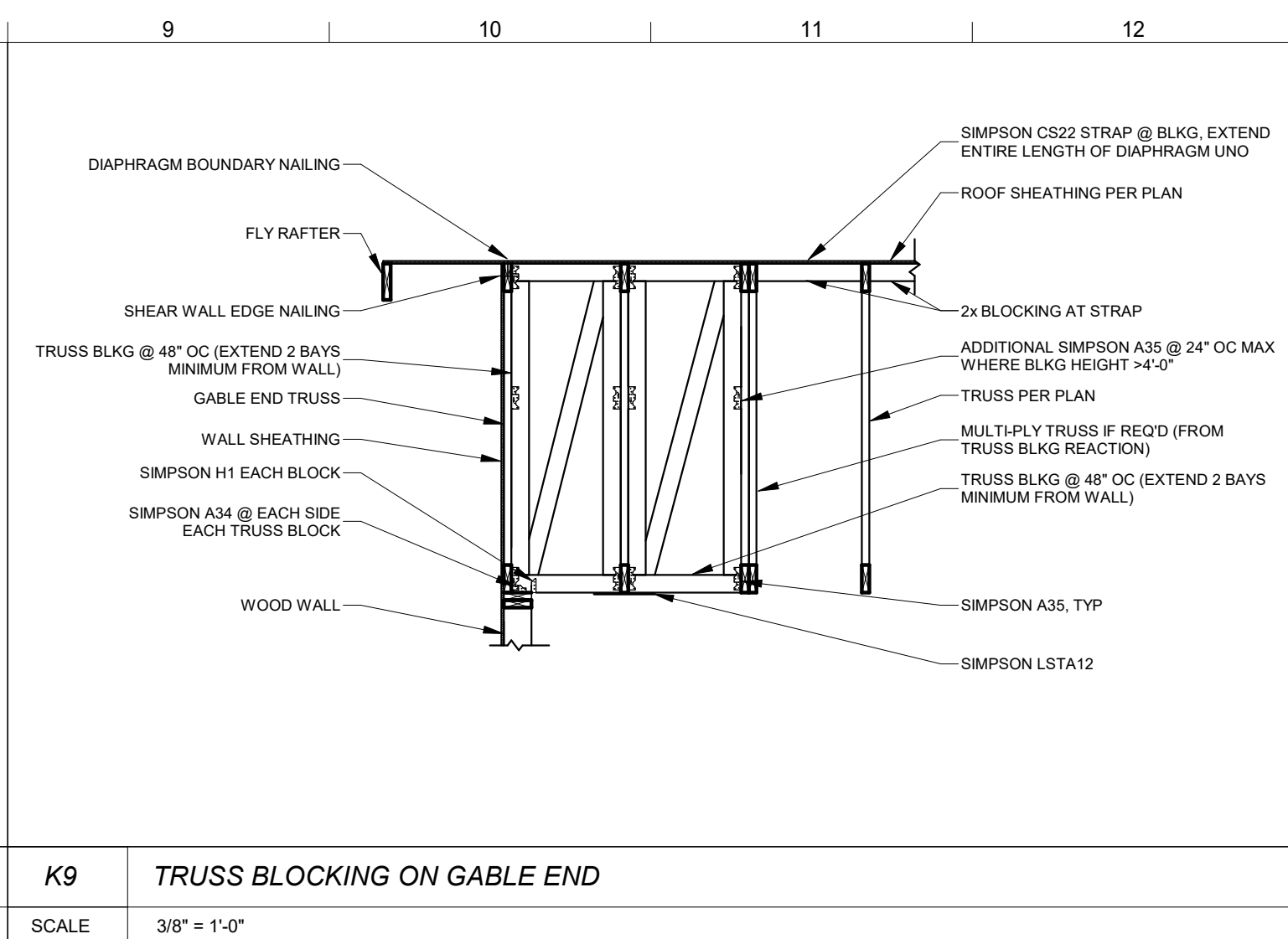
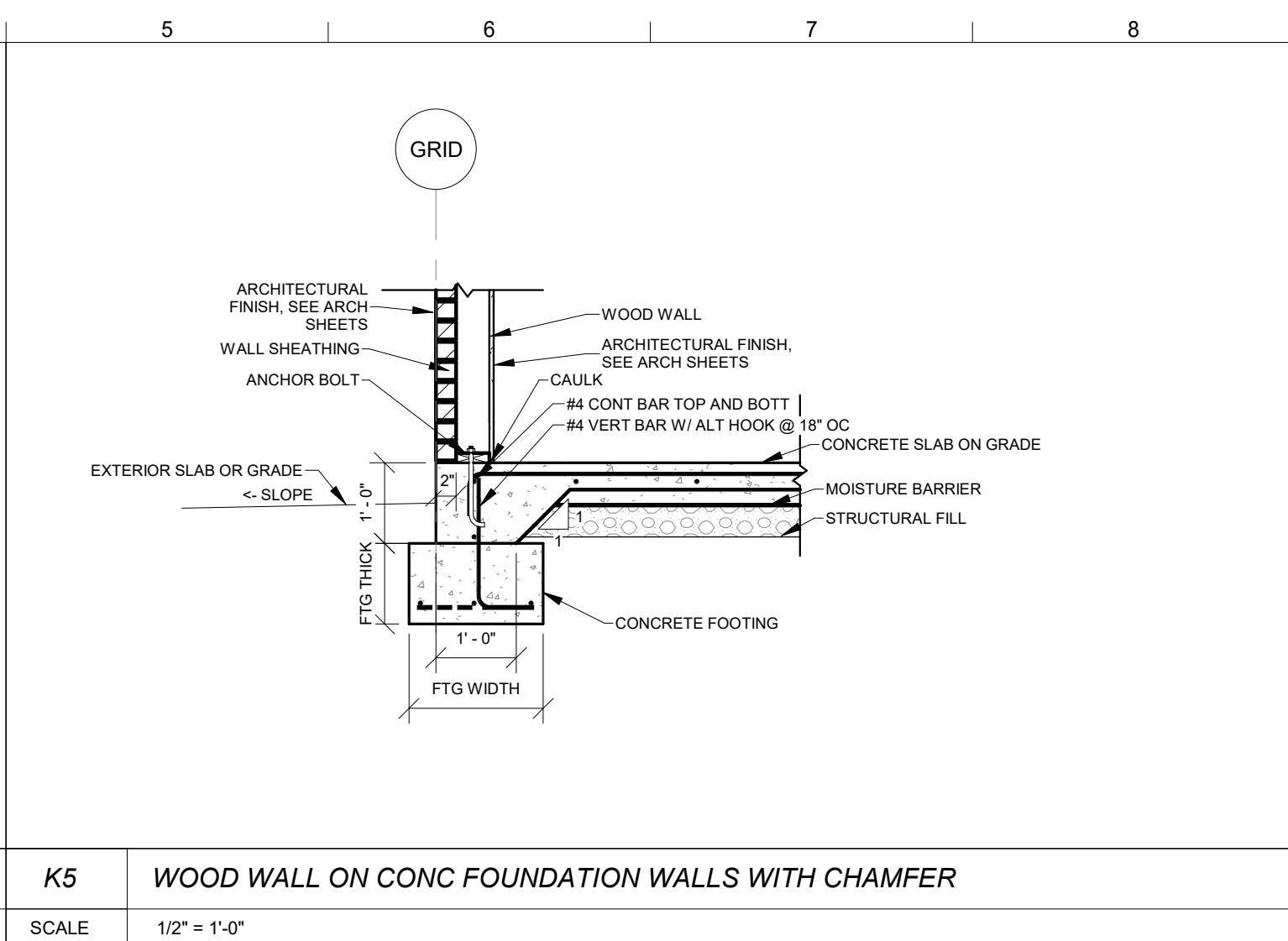
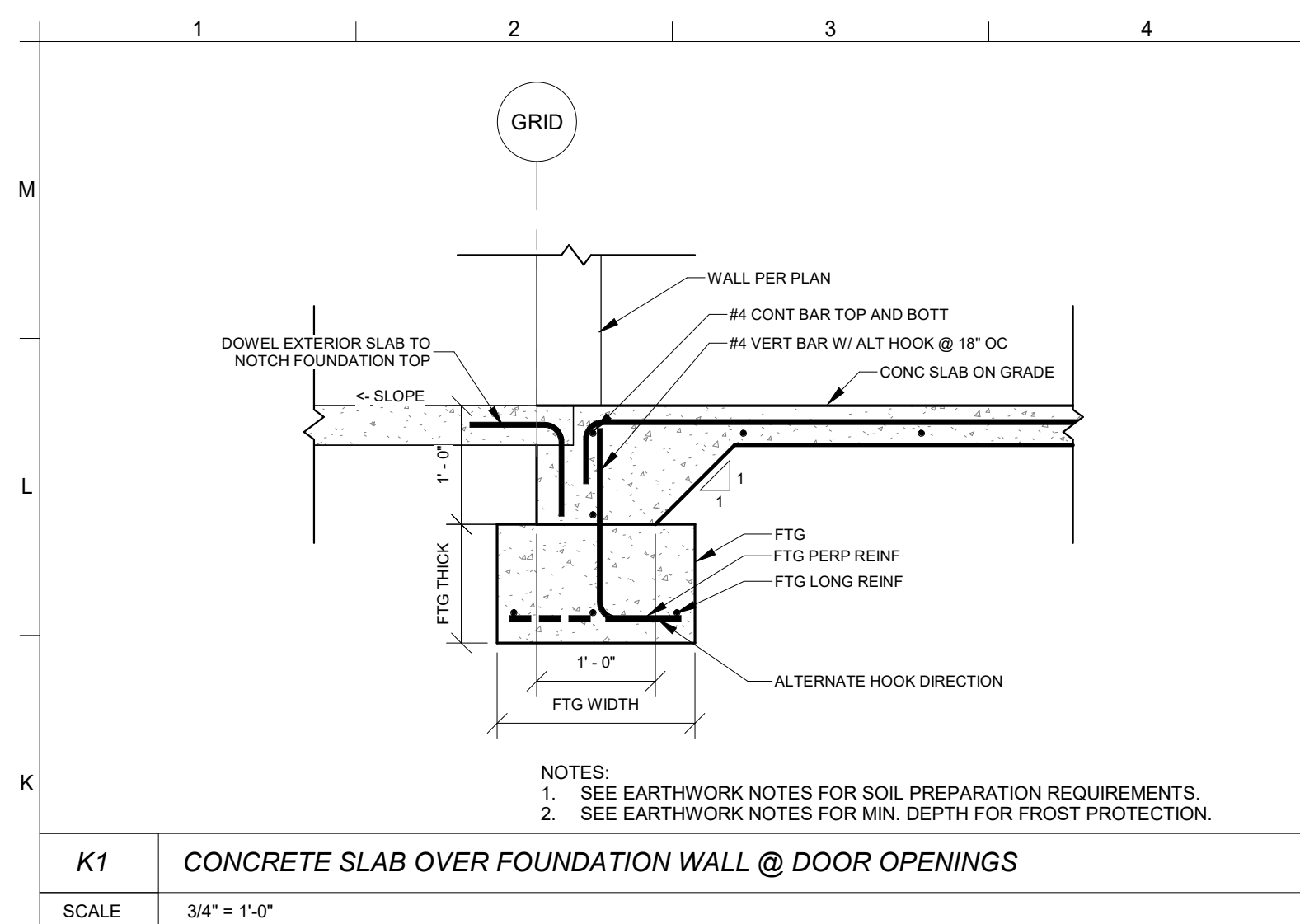
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ENCOMPASS SHELTER BUILDING

STRUCTURAL DETAILS

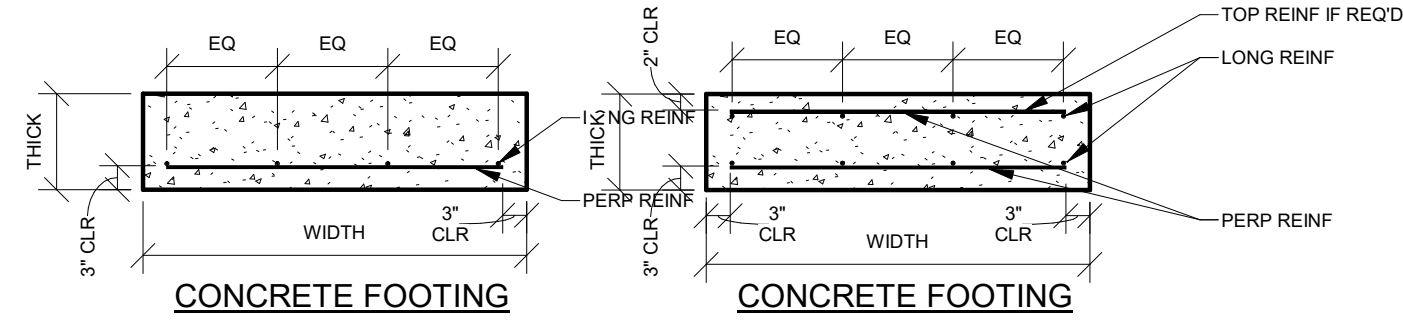
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ANCHOR BOLT SCHEDULE					
MARK	DIAMETER	BOLT TYPE	SPACING	EMBED DEPTH	REMARKS
AB-1	5/8"	J-BOLT	4' - 0"	8"	3" x 3" PLATE WASHERS
AB-2	5/8"	F1554 GR 36 THREADED ROD W/ SIMPSON SET-XP EPOXY	N/A	8"	INSTALLED PER SIMPSON SPECIFICATIONS
AB-3	5/8"	F1554 GR 36 Heavy Hex Bolt	N/A	5"	INSTALLED PER SIMPSON SPECIFICATIONS
AB-4	5/8"	F1554 GR 36 Heavy Hex Bolt	N/A	6"	INSTALLED PER SIMPSON SPECIFICATIONS
AB-5	7/8"	F1554 GR 36 Heavy Hex Bolt	N/A	14"	INSTALLED PER SIMPSON SPECIFICATIONS
AB-6	1"	PAB8	N/A	9"	14" CONCRETE WALL REQUIRED. INSTALLED PER SIMPSON SPECIFICATIONS
AB-7	1"	PAB8H	N/A	8"	24" CONCRETE WALL REQUIRED. INSTALLED PER SIMPSON SPECIFICATIONS
AB-8	5/8"	F1554 GR 36 Heavy Hex Bolt	N/A	4"	INSTALLED PER SIMPSON SPECIFICATIONS
AB-9	5/8"	F1554 GR 36 THREADED ROD W/ SIMPSON AT-XP EPOXY	N/A	10"	INSTALLED PER SIMPSON SPECIFICATIONS

CONCRETE FOOTING SCHEDULE					
MARK	WIDTH	LENGTH	THICK	LONG REIN	PERP REIN
CF-1	2'-0"	CONT	1'-0"	(3) #4 BARS	(3) #4 BARS
CF-2	2'-0"	2'-0"	1'-0"	(3) #4 BARS	(3) #4 BARS



STEEL BEAM SCHEDULE				
MARK	MEMBER	ELEVATION AT TOP	REMARKS	
SB-1	HSS12X6X1/2	10'-0"		
SB-2	HSS12X6X1/2	12'-10 3/4"		
SB-3	HSS12X6X1/2	13'-0 1/4"		
SB-4	HSS12X6X1/2	12'-0 1/8"		

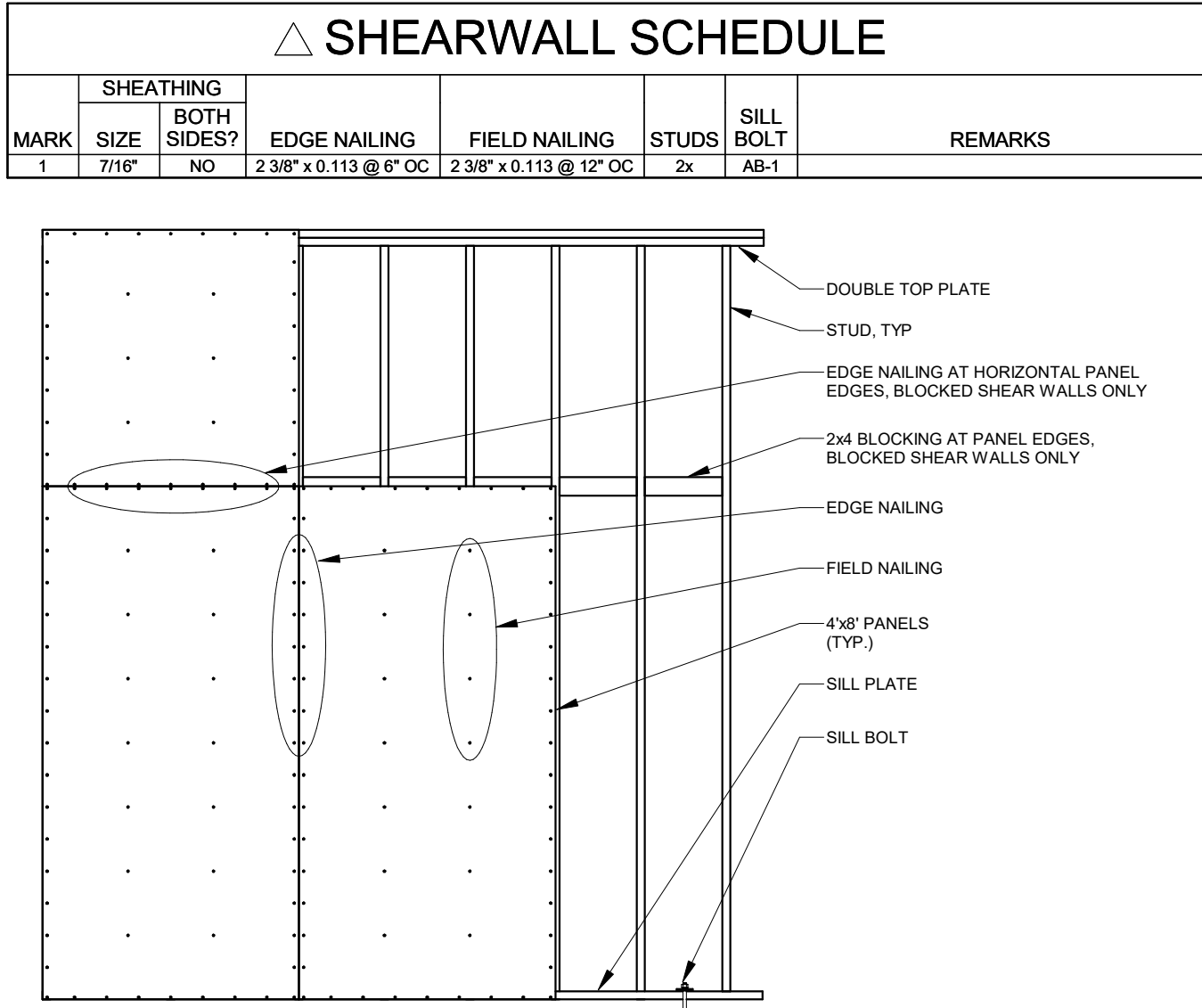
STEEL COLUMN SCHEDULE					
MARK	MEMBER	BASE PLATE		ANCHOR BOLT	
		SIZE	THICK	NO.	DIAMETER
SC-5	HSS6X6X3/8	12"x12"	3/4"	4	3/4"
SC-6	HSS6X6X3/8	12"x12"	3/4"	4	3/4"
SC-7	HSS6X6X3/8	12"x12"	3/4"	4	3/4"
SC-8	HSS6X6X3/8	12"x12"	3/4"	4	3/4"
SC-9	HSS6X6X3/8	12"x12"	3/4"	4	3/4"
SC-10	HSS6X6X3/8	12"x12"	3/4"	4	3/4"
SC-11	HSS6X6X3/8	12"x12"	3/4"	4	3/4"
SC-12	HSS6X6X3/8	12"x12"	3/4"	4	3/4"

WOOD WALL SCHEDULE				
MARK	SPECIES	STUD SIZE	SPACING	REMARKS
WW-1	DF-L #2	2x4	16"	
WW-2	DF-L #2	2x6	16"	
WW-3	DF-L #2	2x8	16"	
WW-4	DF-L #2	2x4	12"	
WW-5	DF-L #2	2x6	12"	
WW-6	DF-L #2	2x8	12"	
WW-7	DF-L #2	2x4	24"	
WW-8	DF-L #2	2x6	24"	
WW-9	DF-L #2	2x8	24"	

NOTES:
1. INTERIOR WALLS: WW-1 UNO
2. EXTERIOR WALLS: WW-2 UNO

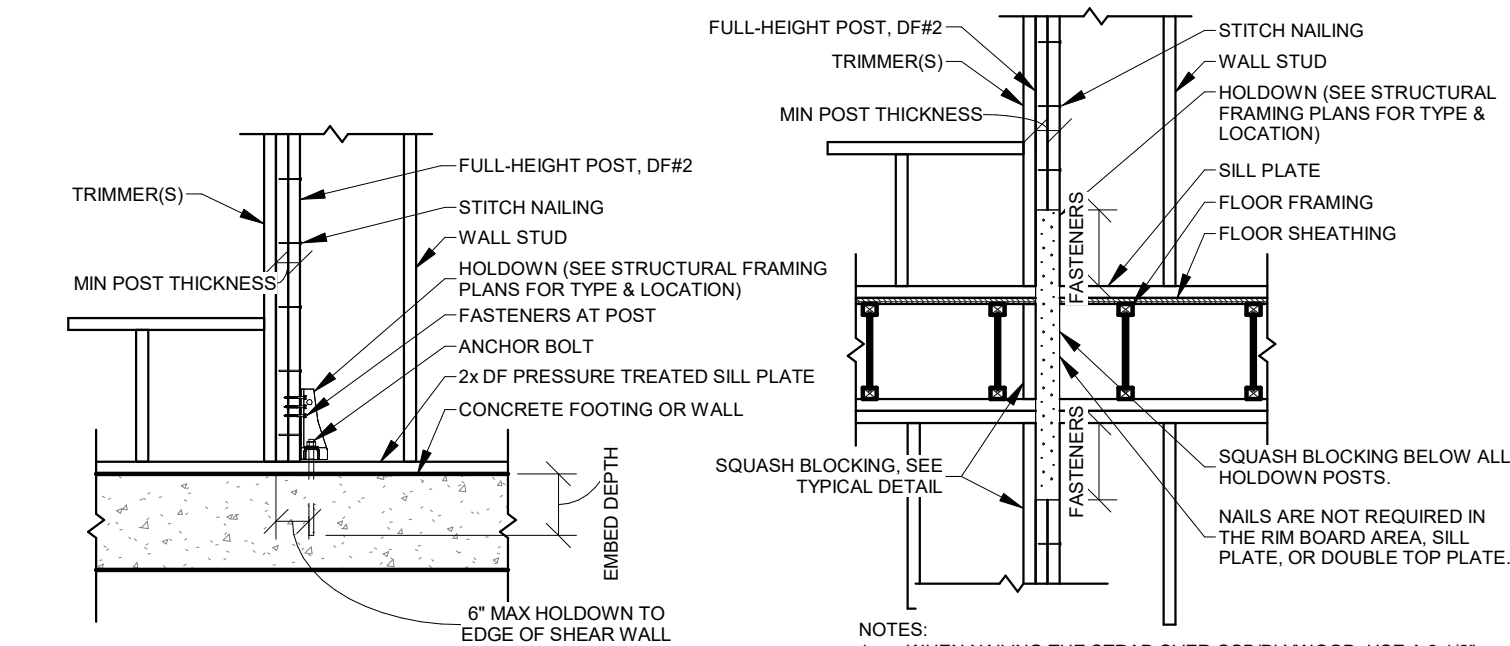
COLD-FORMED STEEL WALL...			
MARK	STRENGTH	STUD SIZE	REMARKS
DW-1	50KSI	550S162-54	16"

SHEATHING (EITHER GYP BD OR OSB) W/ 12" FIELD NAILING MIN. REQ'D FOR ALL CFS BEARING WALLS. STUDS SHALL BE PLACED DIRECTLY BELOW TRUSSES THAT BEAR ON THE WALL TOP TRACK



NOTE:
1. SHEATHING ORIENTATION: LONG DIRECTION (STRONG AXIS) PARALLEL TO FRAMING & SHORT DIRECTION (WEAK AXIS) PERPENDICULAR TO FRAMING.

HOLDOWN SCHEDULE					
MARK	COUNT	TYPE	ANCHOR BOLT	MIN POST THICKNESS	FASTENERS
5	8	SIMPSON CS16	N/A	1 1/2"	26 - 8d



NOTES:
1. WALL SHEATHING NOT SHOWN FOR CLARITY.

HOLDOWN AT FOUNDATION

NOTES:
1. HOLDOWNS SHALL BE INSTALLED WITHIN 6" OF EDGE OF SHEAR WALL OR EDGE OF OPENING.
2. PROVIDE SHEAR WALL EDGE NAILING TO FULL-HEIGHT POST.
3. HOLDOWNS AND STRAPS ON MULTI-STORY BUILDINGS SHALL BE ALIGNED TO PROVIDE A CONTINUOUS VERTICAL LOAD PATH TO THE FOUNDATION.

HOLDOWN AT INTERMEDIATE FLOOR

WOOD BEAM SCHEDULE					
MARK	SIZE	WOOD SPECIES	END SUPPORT(S)		REMARKS
			END 1	END 2	
WB-1	(2) 2x8	DF-L#2	(1) T	(1) T	
WB-2	(2) 2x8	DF-L#2	(1) T	(1) T	
WB-3	(2) 2x8	DF-L#2	(1) T	(1) T	
WB-4	(2) 2x8	DF-L#2	(1) T	(1) T	
WB-5	(2) 2x8	DF-L#2	(1) T	(1) T	
WB-6	(2) 2x8	DF-L#2	(1) T	(1) T	
WB-7	(2) 2x8	DF-L#2	(1) T	(1) T	
WB-8	(2) 2x8	DF-L#2	(1) T	(1) T	
WB-9	(2) 2x8	DF-L#2	(1) T	(1) T	
WB-10	(2) 2x8	DF-L#2	(1) T	(1) T	
WB-11	(2) 2x8	DF-L#2	(1) T	(1) T	
WB-12	(2) 2x8	DF-L#2	(1) T	(1) T	
WB-13	(2) 2x8	DF-L#2	(1) T	(1) T	
WB-14	(2) 2x8	DF-L#2	(1) T	(1) T	
WB-15	(2) 2x8	DF-L#2	(1) T	(1) T	
WB-16	(2) 2x8	DF-L#2	(1) T	(1) T	
WB-17	(2) 2x8	DF-L#2	(1) T	(1) T	
WB-18	(2) 2x8	DF-L#2	(1) T	(1) T	
WB-19	(2) 2x8	DF-L#2	(1) T	(1) T	
WB-20	(2) 2x8	DF-L#2	(1) T	(1) T	
WB-21	(2) 2x8	DF-L#2	(1) T	(1) T	
WB-22	(2) 1 3/4" X 9 1/2"	LVL	(2) T	(2) T	

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ENCOMPASS SHELTER BUILDING

STRUCTURAL SCHEDULES

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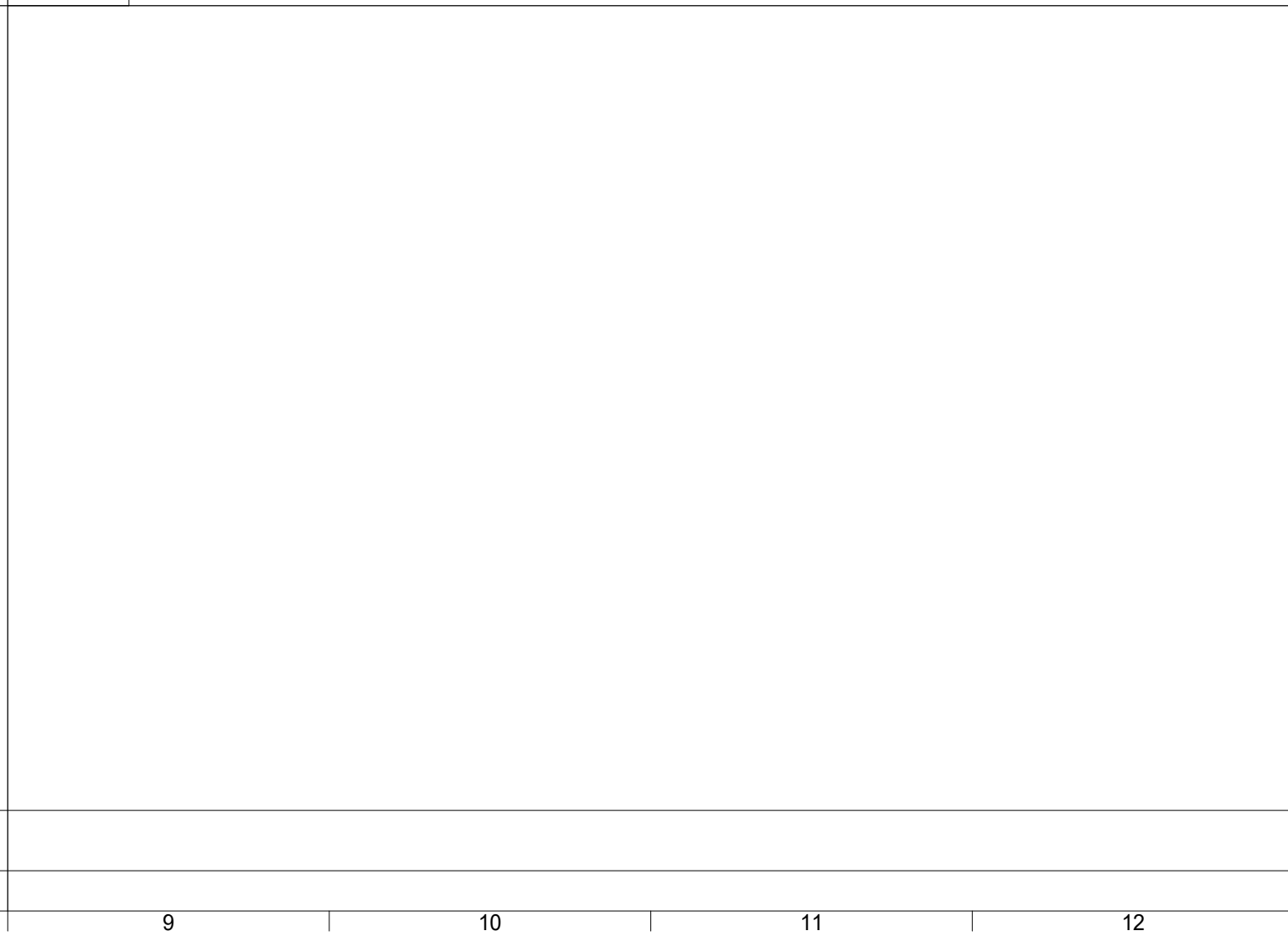
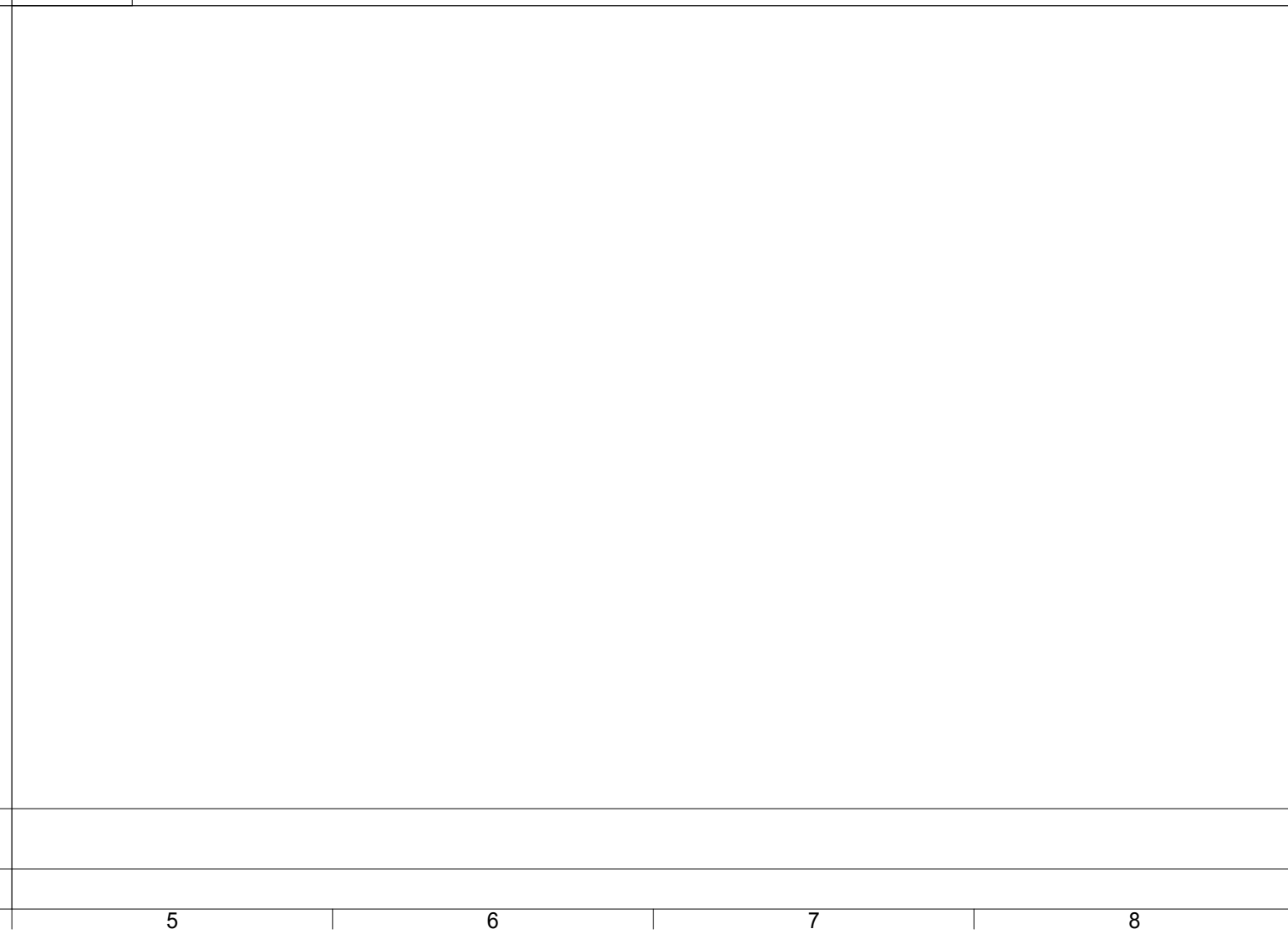
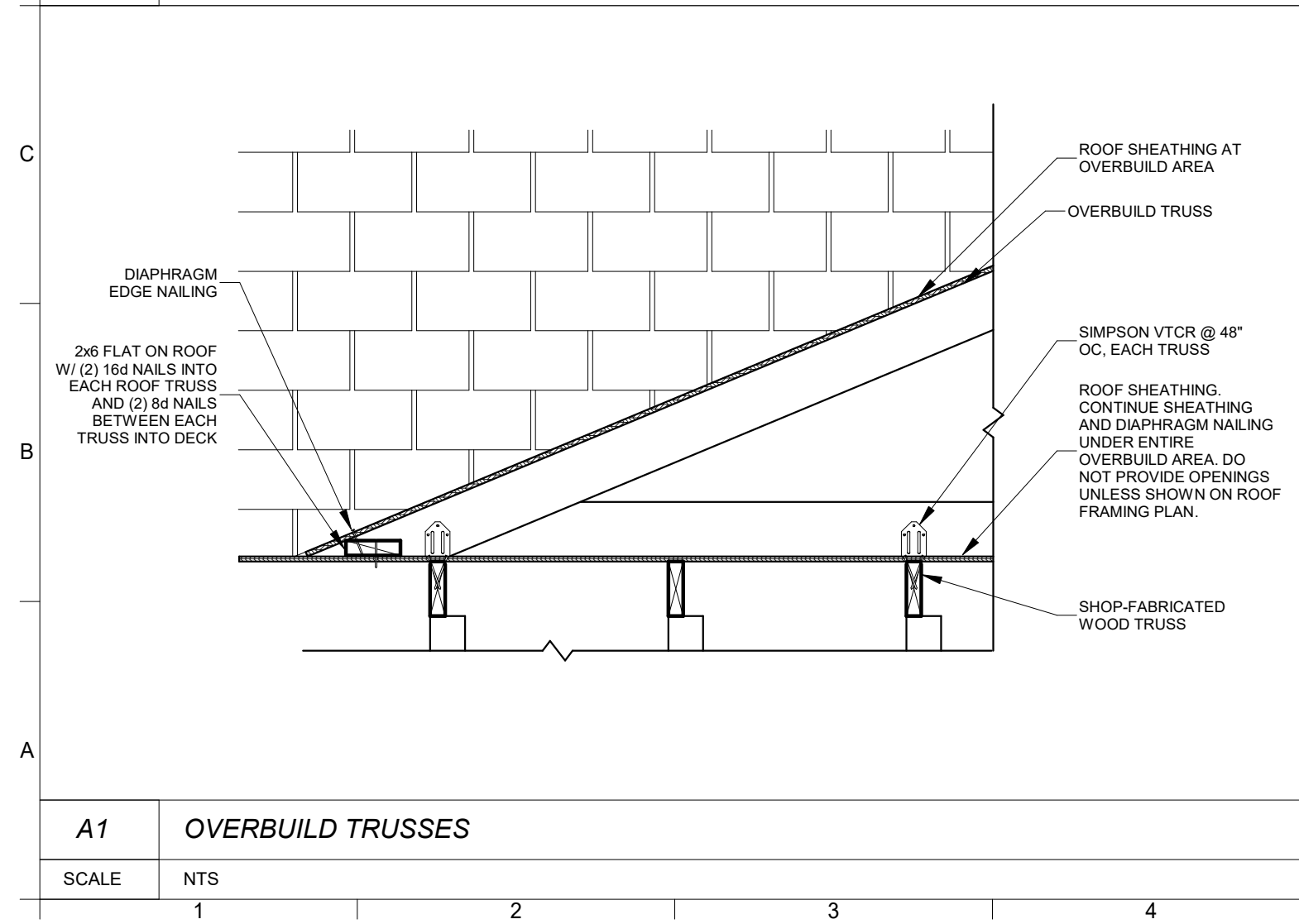
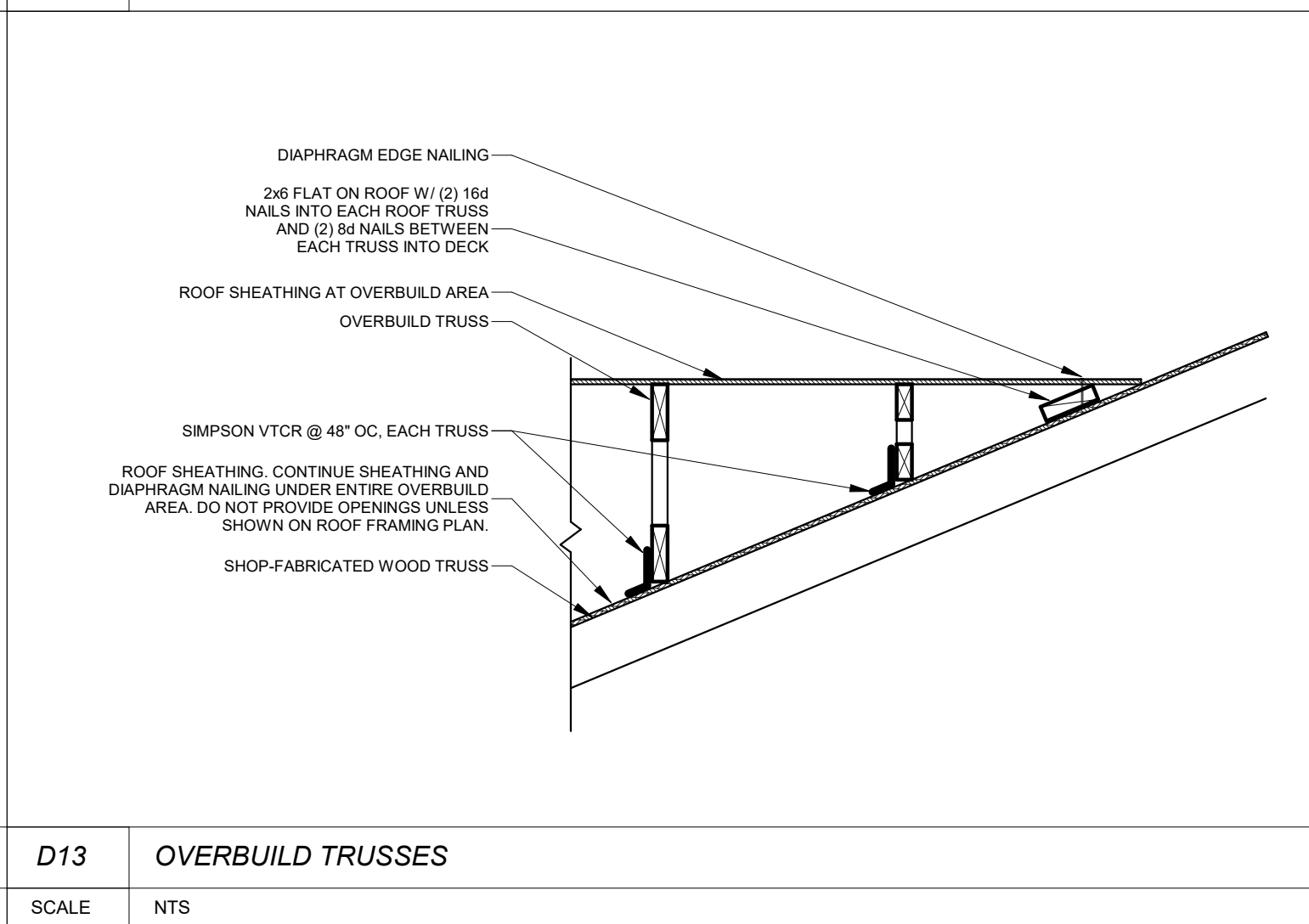
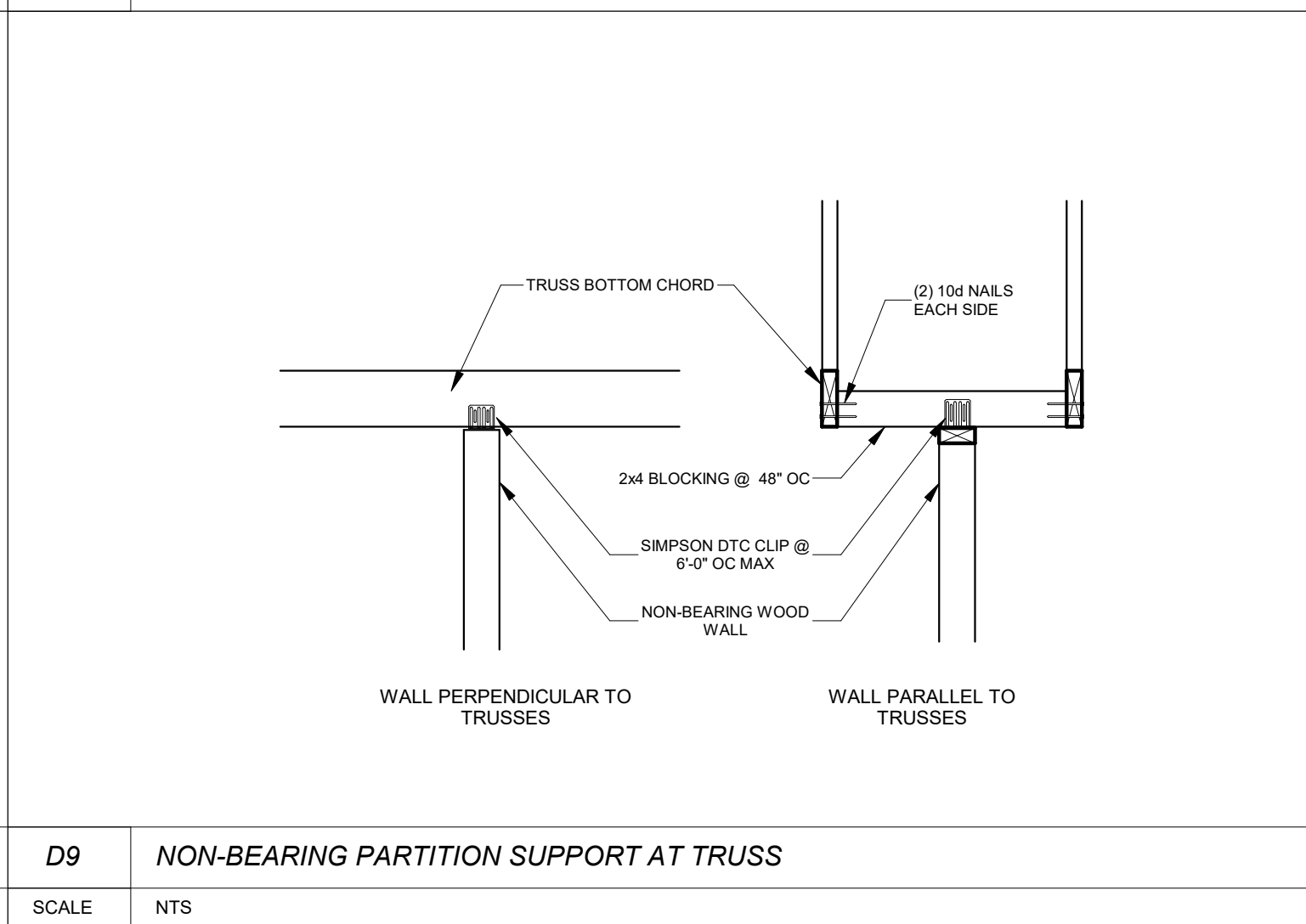
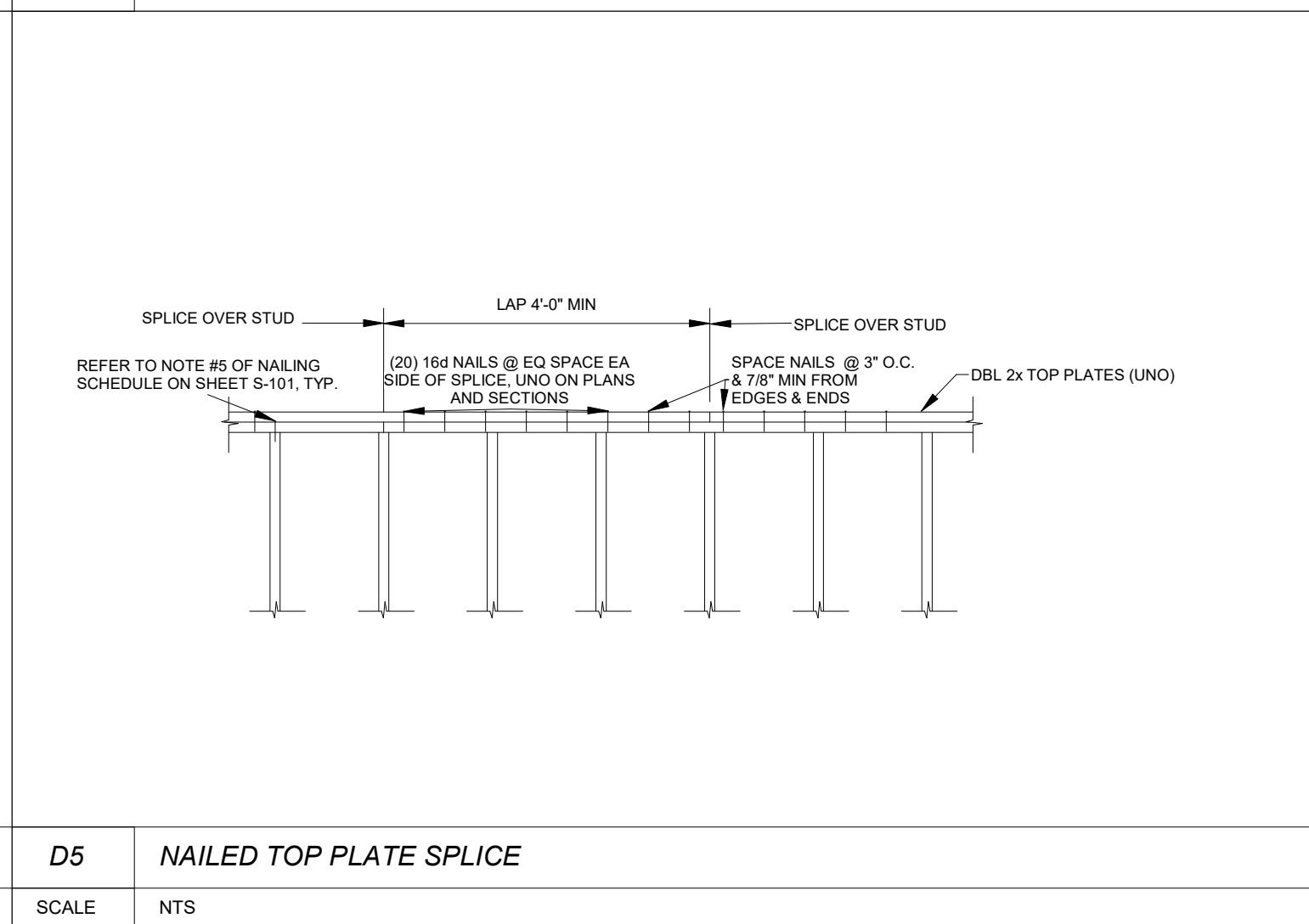
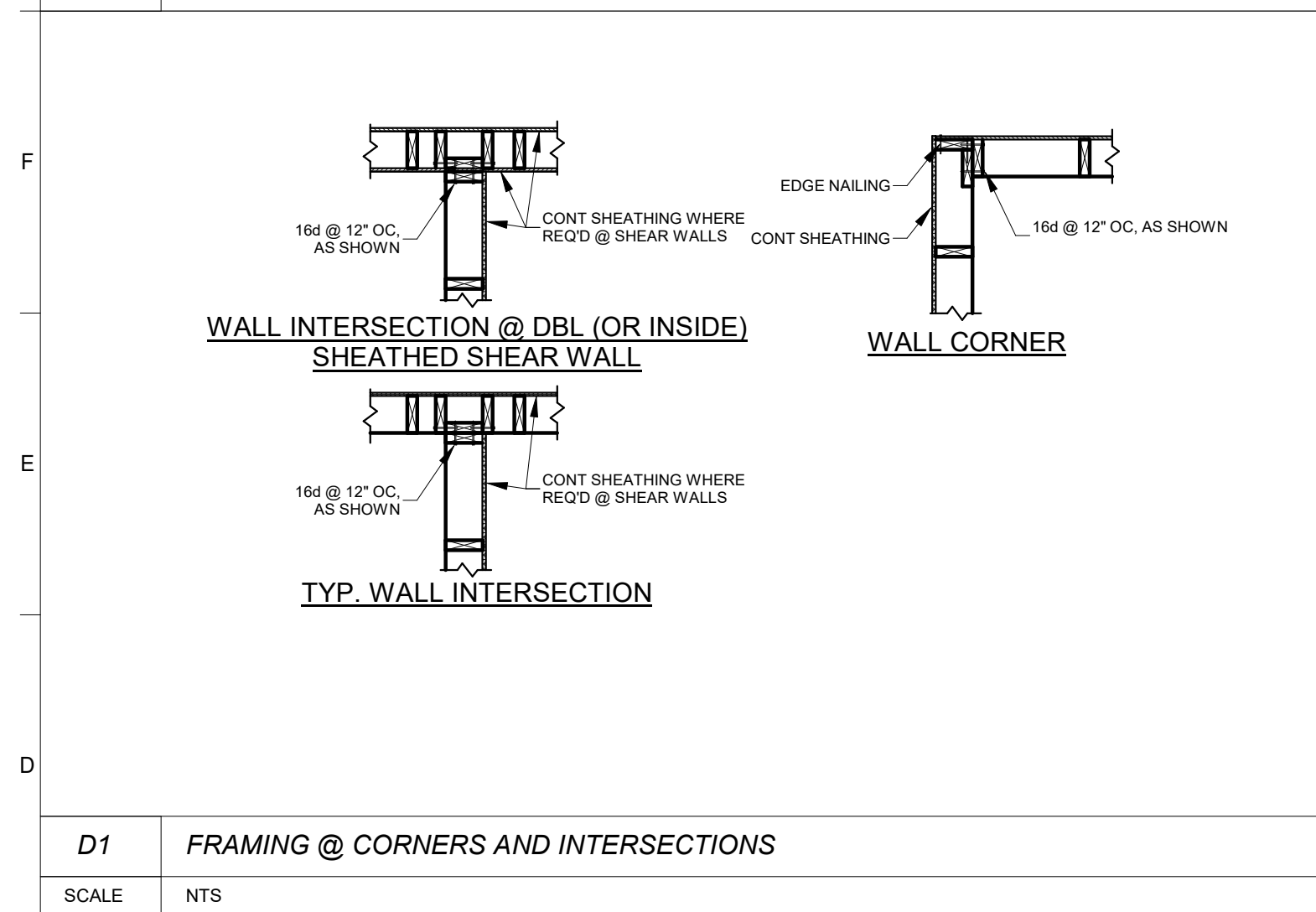
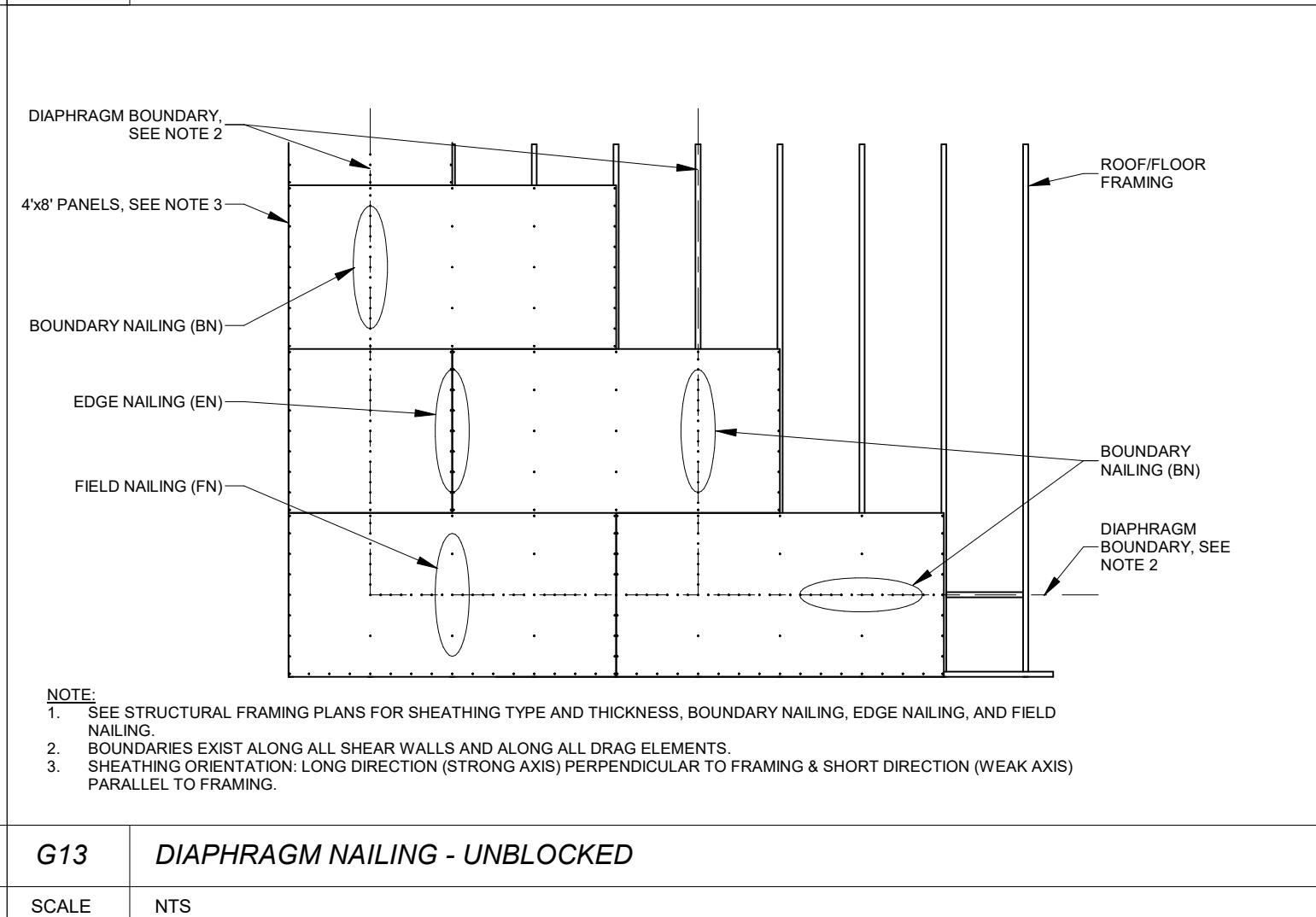
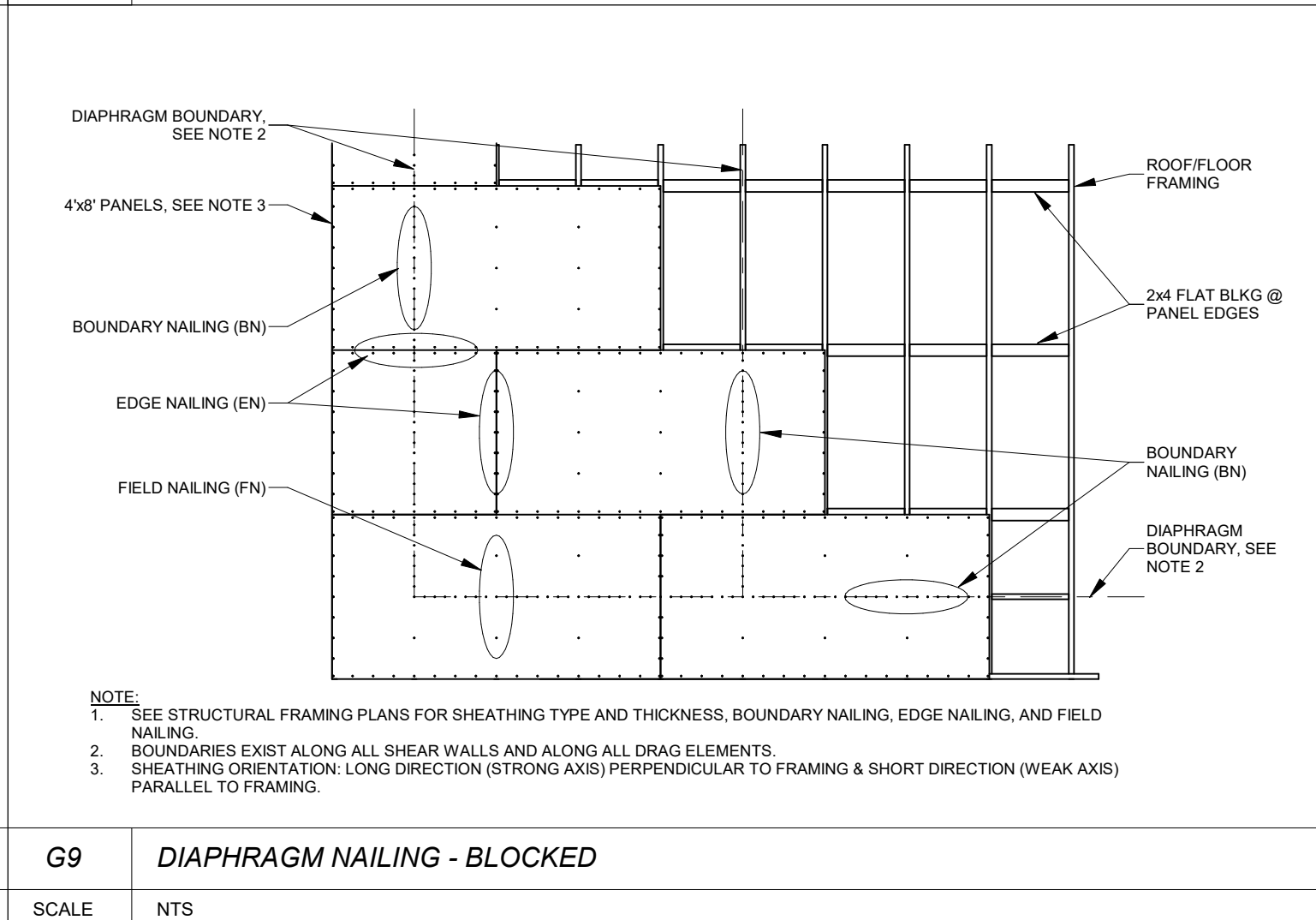
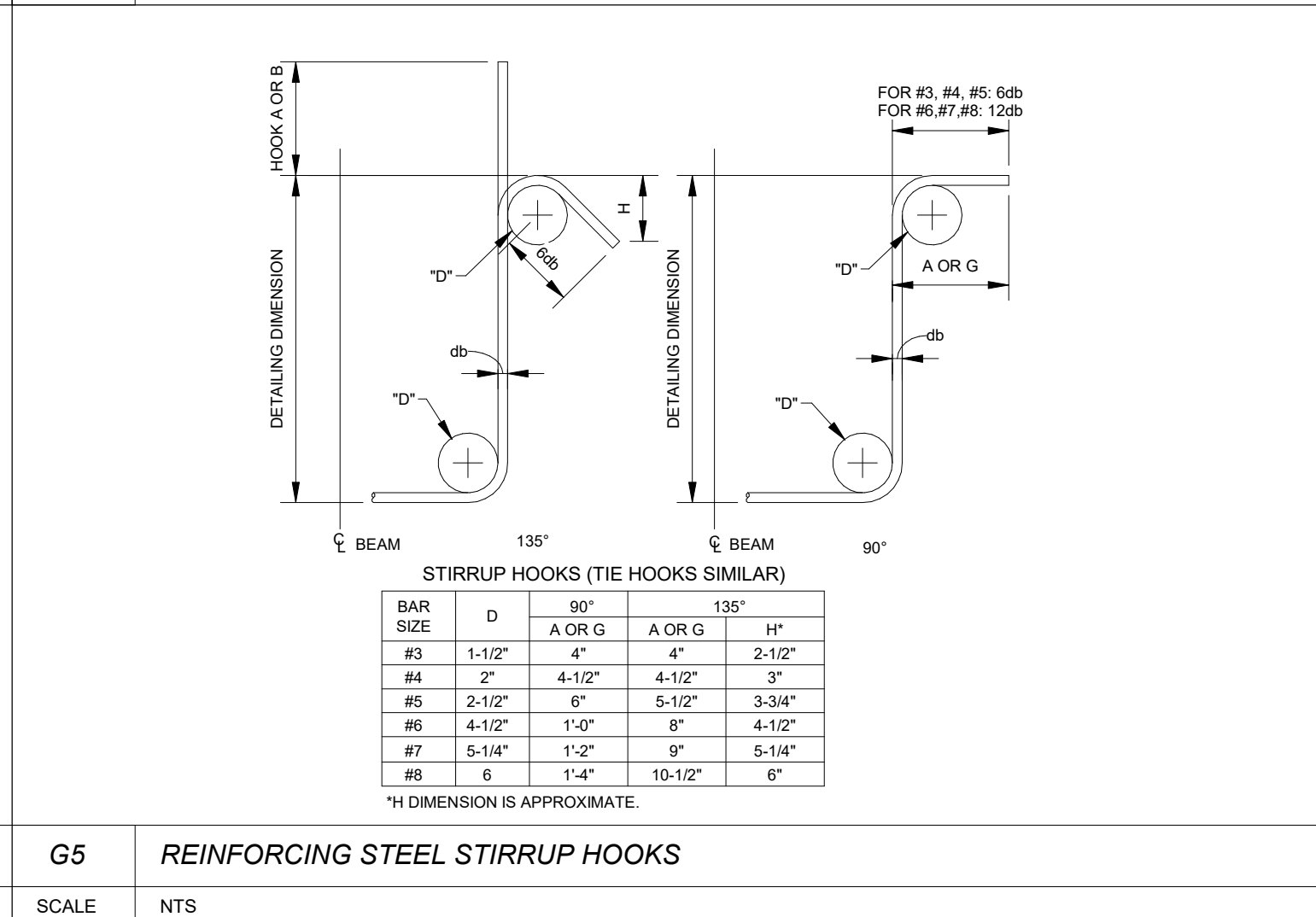
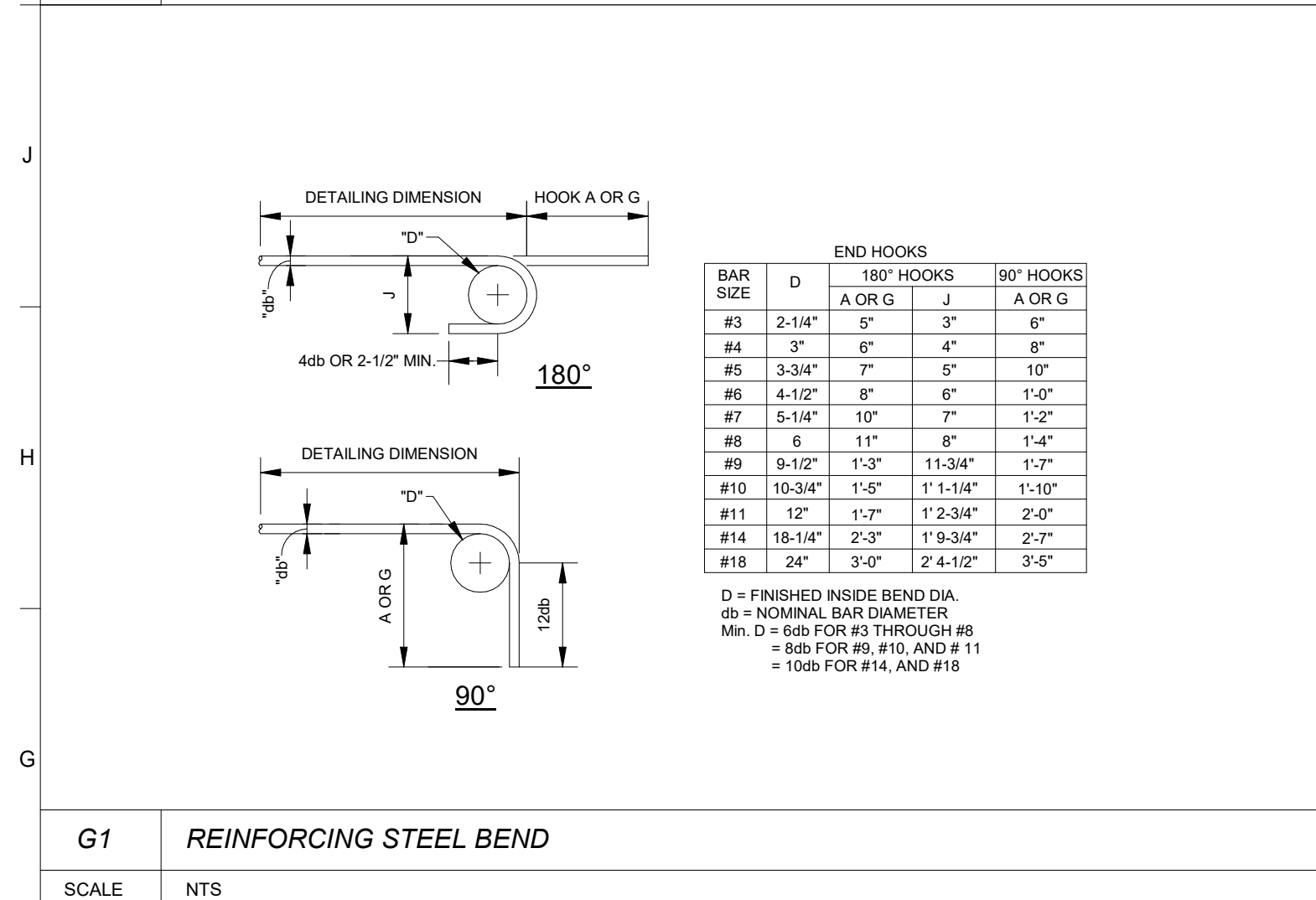
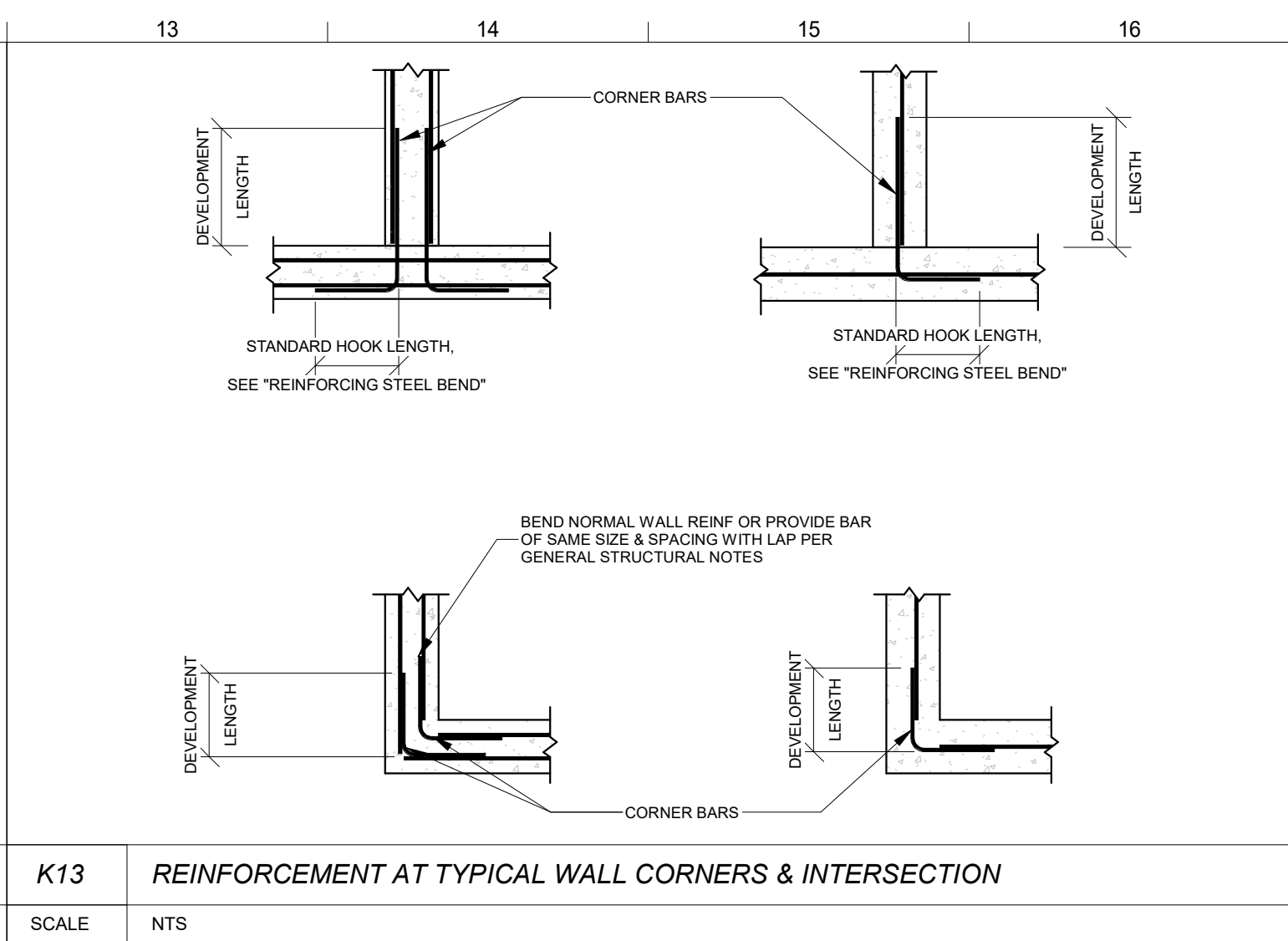
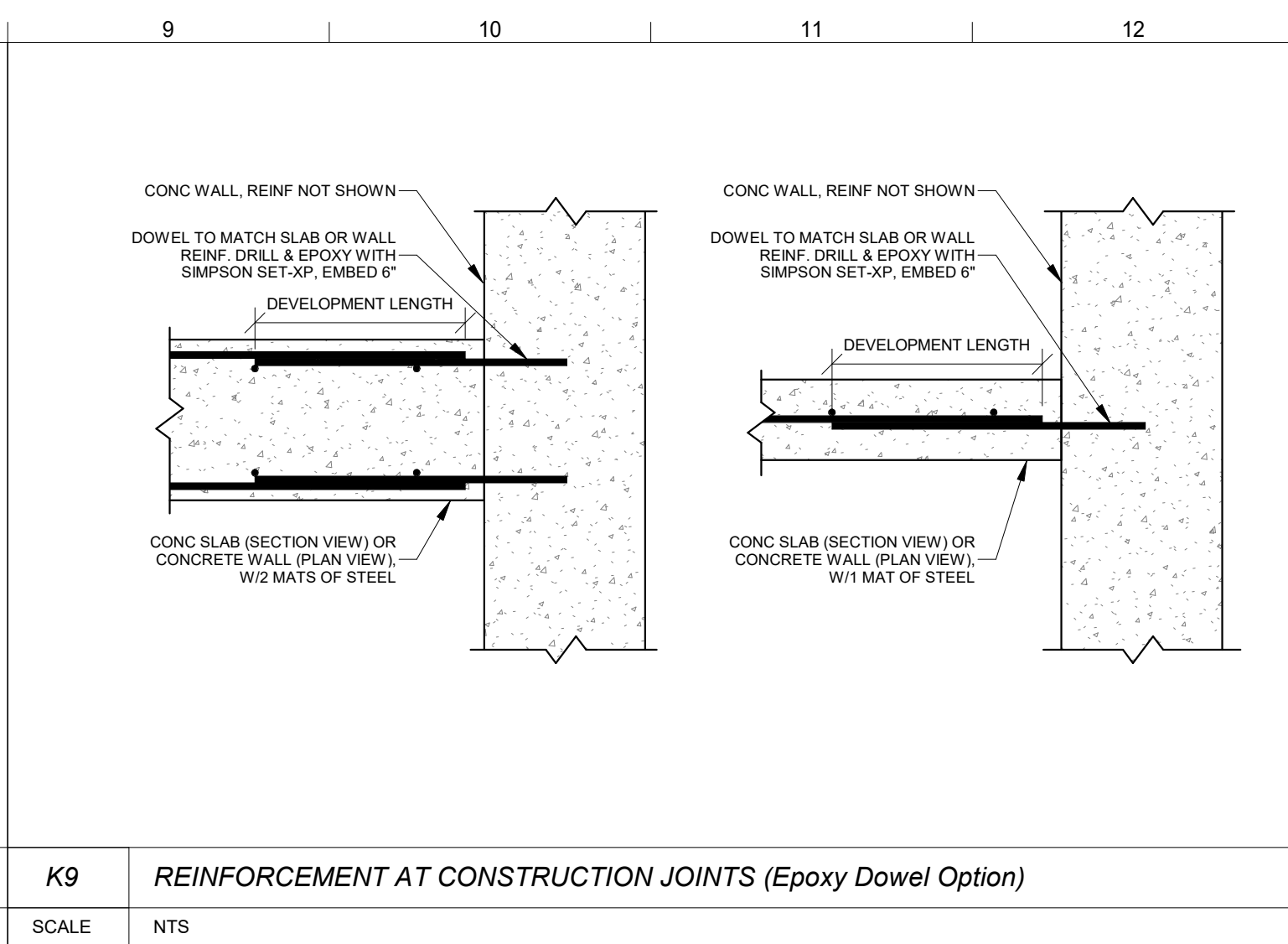
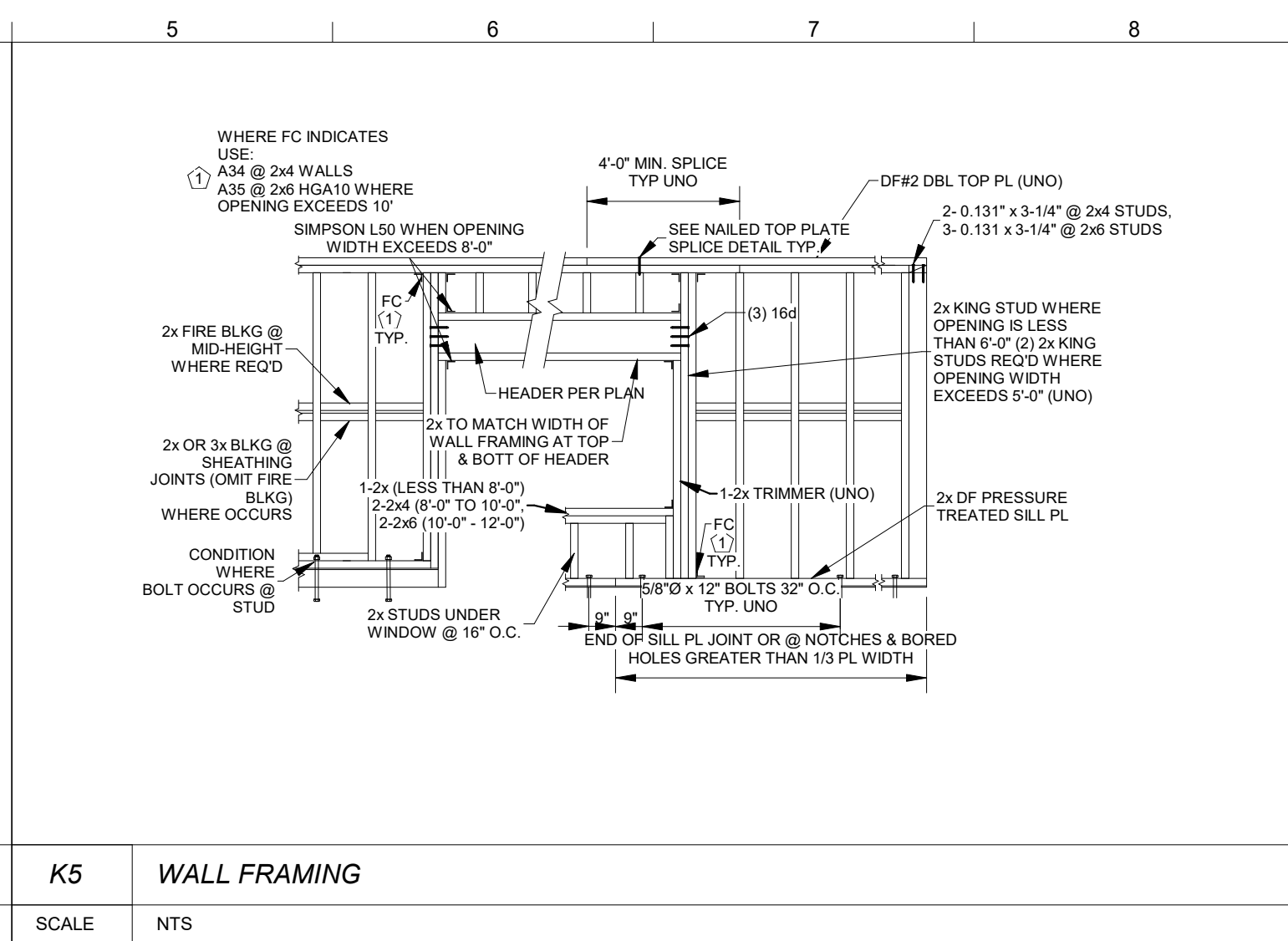
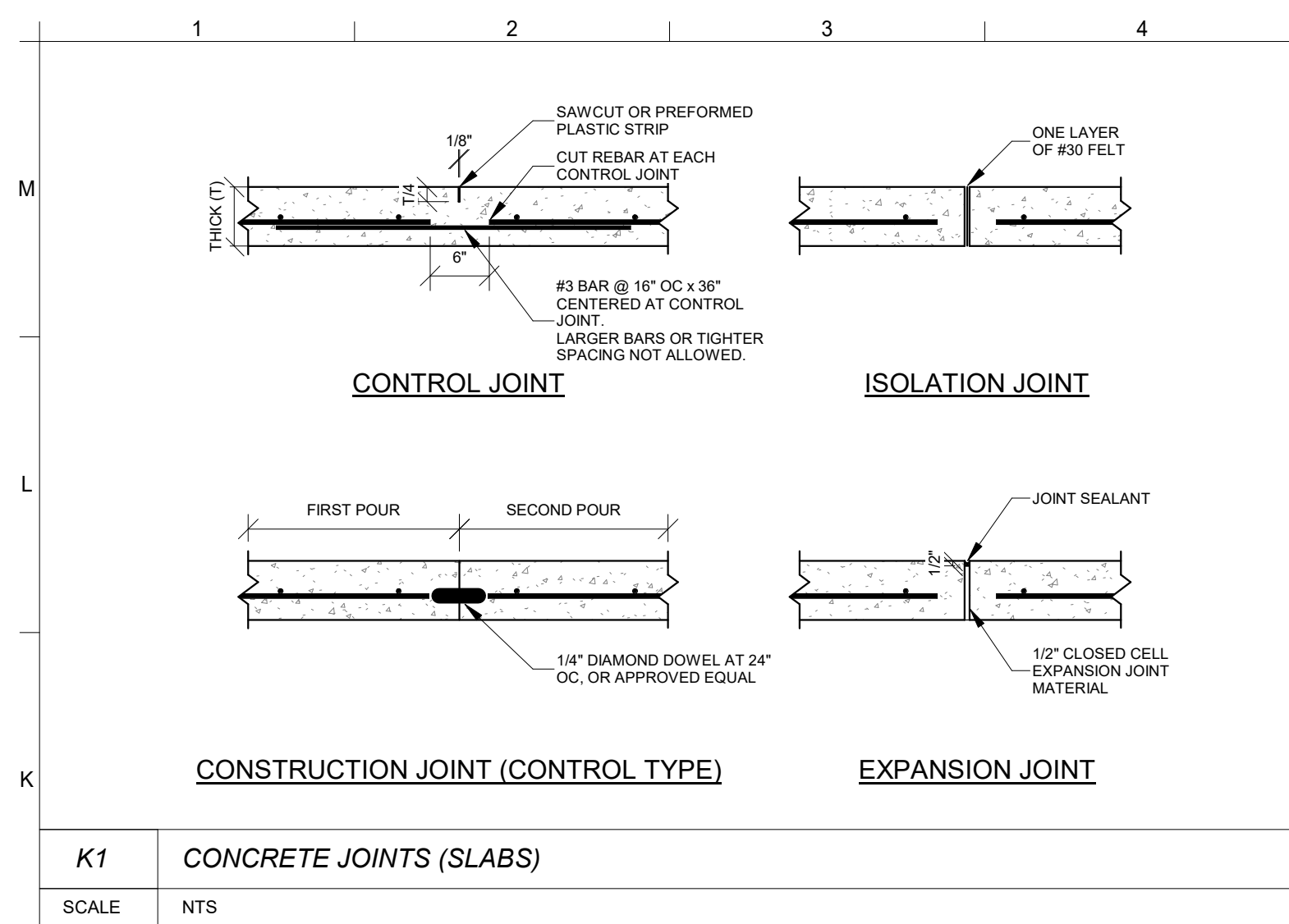
campbell architecture
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STAMP:
12/7/2023
60728
Ryan W. Jolley
ARIZONA, U.S.A.

SUBMITTAL:

PERMIT SET

REVISIONS

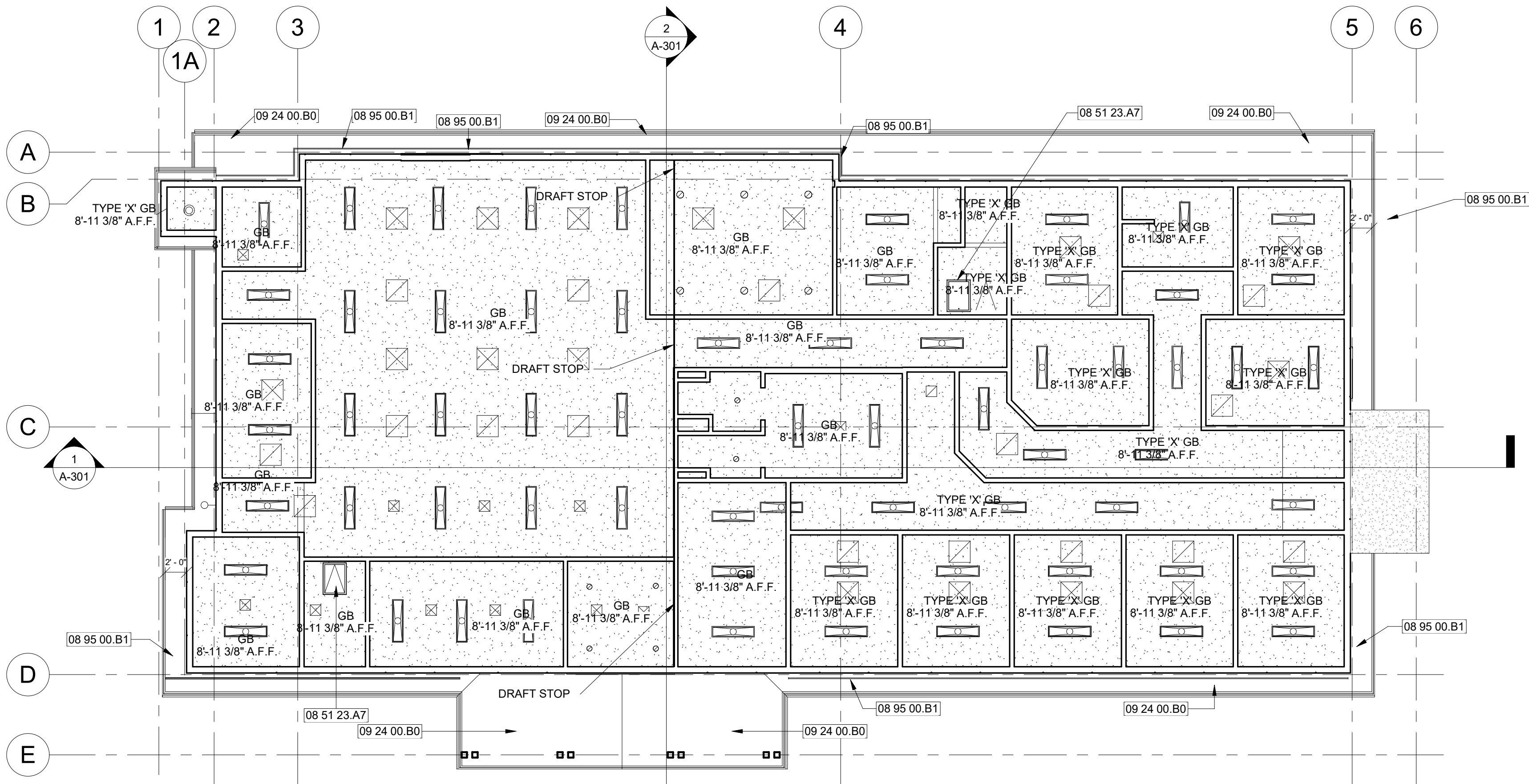
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1 REFLECTED CEILING PLAN
1/8" = 1'-0"

Keynote Legend	
Key Value	Keynote Text
03 31 00	Structural Concrete
03 31 00.J5	4" Cast-in-Place Concrete Slab
03 45 00.A1	Pre-Cast Concrete Cap
04 73 00	Manufactured Stone Veneer
05 05 23.I0	20 ga.Stainless Steel Plate
05 12 00.L43	TS6x6x0.5
05 12 00.L116	TS12x6x0.5
05 41 00.A7	5-1/2" Metal Stud
06 11 00.B3	1x3
06 11 00.D5	2x4 Framing @ 16" O.C.
06 11 00.F1	2x6 Treated
06 11 00.F2	2x6 Framing
06 11 00.F4	2x6 Framing @ 16" O.C.
06 11 00.F22	Dbl 2x6 Header
06 11 00.F23	2x6 Roof Outrigger typ.
06 11 00.G1	2x8
06 11 00.G6	2x8 Joists @ 16" O.C.
06 11 00.G11	2x8 Rafters Tails
06 11 00.G13	2x8 Rafters @ 16" O.C.
06 11 00.N1	Pre Manufactured Wood Truss
06 11 00.N2	Pre Manufactured Wood Truss Blocking
06 16 00.D6	1/2" Plywood
06 16 00.D8	5/8" Plywood
06 17 00.D1	1 3/4" X 9" LVL
06 40 00.A1	Plastic Laminate
07 21 00.A2	R-13 Batt Insulation
07 21 00.A4	R-19 Batt Insulation
07 21 00.A9	R-38 Batt Insulation
07 26 00.A2	Building Felt
07 26 00.A5	Liquid Applied Air Barrier
07 31 00.A1	Asphalt Shingles
07 31 00.C1	Metal Drip Edge PRE-FINISHED
07 31 00.D1	Metal Flashing PRE-FINISHED
07 31 00.E3	12" Ridge Vent
08 43 00.A1	Storefront Door Head
08 51 23.A7	Steel Attic Access W/Lock
08 95 00.B1	2" Continuous Soffit Vent
09 22 36.F11	3/4" Expansion Joint Reveal
09 24 00.B0	3/8" Stucco
09 28 13	Cementitious Backer Board
09 29 00.D2	1 Layer 5/8" Gypsum Board
09 29 00.D11	5/8" Type "X" Gypsum Wallboard
09 29 00.L1	1/2" RC-1 Resilient Channel

CEILING PLAN GENERAL NOTES
ALL TYPE "X" CEILINGS ARE 1-HR FIRE RATED.
USE 25 GA. MIN. RESILIENT CHANNEL @ 16" O.C. BETWEEN
GYP AND BOTTOM OF TRUSS.
BASIS OF DESIGN: UL P522

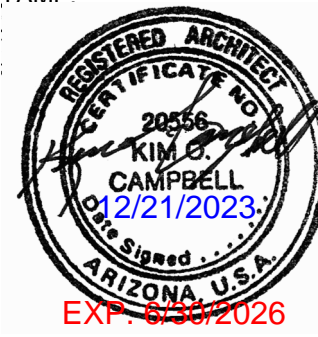
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CITY OF PAGE
REFLECTED CEILING PLAN
ENCOMPASS SHELTER BUILDING

2110-042
PROJECT NUMBER
A-120
SHEET NO.

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Engineering**

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CITY OF PAGE

EXTERIOR ELEVATIONS

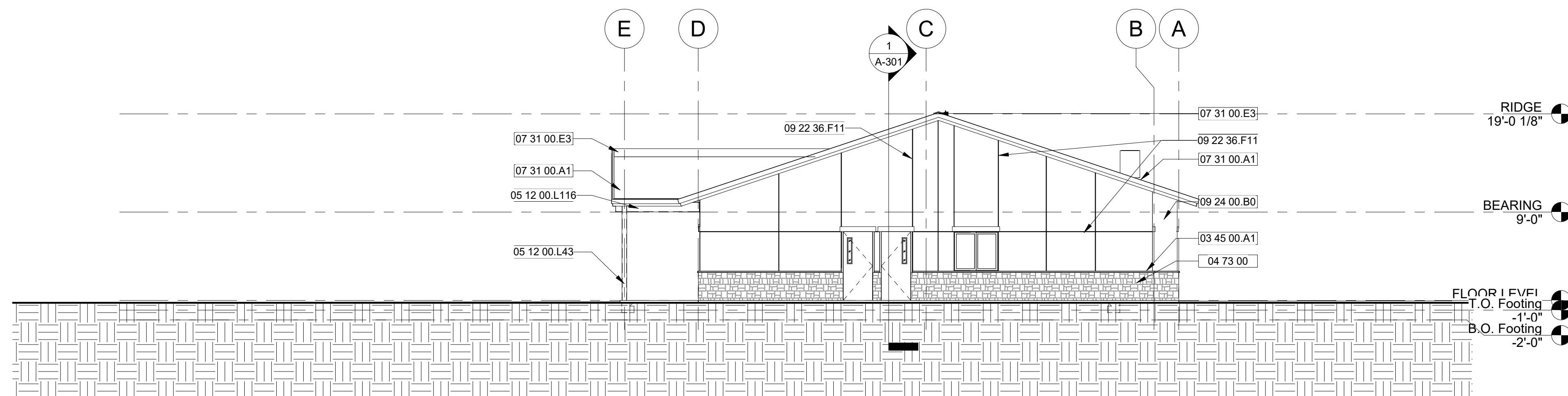
ENCOMPASS SHELTER BUILDING

37

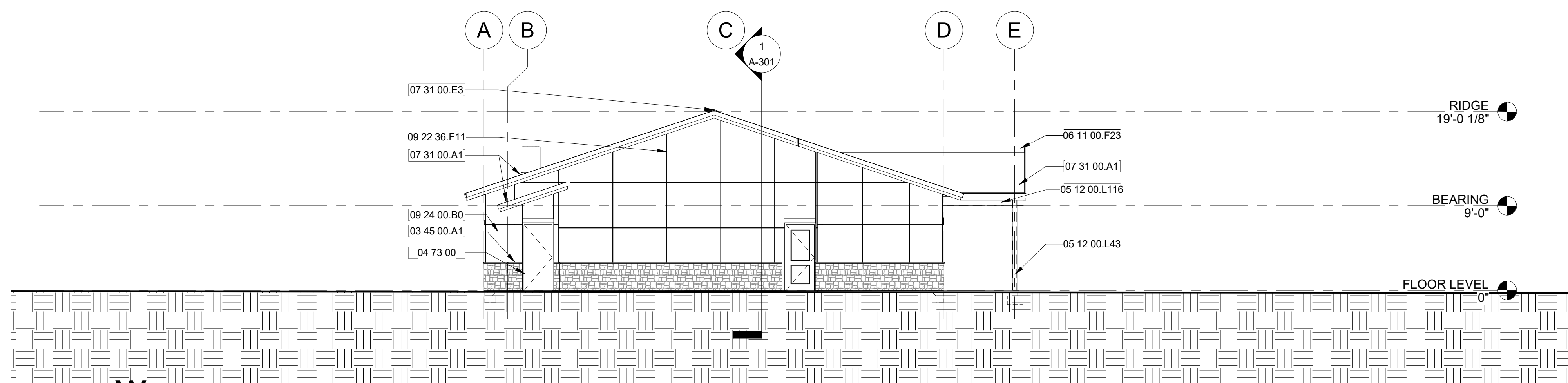
2110-042
PROJECT NUMBER

A-201
SHEET NO.

$$w_{\text{max}} = \frac{2\pi \gamma \sin \theta}{\lambda} \approx \frac{2\pi \gamma}{\lambda}$$



1 EAST
1/8" = 1'-0"



2 WEST
1/8" = 1'-0"

Keynote Legend	
Key Value	Keynote Text

03 31 00	Structural Concrete
03 31 00.J5	4" Cast-in-Place Concrete Slab
03 45 00.A1	Pre-Cast Concrete Cap
04 73 00	Manufactured Stone Veneer
05 05 23.I0	20 ga.Stainless Steel Plate
05 12 00.L43	TS6x6x0.5
05 12 00.L116	TS12x6x0.5
05 41 00.A7	5-1/2" Metal Stud
06 11 00.B3	1x3
06 11 00.D5	2x4 Framing @ 16" O.C.
06 11 00.F1	2x6 Treated
06 11 00.F2	2x6 Framing
06 11 00.F4	2x6 Framing @ 16" O.C.
06 11 00.F22	Dbl 1x6 Joist Header
06 11 00.F23	2x6 Roof Outrigger typ.
06 11 00.G1	2x8
06 11 00.G6	2x8 Joists @ 16" O.C.
06 11 00.G11	2x8 Rafters Tails
06 11 00.G13	2x8 Rafters @ 16" O.C.
06 11 00.N1	Pre Manufactured Wood Truss
06 11 00.N2	Pre Manufactured Wood Truss Blocking
06 16 00.D6	1/2" Plywood
06 16 00.D8	5/8" Plywood
06 17 00.D1	1 3/4" X 9" LVL
06 40 00.A1	Plastic Laminate
07 21 00.A2	R-13 Batt Insulation
07 21 00.A4	R-19 Batt Insulation
07 21 00.A9	R-38 Batt Insulation
07 26 00.A2	Building Felt
07 26 00.A5	Liquid Applied Air Barrier
07 31 00.A1	Asphalt Shingles
07 31 00.C1	Metal Drip Edge PRE-FINISHED
07 31 00.D1	Metal Flashing PRE-FINISHED
07 31 00.E3	12" Ridge Vent
08 43 00.A1	Storefront Door Head
08 51 23.A7	Steel Attic Soffit W/Lock
08 95 00.B1	2" Continuous Access Vent
09 22 36.F11	3/4" Expansion Joint Reveal
09 24 00.B0	3/8" Stucco
09 28 13	Cementitious Backer Board
09 29 00.D2	1 Layer 5/8" Gypsum Board
09 29 00.D11	5/8" Type "X" Gypsum Wallboard
09 29 00.L1	1/2" RC-"X" Resilient Channel

TAMP:



SUBMITTAL:

DATE	DESCRIPTION

REVISIONS



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EXTERIOR ELEVATIONS

ENCOMPASS SHELTER BUILDING

2110-042
PROJECT NUMBER

A-202

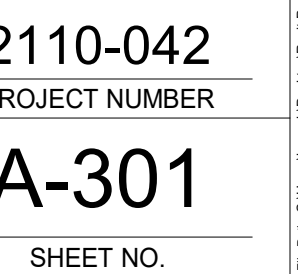
SHEET NO.

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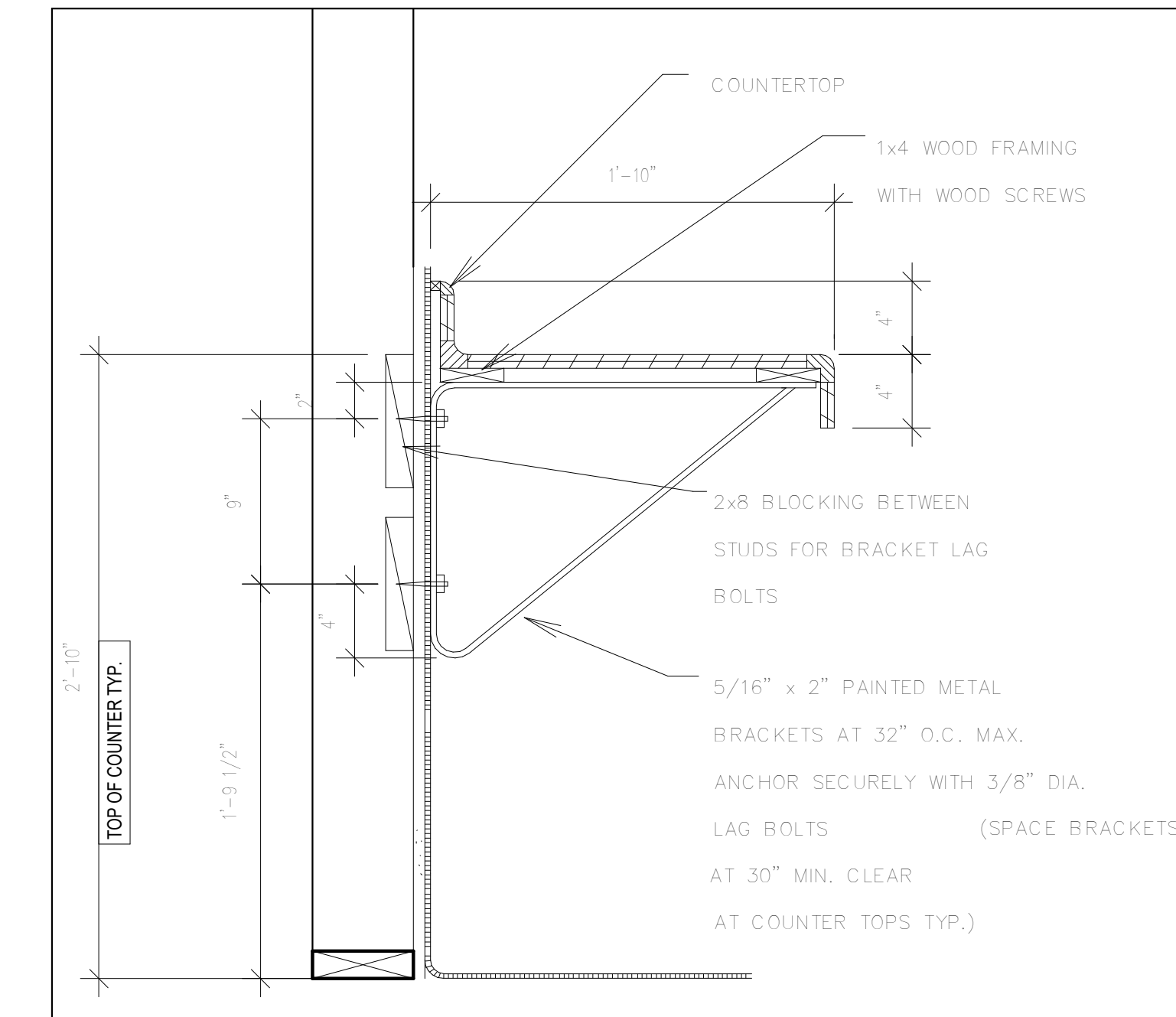
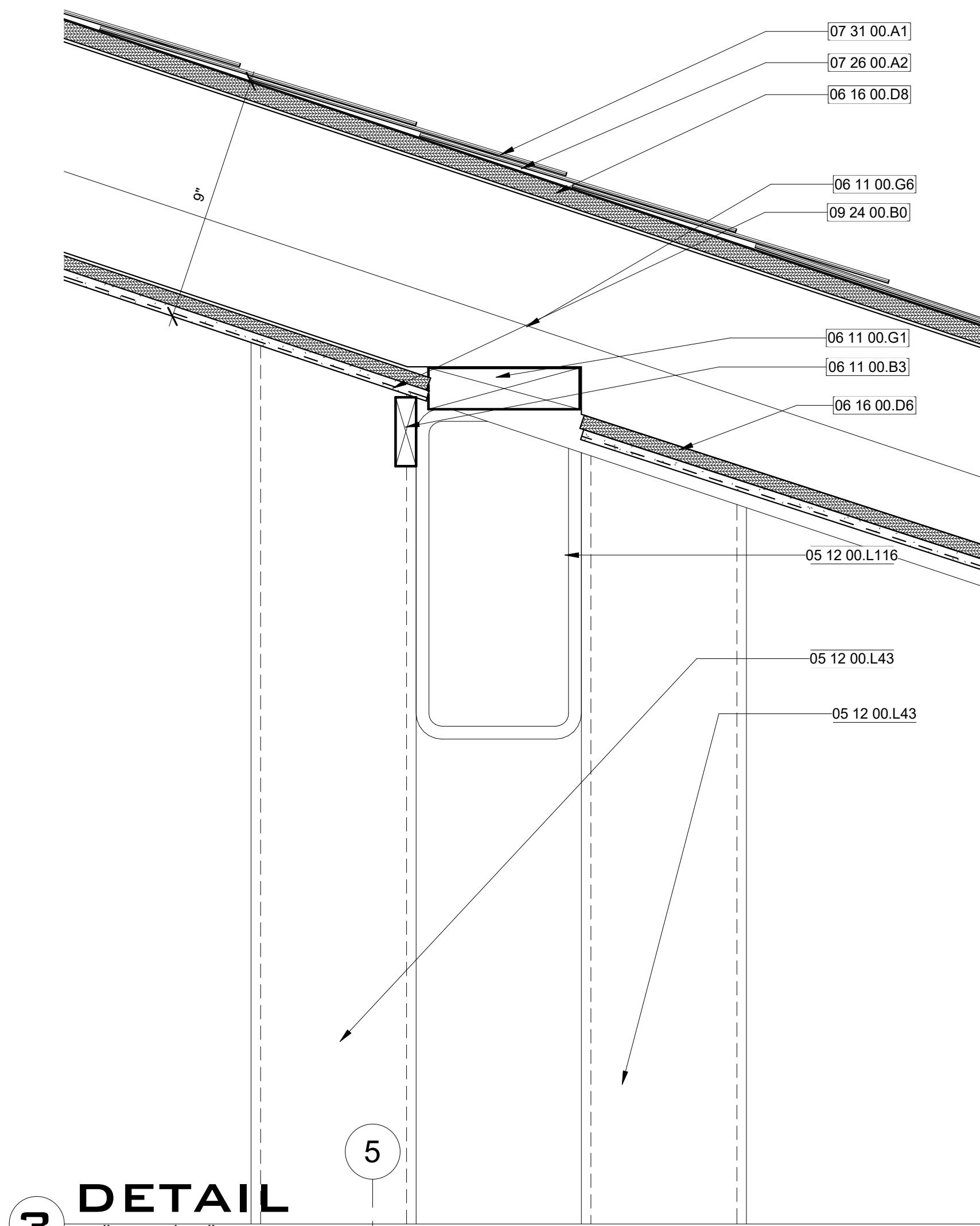
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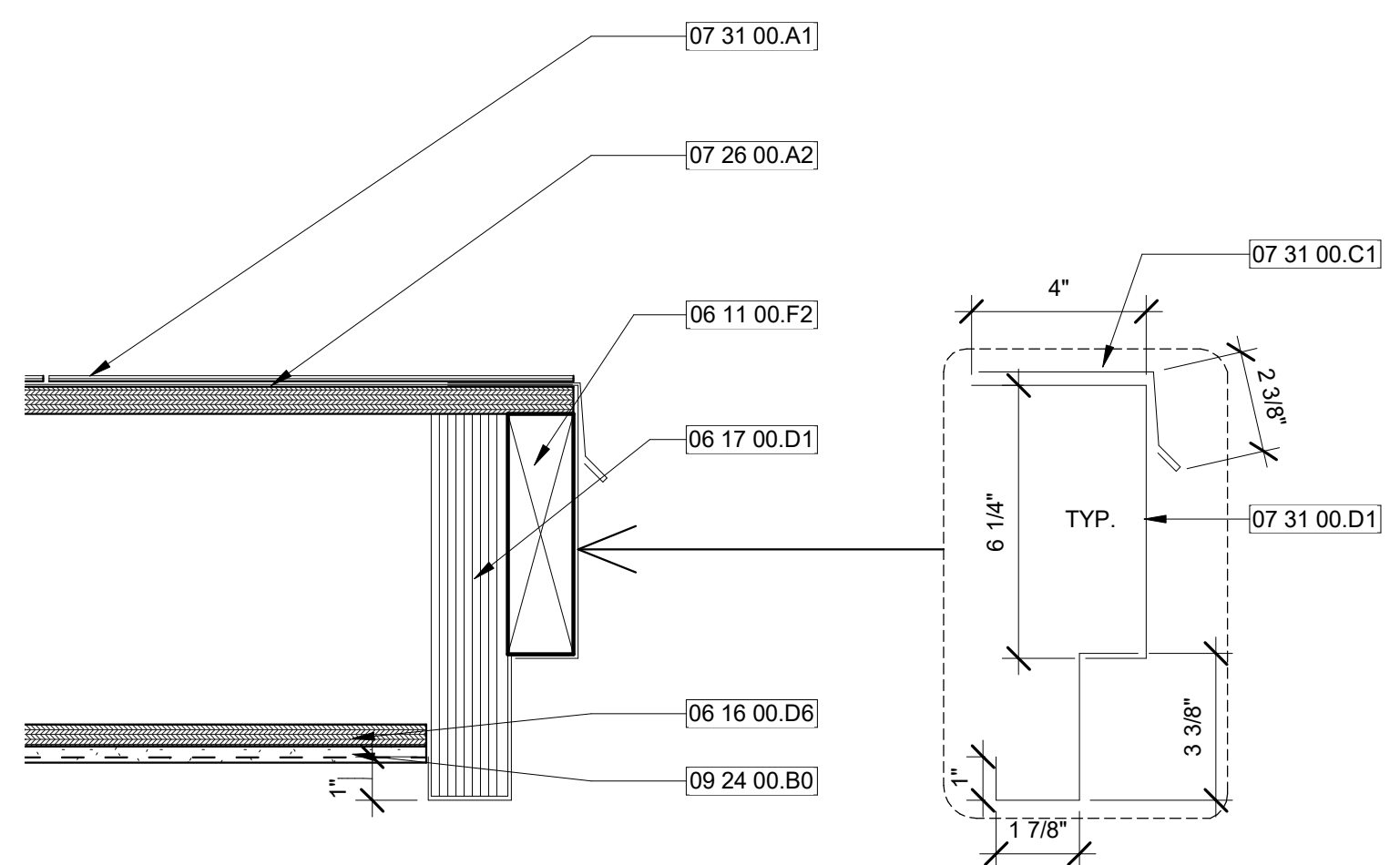
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Vol. 20, No. 1, 1991

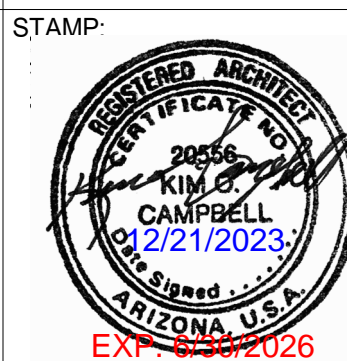


6 **DETAIL**
1 1/2" = 1'-0"



5 DETAIL
3" = 1'-0"

		15	16
Keynote Legend			
Key Value		Keynote Text	
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03 31 00.J5		4" Cast-in-Place Concrete Slab	
03 45 00.A1		Pre-Cast Concrete Cap	
04 73 00		Manufactured Stone Veneer	
05 05 23.10		20 ga.Stainless Steel Plate	
05 12 00.L43		TS6x6x0.5	
05 12 00.L116		TS12x6x0.5	
05 41 00.A7		5-1/2" Metal Stud	
06 11 00.B3		1x3	
06 11 00.D5		2x4 Framing @ 16" O.C.	
06 11 00.F1		2x6 Treated	
06 11 00.F2		2x6 Framing	
06 11 00.F4		2x6 Framing @ 16" O.C.	
06 11 00.F22		Dbl 2x6 Header	
06 11 00.F23		2x6 Roof Outtrigger typ.	
06 11 00.G1		2x8	
06 11 00.G6		2x8 Joists @ 16" O.C.	
06 11 00.G11		2x8 Rafters Tails	
06 11 00.G13		2x8 Rafters @ 16" O.C.	
06 11 00.N1		Pre Manufactured Wood Truss	
06 11 00.N2		Pre Manufactured Wood Truss Blocking	
06 16 00.D6		1/2" Plywood	
06 16 00.D8		5/8" Plywood	
06 17 00.D1		1 3/4" X 9" LVL	
06 40 00.A1		Plastic Laminate	
07 21 00.A2		R-13 Batt Insulation	
07 21 00.A4		R-19 Batt Insulation	
07 21 00.A9		R-38 Batt Insulation	
07 26 00.A2		Building Felt	
07 26 00.A5		Liquid Applied Air Barrier	
07 31 00.A1		Asphalt Shingles	
07 31 00.C1		Metal Drip Edge PRE-FINISHED	
07 31 00.D1		Metal Flashing PRE-FINISHED	
07 31 00.E3		12" Ridge Vent	
08 43 00.A1		Storefront Door Head	
08 51 23.A7		Steel Attic Access W/Lock	
08 95 00.B1		2" Continuous Soffit Vent	
09 22 36.F11		3/4" Expansion Joint Reveal	
09 24 00.B0		3/8" Stucco	
09 28 13		Cementitious Backer Board	
09 29 00.D2		1 Layer 5/8" Gypsum Board	
09 29 00.D11		5/8" Type "X" Gypsum Wallboard	
09 29 00.D1		1/2" RC-1 Resilient Channel	



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CITY OF PAGE

DETAILS

ENCOMPASS SHELTER BUILDING

2110-042
PROJECT NUMBER
A-501
SHEET NO.

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E DESCRIPTION

BEL MORGUE

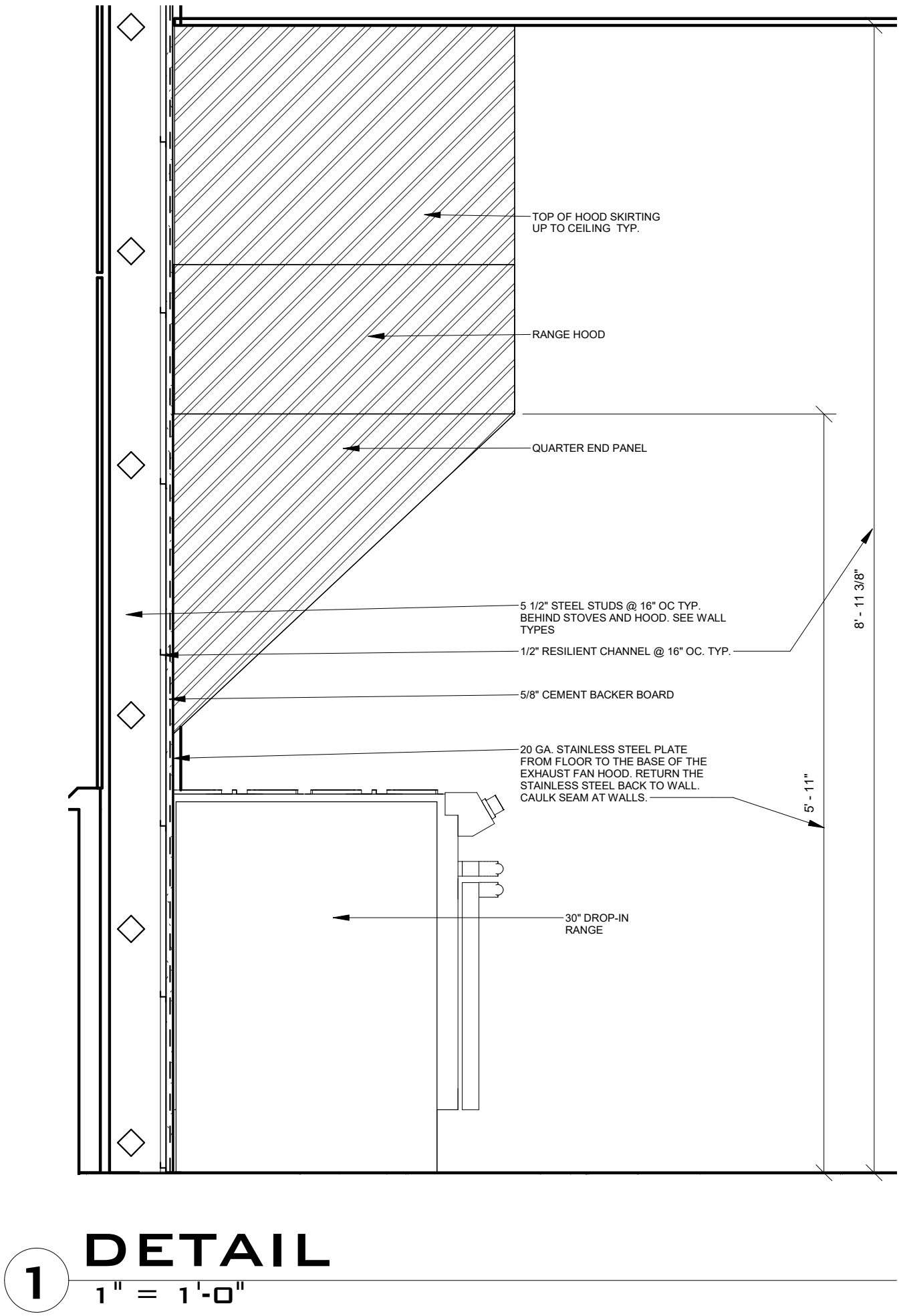


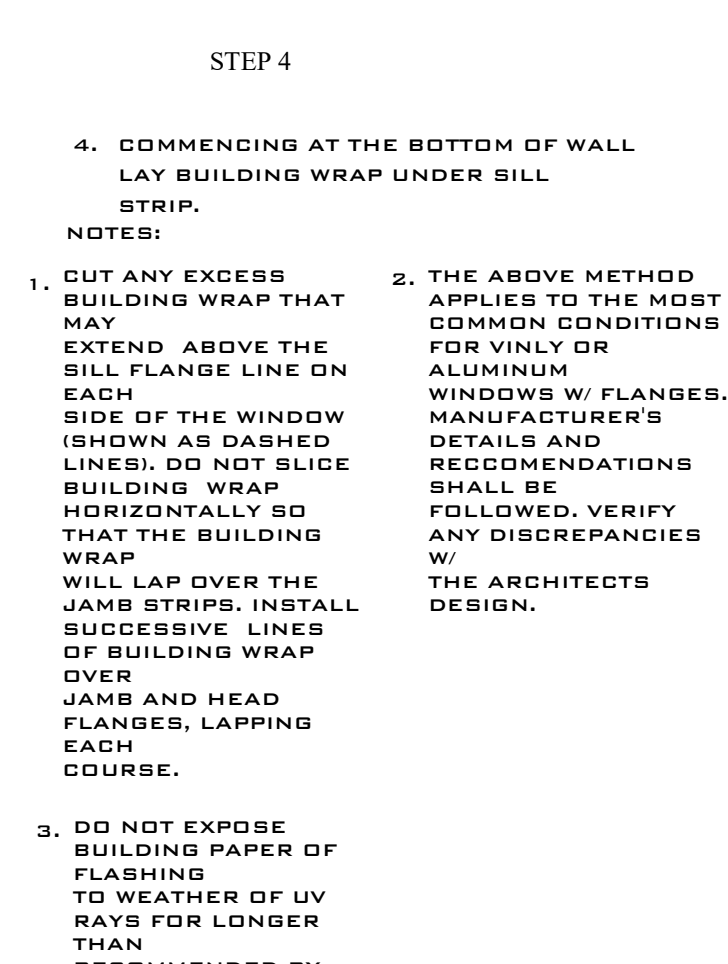
CITY OF PAGE
ENCOMPASS SHELTER BUILDING

DETAILS

2110-042
PROJECT NUMBER

A-503
SHEET NO.




$$1/4'' = 1'-0''$$

$$1 \frac{1}{2}'' = 1'-0''$$
$$1 \frac{1}{2}'' = 1'-0''$$
$$1 \frac{1}{2}'' = 1'-0''$$


- 1) IBC.1010.1.9 EGRESS DOORS SHALL BE READILY OPERABLE FROM THE EGRESS SIDE WITHOUT THE USE OF A KEY OR SPECIAL KNOWLEDGE OR EFFORT.
- 2) IBC.1010.1.9.1 DOOR HANDLES, PULLS, LATCHES, LOCKS AND OTHER OPERATING DEVICES ON DOOR REQUIRED TO BE ACCESSIBLE SHALL NOT REQUIRE TIGHT GRASPING, TIGHT PINCHING OR TWISTING OF THE WRIST TO OPERATE.
- 3) IBC.1010.1.9.2 DOOR HANDLES, PULLS, LATCHES, LOCKS AND OTHER OPERATING DEVICES SHALL BE INSTALLED 34 INCHES (864MM) MINIMUM AND 48 INCHES (1219MM) MAXIMUM ABOVE THE FINISHED FLOOR
- 4) ALL WOOD DOORS TO BE FACTORY FINISHED
- 5) INSULATE HEAD, JAMBS & SILL W/ WEATHER STRIPPING ON ALL EXTERIOR MAN DOORS
- 6) ALL HOLLOW METAL DOOR TO BE PRIMED & FIELD PAINTED.



—

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Jones & DeMille
Engineering
www.jonesanddemille.com

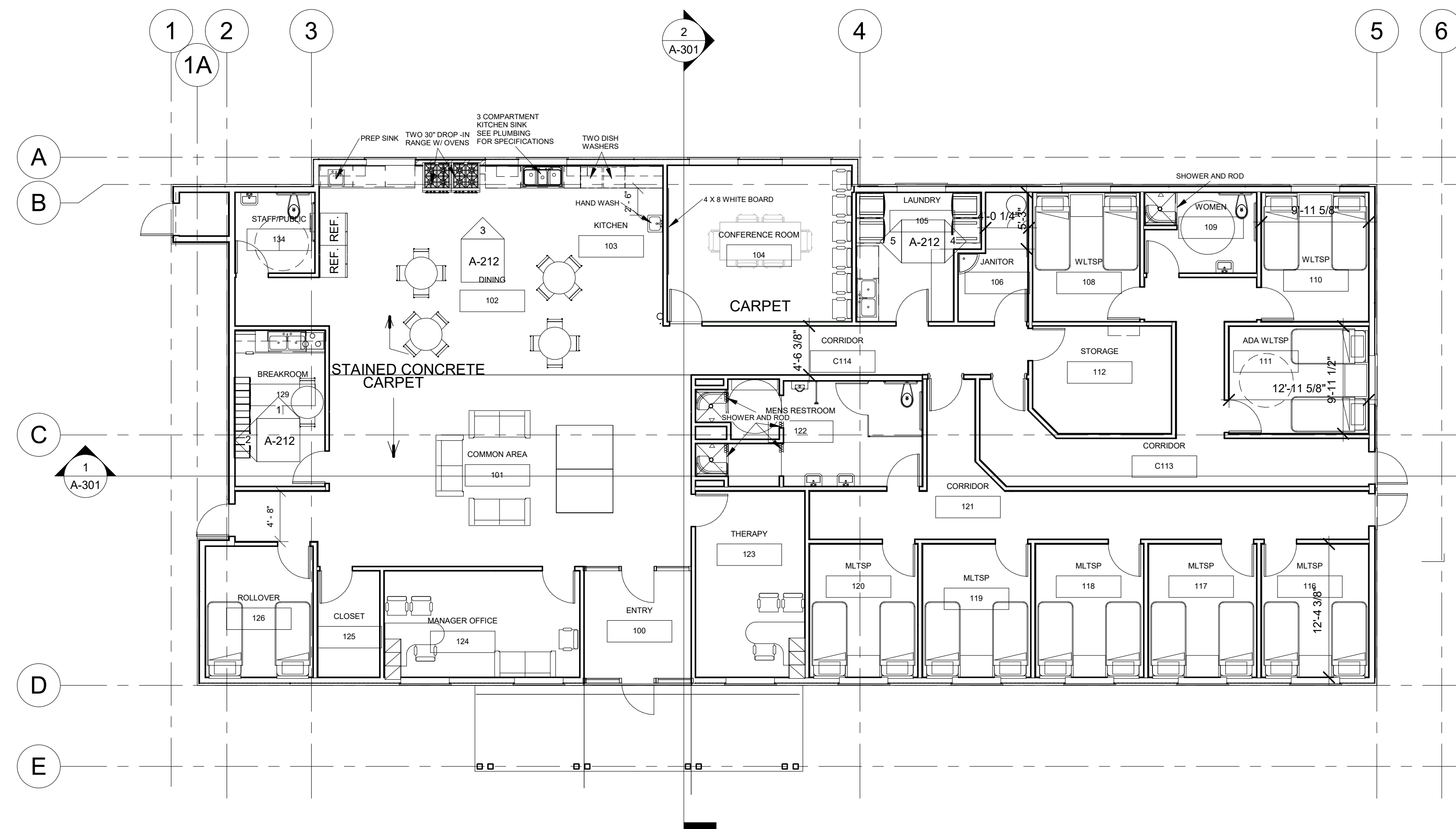
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DETAILS
ENCOMPASS SHELTER BUILDING

2110-042
PROJECT NUMBER

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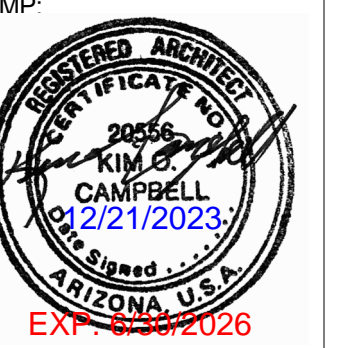
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1 FURNITURE PLAN
1/8" = 1'-0"
6,066 SF

Keynote Legend	
Key Value	Keynote Text
03 31 00	Structural Concrete
03 31 00.J5	4" Cast-in-Place Concrete Slab
03 45 00.A1	Pre-Cast Concrete Cap
04 73 00	Manufactured Stone Veneer
05 05 23.I0	20 ga.Stainless Steel Plate
05 12 00.L43	TS6x6x0.5
05 12 00.L116	TS12x6x0.5
05 41 00.A7	5-1/2" Metal Stud
06 11 00.B3	1x3
06 11 00.D5	2x4 Framing @ 16" O.C.
06 11 00.F1	2x6 Treated
06 11 00.F2	2x6 Framing
06 11 00.F4	2x6 Framing @ 16" O.C.
06 11 00.F22	Dbl 2x6 Header
06 11 00.F23	2x6 Roof Outrigger typ.
06 11 00.G1	2x8
06 11 00.G6	2x8 Joists @ 16" O.C.
06 11 00.G11	2x8 Rafters Tails
06 11 00.G13	2x8 Rafters @ 16" O.C.
06 11 00.N1	Pre Manufactured Wood Truss
06 11 00.N2	Pre Manufactured Wood Truss Blocking
06 16 00.D6	1/2" Plywood
06 16 00.D8	5/8" Plywood
06 17 00.D1	1 3/4" X 9" LVL
06 40 00.A1	Plastic Laminate
07 21 00.A2	R-13 Batt Insulation
07 21 00.A4	R-19 Batt Insulation
07 21 00.A9	R-38 Batt Insulation
07 26 00.A2	Building Felt
07 26 00.A5	Liquid Applied Air Barrier
07 31 00.A1	Asphalt Shingles
07 31 00.C1	Metal Drip Edge PRE-FINISHED
07 31 00.D1	Metal Flashing PRE-FINISHED
07 31 00.E3	12" Ridge Vent
08 43 00.A1	Storefront Door Head
08 51 23.A7	Steel Attic Access W/Lock
08 95 00.B1	2" Continuous Soffit Vent
09 22 36.F11	3/4" Expansion Joint Reveal
09 24 00.B0	3/8" Stucco
09 28 13	Cementitious Backer Board
09 29 00.D2	1 Layer 5/8" Gypsum Board
09 29 00.D11	5/8" Type "X" Gypsum Wallboard
09 29 00.L1	1/2" RC-1 Resilient Channel



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E	DESCRIPTION
REVISIONS	



CITY OF PAGE

FURNITURE PLAN

ENCOMPASS SHELTER BUILDING

PM

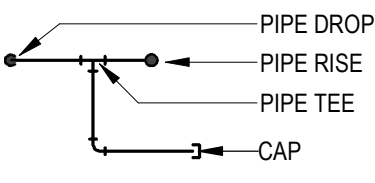
2110-042
PROJECT NUMBER
F-101
SHEET NO.

PIPING SYMBOLS	
_____CHWR_____	CHILLED WATER RETURN
_____CHWS_____	CHILLED WATER SUPPLY
_____CD_____	CONDENSATE DRAINAGE
_____CWR_____	CONDENSER WATER RETURN
_____CWS_____	CONDENSER WATER SUPPLY
_____GWR_____	GEO THERMAL WATER RETURN
_____GWS_____	GEO THERMAL WATER SUPPLY
_____HWR_____	HEATING WATER RETURN
_____HWS_____	HEATING WATER SUPPLY
_____NG_____	NATURAL GAS
_____PG_____	PROPANE GAS
_____REF-L_____	REFRIGERANT-LIQUID
_____REF-S_____	REFRIGERANT-SUCTION
_____REF-HG_____	REFRIGERANT-HOT GAS
_____STM_____	STEAM
_____CDR_____	CONDENSATE RETURN
_____CWV_____	COMBINATION WASTE & VENT
_____CA_____	COMPRESSED AIR
_____--DCW_____	DOMESTIC COLD WATER
_____--S-CW_____	SOFT COLD WATER
_____--F-CW_____	FILTERED COLD WATER
_____--RO_____	REVERSE OSMOSIS WATER
_____--DHW_____	HOT WATER
_____--DHW 140°_____	HOT WATER 140°
_____--DHW-R_____	HOT WATER RECIRCULATION
_____--DHW-R 140°_____	HOT WATER RECIRCULATION 140°

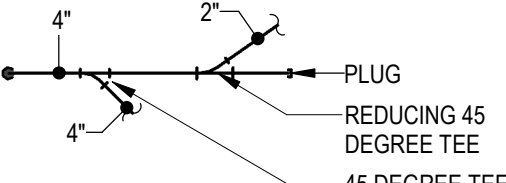
DEFERRED SUBMITTAL

SEISMIC VIBRATION AND ISOLATION DESIGN SHALL BE A DEFERRED SUBMITTAL. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS, DETAILS AND CALCULATIONS TO THE BUILDING DEPARTMENT FOR REVIEW.

----	-GV-----	GREASE VENT
----	-GW-----	GREASE WASTE
----	-IW-----	INDIRECT WASTE
----	-OV-----	OIL VENT
----	-OW-----	OIL WASTE
----	-PD-----	PUMP DISCHARGE
----	-V-----	SANITARY VENT
----	-W-----	SANITARY SEWER
----	-SHWR-----	SOLAR HOT WATER RETURN
----	-SHWS-----	SOLAR HOT WATER SUPPLY
----	-RD-----	ROOF DRAIN
----	-RDO-----	ROOF DRAIN OVERFLOW













PIPE DROP
PIPE RISE
PIPE TEE
CAP












4"
2"
45"
45"
PLUG
REDUCING 45 DEGREE TEE
45 DEGREE TEE

PIPE ACCESSORY TAGS

	2" DOM. WM DOMESTIC WATER METER		2" M-CTRL MOTORIZED CONTROL VALVE
	2" BALANCING BALANCING VALVE		2" 3-WAY CTRL 3 WAY MOTORIZED CONTROL VALVE
	2" SHUTOFF 1/4 TURN BALL VALVE		2" PRV PRESSURE REDUCING VALVE
	2" CHECK CHECK VALVE		3/8" SOLENOID REFRIGERANT SOLENOID VALVE
	2" TMV 3-WAY MIXING VALVE		2" BUTTERFLY BUTTERFLY VALVE

DRAIN TAGS

DRAIN SIZE → TYPE (SEE SCHEDULE) →

FLOOR DRAIN		4" FD-3	4" AD-6		AREA DRAIN		
FLOOR DRAIN		4" FD-1P	"P" - INDICATES PRIMER CONNECTION		4" DD-29		DECK DRAIN
FLOOR SINK		4" FS-1	4" RD-12		FLOW CONTROL DRAIN		
HUB DRAIN		4" FD-13	4" RD-15		ROOF DRAIN		
	8 WFU	- FIXTURE UNITS					
		ROOF AREA SERVED BY DRAIN - 4000 SF	6" RD-1		COMBINATION DRAINS		

PLUMBING FIXTURE TAGS

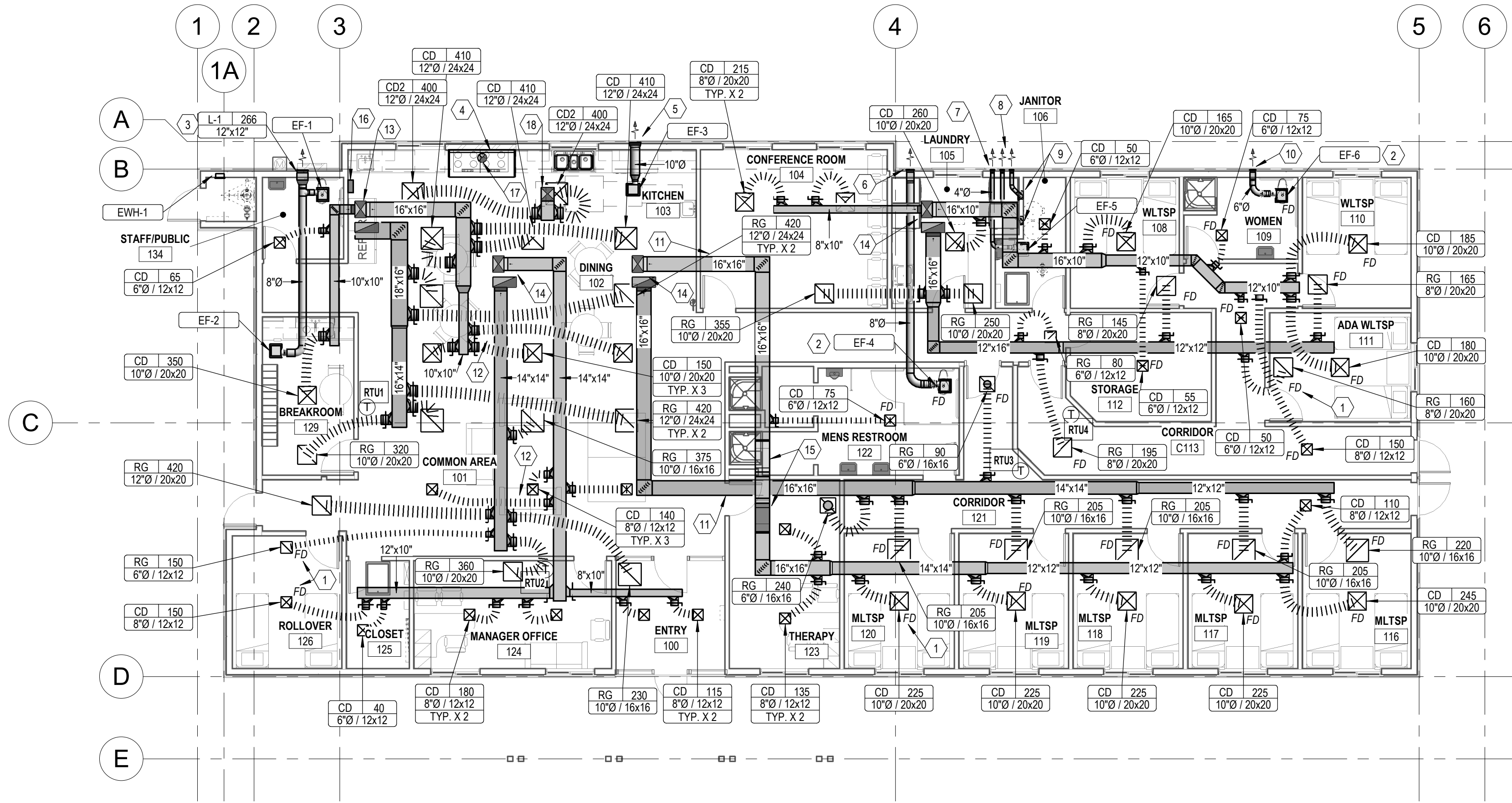
Diagram illustrating a 4" WCO (Water Closet Outlet) line configuration. The line is labeled "4" WCO" at both ends. The line includes the following components and labels:

- TYPE (SEE SCHEDULE)**: Indicated at the top left.
- WATER CLOSET - WALL HUNG - ADA**: Indicated on the left side.
- PIPE ACCESSORY TAG**: Indicated on the left side.
- WC-1A**: A fixture unit label.
- WC-1**: A fixture unit label.
- LV-1**: A fixture unit label.
- 1.5 CWFU**: A fixture unit label.
- 1.5 HWFU**: A fixture unit label.
- 1 LVFU**: A fixture unit label.
- 1 WFU**: A fixture unit label.
- 4" WCO**: Indicated at the right end.

NOTE

THE SYMBOLS AND ABBREVIATIONS SHOWN ON THIS SHEET MAY OR MAY NOT BE USED IN
THIS SET OF DRAWINGS.





1 LEVEL 1 HVAC PLAN
1/8" = 1'-0"

- KEYNOTES
- 1

FIRE CEILING RADIATION DAMPERS SHALL BE INSTALLED IN THE DIFFUSERS AND RETURN AIR GRILLES FOR ALL BEDROOMS, BATHROOMS AND ASSOCIATED ROOMS AS SHOWN, TYPICAL.
- 2

AS SHOWN, EXHAUST FANS LOCATED IN THE RESIDENTS QUARTERS SHALL HAVE FACTORY RADIATION DAMPERS INSTALLED PER THE MANUFACTURERS INSTRUCTIONS, TYPICAL.
- 3

INSTALL 12X12 EXHAUST PLENUM AND TRANSITION TO EXHAUST LOUVER. MOUNT LOUVER AS HIGH AS POSSIBLE ON THE EXTERIOR WALL ABOVE THE CEILING, TYPICAL.
- 4

TYPE I GREASE HOOD. SEE KITCHEN HOOD DETAILS FOR ADDITIONAL INFORMATION.
- 5

INSTALL EXHAUST DUCT FROM KITCHEN HOOD TO A FACTORY WALL MOUNTED KITCHEN HOOD OUTLET. KITCHEN HOOD BY OTHERS. COORDINATE SIZE OF DUCT AND WALL CAP WITH HOOD PROVIDED. INSTALL AS HIGH AS POSSIBLE ON EXTERIOR WALL PER MANUFACTURERS INSTRUCTIONS.
- 6

INSTALL BROAN MODEL 843 OR EQUAL 8" EXHAUST WALL CAP WITH DAMPER. MOUNT AS HIGH AS POSSIBLE ON EXTERIOR WALL ABOVE CEILING.
- 7

INSTALL BROAN MODEL 885 OR EQUAL 4" EXHAUST WALL CAP WITH DAMPER AND BIRD SCREEN. MOUNT AS HIGH AS POSSIBLE ON EXTERIOR WALL ABOVE CEILING.
- 8

INSTALL 4" DRYER WALL VENT WITH INTEGRAL BACKDRAFT DAMPER ON EXTERIOR WALL ABOVE CEILING.
- 9

METAL DRYER VENT RECEIVER BOX. CL425 OR EQUAL.
- 10

INSTALL BROAN MODEL 843 OR EQUAL 6" EXHAUST WALL CAP WITH DAMPER AND BIRD SCREEN. MOUNT AS HIGH AS POSSIBLE ON EXTERIOR WALL ABOVE CEILING.
- 11

SEAL DUCT PENETRATION OF ATTIC DRAFT BARRIER WALL WITH NON-COMBUSTIBLE CAULK OR FIRE STOP CAULK.
- 12

INSTALL BRANCH DUCT TAKE-OFF ON TOP OF TRUNK DUCT TO ROUTE DUCTWORK OVER CLOSE PARALLEL DUCTS, TYPICAL.
- 13

INSTALL S.A. AND R.A. DUCTS UP THROUGH THE ROOF TO THE ROOF TOP UNIT SIZED TO MATCH THE RTU OUTLET SIZE. TRANSITION DUCTS TO THE OUTLET OF THE ROOF TOP UNIT ABOVE THE ROOF IN THE CURB FOR THE UNIT. SMOKE DETECTOR SHALL BE INSTALLED IN THE RETURN AIR DUCT UP TO UNIT. SMOKE DETECTOR PROVIDED AND INSTALLED BY ELECTRICAL.
- 14

INSTALL 16X16 S.A. AND R.A. DUCTS UP THROUGH THE ROOF TO THE ROOF TOP UNIT. TRANSITION DUCTS TO THE OUTLET OF THE ROOF TOP UNIT ABOVE THE ROOF IN THE CURB FOR THE UNIT.
- 15

OFFSET DUCT UP BETWEEN TRUSSES TO BE INSTALLED OVER THE RETURN AIR DUCT.
- 16

KITCHEN HOOD CONTROL FIRE CABINET. SEE KITCHEN HOOD DETAILS FOR ADDITIONAL INFORMATION.
- 17

10" DIAMETER WELDED BLACK IRON STAINLESS STEEL OR HOOD MANUFACTURERS DUCT SYSTEM FROM THE HOOD UP THROUGH THE ROOF TO THE EXHAUST FAN. OFFSET DUCT AS NEEDED TO AVOID ROOF TRUSSES. DUCT TO BE INSTALLED WITH 2 LAYERS OF FIRE DUCT WRAP (3M OR EQUAL). DUCT WRAP TO BE CONTINUOUS FROM THE HOOD TO THE EXHAUST FAN CONNECTION FOR ZERO CLEARANCE INSTALLATION.
- 18

14/14 SUPPLY AIR DUCT UP TO MAKE-UP AIR UNIT ON ROOF. PROVIDE FLEXIBLE CONNECTION TO UNIT.

- KITCHEN HOOD NOTES
- A

GREASE DUCT SHALL BE WELDED 16 GA. BLACK IRON, 18 GA. STAINLESS STEEL, OR FACTORY PROVIDED STAINLESS STEEL GREASE DUCT.
- B

SLOPE GREASE DUCT BACK TO HOOD AT A MINIMUM OF 1/4" PER FT. INSTALL ACCESS DOORS AT ALL ELBOWS FOR CLEANING, TYPICAL.
- C

GREASE DUCT SHALL BE WRAPPED WITH 2 LAYERS OF FIRE RESISTIVE DUCT WRAP WITH A 2 HR. RATING. DUCT WRAP TO BE CONTINUOUS FROM HOOD TO EXHAUST FAN CONNECTION AND INSTALLED PER MANUFACTURERS INSTRUCTIONS FOR ZERO CLEARANCE (CERTAINTED, THERMAL CERAMICS, 3M OR EQUAL).
- D

A GREASE DUCT LIGHT TEST SHALL BE PERFORMED BY THE CONTRACTOR TO DETERMINE THAT ALL WELDED AND BRAZED JOINTS ARE LIQUID TIGHT, INCLUDING THE HOOD CONNECTIONS. (MINIMUM 100 WATT LAMP PASSED THROUGH DUCT. SEE IMC 2018, 506.3.2.5. SEE ALSO SPECIFICATIONS SHEET M7.02, 2.15.
- E

A PERFORMANCE TEST SHALL BE CONDUCTED UPON COMPLETION PER IMC 2018, 507.6. SEE ALSO SPECIFICATIONS SHEET M7.02, 2.15.
- F

FINAL BALANCING OF THE SYSTEM SHALL BE PERFORMED AS OUTLINED IN THE INSTRUCTION SHEET FURNISHED WITH THE HOOD.

APPROVED

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REVISIONS



STAMP:

The stamp is a circular professional engineer seal for the State of Arizona. The outer ring contains the text "Registered Professional Engineer" at the top and "ARIZONA U.S.A." at the bottom. Inside the ring, the word "CERTIFICATE" is at the top and "No." is on the right. The center of the seal contains the number "42109", the signature "Lodd Birch", and the expiration date "12-13-2011". The words "Lodd Birch" and "12-13-2011" are written over a diagonal line.

SUBMITTAL:		
NO.	DATE	DESCRIPTION
<div style="font-size: 24px; font-weight: bold;">REVISIONS</div>		



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ROOF MECHANICAL PLAN

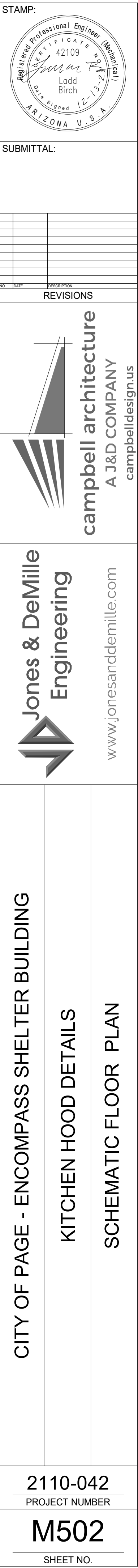
SCHEMATIC FLOOR PLAN

2110-042
PROJECT NUMBER
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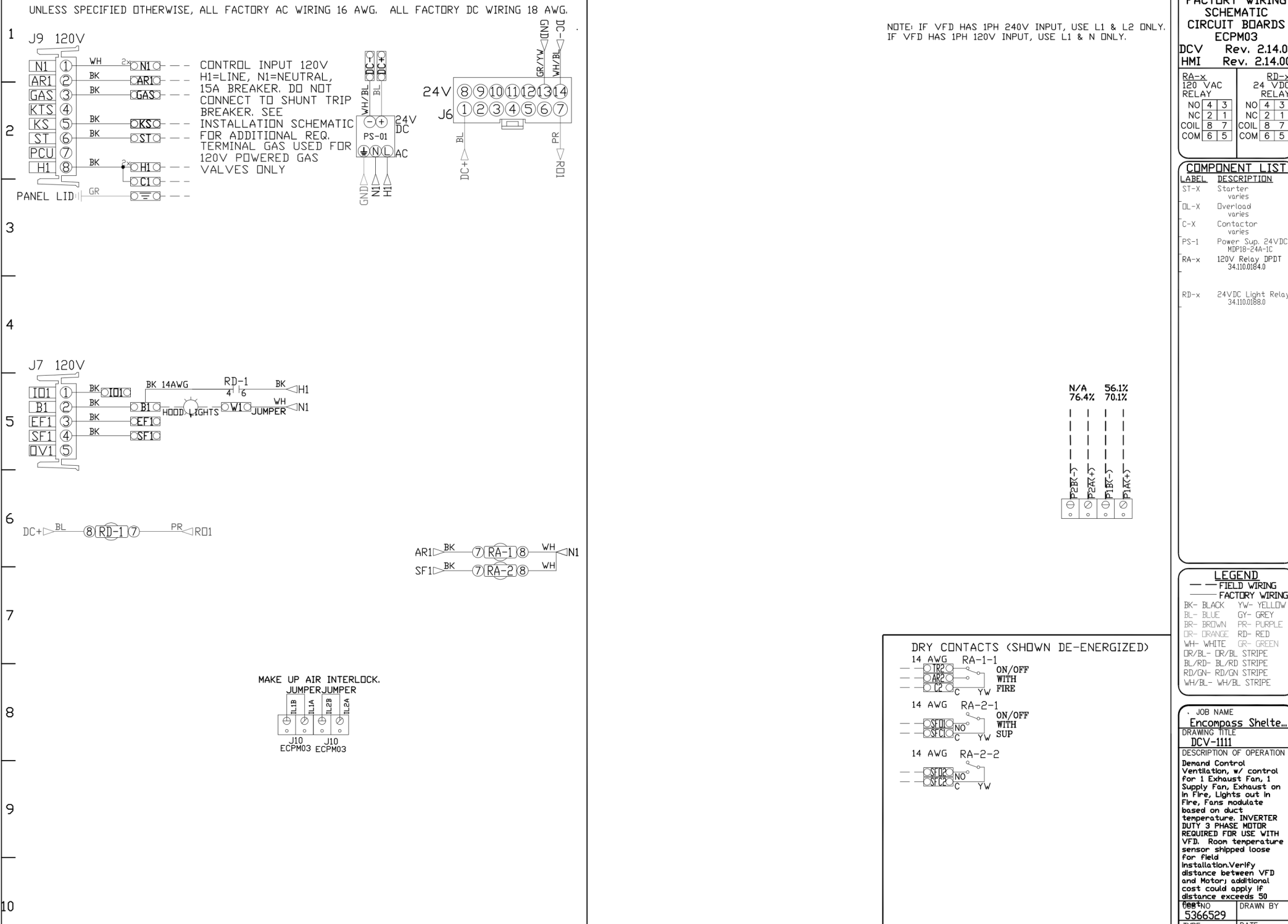
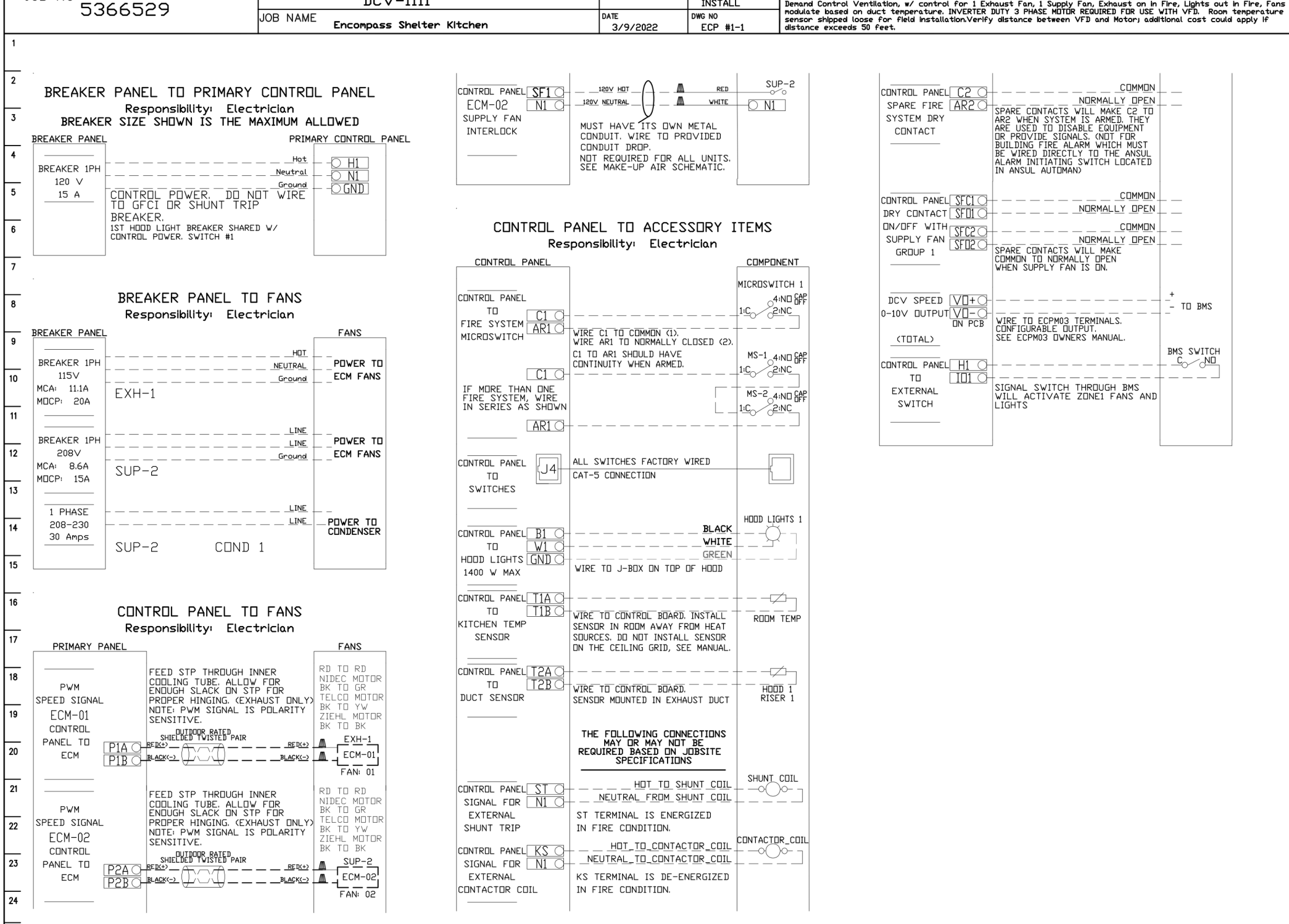
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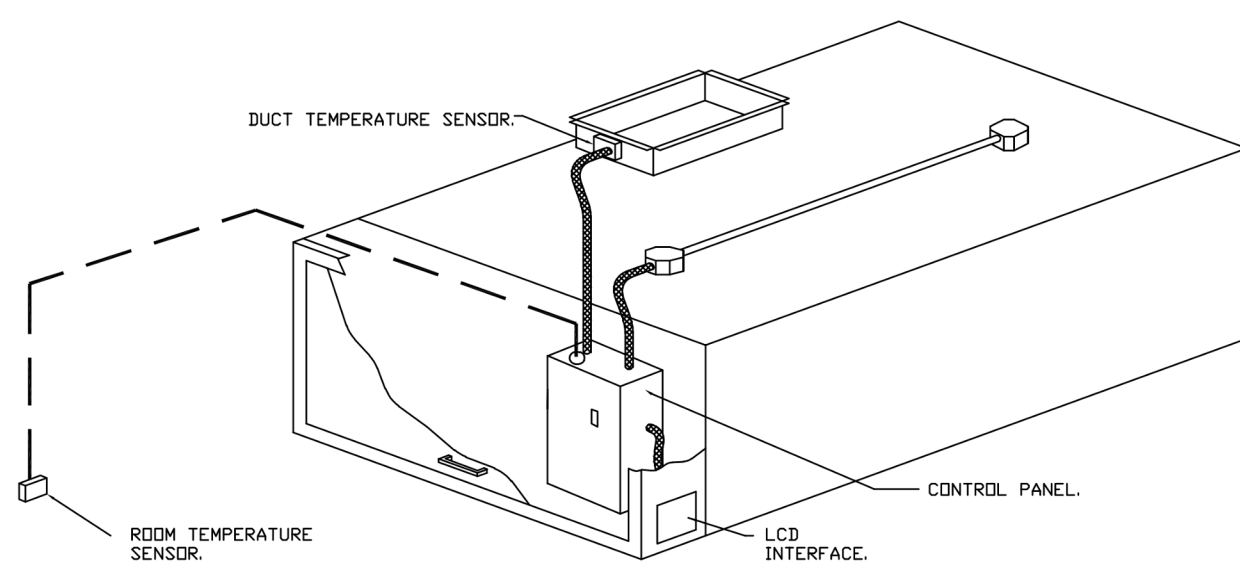


NO	TAG	PACKAGE #	LOCATION	SWITCHES		OPTION	FANS CONTROLLED				
				LOCATION	QUANTITY		TYPE	Φ	HP	VOLT	FLA
1		DCV-1111	WALL MOUNT IN SS BOX	05 - SS WALL MOUNT BOX	1 LIGHT 1 FAN	SMART CONTROLS DCV	EXHAUST	1	0.750	115	8.9
							SUPPLY	1	1.000	208	6.9



DEMAND CONTROL VENTILATION HOOD CONTROL PANEL SPECIFICATIONS:

- CONTROLS SHALL BE LISTED BY ETL (UL 508A) AND SHALL COMPLY WITH DEMAND VENTILATION SYSTEM TURNDOWN REQUIREMENTS OUTLINED IN IECC 403.2.8 (2015).
- THE CONTROL ENCLOSURE SHALL BE NEMA 1 RATED AND LISTED FOR INSTALLATION INSIDE OF THE EXHAUST HOOD UTILITY CABINET. THE CONTROL ENCLOSURE MAY BE CONSTRUCTED OF STAINLESS STEEL OR PAINTED STEEL.
- TEMPERATURE PROBES LOCATED IN THE EXHAUST DUCT RISERS SHALL BE CONSTRUCTED OF STAINLESS STEEL.
- A DIGITAL CONTROLLER SHALL BE PROVIDED TO ACTIVATE THE HOOD EXHAUST FANS DYNAMICALLY BASED ON A FIXED DIFFERENTIAL BETWEEN THE AMBIENT AND DUCT TEMPERATURES SENSORS. THIS FUNCTION SHALL MEET THE REQUIREMENTS OF IMC 507.11.
- A DIGITAL CONTROLLER SHALL PROVIDE ADJUSTABLE HYSTERESIS SETTINGS TO PREVENT CYCLING OF THE FANS AFTER THE COOKING APPLIANCES HAVE BEEN TURNED OFF AND/OR THE HEAT IN THE EXHAUST SYSTEM IS REDUCED.
- A DIGITAL CONTROLLER SHALL PROVIDE AN ADJUSTABLE MINIMUM FAN RUN-TIME SETTING TO PREVENT FAN CYCLING.
- VARIABLE FREQUENCY DRIVES (VFDS) SHALL BE PROVIDED FOR FANS AS REQUIRED. THE DIGITAL CONTROLLER SHALL MODULATE THE VFDS BETWEEN A MINIMUM SETPOINT AND A MAXIMUM SETPOINT ON DEMAND. THE DUCT TEMPERATURE SENSOR INPUT(S) TO THE DIGITAL CONTROLLER SHALL BE USED TO CALCULATE THE SPEED REFERENCE SIGNAL.
- THE VFD SPEED RANGE OF OPERATION SHALL BE FROM 0% TO 100% FOR THE SYSTEM, WITH THE ACTUAL MINIMUM SPEED SET AS REQUIRED TO MEET MINIMUM VENTILATION REQUIREMENTS.
- AN INTERNAL ALGORITHM TO THE DIGITAL CONTROLLER SHALL MODULATE SUPPLY FAN VFD SPEED PROPORTIONAL TO ALL EXHAUST FANS THAT ARE LOCATED IN THE SAME FAN GROUP AS THE SUPPLY FAN.
- THE SYSTEM SHALL OPERATE IN PREP MODE DURING LIGHT COOKING LOAD OR COOL DOWN MODE WHEN SUFFICIENT HEAT REMAINS UNDERNEATH THE HOOD SYSTEM AFTER COOKING OPERATIONS HAVE COMPLETED. OPERATION DURING EITHER OF THESE PERIODS WILL DISABLE THE SUPPLY FANS AND PROVIDE AN EXHAUST FAN SPEED THAT IS EQUAL TO THE MINIMUM VENTILATION REQUIREMENT.
- A DIGITAL CONTROLLER SHALL DISABLE THE SUPPLY FAN(S), ACTIVATE THE EXHAUST FAN(S), ACTIVATE THE APPLIANCE SHUNT TRIP, AND DISABLE AN ELECTRIC GAS VALVE AUTOMATICALLY WHEN FIRE CONDITION IS DETECTED ON A COVERED HOOD.
- A DIGITAL CONTROLLER SHALL ALLOW FOR EXTERNAL BMS FAN CONTROL VIA DRY CONTACT (EXTERNAL CONTROL SHALL NOT OVERRIDE FAN OPERATION LOGIC AS REQUIRED BY CODE).
- AN LCD INTERFACE SHALL BE PROVIDED WITH THE FOLLOWING FEATURES:
 - A. ON/OFF PUSH BUTTON FAN & LIGHT SWITCH ACTIVATION.
 - B. INTEGRATED GAS VALVE RESET FOR ELECTRONIC GAS VALVES (NO RESET RELAY REQUIRED).
 - C. VFD FAULT DISPLAY WITH AUDIBLE & VISUAL ALARM NOTIFICATION.
 - D. DUCT TEMPERATURE SENSOR FAILURE DETECTION WITH AUDIBLE & VISUAL ALARM NOTIFICATION.
 - E. MIS-WIRED DUCT TEMPERATURE SENSOR DETECTION WITH AUDIBLE & VISUAL ALARM NOTIFICATION.
 - F. A SINGLE LOW VOLTAGE CAT-5 RJ45 WIRING CONNECTION.
 - G. AN ENERGY SAVINGS INDICATOR THAT UTILIZES MEASURED KWH FROM THE VFDS.



SEQUENCE OF OPERATIONS:

THE HODD CONTROL PANEL IS CAPABLE OF OPERATING IN ONE OR MORE OF THE FOLLOWING STATES AT ANY GIVEN TIME:

- AUTOMATIC: THE SYSTEM OPERATES BASED ON THE DIFFERENTIAL BETWEEN ROOM TEMPERATURE AND THE TEMPERATURE AT THE HOOD CAVITY OR EXHAUST DUCT COLLAR. FANS ACTIVATE AT A CONFIGURABLE TEMPERATURE DIFFERENTIAL THRESHOLD. DEPENDING ON THE JOB CONFIGURATION EACH FAN ZONE CAN BE CONFIGURED TO STATISTICALLY DETERMINE THE TEMPERATURE TO WHETHER A VARIABLE MOTOR (SUCH AS EC MOTORS OR VFD DRIVEN MOTORS) MODULATE WITH TEMPERATURE. IF THE PANEL IS EQUIPPED WITH VARIABLE SPEED FANS AND THE ZONE IS DEFINED AS 'DYNAMIC', THESE WILL MODULATE WITH A USER-DEFINED RANGE BASED ON THE TEMPERATURE DIFFERENTIAL. PANELS EQUIPPED WITH VARIABLE SPEED FANS AND A FAN ZONE DEFINED AS 'STATIC', FANS WILL RUN AT A SET SPEED CALCULATED FOR THE AIR DEMAND CONTROL VENTILATION SYSTEMS ARE CAPABLE OF MODULATING EXHAUST AND MAKE UP AIR FAN SPEEDS PER THE REQUIREMENTS OUTLINED IN IECC 403.2.8.
- MANUAL: THE SYSTEM OPERATES BASED ON HUMAN INPUT FROM AN HMI.
- SCHEDULE: A WEEKLY SCHEDULE CAN BE SET TO RUN FANS FOR A SPECIFIED PERIOD THROUGHOUT THE DAY. THERE ARE THREE OCCUPIED TIMES PER DAY TO ALLOW FOR THE USER TO SET UP A TIME THAT IS SUITABLE TO THEIR NEEDS. ANY TIME THAT IS WITHIN THE DEFINED OCCUPIED TIME, THE SYSTEM WILL RUN AT MODULATION MODE AND FOLLOW THE FAN PROCEDURE ALGORITHM BASED ON TEMPERATURE. DURING THIS TIME, DURING OCCUPIED TIME, THE SYSTEM WILL HAVE AN EXTRA OFFSET TO PREVENT UNINTENDED ACTIVATION OF THE SYSTEM DURING A TIME WHERE THE SYSTEM IS NOT BEING OCCUPIED.
- OTHER: THE SYSTEM OPERATES BASED ON THE INPUT FROM AN EXTERNAL SOURCE (DDC, BMS OR HARD-WIRED INTERLOCK).
- FIRE: UPON ACTIVATION OF THE HOOD FIRE SUPPRESSION SYSTEM, THE EXHAUST FAN WILL COME ON OR CONTINUE TO RUN, THE HOOD MAKEUP AIR WILL SHUTDOWN, AND A SIGNAL WILL BE SENT FOR ACTIVATION OF THE SHUTDOWN OF THE EXHAUST FAN. THE SHUTDOWN OF THE EXHAUST FAN OFF VIA A MECHANICAL/ELECTRICAL GAS VALVE ACTUATED BY THE HOOD FIRE SUPPRESSION SYSTEM.

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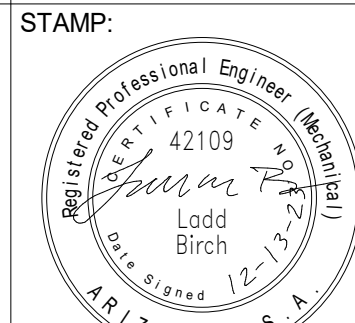
CITY OF PAGE - ENCOMPASS SHELTER BUILDING

2110-042

PROJECT NUMBER

M507

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SUBMITTAL:

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REVISIONS



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2.11 ROOFTOP PACKAGE HEAT PUMP UNIT

- CARRIER MODEL OF SIZE AND CAPACITY INDICATED. UNITS SHALL BE COMPLETELY ASSEMBLED AND TESTED COMPLETE WITH REFRIGERANT CHARGE AND READY TO OPERATE. TOTAL UNIT SHALL BE U.L. LISTED AND CARRY A U.L. LABEL.
- A. CABINET SHALL BE CONSTRUCTED OF GALVANIZED STEEL, BONDERIZED AND COATED WITH A BAKED ENAMEL FINISH. CABINET INTERIOR SHALL BE INSULATED WITH 1 INCH THICK NEOPRENE COATED FIBERGLASS. CABINET PANELS SHALL BE EASILY REMOVABLE FOR SERVICE TO ALL OPERATING COMPONENTS.
- B. INDOOR AIR FANS SHALL BE FORWARD-CURVE CENTRIFUGAL, BELT DRIVEN MULTI-SPEED TYPE. OUTDOOR FANS SHALL BE OF PROPELLER TYPE WITH DIRECT-DRIVEN PERMANENTLY LUBRICATED MOTORS. ALL FANS SHALL BE DYNAMICALLY BALANCED.
- C. INDOOR AND OUTDOOR COILS SHALL BE OF NONFERROUS CONSTRUCTION WITH ALUMINUM PLATE FINS MECHANICALLY BONDED TO SEAMLESS COPPER TUBES WITH ALL JOINTS BRAZED.
- D. COMPRESSORS SHALL BE WELDED, FULLY HERMETIC WITH CRANKCASE HEATERS. COMPRESSORS SHALL HAVE A FIVE YEAR WARRANTY AND BE CAPABLE OF OPERATING TO 25 DEGREES F OUTDOOR TEMPERATURE.
- E. HEATING/COOLING SYSTEM SHALL BE PROTECTED WITH HIGH PRESSURE STATS, LOW PRESSURE STATS, LOSS OF CHARGE PROTECTION, INDOOR COIL FREEZE-STATS AND CURRENT AND TEMPERATURE SENSITIVE OVERLOAD DEVICES. CONTROLS SHALL BE PROVIDED TO PREVENT COMPRESSOR SHORT CYCLING AND AUTOMATICALLY PREVENT COMPRESSOR RESTART AT LEAST 5 MINUTES AFTER SHUTDOWN. CONDENSATE DRAINS OFF DRAIN PANS SHALL BE TRAPPED OUTSIDE THE UNIT CASING.
- F. REFRIGERANT CIRCUIT COMPONENTS SHALL INCLUDE THE FOLLOWING: ACTUOL - MULTIPLE INDEPENDENT FEED SYSTEM, FILTER DRIER, SERVICE GAUGE CONNECTIONS ON SUCTION, DISCHARGE AND LIQUID LINES TO CHARGE, EVACUATE, AND CONTAIN REFRIGERANT, REVERSING VALVE AND ACCUMULATOR.
- G. FACTORY THERMOSTATS TO PROVIDE 7-DAY PROGRAMMING, STAGED HEATING AND COOLING TO CONTROL THE AUXILIARY HEAT SEPARATE FROM THE MAIN COOLING, AUTOMATIC CHANGEOVER AND FAN CONTROL.
- H. PROVIDE FILTER SECTION WITH 2 INCH FILTERS. FILTERS MUST HAVE AN AVERAGE ATMOSPHERIC DUST SPOT EFFICIENCY OF 50% PER ASHRAE STANDARD 52.1 TEST METHODS.
- J. UNIT SHALL HAVE AN INTEGRATED ECONOMIZER CAPABLE OF INTRODUCING 100% OUTSIDE AIR AND EXHAUSTING 100% ROOM AIR. ECONOMIZER SHALL INCLUDE ALL NECESSARY HOODS, DAMPERS, BAROMETRIC DAMPERS, AND CONTROLS TO MAKE OPERATIONAL. ECONOMIZER SHALL BE CAPABLE OF SIMULTANEOUS ECONOMIZER AND COMPRESSOR OPERATION. ECONOMIZER CONTROL TO BE INDEPENDENT ON OUTDOOR AIR TEMPERATURE.
- K. UNIT SHALL BE CARRIER, YORK, BRYANT, OR TRANE.
- L. PROPELLER POWER EXHAUST:

- a. POWER EXHAUST SHALL BE USED IN CONJUNCTION WITH AN INTEGRATED ECONOMIZER.
- b. INDEPENDENT MODULES FOR VERTICAL OR HORIZONTAL RETURN CONFIGURATIONS SHALL BE AVAILABLE.
- c. HORIZONTAL POWER EXHAUST SHALL BE MOUNTED IN RETURN DUCTWORK.
- d. POWER EXHAUST SHALL BE CONTROLLED BY ECONOMIZER OPERATION. EXHAUST FANS SHALL BE ENERGIZED WHEN DAMPERS OPEN PAST THE 0-100% ADJUSTABLE SETPOINT ON THE ECONOMIZER CONTROL.

- M. UNIT SHALL BE SUPPLIED AND INSTALLED WITH LOUVERED HAIL GUARDS.

2.12 HIGH EFFICIENCY BRANCH TAKE-OFFS

- A. EXPANDED THROAT HIGH EFFICIENCY TAKEOFFS SHALL BE USED FOR ALL BRANCH TAKEOFFS UNLESS SHOWN OTHERWISE ON THE DRAWINGS. AN OPPOSED BLADE VOLUME DAMPER WITH LOCKING QUADRANT SHALL BE PROVIDED AT EACH BRANCH TAKEOFF. WHERE DAMPERS ARE NOT ACCESSIBLE FOR ADJUSTMENT FROM ABOVE, CONCEALED CEILING REGULATORS WITH ADJUSTABLE CHROME-PLATED COVERS SHALL BE PROVIDED. HIGH EFFICIENCY TAKE-OFFS SHALL BE AIR-RITE, HERCULES OR DANIEL.

2.13 ELECTRIC WALL HEATER

- A. THE HEATING EQUIPMENT SHALL INCLUDE AN ELECTRIC AUTOMATIC FAN FORCED AIR HEATER SUITABLE FOR SMALL AREA HEATING. THE HEATER SHALL BE DESIGNED FOR WALL MOUNTING, RECESS OR SURFACE. HEATERS SHALL BE UL LISTED.
- B. BACKBOX: THE BACKBOX SHALL BE DESIGNED FOR DUTY AS A RECESSED ROUGH-IN BOX IN EITHER MASONRY OR FRAME INSTALLATIONS AND IS ALSO USED WITH THE SURFACE MOUNTING FRAME IN SURFACE MOUNTING INSTALLATIONS. THE BACKBOX SHALL BE HEAVY GAUGE GALVANIZED STEEL AND SHALL CONTAIN KNOCKOUTS THROUGH WHICH POWER LEADS ARE BROUGHT.
- C. INNER FRAME ASSEMBLY: THE HEATER ASSEMBLY WHICH FITS INTO THE BACKBOX SHALL CONSIST OF A HEAVY GAUGE STEEL FAN PANEL UPON WHICH IS MOUNTED ALL OF THE OPERATIONAL PARTS OF THE HEATER. THE INNER FRAME ASSEMBLY SHALL BE COMPLETELY PRE-WIRED.
- D. HEATING ELEMENT: THE HEATING ELEMENT SHALL BE OF THE NON-GLOWING DESIGN CONSISTING OF AN 80/20 NICKEL-CHROMIUM RESISTANCE WIRE ENCLOSED IN A STEEL SHEATH TO WHICH PLATE FINS ARE COPPER BRAZED. IT SHALL BE WARRANTED FOR 5 YEARS. THE ELEMENT SHALL COVER THE ENTIRE AIR DISCHARGE AREA TO ENSURE UNIFORM HEATING OF ALL DISCHARGE AIR.
- E. MOTOR AND CONTROLS: THE FAN MOTOR SHALL BE IMPEDANCE PROTECTED, PERMANENTLY LUBRICATED AND WITH TOTALLY ENCLOSED ROTOR. FAN CONTROL SHALL BE OF THE BI-METALLIC, SNAP-ACTION TYPE AND SHALL ACTIVATE FAN AFTER HEATING ELEMENT REACHES OPERATING TEMPERATURE, AND CONTINUE TO OPERATE THE FAN AFTER THE THERMOSTAT IS SATISFIED AND UNTIL ALL HEATED AIR HAS BEEN DISCHARGED. THE THERMOSTAT SHALL BE SINGLE POLE TYPE ON ALL MODELS. THERMAL CUTOOUT SHALL BE BI-METALLIC, SNAP-ACTION TYPE DESIGNED TO SHUT OFF HEAT IN THE EVENT OF OVERHEATING. THE FAN SHALL BE FIVE-BLADED ALUMINUM. THE FAN MOTOR SHALL BE TOTALLY ENCLOSED.
- F. SURFACE MOUNTING FRAME: THE SURFACE MOUNTING FRAME SHALL BE OF HEAVY GAUGE STEEL DESIGNED TO MOUNT AROUND THE BACKBOX FOR A FINISHED SURFACE INSTALLATION. SLOT KNOCK OUTS SHALL BE PROVIDED FOR POWER SUPPLY CONDUIT.
- G. FRONT COVER: THE LOUVERED FRONT COVER SHALL BE OF HEAVY GAUGE STEEL WITH A POWDER PAINT FINISH. A PLUG BUTTON WILL BE PROVIDED TO REPLACE THE THERMOSTAT KNOB AND RENDER THE UNIT TAMPER-RESISTANT.
- H. FINISH: ALL SHEET METAL PARTS, EXCEPT THE GALVANIZED STEEL BACKBOX, SHALL BE PHOSPHATIZED, THEN COMPLETELY PAINTED BY A POWDER PAINT PROCESS. HEATER SHALL BE QMARK OR APPROVED EQUAL.

2.14 KITCHEN GREASE HOOD AND DISHWASHER HOOD DUCT

- A. DUCTWORK FROM THE KITCHEN GREASE HOOD SHALL BE 16-GAUGE BLACK OR STAINLESS STEEL WITH LIQUID-TIGHT CONTINUOUS WELDED CONSTRUCTION OR A FACTORY BUILT SYSTEM FROM THE KITCHEN HOOD SUPPLIER. EXPOSED GREASE HOOD DUCTWORK SHALL BE CONSTRUCTED FROM 16-GAUGE ALL WELDED TYPE 304 POLISHED STAINLESS STEEL.
- B. ALL DUCTWORK FROM THE DISHWASHER SHALL EITHER BE TYPE 304 STAINLESS STEEL OR ALUMINUM. ALL JOINTS AND SEAMS SHALL BE EITHER WELDED OR SOLDERED AIRTIGHT AND WATER TIGHT. MATERIAL THICKNESS SHALL BE 18-GAUGE FOR STAINLESS STEEL, AN OF EQUIVALENT THICKNESS FOR ALUMINUM. ALL DUCTWORK FROM OTHER TYPE II HOODS SHALL BE A MINIMUM 28 GAUGE GALVANIZED SHEET METAL AND SEALED AIR TIGHT. CONNECTIONS OF DUCTWORK TO HOODS AND DISHWASHER SHALL BE WORK OF THIS SECTION. INSTALLATION SHALL BE IN ACCORDANCE WITH THE INTERNATIONAL MECHANICAL CODE AND SMACNA STANDARDS.
- C. ALL EXHAUST DUCTS SHALL BE PITCHED FOR DRAINAGE TOWARD THE DISHWASHER OR KITCHEN HOOD. NO POCKETING IN DUCTWORK WHERE MOISTURE OR GREASE MAY COLLECT WILL BE ALLOWED. IF POCKETING DEVELOPS, A 1-INCH DRAIN PIPE SHALL BE SOLDERED INTO THE LOW POINT AND RUN TO A DRAIN AS DIRECTED BY THE ARCHITECT.
- D. ACCESS PANELS SHALL BE PROVIDED IN THE DUCTWORK FROM EXHAUST FANS TO HOODS TO ALLOW INTERNAL INSPECTION AND CLEANING OF EXHAUST DUCTWORK. ACCESS DOOR SHALL BE AS LARGE AS POSSIBLE, BUT IN NO CASE SHALL THEY BE SMALLER THAN 18 INCHES BY 12 INCHES. ACCESS PANELS SHALL BE LOCATED NOT MORE THAN 12 FEET 0 INCHES O.C.
- E. WHERE BOTH DUCTS ARE RUNNING TOGETHER, ACCESS PANELS SHALL BE LOCATED IN EACH DUCT SO THAT THEY CAN BE REACHED FROM ONE CEILING ACCESS LOCATION. CEILING ACCESS PANELS SHALL BE CAREFULLY COORDINATED WITH DUCT ACCESS PANELS. DUCT ACCESS PANELS SHALL BE SIMILAR IN CONSTRUCTION TO BUENSOD TYPE S-2.
- F. THE ENTIRE EXHAUST DUCT FROM THE DISHWASHER TO THE EXHAUST FAN SHALL BE WRAPPED WITH 1-INCH THICK FIBERGLASS DUCT INSULATION SIMILAR TO JOHNS-MANSVILLE MICROLITE. INSULATION SHALL BE SECURELY WIRED. IN PLACE.
- G. PROVIDE A 2-HR RESISTIVE RATED DUCT ENCLOSURE USING ZERO INCH CLEARANCES AROUND THE KITCHEN COOKING HOOD EXHAUST DUCTWORK. THE ENCLOSURE SHALL CONSIST OF 2 LAYERS OF 1-1/2" NON-ASBESTOS, HIGH TEMPERATURE, INORGANIC FOIL ENCAPSULATED CERAMIC FIBER INSULATION BLANKET WITH STAINLESS STEEL BANDING MATERIAL. INSTALLATION SHALL BE IN ACCORDANCE WITH THE MANUFACTURERS RECOMMENDATIONS AND CODE REQUIREMENTS FOR KITCHEN GREASE EXHAUST DUCTS. INSULATION SHALL BE FYREWRA DUCT INSULATION.
- H. PRIOR TO THE USE OR CONCEALMENT OF THE GREASE DUCT SYSTEM THROUGH SHAFTS OR DUCTWRAP INSTALLATIONS A LIGHT TEST SHALL BE PERFORMED PER THE 2018 I.M.C. SECTION 506.3.2.5.
- I. PRIOR TO THE USE OF THE GREASE HOOD SYSTEM A PERFORMANCE TEST SHALL BE PERFORMED PER THE 2018 I.M.C. SECTION 507.6.

2.15 FIRE RATED INSULATOIN SYSTEMS

- A. FIRE RATED BLANKET: HIGH-TEMPERATURE, FLEXIBLE, BLANKET INSULATION WITH FSK JACKET THAT IS TESTED AND CERTIFIED TO PROVIDE A 2-HOUR FIRE RATING BY AN NRTL ACCEPTABLE TO AUTHORITIES HAVING JURISDICTION.
1. PRODUCTS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE ONE OF THE FOLLOWING:
- a. CERTAINTEED CORP.: FLAMECHECK.
- b. JOHNS MANVILLE: FIRETEMP WRAP.
- c. NELSON FIRE STOP PRODUCTS: NELSON FSB FLAMESHIELD BLANKET.
- d. THERMAL CERAMICS: FIREMASTER DUCT WRAP.
- e. 3M: FIRE BARRIER WRAP PRODUCTS.
- f. UNIFRAX CORPORATION; FYREWRA.
- B. CONCEALED, TYPE I, COMMERCIAL, KITCHEN HOOD EXHAUST DUCT AND PLENUM INSULATION: FIRE RATED BLANKET THICKNESS AS REQUIRED TO ACHIEVE 2-HOUR FIRE RATING.
- a. DUCTWORK IS TO BE WRAPPED WITH 2-LAYERS OF APPROVED FIRE WRAP THAT MEETS ASTM E-2336

2.16 EQUAL MATERIALS AND SUBSTITUTIONS

- A. IN ADDITION TO MANUFACTURERS SPECIFIED, THE FOLLOWING SHALL ALSO BE CONSIDERED EQUAL. PROVIDED CORRESPONDING MODELS MEET SPECIFIED REQUIREMENTS. EQUIVALENT SUBSTITUTED EQUIPMENT NAMED HEREIN SHALL BE SUBMITTED TO ARCHITECT FOR APPROVAL. SUBMIT ALTERNATE SELECTIONS AT TIME OF BID, LISTING MAJOR EQUIPMENT:
- | | |
|----------------------------|--|
| INSULATION: | CERTAINTEED, MANVILLE, FIBERGLAS |
| AIR FILTERS: | AAF, FARR |
| DIFFUSERS AND GRILLES: | NAILOR, PRICE, KRUEGER, TITUS, METALAIRE |
| EXHAUST FAN(CEILING): | BROAN, COOK, GREENHECK, PANSONIC OR APPROVED EQUAL |
| EXHAUST FANS (ROOFTOP): | CAPTIVE AIRE, COOK, GREENHECK, PENN, SOLAR & PALAU |
| ROOF TOP UNIT (HEAT PUMP): | BRYANT, CARRIER, DAIKIN MCQUAY, TRANE, YORK |
| MAKE-UP AIR UNITS: | TRANE, MODINE, REZNOR, GREENHECK, CAPTIVE-AIRE |
| LOUVERS: | COOK, GREENHECK, AIR-RITE, RUSKIN, OR APPROVED EQUAL |

PART 3 - EXECUTION

3.01 DISCREPANCIES

- A. IN THE EVENT OF DISCREPANCY, IMMEDIATELY NOTIFY THE OWNER.
- B. DO NOT PROCEED WITH INSTALLATION IN AREAS OF DISCREPANCY UNTIL ALL SUCH DISCREPANCIES HAVE BEEN FULLY RESOLVED.

3.02 EQUIPMENT IDENTIFICATION

- A. ALL MAJOR EQUIPMENT SHALL BEAR FIRMLY ATTACHED METAL NAMEPLATES WHICH STATE NAME OF MANUFACTURER, MODEL NUMBER AND ELECTRICAL DATA.

3.03 INITIAL LUBRICATION, ADJUSTING, AND FILLING SYSTEMS

- A. BEFORE OPERATING ANY MECHANICAL SYSTEMS, EQUIPMENT BEARINGS SHALL BE LUBRICATED AND BOLTS, PULLEYS, AND OTHER MOVING PARTS CHECKED FOR ALIGNMENT AND TOLERANCES IN ACCORDANCE WITH MANUFACTURER'S OPERATING INSTRUCTIONS. VIBRATIONS AND NOISE SHALL BE SUPPRESSED.

3.04 CLEANING OF EQUIPMENT, MATERIALS AND PREMISES

- A. BE PAINTED SMOOTH AND CLEAN, READY FOR PAINTERS. CLEAN ENTIRE PREMISES OF UNUSED MATERIALS, RUBBISH, DEBRIS, GREASE SPOTS AND DIRT LEFT BY SUBCONTRACTOR.

3.05 EQUIPMENT AND MATERIAL

- A. INSTALL PER MANUFACTURER'S RECOMMENDATIONS.

3.06 ACCESSIBILITY

- A. INSTALL WORK READILY ACCESSIBLE FOR NORMAL OPERATION, READING OF INSTRUMENTS, ADJUSTMENT, SERVICE, INSPECTION AND REPAIR, PROVIDE ACCESS PANELS WHERE INDICATED AND REQUIRED. ACCESS PANELS SHALL BE THE RESPONSIBILITY OF RESPECTIVE SUBCONTRACTORS.

3.07 SYSTEM BALANCING

- A. BALANCING WORK INCLUDED:
1. COMPLETE TESTING AND BALANCING OF THE HVAC SYSTEM AS HEREIN SPECIFIED.
- B. VERIFICATION OF CONDITIONS: PRIOR TO TESTING AND BALANCING, INSPECT EQUIPMENT AND MATERIALS AND ARRANGE WITH CONTRACTOR FOR SATISFACTORY CORRECTION OF ALL DEFECTS IN WORKMANSHIP AND/OR MATERIAL THAT COULD AFFECT THE WORK SPECIFIED HEREIN.
- C. PROTECTION: AS SPECIFIED HEREIN.
- D. SYSTEM OPERATION: CONTRACTOR SHALL PUT ALL PARTS OF SYSTEMS IN FULL OPERATION AND SHALL CONTINUE THE OPERATION OF SAME DURING EACH WORKING DAY OF TESTING AND BALANCING.
- E. TEST DATA: SUBMIT COPY OF TEST AND BALANCE REPORT TO THE ENGINEER FOR REVIEW UPON COMPLETION OF WORK UNDER THIS SECTION.
- F. TEST AND BALANCE CONTRACTOR SHALL CERTIFY IN WRITING THAT SYSTEM HAS BEEN ADJUSTED AND BALANCED AND DESIGN CONDITIONS HAVE BEEN ATTAINED IN ALL AREAS OF THE BUILDING.
- G. INSTRUMENTS: INSTRUMENTS USED BY CONTRACTOR SHALL BE ACCURATELY CALIBRATED AND MAINTAINED IN GOOD WORKING ORDER.
- H. AIR DISTRIBUTION TESTING AND BALANCING:
1. TEST AND RECORD MOTOR FULL LOAD AMPERES AND RPM.
2. TEST AND RECORD SYSTEM STATIC PRESSURES, SUCTION AND DISCHARGE.
3. ADJUST ALL SUPPLY AND RETURN AIR DUCTS TO PROPER DESIGN CFM.
4. IN COOPERATION WITH THE CONTROL MANUFACTURER'S REPRESENTATIVE, THE SETTING ADJUSTMENT OF AUTOMATICALLY OPERATED CONTROLS TO OPERATE AS SPECIFIED, INDICATED AND/OR NOTED.
- I. WITNESS: NOTIFY ARCHITECT TWO WEEKS PRIOR TO TESTING AND BALANCING OF ALL MAJOR EQUIPMENT IN ORDER TO ARRANGE THAT ENGINEER, ARCHITECT OR OWNER'S REPRESENTATIVE WILL WITNESS THE TESTS.

3.08 OPERATION

- A. PLACE SYSTEM IN OPERATION AND REGULATE AND ADJUST TO ENGINEER'S SATISFACTION. SYSTEMS SHALL OPERATE QUIETLY AND WITHOUT VIBRATION OR NOISE.

3.09 CERTIFICATION

- A. UPON COMPLETION, THE CONTRACTOR SHALL INSPECT WORK OF THIS SECTION AND DELIVER TO OWNER A WRITTEN CERTIFICATION THAT INSTALLED MATERIALS AND WORKMANSHIP CONFORM TO SPECIFICATIONS.

3.10 SEISMIC & VIBRATION ISOLATION

- THE CONTRACTOR IS RESPONSIBLE TO PROVIDE A SUBMITTAL FOR SEISMIC AND VIBRATION ISOLATION, STAMPED DRAWINGS AND DETAILS TO BE PROVIDED BY A LICENSED ENGINEER IN THE STATE OF UTAH. APPROVED ARE AMBER-BOOTH, MASON INDUSTRIES, VIBRO ACOUSTICS, KINETICS NOISE CONTROL, INC., VIBRATION MOUNTING AND CONTROLS, INC. AND INTERNATIONAL SEISMIC APPLICATION TECHNOLOGY.

STAMP:



SUBMITTAL:

NO.	DATE

REVISIONS



CITY OF PAGE - ENCOMPASS SHELTER BUILDING

MECHANICAL SPECIFICATIONS

SCHEMATIC FLOOR PLAN

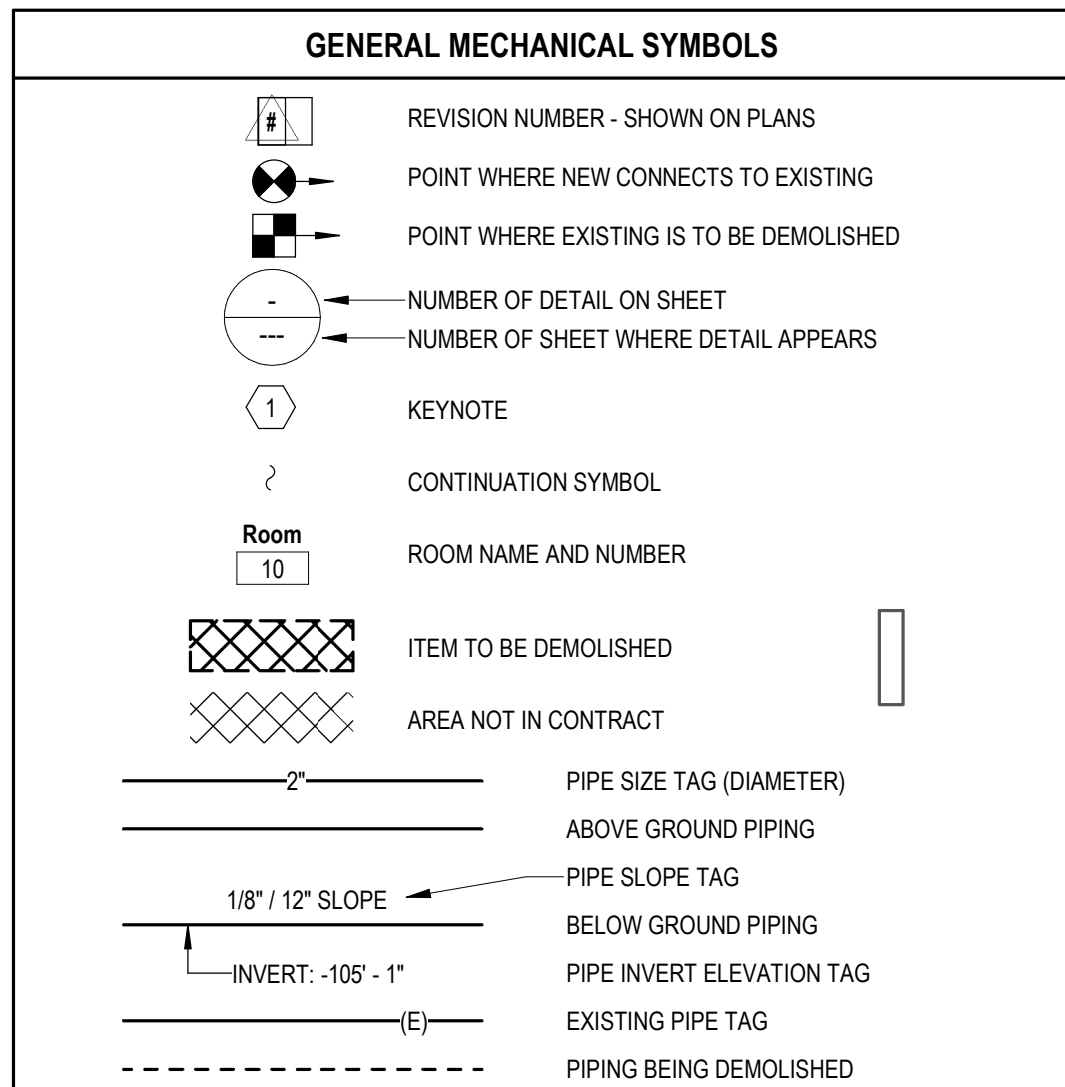
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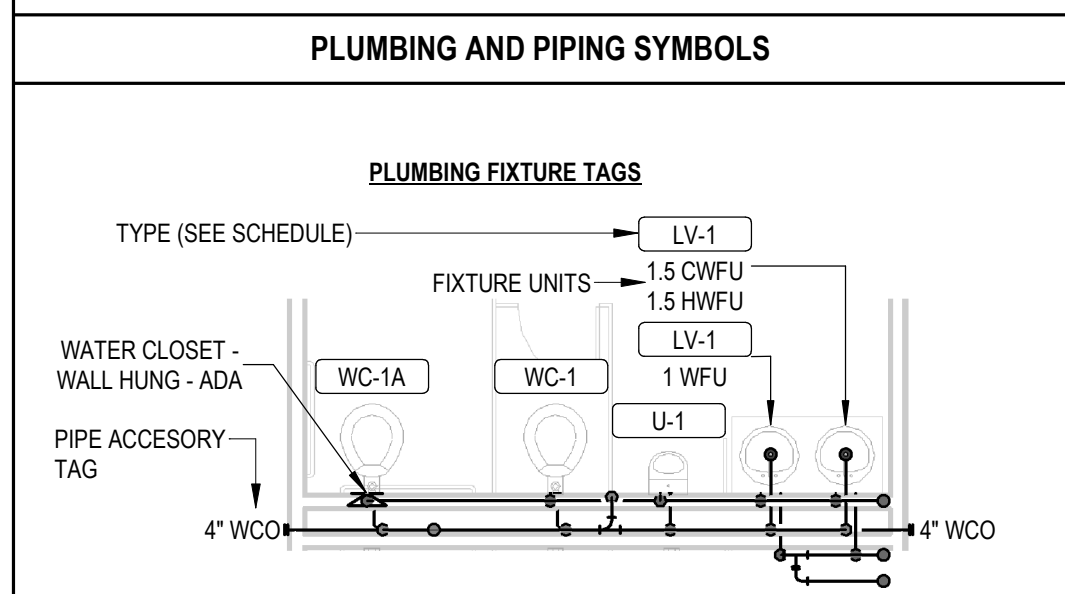
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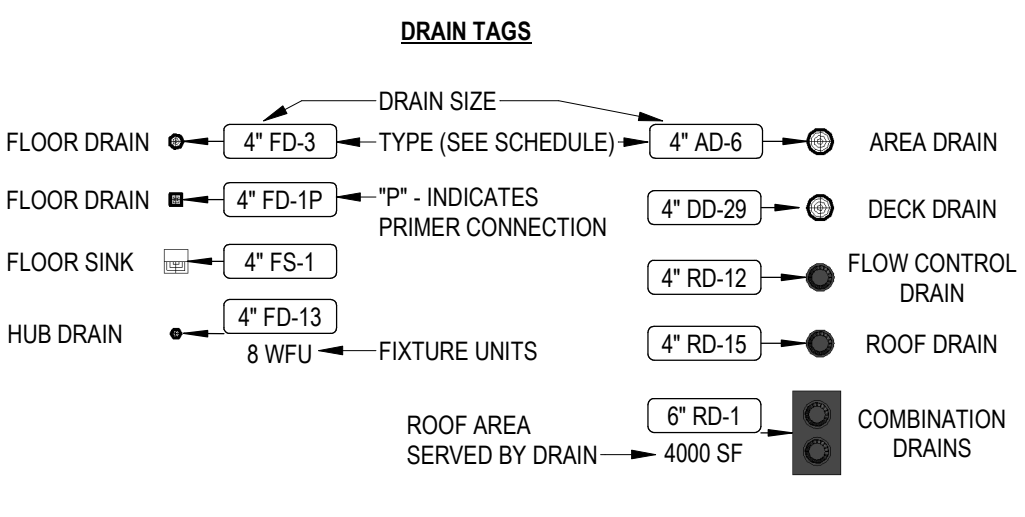
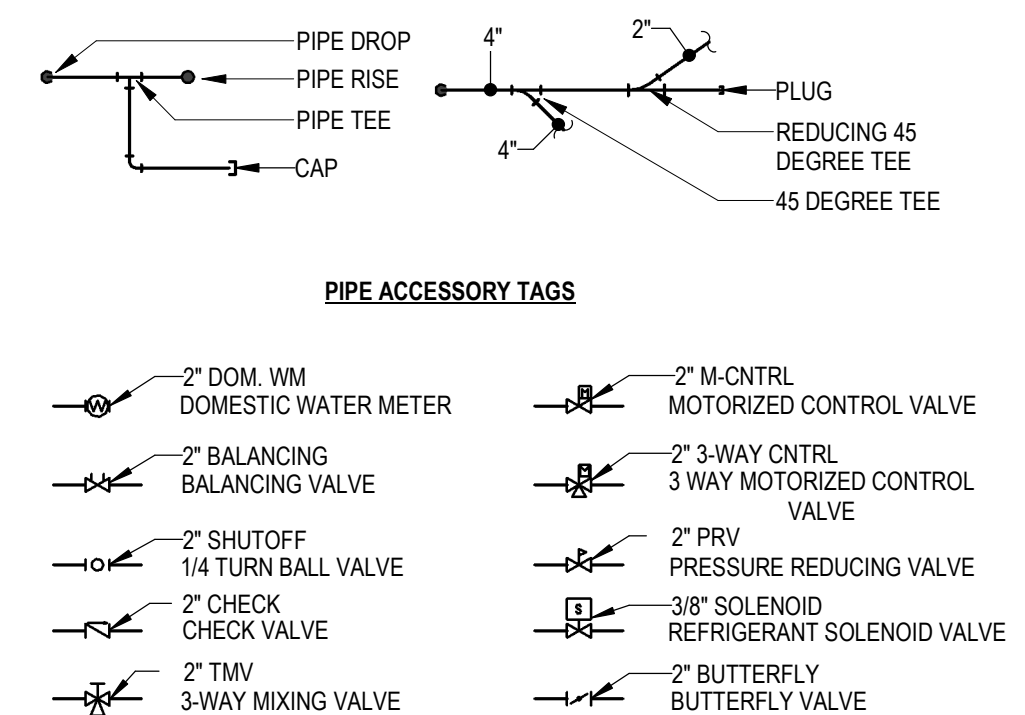
SHEET NO.



ABBREVIATIONS			
Ø	ROUND	LVR	LOUVER
ABV	ABOVE	LWT	LEAVING WATER TEMPERATURE
AC	AIR CONDITIONING	M/A	MIXED AIR
AD	AREA DRAIN	MAX	MAXIMUM
ADD	ADDENDUM	MBH	ONE THOUSAND BTU PER HOUR
AFT	ABOVE FINISHED FLOOR	MCF	ONE THOUSAND CUBIC FEET
AFUE	ANNUAL FUEL UTILIZATION EFFICIENCY	MD	MOTORIZED DAMPER
ALT	ALTERNATE	MECH	MECHANICAL
AP	ACCESS PANEL	MFR	MANUFACTURER
ARCH	ARCHITECT/ARCHITECTURAL	MIN	MINIMUM
BFF	BEFORE FINISHED FLOOR	MISC	MISCELLANEOUS
BLW	BELOW	MTR	MOTOR
BTU	BRITISH THERMAL UNITS	MUA	MAKE-UP/AIR
BTUH	BRITISH THERMAL UNITS PER HOUR	NC	NOISE CRITERIA
CAP	CAPACITY	NC	NORMALLY CLOSED
CB	CATCH BASIN	NIC	NOT IN CONTRACT
CFT	CUBIC FEET PER MINUTE	NO	NUMBER
CLG	CEILING	NO	NORMALLY OPEN
CO	CLEAN OUT	NTS	NOT TO SCALE
CW	COLD WATER	O	OXYGEN
D	DEGREE	O/A	OUTSIDE AIR
DB	DRY BULB	ORD	OVERFLOW ROOF DRAIN
DIA	DIAMETER	PD	PRESSURE DROP
DN	DOWN	PIV	POST INDICATOR VALVE
DW	DISTILLED WATER	PLBG	PLUMBING
EA	EACH	PRESS	PRESSURE
EAT	ENTERING AIR TEMPERATURE	PRV	PRESSURE REDUCING VALVE
ELEC	ELECTRIC EQUIPMENT	PSI	POUNDS PER SQUARE INCH
EQUIP	EQUIPMENT	PSIG	POUNDS PER SQUARE INCH GAUGE
EWC	ELECTRIC WATER COOLER	PWR	POWER
EWT	ENTERING WATER TEMPERATURE	R	DUCT RISER
E/A	EXHAUST AIR	R/A	RETURN AIR
EXIST	EXISTING	RCP	RADIANT CEILING PANEL
F	DEGREES FAHRENHEIT	RD	ROOF DRAIN
FCO	FLOOR CLEAN OUT	REC	RECESSED
FD	FLOOR DRAIN	RED	REDUCER
FE	FIRE DAMPER	RH	RELATIVE HUMIDITY
FDV	FIRE DEPARTMENT VALVE	RIA	RELIEF AIR
FL	FLOOR	RM	ROOM
FLO	FUEL OIL	RPM	REVOLUTIONS PER MINUTE
FOV	FUEL OIL VENT	RW	RAIN WATER
FOR	FUEL OIL RETURN	SF	SQUARE FOOT
FOS	FUEL OIL SUPPLY	SA	SUPPLY AIR
FSM	FEET PER MINUTE	SAN	SANITARY
FS	FLOOR SINK	SF	SQUARE FOOT
FT	FOOTFEET	SD	SMOKE DAMPER
FTR	FIN TUBE RADIATION	SM	SURFACE MOUNT
GAL	GALLON	SP	STANDPIPE
GC	GENERAL CONTRACTOR	SP	STATIC PRESSURE
GPM	GALLONS PER MINUTE	STM	STEAM
GW	GREASE WASTE	T	THERMOSTAT
HB	HOSE BIB	TD	TEMPERATURE DROP
HP	HORSE POWER	TD	TRENCH DRAIN
HTG	HEATING	TEMP	TEMPERATURE
HTR	HEATER	TYP	TYPICAL
HW	HOT WATER	UG	UNDERGROUND
HYD	HYDRANT	VAC	VACUUM
IND	INDIRECT	V	VENT
IN	INCH	VAV	VARIABLE AIR VOLUME
INV	INVERT	VENT	VENTILATION
LB	POUND	VTR	VENT THROUGH ROOF
LBHR	POUNDS PER HOUR	W	WASTE
LAT	LEAVING AIR TEMPERATURE	WB	WET BULB
LP	LOW PRESSURE	WCO	WALL CLEAN OUT
LPG	LIQUEFIED PETROLEUM GAS	WH	WALL HYDRANT



PLUMBING AND PIPING SYMBOLS	
—CHWR—	CHILLED WATER RETURN
—CHWS—	CHILLED WATER SUPPLY
—CD—	CONDENSATE DRAINAGE
—CWR—	CONDENSER WATER RETURN
—CWS—	CONDENSER WATER SUPPLY
—GWR—	GEOTHERMAL WATER RETURN
—GWS—	GEOTHERMAL WATER SUPPLY
—HWR—	HEATING WATER RETURN
—HWS—	HEATING WATER SUPPLY
—NG—	NATURAL GAS
—PG—	PROPANE GAS
—REF-L—	REFRIGERANT-LIQUID
—REF-S—	REFRIGERANT-SUCTION
—REF-HG—	REFRIGERANT-HOT GAS
—STM—	STEAM
—CDR—	CONDENSATE RETURN
—CWW—	COMBINATION WASTE & VENT
—CA—	COMPRESSED AIR
— — —DCW—	DOMESTIC COLD WATER
— — —HCW—	HARD COLD WATER
— — —SCW—	SOFT COLD WATER
— — —FCW—	FILTERED COLD WATER
— — —RO—	REVERSE OSMOSIS WATER
— — —DHW—	HOT WATER
— — —DHW 140°—	HOT WATER 140°
— — — — —DHW-R—	HOT WATER RECIRCULATION
— — — — —DHW-R 140°—	HOT WATER RECIRCULATION 140°
— — — — —GV—	GREASE VENT
— — — — —GW—	GREASE WASTE
- - - - -IW - - - - -	INDIRECT WASTE
- - - - -OV - - - - -	OIL VENT
- - - - -OW - - - - -	OIL WASTE
- - - - -PD - - - - -	PUMP DISCHARGE
- - - - -V - - - - -	SANITARY VENT
- - - - -W - - - - -	SANITARY WASTE
—SHWR—	SOLAR HOT WATER RETURN
—SHWS—	SOLAR HOT WATER SUPPLY
—RD—	ROOF DRAINAGE
—RDO—	ROOF DRAIN OVERFLOW
—CO2—	CARBON DIOXIDE
—HE—	HELIUM
—IA—	INSTRUMENT AIR
—MA—	MEDICAL AIR
—MV—	MEDICAL VACUUM
—N2—	NITROGEN
—N2O—	NITROUS OXIDE
—O2—	OXYGEN
—WAGO—	WASTE ANESTHESIA GAS DISPOSAL



PLUMBING GENERAL NOTES

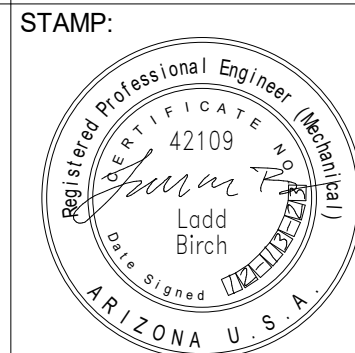
1. UNLESS OTHERWISE NOTED, SLOPE PIPE AS FOLLOWS: WASTE PIPING 4" AND LARGER TO BE SLOPED AT A MINIMUM 1/8" PER FOOT, WASTE PIPING 3" CAN BE SLOPED AT 1/8" PER FOOT UP TO 36 FIXTURE UNITS. WASTE PIPING 2" MUST BE SLOPED AT A MINIMUM OF 1/4" PER FOOT. ROOF DRAIN/ROOF DRAIN OVERFLOW: 1/8" PER FOOT MINIMUM. VERIFY ALL ADJUST WITH LOCAL CODES.
2. ALL WORK DONE SHALL BE PERFORMED WITH WATER CONTROL. IN MIND, CONTAINMENT OF WATER IS NECESSARY TO PREVENT WATER FROM DAMAGING AREAS ON FLOORS BELOW.
3. PLUMBING DRAWINGS ARE SCHEMATIC IN NATURE. FIELD VERIFY EXACT PIPE ROUTING AND COORDINATE WITH ALL OTHER TRADES.
4. ALL PIPING IN PLUMBING CHASES SHALL BE ARRANGED TO ALLOW MAINTENANCE ACCESS.
5. NO PIPING TO RUN OVER ELECTRICAL PANELS, VFD'S OR MCC'S. PROTECT EQUIPMENT WITH A 42" DEEP ZONE IN FRONT OF PANELS, VFD'S, AND MCC'S.
6. COORDINATE FAN ROOM FLOOR DRAIN AND FLOOR SINK LOCATIONS WITH COOLING COIL, EVAPORATIVE SECTION, AND HEATING COIL LOCATIONS.
7. CONTRACTOR TO PROVIDE VALVE IDENTIFICATION AND LOCATION ON ALL CEILING TILES WHERE VALVES ARE LOCATED.
8. PIPING AND ROUTING SHOWN, INCLUDING ALL BELOW FLOOR PIPING IS APPROXIMATE. IT IS UP TO THE CONTRACTOR TO FIELD VERIFY THE EXACT LOCATION AND SIZE OF ALL PIPING.
9. REFER TO ARCHITECTURAL DRAWINGS FOR FIXTURE MOUNTING HEIGHTS, DIMENSIONS AND OTHER REQUIREMENTS.
10. CONTRACTOR TO VERIFY CONNECTION SIDE OF ADA FIXTURES AND ADJUST ACCORDINGLY. INSTALL FLUSH VALVES HANDLES ON WIDE SIDE OF ALL FIXTURES.
11. LOCATE ALL VENTS MINIMUM 10' AWAY FROM AIR INTAKES.
12. INSTALL ALL DOMESTIC WATER LINES BELOW DUCTWORK.
13. INSTALL A SECURE ACCESS DOOR BELOW ALL ISOLATION VALVES, BALANCING VALVES AND WATER HAMMER ARRESTORS WHERE MOUNTED ABOVE HARD CEILINGS.
14. MOUNT ALL ISOLATION VALVES, CONTROL VALVES, BALANCING VALVES, ETC. NEAR CEILING HEIGHT FOR ACCESSIBILITY.
15. INSTALL ALL EQUIPMENT WITH SUFFICIENT CLEARANCE FOR MAINTENANCE PER MANUFACTURERS RECOMMENDATION.
16. COORDINATE ALL FLOOR PENETRATIONS WITH STRUCTURAL AND PROVIDE SLEEVES AS NECESSARY.
17. COORDINATE THE LOCATION OF THE FLOOR DRAIN, SHOWER DRAIN, OR FLOOR SINK WITH ARCHITECTURAL AND STRUCTURAL, TYPICAL.
18. SEE PLUMBING FIXTURE SCHEDULE FOR PIPE SIZES OF WASTE, VENT AND DOMESTIC WATER TO/FROM SINGLE FIXTURE.
19. HOSE BIBBS SHOWN AT LAVATORIES ARE TO BE MOUNTED AT AN ACCESSIBLE LOCATION UNDER THE LAVATORY.
20. LOCATE CIRCUIT SETTERS, VALVES, WATER HAMMER ARRESTORS, ETC. IN ACCESSIBLE LOCATIONS. PROVIDE A SECURE ACCESS PANEL WHERE ITEM IS LOCATED ABOVE A HARD CEILING. PROVIDE APPROPRIATELY SIZED ACCESS DOORS TO ANY OF THESE ITEMS INSTALLED IN A WALL. COORDINATE ACCESS DOOR SIZE, LOCATION, AND STYLE WITH ARCHITECT.
21. FIELD VERIFY LOCATION AND INVERTS OF SITE UTILITIES PRIOR TO INSTALLATION.
22. FIELD VERIFY ALL NEW WATER, WASTE AND VENT PIPING CONNECTIONS AND PROVIDE NEW CONNECTIONS AS REQUIRED FOR PROPERLY OPERATING SYSTEMS.
23. WASTE AND VENT PIPING BELOW FLOOR AND THROUGH FLOOR TO BE 2" MINIMUM.
24. INSTALL CLEANOUTS IN DRAIN PIPING AS INDICATED, AND WHERE NOT INDICATED, ACCORDING TO THE FOLLOWING.
 - A. SIZE SAME AS DRAINAGE PIPING UP TO 4" NPS. USE 4" NPS FOR LARGER DRAINAGE PIPING UNLESS LARGER CLEANOUT IS INDICATED.
 - B. LOCATE AT MINIMUM INTERVALS OF 50 FT FOR PIPING 4" NPS AND SMALLER AND 100 FT FOR LARGER PIPING.
 - C. LOCATE AT THE BASE OF EACH VERTICAL STACK.
25. PROVIDE ALL FLOOR DRAINS WITH A TRAP GUARD INSERT FOR TRAP PROTECTION. ENSURE TRAP GUARD IS COMPATIBLE WITH INSTALLED FLOOR DRAINS.
26. PROVIDE ALL HAND WASHING SINKS WITH A THERMOSTATIC MIXING VALVE TO COMPLY WITH ASSE 1070 REQUIREMENTS.

PROJECT GENERAL NOTES

1. THE PROJECT GENERAL NOTES APPLY TO ALL DISCIPLINES.
2. REMOVE ALL UNUSED PIPING, DUCTWORK, EQUIPMENT, AND ACCESSORIES.
3. WHERE FLOOR DRAINS OCCUR WITH THE LIMITS OF CONSTRUCTION, PREVENT CONSTRUCTION DEBRIS FROM ENTERING DRAIN BODY BY SEALING DRAIN OPENING PRIOR TO START OF WORK. UNSUE DRAINS AT COMPLETION OF CONSTRUCTION.
4. COORDINATE INSTALLATION OF PIPING, DUCTWORK, CONDUIT, LIGHTS, CABLE TRAY, STRUCTURE, EQUIPMENT, CEILINGS, ARCHITECTURAL COMPONENTS, AND ANYTHING ELSE PERTAINING TO THE PROJECT TO PREVENT CONFLICTS.
5. THE CONTRACTOR SHALL BE FAMILIAR WITH ALL THE CONDITIONS BOTH EXISTING AND THOSE ILLUSTRATED BY THESE DOCUMENTS AND THOSE OF OTHER DISCIPLINES, INCLUDING, BUT NOT LIMITED TO ARCHITECTURAL, CIVIL, ELECTRICAL, VENTILATION, PLUMBING, AND OTHER SYSTEMS INVOLVED ON THIS PROJECT.
6. FINAL PROJECT SHALL BE A COMPLETE AND FUNCTIONING SYSTEM, AND SHALL CONFORM TO ALL REQUIREMENTS OF APPLICABLE FEDERAL, STATE, AND LOCAL CODES, INCLUDING BUT NOT LIMITED TO THE INTERNATIONAL BUILDING CODE, INTERNATIONAL MECHANICAL CODE, AND INTERNATIONAL PLUMBING CODE.
7. LOCATE EQUIPMENT REQUIRING ACCESS 2'-0" MAXIMUM ABOVE CEILING.
8. COORDINATE INSTALLATION OF DUCTWORK, PIPING AND MECHANICAL EQUIPMENT WITH NEC CLEARANCES INCLUDING THE SPACE ABOVE ELECTRICAL PANELS, TRANSFORMERS AND OTHER ELECTRICAL EQUIPMENT. NO PIPING OR DUCTWORK TO RUN OVER ELECTRICAL PANELS. VFDs OR MCCs. PROTECT EQUIPMENT WITH A 42" DEEP ZONE IN FRONT OF PANELS, VFDs AND MCCs. PROVIDE PANS IF REQUIRED UNDER PIPING.
9. FIRE SEAL AROUND DUCT AND PIPING PENETRATIONS OF FIRE RATED WALLS. THE MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR CAULKING AND SEALING ALL PENETRATIONS IN FIRE AND SMOKE RATED PARTITIONS TO MAINTAIN RATINGS. REFER TO SPECIFICATION.
10. PROVIDE SLEEVES AND/OR OPENINGS TO RUN PIPES AND DUCTS THROUGH FOUNDATIONS, FLOORS, WALLS, AND ROOF.
11. TRANSITION PIPING AND DUCTWORK SIZES TO MATCH THE SIZE OF EQUIPMENT CONNECTION.
12. ALL PIPE AND DUCT SIZES SHOWN SHALL BE CONTINUED IN THE DIRECTION OF FLOW UNTIL ANOTHER SIZE IS SHOWN.
13. FOR DETAILS, EQUIPMENT CONNECTIONS, AND PIPE SIZES NOT SHOWN ON THE SEGMENTS, REFER TO DETAILS, SCHEDULES, AND SPECIFICATIONS.
14. INSTALL ALL EQUIPMENT IN ACCORDANCE WITH THE RESPECTIVE MANUFACTURER'S WRITTEN INSTALLATION INSTRUCTIONS, AT A LEVEL OF WORKMANSHIP CONSISTENT WITH THE SPECIFICATIONS.
15. MECHANICAL CONTRACTOR SHALL ENSURE THAT ALL EQUIPMENT IS PROVIDED AND INSTALLED WITH CLEARANCES PER MANUFACTURER'S RECOMMENDATIONS. THE CONTRACTOR SHALL MAINTAIN PROPER SERVICE SPACE FOR COIL PULLS, GAS DEVICES, MAINTENANCE ACCESS, ETC.
16. LOCATIONS OF PIPING, DUCTWORK AND EQUIPMENT AS INDICATED ON THE DRAWING, ARE APPROXIMATE AND SUBJECT TO MINOR ADJUSTMENTS IN THE FIELD, INCLUDING, BUT NOT LIMITED TO, OFFSETS AND TRANSITIONS. NEW DUCTWORK, PIPING AND EQUIPMENT SHALL BE COORDINATED WITH STRUCTURE, LIGHTS, REFLECTED CEILING PANS, CABLE TRAY, ELECTRICAL CONDUIT, PLUMBING, MECHANICAL AND FIRE PROTECTION PIPING, MECHANICAL GASES, ALL OTHER TRADES AND ALL OTHER EXISTING CONDITIONS TO AVOID INTERFERENCE IN THE FIELD.
17. THE CONTRACTOR SHALL INFORM THE DESIGNER OF ANY PROPOSED DEVIATIONS FROM THE CONTRACT DOCUMENTS.
18. IF CONTRACTOR ENCOUNTERS MATERIAL WHICH MAY CONTAIN ASBESTOS, IMMEDIATELY STOP WORK IN THIS AREA AND NOTIFY THE OWNER.
19. DETAILS REFERENCE ALL SHEETS.
20. INSTALL ALL PIPING AND DUCTWORK WITHOUT FORCING OR SPRINGING.
21. ROUTE DOMESTIC WATER, FIRE PROTECTION, SANITARY WASTE, AND ANY OTHER UTILITY SERVICES TO SITE UTILITIES 5'-0" FROM BUILDING UNLESS NOTED OTHERWISE. REFER TO CIVIL PLANS.
22. LOCATE VALVING, ACCESSORIES, AND EQUIPMENT IN ACCESSIBLE LOCATIONS, WHERE LOCATED ABOVE HARD CEILING PROVIDE AN ACCESS DOOR IN CEILING. MINIMUM ACCESS DOOR SIZE OF 24" X 24" COORDINATE EXACT LOCATION AND STYLE WITH ARCHITECT. EQUIPMENT SHALL BE LOCATED IN THE CEILING CAVITY SO IT CAN BE SAFELY SERVICED FROM SOMEONE STAND ON A LADDER PLACED BELOW THE CEILING ACCESS.
23. WHERE VALVING, ACCESSORIES, OR EQUIPMENT IS LOCATED IN A WALL, PROVIDE AN APPROPRIATELY SIZED ACCESS DOOR. COORDINATE ACCESS DOOR SIZE, LOCATION, AND STYLE WITH ARCHITECT.
24. CONTRACTOR TO PROVIDE VALVE IDENTIFICATION AND LOCATION ON ALL CEILING TILES WHERE VALVES ARE LOCATED.

PLUMBING SHEET INDEX

P000	PLUMBING TITLE SHEET
P101	LEVEL 1 PLUMBING PLAN
P190	ROOF PLUMBING PLAN
P401	PLUMBING ENLARGED PLAN
P501	PLUMBING DETAILS
P502	PLUMBING DETAILS
P601	PLUMBING SCHEDULES
P701	PLUMBING SPECIFICATIONS
P702	PLUMBING SPECIFICATIONS



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NO.	DATE	DESCRIPTION
REVISIONS		



CITY OF PAGE - ENCOMPASS SHELTER BUILDING
PLUMBING TITLE SHEET
SCHEMATIC FLOOR PLAN

2110-042
PROJECT NUMBER

P000

SHEET NO.

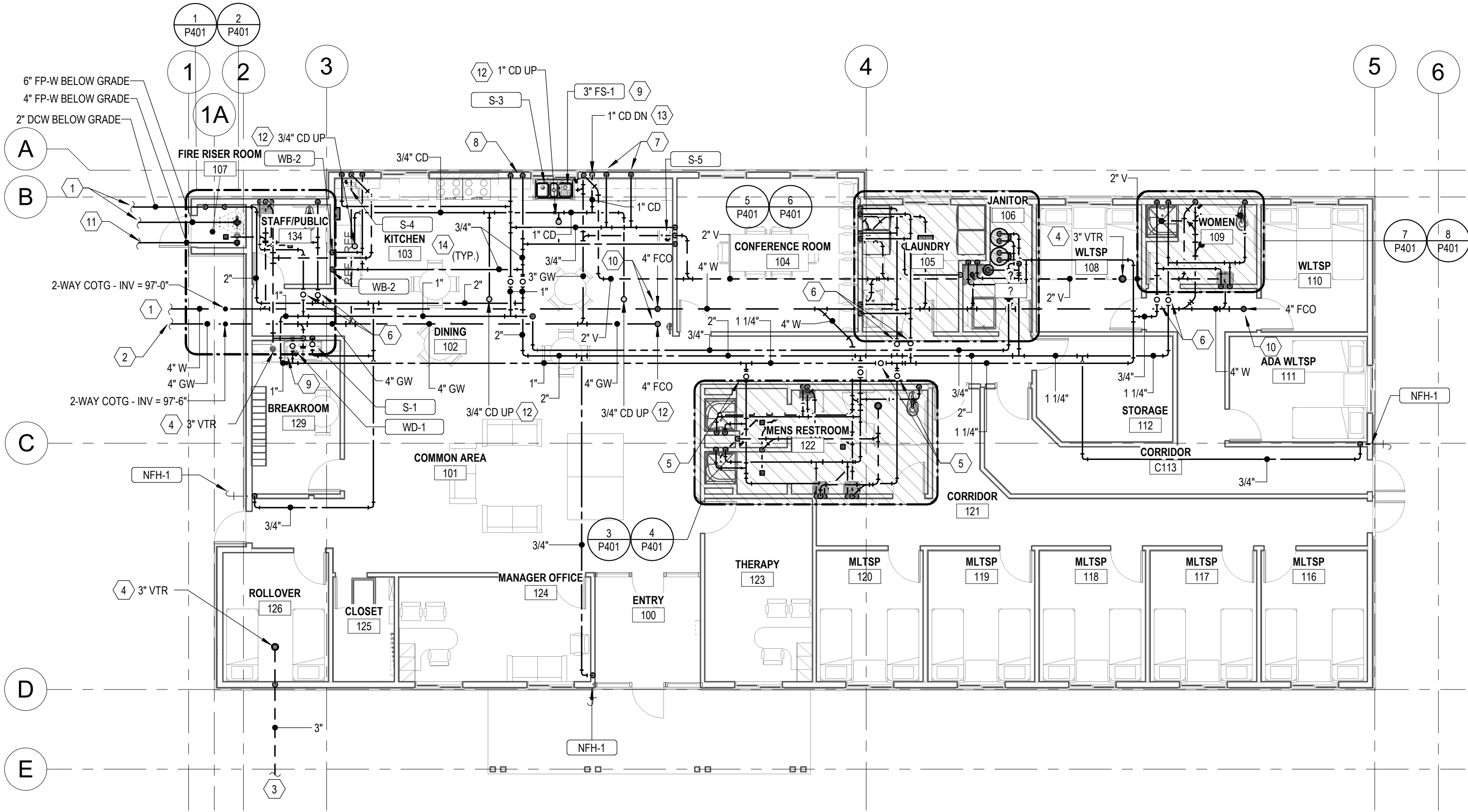
SHEET NO.

 230 N. 1680 E.
Building V
St. George, Utah 84107
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www.vbfa.com
VBFA Project #: 22055

VBFA Project #: 22055

*** NOTE ***
ALL OF GENERAL NOTES ON THIS SHEET ARE TO BE APPLIED TO ALL OTHER DRAWINGS IN THIS SET. THE SYMBOLS AND ABBREVIATIONS SHOWN ON THIS SHEET MAY OR MAY NOT BE USED IN THIS SET OF DRAWINGS.

APPROVED

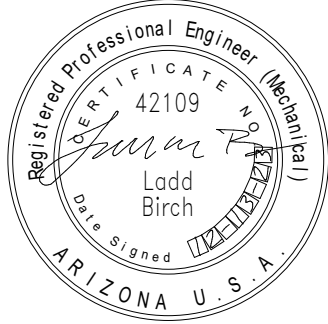


1 LEVEL 1 PLUMBING PLAN
1/8" = 1'-0"

KEYNOTES

- SEE CIVIL SITE UTILITY PLAN FOR CONTINUATION.
- 4" GREASE WASTE LINE TO ON SITE GREASE INTERCEPTOR. SEE CIVIL PLANS FOR LOCATION AND SPECIFICATIONS.
- 3" VENT LINE FROM THE OUTLET OF THE GREASE INTERCEPTOR. RETURN LINE TO BUILDING, RISE UP IN THE EXTERIOR WALL, OFFSET IN THE CEILING SPACE, AND TERMINATE UP THRU THE ROOF.
- VENT THRU ROOF (VTR) TO BE LOCATED AND INSTALLED A MINIMUM OF 10'-0" FROM ALL FRESH AIR INTAKES.
- PROVIDE DHW LOOP TO RESTROOM GROUPS WITH AN ISOATION BYPASS. PROVIDE ISOLATION VALVES AT THE SUPPLY, RETURN, AND BYPASS LINE IN ORDER TO ISOLATE THE HOT WATER LOOP TO THE RESTROOM WITHOUT AFFECTING THE HOT WATER SERVICE TO THE REST OF THE BUILDING. HOT WATER LOOP TO BE CONTINUOUS IN SIZE THROUGH THE SPACE AND THE BYPASS SHALL MATCH THE SIZE OF THE LOOP.
- PROVIDE DOMESTIC WATER BRANCH LINE(S) TO FIXTURES OR GROUP OF FIXTURES WITH ISOLATION SHUT-OFF VALVES. VALVES TO BE LOCATED ABOVE THE CEILING, ABOVE THE CORRIDORS IN A VISIBLE LOCATION. PROVIDE WITH A SECURE ACCESS PANEL, TYPICAL.
- 1/2" DHW LINE DOWN TO OWNER PROVIDED DISHWASHER. PROVIDE AND INSTALL WITH A SHUT-OFF VALVE IN AN ACCESSIBLE LOCATION AND CONNECT PER MANUFACTURER'S RECOMMENDATIONS.
- DOW AND DHW LINES TO THE KITCHEN SINK TO DROP DOWN IN THE WALL. INSTALL HORIZONTALLY UNDERNEATH THE WINDOW AND STUB THROUGH THE SINK BASE CABINET FOR CONNECTION TO THE SINK FAUCET.
- PROVIDE AND INSTALL A FLOOR SINK IN THE FLOOR UNDERNEATH THE 3-COMPARTMENT SINK. COORDINATE DRAINAGE FROM SINK AND DISHWASHERS AND SPILL TO FLOOR SINK.
- PROVIDE WASTE PIPING BELOW THE FLOOR WITH A FLOOR CLEANOUT. CLEANOUTS SHALL BE LOCATED IN AN ACCESSIBLE LOCATION. IN THE END OF THE SEWER PIPING RUN AND/OR AT A MAXIMUM DISTANCE OF 100' BETWEEN. INSTALL OUTSIDE OF THE MAIN AREAS OF FOOT TRAFFIC AND PROVIDE WITH A SECURE ACCESS COVER INSTALLED FLUSH TO FINISH FLOOR.
- PROVIDE AND INSTALL A 4" FIRE LINE BELOW GRADE TO THE REMOTE FIRE DEPARTMENT CONNECTION. SEE CIVIL SITE UTILITY PLAN FOR CONTINUATION.
- CONDENSATE DRAIN LINE FROM ROOF MOUNTED EQUIPMENT. MAKE CONNECTION TO THE BOTTOM OUTLET OF THE UNIT, PER MANUFACTURER'S RECOMMENDATIONS.
- DROP 1" CONDENSATE DRAIN LINE DOWN IN EXTERIOR WALL AND SPILL TO FLOOR SINK INSTALLED UNDER THE SINK. PROVIDE WITH A 1" AIR GAP.
- KITCHEN EQUIPMENT PROVIDED BY OWNER. COORDINATE WITH OWNER FOR ALL KITCHEN FIXTURES PRIOR TO PURCHASE AND INSTALLATION. MAKE FINAL CONNECTIONS TO ALL KITCHEN EQUIPMENT PER MANUFACTURER'S RECOMMENDATIONS, TYPICAL.

STAMP:



SUBMITTAL:

NO.	DATE	DESCRIPTION

REVISIONS



CITY OF PAGE - ENCOMPASS SHELTER BUILDING
LEVEL 1 PLUMBING PLAN
SCHEMATIC FLOOR PLAN

2110-042
PROJECT NUMBER


P101

SHEET NO.

APPROVED

VBFA
230 N. 1680 E.
Building V
St. George, Utah 84107
O: (435)674-5800
www.vbfa.com
VBFA Project #: 22055



- STAMP:
- 
- The seal is circular with the text "Registered Professional Engineer (Mechanical)" around the top and "ARIZONA U.S.A." around the bottom. In the center, it says "CERTIFICATE NO. 42109", "Ladd Birch", and "Date Signed 12/22/2011". A signature is written across the center.



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CITY OF PAGE - ENCOMPASS SHELTER BUILDING

ROOF PLUMBING PLAN

SCHEMATIC FLOOR PLAN

2110-042
PROJECT NUMBER

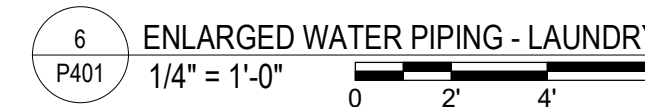
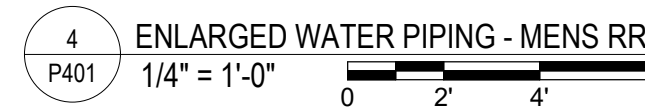
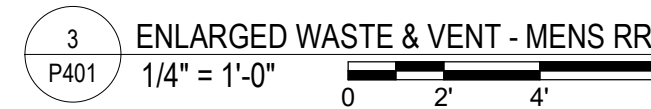
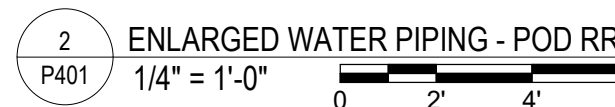
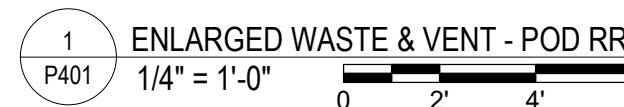
P190

SHEET NO

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 Exhibit: BCD - 20205.pdf
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- 1 WALL CLEANOUT, TYPICAL.
- 2 VENT THRU ROOF (VTR) TO BE LOCATED AND INSTALLED A MINIMUM OF 10'-0" FROM ALL FRESH AIR INTAKES, TYPICAL.
- 3 INSTALL DHW LOOP THROUGH THE RESTROOM IN CLOSE PROXIMITY TO FIXTURES TO MINIMIZE PIPING BRANCH LENGTHS TO FIXTURES, TYPICAL.
- 4 PROVIDE AND INSTALL AN IN FLOOR LIN INTERCEPTOR FOR THE WASTE DISCHARGE FROM THE WASHING MACHINES. UNIT TO BE INSTALLED FLUSH TO FINISH FLOOR WITH A SECURE ACCESS COVER RATED FOR FOOT TRAFFIC. LOCATE IN AN ACCESSIBLE LOCATION.
- 5 PROVIDE AND INSTALL AN EMERGENCY FLOOR DRAIN, COORDINATE LOCATION WITH EQUIPMENT IN SPACE.
- 6 FOR SIZES, VALVES, ETC. NOT SHOWN, SEE WATER HEATER DETAIL.
- 7 DOMESTIC WATER PRV STATION, SEE DETAIL. COORDINATE MOUNTING HEIGHT WITH FIRE ALARM PANEL, AND FIRE RISER IN THE SAME ROOM.
- 8 4" FIRE LINE TO REMOTE FDC, SEE SHEET P101 FOR CONTINUATION.
- 9 CONDENSATE DRAIN LINE FROM THE ROOM MOUNTED EQUIPMENT. MAKE CONNECTION TO THE BOTTOM OUTLET OF THE UNIT, PER MANUFACTURER'S RECOMMENDATIONS.
- 10 3/4" CONDENSATE DRAIN LINE TO DROP DOWN IN THE WALL AND SPILL INTO THE SERVICE SINK. ENSURE DRAIN TERMINATES WITH AN INDIRECT AIR GAP



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CITY OF PAGE - ENCOMPASS SHELTER BUILDING

PLUMBING ENLARGED PLAN

SCHEMATIC FLOOR PLAN

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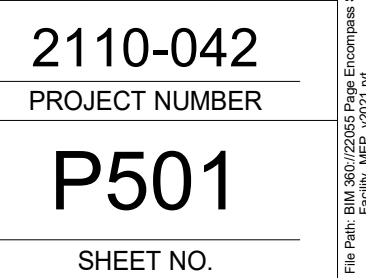
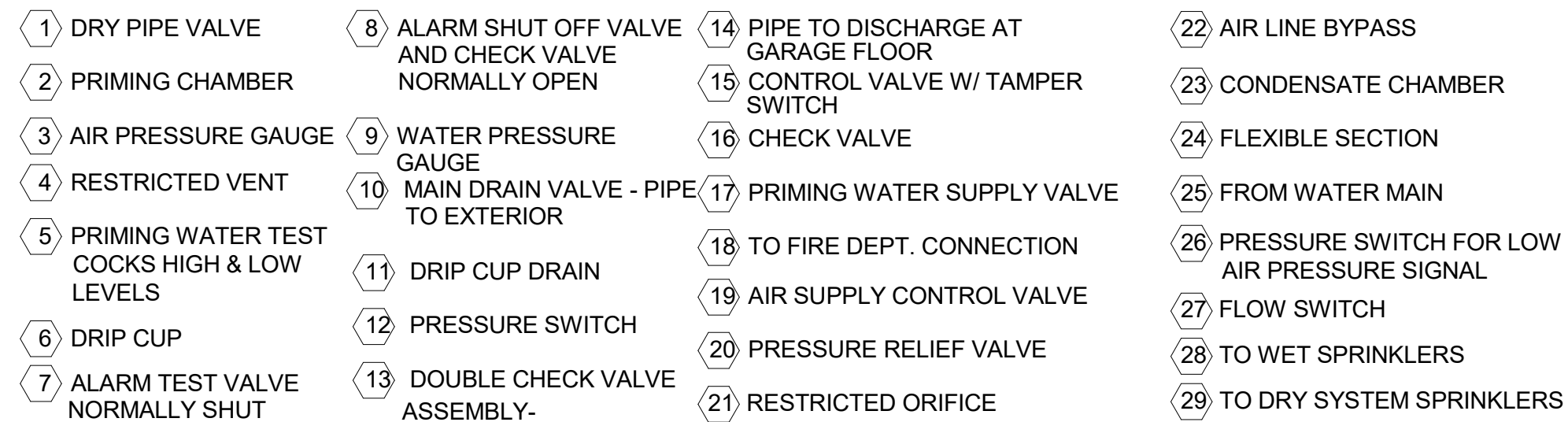
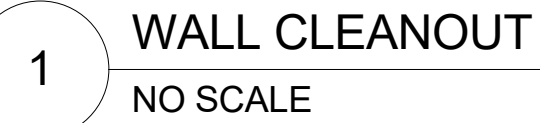
2110-042
PROJECT NUMBER

P401
SHEET NO.

1. $\text{Roughness} = \sqrt{\text{Roughness}^2 + \text{Roughness}^2} = \sqrt{1.1^2 + 1.1^2}$

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Classified by
Underwriters Laboratories, Inc.
to UL 1479 and CAN/ULC-S115

System No. W-L-1410

ANSI/UL1479 (ASTM E814)	CAN/ULC-S115
F Ratings — 1 and 2 Hr (See Item 1)	F Ratings — 1 and 2 Hr (See Item 1)
T Rating — 0 Hr	FT Rating — 0 Hr
	FH Ratings — 1 and 2 Hr (See Item 1)
	FTH Rating — 0 Hr

The diagram illustrates the Wall Assembly W-L-1410. On the left, a cross-section view shows a circular pipe (3) passing through a wall assembly consisting of a stud (1) and gypsum board (2). On the right, a side view labeled 'SECTION A-A' shows the assembly with a vertical stud (1) and a horizontal pipe (3) passing through it, with gypsum board (2) on either side. Arrows labeled 'A' indicate the section line.

1. Wall Assembly — The 1 or 2 hr fire rated gypsum board/stud wall assembly shall be constructed of the materials and in the manner specified in the individual U300, U400, V400 or W400 Series Wall and Partition Designs in the UL Fire Resistance Directory and shall include the following construction features:

- Studs — Wall framing may consist of either wood studs or steel channel studs. Wood studs to consist of nom 2 by 4 in. (51 by 102 mm) lumber spaced 16 in. (406 mm) OC. Steel studs to be min 3-1/2 in. (89 mm) wide and spaced max 24 in. (610 mm) OC.
- Gypsum Board — One or two layers of nom 5/8 in. (16 mm) thick gypsum board as specified in the individual Wall and Partition Design. Max diam of opening is 5 in. (127 mm).

The hourly F and FH Ratings of the firestop system are equal to the hourly fire rating of the wall assembly.

2. Through penetrants — One metallic pipe or conduit to be installed either concentrically or eccentrically within the firestop system. The annular space shall be 0 in. (point contact) to 1 in. (25 mm). Pipe or conduit to be rigidly supported on the penetrated side of the wall assembly. The following types and sizes of metallic pipes or conduits may be used:

- Steel pipe — Nom 3 in. (76 mm) diam (or smaller) Schedule 5 (or heavier) steel pipe.
- Conduit — Nom 3 in. (76 mm) diam (or smaller) steel electrical metallic tubing (EMT), nom 3 in. (76 mm) diam steel conduit or nom 1 in. (25 mm) diam (or smaller) flexible steel conduit.
- Copper Tubing — Nom 1 in. (25 mm) diam (or smaller) Type L (or heavier) copper tubing.
- Copper Pipe — Nom 1 in. (25 mm) diam (or smaller) Regular (or heavier) copper pipe.

3. Fill, Void or Cavity Material — Sealant — Min 5/8 in. (16 mm) thickness of fill material applied within the annulus, flush with surface of wall. Min 1/2 in. (13 mm) diam bead of sealant applied at point contact location.

HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — FS-ONE Sealant, FS-ONE MAX Intumescent Sealant, CFS-S-SIL GG Sealant, CP601S Elastomeric Sealant, CP 606 Sealant, or CP618 Putty.

++ Bearing the UL Classification Mark

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January 28, 2015

W-L-1410

UL SYSTEM NO. F-C-2030 **PLASTIC PIPE THROUGH WOOD FLOOR/CEILING ASSEMBLY**

F-RATING = 1-HR. OR 2-HR.

T-RATING = 0-HR., 3/4-HR., 1-HR., 1-1/2-HR. OR 2-HR.

BOTTOM VIEW

SECTION A-A

1. WOOD FLOOR/CEILING ASSEMBLY (UL CLASSIFIED L500 SERIES) (1-HR. OR 2-HR. FIRE-RATING) (2-HR. SHOWN).
2. LUMBER OR PLYWOOD SUBFLOOR WITH FINISH FLOOR OF LUMBER, PLYWOOD, OR FLOOR TOPPING MIXTURE.
3. WOOD TOP PLATE.
4. GYPSUM WALL ASSEMBLY (1-HR. OR 2-HR. FIRE-RATING) (2-HR. SHOWN).
5. PENETRATING ITEM TO BE ONE OF THE FOLLOWING (ALSO SEE NOTE NO. 2 BELOW) :
 - A. MAXIMUM 4" NOMINAL DIAMETER PVC PLASTIC PIPE (CELLULAR AND SOLID CORE).
 - B. MAXIMUM 4" NOMINAL DIAMETER ABS PLASTIC PIPE (CELLULAR AND SOLID CORE).
 - C. MAXIMUM 4" NOMINAL DIAMETER FRPP PLASTIC PIPE.
 - D. MAXIMUM 4" NOMINAL DIAMETER CPVC PLASTIC PIPE.
6. HILTI FS-ONE INTUMESCENT FIRESTOP SEALANT INSTALLED TO THE MAXIMUM EXTENT POSSIBLE.
7. HILTI CP 643N FIRESTOP COLLAR WITH FASTENING HOOKS (SEE TABLE BELOW).
8. 3/4" WOOD SCREWS AND WASHERS TO ATTACH EACH FASTENING HOOK.

NOMINAL PIPE DIAMETER	PRODUCT DESCRIPTION	NO. OF FASTENING HOOKS	MAXIMUM HOLE SIZE
1-1/2"	CP 643 50/1.5" N	2	2-1/2"
2"	CP 643 63/2" N	2	2-5/8"
3"	CP 643 90/3" N	3	4"
4"	CP 643 110/4" N	3	5"

NOTES : 1. ANNULAR SPACE = MINIMUM 0", MAXIMUM 1/2".

2. CLOSED OR VENTED PIPING SYSTEM. (PVC, ABS, FRPP=SCHEDULE 40, CPVC=SDR 17).

HILTI®
FIRESTOP SYSTEMS

HILTI, Inc.
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Sheet	1 of 1	Drawing No. FC 2030j
Scale	3/32" = 1"	
Date	Feb. 26, 2004	

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FC2030j_022904

UL SYSTEM NO. W-L-2411

PLASTIC PIPE WITH COUPLING THROUGH 1-HR. OR 2-HR. GYPSUM WALL ASSEMBLY

F-RATING = 1 AND 2-HR.
T-RATING = 0 AND 1-1/2-HR.

FRONT VIEW

SECTION A-A

<p>FIRESTOP SYSTEMS</p>	<p>HILTI, Inc. Tulsa, Oklahoma USA (918) 252-6000</p>	Sheet	1 of 2	<p>Drawing No. WL 2411a</p>
		Scale	1 1/4" = 1"	
		Date	JUNE 03, 2005	

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WL2411a.06/03/05

UL SYSTEM NO. F-C-2332

PLASTIC PIPE THROUGH WOOD FLOOR/CEILING ASSEMBLY

F-RATING = 1-HR.
T-RATING = 3/4 AND 1-HR.

BOTTOM VIEW

SECTION A-A

1. WOOD FLOOR/CEILING ASSEMBLY (UL CLASSIFIED L500 SERIES) (1-HR. FIRE-RATING).
2. PENETRATING ITEM TO BE ONE OF THE FOLLOWING (ALSO SEE NOTE NO. 3 BELOW) :
 - A. MAXIMUM 4" NOMINAL DIAMETER PVC PLASTIC PIPE (CELLULAR OR SOLID CORE).
 - B. MAXIMUM 4" NOMINAL DIAMETER CPVC PLASTIC PIPE (CLOSED PIPING SYSTEM ONLY).
3. MINIMUM 5/8" DEPTH HILTI FS-ONE INTUMESCENT FIRESTOP SEALANT.
4. HILTI CP 648E FIRESTOP WRAP STRIP (NOMINAL 3/16" THICK, x 1-3/4" WIDE) CONTINUOUSLY WRAPPED AROUND THE OUTER CIRCUMFERENCE OF THE PIPE, COVERING TWO TIMES, WITH ENDS BUTTED AND HELD IN PLACE WITH TAPE.
5. HILTI RETAINING COLLAR WRAPPED OVER WRAP STRIPS, OVERLAPPING MINIMUM 1".
6. HILTI RETAINING COLLAR CLAMP FASTENED AT MID-HEIGHT OF HILTI RETAINING COLLAR.
7. EVERY OTHER TAB OF RETAINING COLLAR SECURED TO GYPSUM CEILING WITH 1/4" DIAMETER x 1-1/2" LONG STEEL TOGGLE BOLTS WITH 3/4" DIAMETER WASHERS (EX. HILTI TOGGLER BOLTS).

NOTES : 1. MAXIMUM DIAMETER OF OPENING = 5".

2. ANNULAR SPACE = MINIMUM 0", MAXIMUM 1/2".

3. CLOSED OR VENTED PIPING SYSTEMS (PVC = SCHEDULE 40; CPVC = SDR 13.5).

4. AS AN ALTERNATE TO UTILIZING CP 648E WRAP STRIPS WITH RETAINING COLLAR, HILTI CP 643N FIRESTOP COLLAR MAY BE USED. EVERY FASTENING HOOK OF FIRESTOP COLLAR TO BE ATTACHED TO GYPSUM CEILING WITH 1/4" DIAMETER x 1-1/2" LONG STEEL TOGGLE BOLTS WITH 3/4" DIAMETER WASHERS (EX. HILTI TOGGLER BOLTS).

HILTI SYSTEMS

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Sheet 1 of 1

Scale 1 1/4" = 1"

Date June 23, 2005

Drawing No.

FC

23232d

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FC23232d 05/2005

PLASTIC PIPE WITH COUPLING THROUGH 1-HR. OR 2-HR. GYPSUM WALL ASSEMBLY

UL SYSTEM NO. W-L-2411

F-RATING = 1 AND 2-HR.
T-RATING = 0 AND 1-1/2-HR.

VOL 2411a 06/2005

1. GYPSUM WALL ASSEMBLY (UL/cUL CLASSIFIED U300, U400 OR V400 SERIES) (1-HR. OR 2-HR. FIRE-RATING) (2-HR. SHOWN).
2. [NOT SHOWN] WOOD STUDS TO CONSIST OF NOMINAL 2" x 4" LUMBER. STEEL STUDS TO BE MINIMUM 3-1/2" WIDE.
3. PENETRATING ITEM TO BE ONE OF THE FOLLOWING :
 - A. MAXIMUM 4" NOMINAL DIAMETER PVC PLASTIC PIPE (CELLULAR OR SOLID CORE).
 - B. MAXIMUM 4" NOMINAL DIAMETER ABS PLASTIC PIPE (CELLULAR OR SOLID CORE).
 - C. MAXIMUM 4" NOMINAL DIAMETER CPVC PLASTIC PIPE (CLOSED PIPING SYSTEM ONLY).
4. [OPTIONAL] PIPE COUPLING TO BE SAME SIZE AND TYPE OF PIPE (SEE NOTE NO. 4 BELOW).
5. MINIMUM 1/4" DEPTH HILTI FS-ONE INTUMESCENT FIRESTOP SEALANT REQUIRED WHEN COUPLING IS RECESSED INTO OPENING.
6. HILTI CP 648E WRAP STRIP (SIZE SHOWN IN TABLE BELOW) CONTINUOUSLY WRAPPED AROUND THE OUTER CIRCUMFERENCE OF THE PIPE, COVERING TWO TIMES, AND HELD IN PLACE WITH TAPE.
7. HILTI RETAINING COLLAR (SIZED TO MATCH WRAP STRIP) WRAPPED OVER WRAP STRIPS, OVERLAPPING MINIMUM 1".
8. HILTI COLLAR CLAMP(S) FASTENED AT MID-HEIGHT OF RETAINING COLLAR.
9. FASTEN EVERY OTHER TAB OF RETAINING COLLAR TO GYPSUM WALL WITH 1-1/2" LONG STEEL DRYWALL OR LAMINATE SCREWS AND 3/4" STEEL WASHERS.

PIPE SIZE	FIRESTOP PRODUCT
2" OR SMALLER	CP 648E W25/1"
GREATER THAN 2"	CP 648E W45/1-3/4"

NOTES : 1. MAXIMUM DIAMETER OF OPENING = 5".

2. ANNUAL SPACE = MINIMUM 0", MAXIMUM 1/2".

3. CLOSED OR VENTED PIPING SYSTEMS (PVC, ABS = SCHEDULE 40; CPVC = SDR 13.5).

4. PIPE COUPLING MAY BE INSTALLED FLUSH WITH EITHER SIDE OF WALL OR RECESSED SUCH THAT THE COUPLING EXTENDS 1/4" BEYOND THE RETAINING COLLAR ON EITHER SIDE OF THE WALL.

HILTI, Inc.
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Sheet	2 of 2
Scale	-
Date	JUNE 03, 2005

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Drawing No.

WL 2411a

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DIVISION 220000 PLUMBING
PART 1 - GENERAL
1.01 GENERAL CONDITIONS

THE GENERAL CONDITIONS, SUPPLEMENTARY CONDITIONS AND DIVISION 1, ARE A PART OF THIS SECTION AND THE CONTRACT FOR THIS WORK AND SHALL APPLY TO THIS SECTION AS FULLY AS IF REPEATED HEREIN.

1.02 SCOPE OF WORK

FURNISH ALL LABOR, MATERIALS, EQUIPMENT, APPLIANCES AND NECESSARY INCIDENTALS FOR THE COMPLETE INSTALLATION OF ALL PLUMBING AS SHOWN ON THE DRAWINGS AND AS SPECIFIED HEREIN.

A. WORK SPECIFIED IN THIS SECTION

- SANITARY SOIL, WASTE AND VENT SYSTEMS.
- DOMESTIC HOT AND COLD WATER SYSTEMS.
- DOMESTIC WATER HEATERS.
- FURNISH AND SET ALL SLEEVES FOR PIPES PASSING THROUGH WALLS AND FLOORS.
- PIPE COVERING, INSULATION AND WRAPPING.
- EXCAVATION AND BACKFILL.
- ROUGH-IN AND FINAL CONNECTIONS TO AIR CONDITIONING EQUIPMENT OF CONDENSATE DRAINS.
- ALL PLUMBING FIXTURES, WATER HEATERS, VALVES, AND OTHER MISCELLANEOUS ITEMS OR EQUIPMENT REQUIRED FOR A COMPLETE INSTALLATION.

1.03 QUALITY ASSURANCE

A. CODES AND STANDARDS

- ALL ITEMS INDICATED ON SITE, ARCHITECTURAL OR MECHANICAL DRAWINGS ARE TO BE PROVIDED COMPLETE FROM POINT OF CONNECTION TO FINISHED FIXTURE IN CONFORMANCE WITH ALL GOVERNING AUTHORITY REQUIREMENTS. NOTHING IN THESE DRAWINGS OR SPECIFICATIONS SHALL BE CONSTRUED TO PERMIT WORK IN VIOLATION OF GOVERNING CODES.
- IN ADDITION TO THE REQUIREMENTS OF ALL GOVERNING CODES, ORDINANCES AND AGENCIES, CONFORM TO THE REQUIREMENTS OF THE FOLLOWING CODES AND STANDARDS:
 - 2018 INTERNATIONAL PLUMBING CODE.
 - 2018 INTERNATIONAL BUILDING CODE.
 - 2018 INTERNATIONAL MECHANICAL CODE.
 - 2018 INTERNATIONAL ENERGY CONSERVATION CODE.

1.04 PRODUCT HANDLING

- PROTECTION: TAKE ALL PRECAUTIONS NECESSARY TO PROTECT THE MATERIALS OF THIS SECTION BEFORE, DURING AND AFTER INSTALLATION.
- REPLACEMENTS: IN THE EVENT OF DAMAGE, IMMEDIATELY REPAIR ALL DAMAGED AND DEFECTIVE WORK TO THE APPROVAL OF THE ENGINEER, AT NO ADDITIONAL COST TO THE OWNER.

1.05 SUBMITTALS

- MANUFACTURER'S LITERATURE: WITHIN 35 DAYS AFTER AWARD OF CONTRACT AND BEFORE ANY OF THE MATERIALS OF THIS SECTION ARE DELIVERED TO THE JOB SITE, SUBMIT ELECTRONIC BROCHURES OF ALL MATERIALS AND EQUIPMENT, PER DIVISION 1 OF THE SPECIFICATIONS.
- OTHER SUBMITTALS:
 - SHOP DRAWINGS.
 - STERILIZATION TEST REPORT.
 - TEST DATA.
- RECORD DRAWINGS: KEEP AN ACCURATE DIMENSIONED RECORD OF AS-BUILT LOCATIONS AND ELEVATIONS, AS REFERRED TO APPROVED BASE DATUM, OF BURIED CONCEALED LINES, MANHOLE, CLEANOUTS, VALVES, PLUGGED TEES, CAPPED ENDS, AND OF WORK WHICH IS INSTALLED DIFFERENT FROM SHOWN IN THE PLANS.
- OPERATION AND MAINTENANCE INSTRUCTIONS: DELIVER TO ARCHITECT TWO COMPLETE SETS IN BOUND BOOKLET FORM OF WRITTEN OPERATING AND MAINTENANCE INSTRUCTIONS AND BROCHURES FOR EQUIPMENT SPECIFIED IN THIS SECTION. FULLY INSTRUCT OWNER'S OPERATING PERSONNEL.

1.06 MISCELLANEOUS

- EXAMINATION OF THE SITE: EXERCISE CARE IN EXAMINING THE SITE AND COORDINATE ALL WORK INDICATED ON THE DRAWINGS WITH EXISTING CONDITIONS. REPORT TO ARCHITECT IN WRITING CONDITIONS THAT WILL PREVENT PROPER PROVISIONS OF THIS WORK. VERIFY DEPTH AND LOCATION OF ALL SERVICE LINES WITH SERVICING COMPANIES HAVING JURISDICTION BEFORE EXCAVATING. BY SUBMISSION OF THE BID, THE CONTRACTOR WARRANTS THAT HE HAS FAMILIARIZED HIMSELF WITH THE EXISTING CONDITIONS AND WILL PERFORM ALL WORK AS REQUIRED FOR HOOKUP AND AS REQUIRED BY THE CONTRACT DOCUMENTS AT NO ADDITIONAL CHARGE.
- PERMITS AND FEES: ARRANGE AND PAY FOR ALL PERMITS, INSPECTIONS AND FEES REQUIRED BY ALL GOVERNING AGENCIES.
- SERVICE CONNECTIONS: MAKE ALL NECESSARY ARRANGEMENTS WITH APPLICABLE UTILITY COMPANY FOR CONNECTION TO EXISTING SERVICE LINES. PAY ALL FEES ASSOCIATED WITH WORK INCLUDING METERS, HOOKUP CHARGE AND UTILITY ASSESSMENT FEES.
- DRAWINGS: COORDINATE ALL SPACE REQUIREMENTS WITH OTHER TRADES. DRAWINGS INDICATE DESIRED LOCATION AND ARRANGEMENT OF PIPING, EQUIPMENT, AND OTHER ITEMS AND ARE TO BE FOLLOWED AS CLOSELY AS POSSIBLE.
- ALL GAS FIRED EQUIPMENT SHALL INCLUDE A LABEL INDICATING THAT THE APPLIANCE HAS BEEN ADJUSTED, MODIFIED OR RE-CALIBRATED FOR THE ALTITUDE WHEREIN THE PROJECT IS TO BE LOCATED. THE APPLIANCE SHALL ALSO INCLUDE A COMPLIANCE STATEMENT INDICATING THAT THE APPLIANCE HAS BEEN ADJUSTED, MODIFIED OR RE-CALIBRATED FOR THE PROPER OPERATION AT THE ALTITUDE OF THE PROJECT AND SHALL BE LISTED CAPABLE FOR USE WITH NATURAL GAS OR PROPANE GAS IF PROPANE IS LISTED ON THE DRAWINGS.

PART 2 - PRODUCTS

2.01 GENERAL

- PIPE SLEEVES AND WRAPPING: PROVIDE POLISHED CHROMIUM PLATED AND BRASS SET SCREW FLANGES WHERE PLUMBING PIPING PASS THROUGH WALLS, FLOORS, CEILINGS, AND PARTITIONS IN FINISHED PORTIONS OF BUILDING INCLUDING FLANGES ON PIPES AT FIXTURES. ALL SLEEVES IN CONCEALED AND EXTERIOR WALLS SHALL BE 20 GA. GALVANIZED IRON ONE INCH O.D. LARGER THAN THE PIPE, CAULKED IF BELOW GRADE IN A MOISTUREPROOF MANNER. ALL PIPES PENETRATING THROUGH FIRE WALLS AND FLOORS SHALL BE PROPERLY SAIED WITH DOW CORNING 3-8548 SILICONE RTV FOAM OR EQUAL. INSTALL PER MANUFACTURE'S DIRECTION.
- PIPE IDENTIFICATION:
 - PIPING IDENTIFICATION PER ANSI AND OSHA STANDARDS: EACH INDIVIDUAL PIPELINE SHALL BE MARKED FOR QUICK AND EASY IDENTIFICATION AS TO CONTENTS AND CHARACTER OF MATERIAL CARRIED IN THE PIPES BY SET ON SNA OR STR MARKER.
 - MARKERS SHALL BE INSTALLED AND SPACED AT NOT MORE THAN 8 FT. INTERVALS AND SO LOCATED THAT MARKERS SHALL BE VISIBLE WHERE PIPING SYSTEM IS EXPOSED.
 - COLOR SCHEME SHALL BE APPROVED. BASE COLOR FOR MARKERS SHALL BE AS FOLLOWS:

DOMESTIC HOT WATER -	YELLOW
DOMESTIC COLD WATER -	GREEN
SANITARY SEWER -	GREEN
SANITARY VENT -	GREEN
CONDENSATE DRAIN -	BLUE
- ONE MARKER SHALL BE INSTALLED AT EACH SIDE OF VALVES, SPECIAL FITTINGS AND AT BRANCH TAKE-OFF. IN FURRED SPACES INSTALL ONE BAND 2 FT. ABOVE FLOOR AND 19 IN. BELOW CEILING LINE.
- MATERIALS: MATERIALS WHEN NOT OTHERWISE DEFINITELY SPECIFIED SHALL CONFORM TO THE APPLICABLE ASTM, ASME, AGA, AND ASA STANDARDS.
- ALL GAS FIRED EQUIPMENT SHALL INCLUDE A LABEL INDICATING THAT THE APPLIANCE HAS BEEN ADJUSTED, MODIFIED OR RE-CALIBRATED FOR THE ALTITUDE WHEREIN THE PROJECT IS TO BE LOCATED. THE APPLIANCE SHALL ALSO INCLUDE A COMPLIANCE STATEMENT INDICATING THAT THE APPLIANCE HAS BEEN ADJUSTED, MODIFIED OR RE-CALIBRATED FOR THE PROPER OPERATION AT THE ALTITUDE OF THE PROJECT AND SHALL BE LISTED CAPABLE FOR USE WITH NATURAL GAS OR PROPANE GAS IF PROPANE IS LISTED ON THE DRAWINGS.

2.02 PIPE AND FITTINGS

PIPE AND FITTINGS:

- NO PIPE OF A FOREIGN MANUFACTURER WILL BE ACCEPTABLE.
- ALL PIPING, FITTINGS, FLANGES, ETC. SHALL BE FREE FROM DEFECTS AND SHALL COMPLY WITH THE APPROPRIATE ASTM SPECIFICATIONS.
- BLACK STEEL PIPE: ASTM A53 ERW GRADE B, STANDARD WEIGHT (SCHEDULE 40) OR EXTRA STRONG (SCHEDULE 80) AS SPECIFIED.
- COPPER TUBING: ASTM B88, TYPE L OR K AS SPECIFIED.
- PVC PIPE AND FITTINGS: ASTM D1785 CLASS 150 WITH ASTM D 2853 SOLVENT CEMENT JOINTS UNLESS OTHERWISE SPECIFIED. SCHEDULE 40. PVC PLASTIC PIPE FITTINGS: ASTM F 628, SCHEDULE 40.
- ACRYLONITRILE BUTADIENE STYRENE (ABS) PLASTIC PIPE: ASTM D 2661, SCHEDULE 40, ASTM F 628, SCHEDULE 40. ABS PLASTIC PIPE FITTINGS: ASTM F 409, ACCESSIBLE AND REPLACEABLE, SOLVENT CEMENT AND THREADED TYPES, DRAIN PATTERN.
- CAST IRON SOIL PIPE AND FITTINGS: ASTM A74
- WELDED BLACK STEEL FITTINGS: ASTM A234 GRADE B, 150-POUND FOR STANDARD WEIGHT PIPING, 300-POUND FOR EXTRA STRONG PIPING, OR OF WEIGHT OR SCHEDULE OF MATCHING PIPING.
- THREADED MALLEABLE IRON FITTINGS: ANSI B16.3, 150-POUND FOR STANDARD WEIGHT PIPING, 300-POUND FOR EXTRA STRONG PIPING, OR OF WEIGHT OR SCHEDULE OF MATCHING PIPING EITHER BLACK OR GALVANIZED TO MATCH PIPING.
- WELDED FLANGES: ASTM A181 GRADE B, 150-POUND FOR STANDARD WEIGHT PIPING, 300-POUND FOR EXTRA STRONG PIPING OR OF EQUAL WEIGHT OF CONNECTED EQUIPMENT.
- COPPER FITTINGS: WROUGHT COPPER, ANSI SPECIFICATION B16.22.
- BALL VALVES, DOMESTIC WATER: BRONZE, FULLPORT, CLASS 150, THREADED. GRINNELL 3750 OR 171N NIBCO T-685 JAMESBURY 300
- PARTITION STOP VALVES: T&S B415, LOOSE KEY TYPE WITH WALL FLANGE.
- BALANCING COCKS 2 INCHES AND SMALLER SHALL BE CRANE NO 250 OR MILWAUKEE BUTTERBALL BB2-100 OR BB2-350 WITH MEMORY STOP.
- SOLDER: O.I. JOINTS IN COPPER PIPING ABOVE GRADE SHALL BE STAY SAFE 50 SOLDER OR 95-5 SOLDER SHALL BE SILFOS OR SILVERFLOW FOR ALL REFRIGERANT PIPING JOINTS.
- CONDENSATE DRAINS SHALL BE TYPE L HARD COPPER TUBING WITH WROUGHT-COPPER FITTINGS OR PVC WHERE ALLOWED. A P-TRAP SHALL BE PROVIDED AT DRAIN PANS.
- DOMESTIC HOT WATER, HOT WATER RETURN, AND COLD WATER PIPING SHALL BE TYPE L OR K HARD TEMPERED COPPER PIPE WITH WROUGHT-COPPER FITTINGS USING 95-5 SOLDER, PEX TUBE OR CPVC PIPING MAY BE USED IN LIEU OF COPPER ON SIZES 2-INCHES AND SMALLER. WHERE PIPING IS EXPOSED OUTSIDE OF PARTITIONS, USE TYPE L OR K HARD COPPER TUBING AND WROUGHT COPPER FITTINGS.
- ALL SOIL, WASTE, AND VENT SHALL BE ABS OR PVC PLASTIC PIPE, RATED FOR DOMESTIC WASTE AND VENT, WITH ABS OR PVC PLASTIC SOCKET TYPE DRAIN, WASTE AND VENT PATTERN FITTINGS. SOLVENT CEMENTED JOINTS. INSTALL ABS DRAINAGE PIPE AND FITTINGS ACCORDING TO ASTM D2681. INSTALL PVC DRAINAGE PIPE AND FITTINGS ACCORDING TO ASTM F891.

2.03 ROOF FLASHING

SANITARY VENT FLASHINGS: SEMCO 1100-3 OR 1100-5, WITH ONE-PIECE LEAD FLASHING AND COUNTERFLASHING SLEEVE.

2.04 PIPE SLEEVES

AT CONCRETE WALLS OR FLOORS, ADJUST-TO-CRETE, PARAMOUNT, HOLE-OUT OR SPERZEL CRETESLEEVE FLOOR SLEEVES SHALL EXTEND TO TOP OF CONCRETE CURBS FOR PIPING RISING THROUGH FLOORS. WALL SLEEVES SHALL BE FLUSH WITH FINISHED SURFACE. SLEEVES SHALL BE SIZED TO ALLOW 1/2 IN. CLEARANCE AROUND PIPE INSULATION. INSULATION AND COVERING SHALL BE CONTINUOUS THROUGH WALL AND FLOOR SLEEVES.

2.05 CLEANOUTS

- FULL SIZE CLEANOUTS SHALL BE INSTALLED AT THE BASE OF EACH SOIL WASTE STACK. ALL OTHER CLEANOUTS SHALL BE INSTALLED WHERE SHOWN ON THE DRAWINGS AND WHERE REQUIRED BY STATE, LOCAL OR NATIONAL PLUMBING CODES.
- ALL CLEANOUTS SHALL BE INSTALLED IN LOCATIONS EASILY ACCESSIBLE FOR RODDING. CLEANOUTS IN WALLS SHALL BE JR SMITH 4402, IN FLOORS JR SMITH 4023. CLEANOUTS SHALL BE JR SMITH, ZURN, WADE, OR JOSAM.

2.06 PIPE INSULATION

- ALL DOMESTIC HOT WATER AND COLD WATER PIPING SHALL BE COVERED WITH OWENS CORNING ASJ-25 FIBERGLASS PIPE INSULATION WITH VAPOR SEAL JACKET. INSULATION THICKNESS SHALL BE AS SHOWN.

OPERATING TEMP (°F)	CONDUCTIVITY	PIPE SIZES (IN.)	
		1 TO <112	112 TO ≤8
141-200	0.25-0.29	1.5	2.0
105-140	0.21-0.28	1.0	1.5
40-60	0.21-0.27	0.5	1.0
<40	0.20-0.26	0.5	1.0

- INSULATE ALL PIPING UNDER LAVATORIES ACCESSIBLE TO THE PHYSICALLY HANDICAPPED WITH HOT WATER SUPPLY AND P TRAP PREFABRICATED INSULATION, HANDI LAV GUARD.

2.07 PIPE HANGERS

HANGERS SHALL BE SUPPLIED WITH FACTORY INSTALLED ISOLATION AND DI-CHROMATE FINISH.

PIPE 2 IN. AND SMALLER: GRINNEL F69, PIPE 2-1/2 IN. AND LARGER: GRINNEL F65. CONCRETE INSERTS: GRINNEL 281 ANAD 282. RISER CLAMPS FOR COPPER PIPING: GRINNEL 261P, PLASTIC COATED. RISER CLAMPS FOR OTHER PIPING: GRINNELL 261.

HANGER RODS SHALL CONFORM TO THE FOLLOWING: PIPE SIZE 2 IN. AND SMALLER: 3/8 IN. RODS. PIPE SIZE 2-1/2 IN. AND 3 IN.: 1/2 IN. RODS. PIPE SIZE 3 IN. AND LARGER: 5/8 IN. RODS.

2.08 PLUMBING FIXTURES

SEE PLUMBING FIXTURES ON SCHEDULE SHEET

SUPPLIES AND STOPS SHALL BE FROST, BRASSCRAFT, KOHLER, EASTMAN, US BRASS, ROVERT MFG OR EQUAL. P-TRAPS SHALL BE FROST, KOHLER, SANITARY DASH OR EQUAL.

ALL FIXTURES SHALL BE CAULKED TO THE FLOOR OR WALL WITH WATER RESISTANT WHITE BUTYL RUBBER CAULKING COMPOUND. TRIM FOR ALL FIXTURES SHALL BE CHROME PLATED AND ALL TRIM SHALL MATCH IN DESIGN. SUPPLY FAUCETS SHALL HAVE RENEWABLE SEATS AND BARRELS.

FIXTURES SHALL BE THE WATER SAVER TYPE WITH MAXIMUM USAGE OF 1.6 GALLONS PER FLUSH FOR WATER CLOSETS, 2.5 GALLONS PER MINUTE FOR SHOWERS, 3.0 GALLONS PER MINUTE FOR SERVICE SINKS, 1.0 GALLONS PER MINUTE FOR URINALS, 0.5 GALLONS PER MINUTE FOR LAVATORIES AND 2.0 GALLONS PER MINUTE FOR SINKS.

2.09 EQUAL MATERIALS AND SUBSTITUTIONS

- IN ADDITION TO MANUFACTURERS SPECIFIED, THE FOLLOWING SHALL ALSO BE CONSIDERED EQUAL, PROVIDED CORRESPONDING MODELS MEET SPECIFIED REQUIREMENTS, EQUIVALENT SUBSTITUTED EQUIPMENT NAMED HEREIN SHALL BE SUBMITTED TO ARCHITECT FOR APPROVAL. SUBMIT ALTERNATE SELECTIONS AT TIME OF BID, LISTING MAJOR EQUIPMENT:

PLUMBING EQUIPMENT	MANUFACTURER
INSULATION	JOHNS MANVILLE, OWENS-CORNING, KNAUF, ARMACELL, OR EQUAL
PIPE HANGERS & SUPPORTS	GRINNELL, FEE & MASON OR B-LINE
VALVES	WATTS, MILWAUKEE OR NIBCO
PRESSURE REDUCING VALVES	WATTS SERIES LF223, ZURN OR WILKINS
FLOOR DRAINS	ZURN, JR SMITH, WATTS, JOSAM OR EQUAL
CLEANOUTS	ZURN, JR SMITH, WATTS, JOSAM OR EQUAL
LAVATORY FAUCETS	MOEN, CHICAGO FAUCETS, SYMMONS, T&S BRASS
SHOWER FAUCETS	SYMMONS, MOEN, CHICAGO FAUCETS, T&S BRASS, LEONARD VALVE CO., POWERS
SINK FAUCETS	MOEN, CHICAGO FAUCETS, SYMMONS, T&S BRASS
FLUSHOMETERS	SLOAN, ZURN
TOILET SEATS	BEMIS, KOHLER, CENTOCO, OR CHURCH
FIXTURE SUPPORTS	J.R. SMITH, WADE, ZURN, JOSAM, MIFAB, WATTS
WATER CLOSETS	AMERICAN STANDARD, ELJER, KOHLER
URINALS	AMERICAN STANDARD, BRIGGS, ELJER, KOHLER
LAVATORIES	AMERICAN STANDARD, BRIGGS, ELJER, KOHLER
COMMERCIAL SINKS	ELKAY, JUST
SERVICE SINKS	AMERICAN STANDARD, KOHLER, ACORN TERRAZZO, ELJER
WATER HEATERS	AO SMITH, BRADFORD WHITE, PVI OR APPROVED EQUAL
DOMESTIC EXPANSION TANKS	AMTROL, BELL & GOSSETT, STATE INDUSTRIES, THERMXTROL, WATTS
DOMESTIC WATER PUMPS	ARMSTRONG, BELL & GOSSETT, GRUNDFOS, TACO

2.10 ELECTRIC WATER HEATER

THE WATER HEATER(S) SHALL BE MANUFACTURED BY A.O. SMITH OR AN APPROVED EQUAL. HEATER(S) SHALL BE LISTED BY UNDERWRITER'S LABORATORIES. HEATER(S) SHALL HAVE 150 PSI WORKING PRESSURE AND BE EQUIPPED WITH EXTRUDED HIGH DENSITY ANODE ROD. ALL INTERNAL SURFACES OF THE HEATER(S) EXPOSED TO WATER SHALL BE GLASS-LINED WITH AN ALKALINE BOROSILICATE COMPOSITION THAT HAS BEEN FUSED TO STEEL BY FIRING AT A TEMPERATURE RANGE OF 1600°F. ELECTRIC HEATING ELEMENTS SHALL BE MEDIUM WATT DENSITY WITH ZINK PLATED COPPER SHEATH EACH ELEMENT SHALL BE CONTROLLED BY AND INDIVIDUALLY MOUNTED THERMOSTAT AND HIGH TEMPERATURE CUTOFF SWITCH. THE OUTER JACKET SHALL BE BAKED ENAMEL FINISH AND SHALL BE PROVIDED WITH FULL SIZE CONTROL COMPARTMENT FOR PERFORMANCE OF SERVICE AND MAINTENANCE THROUGH HINGED FRONT PANELS AND SHALL ENCLOSE THE TANK WITH FOAM INSULATION. ELECTRICAL JUNCTION BOX WITH HEAVY DUTY TERMINAL BLOCK SHALL BE PROVIDED (EXCEPT ON 120V & 277V (NO JUNCTION BOX ON DEL-6 THRU 20)). THE DRAIN VALVE SHALL BE LOCATED IN THE FRONT FOR EASE OF SERVICING. HEATER TANK SHALL HAVE A THREE YEAR LIMITED WARRANTY AS OUTLINED IN THE WRITTEN WARRANTY. FULLY ILLUSTRATED INSTRUCTION MANUAL TO BE INCLUDED.

2.11 DOMESTIC EXPANSION TANK

150 PSI STEEL PRESSURIZED EXPANSION TANKS FOR POTABLE USE OF THE SIZE AND CAPACITY SHOWN ON THE DRAWINGS SHALL BE FURNISHED AND INSTALLED. TANK SHALL BE COMPLETE WITH INTERNAL HEAVY DUTY BUTYL RUBBER DIAPHRAM, RIGID POLYPROPYLENE LINER ON WATER SIDE OF TANK, COMPLYING WITH FDA. AIR CHARGING FITTING, TANK DRAIN, PRESSURE GAUGE, AIR VENT AND CONNECTIONS AS SHOWN ON THE DRAWINGS. SUPPORTS FOR EXPANSION TANKS SHALL BE FURNISHED AND INSTALLED BY THE PLUMBER. TANKS SHALL BE WATTS, AMTROL, TACO, ARMSTRONG OR ZURN

2.12 RECIRCULATING HOT WATER PUMP

A RECIRCULATING HOT WATER PUMP OF THE SIZE SHOWN ON THE DRAWINGS SHALL BE FURNISHED AND INSTALLED. THE PUMPS SHALL BE BELL & GOSSETT OR ARMSTRONG OF ALL BRONZE CONSTRUCTION WITH MECHANICAL SEAL AND 1750-RPM DRIP-PROOF MOTOR WITH THERMAL OVERLOAD PROTECTION. CIRCULATORS SHALL BE SUBSTANTIALLY SUPPORTED WITH A FULL SIZE PIPE LEG TO THE FLOOR OR BY A CRADLE HANGER FROM THE CEILING.

PART 3 - EXECUTION

3.01 SURFACE CONDITIONS

- INSPECTION: ALL PLUMBING SHALL BE INSTALLED IN ACCORDANCE WITH THE REQUIREMENTS OF ALL GOVERNING AUTHORITIES, THE ORIGINAL DESIGN, AND THE REFERENCED STANDARDS.
- DISCREPANCIES
 - IN THE EVENT OF DISCREPANCY, IMMEDIATELY NOTIFY THE ARCHITECT.
 - DO NOT PROCEED WITH INSTALLATION IN AREAS OF DISCREPANCY UNTIL ALL SUCH DISCREPANCIES HAVE BEEN FULLY RESOLVED.
 - INTERFERENCES BETWEEN INSTALLED WORK OF VARIOUS TRADES DUE TO LACK OF COORDINATION SHALL BE RESOLVED BY ARCHITECT WHOSE DECISION IS FINAL. RELOCATE OR OFFSET ANY WORK AS REQUIRED TO ACCOMMODATE WORK OF OTHER TRADES AT NO EXTRA COST TO THE OWNER WHEN SO DIRECTED BY THE ARCHITECT.

3.02 LOCATIONS AND SPACE REQUIREMENTS

- CONTRACTOR SHALL FULLY INFORM HIMSELF REGARDING PECULIARITIES AND LIMITATIONS OF SPACES AVAILABLE FOR INSTALLATION OF WORK UNDER THIS DIVISION. DRAWINGS INDICATE DESIRED LOCATION AND ARRANGEMENT OF PIPING, EQUIPMENT AND OTHER ITEMS, AND ARE TO BE FOLLOWED AS CLOSELY AS POSSIBLE. WORK SPECIFIED AND NOT CLEARLY DEFINED BY DRAWINGS SHALL BE INSTALLED AND ARRANGED IN A SATISFACTORY MANNER. IN ANY CASE AND AT ANY TIME, A CHANGE IN LOCATION REQUIRED BY OBSTACLES OR THE INSTALLATION OF OTHER TRADES NOT SHOWN ON THE MECHANICAL PLANS SHALL BE MADE BY CONTRACTOR WITHOUT ADDITIONAL CHARGE PROVIDED THE CHANGE IS ORDERED BEFORE WORK IS INSTALLED AND NO EXTRA MATERIALS ARE REQUIRED.
- VERIFY ALL SPACES, DIMENSIONS FOR ALL FIXTURES, EQUIPMENT, OR OWNER-FURNISHED EQUIPMENT AND EQUIPMENT FURNISHED UNDER OTHER SECTIONS.
- OBTAIN ALL NECESSARY ROUGH IN DATA AND DIMENSIONS FOR ALL FIXTURES, EQUIPMENT, OR OWNER-FURNISHED EQUIPMENT AND EQUIPMENT FURNISHED UNDER OTHER SECTIONS.
- MAINTAIN AMPLE HEADROOM CLEARANCES AND ACCESSIBILITY. MAINTAIN CEILING HEIGHTS.
- CONSTANTLY CHECK WORK OF OTHER TRADES TO PREVENT INTERFERENCE WITH THIS INSTALLATION.

3.03 EXCAVATION AND BACKFILLING

PERFORM EXCAVATION AND BACKFILLING REQUIRED WORK UNDER THIS SECTION UNLESS OTHER- WISE SPECIFIED. CONFORM TO REQUIREMENTS OF DIVISION 2, SOILS REPORT AND OF PUBLIC AUTHORITIES HAVING JURISDICTION.

3.04 SPECIALTY ITEMS

INSTALL AS INDICATED ON THE DRAWINGS, AS HEREIN SPECIFIED, AND AS RECOMMENDED BY MANUFACTURER.

3.05 STERILIZATION

STERILIZE EACH UNIT OF WATER SUPPLY AND DISTRIBUTION SYSTEM WITH LIQUID CHLORINE OR HYDROCHLORIDE BEFORE ACCEPTANCE FOR OPERATION IN ACCORDANCE WITH AWWA C601, STANDARD FOR DISINFECTING WATER MAINS. WORK SHALL BE DONE BY CONTRACTOR AND, UNLESS OTHERWISE REQUIRED BY PUBLIC AUTHORITIES HAVING JURISDICTION, SHALL CONFORM TO THE FOLLOWING:

- MATERIALS
 - LIQUID CHLORINE: U.S. ARMY SPECIFICATION 4-1. 2. HYDROCHLORIDE: LIQUID SHALL CONFORM TO FED. SPEC. Q-C-118A (INT. 4).
- METHOD: AMOUNT OF CHLORINE SHALL PROVIDE A DOSAGE OF 50 PPM MINIMUM. INTRODUCE CHLORINATING MATERIALS INTO LINES AND DISTRIBUTION SYSTEM IN APPROVED MANNER. AFTER A CONTACT PERIOD OR 24 HOURS MINIMUM DURING WHICH PERIOD CHLORINE RESIDUAL SHALL BE MAINTAINED AT 5 PPM MINIMUM. FLUSH OUT SYSTEMS WITH CLEAN WATER UNTIL RESIDUAL CONTENT IS NOT GREATER THAN 0.2 PPM. FLUSH ENTIRE SYSTEM OPEN AND CLOSE VALVES IN LINES BEING STERILIZED SEVERAL TIMES DURING CONTACT PERIOD.
- TEST REPORTS: FURNISH ONE COPY OF TEST REPORT OF COMPLETE AND ADEQUATE STERILIZATION TO ARCHITECT BEFORE FINAL ACCEPTANCE OF WORK. CERTIFICATES SHALL BEAR SIGNATURE OF AN OFFICIAL, OF LABORATORY RESPONSIBLE FOR TEST. COST OF TESTING LABORATORY SERVICES SHALL BE INCLUDED IN THIS SUBCONTRACT.

3.06 ADJUSTING

UPON COMPLETION OF WORK AND AFTER CLEANING OF SYSTEM, FIXTURES AND EQUIPMENT, AND AUTOMATIC PARTS OF PLUMBING SYSTEM SHALL BE CAREFULLY ADJUSTED FOR NORMAL OPERATION. ALL FLUSH VALVES AND FIXTURE STOPS SHALL BE CHECKED FOR PROPER OPERATION AND FINAL ADJUSTMENT.

3.07 HANGERS AND SUPPORTS

HOLD HORIZONTAL PIPE RUNS FIRMLY IN PLACE USING APPROVED STEEL AND IRON HANGERS, SUPPORTS, AND/OR PIPE RESTS UNLESS OTHERWISE INDICATED. SUSPEND HANGER RODS FROM CONCRETE INSERTS OR FROM APPROVED BRACKETS, CLAMPS OR CLIPS. HANG PIPES INDIVIDUALLY OR IN GROUPS IF SUPPORTING STRUCTURE IS ADEQUATE TO SUPPORT WEIGHT OF PIPING AND FLUID. EXCEPT FOR BURIED PIPING, HANG OR SUPPORT PIPE RUNS SO THAT THEY MAY EXPAND OR CONTRACT FREELY WITHOUT STRAIN TO PIPE OR EQUIPMENT.

- HORIZONTAL STEEL PIPING: PROVIDE HANGERS OR SUPPORTS EVERY 10 FT. EXCEPT EVERY 8 FT. FOR PIPING 1-1/4 IN. AND SMALLER.
- HORIZONTAL COPPER TUBING: FOR 2 IN. DIAMETER AND OVER, PROVIDE HANGERS EVERY 10 FT.; FOR 1-1/2 IN. DIAMETER AND SMALLER, EVERY 6 FT.
- HORIZONTAL CAST-IRON HUB AND SPIGOT PIPING: PROVIDE HANGERS OR SUPPORTS AT EACH HUB.
- HORIZONTAL CAST-IRON NO-HUB PIPING: PROVIDE HANGERS OR SUPPORTS AT EACH SIDE OF NO-HUB FITTINGS. PROVIDE ANTI-SEPARATION BRACING AT EACH 90 DEGREE CHANGE OF DIRECTION.
- VERTICAL PIPING: SUPPORT AT FLOOR WITH IRON PIPE CLAMPS.

BRANCHES: PROVIDE SEPARATE HANGERS OR SUPPORTS FOR BRANCH LINES 6 FT. OR MORE IN LENGTH.

SOUND AND ELECTROLYSIS ISOLATORS: PROVIDE AT ALL HANGERS AND SUPPORTS FOR HOT AND COLD DOMESTIC WATER LINES. SECURELY ATTACH PIPE TO WALLS, STUDS, ETC. ALL SUCH PIPING ISOLATED FROM STRUCTURE BY "TRISOLATORS".

3.08 TESTS

PERFORM TESTS TO ARCHITECT'S SATISFACTION. MAKE TESTS IN PRESENCE OF OWNER'S REP AND AT A TIME SUITABLE TO HIM IF REQUESTED. FURNISH NECESSARY LABOR AND EQUIPMENT AND BEAR COSTS FOR TESTING. COST OF REPLACING AND/OR REPAIRING DAMAGE RESULTING THEREFORE SHALL BE BORNE BY THIS CONTRACTOR. SHOULD THE CONTRACTOR REFUSE OR NEGLECT TO MAKE TESTS NECESSARY TO SATISFY THE ARCHITECT THAT REQUIREMENT OF SPECIFICATIONS AND DRAWINGS ARE MET, SUCH TESTS MAY BE MADE BY AN INDEPENDENT TESTING COMPANY AND THE CONTRACTOR CHARGED FOR ALL EXPENSES.

HYDROSTATIC TESTS: MAKE BY COMPLETELY FILLING PIPING SYSTEM WITH WATER AND ELIMINATING ACCUMULATIONS OF AIR SO THAT LEAKAGE, NO MATTER HOW SMALL, WILL BE APPARENT ON TESTING GAUGE IMMEDIATELY. MAINTAIN PRESSURE UNTIL PIPE UNDER TEST HAS BEEN EXAMINED, BUT IN NO CASE LESS THAN 24 HOURS. TEST SYSTEMS AT THE FOLLOWING PRESSURE.

SYSTEM	TEST PRESSURE
DOMESTIC COLD WATER	150 PSIG
DOMESTIC HOT WATER	150 PSIG

SANITARY SOIL, WASTE, VENT SYSTEM TESTS: BEFORE INSTALLATION OF FIXTURES, CAP END OF SYSTEM AND FILL LINES WITH WATER TO 10 FT. ABOVE THE SECTION BEING TESTED. (INCLUDING VENTS) AND ALLOW TO STAND FOR AT LEAST FIFTEEN (15) MINUTES BEFORE INSPECTION STARTS. MAKE TESTS IN SECTIONS IF NECESSARY OR CONVENIENT. HOWEVER, INCLUDE INTERCONNECTIONS BETWEEN NEW SECTIONS AND PREVIOUSLY TESTED SECTIONS IN THE NEW TEST.

ROOF DRAINAGE SYSTEM: TEST AS SPECIFIED FOR SANITARY SYSTEM.

GAS SYSTEMS: TEST WITH COMPRESSED AIR AT 10 PSI FOR SIX HOURS OR LONGER AS DIRECTED TO PROVIDE A TIGHT SEAL WITHOUT LEAKS. USE PRESSURE RECORDER TO RECORD PRESSURE OF ALL LINES FOR DURATION OF TEST.

REPAIR ALL LEAKAGES AND RETEST AS REQUIRED.

3.09 CLEANOUTS

PROVIDE CLEANOUTS WHERE INDICATED AND REQUIRED. UNLESS OTHERWISE INDICATED, CLEANOUTS SHALL BE ACCESSIBLE WITH EXTENSIONS TO GRADE, TO OUTSIDE OF BUILDINGS, OR TO FLOORS ABOVE AS INDICATED OR REQUIRED. DO NOT LOCATE CLEANOUTS IN PUBLIC LOBBIES AND PUBLIC CORRIDORS UNLESS APPROVED BY ARCHITECT.

MEMBRANES: WHERE WATERPROOFING MEMBRANE OCCURS UNDER FLOOR, BRING MEMBRANE TO CLEANOUT WITHOUT PUNCTURING, AND PERMANENTLY ANCHOR TO INTEGRAL ANCHORING FLANGE WITH A HEAVY CAST-IRON CLAMPING COLLAR AND RUSTPROOF BOLTS.

COVERS: SET CLEANOUT COVERS WITH ALL FINISHED WALL, FLOOR OR GRADE. IN ALL CASES SECURELY ANCHOR BY MEANS OF INTEGRAL LUGS AND BOLTS. WHERE SURFACING MATERIAL SUCH AS RESILIENT COVERING IS SPECIFIED, ASCERTAIN THICKNESS BEING USED AND SET CLEANOUT TOP SO FINISHED FLOOR IS SMOOTH.

USE ACORN 3500 THREAD COMPOUND.

3.10 PIPE INSTALLATION

MAKE PIPE RUNS STRAIGHT AND TRUE. SPRINGING OR FORCING PIPING INTO PLACE IS NOT PERMITTED. INSTALL IN MANNER TO PREVENT ANY UNDUE STRAIN ON EQUIPMENT. MAKE JOINTS SMOOTH AND UNOBSTRUCTED INSIDE AND OUT, AND REAM PIPE ENDS THOROUGHLY TO REMOVE BURRS. CONCEAL PIPING IN FINISHED PORTIONS OF THE BUILDINGS EXCEPT AS OTHERWISE DIRECTED OR INDICATED. CAP OR PLUG ENDS AND OPENINGS IN PIPE AND FITTINGS IMMEDIATELY TO EXCLUDE DIRT UNTIL EQUIPMENT IS INSTALLED OR FINAL CONNECTIONS ARE MADE.

INSTALL PIPING TO CLEAR BEAMS UNLESS SLEEVING IS INDICATED. CONSTANTLY CHECK WORK OF OTHER TRADES TO PREVENT INTERFERENCE WITH THIS INSTALLATION. OBTAIN APPROVAL FROM ARCHITECT IF CORING OR CUTTING OF CONCRETE WORK IS NECESSARY DUE TO FAILURE TO INSTALL REQUIRED SLEEVES PRIOR TO THE TIME OF CONCRETE POUR. COST OF CORING AND CUTTING WORK SHALL BE BORNE BY THE SUBCONTRACTOR.

EXPOSED PLATED OR ENAMELED PIPE: MAKE CONNECTIONS TO EQUIPMENT WITH SPECIAL CARE. SHOW NO TOOL MARKS OR THREADS.

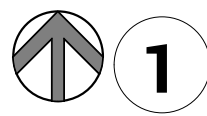
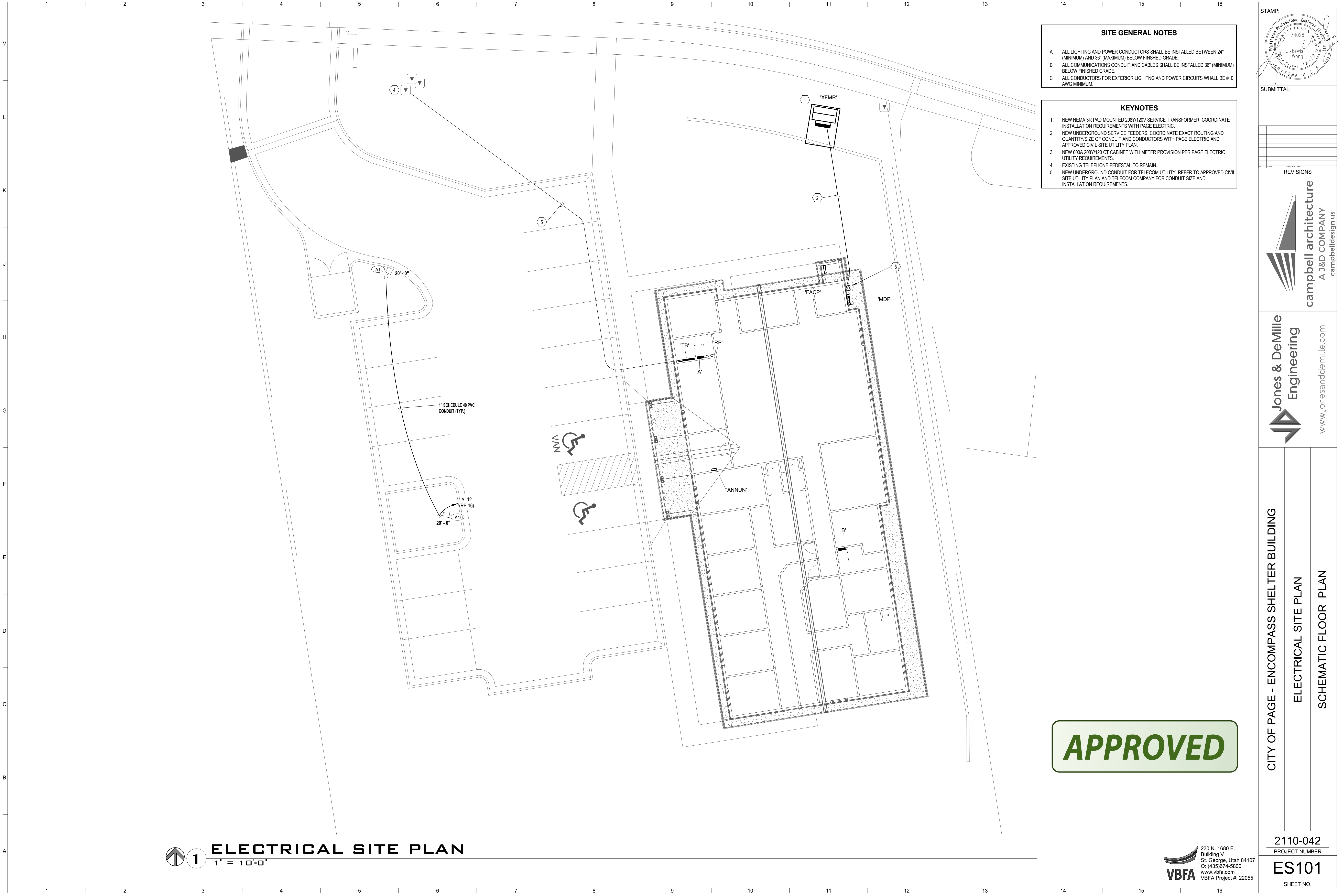
DIELECTRIC UNIONS: MAKE CONNECTIONS BETWEEN TWO DISSIMILAR METAL PIPES WITH DIELECTRIC UNIONS.

UNIONS: PROVIDE A UNION ON ONE SIDE OF EACH SHUTOFF VALVE, AT BOTH SIDES OF AUTOMATIC VALVES, AT EQUIPMENT CONNECTIONS AND ELSEWHERE INDICATED OR REQUIRED, UNLESS FLANGES ARE INDICATED.

FLOOR, WALL AND CEILING PLATES: PROVIDE WHERE PIPES PIERCE FINISHED SURFACES.

NOISE: INSTALL SOIL, WASTE, AND WATER PIPING IN A MANNER THAT PREVENTS ANY UNUSUAL NOISE FROM FLOW OF WATER UNDER NORMAL CONDITIONS.

SHUTOFF VALVES: PROVIDE WHERE INDICATED AND REQUIRED FOR ADEQUATE CONTROL OF SYSTEMS AND



ELECTRICAL SITE PLAN

1" = 10'-0"

SITE GENERAL NOTES

- A ALL LIGHTING AND POWER CONDUCTORS SHALL BE INSTALLED BETWEEN 24" (MINIMUM) AND 36" (MAXIMUM) BELOW FINISHED GRADE.
- B ALL COMMUNICATIONS CONDUIT AND CABLES SHALL BE INSTALLED 36" (MINIMUM) BELOW FINISHED GRADE.
- C ALL CONDUCTORS FOR EXTERIOR LIGHTING AND POWER CIRCUITS SHALL BE #10 AWG MINIMUM.

KEYNOTES

- 1 NEW NEMA 3R PAD MOUNTED 208Y/120V SERVICE TRANSFORMER. COORDINATE INSTALLATION REQUIREMENTS WITH PAGE ELECTRIC.
- 2 NEW UNDERGROUND SERVICE FEEDERS. COORDINATE EXACT ROUTING AND QUANTITY/SIZE OF CONDUIT AND CONDUCTORS WITH PAGE ELECTRIC AND APPROVED CIVIL SITE UTILITY PLAN.
- 3 NEW 600A 208Y/120 CT CABINET WITH METER PROVISION PER PAGE ELECTRIC UTILITY REQUIREMENTS.
- 4 EXISTING TELEPHONE PEDESTAL TO REMAIN.
- 5 NEW UNDERGROUND CONDUIT FOR TELECOM UTILITY. REFER TO APPROVED CIVIL SITE UTILITY PLAN AND TELECOM COMPANY FOR CONDUIT SIZE AND INSTALLATION REQUIREMENTS.

APPROVED

CITY OF PAGE - ENCOMPASS SHELTER BUILDING

ELECTRICAL SITE PLAN

SCHEMATIC FLOOR PLAN

2110-042
PROJECT NUMBER

ES101

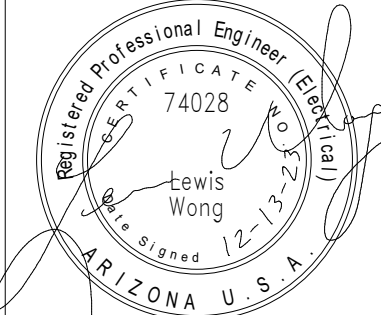
SHEET NO.

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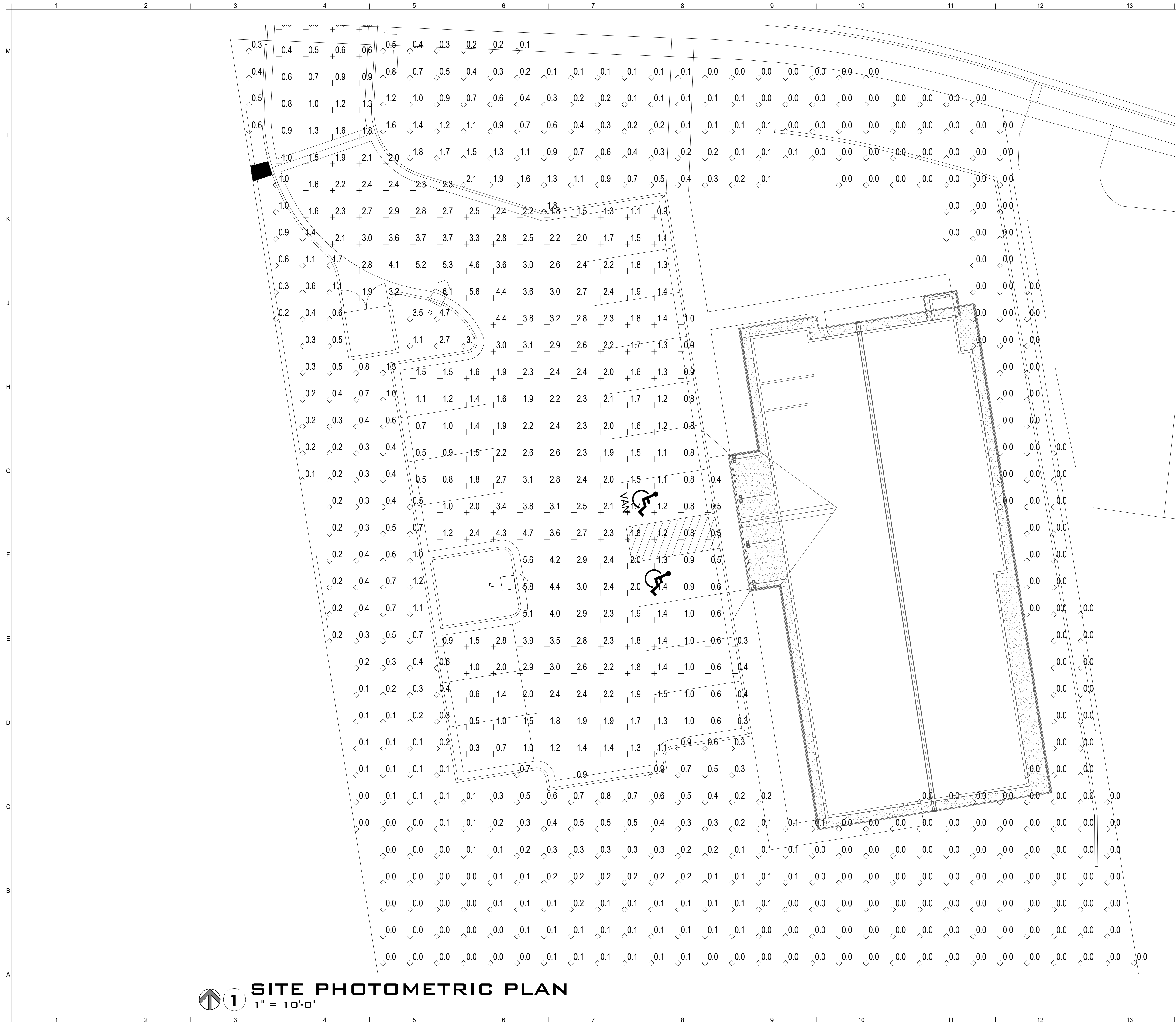


SUBMITTAL:

NO.	DATE	DESCRIPTION

REVISIONS

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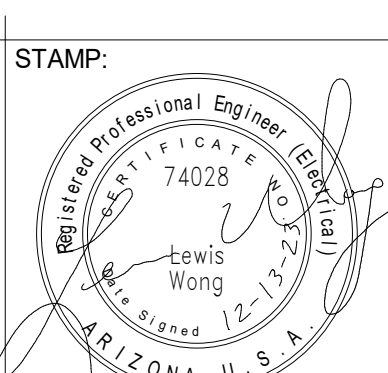
1 **SITE PHOTOMETRIC PLAN**
1" = 10'-0"

VISUAL STATISTICS (fc)					
DESCRIPTION	SYMBOL	AVG	MAX	MIN	AVG/MIN
PARKING	+	2.0	6.1	0.3	6.7/1
EXTENTS	◇	0.0	4.7	0.0	N/A

DISCLAIMER

THE PHOTOMETRIC CALCULATION WAS PERFORMED DURING THE DESIGN DEVELOPMENT PROCESS AND THE REFLECTANCE VALUES USED ARE DESIGNER AVERAGES AND ARE CALCULATED USING THE LUMINARIES SELECTED DURING THAT PROCESS. A MORE ACCURATE PHOTOMETRIC CALCULATION CAN BE PERFORMED ONCE THE FIXTURE HAS BEEN SELECTED AND LOCATED DURING CONSTRUCTION.

APPROVED



SUBMITTAL:	
NO.	DATE
1	12/12/2022



CITY OF PAGE - ENCOMPASS SHELTER BUILDING
SITE PHOTOMETRIC PLAN
SCHEMATIC FLOOR PLAN

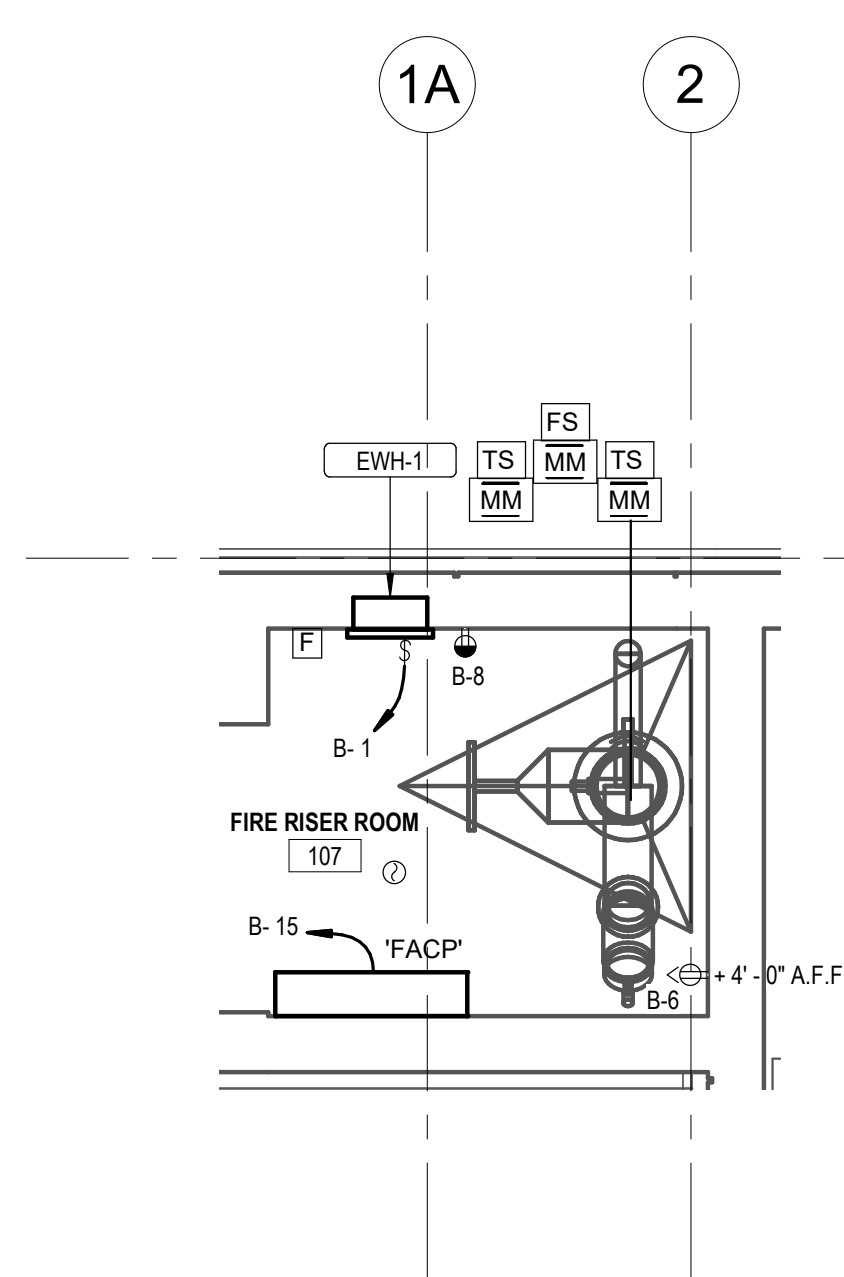


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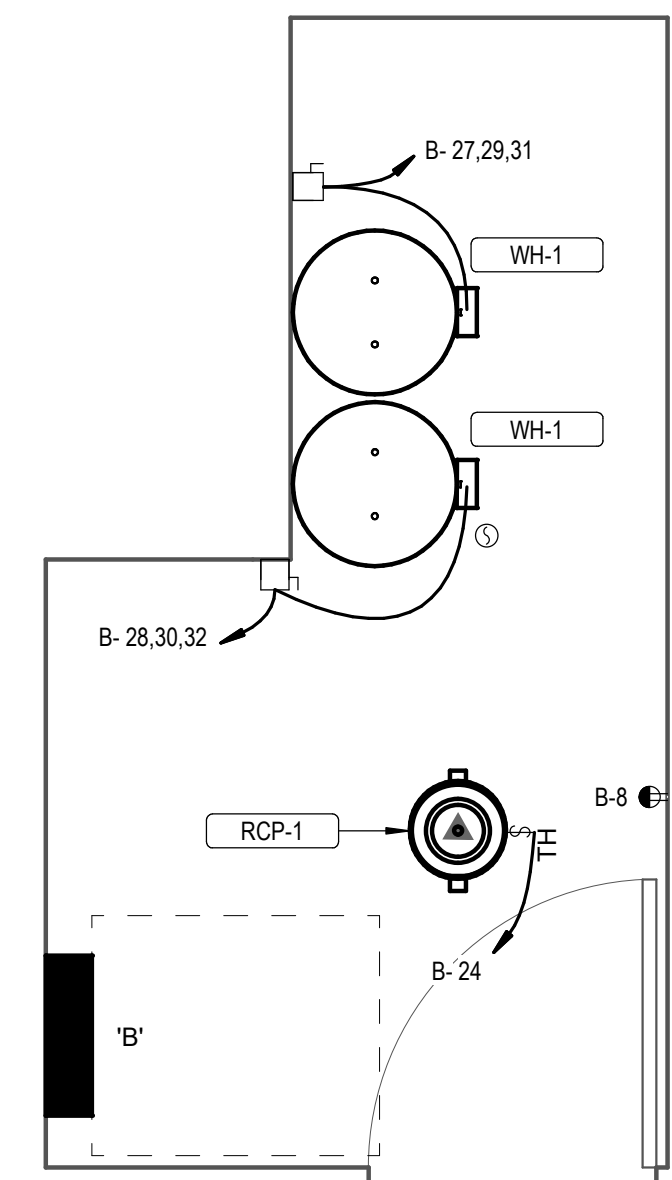


E101

SHEET NO.



2 ENLARGED RISER 106
1/2" = 1'-0"



3 ENLARGED JANITOR 107
1/2" = 1'-0"

FIRE PROTECTION GENERAL NOTES

- PENETRATIONS IN WALLS REQUIRING PROTECTED OPENINGS MUST BE FIRESTOPPED WITH AN APPROVED MATERIAL.
- CONDUITS MAY PENETRATE WALLS OR PARTITIONS, PROVIDED THEY ARE FIRESTOPPED.
- OPENINGS FOR STEEL ELECTRICAL BOXES NOT EXCEEDING 16 SQUARE INCHES ARE PERMITTED PROVIDED OPENINGS DO NOT AGGREGATE MORE THAN 100 SQUARE INCHES FOR ANY 100 SQUARE FEET OF WALL OR PARTITION.
- OUTLET BOXES ON OPPOSITE SIDES OF WALLS OR PARTITIONS MUST BE SEPARATED BY A HORIZONTAL DISTANCE OF 24 INCHES.
- RECESSED LIGHTING FIXTURES INSTALLED IN FIRE RATED CEILING ASSEMBLIES SHALL BE FIRE RATED FIXTURES BEARING THE UL FIRE RATED LABEL. FIXTURES SHALL BE INSTALLED IN ACCORDANCE WITH THE UL FIRE RESISTANCE DIRECTORY, AND SHALL INCLUDE A FIRE RATED ENCLOSURE INSTALLED OVER THE FIXTURE THAT MEETS THE REQUIREMENTS OF THE UL FIRE RESISTANCE DIRECTORY.

KEYNOTES

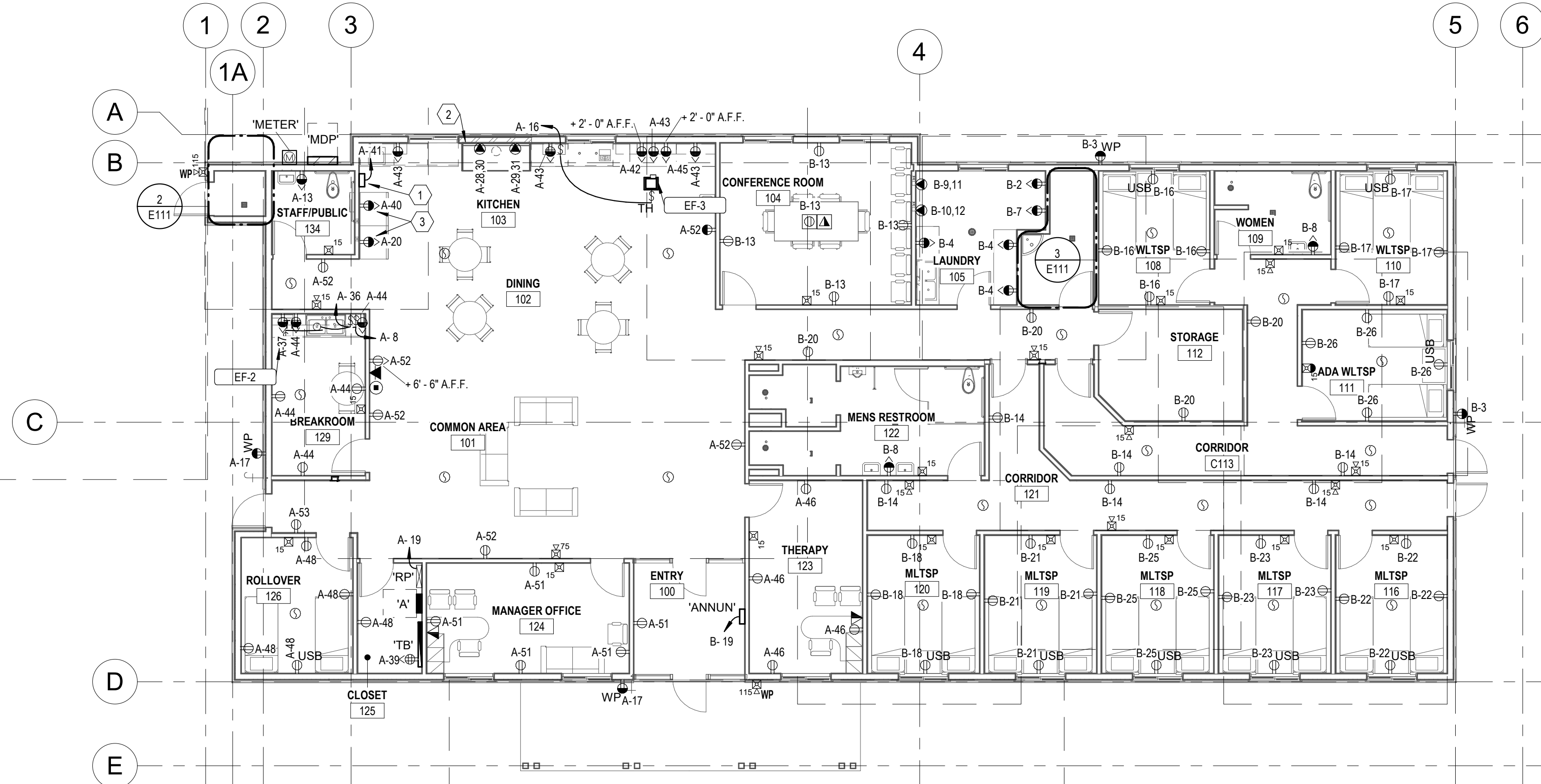
- PROVIDE 120 VOLT CIRCUIT FOR HOOD CONTROL PANEL. REFER TO MECHANICAL SHEETS M502 THROUGH M507 FOR HOOD DETAILS.
- PROVIDE CONNECTION FROM CONTROL PANEL TO HOOD EQUIPMENT. CONNECTION BY DIVISION 26 CONTRACTOR. REFER TO SHEET M507 FOR ADDITIONAL DETAILS.
- GFCI RECEPTACLE WITH AUDIBLE ALERT TRIP.

GENERAL POWER NOTES

- ALL AREAS ARE TO BE KEPT CLEAN AND CLEAR OF DEBRIS AT ALL TIMES.
- ROUTE ALL CONDUIT IN A NEAT AND ORDERLY FASHION. ALL CONDUIT IN FINISHED SPACES SHALL BE CONCEALED ABOVE CEILINGS OR IN WALLS UNLESS OTHERWISE INDICATED ON THE PLANS.
- PROVIDE CLEAR, TYPED, P-TOUCH LABELS ON THE COVERPLATE OF ALL RECEPTACLES INDICATING THE PANEL AND CIRCUIT NUMBER ITS IS TIED TO.
- TYPE MC CABLE IS ACCEPTABLE FOR USE ON THIS PROJECT WHERE ALLOWED BY CODE AND WHERE CONCEALED IN WALLS OR ABOVE CEILINGS.

GENERAL KITCHEN NOTES

- THIS DRAWING IS INTENDED TO SHOW ROUGH-IN LOCATIONS FOR ELECTRICAL CONNECTIONS TO FOOD SERVICE EQUIPMENT. THE GENERAL INTENT IS TO INDICATE ELECTRICAL LOAD, SIZE AND HEIGHT OF THE REQUIRED ROUGH-IN. DIMENSIONS ARE FROM FINISH FLOOR TO CENTER OF BOX UNLESS NOTED OTHERWISE. REFER TO ARCHITECTURAL, MECHANICAL, AND FOOD SERVICE DRAWINGS FOR ADDITIONAL REQUIREMENTS AND COORDINATE ALL ELECTRICAL CONNECTIONS.
- PROVIDE ALL REQUIRED MATERIALS AND LABOR TO MAKE FINAL ELECTRICAL CONNECTIONS TO KITCHEN EQUIPMENT. COORDINATE ALL WORK WITH CURRENT CODES, INCLUDING DIVISION 26 SPECIFICATIONS.
- VERIFY ALL MISCELLANEOUS MATERIALS REQUIRED FOR EACH CONNECTION, SUCH AS JUNCTION BOXES, OUTLETS, COVER PLATES, SWITCHES, CORD CAPS, CORDS, ETC. PROVIDE ALL MATERIALS NOT INCLUDED IN MANUFACTURED EQUIPMENT.
- PROVIDE 120 VOLT CIRCUIT FOR HOOD CONTROL PANEL AND GAS SOLENOID SHUT OFF. CONNECT SHUNT TRIP BREAKERS TO HOOD CONTROL PANEL OUTPUT CONTACTS TO DISCONNECT ALL ELECTRICAL EQUIPMENT UNDER HOOD IN THE EVENT OF ACTUATION OF SUPPRESSION SYSTEM. INTERLOCK EXHAUST FANS AND MAKE UP AIR AS DIRECTED BY HOOD SUPPLIER. COORDINATE EXACT LOCATION OF CONTROL PANEL AND GAS SOLENOID WITH 23 SPECIFICATIONS PRIOR TO ROUGH-IN.
- PROVIDE ALL DISCONNECTS AND/OR OTHER DEVICES REQUIRED BY APPLICABLE CODES.
- PROVIDE LIQUID TIGHT FLEXIBLE CONNECTIONS AS REQUIRED FOR PERMANENTLY INSTALLED AND CONNECTED KITCHEN EQUIPMENT. PROVIDE SUFFICIENT SLACK AS REQUIRED BY OWNER TO ENABLE EQUIPMENT MOVEMENT FOR CLEANING.
- COORDINATE AND PROVIDE CONDUIT, WIRE, AND LABOR TO INSTALL AND CONNECT THE FOLLOWING ITEMS:
 - INTERCONNECTION BETWEEN KITCHEN COMMERCIAL COOKING HOODS AND EXHAUST FANS.
 - INTERCONNECTION WIRING FOR CONNECTIONS OF ALL INSTALLED KITCHEN EQUIPMENT.
- ALL 120 VOLT, SINGLE PHASE 15 AND 20 AMP BRANCH CIRCUITS IN THE KITCHEN SHALL BE PROTECTED BY GFCI PER NEC 210.8(B)(2).



1 LEVEL 1 POWER PLAN
1/8" = 1'-0"

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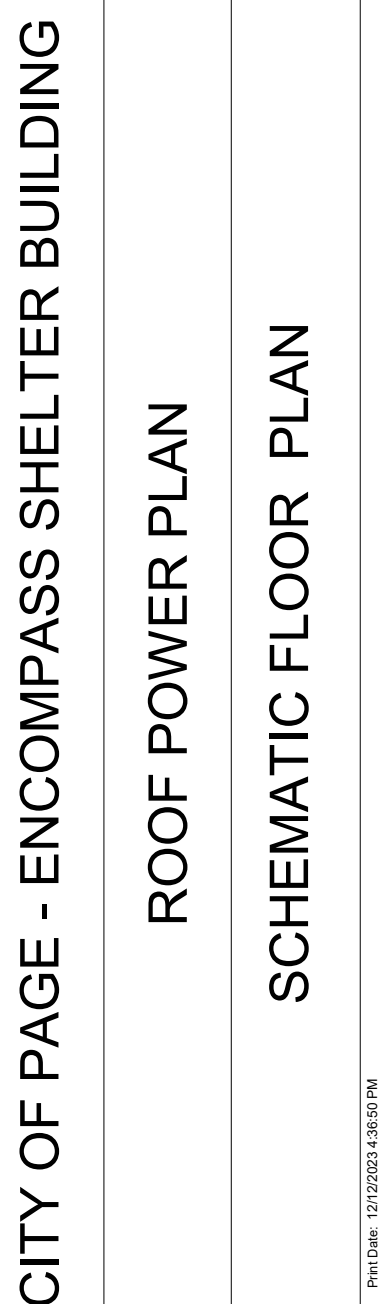


- A. ALL AREAS ARE TO BE KEPT CLEAN AND CLEAR OF DEBRIS AT ALL TIMES.
- B. ROUTE ALL CONDUIT IN A NEAT AND ORDERLY FASHION. ALL CONDUIT IN FINISHED SPACES SHALL BE CONCEALED ABOVE CEILINGS OR IN WALLS UNLESS OTHERWISE INDICATED ON THE PLANS.
- C. PROVIDE CLEAR, TYPED, P-TOUCH LABELS ON THE COVERPLATE OF ALL RECEPTACLES INDICATING THE PANEL AND CIRCUIT NUMBER ITS IS TIED TO.
- D. TYPE MC CABLE IS ACCEPTABLE FOR USE ON THIS PROJECT WHERE ALLOWED BY CODE AND WHERE CONCEALED IN WALLS OR ABOVE CEILINGS.

- 1 INSTALL DUCT SMOKE DETECTOR WITHIN RETURN AIR DUCT OF ROOF-TOP UNIT PER MANUFACTURER'S RECOMMENDATIONS. CONNECT TO FIRE ALARM RELAY AS SHOWN.
- 2 TO FAN CONTROLLER FOR FAN SHUTDOWN.
- 3 UNIT PROVIDED WITH FACTORY INSTALLED DISCONNECT AND POWERED CONVENIENCE OUTLET WITH POWER PROVIDED BY UNIT.
- 4 REFER TO SHEET M507 FOR CONTROL CONNECTIONS THROUGH HOOD CONTROL PANEL.



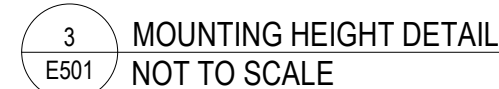
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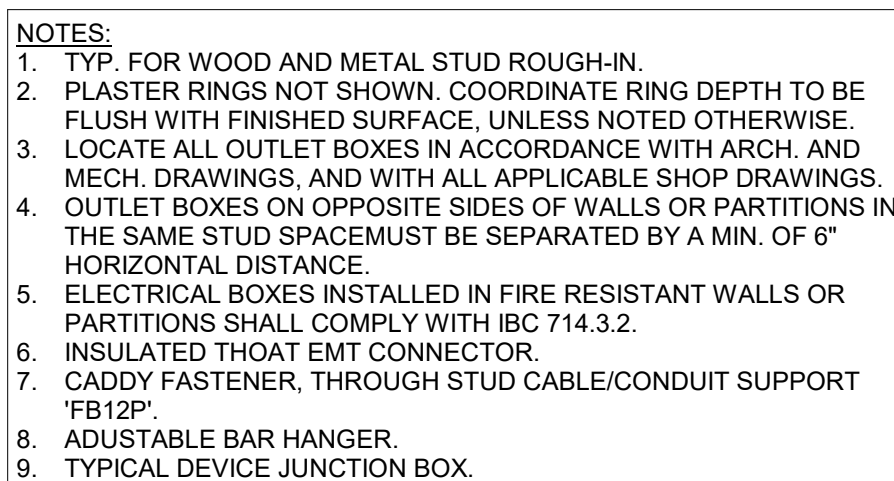
E112

SHEET NO.

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- NOTES:**
1. THE ELECTRICAL CONTRACTOR SHALL VERIFY THE EXACT LOCATION OF ALL TELEVISION OUTLETS WITH THE ARCHITECT PRIOR TO INSTALLATION.
 2. ALL DEVICES SHOWN ON THIS DETAIL ARE FOR REFERENCE OF MOUNTING HEIGHTS ONLY. THE ELECTRICAL CONTRACTOR SHALL FIELD ADJUST THE HEIGHTS OF THE DEVICES AS REQUIRED FOR PROPER MOUNTING OF THE DEVICES.
 3. ALL DEVICES NOT SHOWN ON THIS DETAIL MAY NOT BE REQUIRED FOR THIS PROJECT.
 4. FIRE ALARM BELL/STROBES ARE TO BE MOUNTED NO HIGHER THAN 96" AND NO LOWER THAN 80" TO CENTER OF DEVICE.

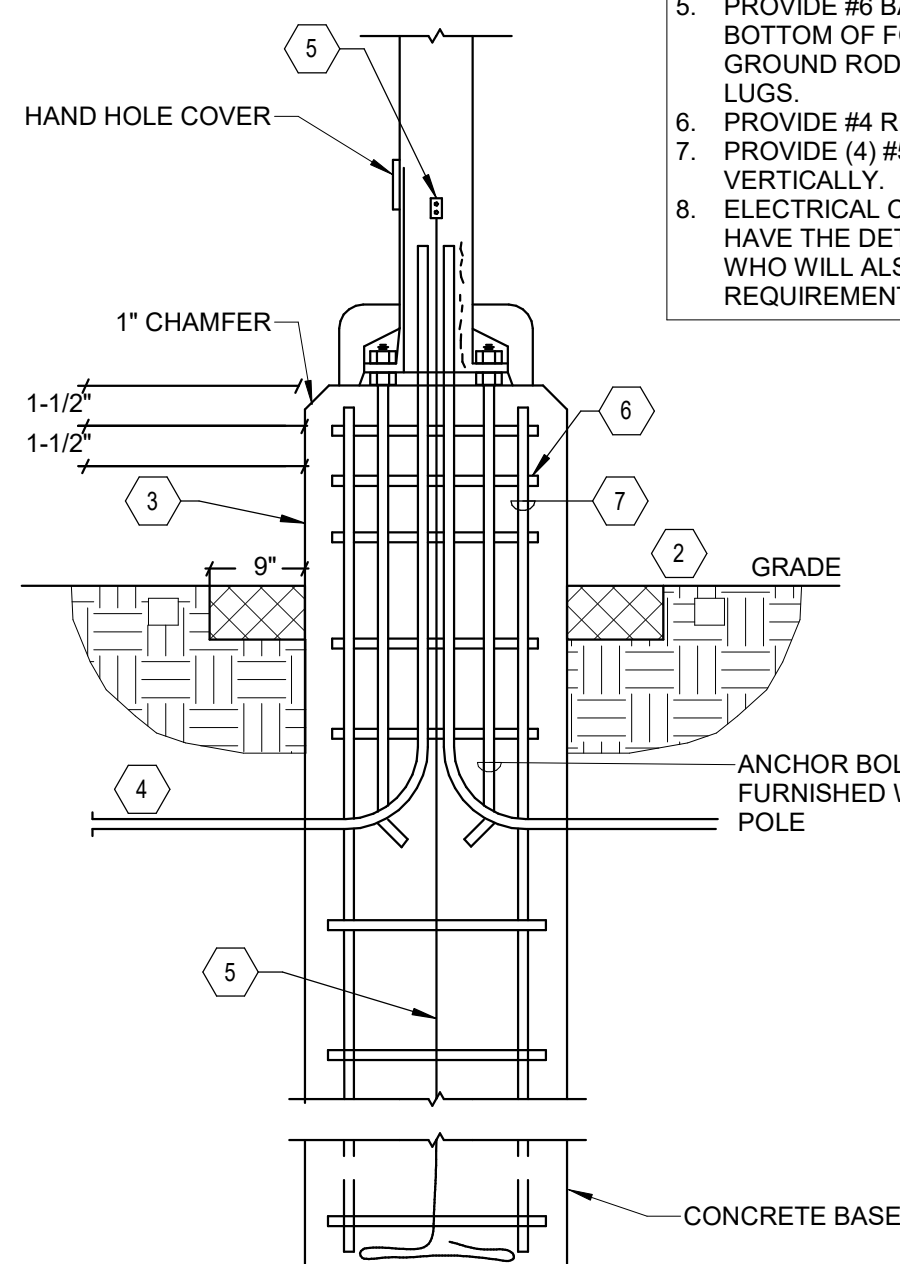


- NOTES:**
1. TYP. FOR WOOD AND METAL STUD ROUGH-IN.
 2. PLASTER RINGS NOT SHOWN. COORDINATE RING DEPTH TO BE FLUSH WITH FINISHED SURFACE, UNLESS NOTED OTHERWISE.
 3. LOCATE ALL OUTLET BOXES IN ACCORDANCE WITH ARCH. AND MECH. DRAWINGS, AND WITH ALL APPLICABLE SHOP DRAWINGS.
 4. OUTLET BOXES ON OPPOSITE SIDES OF WALLS OR PARTITIONS IN THE SAME STUD SPACEMUST BE SEPARATED BY A MIN. OF 8" HORIZONTAL DISTANCE.
 5. ELECTRICAL BOXES INSTALLED IN FIRE RESISTANT WALLS OR PARTITIONS SHALL COMPLY WITH IBC 714.3.2.
 6. INSULATED THOAT EMT CONNECTOR.
 7. CADUALLY FASTENER, THROUGH STUD CABLE/CONDUIT SUPPORT FB12P.
 8. ADJUSTABLE BAR HANGER.
 9. TYPICAL DEVICE JUNCTION BOX.

- NOTES:**
1. WIRE SHALL NOT BE USED AS A COMPONENT OF ANY RACEWAY HANGER SYSTEM.
 2. DO NOT NOT SUPPORT ANY RACEWAY THAN THAN 1" FROM BOTTOM CORD OF STEEL TRUSSES.

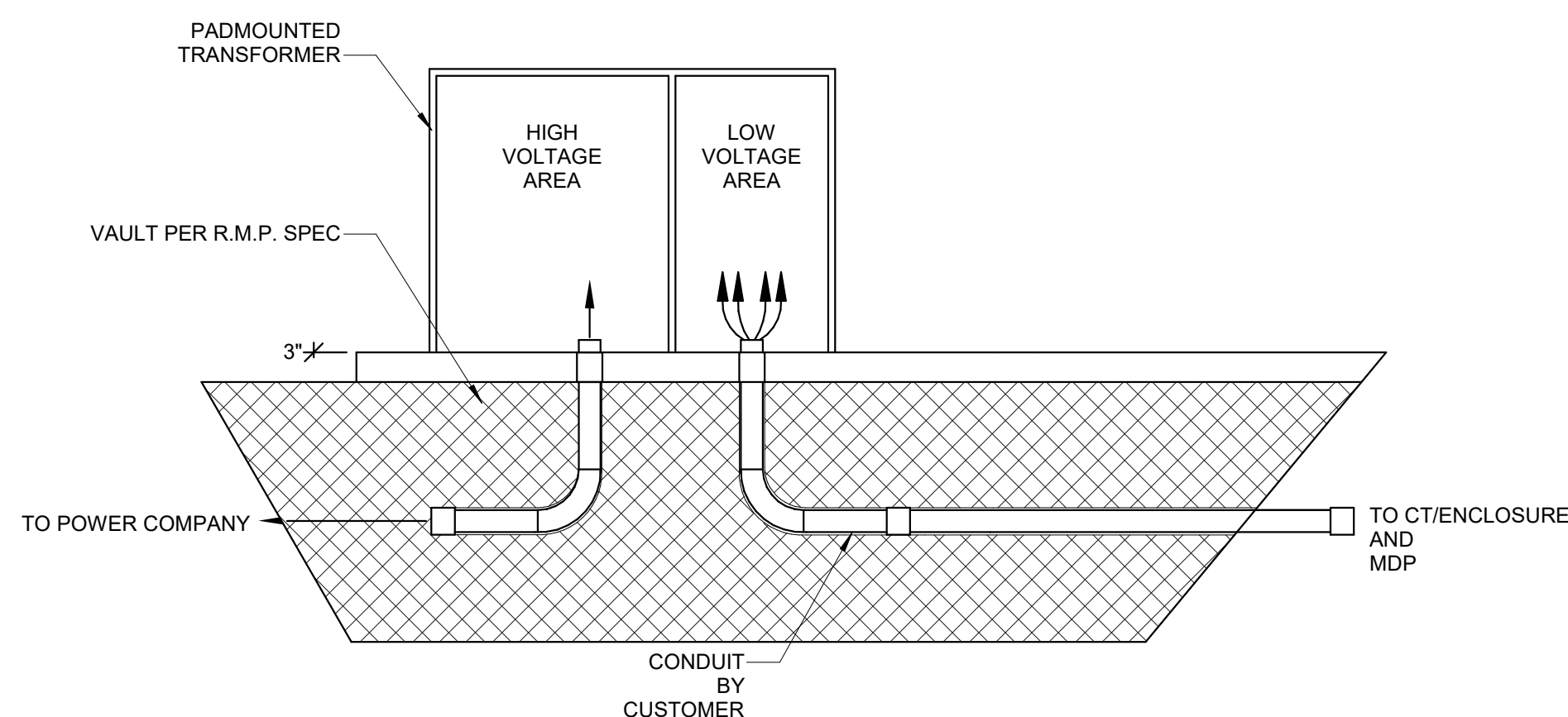
POLE HEIGHT	DEPTH BELOW GRADE
12'	4'-6"
18'	5'-0"
20'	5'-0"
25'	5'-6"
30'	6'-0"
35'	6'-6"
40'	7'-0"
50'	8'-0"

- NOTES:**
1. FOUNDATIONS ARE 24" IN DIAMETER UNLESS NOTED OTHERWISE.
 2. PROVIDE 6" X 4" DEEP CONCRETE MOW STRIP, FLUSH WITH GRADE WHERE FOUNDATION IS LOCATED ON THE GRASS.
 3. BARS SHALL EXTEND 6" ABOVE GRADE IN WALKWAYS AND GRASS AREA, AND 30" ABOVE GRADE WHERE LOCATED IN PARKING LOTS AND AREA SUBJECT TO VEHICULAR ACCESS.
 4. CONDUIT SHALL BE LOCATED A MINIMUM OF 24" BELOW GRADE. USE RIGID WRAPPED ELBOWS.
 5. PROVIDE #6 BARE COPPER COILED 10'-0" IN LENGTH. FOUR (4) 10' X 5/8" COPPER GROUND ROD TO POLE BASE WITH GROUND LUGS.
 6. PROVIDE #4 REBAR RING SPACED 9" APART.
 7. PROVIDE (4) #5 REBAR EVENLY SPACED VERTICALLY.
 8. ELECTRICAL CONTRACTOR IS RESPONSIBLE TO OBTAIN ALL NECESSARY PERMITS AND ALL DETAIL, REVISED BY STRUCTURAL PE, WHO WILL ALSO PROVIDE ANY INSPECTION REQUIREMENTS.



- 7 POLE BASE DETAIL - TALL
E501 NOT TO SCALE

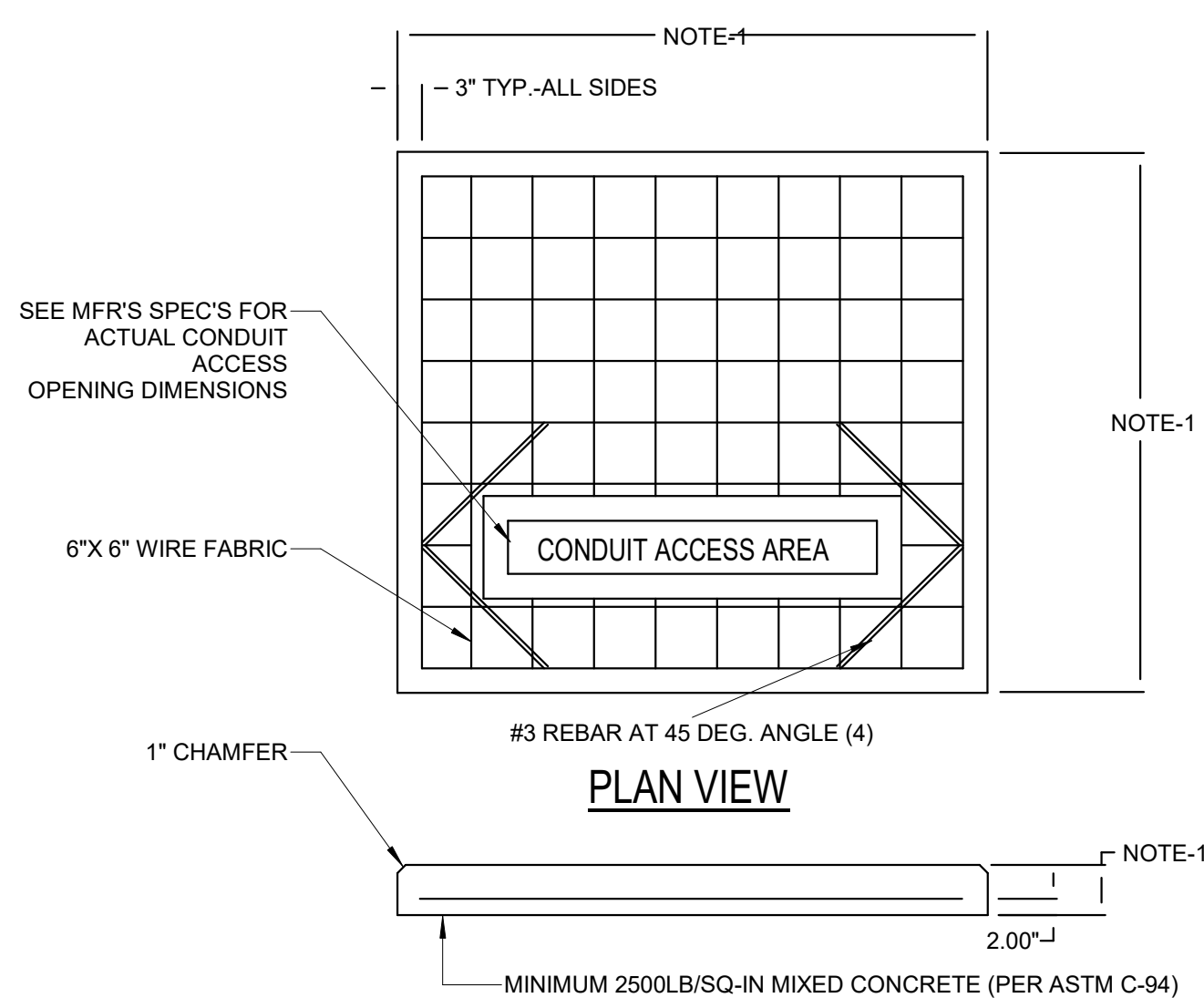
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- 6 PAD MOUNTED TRANSFORMER DETAIL
E501 NOT TO SCALE

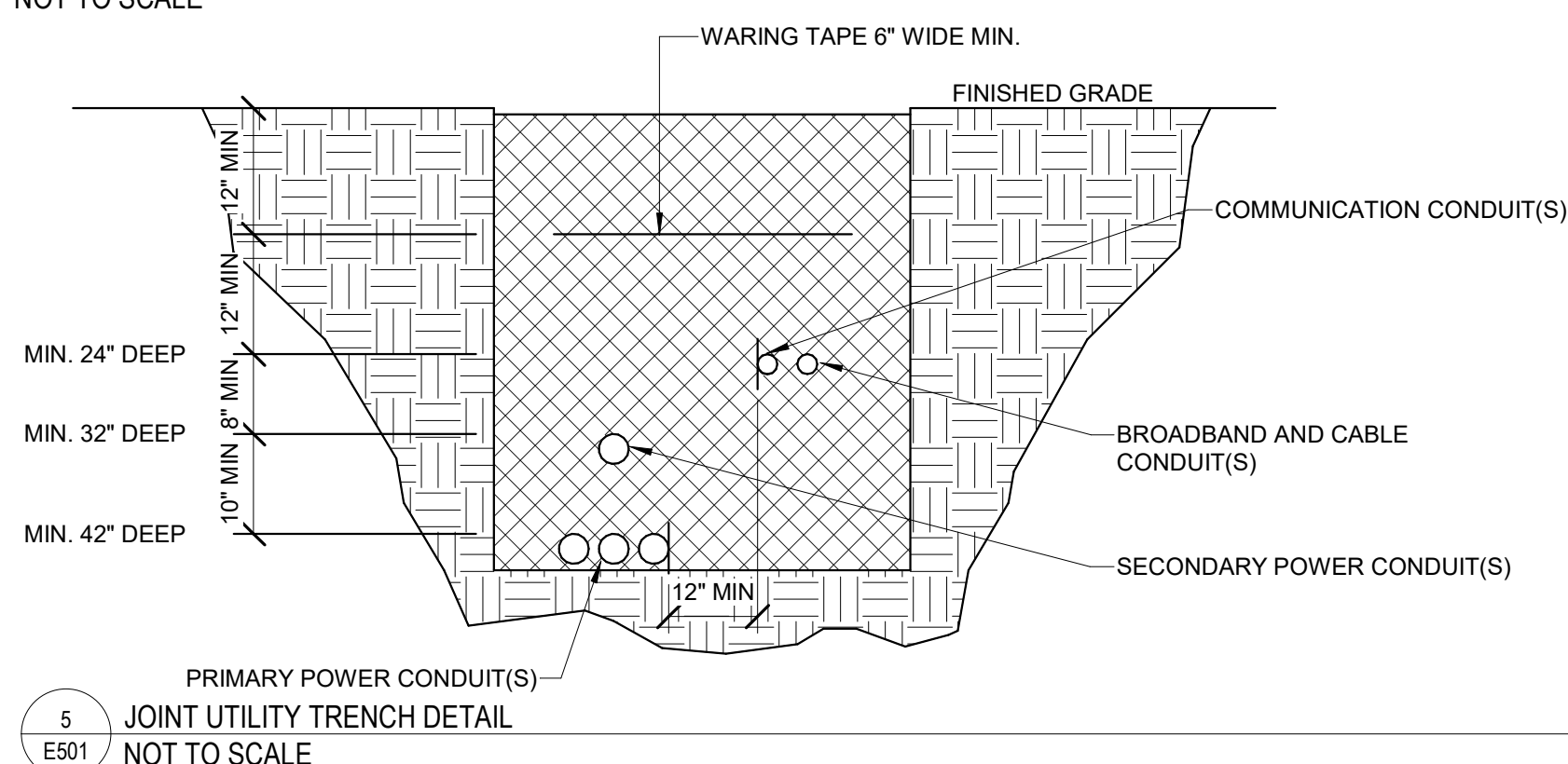
TRANSFORMER PAD NOTES

NOTE -1) REFER TO PP&L CO. SPECIFICATIONS FOR TRANSFORMER PAD DETAILS

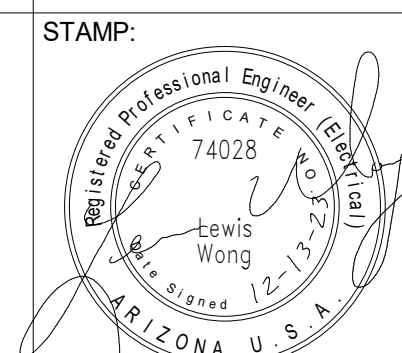


- NOTES:**
1. PROVIDE PULLCORD IN ALL EMPTY RACEWAYS.
 2. BOND ALL RACEWAY AND METAL RACKS TO BONDING TERMINAL.
 3. PROVIDE BLANK COVERPLATES ON ALL UNUSED BOXES.

- 4 TELEPHONE/DATA RACEWAY DIAGRAM
E501 NOT TO SCALE



- 5 JOINT UTILITY TRENCH DETAIL
E501 NOT TO SCALE



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ELECTRICAL DIAGRAMS

SCHEMATIC FLOOR PLAN

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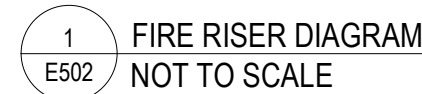
E501

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FEEDER	FEEDER CONDUCTOR					E.G. CONDUCTOR			CONDUIT		KEYED NOTES	
	AMP	n	QTY	DESC.	SIZE	MAT.	QTY	SIZE	MAT.	SIZE		TYPE
200A-4	205	1	4	A-B-C-N	250	AL	1	#4	AL	2-1/2"	PVC-40	1
600A-4	620	2	4	A-B-C-N	500	AL	1	#2/O	AL	3-1/2"	EMT	1
GENERAL NOTES:												
- THHN/THWN/THWN-2 FOR 400 KCMIL AND BELOW, XHHW/XHHW-2 FOR 500 KCMIL AND ABOVE.												
- GROUND CONDUCTOR SHALL BE DELETED FOR SERVICE ENTRANCE CONDUCTORS.												
- ALL CONDUITS SHALL BE SIZED IN ACCORDANCE WITH NEC CHAPTER 9, TABLE 1.												
- WHERE CONDUIT TYPES ARE USED OTHER THAN THOSE SPECIFIED WITHIN THIS SCHEDULE, THE CONTRACTOR SHALL DEMONSTRATE CONDUIT FILL COMPLIANCE WITH NEC CHAPTER 9, TABLE 4.												
KEYED NOTES:												
1 REFER TO NEC 310.15(B)(16) FOR THE AMPACITY OF 75 DEGREE C RATED CU OR AL.												

VOLTAGE DROP - 208/3													
WIRE SIZE		#12 AWG CU			#10 AWG CU			#8 AWG CU			#6 AWG CU		
°C		60	75	90	60	75	90	60	75	90	60	75	90
4	KVA	30	25	30	30	35	40	40	50	55	55	65	70
5	7.5	2.00	383	364	177	609	579	555	922	879	1240	1466	1386
7.5	2.75	2.50	245	231	406	386	368	648	612	586	1027	977	932
10	3.60	191	182	173	304	289	276	484	461	439	770	733	699
12.5	5.40	153	145	139	243	231	221	387	368	351	616	586	559
15	5.40	127	121	115	203	193	184	323	307	293	513	488	466
17.5	6.30			104	99	174	165	158	276	263	251	440	418
20	7.21			91	86	152	144	138	242	230	219	385	366
22.5	8.11			77	73	135	128	122	215	204	195	342	325
25	9.01			64	61	115	109	103	185	174	166	290	275
27.5	9.91					105	100	100	176	167	159	280	266
30	10.81						92	161	153	146	256	244	233
32.5	11.71							141	135	127	225	215	205
35	12.61							126	120	113	209	199	190
37.5	13.51							122	117	109	195	185	176
40	14.41							115	109	102	182	173	164
42.5	15.31									103	181	172	164
45	16.21										165	156	147
47.5	17.11											154	147
50	18.01												146
52.5	18.91												139
55	19.81												132
57.5	20.71												125
60	21.62												117

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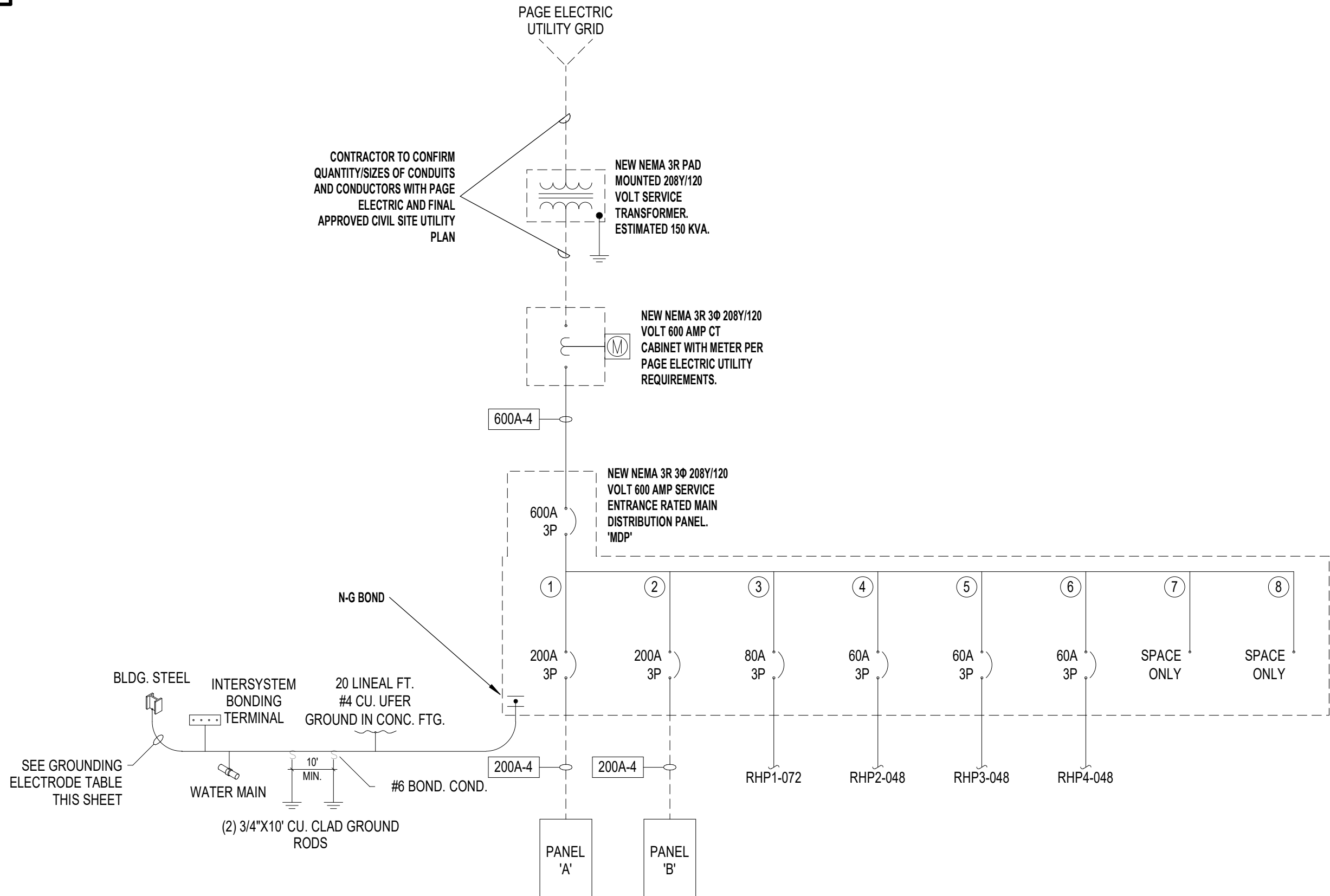
3 PH VD CALCULATION USED: $1.732 \times K \times x \times l \times [D / ECM]$
 1 PH VD CALCULATION USED: $2 \times K \times Q \times l \times [D / ECM]$
 THE PURPOSE OF THESE TABLES IS TO DISPLAY THE MAXIMUM ALLOWABLE
 (WAY DISTANCES IN FEET FOR BRANCH CIRCUITS [AT DESIGN LOAD] THAT
 MAINTAIN A TARGET MAXIMUM 1 PERCENT VOLTAGE DROP.
 WHERE FEEDER CIRCUIT VOLTAGE DROP [AT DESIGN LOAD] EXCEEDS 2
 PERCENT, THESE TABLES CANNOT BE USED. THE COMBINED FEEDER PLUS
 BRANCH VOLTAGE DROP MUST NOT EXCEED 5 PERCENT PER ASHRAE 90.1.
 CALCULATION: $6.4 \times [1 + (\text{ADDENDUM C})] \times K \times C \times 100 \leq V$
 K FACTORS USED: 60°C = 12.75, 75°C = 17.5, 90°C = 13.525
 CALCULATION USED TO ADJUST K FACTORS FOR 60°C AND 90°C CONDUCTORS:
 $K2 = 12.9 \times [1 + 0.00323 \times (T2 - 75)]$

[illegible]

G. E. SIZE BASED ON NEC TABLE 250.66 [GROUNDING ELECTRODE CONDUCTOR FOR ALTERNATING-CURRENT SYSTEMS.]	
MAIN SERVICE SIZE [A]:	600
LOCATION OF NEUTRAL TO GROUND BOND:	MDP
MAIN SERVICE FEEDER SIZE:	600A-4
CONDUCTOR [NO. SETS - SIZE AL]:	2 - 500 KCMIL AL
CALCULATED AL EQUIVALENT CML:	1000000
EQUIVALENT CU MAIN FEEDER:	600-4
CONDUCTOR [NO. SETS - SIZE CU]:	2 - 350 KCMIL CU
CALCULATED CU EQUIVALENT CML:	700000
GROUNDING ELECTRODE SIZE:	#2/0 AWG CU
G. E. CONDUCTOR MATERIAL:	PER NEC 250.62
G. E. CONDUCTOR INSTALLATION:	PER NEC 250.64

FAULT AVAILABLE AT XFMR: ESTIMATED SERVICE XFMR SIZE: ESTIMATED SERVICE XFMR %Z: ESTIMATED SERVICE XFMR PF: METHOD: MOTOR CONTRIBUTION [6 x FLA]: SERVICE VOLTAGE:	27758 A RMS SYMM 150 KVA 1.5% 100% CALCULATED 0 A 208Y/120V, 3Ph
PANEL MDP MIN DISTANCE FROM UTIL XFMR: CONDUIT TYPE: CONDUCTOR [NO. SETS - SIZE]: FAULT AVAILABLE:	100 FT NON-CONDUCTIVE 2 - 500 AL 18021 Amps
PANEL A MIN DISTANCE FROM MDP: CONDUIT TYPE: CONDUCTOR [NO. SETS - SIZE]: FAULT AVAILABLE:	50 FT CONDUCTIVE 1 - 250 AL 11131 Amps
PANEL B MIN DISTANCE FROM MDP: CONDUIT TYPE: CONDUCTOR [NO. SETS - SIZE]: FAULT AVAILABLE:	70 FT CONDUCTIVE 1 - 250 AL 9654 Amps
<p>NOTE: THESE FAULT CURRENT CALCULATIONS ARE BASED ON AN ESTIMATED TRANSFORMER SIZE, ESTIMATED TRANSFORMER IMPEDANCE, ESTIMATED FEEDER SIZE, ESTIMATED FEEDER MATERIAL AND ESTIMATED DISTANCES BETWEEN EQUIPMENT AS INDICATED HEREIN. PRIOR TO EQUIPMENT BEING FIELD MARKED AS REQUIRED BY NEC 110.24(A), THE CONTRACTOR SHALL ENSURE THAT THE ESTIMATED VALUES IDENTIFIED WITHIN THIS TABLE MATCH THE ACTUAL VALUES AND DISTANCES.</p> <p>IF DISCREPANCIES ARE FOUND, THE CONTRACTOR SHALL NOTIFY THE ENGINEER OF RECORD IN WRITING IN ORDER TO ADJUST THE CALCULATIONS.</p>	

<p>VOLTAGE DROP [VD] NOTES: THREE PHASE CALC: MINIMUM PANEL LOADING:</p>	<p>NEC TABLES 8 AND 9 $1.732 \times K \times Q \times L \times [D + ECM]$ 80%</p>
<p>PANEL MDP DISTANCE FROM UTIL XFMR: CONDUCTOR (NO. SETS - SIZE): EQUIPMENT LOAD: VOLTAGE DROP %:</p>	<p>100 FT 2 - 500 AL 480 A [208 V] 0.859%</p>
<p>PANEL A DISTANCE FROM MDP: CONDUCTOR (NO. SETS - SIZE): EQUIPMENT LOAD: VOLTAGE DROP %:</p>	<p>50 FT 1 - 250 AL 160 A [208 V] 0.574%</p>
<p>PANEL B DISTANCE FROM MDP: CONDUCTOR (NO. SETS - SIZE): EQUIPMENT LOAD: VOLTAGE DROP %:</p>	<p>70 FT 1 - 250 AL 160 A [208 V] 0.803%</p>
<p>THE PURPOSE OF THIS TABLE IS TO SERVE AS A GUIDE TO ENSURE FEEDER VOLTAGE DROP [AT DESIGN LOAD] BE HELD TO A LEVEL AT OR BELOW 2 PERCENT IN AN ATTEMPT TO KEEP THE OVERALL FEEDER + BRANCH VOLTAGE DROP [AT DESIGN LOAD] TO A LEVEL AT OR BELOW 5 PERCENT COMPLIANT WITH ASHRAE 90.1 [2013], SECTION 8.4.1 [ADDENDUM C].</p>	




NOTE:
PROVIDE ACCESSIBLE LOCATIONS FOR ALL GROUNDING ELECTRODES TO ALLOW FOR
INSPECTION PER NEC 250.24 (A)(1)

CLEARANCES TO OTHER UNDERGROUND UTILITIES

WATER:	5 FT. HORIZONTAL
SEWER:	5 FT. HORIZONTAL
NATURAL GAS:	10 FT. HORIZONTAL
CABLE TV:	1 FT. HORIZONTAL. 6" VERTICAL ABOVE SECONDARY
PHONE:	1 FT. HORIZONTAL. 6" VERTICAL ABOVE SECONDARY


 230 N. 1680 E.
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STAMP:



The stamp is a circular professional seal for the State of Arizona. The outer ring contains the text "Registered Professional Engineer (Electrical)" at the top and "ARIZONA U.S.A." at the bottom. The center of the seal contains the license number "74028", the name "Lewis Wong", and the expiration date "12-13-2012". The words "CERTIFICATE NO." are written in a semi-circle above the license number, and "Date signed" is written in a semi-circle below the name.

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ONE LINE AND CALCS

SCHEMATIC FLOOR PLAN

2110-042
PROJECT NUMBER

E601

SHEET NO.

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M

L

K

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H

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C

B

A

Branch Panel: B																											
Location: JANITOR 106									Volts: 208Y/120					A.I.C. Rating: 10,000 AMPS SYMMETRICAL													
Supply From: MDP									Phases: 3					Mains Type: MLO													
Mounting: SURFACE									Wires: 4					Mains Rating: 225.0 A													
Enclosure: NEMA 1																											
CKT	Circuit Description				Code	BRK	P	Size	A		B		C		Size	P	BRK	Code	Circuit Description				CKT				
1	EWH-1				1	20 A	1	12	500	600					12	1	20 A	-	LAUNDRY 105 WASHER				2				
3	EXT RECEPT				-	20 A	1	10			360	540			12	1	20 A	-	LAUNDRY 105 RECEPT				4				
5	ROOM LTG				-	20 A	1	12					950	500	12	1	20 A	-	FIRE RISER COMPRESSOR				6				
7	LAUNDRY 105 WASHER				-	20 A	1	12	600	720					12	1	20 A	-	106/107/109 RECEPT				8				
9	LAUNDRY 105 DRYER				-	20 A	2	12			1500	1500			12	2	20 A	-	LAUNDRY 105 DRYER				10				
11	CONF ROOM 104				-	20 A	1	12					1500	1500									12				
13	FACP				-	20 A	1	12	900	1080			500	720	12	1	20 A	-	CORR 113/121 RECEPT				14				
15	WLTSP 110 RECEPT				-	20 A	1	12					720	720	12	1	20 A	-	WLTSP 108 RECEPT				16				
17	ANNUN				-	20 A	1	12	500	720					12	1	20 A	-	MLTSP 120 RECEPT				18				
19	MLTSP 119 RECEPT				-	20 A	1	12			720	720			12	1	20 A	-	STORAGE 112 RECEPT				20				
21	MLTSP 117 RECEPT				-	20 A	1	12					720	96	12	1	20 A	1	MLTSP 116 RECEPT				22				
23	MLTSP 118 RECEPT				-	20 A	1	12	720	720					12	1	20 A	-	RCP-1				24				
25																			ADA WLTSP 111 RECEPT				26				
27											3998	3998											28				
29	WH-1				1	45 A	3	3					3998	3998	3	3	45 A	1	WH-1				30				
31									3998	3998													32				
33	SPARE					20 A	1				0	0			1	20 A		SPARE				34					
35	SPARE					20 A	1						0	0	1	20 A		SPARE				36					
37	SPARE					20 A	1		0	0					1	20 A		SPARE				38					
39	SPARE					20 A	1				0	0			1	20 A		SPARE				40					
41	SPARE					20 A	1						0	0	1	20 A		SPARE				42					
43	SPARE					20 A	1		0	0					1	20 A		SPARE				44					
45	SPARE					20 A	1				0	0			1	20 A		SPARE				46					
47	SPARE					20 A	1						0	0	1	20 A		SPARE				48					
49	SPARE					20 A	1		0	0					1	20 A		SPARE				50					
51	SPARE					20 A	1				0	0			1	20 A		SPARE				52					
53	SPARE					20 A	1						0	0	1	20 A		SPARE				54					
Total Load:									15056 VA		14556 VA		14692 VA														
Total Amps:									125.6 A		121.3 A		122.6 A														
Code:																											
1 = See Drawings For Conduit & Conductor Sizes															2 = Shunt-Trip Breaker												
3 = Subfeed Breaker															4 = Provide Lock Off Device												
5= GFCI Breaker															6 = GFEP Breaker												
Load Classification					Connected Load				Demand Factor				Estimated Demand				Panel Totals										
Continuous					782 VA				125.00%				978 VA														
Motor					756 VA				100.00%				756 VA				Total Conn. Load: 43304 VA										
Non-Continuous					23988 VA				100.00%				23988 VA				Total Est. Demand: 39860 VA										
Other					500 VA				100.00%				500 VA				Total Conn.: 120.2 A										
Receptacle					17280 VA				78.94%				13640 VA				Total Est. Demand: 110.6 A										
Notes:																											

Branch Panel: A																			
Location: CLOSET 125										Volts: 208Y/120					A.I.C. Rating: 22,000 AMPS SYMMETRICAL				
Supply From: MDP										Phases: 3					Mains Type: MLO				
Mounting: SURFACE										Wires: 4					Mains Rating: 225.0 A				
Enclosure: NEMA 1																			
CKT	Circuit Description	Code	BRK	P	Size	A		B		C		Size	P	BRK	Code	Circuit Description	CKT		
1	BREAKROOM 129 LTG	-	20 A	1	12	70		105				12	1	20 A	-	MANAGER OFFICE 124 LTG	2		
3	BLDG LTG	-	20 A	1	10				96	162		12	1	20 A	-	ENTRY 100 LTG	4		
5	CORRIDOR LTG	-	20 A	1	12						105	180	12	1	20 A	-	CONF RM 104 RECESSED LTG	6	
7	CORRIDOR 113 LTG	-	20 A	1	12	210	216					12	1	20 A	1	EF-4	8		
9	CORRIDOR 121 LTG	-	20 A	1	12				210	0			1	20 A	-	SPARE	10		
11	CONF RM 104 SUSPENDED LTG	-	20 A	1	12						213	266	10	1	20 A	-	SITE LTG	12	
13	132/133/134 RECEPT	-	20 A	1	12	180	0						1	20 A	-	SPARE	14		
15	COMMON AREA 101 LTG	-	20 A	1	12				315	312			12	1	20 A	1	EF-5	16	
17	EXT RECEPT	-	20 A	1	10						360	282	12	1	20 A	-	ROOM LTG	18	
19	RP	-	20 A	1	12	500	600						12	1	20 A	-	KITCHEN 103 REFER	20	
21	DINING/KITCHEN LTG	-	20 A	1	12				315	339			12	1	20 A	-	MENS REST 122 LTG	22	
23	KEF-1	1	20 A	1	12						1068	773	12	2	15 A	1	KMUA-1 (FAN)	24	
25	KMUA-1 CONDENSER	1	30 A	2	10	1664	773											26	
27									1664	3000								28	
29	KITCHEN 103 OVEN	2	40 A	2	8						3000	3000	8	2	40 A	2	KITCHEN 103 OVEN	30	
31						3000	--							1	--		SHUNT	32	
33	SHUNT	--	1						--	105			12	1	20 A	-	THERAPY 123 LTG	34	
35	SPARE	-	20 A	1							0	500	12	1	20 A	-	KITCHEN DISPOSAL	36	
37	BREAKROOM 129 DISHWASHER	-	20 A	1	12	600	0						1	20 A	-	SPARE	38		
39	TB	-	20 A	1	12				500	600			12	1	20 A	-	KITCHEN 103 REFER	40	
41	KITCHEN HOOD CONTROL PANEL	-	15 A	1	12						600	600	12	1	20 A	-	KITCHEN 103 DISHWASHER	42	
43	KITCHEN 103 RECEPT	-	20 A	1	12	900	1080						12	1	20 A	-	BREAKROOM 129 RECEPT	44	
45	KITCHEN 103 DISHWASHER	-	20 A	1	12				600	720			12	1	20 A	-	THERAPY 123 RECEPT	46	
47	SPARE		20 A	1							0	900	12	1	20 A	-	ROLLOVER 126 RECEPT	48	
49	SPARE		20 A	1		0	0						1	20 A		SPARE	50		
51	MANAGER OFFICE 124 RECEPT	-	20 A	1	12				900	1080			12	1	20 A	-	COMMON/DINING RECEPT	52	
53	INTAKE 128 RECEPT	-	20 A	1	12						180	0	1	20 A		SPARE	54		
55	SPARE		20 A	1		0	0						1	20 A		SPARE	56		
57	SPARE		20 A	1					0	0			1	20 A		SPARE	58		
59	SPARE		20 A	1							0	0	1	20 A		SPARE	60		
61	SPARE		20 A	1		0	0						1	20 A		SPARE	62		
63	SPARE		20 A	1					0	0			1	20 A		SPARE	64		
65	SPARE		20 A	1							0	0	1	20 A		SPARE	66		
67	SPARE		20 A	1		0	0						1	20 A		SPARE	68		
69	SPARE		20 A	1					0	0			1	20 A		SPARE	70		
71	SPARE		20 A	1							0	0	1	20 A		SPARE	72		
Total Load:						9898 VA		10919 VA		12027 VA									
Total Amps:						82.5 A		92.3 A		101.5 A									
Code:																			
1 = See Drawings For Conduit & Conductor Sizes												2 = Shunt-Trip Breaker							
3 = Subfeed Breaker												4 = Provide Lock Off Device							
5= GFCI Breaker												6 = GFEP Breaker							
Load Classification		Connected Load		Demand Factor		Estimated Demand		Panel Totals											
Continuous		2626 VA		125.00%		3283 VA													
Kitchen		15180 VA		94.45%		14337 VA		Total Conn. Load: 32344 VA											
Motor		7318 VA		100.00%		7318 VA		Total Est. Demand: 32158 VA											
Other		1100 VA		100.00%		1100 VA		Total Conn.: 89.8 A											
Receptacle		6120 VA		100.00%		6120 VA		Total Est. Demand: 89.3 A											
Notes:																			

