COLUMBIA COUNTY, FLORIDA
BOARD OF COUNTY COMMISSIONERS

INVITATION TO BID
2024-K
FIRE DEPARTMENT ADMINISTRATION BUILDING

The Board of County Commissioners (County) will receive sealed proposals in the office of Commissioners, 135 NE Hernando Avenue, Suite 203, Lake City, FL 32055, until **2:00 PM** local time on **OCTOBER 28, 2024** for the following:

FIRE DEPARTMENT ADMINISTRATION BUILDING

The Bid Forms and specifications may be obtained from the County's web site at http://www.columbiacountyfla.com/PurchasingBids.asp. Deadline for questions regarding construction plans, specifications, and/or bid documents must be received before **5:00 P.M.** on **OCTOBER 21, 2024.**

A **NON MANDATORY** pre-bid will be held on site on **October 15, 2024** at **10:00 AM**., at 1579 NW Lake Jeffrey Road, Lake City, FL 32025. Please contact Jeff Crawford at 386) 758-3907 or Sandra Davis at 386) 754-7057. The solicitation information is available online at: https://www.columbiacountyfla.com/PurchasingBids.asp

Columbia County welcomes your response to this solicitation. Proposals should be prepared in accordance with the instructions herein and will be evaluated by the County as stated in the evaluation section of this document. The County reserves the right to waive any formalities, to reject any or all proposals or to re-advertise for proposals for these services. The County may withdraw all or part of this solicitation at any time to protect the interests of the County. All Proposers are asked to be thorough yet concise in their response. Failure to provide the response in the manner prescribed herein may be grounds for disqualification. The successful bidder, if applicable, will be required to furnish the County Manager with a 5% bid bond with submittal, and if selected, furnish the County Manager with a performance bond and proof of liability insurance prior to commencing work.

Only one bid set will be furnished with each company or corporation interested in bidding. The one complete bid set is to be submitted in a sealed envelope. Proposers shall indicate Bid Number, Project Title, and the name and address of the firm submitting the bid on the outside of the envelope.

All Proposers are advised that under Chapter 119, Florida Statutes, all responses are deemed a public record and open to the public as provided for in said statute.

2024-K New Fire Department Administration Building
1579 NW Lake Jeffrey Road
Lake City, Florida

Construction Documents
Project Manual

Architect's Project No. 2338
September 12, 2024

Prepared for
Board of County Commissioners
Columbia County, Florida

District No. 1 – Ron Williams
District No. 2 – Rocky Ford
District No. 3 – Robby Hollingsworth
District No. 4 – Everett Phillips
District No. 5 – Tim Murphy

Structural Engineer
Miller Engineering, LLC
546 SE 3rd Avenue
Melrose, Florida 32666

MEP Engineer
Coburn & Associates, Inc.
370 S.W. Unity Court
Fort White, Florida 32038

Architect
Kail Partners Architecture & Interiors
PO Box 359055
Gainesville, Florida 32635

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SECTION 00 2113

INSTRUCTIONS TO BIDDERS

PART 1 - DEFINITION OF TERMS: Whenever in this Project Manual the following term(s) are used, their intent and meaning shall be interpreted as follows:

1.1 OWNER

COLUMBIA COUNTY, FLORIDA
POST OFFICE BOX 1529
LAKE CITY, FLORIDA 32056-1529

1.2 BUILDING CODE ADMINISTRATOR

A. The Building Code Administrator, licensed by the Department of Professional Regulation as a Building Official.

1.3 CONTRACTOR

A. Individual, firm, partnership or corporation entering into a construction Contract to perform as "General" or "Prime" Contractor the work specified in the Contract Documents.

1.4 ARCHITECT

A. The firm of Kail Partners Architecture & Interiors, P.O. Box 359055, Gainesville, Florida, 32635-9055.

1.5 SUBCONTRACTOR

A. Individual, firm, partnership or corporation entering into an agreement to furnish materials and labor for the work specified and described in the Contract Documents. Subcontractors shall have a current occupational license for the State of Florida, as applicable.

1.6 MANUFACTURER OR SUPPLIER

A. Individual, firm, partnership or corporation entering into an agreement to furnish materials only for the work specified and described in the Contract Documents.

1.7 BIDDER

A. Individual, firm, partnership or corporation submitting a proposal for the work contemplated.

1.8 PROJECT

A. Work specified and described in the Contract Documents.

1.9 ADDENDA

A. Written and/or graphic revisions issued prior to the award and execution of the Contract which modify and/or interpret the Contract Documents by additions, deletions, clarifications or corrections. Addenda will become part of the Contract Documents when the Contract is awarded and executed.

1.10 CONTRACT DOCUMENTS

A. Consist of the Contract, the Project Manual, Drawings, Addenda issued prior to the award and execution of the Contract, and Change Orders issued after the award and execution of the Contract, and such other documents as are made a part of same by reference in the Contract Documents.

1.11 PROPOSAL

A. The forms, including all items related to, envelopes and other information pertaining to the complete bid, complete and properly executed, which the Bidder has submitted as their Proposal for the work contemplated.

1. Base Bid: The sum stated in the Proposal for which the Bidder offers to perform the work described in the Contract Documents as the base, to which work may be added to or deducted from for sums stated in Alternate Bids.

1.12 DRAWINGS

A. The official plans and other Drawings or reproductions thereof, pertaining to the work to be performed, included in this project manual.

1.13 PROJECT MANUAL

A. Written and graphic data bound together for Specifications.

1.14 BUILDING PERMIT

A. Issued to the Contractor after requirements of the application process have been satisfied and compliance with the appropriate Codes and Standards have been achieved. Construction Plans and Specifications shall be submitted for review by the Building Code Administrator for the issuance of a Building Permit.

1.15 CONTRACT

A. The County-Contractor Agreement consisting of the agreement text preceding the signature of the parties, the Performance Bond and Labor and Material Payment Bond, the Certificates of Insurance and other documents as may be required by the Contract Documents.

1.16 APPLICATION FOR PAYMENT

A. Statement of amounts claimed by Contractor as payments due on account of work performed or materials suitably stored.

1.17 ARCHITECT'S ACCEPTANCE

A. Architect's acknowledgement that a material is acceptable or in accordance with Contract requirements.

1.18 RECORD DRAWINGS

A. Drawings made during progress of construction illustrating how various elements of the work were actually installed.

1.19 CHANGE ORDER

A. A work order, issued after the award and execution of the Contract, signed by the County authorizing a change in the scope of the work during construction.

1.20 FIELD REPRESENTATIVE

A. A person in the field designated to represent a responsible party during construction.

1.21 SCHEDULE OF VALUES

A. A statement furnished to the Architect by the Contractor reflecting the amounts to be allotted for the principal parts of the work. It is to serve as a guide for reviewing the Contractor's Applications for Payment.

1.22 SHOP DRAWINGS AND PRODUCT DATA

A. Drawings, diagrams, illustrations, schedules, performance charts, brochures and other data prepared by the Contractor or Subcontractor, manufacturer, supplier or distributor, which illustrate how specific portions of the work shall be fabricated, erected and/or installed.

1.23 SAMPLES

A. Physical examples furnished by the Contractor which illustrate materials, equipment or workmanship, and which establish standards by which the work will be reviewed.

1.24 TIME OF COMPLETION

A. The number of calendar days, or the actual date, by which the work is required to be completed.

PART 2 - EXAMINATION

2.1 DRAWINGS, PROJECT MANUAL AND PROJECT SITE AND PRE-BID CONFERENCE

A. Bidders are required to examine the Drawings, Project Manual and Addenda to become familiar with work to be performed under the Contract.

B. Bidders are encouraged to visit the project site to become familiar with the local conditions that may affect the work to be performed, and the equipment, materials and labor required.

C. Pre-Bid Conference: Bidders are encouraged to attend a non-mandatory Pre-Bid Conference on the date, time and place set forth in the advertisement for bids. This Pre-Bid Conference will be held in order to review the scope of work of the Contract Documents and to allow questions to be asked by the Bidders. If deemed necessary, Architect will then issue an Addendum to the Drawings and Project Manual to change, modify or explain any decisions or other information that comes out at this Pre-Bid Conference.

PART 3 - CLARIFICATION TO BIDDERS

3.1 CLARIFICATION

A. No oral clarification in regard to the meaning of Drawings and Project Manual and no oral instructions will be given before the award and execution of the Contract. Discrepancies, omissions or doubts as to the meaning of Contract Documents shall be given in writing to the Architect for interpretation not later than seven calendar days prior to Bid Date.

PART 4 - FAMILIARITY WITH LAWS

4.1 KNOWLEDGE OF LAWS

A. The Bidder shall be familiar with Federal, State, and Local laws, ordinances, codes, rules, and regulations that affect the Bid or the work under this Contract. Lack of knowledge on the part of the Bidder will not provide relief from responsibility of compliance with the above, whether or not specifically called for or shown in the Contract Documents.

PART 5 - PREPARATION AND SUBMISSION OF BIDS

5.1 PREPARATION

A. Each Bidder shall use the Proposal Form included or one provided by the County, indicating base bid amount. Erasures or other corrections in the Proposal shall be explained or noted over the

signature of the Bidder. Proposals containing conditions, omissions, unexplained erasures, alterations, items not called for, or irregularities may be rejected by the County.

B. Each Proposal shall give the full business address of the Bidder and state whether it is an individual, corporation or partnership. Proposals by a corporation, shall be signed with the legal name and seal of the corporation, followed by the name of the State of its incorporation, and by the manual signature and designation of an officer, agent, or other person authorized to bind the corporation, and if the person signing is not the President, be accompanied by a duly authenticated document evidencing the authority to the officer or agent. Proposals by partnerships shall show the names of all partners and must be signed in the partnership name by one of the partners. The partnership signature shall be followed by the manual signature of the partner signing. The name of the person signing and his designation shall be typed or printed below their signature. Proposals by a person who affixes to his signature the word "President", "Secretary", "Agent", or other designation without disclosing his principal may be held to the terms of the Proposal by the individual so signing. Satisfactory evidence of the authority of an officer, agent, attorney, or other person signing for a corporation, and agent, attorney, etc., signing for a partnership or an individual shall be furnished.

5.2 SUBMISSION

A. Proposals shall be enclosed in a sealed envelope and delivered or mailed to the proper address provided by the County. Failure to comply with these requirements may be cause for rejection of the Proposal.

B. Each bidder shall submit per requirements of Section 00 4300 the following:

1. A list of names of the Subcontractors or other persons or organizations, including those who are to furnish materials for equipment fabricated to a special design, proposed for such portions of the work as may be designated in the Contract Documents, or if no portions are so designated, the names of the Subcontractors proposed for the principal portions of the work. If the Contractor uses their own work force for any of the above, insert the names of his firm in the appropriate blank and be properly licensed as applicable for the specific type work listed.

PART 6 - DISQUALIFICATION OF BIDDERS

6.1 DISQUALIFICATION

A. More than one Proposal from an individual, firm, partnership, corporation, or association under the same or different names shall not be considered. Reasonable grounds for believing that a Bidder is interested in more than one Proposal for the same work shall cause rejection of all Proposals in which such Bidders are believed to be interested. Proposals may be rejected if there is reason to believe that collusion exists among the Bidders. Proposals in which the prices obviously are unbalanced may be rejected.

PART 7 - BID GUARANTEE

7.1 BID GUARANTEE

A. Proposals shall be accompanied by a Bid Guarantee which shall be a Bid Bond, Cashier's Check or Certified Check in the amount of five percent (5%) of the Base Bid made payable to the County. Such Bid Guarantee shall be submitted with the understanding that it shall guarantee the Bidder will not withdraw his Proposal for a period of thirty calendar days after the scheduled closing time for the receipt of Bid and that, if his Proposal is accepted, they will enter into a construction Contract with the County and the required Bonds will be submitted within the time set forth below; and that in the event of the withdrawal of his Proposal within the thirty calendar day period, or failure to enter into Contract and submit all the required bonds and insurance certificates within ten calendar days after they have received an County/Contractor Contract the Bidder shall be liable to the County for the full amount of the Bid Guarantee as representing the damage to the County on account of the default of the Bidder in any particular thereof. The Checks or Bid Bonds shall be returned to all

bidders except the three lowest Bidders until after the County and the Accepted Bidder have executed the Contract and Bonds have been approved by the County. If the required Contract and Bonds have not been executed within thirty calendar days after the Bid Date, then the Check or Bid Bond of any Bidder will be returned upon their request, provided they have not been notified of the acceptance of their Proposal.

PART 8 - RECEIPT AND OPENING OF BIDS

8.1 RECEIPT AND OPENING

A. Bids will be opened at the time and place provided by the County. The County or County's Agent whose duty it is to open the Proposals will decide when the specified time has arrived, and Proposals received after will not be considered. No responsibility will be attached to the County or any County's Agent for the premature opening of a Proposal not properly addressed and identified.

PART 9 - BID MODIFICATIONS

9.1 MODIFICATIONS

A. Bid modifications will be accepted from Bidders provided the modification(s) is (are) clearly written, and signed and dated by an authorized agent of the Bidder, at the place where Proposals are to be received, and if received prior to the Bid Opening.

PART 10 - WITHDRAWAL OF BIDS

10.1 WITHDRAWAL

A. Bids may be withdrawn on request received from Bidders prior to the time fixed for Bid opening. Negligence on the part of the Bidder in preparing their Proposal confers no right for the withdrawal of his Proposal after it has been opened.

PART 11 - AWARD OF CONTRACT

11.1 AWARD OF CONTRACT

A. The Construction Contract will be awarded as soon as possible to the lowest responsible Bidder, provided their Proposal is reasonable and it is to the best interest of the County to accept it.

11.2 RIGHT TO WAIVER

A. The County reserves the right to waive any informality in bids received when such waiver is in the best interest of the County.

11.3 FURTHER REQUESTS

A. Each Bidder shall, if so requested by the County, present evidence of their experience, qualifications and ability to carry out the terms of the Contract, including a financial statement.

11.4 The Contractor shall purchase at their expense sets of Drawings and Project Manual and related Addenda as required for their use and furnish for the use of all the Subcontractors on the project upon award of the Contract.

PART 12 - REJECTION OF BIDS

12.1 REJECTION

A. The County reserves the right to reject any and all Proposals when rejection is in the best interest of the County and to reject the Proposal of a Bidder who, in the opinion of the County, is not in a position to perform the Contract.

PART 13 - COMMENCEMENT, PROSECUTION AND COMPLETION OF WORK

13.1 TIME OF COMPLETION

A. Contractor shall execute the County/Contractor Contract within seven calendar days from date of receipt and return to the County for his execution. Submit required insurance certificates within seven calendar days from date of receipt of the executed County / Contractor Contract. Contractor shall begin work within seven calendar days from date of receipt of a Building Permit and Notice to Proceed issued by the appropriate authority.

B. All work shall be Substantially Complete within 210 calendar days from date of Notice to Proceed and Finally Completed within 30 calendar days from the date the Project is declared Substantially Complete.

C. Contractor shall maintain sufficient labor and supervision on the project site until items have been completed, including Architect's Substantial Completion Review Punch List. A Final Review with the Owner's Representative, Architect and Contractor will be scheduled upon completion of items on Architect’s Punch List.

13.2 COMMENCEMENT

A. At the Preconstruction Conference, the County shall make arrangements with the Contractor for the assignment of staging area to be used at the site for storage of materials, parking, etc. During the construction, the Contractor shall maintain the areas. The storage of materials for use in construction of this Contract shall not interfere with existing walkways, driveways, etc. Existing trees and landscaping shall be protected from injury.

PART 14 - SUBSTANTIAL COMPLETION

14.1 DEFINITION

A. The term Substantial Completion shall mean that materials required by the Contract Documents are incorporated in the project, that labor has been performed and that the work is ready for review.

PART 15 - FINAL COMPLETION

15.1 FINAL REVIEW

A. If, upon Final Review, more than ten items on the original Substantial Completion Review Punch Lists are found to be uncorrected, the Architect reserves the right to terminate the Final Review, until such time as items on the Punch Lists are completed.

PART 16 - LIQUIDATED DAMAGES

16.1 LIQUIDATED DAMAGES

A. If project is not Substantially Completed, the Contractor shall pay to the County, as liquidated damages, five hundred ($500.00) dollars for each calendar day elapsing between the date for Substantial Completion and the date such Substantial Completion shall have been accomplished. If

the project is not Finally Completed, the Contractor shall pay to the County, as liquidated damages, five hundred ($500.00) dollars per calendar day.

B. Liquidated Damages shall be payable in addition to other excess expenses or costs payable by the Contractor to the County or Architect under the provisions of the General Conditions and Supplementary Conditions and shall not exclude the recovery of damages by the County under other provisions of the Contract Documents.

C. The provision for Liquidated Damages for delay shall not affect the County's right to terminate the Contract and the County's exercise of the right to terminate shall not release the Contractor from his obligation to pay Liquidated Damages. Said Liquidated Damages shall be payable in addition to other expenses or costs payable by the Contractor and shall not exclude the recovery of damages by the County under other provisions of the Contract.

PART 17 - PERFORMANCE BOND AND LABOR AND MATERIAL PAYMENT BOND

17.1 THE PERFORMANCE BOND AND LABOR AND MATERIAL PAYMENT BOND

A. The Performance Bond and Labor and Material Payment Bond shall be accompanied by a duly authenticated or certified document evidencing that the person executing the Bonds on behalf of the Surety had the authority to do so on the date of the Bonds.

B. In the usual case the conferring of that authority has occurred prior to the date of the Bonds and the document showing the date of appointment and enumeration of the powers of the person executing the Bonds is accompanied by a certificate that the appointment and power have not been revoked and remain in effect. The date of the certifications cannot be earlier than the date of the Bonds. The Bonds shall be dated not earlier than the Contract. See General Conditions.

C. The Bonds shall be executed in the same manner and by the same person who executed the Contract.

PART 18 - REQUIREMENTS FOR CERTIFICATES OF INSURANCE

18.1 RELATED REQUIREMENTS

A. Refer to Supplementary Conditions for specific requirements.

PART 19 - BASIS FOR BIDDING

19.1 BASIS FOR BIDDING PRODUCTS (SHALL BE AS FOLLOWS):

A. Products Specified by Reference Standards or by Description Only: Products meeting those standards or descriptions.

B. Products Specified by Naming One or More Manufacturers with a Provision for Pre-Bid or Post-Bid Substitutions. See individual Sections for specific requirements.

C. Products Specified by Naming Only One Manufacturer: No options, no substitutions allowed.

19.2 SUBSTITUTIONS

A. Pre-Bid and Post-Bid Substitutions: Refer to Section 01 6000.

PART 20 - EXECUTION OF CONTRACT

20.1 SIGNATURES

A. If the Contractor is an individual, the Contract shall be signed with his manual signature.

B. If the Contractor is a firm or company owned by an individual, the Contract shall be executed in the name of the firm or company by the manual signature of the County.

C. If the Contractor is a partnership, the Contract shall be executed in the name of the partnership by the manual signature of a partner or partners.

D. If the Contractor is a corporation, the Contract shall be executed in the name of the corporation and shall bear the corporate seal. It may be signed for the corporation by the President and attested by the Secretary; if signed for the corporation by any officer other than the President, the signature of each officer signing shall be attested by the Secretary, and the executed Contract shall be accompanied by a duly authenticated document, bearing the seal of the corporation, quoting the section of the By-Laws of the corporation authorizing the Board of Directors to designate such officer, and a copy of the Resolution designating and authorizing him to execute on behalf of the corporation. That document must contain a statement that the authority is in effect on the date of execution of the Contract, and may not be dated earlier than the date of the execution of the Contract. The same officer may not execute the Contract and authenticate the document of authority.

PART 21 - INTENT

21.1 INTENT

A. The intent of the Contract Documents is to include all items necessary for the proper execution and completion of the work. The Contract Documents are complementary, and what is required by any one element of the Contract Documents shall be binding as if required by all. The Contractor shall be responsible for the construction and coordination of the parts, and all systems shall be completely compatible and fully functional without additional cost to the County.

PART 22 - PRECEDENCE

22.1 PRECEDENCE

A. Supplementary General Conditions shall govern over the General Conditions; but neither the Supplementary General Conditions nor the General Conditions shall govern over the basic Owner/Contractor Contract. Addenda and Change Orders supersede only affected portions of the Construction Documents.

B. Should any provision of the Florida Statutes or other State Regulations conflict with any of the General Conditions, the provisions of the State requirements shall govern; where there are no State requirements involved, the General Conditions shall govern.

C. Should the Construction Documents (Drawings and Specifications) conflict on any point, the work shall be performed according to the Specifications, in-so-far as the quality of materials and workmanship is concerned; but the Drawings shall govern in-so-far as the form or extent of the work is concerned. Should an item be shown on the Drawings, but not specified, or specified but not shown on the Drawings, Contractor shall provide the item as "standard of the industry", or as specified insofar as quality is concerned.

D. Should details and schedules shown on the Drawings conflict on any point, the schedules shall prevail. Large scale details shall prevail over small-scale details, plans or elevations. Figure dimensions shall prevail over scaled dimensions.

END OF SECTION

SECTION 00 4113

BID FORM

TO: COLUMBIA COUNTY, FLORIDA
POST OFFICE BOX 1529
LAKE CITY, FLORIDA 32056-1529

PROJECT: 2024-K NEW FIRE DEPARTMENT ADMINISTRATION BUILDING
1579 NW LAKE JEFFREY ROAD
LAKE CITY, FLORIDA

The undersigned Contractor, "Bidder", proposes to furnish all labor and materials for the construction of the above project, in accordance with the Contract Documents, as prepared by Kail Partners Architecture & Interiors for the following bid amounts:

BASE BID:_____DOLLARS ($_____)

The undersigned agrees that if this Proposal is accepted, construction of this project will begin within time specified after award of Contract, and shall be Finally Completed within the specified time as evidenced by my willingness to sign and execute a Contract so stating.

The Bidder does hereby agree, that this Proposal shall remain in full force and effect for a period of thirty calendar days after the time of the opening of this Proposal, and that the Bidder will not revoke nor cancel this Proposal or withdraw from the competition within said thirty calendar day period; that in the event the Contract is awarded to this Bidder, they will, within seven calendar days after it is received, enter into a written Contract with the County in accordance with the accepted bid, and give to the County a Performance Bond and Labor and Material Payment Bond, satisfactory to the County, in the amount of 100% of the Contract Sum; and that in the event of Bidder's default or breach of any said agreements.

Acknowledgment is hereby made of receipt of the following Addenda issued during the bidding period:

ADDENDUM NO._____ DATED: _____
ADDENDUM NO._____ DATED: _____
ADDENDUM NO._____ DATED: _____

In witness, the Bidder has set their signature and affixed his seal

this _____ day of _____, 20__.

_____

(FIRM NAME) (SEAL)

BY:_____ _____

(Authorized Signature) (Typed Name and Title)

Certificate Number and Type _____ as issued to

_____ by the

(Name of Holder Representing Firm)

State of Florida Construction Industry Licensing Board.

BID MODIFICATION FORM

(To be submitted in a sealed envelope marked “BID MODIFICATION” along with the proposal prior to Bid Opening. Use only if Bid Modification needed.)

ADD TO BASE BID:_____DOLLARS ($_____)

DEDUCT FROM BASE BID:_____DOLLARS ($_____)

BID BOND

STATE OF FLORIDA
COLUMBIA COUNTY

KNOW BY THESE PRESENTS: that _____
(Here insert full name and address or legal title of Contractor)

as Principal, hereinafter called Principal, and, _____
(Here insert full name and address or legal title of Surety)

a corporation duly authorized under the laws of the State of Florida as Surety, hereinafter called Surety, are held and firmly bound unto COLUMBIA COUNTY, FLORIDA, as Obligee,

in the amount of _____Dollars ($_____), lawful money of the United States of America, to be paid to the County, for the payment of which sum will and truly to be made, the said Principal and the said Surety, bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents:

Whereas, the above bounded Principal contemplates submitting or has submitted a Proposal to the said County for furnishing all necessary labor, materials, equipment, machinery, tools, apparatus, and means of transportation for the construction of:

2024- K NEW FIRE DEPARTMENT ADMINISTRATION BUILDING
1579 NW LAKE JEFFREY ROAD
LAKE CITY, FLORIDA

And whereas, it was a condition, precedent to the submission of said Proposal that a Bid Bond in the amount of five percent (5%) of the Base Bid be submitted with said Proposal as a guarantee that the Bidder would, if awarded the Contract, enter into a written Contract with the said County, and furnish a Performance Bond and Labor and Material Payment Bond, in an amount equal to one hundred percent (100%) of the Contract Sum for the performance of said Contract within seven (7) calendar days after receipt of the County / Contractor Contract.

Now, therefore, the conditions of this obligation are such, that if the Proposal of the Principal herein be accepted and said Principal within time specified enters into a written Contract with said County, then this obligation shall be null and void; otherwise, the sum herein stated shall be due and payable to the County and Surety herein agrees to pay sum immediately upon demand of said County in good and lawful money of the United States of America as liquidated damages for failure thereof of said Principal.

SIGNED AND SEALED THIS ___ DAY OF _____, 20__ .

_____
(Signature for Principal) (Seal)

_____
(Signature of Witness)

_____
(Type Name & Title)

_____
(Signature of Attorney-In-Fact) (Seal)

_____
(Signature of Witness)

_____
(Type Name)

_____
(Signature of Florida Resident Agent)

_____
(Signature of Witness)

_____
(Type Name)

Attorney-In-Fact who signs this Bond must file with it a certified copy of his Power of Attorney to sign said Bond.

END OF SECTION

SECTION 00 4300

PROCUREMENT FORM SUPPLEMENTS

Submit with the Bid a list of "SUBCONTRACTORS, MANUFACTURES OR SUPPLIERS"

FIRM NAME: _____

ADDRESS: _____

The undersigned bidder lists below the names of the subcontractors who will perform the portions of the work included in the project. Subcontractors listed cannot be changed without the approval of the Owner and upon submission of a signed and notarized statement from the listed subcontractor stating the reason they are withdrawing from the project.

Subcontractors not meeting the requirements listed below will be cause for rejection of that subcontractor. The undersigned declares that they have investigated each subcontractor listed and has in their files evidence that such subcontractor is currently and appropriately licensed in the State of Florida and engaged successfully in their line of work for a minimum of two consecutive years prior to this Bid Date, that they maintain a fully equipped organization capable, technically and financially, of performing the pertinent work, and that they have made similar installations in a manner satisfactory to the Owner. Subcontractors proposed for this project may, at the Owner's discretion, be required to submit references from previous project Owners.

If contractor lists themself as a subcontractor they must meet the above requirements, including licenses, occupational licenses and/or certifications for each trade for which they are listed and they are required to perform the work for which they have listed themself as the subcontractor.

Subsequent to execution of Contract, contractor is required to submit copies of subcontractors and, if applicable, the contractors occupational licenses and evidence of compliance with the above requirements. Provide the name of the subcontractors company along with home office city and state:

	Division – Scope	Subcontractor Company Name
1.	Division 03 - Concrete	_____
2.	Division 04 - Masonry	_____
3.	Division 06 - Casework	_____
4.	Division 08 – Doors and Hardware	_____
5.	Division 08 - Storefronts	_____
6.	Division 09 – Metal Framing	_____
7.	Division 09 - Ceilings	_____
8.	Division 09 - Flooring	_____
9.	Division 09 - Painting	_____

10. Division 13 – Metal Building _____

11. Division 21 – Fire Protection _____

12. Division 22 – Plumbing _____

13. Division 23 – HVAC _____

14. Division 26 – Electrical _____

15. Division 27 – Communications _____

16. Division 28 – Fire Alarm _____

17. Division 31 - Earthwork _____

Add Additional as Necessary

18. _____ _____

19. _____ _____

20. _____ _____

21. _____ _____

22. _____ _____

STATE OF FLORIDA
COUNTY OF _____

The foregoing instrument was acknowledged before me, by means of __ physical presence or __ online notarization this ____day of_____20__, by_____ who __ is personally known to me or __ has produced a Florida driver's license as identification.

_____

(NOTARIAL SEAL)

Notary Public, State of Florida
My Commission Expires:

END OF SECTION

Non-Collusion Affidavit

STATE OF _____

COUNTY OF _____

I state that I _____ of _____,
(Name and Title) (Name of Firm)
am authorized to make this affidavit on behalf of my firm and its owner, directors and officers. I am the person responsible in my firm for the price(s) and amount(s) of this Response, and the preparation of the Response. I state that:

1. The price(s) and amount(s) of this Response have been arrived at independently and without consultation, communication or agreement with any other Provider, potential provider, Proposal, or potential Proposal.

2. Neither the price(s) nor the amount(s) of this Response, and neither the approximate price(s) nor approximate amount(s) of this Response, have been disclosed to any other firm or person who is a Provider, potential Provider, Proposal, or potential Proposal, and they will not be disclosed before Proposal opening.

3. No attempt has been made or will be made to induce any firm or persons to refrain from submitting a Response for this contract, or to submit a price(s) higher that the prices in this Response, or to submit any intentionally high or noncompetitive price(s) or other form of complementary Response.

4. The Response of my firm is made in good faith and not pursuant to any agreement or discussion with, or inducement from, any firm or person to submit a complementary or other noncompetitive Response.

5. _____, its affiliates, subsidiaries, officers, director, and employees
(Name of Firm)
are not currently under investigation, by any governmental agency and have not in the last three years been convicted or found liable for any act prohibited by State or Federal law in any jurisdiction, involving conspiracy or collusion with respect to Proposal, on any public contract, except as follows:

I state that I and the named firm understand and acknowledge that the above representations are material and important, and will be relied on by the Board of County Commissioners of Columbia County, Florida for which this Response is submitted. I understand and my firm understands that any misstatement in this affidavit is, and shall be treated as, fraudulent concealment from the State of Florida of the true facts relating to the submission of responses for this contract.

Dated this _____ day of _____, _____.

Name of Organization: _____

Signed by: _____

Print Name: _____

Being duly sworn deposes and says that the information herein is true and sufficiently complete so as not to be misleading.

The foregoing instrument was executed before me this day _____ of _____ 20____, by _____ as _____ of _____, who personally swore or affirmed that he/she is authorized to execute this document and thereby bind the Corporation, and who is personally known to me OR has produced _____ as identification.

_____

(stamp) NOTARY PUBLIC, State of _____

Public Entity Crimes Statement

SWORN STATEMENT UNDER SECTION 287.133(3) (a), FLORIDA STATUTES: THIS FORM MUST BE SIGNED IN THE PRESENCE OF A NOTARY PUBLIC OR OTHER OFFICER AUTHORIZED TO ADMINISTER OATHS.

1. This sworn statement is submitted with Proposal, ITN, or Contract Number

2. This sworn statement is submitted by _____
[Name of entity submitting sworn statement]
whose business address is _____ and (if applicable) its Federal Employer Identification Number (FEIN) is _____
(If the entity has no FEIN, include the Social Security Number of the individual signing this sworn statement: _____.

3. My name is _____ and my relationship to the above is
[Please print name of individual signing]
_____.

4. I understand that a "public entity crime" as defined in section 287.133(l)(g), Florida Statutes, means a violation of any state or federal law by a person with respect to and directly related to the transaction of business with any public entity in Florida or with an agency or political subdivision of any other state or with the United States, including, but not limited to, any proposal or contract for goods or services to be provided to any public entity or an agency or political subdivision and involving antitrust, fraud, theft, bribery, collusion, racketeering, conspiracy, or material misrepresentation.

5. I understand that "convicted" or "conviction" as defined in section 287.133(l) (b), Florida Statutes, means a finding of guilt or a conviction of a public entity crime, with or without an adjudication of guilt, in any federal or state trial court of record relating to charges brought by indictment or information after July 1, 1989, as a result of a jury verdict, non-jury trial, or entry of a plea of guilty or nolo contenders.

6. I understand that "affiliate" as defined in section 287.133(l) (a), Florida Statutes, means:

   a. A predecessor or successor of a person convicted of a public entity crime; or

   b. An entity under the control of any natural person who is active in the management of the entity and who has been convicted of a public entity crime. The term "affiliate" includes those officers, directors, executives, partners, shareholders, employees, members, and agents who are active in the management of an affiliate. The ownership by one person of shares constituting a controlling interest in another person, or a pooling of equipment or income among persons when not for fair market value under an arm's length agreement, shall be a prima facie case that one person controls another person. A person who knowingly enters into a joint venture with a person who has been convicted of a public entity crime in Florida during the preceding thirty-six (36) months shall be considered an affiliate.

7. I understand that a "person" as defined in section 287.133(l) (e), Florida Statutes, means any natural person or entity organized under the laws of any state or of the United States with the legal power to enter into a binding contract and which bids/proposals or applies to bids/proposals on contracts for the provision of goods or services let by a public entity, or which otherwise transacts or applies to transact business with a public entity. The term "person" includes those officers, directors, executives, partners, shareholders, employees, members, and agents who are active in management of an entity.

8. Based on information and belief, the statement, which I have marked below, is true in relation to the entity submitting this sworn statement. **[Please indicate which statement applies].**

_____ Neither the entity submitting this sworn statement, nor any officers, directors, executives, partners, shareholders, employees, members, or agents who is active in the management of the entity, nor any affiliate of the entity have been convicted of a public entity crime subsequent to July 1, 1989.

_____ The entity submitting this sworn statement, or one or more of the officers, directors, executives, partners, shareholders, employees, members, or agents who are active in the management of the entity, or an affiliate of the entity has been charged with and convicted of a public entity crime subsequent to July 1, 1989, AND **[Please indicate which additional statement applies].**

_____ There has been a proceeding concerning the conviction before a judge or hearing officer of the State of Florida, Division of Administrative Hearings, or a court of law having proper jurisdiction. The final order entered by the hearing officer or judge did not place the person or affiliate on the convicted Contractor list. **[Please attach a copy of the final order.]**

_____ The person or affiliate was placed on the convicted Contractor list. There has been a subsequent proceeding before a court of law having proper jurisdiction or a judge or hearing officer of the State of Florida, Division of Administrative Hearings. The final order entered by the judge or hearing officer determined that is was in the public interest to remove the person or affiliate from the convicted Contractor list. **[Please attach a copy of the final order.]**

_____ The person or affiliate has not been placed on any convicted vendor list. [Please describe any action taken by or pending with the State of Florida, Department of Management Services.]

By the signature(s) below, I/we, the undersigned, as authorized signatory to commit the firm, certify that the information as provided in Attachment "C", Public Entity Crimes, is truthful and

correct at the time of submission.

_____
AFFIANT

_____
Typed Name of AFFIANT

_____
Title

STATE OF _____

County OF _____

The foregoing instrument was executed before me this day _____ of _____ 20____, by _____ as _____ of _____, who personally swore or affirmed that he/she is authorized to execute this document and thereby bind the Corporation, and who is personally known to me OR has produced _____ as identification.

(stamp) NOTARY PUBLIC, State of _____

Drug-Free Workplace Certification

The drug-free certification form below must be signed and returned with the solicitation response.

In order to have a drug-free workplace program, a business shall:

1. Publish a statement notifying employees that the unlawful manufacture, distribution, dispensing, possession, or use of a controlled substance is prohibited in the workplace and specifying the actions that will be taken against employees for violations of such prohibition.

2. Inform employees about the dangers of drug abuse in the workplace, the business' policy of maintaining a drug-free workplace, any available drug counseling, rehabilitation, and employee assistance programs, and the penalties that may be imposed upon employees for drug abuse violations.

3. Give each employee engaged in providing the commodities or contractual services that are under bid/proposal a copy of the statement specified in the first paragraph.

4. In the statement specified in the first paragraph, notify the employees that, as a condition of working on the commodities or contractual services that are under bid/proposal, the employee will abide by the terms of the statement and will notify the employer of any conviction of, or plea of guilty or nolo contendere to, any violation of chapter 893, Florida Statutes, or of any controlled substance law of the United States or any state, for a violation occurring in the workplace no later than five (5) Days after such conviction.

5. Impose a sanction on, or require the satisfactory participation in, a drug abuse assistance or rehabilitation program if such is available in the employee's community, by any employee who is so convicted.

6. Make a good faith effort to continue to maintain a drug-free workplace through implementation of the foregoing provisions.

By the signature(s) below, I/we, the undersigned, as authorized signatory to commit the firm, certify that the information as provided in this Drug-Free Workplace Certification, is truthful and correct at the time of submission.

_____
AFFIANT

_____
Typed Name of AFFIANT

_____
Title

STATE OF _____

County OF _____
The foregoing instrument was executed before me this day _____ of _____ 20____, by _____ as _____ of _____, who personally swore or affirmed that he/she is authorized to execute this document and thereby bind the Corporation, and who is personally known to me OR has produced _____ as identification.

(stamp) NOTARY PUBLIC, State of _____

Conflict of Interest Statement

STATE OF _____

County OF _____

Before me, the undersigned authority, personally appeared _____, who was duly sworn, deposes, and states:

I am the_____ of _____with a local office
(Insert Title) (Insert Company Name)
in_____ and principal office in _____. Said entity is submitting this proposal/offer to

1. The AFFIANT has made diligent inquiry and provided the information in this statement affidavit based upon its full knowledge.

2. The AFFIANT states that only one submittal for this solicitation has been submitted and tendered by the appropriate date and time and that said above stated entity has no financial interest in other entities submitting a proposal for the work contemplated hereby.

3. Neither the AFFIANT nor the above named entity has directly or indirectly entered into any agreement, participated in any collusion or collusive activity, or otherwise taken any action which in any way restricts or restraints the competitive nature of this solicitation, including but not limited to the prior discussion of terms, conditions, pricing, or other offer parameters required by this solicitation.

4. Neither the entity nor its affiliates, nor anyone associated with them, is presently suspended or otherwise prohibited from participation in this solicitation or any contract to follow thereafter by any government entity.

5. Neither the entity nor its affiliates, nor anyone associated with them, have any potential conflict of interest because and due to any other clients, contracts, or property interests in this solicitation or the resulting project.

6. I hereby also certify that no member of the entity's ownership or management or staff has a vested interest in any County Office or Department.

7. I certify that no member of the entity's ownership or management is presently applying, actively seeking, or has been selected for an elected position within Columbia County government.

8. In the event that a conflict of interest is identified in the provision of services, I, the undersigned will immediately notify the County in writing.

_____

AFFIANT

_____

Typed Name of AFFIANT

_____

Title

STATE OF _____

County OF _____

The foregoing instrument was executed before me this day _____ of _____ 20____, by _____ as _____ of _____, who personally swore or affirmed that he/she is authorized to execute this document and thereby bind the Corporation, and who is personally known to me OR has produced _____ as identification.

(stamp)

NOTARY PUBLIC, State of _____

HUMAN TRAFFICKING AFFIDAVIT

Affiant swears under pain and penalty of perjury that the company or entity does not use coercion for labor or services as defined by Florida Statute § 787.06 which is hereby incorporated by reference.

_____

(Company or Entity Name)

Affiant who is an Officer/Authorized Representative of Company or Entity:

_____

(Signature)

_____

(Printed Name)

_____

(Date)

STATE OF _____)

COUNTY OF _____)

Sworn to and subscribed before me this _____ day of _____, 202__ by _____, by means of physical presence and _____who is personally known to me or _____ has produced _____ as identification.

_____

(NOTARY STAMP) Notary Public

Form **W-9**
(Rev. October 2018)
Department of the Treasury
Internal Revenue Service

Request for Taxpayer Identification Number and Certification

▶ Go to *www.irs.gov/FormW9* for instructions and the latest information.

Give Form to the requester. Do not send to the IRS.

Print or type. See Specific Instructions on page 3.

1 Name (as shown on your income tax return). Name is required on this line; do not leave this line blank.

2 Business name/disregarded entity name, if different from above

3 Check appropriate box for federal tax classification of the person whose name is entered on line 1. Check only one of the following seven boxes.

☐ Individual/sole proprietor or single-member LLC ☐ C Corporation ☐ S Corporation ☐ Partnership ☐ Trust/estate

☐ Limited liability company. Enter the tax classification (C=C corporation, S=S corporation, P=Partnership) ▶ _____

Note: Check the appropriate box in the line above for the tax classification of the single-member owner. Do not check LLC if the LLC is classified as a single-member LLC that is disregarded from the owner unless the owner of the LLC is another LLC that is not disregarded from the owner for U.S. federal tax purposes. Otherwise, a single-member LLC that is disregarded from the owner should check the appropriate box for the tax classification of its owner.

☐ Other (see instructions) ▶

4 Exemptions (codes apply only to certain entities, not individuals; see instructions on page 3):

Exempt payee code (if any) _____

Exemption from FATCA reporting code (if any) _____

(Applies to accounts maintained outside the U.S.)

5 Address (number, street, and apt. or suite no.) See instructions.

Requester's name and address (optional)

6 City, state, and ZIP code

7 List account number(s) here (optional)

Part I Taxpayer Identification Number (TIN)

Enter your TIN in the appropriate box. The TIN provided must match the name given on line 1 to avoid backup withholding. For individuals, this is generally your social security number (SSN). However, for a resident alien, sole proprietor, or disregarded entity, see the instructions for Part I, later. For other entities, it is your employer identification number (EIN). If you do not have a number, see *How to get a TIN*, later.

Note: If the account is in more than one name, see the instructions for line 1. Also see *What Name and Number To Give the Requester* for guidelines on whose number to enter.

Social security number

			–			–				

or

Employer identification number

		–							

Part II Certification

Under penalties of perjury, I certify that:

1. The number shown on this form is my correct taxpayer identification number (or I am waiting for a number to be issued to me); and
2. I am not subject to backup withholding because: (a) I am exempt from backup withholding, or (b) I have not been notified by the Internal Revenue Service (IRS) that I am subject to backup withholding as a result of a failure to report all interest or dividends, or (c) the IRS has notified me that I am no longer subject to backup withholding; and
3. I am a U.S. citizen or other U.S. person (defined below); and
4. The FATCA code(s) entered on this form (if any) indicating that I am exempt from FATCA reporting is correct.

Certification instructions. You must cross out item 2 above if you have been notified by the IRS that you are currently subject to backup withholding because you have failed to report all interest and dividends on your tax return. For real estate transactions, item 2 does not apply. For mortgage interest paid, acquisition or abandonment of secured property, cancellation of debt, contributions to an individual retirement arrangement (IRA), and generally, payments other than interest and dividends, you are not required to sign the certification, but you must provide your correct TIN. See the instructions for Part II, later.

Sign Here Signature of U.S. person ▶ Date ▶

General Instructions

Section references are to the Internal Revenue Code unless otherwise noted.

Future developments. For the latest information about developments related to Form W-9 and its instructions, such as legislation enacted after they were published, go to *www.irs.gov/FormW9*.

Purpose of Form

An individual or entity (Form W-9 requester) who is required to file an information return with the IRS must obtain your correct taxpayer identification number (TIN) which may be your social security number (SSN), individual taxpayer identification number (ITIN), adoption taxpayer identification number (ATIN), or employer identification number (EIN), to report on an information return the amount paid to you, or other amount reportable on an information return. Examples of information returns include, but are not limited to, the following.

- Form 1099-INT (interest earned or paid)
- Form 1099-DIV (dividends, including those from stocks or mutual funds)
- Form 1099-MISC (various types of income, prizes, awards, or gross proceeds)
- Form 1099-B (stock or mutual fund sales and certain other transactions by brokers)
- Form 1099-S (proceeds from real estate transactions)
- Form 1099-K (merchant card and third party network transactions)
- Form 1098 (home mortgage interest), 1098-E (student loan interest), 1098-T (tuition)
- Form 1099-C (canceled debt)
- Form 1099-A (acquisition or abandonment of secured property)

Use Form W-9 only if you are a U.S. person (including a resident alien), to provide your correct TIN.

If you do not return Form W-9 to the requester with a TIN, you might be subject to backup withholding. See What is backup withholding, *later.*

By signing the filled-out form, you:

1. Certify that the TIN you are giving is correct (or you are waiting for a number to be issued),

2. Certify that you are not subject to backup withholding, or

3. Claim exemption from backup withholding if you are a U.S. exempt payee. If applicable, you are also certifying that as a U.S. person, your allocable share of any partnership income from a U.S. trade or business is not subject to the withholding tax on foreign partners' share of effectively connected income, and

4. Certify that FATCA code(s) entered on this form (if any) indicating that you are exempt from the FATCA reporting, is correct. See *What is FATCA reporting,* later, for further information.

Note: If you are a U.S. person and a requester gives you a form other than Form W-9 to request your TIN, you must use the requester's form if it is substantially similar to this Form W-9.

Definition of a U.S. person. For federal tax purposes, you are considered a U.S. person if you are:

- An individual who is a U.S. citizen or U.S. resident alien;
- A partnership, corporation, company, or association created or organized in the United States or under the laws of the United States;
- An estate (other than a foreign estate); or
- A domestic trust (as defined in Regulations section 301.7701-7).

Special rules for partnerships. Partnerships that conduct a trade or business in the United States are generally required to pay a withholding tax under section 1446 on any foreign partners' share of effectively connected taxable income from such business. Further, in certain cases where a Form W-9 has not been received, the rules under section 1446 require a partnership to presume that a partner is a foreign person, and pay the section 1446 withholding tax. Therefore, if you are a U.S. person that is a partner in a partnership conducting a trade or business in the United States, provide Form W-9 to the partnership to establish your U.S. status and avoid section 1446 withholding on your share of partnership income.

In the cases below, the following person must give Form W-9 to the partnership for purposes of establishing its U.S. status and avoiding withholding on its allocable share of net income from the partnership conducting a trade or business in the United States.

- In the case of a disregarded entity with a U.S. owner, the U.S. owner of the disregarded entity and not the entity;
- In the case of a grantor trust with a U.S. grantor or other U.S. owner, generally, the U.S. grantor or other U.S. owner of the grantor trust and not the trust; and
- In the case of a U.S. trust (other than a grantor trust), the U.S. trust (other than a grantor trust) and not the beneficiaries of the trust.

Foreign person. If you are a foreign person or the U.S. branch of a foreign bank that has elected to be treated as a U.S. person, do not use Form W-9. Instead, use the appropriate Form W-8 or Form 8233 (see Pub. 515, Withholding of Tax on Nonresident Aliens and Foreign Entities).

Nonresident alien who becomes a resident alien. Generally, only a nonresident alien individual may use the terms of a tax treaty to reduce or eliminate U.S. tax on certain types of income. However, most tax treaties contain a provision known as a "saving clause." Exceptions specified in the saving clause may permit an exemption from tax to continue for certain types of income even after the payee has otherwise become a U.S. resident alien for tax purposes.

If you are a U.S. resident alien who is relying on an exception contained in the saving clause of a tax treaty to claim an exemption from U.S. tax on certain types of income, you must attach a statement to Form W-9 that specifies the following five items.

1. The treaty country. Generally, this must be the same treaty under which you claimed exemption from tax as a nonresident alien.

2. The treaty article addressing the income.

3. The article number (or location) in the tax treaty that contains the saving clause and its exceptions.

4. The type and amount of income that qualifies for the exemption from tax.

5. Sufficient facts to justify the exemption from tax under the terms of the treaty article.

Example. Article 20 of the U.S.-China income tax treaty allows an exemption from tax for scholarship income received by a Chinese student temporarily present in the United States. Under U.S. law, this student will become a resident alien for tax purposes if his or her stay in the United States exceeds 5 calendar years. However, paragraph 2 of the first Protocol to the U.S.-China treaty (dated April 30, 1984) allows the provisions of Article 20 to continue to apply even after the Chinese student becomes a resident alien of the United States. A Chinese student who qualifies for this exception (under paragraph 2 of the first protocol) and is relying on this exception to claim an exemption from tax on his or her scholarship or fellowship income would attach to Form W-9 a statement that includes the information described above to support that exemption.

If you are a nonresident alien or a foreign entity, give the requester the appropriate completed Form W-8 or Form 8233.

Backup Withholding

What is backup withholding? Persons making certain payments to you must under certain conditions withhold and pay to the IRS 24% of such payments. This is called "backup withholding." Payments that may be subject to backup withholding include interest, tax-exempt interest, dividends, broker and barter exchange transactions, rents, royalties, nonemployee pay, payments made in settlement of payment card and third party network transactions, and certain payments from fishing boat operators. Real estate transactions are not subject to backup withholding.

You will not be subject to backup withholding on payments you receive if you give the requester your correct TIN, make the proper certifications, and report all your taxable interest and dividends on your tax return.

Payments you receive will be subject to backup withholding if:

1. You do not furnish your TIN to the requester,

2. You do not certify your TIN when required (see the instructions for Part II for details),

3. The IRS tells the requester that you furnished an incorrect TIN,

4. The IRS tells you that you are subject to backup withholding because you did not report all your interest and dividends on your tax return (for reportable interest and dividends only), or

5. You do not certify to the requester that you are not subject to backup withholding under 4 above (for reportable interest and dividend accounts opened after 1983 only).

Certain payees and payments are exempt from backup withholding. See *Exempt payee code,* later, and the separate Instructions for the Requester of Form W-9 for more information.

Also see *Special rules for partnerships,* earlier.

What is FATCA Reporting?

The Foreign Account Tax Compliance Act (FATCA) requires a participating foreign financial institution to report all United States account holders that are specified United States persons. Certain payees are exempt from FATCA reporting. See *Exemption from FATCA reporting code,* later, and the Instructions for the Requester of Form W-9 for more information.

Updating Your Information

You must provide updated information to any person to whom you claimed to be an exempt payee if you are no longer an exempt payee and anticipate receiving reportable payments in the future from this person. For example, you may need to provide updated information if you are a C corporation that elects to be an S corporation, or if you no longer are tax exempt. In addition, you must furnish a new Form W-9 if the name or TIN changes for the account; for example, if the grantor of a grantor trust dies.

Penalties

Failure to furnish TIN. If you fail to furnish your correct TIN to a requester, you are subject to a penalty of $50 for each such failure unless your failure is due to reasonable cause and not to willful neglect.

Civil penalty for false information with respect to withholding. If you make a false statement with no reasonable basis that results in no backup withholding, you are subject to a $500 penalty.

Criminal penalty for falsifying information. Willfully falsifying certifications or affirmations may subject you to criminal penalties including fines and/or imprisonment.

Misuse of TINs. If the requester discloses or uses TINs in violation of federal law, the requester may be subject to civil and criminal penalties.

Specific Instructions

Line 1

You must enter one of the following on this line; **do not** leave this line blank. The name should match the name on your tax return.

If this Form W-9 is for a joint account (other than an account maintained by a foreign financial institution (FFI)), list first, and then circle, the name of the person or entity whose number you entered in Part I of Form W-9. If you are providing Form W-9 to an FFI to document a joint account, each holder of the account that is a U.S. person must provide a Form W-9.

a. **Individual.** Generally, enter the name shown on your tax return. If you have changed your last name without informing the Social Security Administration (SSA) of the name change, enter your first name, the last name as shown on your social security card, and your new last name.

Note: ITIN applicant: Enter your individual name as it was entered on your Form W-7 application, line 1a. This should also be the same as the name you entered on the Form 1040/1040A/1040EZ you filed with your application.

b. **Sole proprietor or single-member LLC.** Enter your individual name as shown on your 1040/1040A/1040EZ on line 1. You may enter your business, trade, or "doing business as" (DBA) name on line 2.

c. **Partnership, LLC that is not a single-member LLC, C corporation, or S corporation.** Enter the entity's name as shown on the entity's tax return on line 1 and any business, trade, or DBA name on line 2.

d. **Other entities.** Enter your name as shown on required U.S. federal tax documents on line 1. This name should match the name shown on the charter or other legal document creating the entity. You may enter any business, trade, or DBA name on line 2.

e. **Disregarded entity.** For U.S. federal tax purposes, an entity that is disregarded as an entity separate from its owner is treated as a "disregarded entity." See Regulations section 301.7701-2(c)(2)(iii). Enter the owner's name on line 1. The name of the entity entered on line 1 should never be a disregarded entity. The name on line 1 should be the name shown on the income tax return on which the income should be reported. For example, if a foreign LLC that is treated as a disregarded entity for U.S. federal tax purposes has a single owner that is a U.S. person, the U.S. owner's name is required to be provided on line 1. If the direct owner of the entity is also a disregarded entity, enter the first owner that is not disregarded for federal tax purposes. Enter the disregarded entity's name on line 2, "Business name/disregarded entity name." If the owner of the disregarded entity is a foreign person, the owner must complete an appropriate Form W-8 instead of a Form W-9. This is the case even if the foreign person has a U.S. TIN.

Line 2

If you have a business name, trade name, DBA name, or disregarded entity name, you may enter it on line 2.

Line 3

Check the appropriate box on line 3 for the U.S. federal tax classification of the person whose name is entered on line 1. Check only one box on line 3.

IF the entity/person on line 1 is a(n) . . .	THEN check the box for . . .
• Corporation	Corporation
• Individual • Sole proprietorship, or • Single-member limited liability company (LLC) owned by an individual and disregarded for U.S. federal tax purposes.	Individual/sole proprietor or single-member LLC
• LLC treated as a partnership for U.S. federal tax purposes, • LLC that has filed Form 8832 or 2553 to be taxed as a corporation, or • LLC that is disregarded as an entity separate from its owner but the owner is another LLC that is not disregarded for U.S. federal tax purposes.	Limited liability company and enter the appropriate tax classification. (P= Partnership; C= C corporation; or S= S corporation)
• Partnership	Partnership
• Trust/estate	Trust/estate

Line 4, Exemptions

If you are exempt from backup withholding and/or FATCA reporting, enter in the appropriate space on line 4 any code(s) that may apply to you.

Exempt payee code.

- Generally, individuals (including sole proprietors) are not exempt from backup withholding.
- Except as provided below, corporations are exempt from backup withholding for certain payments, including interest and dividends.
- Corporations are not exempt from backup withholding for payments made in settlement of payment card or third party network transactions.
- Corporations are not exempt from backup withholding with respect to attorneys' fees or gross proceeds paid to attorneys, and corporations that provide medical or health care services are not exempt with respect to payments reportable on Form 1099-MISC.

The following codes identify payees that are exempt from backup withholding. Enter the appropriate code in the space in line 4.

1—An organization exempt from tax under section 501(a), any IRA, or a custodial account under section 403(b)(7) if the account satisfies the requirements of section 401(f)(2)

2—The United States or any of its agencies or instrumentalities

3—A state, the District of Columbia, a U.S. commonwealth or possession, or any of their political subdivisions or instrumentalities

4—A foreign government or any of its political subdivisions, agencies, or instrumentalities

5—A corporation

6—A dealer in securities or commodities required to register in the United States, the District of Columbia, or a U.S. commonwealth or possession

7—A futures commission merchant registered with the Commodity Futures Trading Commission

8—A real estate investment trust

9—An entity registered at all times during the tax year under the Investment Company Act of 1940

10—A common trust fund operated by a bank under section 584(a)

11—A financial institution

12—A middleman known in the investment community as a nominee or custodian

13—A trust exempt from tax under section 664 or described in section 4947

The following chart shows types of payments that may be exempt from backup withholding. The chart applies to the exempt payees listed above, 1 through 13.

IF the payment is for . . .	THEN the payment is exempt for . . .
Interest and dividend payments	All exempt payees except for 7
Broker transactions	Exempt payees 1 through 4 and 6 through 11 and all C corporations. S corporations must not enter an exempt payee code because they are exempt only for sales of noncovered securities acquired prior to 2012.
Barter exchange transactions and patronage dividends	Exempt payees 1 through 4
Payments over $600 required to be reported and direct sales over $5,000[1]	Generally, exempt payees 1 through 5[2]
Payments made in settlement of payment card or third party network transactions	Exempt payees 1 through 4

[1] See Form 1099-MISC, Miscellaneous Income, and its instructions.

[2] However, the following payments made to a corporation and reportable on Form 1099-MISC are not exempt from backup withholding: medical and health care payments, attorneys' fees, gross proceeds paid to an attorney reportable under section 6045(f), and payments for services paid by a federal executive agency.

Exemption from FATCA reporting code. The following codes identify payees that are exempt from reporting under FATCA. These codes apply to persons submitting this form for accounts maintained outside of the United States by certain foreign financial institutions. Therefore, if you are only submitting this form for an account you hold in the United States, you may leave this field blank. Consult with the person requesting this form if you are uncertain if the financial institution is subject to these requirements. A requester may indicate that a code is not required by providing you with a Form W-9 with "Not Applicable" (or any similar indication) written or printed on the line for a FATCA exemption code.

A—An organization exempt from tax under section 501(a) or any individual retirement plan as defined in section 7701(a)(37)

B—The United States or any of its agencies or instrumentalities

C—A state, the District of Columbia, a U.S. commonwealth or possession, or any of their political subdivisions or instrumentalities

D—A corporation the stock of which is regularly traded on one or more established securities markets, as described in Regulations section 1.1472-1(c)(1)(i)

E—A corporation that is a member of the same expanded affiliated group as a corporation described in Regulations section 1.1472-1(c)(1)(i)

F—A dealer in securities, commodities, or derivative financial instruments (including notional principal contracts, futures, forwards, and options) that is registered as such under the laws of the United States or any state

G—A real estate investment trust

H—A regulated investment company as defined in section 851 or an entity registered at all times during the tax year under the Investment Company Act of 1940

I—A common trust fund as defined in section 584(a)

J—A bank as defined in section 581

K—A broker

L—A trust exempt from tax under section 664 or described in section 4947(a)(1)

M—A tax exempt trust under a section 403(b) plan or section 457(g) plan

Note: You may wish to consult with the financial institution requesting this form to determine whether the FATCA code and/or exempt payee code should be completed.

Line 5

Enter your address (number, street, and apartment or suite number). This is where the requester of this Form W-9 will mail your information returns. If this address differs from the one the requester already has on file, write NEW at the top. If a new address is provided, there is still a chance the old address will be used until the payor changes your address in their records.

Line 6

Enter your city, state, and ZIP code.

Part I. Taxpayer Identification Number (TIN)

Enter your TIN in the appropriate box. If you are a resident alien and you do not have and are not eligible to get an SSN, your TIN is your IRS individual taxpayer identification number (ITIN). Enter it in the social security number box. If you do not have an ITIN, see *How to get a TIN* below.

If you are a sole proprietor and you have an EIN, you may enter either your SSN or EIN.

If you are a single-member LLC that is disregarded as an entity separate from its owner, enter the owner's SSN (or EIN, if the owner has one). Do not enter the disregarded entity's EIN. If the LLC is classified as a corporation or partnership, enter the entity's EIN.

Note: See *What Name and Number To Give the Requester,* later, for further clarification of name and TIN combinations.

How to get a TIN. If you do not have a TIN, apply for one immediately. To apply for an SSN, get Form SS-5, Application for a Social Security Card, from your local SSA office or get this form online at *www.SSA.gov*. You may also get this form by calling 1-800-772-1213. Use Form W-7, Application for IRS Individual Taxpayer Identification Number, to apply for an ITIN, or Form SS-4, Application for Employer Identification Number, to apply for an EIN. You can apply for an EIN online by accessing the IRS website at *www.irs.gov/Businesses* and clicking on Employer Identification Number (EIN) under Starting a Business. Go to *www.irs.gov/Forms* to view, download, or print Form W-7 and/or Form SS-4. Or, you can go to *www.irs.gov/OrderForms* to place an order and have Form W-7 and/or SS-4 mailed to you within 10 business days.

If you are asked to complete Form W-9 but do not have a TIN, apply for a TIN and write "Applied For" in the space for the TIN, sign and date the form, and give it to the requester. For interest and dividend payments, and certain payments made with respect to readily tradable instruments, generally you will have 60 days to get a TIN and give it to the requester before you are subject to backup withholding on payments. The 60-day rule does not apply to other types of payments. You will be subject to backup withholding on all such payments until you provide your TIN to the requester.

Note: Entering "Applied For" means that you have already applied for a TIN or that you intend to apply for one soon.

Caution: A disregarded U.S. entity that has a foreign owner must use the appropriate Form W-8.

Part II. Certification

To establish to the withholding agent that you are a U.S. person, or resident alien, sign Form W-9. You may be requested to sign by the withholding agent even if item 1, 4, or 5 below indicates otherwise.

For a joint account, only the person whose TIN is shown in Part I should sign (when required). In the case of a disregarded entity, the person identified on line 1 must sign. Exempt payees, see *Exempt payee code,* earlier.

Signature requirements. Complete the certification as indicated in items 1 through 5 below.

1. Interest, dividend, and barter exchange accounts opened before 1984 and broker accounts considered active during 1983. You must give your correct TIN, but you do not have to sign the certification.

2. Interest, dividend, broker, and barter exchange accounts opened after 1983 and broker accounts considered inactive during 1983. You must sign the certification or backup withholding will apply. If you are subject to backup withholding and you are merely providing your correct TIN to the requester, you must cross out item 2 in the certification before signing the form.

3. Real estate transactions. You must sign the certification. You may cross out item 2 of the certification.

4. Other payments. You must give your correct TIN, but you do not have to sign the certification unless you have been notified that you have previously given an incorrect TIN. "Other payments" include payments made in the course of the requester's trade or business for rents, royalties, goods (other than bills for merchandise), medical and health care services (including payments to corporations), payments to a nonemployee for services, payments made in settlement of payment card and third party network transactions, payments to certain fishing boat crew members and fishermen, and gross proceeds paid to attorneys (including payments to corporations).

5. Mortgage interest paid by you, acquisition or abandonment of secured property, cancellation of debt, qualified tuition program payments (under section 529), ABLE accounts (under section 529A), IRA, Coverdell ESA, Archer MSA or HSA contributions or distributions, and pension distributions. You must give your correct TIN, but you do not have to sign the certification.

What Name and Number To Give the Requester

For this type of account:	Give name and SSN of:
1. Individual	The individual
2. Two or more individuals (joint account) other than an account maintained by an FFI	The actual owner of the account or, if combined funds, the first individual on the account[1]
3. Two or more U.S. persons (joint account maintained by an FFI)	Each holder of the account
4. Custodial account of a minor (Uniform Gift to Minors Act)	The minor[2]
5. a. The usual revocable savings trust (grantor is also trustee)	The grantor-trustee[1]
b. So-called trust account that is not a legal or valid trust under state law	The actual owner[1]
6. Sole proprietorship or disregarded entity owned by an individual	The owner[3]
7. Grantor trust filing under Optional Form 1099 Filing Method 1 (see Regulations section 1.671-4(b)(2)(i)(A))	The grantor*
For this type of account:	**Give name and EIN of:**
8. Disregarded entity not owned by an individual	The owner
9. A valid trust, estate, or pension trust	Legal entity[4]
10. Corporation or LLC electing corporate status on Form 8832 or Form 2553	The corporation
11. Association, club, religious, charitable, educational, or other tax-exempt organization	The organization
12. Partnership or multi-member LLC	The partnership
13. A broker or registered nominee	The broker or nominee
14. Account with the Department of Agriculture in the name of a public entity (such as a state or local government, school district, or prison) that receives agricultural program payments	The public entity
15. Grantor trust filing under the Form 1041 Filing Method or the Optional Form 1099 Filing Method 2 (see Regulations section 1.671-4(b)(2)(i)(B))	The trust

[1] List first and circle the name of the person whose number you furnish. If only one person on a joint account has an SSN, that person's number must be furnished.

[2] Circle the minor's name and furnish the minor's SSN.

[3] You must show your individual name and you may also enter your business or DBA name on the "Business name/disregarded entity" name line. You may use either your SSN or EIN (if you have one), but the IRS encourages you to use your SSN.

[4] List first and circle the name of the trust, estate, or pension trust. (Do not furnish the TIN of the personal representative or trustee unless the legal entity itself is not designated in the account title.) Also see *Special rules for partnerships*, earlier.

*Note: The grantor also must provide a Form W-9 to trustee of trust.

Note: If no name is circled when more than one name is listed, the number will be considered to be that of the first name listed.

Secure Your Tax Records From Identity Theft

Identity theft occurs when someone uses your personal information such as your name, SSN, or other identifying information, without your permission, to commit fraud or other crimes. An identity thief may use your SSN to get a job or may file a tax return using your SSN to receive a refund.

To reduce your risk:

- Protect your SSN,
- Ensure your employer is protecting your SSN, and
- Be careful when choosing a tax preparer.

If your tax records are affected by identity theft and you receive a notice from the IRS, respond right away to the name and phone number printed on the IRS notice or letter.

If your tax records are not currently affected by identity theft but you think you are at risk due to a lost or stolen purse or wallet, questionable credit card activity or credit report, contact the IRS Identity Theft Hotline at 1-800-908-4490 or submit Form 14039.

For more information, see Pub. 5027, Identity Theft Information for Taxpayers.

Victims of identity theft who are experiencing economic harm or a systemic problem, or are seeking help in resolving tax problems that have not been resolved through normal channels, may be eligible for Taxpayer Advocate Service (TAS) assistance. You can reach TAS by calling the TAS toll-free case intake line at 1-877-777-4778 or TTY/TDD 1-800-829-4059.

Protect yourself from suspicious emails or phishing schemes. Phishing is the creation and use of email and websites designed to mimic legitimate business emails and websites. The most common act is sending an email to a user falsely claiming to be an established legitimate enterprise in an attempt to scam the user into surrendering private information that will be used for identity theft.

The IRS does not initiate contacts with taxpayers via emails. Also, the IRS does not request personal detailed information through email or ask taxpayers for the PIN numbers, passwords, or similar secret access information for their credit card, bank, or other financial accounts.

If you receive an unsolicited email claiming to be from the IRS, forward this message to *phishing@irs.gov*. You may also report misuse of the IRS name, logo, or other IRS property to the Treasury Inspector General for Tax Administration (TIGTA) at 1-800-366-4484. You can forward suspicious emails to the Federal Trade Commission at *spam@uce.gov* or report them at *www.ftc.gov/complaint*. You can contact the FTC at *www.ftc.gov/idtheft* or 877-IDTHEFT (877-438-4338). If you have been the victim of identity theft, see *www.IdentityTheft.gov* and Pub. 5027.

Visit *www.irs.gov/IdentityTheft* to learn more about identity theft and how to reduce your risk.

Privacy Act Notice

Section 6109 of the Internal Revenue Code requires you to provide your correct TIN to persons (including federal agencies) who are required to file information returns with the IRS to report interest, dividends, or certain other income paid to you; mortgage interest you paid; the acquisition or abandonment of secured property; the cancellation of debt; or contributions you made to an IRA, Archer MSA, or HSA. The person collecting this form uses the information on the form to file information returns with the IRS, reporting the above information. Routine uses of this information include giving it to the Department of Justice for civil and criminal litigation and to cities, states, the District of Columbia, and U.S. commonwealths and possessions for use in administering their laws. The information also may be disclosed to other countries under a treaty, to federal and state agencies to enforce civil and criminal laws, or to federal law enforcement and intelligence agencies to combat terrorism. You must provide your TIN whether or not you are required to file a tax return. Under section 3406, payers must generally withhold a percentage of taxable interest, dividend, and certain other payments to a payee who does not give a TIN to the payer. Certain penalties may also apply for providing false or fraudulent information.

SECTION 00 5214

AGREEMENT FORM

GENERAL CONDITIONS

ARTICLE 1.00

CONTRACT DOCUMENTS

1.1 DEFINITIONS

1.1.1 THE CONTRACT DOCUMENTS

The Contract Documents consist of the following:

(a) The executed Agreement between County and Contractor
(b) Conditions of the Contract (General, Supplementary, and Special Conditions) and Attachments
(c) Performance Bond
(d) Labor and Material Payment Bond
(e) Drawings and/or Project Manual
(f) Addenda issued prior to execution of the Contract
(g) Modifications issued after execution of the Contract

1.1.2 THE CONTRACT

The contract shall be executed on Attachment One to these General Conditions, titled Agreement between County and Contractor. The Contract Documents form the Contract. The Contract represents the integrated agreement between the parties and supersedes prior negotiations, representations, or agreements, either written or oral, and including the bidding documents. The Contract may be amended or modified only by a Modification.

1.1.3 THE PROJECT

The Project is the construction to be built or renovated as designed by the Architect.

1.1.4 THE WORK

The work is defined as all labor, materials and equipment to be incorporated into the project under the terms of this contract.

1.1.5 MODIFICATION TO THE CONTRACT

A Modification may be made only after execution of the Contract, and is one of the following:

(a) A written Amendment to the Contract signed by both parties;
(b) An executed Change Order;
(c) A written interpretation issued by the Architect pursuant to the General Conditions;
(d) A written Field Order for a minor change in the work and issued by the Architect pursuant to the General Conditions.

1.2 EXECUTION, CORRELATION, INTENT AND INTERPRETATIONS

1.2.1 The Contract Agreement shall be signed by the County and Contractor for distribution to the County, Contractor and Architect.

1.2.2 By executing the Contract, the Contractor agrees that they have examined the Contract Documents together with the site of the proposed work as well as its surrounding territory, that they are informed regarding the conditions affecting the work to be done and the labor and materials to be furnished for the completion of the work.

1.2.3 The Contract Documents are complementary, and what is required by one shall be as binding as if required by all. The intention is to include all labor, materials, supplies, equipment and tools necessary for the proper execution and completion of the work. It is not intended that work not covered under any heading, section, or division of the Specifications shall be supplied unless it is required elsewhere in the Contract Documents or is reasonably inferable therefrom as being necessary to produce the intended results. Words which have well-known technical or trade meanings are used in accordance with such recognized meanings.

1.2.4 Drawings and Specifications are intended to be complementary and to provide for a complete work.

The Contractor acknowledges that the Contract consideration includes sufficient monetary allowances to make the work complete and operational and in compliance with good practice and agrees that inadvertent minor discrepancies or the failure to show details or to repeat on any part of the Contract Documents, the figures or notes given on another, shall not be the cause of additional charges or claims.

Where contradictions occur within the Specifications or the Drawings, with regard to the quantity, quality or method of installation of a particular item, the Contractor shall include in his bid the cost for furnishing the more expensive item or installation of the greater quantity.

The following shall be given preference in the order set forth to determine what work the Contractor is to perform: 1) Addenda (later dates to take precedence over earlier dates), 2) Modifications, 3) Agreement, 4) Specifications, 5) Schedules, 6) Large Scale Detail Drawings, 7) Small Scale Plan and Section Drawings.

Dimensioned Drawings shall govern over scaled drawings.

Existing conditions, including dimensions, shall be verified by the Contractor before laying out the work.

1.2.5 Much of these specifications are written in an abbreviated form and may include sentence fragments. Omissions of words or phrases as "the Contractor shall", "in conformity with", "shall be", "as noted on the Drawings", "according to the plans", "a", "an", "the", and "all" are intentional. Omitted words and phrases shall be supplied by inference in the same manner as they are when a "note" occurs on the Drawings.

1.2.6 Where such words as "as shown", "as indicated", "as noted", or words of similar import are used, they shall refer to the Drawings. Where references are made to "sections" and "divisions" it shall mean sections and divisions of the Specifications unless otherwise stated. Where such words as "as selected", "as approved", "acceptable" or "approved" occur, they shall have reference to the selection and approval of the Architect unless otherwise stated. Where sentences contain verbs such as "provide", "install", and "furnish", they shall mean that the Contractor shall "furnish and install or cause to be furnished and installed" complete, the material or item specified, excepting those materials indicated to be County furnished and Contractor installed.

1.2.7 The organization of the Specifications into divisions, sections and articles, and the arrangement of Drawings shall not control the Contractor in dividing the work among the Subcontractors or in establishing the extent of work to be performed by any trade.

1.2.8 Written interpretations necessary for the proper execution of progress of the work, in the form of Drawings or other format, shall be issued with reasonable promptness by the Architect for such interpretations. Such interpretations shall be consistent with and reasonably inferable from the Contract Documents and shall be rendered by the Architect.

1.3 COPIES FURNISHED AND OWNERSHIP

1.3.1 The Contractor shall furnish copies of Drawings and Specifications to Subcontractors as provided in the Supplementary Conditions.

1.3.2 Drawings, Specifications and copies of are, and shall remain, the County's property. They are not to be used on any other project, and, with the exception of one contract set for each party to the Contract, are to be returned to the County on request at the completion of the work.

ARTICLE 2.00

ARCHITECT

2.1 DEFINITIONS

2.1.1 The Architect shall be the firm of Kail Partners Architecture & Interiors, and shall act as defined below either directly or through duly authorized personnel.

2.2 ADMINISTRATION OF THE CONTRACT

2.2.1 The Architect will provide general Administration of the Construction Contract.

2.2.2 The Architect will be the County's representative during construction and until final payment. The Architect will have authority to act on behalf of the County as County's representative to the extent provided in the Contract Documents. The Architect will advise and consult with the County and County's instructions to the Contractor shall be issued through the Architect.

2.2.3 The Architect and the County shall at all times have access to the work wherever it is in preparation and progress.

2.2.4 The Architect shall provide on-site reviews to check the quality and progress of the work and to determine in general if the work is being installed in accordance with the Contract Documents.

On the basis of on-site reviews, the Architect shall keep the County informed on the progress of the work and will endeavor to protect him against defects and deficiencies in the work of the Contractor.

The Architect will not be responsible for construction means, methods, techniques, sequences or procedures of construction, or safety precautions and programs in connection with the work, and will not be responsible for the Contractor's failure to carry out the work in accordance with the Contract Documents.

2.2.5 Based on on-site reviews and the Contractor's Application for Payment, the Architect will review the amounts owing to the Contractor and will sign Certificates for Payment in amounts consistent with the approved Schedule of Values.

The Architect shall review that the work installed is in conformance with the construction documents.

The Architect shall certify on each application for payment that such payment is due before payment is made.

Such certification by the Architect does not in any way relieve the Contractor of their final responsibility for conformity with the Contract Documents.

2.2.6 The Architect will be the interpreter of the requirements of the Contract Documents and review the performance of the Contractor. The Architect will provide such interpretations as necessary for the proper execution and progress of the work.

2.2.7 Claims, disputes and other matters in question relating to the execution or progress of the work or the interpretation of the Contract Documents shall be referred initially to the Architect and the County for a decision.

2.2.8 Interpretations and decisions of the Architect shall be consistent with the intent of the Contract Documents.

2.2.9 Claims, disputes or other matters that has been referred to the Architect, except those waived by the making or acceptance of final payment, shall be subject to arbitration upon the written demand of any party. However, no demand for arbitration of any such claim, dispute or other matter may be made until the earlier of:

(a) the date on which a decision has been rendered, or,

(b) the tenth day after the parties have presented their evidence to the Architect or have been given a reasonable opportunity to do so, if no decision has been rendered by that date.

2.2.10 If a decision is made and states that it is final but subject to appeal, no demand for arbitration of a claim, dispute or other matter covered by such decision may be made later than thirty days after the date on which the party making the demand received the decision. The failure to demand arbitration within said thirty days period will result in the Architect's decision becoming final and binding upon the Contractor. If a decision is rendered after arbitration proceedings have been initiated, such decision may be entered as evidence but will not supersede any arbitration proceedings unless the decision is acceptable to the parties concerned.

2.2.11 The Architect will have authority to reject work which does not conform to the Contract Documents or has been damaged prior to approval of final payment. Whenever, in reasonable opinion, Architect considers it necessary or advisable to insure the proper implementation of the intent of the Contract Documents, Architect will have authority to require special inspection or testing of the work, whether or not such work then be fabricated, installed or completed. However, neither authority to act under this Subparagraph, nor any decision made in good faith either to exercise or not to exercise such authority, shall give rise to any duty or responsibility of the Architect to the Contractor, any Subcontractor, any of their agents or employees, or any other person performing any of the work.

2.2.13 The Architect will review shop drawings and samples as provided.

2.2.14 The Architect will prepare change orders with Contractors back-up paperwork.

2.2.15 The Architect will conduct reviews to determine the dates of Substantial Completion and Final Completion and will receive and review guarantees and related documents required by the Contract and assembled by the Contractor and will recommend a Final Certificate of Payment to the County.

2.2.16 The duties, responsibilities and limitation of authority of the Architect as the County's representative during construction will not be modified or extended without written consent of the County, Contractor and Architect.

2.2.17 The Architect will not be responsible for the acts or omissions of the Contractor, any Subcontractors or any of their agents or employees or any other persons at the site or otherwise performing of the work.

ARTICLE 3.00

OWNER / COUNTY

3.1 DEFINITION

3.1.1 The Owner is Columbia County, Florida. The term Owner means the County or their authorized representative.

3.2 INFORMATION AND SERVICES REQUIRED OF THE OWNER

3.2.1 The County, through the Architect, shall furnish surveys describing the physical characteristics, subsurface conditions, legal limits and utility locations for the site of the project including investigative reports, all of which have been relied upon by the Architect in preparing Drawings and Specifications, where applicable.

3.2.2 Should conditions encountered below the surface of the ground vary to an unreasonable extent from the conditions indicated by the Drawings and Specifications, the Architect shall be notified by the Contractor and instructions shall have been received from the Architect prior to the Contractor's proceeding with the work involved. Core boring data, including ground-water elevations or conditions, if shown on the Drawings or attached to these Specifications, are presented only as information that is available indicating certain conditions found and limited to the exact locations shown. Neither the County nor the Architect shall be responsible for variations found to exist between the data referred to and actual field conditions that develop through the period of construction. The Contractor shall be responsible for making their own determination of water table variations prior to bidding and shall not assume that any water levels shown by the core boring data will necessarily be maintained at the level indicated.

3.2.3 The County shall secure and pay for easements for permanent structures or permanent changes in existing facilities.

3.2.4 Information or services under the County's control shall be furnished by the County to avoid delay in the orderly progress of the work.

3.2.5 The County shall issue all instructions to the Contractor through the Architect.

3.2.6 The foregoing are in addition to other duties and responsibilities of the County enumerated herein and especially those in respect to Payment and Insurance.

3.3 COUNTY'S RIGHT TO STOP THE WORK

3.3.1 If the Contractor fails to correct defective work, or has significant safety violations, or persistently fails to supply materials or equipment in accordance with the Contract Documents, the County may order the Contractor to stop the work, or any portion thereof, until the cause for such order has been eliminated. The Contractor will not be entitled to a time extension of the contract completion time in the event the County exercises his rights under this paragraph.

3.4 COUNTY'S RIGHT TO CARRY OUT THE WORK

3.4.1 If the Contractor defaults or neglects to carry out the work in accordance with the Contract Documents or fails to perform any provision of the Contract, the County may, after a notice of seven days to the Contractor and without prejudice to any other remedy they may have, make good such deficiencies. In such case an appropriate Change Order shall be issued deducting from the payments due the Contractor the cost of correcting such deficiencies, including the cost of the Architect's additional services made necessary by such default, neglect or failure. If the payments then or thereafter due the Contractor are not sufficient to cover such amount, the Contractor shall pay the difference to the County.

ARTICLE 4.00

CONTRACTOR

4.1 DEFINITION

4.1.1 The Contractor is the person or organization identified as such in the Agreement. The term Contractor means the Contractor or their authorized representative who is licensed to do business by the State of Florida.

4.2 REVIEW OF CONTRACT DOCUMENTS

4.2.1 The Contractor shall review and compare the Contract Documents and shall at once report to the Architect errors, inconsistencies or omissions they may discover. The Contractor shall not be liable to the County or the Architect for any damage resulting from any such errors, inconsistencies or omissions in the Contract Documents provided they are reported as outlined above. The Contractor shall not work without Contract Documents.

4.3 SUPERVISION AND CONSTRUCTION PROCEDURES

4.3.1 The Contractor shall supervise and direct their work. They shall be responsible for construction means, methods, techniques, sequences and procedures and for coordinating portions of the work under the Contract.

4.4 LABOR AND MATERIALS

4.4.1 Unless otherwise specifically noted, the Contractor shall provide and pay for all labor, materials, equipment, tools, construction equipment and machinery, transportation, and other facilities and services necessary for the proper execution and completion of the work.

4.5 WARRANTY

4.5.1 The Contractor warrants to the County and the Architect that all materials and equipment furnished under this contract will be new unless otherwise specified, and that all work will be of good quality, free from faults and defects and in conformity with the Contract Documents. All work not so conforming to these standards at the time of acceptance or at the time of inspections, tests or approvals, shall be considered defective. If requested by the Architect, the Contractor shall furnish satisfactory evidence as to the kind and quality of material and equipment.

4.6 TAXES

4.6.1 The Contractor shall pay sales, consumer, use and other similar taxes required by law.

4.7 PERMITS, FEES AND NOTICES

4.7.1 The Contractor shall secure and pay for permits, governmental fees and licenses necessary for the proper execution and completion of the work, which are applicable at the time the bids are received. Contractor shall submit a current copy of Professional License(s) with executed contract.

4.7.2 The Contractor shall give notices and comply with laws, ordinances, rules, regulations and order of public authority bearing on the performance of the work. If the Contractor observes that the Contract Documents are at variance, they shall promptly notify the Architect and any necessary changes shall be adjusted by appropriate Modification. If the Contractor performs any work knowing it to be contrary to such laws, ordinances, rules and regulations, and without such notice to the Architect they shall assume full responsibility and shall bear costs attributed to.

4.7.3 Contractor shall hold harmless the County and Architect against any claim or liability arising from or based upon the violation of law, ordinance or regulation, whether by their company, employees or any subcontractor.

4.8 ALLOWANCES

4.8.1 No allowances are specified in the project.

4.9 SUPERINTENDENT

4.9.1 The Contractor shall employ a competent superintendent and necessary assistants who shall be in attendance at the project site during the progress of the work. The Superintendent shall be satisfactory to the Architect and shall not be changed except with the consent of the County, unless the Superintendent proves to be unsatisfactory to the Contractor and ceases to be in their employ. The Superintendent shall represent the Contractor and communications given to the Superintendent shall be as binding as if given to the Contractor.

4.10 RESPONSIBILITY FOR THOSE PERFORMING THE WORK

4.10.1 The Contractor shall be responsible to the County for the acts and omissions of their employees and Subcontractors, their agents and employees, and Sub-subcontractors, their agents and employees, and other persons performing any of the work under a contract with the Contractor.

4.10.2 The Contractor shall not employ on the work any unfit person or anyone not skilled in the task assigned to him. The County may require the removal of disorderly employees.

4.10.3 There shall be no alcohol, firearms or drugs allowed on the job site. No unprofessional interaction with public or staff will be allowed.

4.11 PROGRESS SCHEDULE

4.11.1 The Contractor, after being awarded the Contract, shall prepare and submit for the Architect's approval an estimated progress schedule for the work. The progress schedule shall be related to the entire project to the extent required by the Contract Documents. This schedule shall indicate the dates for the starting and completion of the various stages of construction and shall be revised as required by the conditions of the work, subject to the Architect's approval.

4.11.2 Within five working days after the commencement of any condition which is causing or may cause delay in completion, the Contractor must notify the Architect and the County of the effect, if any, of such conditions on the time progress schedule, and must state why and in what respects, if any, the condition is causing or may cause such delay.

4.12 DRAWINGS AND SPECIFICATIONS AT THE SITE

4.12.1 One set of Drawings, marked to record all changes made during construction, shall be delivered to the Architect for the County upon completion of the work.

4.13 SHOP DRAWINGS AND SAMPLES

4.13.1 Shop Drawings are drawings, diagrams, illustrations, schedules, performance charts, brochures and other data which are prepared by the Contractor or Subcontractor, manufacturer, supplier or distributor, and which illustrate some portion of the work.

4.13.2 Samples are physical examples furnished by the Contractor to illustrate materials, equipment or workmanship, and to establish standards by which the work will be reviewed.

4.13.3 The Contractor shall furnish to the Architect a schedule of shop drawings and samples to be submitted for review. This schedule shall indicate an estimated total number of drawings and samples and a timed sequence for their submission and approval. When approved by the Architect this shop drawing schedule shall be incorporated into the overall schedule.

4.13.4 The Contractor shall review, stamp with his approval and submit in accordance with the above schedules, Shop Drawings and Samples required by the Contract Documents. Shop Drawings and Samples shall be identified in a manner acceptable to the Architect. At the time of submission the Contractor shall inform the Architect in writing of any deviation in the Shop Drawings or Samples from the requirement of the Contract Documents.

4.13.5 The Contractor shall submit to the Architect electronic copies (PDF format) of all Shop Drawings required for the work of the various trades.

Shop Drawings will be annotated as appropriate by the Architect and returned to the Contractor with appropriate review indicated.

4.13.6 By approving and submitting Shop Drawings and Samples, the Contractor thereby agrees that they have determined and verified field measurements, field construction criteria, materials, catalog numbers and similar data, and have checked and coordinated each Shop Drawing and Sample with the requirements of the work and of the Contract Documents.

In checking Shop Drawings prior to submittal, the Contractor is requested to note corrections or comments on the Drawings.

4.13.7 The Architect will review and approve Shop Drawings and Samples with reasonable promptness, but only for conformity with the design concept of the project and with the information given in the Contract Documents. The Architect's approval of a separate item shall not indicate approval of an assembly in which the item functions.

4.13.8 Drawings returned to the Contractor will be stamped either: "NO EXCEPTIONS TAKEN", "EXCEPTIONS AS NOTED", "REVISE AND RESUBMIT" OR "REJECTED". Those drawings stamped "EXCEPTIONS AS NOTED" need not be returned for further approval if the notations are acceptable to the Contractor and Subcontractors. Drawings stamped "REVISE AND RESUBMIT" or "REJECTED" shall require new submission.

4.13.9 The Contractor shall make corrections provided by the Architect and shall resubmit the corrected copies of Shop Drawings or submit new samples until approved. The Contractor shall direct attention to revisions other than the corrections requested by the Architect on previous submissions.

4.13.10 Appropriate and specific catalogue cuts may be submitted for approval by the Contractor where applicable.

4.13.11 The Architect's approval of Shop Drawings or Samples shall not relieve the Contractor of responsibility for any deviation from the requirements of the Contract Documents unless the Contractor has informed the Architect of such deviation at the submission and the Architect has given approval to the specific deviation, nor shall the Architect's approval relieve the Contractor from responsibility for errors or omissions in the Shop Drawings or Samples.

4.13.12 No portion of the work requiring a Shop Drawing or sample submission shall commence until the submission has been approved.

4.14 USE OF SITE

4.14.1 The Contractor shall confine operations at the site to areas permitted by law, ordinances, permits and the Contract Documents and shall not unreasonably encumber the site with any materials or equipment.

4.14.2 The Contractor shall be responsible for any encroachments on rights or property of the public or adjoining property owners and shall hold the County and Architect harmless because of any encroachments which may be a result of his lack of proper layout. In this regard they shall, without extra cost to the County, remove any work or that portion of any work that encroaches on the property of others, or that is built beyond legal building or setback limits, and rebuild the affected work or portion of work at the proper location and in full compliance with the Contract Documents.

4.14.3 Contractor will coordinate at least 48 hours in advance any utility or access interruption that will impact other buildings or portions of that building in use.

4.15 CUTTING AND PATCHING OF WORK

4.15.1 The Contractor shall be responsible for any cutting, fitting and patching that may be required to complete his work except as otherwise specifically provided in the Contract Documents. The Contractor shall not endanger any work of any other contractors by cutting, excavating or otherwise altering any work and shall not cut or alter the work of any other contractor.

4.16 COMMUNICATIONS

4.16.1 The Contractor shall forward communications to the County through the Architect.

4.17 INDEMNIFICATION

4.17.1 To the full extent permitted by law, the Contractor shall indemnify and hold harmless the County and the Architect and their agents and employees from and against all claims, damages, losses and expenses, including but not limited to attorneys' fees, arising out of or resulting from the performance of the work, provided that any such claim, damage, loss or expense (1) is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of personal property including the loss of use resulting therefrom, and (2) is caused in whole or in part by any negligent act or omission of the Contractor, any Subcontractor, anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable, regardless of whether or not it is caused in part by the negligence of a party indemnified hereunder. Such obligations shall not be construed to negate, abridge, or otherwise reduce any other right or obligation of indemnity which would otherwise exist as to any party or person.

4.17.2 In any and all claims against the County's or the Architect or any of their agents or employees by any employee of the Contractor, any Subcontractor, anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable, the indemnification obligation shall not be limited in any way by any limitation on the amount or type of damages, compensation or benefits payable by or for the Contractor or any Subcontractor under workers' or workmen's compensation acts, disability benefit acts or other employee benefit acts.

4.17.3 The obligations of the Contractor shall not extend to the liability of the Architect, their Agents or employees, arising out of (1) the preparation or approval of maps, drawings, opinions, reports, surveys, change orders, designs or specifications, or (2) the giving of or the failure to give directions or instructions by the Architect, their Agents or employees provided such giving or failure to give is the primary cause of the injury or damage.

4.18 CLEANING UP

4.18.1 The Contractor shall keep the premises free from accumulation of waste materials or rubbish caused by work. At the completion of the work, Contractor shall remove waste materials and rubbish from and about the project as well as tools, construction equipment, machinery and surplus materials, and shall clean all glass surfaces and leave the work clean.

4.18.2 If the Contractor fails to clean up, the County may do so and the cost of shall be charged to the Contractor.

4.18.3 If a dispute arises between the separate contractors as to their responsibility for cleaning up, the County may clean up and charge the cost of to the several contractors as the County may determine to be just.

ARTICLE 5.00

SUBCONTRACTORS

5.1 DEFINITION

5.1.1 A Subcontractor is a person or organization who has a direct contract with the Contractor to perform work at the site. The term Subcontractor means a Subcontractor or their authorized representative who is licensed to do business by the laws of the State of Florida. It shall be the Contractor's responsibility to provide the current license number of each Subcontractor and to confirm their license is still valid.

5.1.2 A Sub-subcontractor is a person or organization who has a direct or indirect contract with a Subcontractor to perform work at the site. The term Sub-subcontractor means a Sub-subcontractor or an authorized representative thereof who is licensed to do business by the law of the place where the project is located.

5.1.3 Nothing contained in the Contract Documents shall create any contractual relation between the County or the Architect and any Subcontractor or Sub-subcontractor.

5.1.4 The County retains the right and privilege to reject any Subcontractor or Sub-subcontractor and further retains the right and privilege to approve any and all Subcontractors or Sub-subcontractors.

5.2 AWARD OF SUBCONTRACTS AND OTHER CONTRACTS FOR PORTIONS OF THE WORK

5.2.1 The Supplementary Conditions include a requirement for the identification of specified Subcontractors.

5.2.2 The Contractor shall not make a substitution for Subcontractor or person or organization that has been accepted by the County and the Architect, unless the substitution is acceptable to the County and the Architect.

5.3 SUBCONTRACTUAL RELATIONS

5.3.1 Work performed for the Contractor by a Subcontractor shall be pursuant to an appropriate agreement between the Contractor and the Subcontractor (and where appropriate between Subcontractor and Sub-subcontractors) which shall contain provisions that

5.3.1.1 Preserve and protect the rights of the County and the Architect under the Contract with respect to the work to be performed under the subcontract so that the subcontracting thereof will not prejudice such rights;

5.3.1.2 Require that such work be performed in accordance with the requirements of the Contract Documents;

5.3.1.3 Required submission to the Contractor of applications for payment under each subcontract to which the Contractor is a party, in reasonable time to enable the Contractor to apply for payment.

5.3.1.4 Required that all claims for additional costs, extensions of time, damages for delays or otherwise with respect to subcontracted portions of the work shall be submitted to the Contractor in sufficient time so that the Contractor may comply in the manner provided in the Contract Documents for like claims by the Contractor upon the County;

5.3.1.5 Waive all rights the contracting parties may have against one another for damages caused by fire or other perils covered by the property insurance, except such rights as they may have to the proceeds of such insurance held by the Contractor as trustee and

5.3.1.6 Obligate each Subcontractor specifically to consent to the provisions.

5.3.1.7 When the Contractor receives payment from the County for labor, services, or materials furnished by subcontractors and suppliers hired by the Contractor for the project, the Contractor shall remit payment due to those subcontractors and suppliers, less the value of any item contested in accordance with the Contract, and suppliers, less the value of any item contested in accordance with the Contract, within ten days after the Contractor's receipt of payment from the County. When the payment due the subcontractor is for final payment, including retainage, the subcontractor must include with the invoice for final payment a conditional release of lien and all appropriate warranties and closeout documentation. When the subcontractor receives payment from the Contractor for labor, services, or materials furnished by subcontractors and suppliers hired by the subcontractor, the subcontractor shall remit payment due to those subcontractors and suppliers, less the value of any item contested in accordance with the Contract, within ten days after the subcontractor's receipt of payment. This provision shall not be construed to create a contractual relationship of any kind between the Architect and Contractor, between the County and a Subcontractor or Sub-subcontractor, between the County and Architect or between any persons or entities other than the County and Contractor.

5.4 PAYMENT TO SUBCONTRACTORS

5.4.1 The Contractor shall pay each Subcontractor, upon receipt of payment from the County, an amount equal to the percentage of completion allowed to the Contractor on account of such Subcontractor's work, less the percentage retained from payment to the Contractor. The Contractor shall also require each Subcontractor to make similar payment to their Sub-subcontractors.

5.4.2 If the Architect fails to issue a Certificate for Payment for cause which is the fault of the Contractor and not the fault of a particular Subcontractor, the Contractor shall pay the Subcontractor, after the Certificate for Payment should otherwise have been issued, for their work to the extent completed, less the retained percentage.

5.4.3 The Contractor shall pay each Subcontractor a just share of any insurance monies received by the Contractor, and require each Subcontractor to make similar payment to his Sub-subcontractors.

5.4.4 The Architect may, on request and at his discretion, furnish to Subcontractor information regarding percentage of completion certified to the Contractor on account of work done by such Subcontractors.

5.4.5 Neither the County nor the Architect shall have any obligation to pay or to see to the payment of any monies to any Subcontractor except as may otherwise be required by law.

ARTICLE 6.00

SEPARATE CONTRACTS

6.1 OWNER'S RIGHT TO AWARD SEPARATE CONTRACTS

6.1.1 Prior to and during the progress of the work, the County reserves the right to award other contracts relating to the project or in connection with other work within the boundaries of the project.

6.1.2 When separate contracts are awarded for different portions of the project, "the Contractor" in the Contract Documents in each case shall be the contractor who signs each separate contract.

6.2 MUTUAL RESPONSIBILITY OF CONTRACTORS

6.2.1 The County shall coordinate the work of the Contractor with that of other Contractors on the site. The Contractor shall cooperate with the County in this activity and shall afford other Contractors reasonable opportunity for the introduction and storage of their materials and equipment and the execution of their work, and shall properly connect and coordinate their work with theirs.

6.2.2 If the project will be constructed using phased design and construction methods, the work of the Contractor will depend upon proper execution and results of the work of another Contractor.

The Contractor shall inspect and promptly report apparent discrepancies or defects in such work that render it unsuitable for such proper execution and results. Failure of the Contractor to inspect and report shall constitute an acceptance of the other Contractor's work as fit and proper to receive their work, except as to defects which may develop in the other separate Contractor's work after the execution of the Contractor's work.

6.2.3 Should the Contractor cause damage to the work or property of any separate Contractor on the project, the Contractor shall settle with such other Contractor by agreement or mediation, if they will so settle. If such separate Contractor sues the County or initiates an mediation proceeding on account of damage alleged to have been so sustained, the County shall notify the Contractor who shall defend such proceedings, and if judgment or award against the County arises, the Contractor shall pay or satisfy it and shall reimburse the County for attorney's fees and court or mediation costs which the County has incurred.

ARTICLE 7.00

MISCELLANEOUS PROVISIONS

7.1 GOVERNING LAW

7.1.1 The Contract shall be governed by the law of the State of Florida and all local ordinances and codes, and exclusive venue shall be Columbia County, Florida.

7.2 SUCCESSORS AND ASSIGNS

7.2.1 The County and the Contractor each binds themself, their partners, successors, assigns and legal representatives to the other party and to the partners, successors, assigns and legal representatives of such other party in respect to covenants, agreements and obligations contained in the Contract Documents. Neither party to the Contract shall assign the Contract or sublet it as a whole without the consent of the other, nor shall the Contractor assign any monies due or to become due to them without the previous written consent of the County.

7.3 WRITTEN NOTICE

7.3.1 Written notice shall be deemed to have been duly served if delivered in person to the individual or member of the firm or to an officer of the corporation for whom it was intended, or if delivered at or sent by registered or certified mail to the last business address known to them who gives the notice.

7.4 CLAIMS FOR DAMAGES

7.4.1 Should either party to the Contract suffer injury or damage to person or property because of an act or omission of the other party or of their employees, agents or others for whose acts they are legally liable, claim shall be made in writing to such other party within a reasonable time after the first observance of such injury or damage.

7.5 PERFORMANCE BOND AND LABOR AND MATERIAL PAYMENT BOND

7.5.1 Performance Bond and Labor and Material Payment Bond, in the penal sum of not less than 100 percent of the Contract amount, with a Surety Company rated A - or better by AM Best and licensed to conduct business in the State of Florida, will be required of the Contractor, guaranteeing that the Contract, including the various guarantee periods thereunder, will be faithfully performed; and that the Contractor will promptly make payment to all persons supplying them labor, materials, supplies and services used directly or indirectly by the Contractor in the prosecution of the work provided for in the Contract. The Bonds, along with the appropriate power of attorney, shall be delivered to the County simultaneously with Contractor's execution of the Agreement. The Bonds shall be satisfactory to the County and shall extend as a Guarantee Bond for one year after acceptance of the project.

7.5.2 In the event that Surety Company becomes bankrupt, insolvent or unsatisfactory to the County, the Contractor shall substitute additional or new Bonds in the same or lesser penal sum, satisfactory to the County and to be conditioned as above required. Upon the Contractor's failure to furnish such additional or new Bonds within five days from the date of written notice to do so, all payments under this Contract shall be withheld until such additional Bonds are furnished.

7.5.3 The Bonds required in Paragraphs 7.5.1 and 7.5.2 shall be executed on the form shown as Attachment 5 and Attachment 6 to these documents, and, prior to delivery to the County, shall be recorded in the public records of the county where the work is to be performed.

7.6 RIGHTS AND REMEDIES

7.6.1 The duties and obligations imposed by the Contract Documents and the rights and remedies available thereunder shall be in addition to and not a limitation of any duties, obligations, rights and remedies otherwise imposed or available by law.

7.7 ROYALTIES AND PATENTS

7.7.1 The Contractor shall pay royalties and license fees. They shall defend suits or claims for infringement of patent rights and shall hold the County harmless from loss on account of, except that the County shall be responsible for such loss when a particular design, process or the product of a particular manufacturer or manufacturers is specified, but if the Contractor has reason to believe that the design, process or product specified is an infringement of a patent, they shall be responsible for such loss unless they promptly gives such information to the County.

7.8 TESTS

7.8.1 If the Contract Documents, laws, ordinances, rules, regulations or orders of public authority having jurisdiction require work to be inspected, tested or approved, the Contractor shall give the Architect timely notice of its readiness and of the date arranged so the Architect may observe such inspection, testing or approval. The Contractor shall bear costs of such inspections, tests, and approvals unless otherwise provided.

7.8.2 If after the commencement of the work, the Architect determines that work requires special inspection, testing or approval, they will, upon authorization from the County, instruct the Contractor to order such special inspection, testing or approval. If such special inspection or testing reveals a failure of the work to comply with the requirements of the Contract Documents or with respect to the performance of the work, with laws, ordinances, rules, regulations or orders of public authority having jurisdiction, the Contractor shall bear costs of, including the Architect's additional services made necessary by such failure; otherwise the County shall bear such costs.

7.8.3 Required certificates of inspection, testing or approval shall be secured by the Contractor and submitted.

7.8.4 Neither the observations of the Architect in their administration of the Construction Contract, nor inspections, tests or approvals by persons other than the Contractor shall relieve the Contractor from his obligations to perform the work in accordance with the Contract Documents.

7.9 ARBITRATION

7.9.1 The parties agree that controversies between the County and the Contractor arising out of or relating to this agreement or breach of shall not be subject to arbitration, but may be submitted to mediation or a court of competent jurisdiction in Columbia County, Florida.

7.10 EQUALITY AND SUBSTITUTIONS

7.10.1 In general, the preparation of the Drawings and Specifications has been based upon sizes, loads, and requirements of specific items of materials or equipment and, as such, it is the basis of bidding. Therefore, all substitutions must be in accordance with the following provision:

7.10.2 The Contractor may make substitutions only with the consent of the County, after evaluation by the Architect and recommendation for approval, and in accordance with a Change Order, if required.

7.11 PRECONSTRUCTION CONFERENCE

7.11.1 Before starting construction work on the project, a conference may be held at a place as designated for the purpose of verifying general procedures, expediting and handling of Shop Drawings and Schedules and to establish a working understanding between the parties concerned with this project. Present at the conference shall be a responsible representative of the Contractor and representatives of the Architect and County. If Contractor so desires, they may have present with them representatives of major subcontractors. The date and time of the conference shall be agreed upon by the County, Contractor and Architect.

7.12 REFERENCED SPECIFICATIONS AND DOCUMENTS

7.12.1 Documents, materials, systems or operations specified by reference shall be provided in compliance with the requirements of the specified reference, except as modified by the requirements of the Contract Documents. Unless a particular edition is called for, the reference used shall be the latest published edition on the date of the project Specifications.

7.12.2 In case of conflict between references and the project Specifications, the project Specifications shall govern. In case of conflict between references, the references having the more stringent requirement shall govern.

ARTICLE 8.00

TIME

8.1 DEFINITIONS

8.1.1 The Contract Time is the period of time allotted in the Contract Documents, Refer to Section 00 2113 for completion of the work.

8.1.2 The date of commencement of work is the date established in the Notice to Proceed.

8.1.2.1 If there is no Notice to Proceed, commencement of the work shall be the date of the Agreement.

8.1.3 The date of Substantial Completion of the work is the date certified by the Architect when construction is sufficiently complete, in accordance with the Contract Documents, so the County may occupy the work for the use for which it is intended.

8.1.4 The term day as used in the Contract Documents shall mean calendar day.

8.2 PROGRESS AND COMPLETION

8.2.1 Time is of the essence.

8.2.2 The Contractor shall begin the work on the date of commencement and shall carry the work forward expeditiously with adequate forces and shall complete it within the Contract Time.

8.3 DAMAGES FOR DELAY

8.3.1 Where the Architect and the Contractor cannot agree that the delay in the prosecution of the work is justified, liquidated damages will be assessed.

8.3.2 If the project is not Substantially Completed in accordance with the provisions of the Contract Documents, the Contractor shall pay to the County as liquidated damages, five hundred ($500.00) dollars for each calendar day elapsing between the date fixed for substantial completion shall have been fully accomplished.

It is also hereby agreed that if the project is not Finally Completed, in accordance with the requirements of the Contract Documents, the Contractor shall pay to the County as liquidated damages, five hundred ($500.00) dollars for each calendar day elapsing between the date fixed final completion and the date such final completion shall have been fully accomplished.

8.3.3 Said Liquidated Damages shall be payable in addition to any excess expenses or costs payable by the Contractor to the County under the provisions of the General Conditions, and shall not exclude the recovery of damages by the Owner under other provisions of the Contract Documents.

8.3.4 The provision for Liquidated Damages for delay shall not affect the County's right to terminate the Contract as provided in the General Conditions, and the County's exercise of the right to terminate shall not release the Contractor from their obligation to pay Liquidated Damages in the amounts stipulated. Liquidated Damages shall be payable in addition to any excess expenses or costs payable by the Contractor as set fourth in the General Conditions, and shall not exclude the recovery of damages by the County under other provisions of the Contract, except for Contractor's delays.

ARTICLE 9.00

PAYMENTS AND COMPLETION

9.1 CONTRACT SUM

9.1.1 The Contract Sum is stated in the Agreement and is the total amount payable by the County to the Contractor for the performance of the work under the Contract Documents.

9.2 SCHEDULE OF VALUES

9.2.1 The Contractor shall submit to the Architect a schedule of values of the various portions of the work, including quantities aggregating the total Contract Sum, divided so as to facilitate payments to Subcontractors in accordance with Schedule of Values and work in place, as the Architect and the Contractor may agree upon, and supported by such data to substantiate its correctness as the Architect may require. Each item in the schedule of values shall include its proper share of overhead and profit. This schedule, when approved by the Architect, shall be used only as a basis for the Contractor's Applications for Payment.

9.3 PROGRESS PAYMENTS

9.3.1 Not less than thirty days after the previous application, the Contractor shall submit to the Architect an itemized Application for Payment, supported by such data substantiating the Contractor's right to payment in the General Conditions.

9.3.2 At the discretion of the County, payment will be made on account of materials and equipment not incorporated in the work but delivered and suitably stored at the site or at some other location agreed upon. Such payments shall be conditioned upon submission by the Contractor of bills of sale or such other procedures satisfactory to the County to establish the County's title to such materials and equipment or otherwise protect the County's interest including applicable insurance and transportation to the site.

9.3.3 The Contractor warrants and guarantees that title to all work, materials and equipment covered by an Application for Payment, will pass to the County upon receipt of such payment by the Contractor, free and clear of all liens, claims, security interest or encumbrances, "Liens"; and that no work, materials or equipment covered by an Application for Payment will have been acquired by the Contractor or by any other person performing the work at the site or furnishing materials and equipment for the project, subject to an agreement under which an interest in or an encumbrance on is retained by the seller or otherwise imposed by the Contractor or such other person.

9.4 CERTIFICATES FOR PAYMENT

9.4.1 If the Contractor has made Application for Payment, the Architect will issue the Certificates for Payment to the Owner, for such amount as they determine to be properly due, or state reasons for withholding a Certificate.

9.4.2 The issuance of a Certificate for Payment will constitute a representation by the Architect to the County, based on the data comprising the Application for Payment, that the work has progressed to the point indicated; that, to the best of their knowledge, information and belief, the quality of the work is in accordance with the Contract Documents and that the Contractor is entitled to payment in the amount certified. In addition, the final Certificate for Payment will constitute a further representation the conditions precedent to the Contractor's being entitled to final payment have been fulfilled. However, by issuing a Certificate for Payment, the Architect shall not thereby be deemed to represent that they have made any examination to ascertain how or for what purpose the Contractor has used the monies previously paid on account of the Contract Sum.

9.4.3 After the Architect has issued a Certificate for Payment, the County shall make payment in the manner provided in the Agreement.

9.4.4 No certificate for a progress payment, nor any progress payment, nor any partial or entire use or occupancy of the project by the County, shall constitute an acceptance of work not in accordance with the Contract Documents.

9.5 PAYMENTS WITHHELD

9.5.1 The Architect may decline to approve an Application for Payment and may hold their Certificate in whole or in part, to the extent necessary to reasonably protect the County. The Architect may also decline to approve Applications for Payment, because of subsequently discovered evidence or subsequent reviews, they may nullify the whole or part of a Certificate for Payment previously issued, to such extent as may be necessary in their opinion to protect the County from loss because of:

9.5.1.1 Defective work not remedied or completed work that has been damaged requiring correction or replacement,

9.5.1.2 Third party claims have been filed or there is reasonable cause to believe such will be filed,

9.5.1.3 Reasonable evidence of the failure of the Contractor to make payments properly to Subcontractors for labor, materials or equipment,

9.5.1.4 Reasonable doubt that the work can be completed for the unpaid balance of the Contract Sum,

9.5.1.5 Damage to another contractor,

9.5.1.6 Reasonable indication that the work will not be completed within the Contract Time, or

9.5.1.7 Unsatisfactory prosecution of the work including failure to furnish acceptable submittals and adhere to the provision of the Special Conditions appended to.

9.5.2 When the above grounds are removed, payment shall be made for amounts withheld because of them.

9.6 SUBSTANTIAL COMPLETION

9.6.1 When the Contractor determines that the work is substantially complete, the Contractor shall give notice of such to the Architect. When the Architect determines that the work is substantially complete, they will then prepare a Certificate of Substantial Completion. The Certificate of Substantial Completion shall be submitted to the County and the Contractor for their acceptance of the responsibilities assigned to them in such certificate.

9.6.2 The Contractor shall cooperate with the County if it is the County's desire to occupy a substantially completed structure or portion of a structure. When such occupancy takes place the applicable warranty periods for the occupied portion shall be as provided in the Certificate of Substantial Completion.

9.6.3 The assessment of liquidated damages shall terminate on the date of Substantial Completion, or Final Completion, as applicable.

9.7 FINAL PAYMENT

9.7.1 Upon receipt of notice from the Contractor that the work is complete and ready for final inspection, the Architect will make a final review and will notify the Contractor of particulars in which this review reveals the work to be incomplete or defective. The Contractor shall take such measures as are necessary to remedy such deficiencies.

9.7.2 After the Contractor has corrected deficiencies and delivered Maintenance and Operating Instructions, Record Drawings, Guarantees, Bonds, Certificates of Inspection and other documents as required by the Contract Documents, they may make Application for Final Payment following the procedure for progress payments. The Application for Final Payment shall be accompanied, in addition to the supporting data and schedules submitted with progress payments, by submittals as follows: (a) Certificate of Completion of the Punch List, signed by the County's Representative; (b) An Affidavit, sufficient to establish compliance with the provisions that lienors have been paid in full; (c) If required by the County, other data establishing payment or satisfaction of obligations, such as receipts, releases, and waivers of liens arising out of the Contract to the extent and in such form as designated by the County.

If Subcontractors, fabricators or suppliers fail to furnish a release or waiver in full, the Contractor shall furnish a Bond or other collateral satisfactory to the County to indemnify them against lien. If lien remains unsatisfied after payments are made, the Contractor shall refund to the County monies that the latter may be compelled to pay in discharging such lien, including costs and reasonable attorneys' fees.

9.7.3 If the Architect is satisfied that the Work has been completed and the Contractor has fulfilled his obligations under the Contract Documents, they will issue a final Certificate of Payment to the County. Otherwise they will return the application to the Contractor, indicating reasons for not approving final payment, in which case the Contractor will make the necessary corrections and resubmit the application. The County will within thirty days after receipt of an approved final Certificate of Payment from the Architect pay the Contractor the full amount of the Contract Sum, less the aggregate of all previous payments and any assessment of liquidated damages.

9.7.4 The making of final payment shall constitute a waiver of claims by the County except those arising from:

9.7.4.1 Unsettled claims,

9.7.4.2 Faulty or defective work,

9.7.4.3 Failure of the work to comply with the requirements of the Contract Documents, or

9.7.4.4 Terms of any special guarantees required by the Contract Documents.

9.7.5 The acceptance of final payment shall constitute a waiver of claims by the Contractor except those previously made and still unsettled.

9.8 MISCELLANEOUS PROVISIONS

9.8.1 Unless otherwise provided or agreed upon, the amount certified for payment on each certificate, except the final payment certificate, shall be ninety percent (90%) of the amount approved less previous amounts certified for payment.

9.8.2 Certificate for Payment shall be on the prescribed form as provided in Attachment Two.

9.8.3 The Contractor shall execute and submit the Contractor's Affidavit to Owner on Attachment Three to these General Conditions.

ARTICLE 10.00

PROTECTION OF PERSONS AND PROPERTY

10.1 SAFETY PRECAUTIONS AND PROGRAMS

10.1.1 The Contractor shall be responsible for initiating, maintaining and supervising safety precautions and programs in connection with the work. County shall have the right to stop work on the project until Contractor corrects noted safety issues. Contractor shall absorb cost associated with this work stoppage.

10.2 SAFETY OF PERSONS AND PROPERTY

10.2.1 The Contractor shall take precautions for the safety of, and shall provide protection to prevent damage, injury or loss to:

10.2.1.1 Employees on the work and other persons who may be affected thereby;

10.2.1.2 The work and materials and equipment to be incorporated, whether in storage on or off the site, under the care, custody or control of the Contractor or of their Subcontractors or Sub-subcontractors and;

10.2.1.3 Other property at the site or adjacent to including trees, shrubs, lawns, walks, pavements, roadways, structures and utilities not designated for removal, relocation or replacement in the course of construction.

10.2.2 The Contractor shall comply with applicable laws, ordinances, rules, regulations and lawful orders of public authority having jurisdiction for the safety of persons or property or to protect them from damage, injury or loss. They shall erect and maintain as required by existing conditions and progress of the work, safeguards for safety and protection, including posting danger signs and other warnings against hazards, promulgating safety regulations and notifying County and users of adjacent utilities.

10.2.3 When the use or storage of hazardous materials or equipment is necessary for the execution of the work, the Contractor shall exercise the utmost care and shall carry on such activities under the supervision of properly qualified personnel.

10.2.4 Damage or loss to property caused in whole or in part by the Contractor, Subcontractor, Sub-subcontractor, or anyone directly or indirectly employed by them, or by anyone for whose acts they may be liable, shall be remedied by the Contractor.

10.2.5 The Contractor shall designate a responsible member of their organization at the site whose duty shall be the prevention of accidents. This person shall be the Contractor's superintendent unless otherwise designated by the Contractor to the County and Architect.

10.2.6 The Contractor shall not load or permit parts of the work to be loaded so as to endanger its safety.

10.2.7 Contractors and Subcontractors will comply with County’s Security program(s) and ensure enforcement of same or similar program.

10.2.8 Trench Safety Act.

10.3 EMERGENCIES

10.3.1 In an emergency affecting the safety of persons or property, the Contractor or County shall act, at their discretion, to prevent threatened damage, injury or loss. Additional compensation or extension of time claimed by the Contractor on account of emergency work shall be determined.

ARTICLE 11.00

INSURANCE

11.1 CONTRACTOR'S LIABILITY INSURANCE (See Supplementary Conditions.)

11.2 PROPERTY INSURANCE (See Supplementary Conditions.)

ARTICLE 12.00

CHANGES IN THE WORK

12.1 CHANGE ORDERS

12.1.1 The County may order changes in the work within the general scope of the Contract consisting of additions, deletions or other revisions, the Contract Sum and the Contract Time being adjusted accordingly. Such changes in the work shall be authorized by Change Order, and shall be executed under the applicable conditions of the Contract Documents.

12.1.2 A Change Order is a written order to the Contractor signed by the County and the Architect, issued after the execution of the Contract, authorizing a change in the work or an adjustment in the Contract Sum or the Contract Time. A Change Order will also be signed by the Contractor if they agree to the adjustment on the Contract Sum or the Contract Time. The Contract Sum and the Contract Time may be changed only by Change Order.

12.1.3 The cost or credit to the County resulting from a change in the work shall be determined in one or more of the following ways:

12.1.3.1 By mutual acceptance of a lump sum properly itemized;

12.1.3.2 By unit prices stated in the Contract Documents or subsequently agreed upon; or

12.1.3.3 By cost and a mutually acceptable fixed or percentage fee.

12.1.4 If none of the methods set forth are agreed upon and the County and Architect deem it necessary that the added work in question be performed without delay, the Contractor shall promptly proceed with the added work in question. The cost of such work shall then be determined by the Architect on the basis of the Contractor's reasonable expenditures and savings, including, in the case of an increase in the Contract Sum, a reasonable allowance for overhead and profit. In such case, the Contractor shall keep and present in such form as the Architect may request, an itemized accounting together with appropriate supporting data. Pending final determination of cost to the County, payments on account shall be made on Certificate for Payment approved by the Architect. The amount of credit to be allowed by the Contractor to the County for any deletion or change which results in a net decrease in cost will be the amount of the actual net decrease as confirmed by the Architect. When both additions and credits are involved in any one change, the allowance for overhead and profit shall be figured on the basis of net amount, if any. Change Orders extending Contract Time for completion will not automatically entitle the Contractor to increased costs for overhead during the extended period unless specifically allowed in the Change Order.

12.1.5 If the Architect, the County and the Contractor agree that the unit costs set forth in the Contract Documents are not applicable to the quantities of added work in question, they shall not be utilized.

12.1.6 If the Contractor claims that additional cost is involved because of interpretation issued, order by the County to stop the work where the Contractor was not at fault, or order for a minor change in the work, the Contractor shall make such claim.

12.1.7 When the amount of cost or credit is to be based on mutual acceptance of a lump sum, whether such an amount is an extra, a credit, or no-change-in-contract price, the Contractor shall submit a change order estimate on forms furnished by the County which shall be substantiated by a complete itemized breakdown (including breakdowns from each Subcontractor on the same form) showing direct costs for the change or changes in the work. The breakdown shall list quantities and unit prices for materials, labor, equipment and other items of cost when the amount of cost is to be based on actual direct cost plus overhead and profit. The Contractor shall submit receipts or other evidence as the Architect may direct, showing actual direct costs and their right to the payment claimed.

12.1.8 The following factors shall be applicable to methods of arriving at extra or credit for Change Orders except where unit prices are stated in the Contract Documents:

12.1.8.1 For work done by their own organization, the Contractor may add ten percent of their net increase in direct costs for combined overhead and profit;

12.1.8.2 For work done by Subcontract, the respective Subcontractors may add ten percent of their net increase in direct costs for combined overhead and profit and the Contractor may then add five percent of the above Subcontractor's total for his overhead and profit;

12.1.8.3 Where changes involve the Contractor and one or more Subcontractors, the breakdown shall itemize the above percentages separately, by use of individual change order estimate forms;

12.1.8.4 Overhead and profit percentages will be deducted on items which have a net decrease;

12.1.8.5 When both additions and deductions are involved, the overhead and profit shall apply to the net amount, if any;

12.1.8.6 Direct costs shall include labor, materials, worker's compensation, taxes on labor and sales, and other direct taxes, health and retirement benefits, social security, and the expense of work performed after regular working hours to the extent authorized by the County;

12.1.8.7 Proportionate necessary transportation, traveling and subsistence expenses of Contractor's employees incurred for the project; materials, supplies and temporary facilities, including project office expenses; equipment rental by agreement approved by County, including transportation and unloading; telephone service at the site and other normal overhead expenses as approved by County shall be included in the Contractor's compensation for overhead and profit.

12.1.9 The above added percentages are defined to include overhead and additional costs resulting from the change in scope of work including time extensions.

12.1.10 It is mutually understood that the time extensions for changes in the work will depend upon the extent by which the changes cause delay in the completion of the various elements of construction. The change order granting the time extension may provide that the contract completion date will be extended only for those specific elements so delayed and that the remaining contract completion dates for other portions of the work will not be altered and may further provide for an equitable readjustment of liquidated damages pursuant to the new completion schedule.

12.2 CLAIMS FOR ADDITIONAL COSTS

12.2.1 If the Contractor wishes to make a claim for an increase in the Contract Sum, they shall give the Architect notice of such claim. This notice shall be given by the Contractor before proceeding to execute the work, except in an emergency endangering life or property, in which case the Contractor shall proceed. No such claim shall be valid unless so made. If the County and the Contractor cannot agree on the amount of the adjustment in the Contract Sum it shall be determined by Arbitration. Any change in the Contract Sum resulting from such claim shall be authorized by Change Order.

12.3 FIELD ORDERS

12.3.1 The Architect may issue written Field Orders which interpret the Contract Documents in accordance without change in Contract Sum or Contract Time. The Contractor shall carry out such Field Orders.

ARTICLE 13.00

UNCOVERING AND CORRECTION OF WORK

13.1 UNCOVERING OF WORK

13.1.1 If work should be covered contrary to the request of the Architect, it must, if required by the Architect, be uncovered for observation and replaced, at the Contractor's expense.

13.1.2 If work has been covered which the Architect has not specifically requested to observe prior to being covered, the Architect may request to see such work and it shall be uncovered by the Contractor. If such work is found in accordance with the Contract Documents, the cost of uncovering and replacement shall be charged to the County. If such work is found not in accordance with the Contract Documents, the Contractor shall pay such costs.

13.2 CORRECTION OF WORK

13.2.1 The Contractor shall correct work rejected by the Architect as defective or as failing to conform to the Contract Documents. The Contractor shall bear costs of correcting such rejected work, including the possible cost of the Architect's additional services.

13.2.2 If, within one year after the date of the submittal of the Certificate of Final Inspection or by the terms of any applicable special guarantee required by the Contract Documents, any of the work is found to be defective or not in accordance with the Contract Documents, the Contractor shall correct it after receipt of notice from the County to do so.

13.2.3 Such defective or non-conforming work shall be removed from the site if necessary, and the work shall be corrected to comply with the Contract Documents without cost to the County.

13.2.5 The Contractor shall bear the cost of making good work of separate contractors destroyed or damaged by such removal or correction.

13.2.6 If the Contractor does not remove such defective or non-conforming work within a reasonable time fixed by notice from the County, the County may remove it and may store the materials or equipment at the expense of the Contractor. If the Contractor does not pay the cost of such removal and storage, the County may upon notice sell such work and shall account for the net proceeds of, after deducting the costs that should have been borne by the Contractor including compensation for possible additional architectural services. If such proceeds of sale do not cover costs which the Contractor should have borne, the difference shall be charged to the Contractor and an appropriate Change Order shall be issued. If the payments then due the Contractor are not sufficient to cover such amount, the Contractor shall pay the difference to the County.

13.2.7 If the Contractor fails to correct such defective or non-conforming work, the County may correct it.

13.3 ACCEPTANCE OF DEFECTIVE OR NON-CONFORMING WORK

13.3.1 If the County prefers to accept defective or non-conforming work, they may do so instead of requiring its removal and correction, in which case a Change Order will be issued to reflect an appropriate reduction in the Contract Sum, or, if the amount is determined after final payment, it shall be paid by the Contractor.

ARTICLE 14.00

TERMINATION OF THE CONTRACT

14.1 TERMINATION BY THE CONTRACTOR

14.1.1 If the work is stopped for a period of thirty days under order of court or other public authority having jurisdiction, or as a result of an act of government, through no act or fault of the Contractor or a Subcontractor or their agents or employees or other persons performing work under a contract with the Contractor, or if the work should be stopped for a period of thirty days by the Contractor for the County's failure to make payment, then the Contractor may, upon notice to the County, terminate the Contract and recover from the County payment for work executed and for proven loss sustained upon materials, equipment, construction equipment, tools, and machinery, including reasonable profit and damages accruing to the date work has been stopped for thirty days.

14.2 TERMINATION FOR DEFAULT-DAMAGES FOR DELAY-TIME EXTENSIONS

14.2.1 If the Contractor fails, except in cases for which extension of time is provided, to prosecute the work, with such diligence as will insure its completion within the time specified in this Contract, or fails to complete work within such time, the County may, upon notice to the Contractor, terminate their right to proceed with the work. In such event the County may take over the work and prosecute the same to completion, by contract or otherwise, and may take possession of and utilize in completing the work such materials, as may be on the site of the work and necessary for. Whether or not the Contractor's right to proceed with the work is terminated, they shall be liable for damage to the County resulting from his failure to complete the work within the specified time.

14.2.2 If fixed and agreed liquidated damages are provided in the Contract and if the County so terminates the Contractor's right to proceed, the resulting damage will consist of such liquidated damages until such reasonable time as may be required for final completion of the work together with any increased costs occasioned the County in completing the work.

14.2.3 If fixed and agreed liquidated damages are provided in the Contract and if the County does not so terminate the Contractor's right to proceed, the resulting damage will consist of such liquidated damages until the work is completed or accepted.

14.2.4 The Contractor's right to proceed shall not be so terminated nor the Contractor charged with resulting damage if:

14.2.4.1 The delay in the completion of the work arises from unforeseeable causes beyond the control and without the fault or negligence of the Contractor, including but not restricted to, acts of God, acts of a public enemy, acts of the County in its contractual capacity, acts of other Contractor in the performance of a contract with the County, fires, floods, epidemics, quarantine restrictions, strikes, freight embargoes, unusually severe weather conditions not reasonably anticipated for the contract period, or delays of subcontractors or suppliers arising from unforeseeable causes beyond the control and without the fault or negligence of both the Contractor and such subcontractors or suppliers; and if:

The Contractor notifies the County in writing of the causes of delay. The Architect shall ascertain the facts and extent of the delay and, with agreement of the County, extend the time for completing the work when, in their judgment, the findings of facts justify such an extension. A Change Order will be executed to reflect the change in Contract Time.

14.2.5 If, after notice of termination of the Contractor's right to proceed, it is determined that the Contractor was not in default, or that the delay was excusable, the Contract shall be equitably adjusted to compensate for such termination and the Contract modified accordingly.

14.2.6 The rights and remedies of the County are in addition to other rights and remedies provided by law or under this Contract.

14.3 TERMINATION FOR OTHER REASONS

14.3.1 If the Contractor is adjudged bankrupt, or if they make a general assignment for the benefit of their creditors, or if a receiver is appointed on account of their insolvency, or if they fail to supply properly skilled workers or proper materials, or if they fail to make payment to Subcontractors for materials or labor, or disregards laws, ordinances, rules, regulations or orders of public authority having jurisdiction, or otherwise is guilty of a substantial violation of a provision of the Contract Documents, then the County, may, without prejudice to right or remedy and after giving the Contractor written notice, terminate the employment of the Contractor and take possession of the site and of materials and equipment and may finish the work by methods he may deem expedient.

14.4 FURTHER PAYMENTS

14.4.1 In the event of termination the Contractor shall not be entitled to receive further payment until the work is finished. If the unpaid balance of the Contract Sum exceeds the costs of finishing the work, including possible compensation for the Architect's additional services, such excess shall be paid to the Contractor. If such costs exceed such unpaid balance, the Contractor shall pay the difference to the County.

14.5 ABANDONMENT OF THE PROJECT

14.5.1 Upon written notice to the Contractor and the Architect, the County may, without cause and without prejudice to right or remedy, elect to abandon the project and terminate the Agreement. In such case, the Contractor shall be paid for work executed and expense sustained, plus a reasonable profit.

ARTICLE 15.00

EQUAL OPPORTUNITY

15.1 EQUAL OPPORTUNITY

15.1.1 All jobs let based on bids received or contracts negotiated will be guaranteed by the individual Contractor or Subcontractor or Sub-subcontractor as to compliance with applicable laws, rules and regulations relating to equal employment opportunity, and Federal, State and Local Laws, rules and regulations pertaining to. The Contractor shall execute the certificate as provided in Attachment Number 4 as evidence of such compliance and file it with the County simultaneously with the Contractor's execution of the agreement.

ARTICLE 16.00

PROTEST

16.1 BID PROTEST

16.1.1 A respondent who wishes to file a protest pertaining to a bid shall file such notice in accordance with procedures prescribed by Florida Statutes. Protests shall be filed with the Columbia County, Florida, Director of Purchasing. A protest is officially filed when it is received by the Director.

16.1.2 Person who is adversely affected by the decision or intended decision shall file with the Director of Purchasing a notice of protest in writing within 72 hours after the posting of the bid tabulation. Failure to file a protest within the time prescribed in Florida Statutes shall constitute a waiver of proceedings under Florida Statutes. The formal written protest shall state with particularity the facts and law upon which the protest is based. Saturdays, Sundays and state holidays shall be excluded in the computation of the 72 hour time period.

16.1.3 Disposition of the protest shall follow Florida Statutes. In the event that the protest cannot be resolved as specified, the standard of proof for further proceedings shall be whether the proposed Columbia County, Florida action was clearly erroneous, contrary to competition, arbitrary or capricious. In bid protest proceeding contesting an intended Columbia County, Florida action to reject bids, the standard of review by administrative law judge shall be whether Columbia County, Florida intended action is illegal, arbitrary, dishonest or fraudulent.

16.1.4 Refer to the County Purchasing Policies and Procedures for Bid Protest Policy additional information.

ATTACHMENTS TO THESE GENERAL CONDITIONS

The following forms and informational sheets are attached as acceptable guides for various submittals called for:

Agreement between County and Contractor	Attachment No. 1
Application and Certificate for Payment	Attachment No. 2
Equal Opportunity Certificate of Compliance	Attachment No. 3
Supplementary Conditions	Attachment No. 4
Performance Bond Format	Attachment No. 5
Payment Bond Format	Attachment No. 6
Notes Concerning Surety and Execution	Attachment No. 7

ATTACHMENT NO. 1

COLUMBIA COUNTY, FLORIDA

LAKE CITY, FLORIDA

AGREEMENT BETWEEN COUNTY AND CONTRACTOR

THIS AGREEMENT, made this ___ day of _____ in the year Two Thousand and _____ between the Owner: **COLUMBIA COUNTY, FLORIDA**, a political subdivision of the State of Florida, whose mailing address is Post Office Box 1529, Lake City, Florida 32056-1529; and the Contractor:

_____, whose mailing address is _____

_____

ARTICLE 1

THE CONTRACT DOCUMENTS

The Contract Documents consist of this Agreement, Conditions of the Contract for Construction (General, Supplementary and other Conditions), the Project Manual and Drawings for 2024-K New Fire Department Administration Building at 1579 NW Lake Jeffery Road, Lake City, Florida, Architect's Project No. 2338, Addenda issued prior to execution of this Agreement and Modifications issued subsequent to. These form the Contract and are as fully a part of the Contract as if attached to this Agreement or repeated in.

ARTICLE 2

THE WORK

The Contractor shall perform the work required by the Contract Documents in accordance with the Drawings, Project Manual and Addenda for 2024-K New Fire Department Administration Building at 1579 NW Lake Jeffrey Road, Lake City, Florida, Architect's Project No. 2338, and shall execute the work described in the documents, working whatever schedule is required to complete the work in the time allotted, including overtime work and weekend work as required.

ARTICLE 3

TIME OF COMMENCEMENT AND COMPLETION

Contractor shall execute the County/Contractor Contract within seven calendar days from date of receipt and return to the County for his execution, along with required insurance certificates. Contractor shall begin work within seven calendar days from date of receipt of a Letter of Intent, Building Permit and/or Notice to Proceed issued by the appropriate authority.

All work shall be Substantially Complete within 210 calendar days from date of Notice to Proceed and Finally Completed within 30 calendar days from the date the project is declared Substantially Complete.

Where delays are not justified under the General Conditions of the Contract for Construction or otherwise, the Contractor shall be liable for and shall pay to the County liquidated damages as follows:

If the Project is not Substantially Completed, the Contractor shall pay to the County as liquidated damages, Five Hundred ($500.00) Dollars for each calendar day elapsing between the date fixed for Substantial Completion and the date such Substantial Completion shall have been accomplished. It is also hereby agreed that if the project is not Finally Completed, the Contractor shall pay to the County as liquidated damages, Five Hundred ($500.00) Dollars per calendar day past Final Completion date.

ARTICLE 4

CONTRACT SUM

The County shall pay the Contractor for the performance of the work, subject to additions and deductions by Change Orders as provided in the conditions of the Contract, in current funds, the Contract Sum of

_____ DOLLARS ($_____)

ARTICLE 5

PROGRESS, FINAL PAYMENTS AND CONTRACTOR PAYMENT TO SUBCONTRACTORS

Upon Application for Payment submitted by the Contractor to the Architect and Certificates of Payments, the County shall make progress payments on account of the Contract Sum and a final payment to the Contractor as provided in the conditions of the Contract and as follows:

5.1 The period covered by each Application for Payment shall be one calendar month ending on the last day of the month.

a. Refer to the County General Instructions to Bidders.

b. The County may reject the payment request or invoice within 20 business days after the date on which the payment request or invoice is received. The rejection shall specify the deficiency in the payment request and the action necessary to make the payment request proper.

c. If a payment request or an invoice is rejected and the Contractor submits a corrected payment request or invoice which corrects the deficiency specified, the corrected payment request or invoice shall be paid or rejected not later than the 10th business day after the date the corrected payment request or invoice is stamped as received.

d. If a dispute between the County and the Contractor cannot be resolved, the dispute shall be resolved in accordance with the dispute resolution procedure prescribed in the construction contract.

e. If the County disputes a portion of a payment request or an invoice, the undisputed portion shall be paid timely.

f. Each Application for Payment shall be based on the most recent schedule of values submitted by the Contractor in accordance with the Contract Documents. The schedule of values shall allocate the entire Contract Sum among the various portions of the work. The schedule of values shall be prepared in such form and supported by such data to substantiate its accuracy as the Architect may require. This schedule, unless objected to by the Architect, shall be used as a basis for reviewing the Contractor's Application for Payment.

g. Applications for Payment shall indicate the percentage of completion of each portion of the work as of the end of the period covered by the Application for Payment.

5.2 Subject to other provisions of the Contract Documents, the amount of each progress payment shall be computed as follows:

a. Until such time as the contract work reaches 50% completion, the County shall, within the time period set forth above, make a progress payment to the Contractor in the amount provided in such certificate; provided such payment in addition to previous payments does not exceed ninety percent (90%) of the portion of the Contract Sum properly allocable to labor, materials and equipment incorporated in the work plus ninety percent (90%) of the Contract Sum properly allocable to materials and equipment not incorporated in the work but delivered and suitably stored at the site or at a location suitable to County when agreed upon by the parties.

b. After such time as the Contract work reaches or exceeds 50% completion, the County shall, within the time period set forth above, make a progress payment to the Contractor in the amount provided in such certificate; provided such payment in addition to all previous payments does not exceed ninety-five percent (95%) of the portion of the Contract Sum properly allocable to labor, materials and equipment incorporated in the work plus ninety-five percent (95%) of the Contract Sum properly allocable to materials and equipment not incorporated in the work but delivered and suitably stored at the site or at a location suitable to County when agreed upon by the parties.

c. Any progress payments of this Agreement shall be reduced by any amounts that are the subject of a good faith dispute, the subject of a claim brought or otherwise the subject of a claim or demand by the County or Contractor.

d. The Contractor has fourteen days from the date the County accepts the work as Substantially Complete to complete punch list items for the project. If punch list items are not completed and Finally Accepted by the Architect and the County, liquidated damages for each calendar day of such delay will be assessed. The Contractor will be liable for and shall pay the County such amount. Waiver of this provision shall be approved by the County. When final punch list items have been completed to the satisfaction of County and Architect, and Final Closeout Documents have been reviewed and approved, Final Payment of the remaining 5% will be made upon Final Acceptance by Columbia County, Florida.

5.3 The Application for Payment for the final payment under the contract shall include the following forms:

a. Contractor’s Affidavit to County stating that liens have been paid in full. If Subcontractor, fabricator or supplier fails to furnish a release or waiver in full, the prime Contractor will furnish an Indemnity Bond for release of lien to the County, or other collateral satisfactory to the County, to indemnify the County against lien.

b. Consent of Surety to Final Payment on appropriate A.I.A. Document or other form acceptable to the Owner.

c. Contractor's Affidavit of Release of Liens on A.I.A. Documents G706 and G706A, or other forms acceptable to the County, certifying that the prime Contractor, Subcontractors, suppliers of materials and equipment, and performers of work, labor or services on the project release or waive lien against the County arising in the construction project.

5.4 Subcontractors, forty-five days after satisfactory completion of their work on the Contractor’s project, can invoice the Contractor for the remainder of unpaid work, including the full value of the retainage related to their work, less the value of any item contested in accordance with the terms and conditions of the construction Contract.

a. The Contractor shall require the Subcontractor to include a conditional release of lien and appropriate warranties and closeout documentation with this final payment invoice to the Contractor.

b. The Contractor shall include this subcontractor payment request in the next Application for Payment in the pay application cycle to the Architect following the receipt of the subcontractor payment request, if deemed to be complete and in compliance with this section.

c. When a Contractor receives payment from the County for labor, services or materials furnished by subcontractors and suppliers hired by the Contractor, the Contractor shall remit payment due to those subcontractors and suppliers, less the value of any item contested in accordance with the terms and conditions of the construction Contract, within ten days after the Contractor's receipt of payment.

5.5 Paragraph 5.4 shall not be construed to create a contractual relationship (1) between the Architect and Contractor, (2) between the County and a Subcontractor or Sub-subcontractor, (3) between the County and Architect or (4) between persons or entities other than the County and Contractor.

5.6 Columbia County, Florida may occupy the facilities prior to the completion of punch list items; however, retainages specified will remain in force.

ARTICLE 6

MISCELLANEOUS PROVISIONS

6.1 Terms used in the Agreement which are defined in the Conditions of the Contract shall have the meanings designated in those Conditions.

6.2 The Contract Documents shall constitute the Agreement between the County and the Contractor, except for Modifications issued after execution of this Agreement, and shall include Alternates set forth in. In the event of a conflict between the Project Manual, then specific provisions of the Project Manual shall control.

6.3 The County’s representative is:

Donny Dupree
Maintenance Director
Columbia County Board of County Commissioners
Lake City, Florida

6.4 The Contractor’s representative is:

Name and Title:
Name of Company:
Address:
Telephone:
Email:

6.5 The Contractor’s representative shall not be changed without notice to, and approval of, the County.

ARTICLE 7

ENUMERATION OF CONTRACT DOCUMENTS

7.1 The Specifications and Drawings are those contained in the Project Manual; see Exhibit A (Table of Contents to be provided after bid opening) and incorporated by reference.

7.2 The Addenda, if any, (to be provided after bid opening) are as follows:

Number	Date	Pages

THIS AGREEMENT executed as of the day and year first above written, and is executed in at least three original copies of which one is to be delivered to the Contractor, one to the Architect for use in the administration of the Contract, and the remainder to the County.

Signed, sealed and delivered in the presence of:

COLUMBIA COUNTY, FLORIDA

_____ _____

ATTEST: By:

_____

Signature

_____

Print or type name

STATE OF FLORIDA
COUNTY OF COLUMBIA

The foregoing instrument was acknowledged before me this __ day of _____ 20___, by _____, as **COLUMBIA COUNTY**, who is personally known to me.

_____
Notary Public, State of Florida

(**NOTARIAL SEAL**)

_____
(Print or Type Name)

My Commission Expires:

Signed, sealed and delivered
in the presence of:

GENERAL CONTRACTOR

_____ By: _____
Witness Name and Title

_____
Print or type name

_____
Witness

_____
Print or type name

STATE OF FLORIDA
COUNTY OF _____

The foregoing instrument was acknowledged before me this ___day of _____, 20_____, by_____, as _____ of _____, a Florida corporation, on behalf of the corporation, who is personally known to me or who has produced _____ as identification.

_____
Notary Public, State of Florida

(**NOTARIAL SEAL**)

_____
(Print or Type Name)
My Commission Expires:

ATTACHMENT NO. 2

APPLICATION AND CERTIFICATE FOR PAYMENT

Date_____ For Period Ending_____ Payment No._____

CONTRACTOR:_____

CONTRACT FOR: 2024-K NEW FIRE DEPARTMENT ADMINISTRATION BUILDING
1579 NW LAKE JEFFREY ROAD
LAKE CITY, FLORIDA
ARCHITECT'S PROJECT NUMBER: 2338

Original Contract Sum	$ _____	Contract Time	_____	Calendar Days	_____
Adds to Date	$ _____	Authorized Ext	_____	Calendar Days	_____
Total	$ _____	Pending Requests	_____	Calendar Days	_____
Deducts to Date	$ _____	Time Lapsed To Date	_____	Calendar Days	_____
Adj. Contr. Sum	$ _____		_____	Calendar Days	_____

WORK PERFORMED TO DATE	$_____
MATERIAL SUITABLY STORED	$_____
(Itemized list of materials attached)	
TOTAL TO DATE	$_____
Less Retainage	$_____
Less Previous Payments	$_____
TOTAL	$_____
DUE THIS PAYMENT	$_____

CERTIFICATION OF THE CONTRACTOR: I certify that items and amounts shown on the face of this Certificate are correct and that work has been performed and material supplied in full accordance with the terms and conditions of the Contract. I further certify that just and lawful bills against the undersigned and their subcontractors have been paid in full accordance with their terms and conditions and that Subcontractors listed on the previous month's Application and Certificate for Payment have been paid the full amount listed on that Application as evidenced by Partial Releases of Liens attached.

Date:_____ Contractor:_____(Printed Name)
(Notarized Signature Required)

Date:_____ Notary:_____

CERTIFICATE OF THE ARCHITECT: I certify that I have checked and verified this Certificate and the accompanying Partial Releases of Liens; that to the best of my knowledge and belief it is a true statement of the value of the work performed and material suitably stored on the site or other approved location by the Contractor; that work and material included in this Certificate have been reviewed; and that work has been performed and material supplied in accordance with the terms of the Contract.

Date:_____ Architect:_____

APPROVED FOR PAYMENT:

Date:_____ County:_____

_____
(Authorized Signature)

ATTACHMENT NO. 3

EQUAL OPPORTUNITY

CERTIFICATE OF COMPLIANCE

PROJECT TITLE:

2024-K NEW FIRE DEPARTMENT ADMINISTRATION BUILDING
1579 NW LAKE JEFFREY ROAD
LAKE CITY, FLORIDA
ARCHITECT'S PROJECT NO. 2338

This is to certify that the undersigned Contractor on subject project does now and will during the length of this project comply with applicable laws, rules and regulations relating to equal employment opportunity, and Federal, State, or Local laws, rules or regulations pertaining to; and further certifies compliance specifically with Executive Order 11246 originally issued by the President of the United States on September 24, 1965, as amended from time to time thereafter, including:

1. The Contractor does not discriminate in its employment policies as to race, color, religion, sex or national origin; and,

2. The Contractor does maintain an affirmative action plan to recruit, employ and promote qualified members of groups that may have been formerly excluded because of race, color, religion, sex or national origin.

CONTRACTOR

By: _____
Name / Title

Date: _____

ATTACHMENT NO. 4

SUPPLEMENTARY CONDITIONS

1. **Conditions of the Contract** General Conditions, these Supplementary Conditions and Divisions 00 and 01 are applicable to divisions and sections of the specifications and it is the Contractor's responsibility to so inform parties who should be influenced by.

2. **Applicable Documents** The Documents applicable to this work are titled:

   2024-K New Fire Department Administration Building
   1579 NW Lake Jeffrey Road
   Lake City, Florida

   Dated: September 12, 2024

   Prepared by: Kail Partners Architecture & Interiors
   PO Box 359055
   Gainesville, Florida 32635-9055

   The Drawings accompany these Specifications and become a part of.

   The Contractor shall purchase sets of Drawings and Project Manual as required of their use and the use of the Subcontractors on the project.

3. **Contract Time** The work shall be commenced within seven calendar days after receipt of the Notice to Proceed and shall be Substantially Complete within 210 calendar days, and shall be Finally Completed within 30 calendar days after the date of Substantial Completion.

4. **Liquidated Damages** Since actual damages for delay are impossible of agreed determination, the fixed, agreed and liquidated damages described in the General Conditions shall be for each calendar day beyond the specified Contract Time as described in the Project Manual, shall be Five Hundred ($500.00) Dollars per calendar day past the date of Substantial Completion and Five Hundred ($500.00) Dollars per calendar day past Final Completion.

5. **Notice to County** If a Subcontractor or supplier files a Notice to County under the Florida Lien Law, the County will notify the Contractor of its receipt. Payment request delivered subsequent to receipt of that Notice to County that contains payment in full or in part for that Subcontractor or supplier shall require a Final or Partial Release of Lien from each Subcontractor or supplier so affected.

6. **Contractor's Liability Insurance**

   a) The Contractor shall purchase and maintain in a company or companies licensed to do business in the State of Florida, possess an AM Best rating of A-, and acceptable to the County and their Insurance Counselor such insurance as will protect them from claims, which may rise out of or result from the Contractor's operations under the Contract, whether such operations be by themself or by Subcontractor or by anyone directly or indirectly employed by any of them, or by anyone else for whose acts any of them may be liable. The specific delineation of coverage in this paragraph is a minimum guide only, it being the specific intent of the County that it shall be fully and completely protected and indemnified from any and all claims which may arise out of Contractor's operation under the Contract; including among others those checked below:

      a)i claims under workers' compensation, disability benefit and other similar employee benefit acts;

      a)ii claims for damages because of bodily injury, occupational sickness or disease, or death of his employees;

a)iii claims for damages because of bodily injury, sickness or disease, or death of any person other than their employees;

a)iv claims for damages by usual personal injury coverage including but not limited to libel, slander, and false arrest which are sustained (1) by any person including, but not limited to, a Contractor, Subcontractor or Sub-subcontractor or their employees as a result of an occurrence directly or indirectly related to the employment of such person by the Contractor, or (2) by any other person;

a)v claims for damages because of injury to or destruction of tangible property, including loss of use resulting therefrom;

a)vi claims resulting from explosion, collapse, or underground accident, (X-C-U coverage required) and other on-premises operations.

a)vii claims resulting from owned, hired and non-owned motor vehicles and equipment;

a)viii claims for damage resulting from the actions or inactions of independent Contractors;

a)ix claims arising under products and completed operations insurance.

b) The insurance required shall be written for not less than the limits of liability specified below, or that required by law, whichever is greater, and shall include contractual liability insurance as applicable to the Contractor's obligations in the General Conditions. Contractor shall provide County with Certificate of Insurance evidencing that County shall receive a thirty day (30) notice of cancellation, nonrenewal or material change in coverage with a ten (10) day notice if cancellation is for nonpayment of premium. Contractor shall provide County with Certificate of Insurance prior to beginning any work.

b)i Workers' Compensation:

State, Florida Statutes	Statutory
Applicable Federal	Statutory
Employer's Liability	$1,000,000

b)ii Comprehensive General Liability:
Including Premises-Operations; Products Completed Operations; Contractor's Liability Broad Form Property Damage; Contractual Liability.

General Liability	$1,000,000 per Claimant
Property Damage	$1,000,000 per Occurrence
Personal Injury	$1,000,000 per Claimant
Liability	$1,000,000 per Occurrence
	$2,000,000 per Annual Aggregate

Property Damage Liability Insurance will provide X, C, or U coverage as applicable.

The County shall be named as additional insured on the Contractor's Comprehensive General Liability Policy.

Personal Injury Liability shall be separate coverage from Bodily Injury.

b)iii County's Protective Liability:

The County shall be named as the insured; ORIGINAL policy shall be submitted to the County.

Bodily/Personal Injury	$1,000,000 per Claimant $1,000,000 per Occurrence
Property Damage	$1,000,000 Single Limit per Occurrence

b)iv Contractor's Protective Liability:

The County shall be named as additional insured on the Contractor's Protective Liability Policy.

Bodily/Personal Injury	$1,000,000 per Claimant $1,000,000 per Occurrence
Property Damage	$1,000,000 Single Limit per Occurrence

b)v Comprehensive Automobile Liability:

The County shall be named as additional insured on the Contractor's Comprehensive Automobile Liability Policy. Policy shall cover owned, hired and all classes of non-owned vehicles.

Bodily Personal Injury:	$1,000,000 per Claimant $1,000,000 per Occurrence
Property Damage:	$1,000,000 Single Limit per Occurrence

b)vi Coverage to be certified by the Contractor (and Subcontractors) shall include, but not be limited to the following:

- x Workers' Compensation
- x Automobile owned, hired and non-owned
- x Premises
- x Operations
- x Contractual
- x Personal injury - Hazards, A, B and C with employee exclusion removed
- x Broad Form Property Damage
- x Removal of X, C and U exclusions
- x Products and Completed Operations
- x Independent Contractors

c) A Certificate of Insurance, executed on a standard ACORD form, shall be filed with the County simultaneously with the Contractor's execution of the Agreement. The certificate shall contain a provision that coverages afforded under the policies will not be cancelled until at least thirty days prior written notice has been given to the County. The Certificate of Insurance will include the following statement: "Interest of the Certificate Holder is included as an Additional Insured."

7. **Property Insurance**

a) Until the work is completed and accepted by the County, the Contractor shall purchase and maintain property insurance upon the entire work at the site to the full insurable value of. This insurance shall include the interest of the County, the Contractor, Subcontractors and Sub-subcontractors in the work and shall insure against the perils of fire, extended coverage, vandalism and malicious mischief. Coverage shall include damages, losses, and expenses arising out of or resulting from any insured property including fees and charges of Architects, Engineers and Attorneys.

b) The Contractor shall purchase and maintain such machinery insurance as may be required by the Contract Documents or by law. The insurance shall include the interest of the County, the Contractor, Subcontractors and Sub-subcontractors in the work.

c) The Contractor shall file a copy of policies with the County and the Architect.

d) The County and Contractor waive rights against each other or damages caused by fire or other perils to the extent covered by insurance provided, except such rights as they may have to the proceeds of such insurance held by the County as trustee. The Contractor shall require similar waivers by Subcontractors and Sub-subcontractors. In waiving rights of recovery under terms, the term "Owner" or “County” shall be deemed to include his employees and the Architect, and its employees as the County's representative.

e) Such insurance shall be no less than that required by the Project Manual.

8. General Contractor contract / subcontract shall use State of Florida licensed contractors / subcontractors.

ATTACHMENT NO. 5

PERFORMANCE BOND

THIS BOND IS ISSUED SIMULTANEOUSLY WITH LABOR AND MATERIAL PAYMENT BOND IN FAVOR OF THE COUNTY CONDITIONED ON THE FULL AND FAITHFUL PERFORMANCE OF THE CONTRACT.

STATE OF FLORIDA

KNOW BY THESE PRESENTS: that _____
(Here insert full name and address or legal title of Contractor)

as Principal, hereinafter called Contractor, and _____
(Here insert full name and address or legal title of Surety)

as Surety, hereinafter called Surety, are held and firmly bound unto COLUMBIA COUNTY, FLORIDA, as Obligee, in the amount of:

$_____ / _____,
(Written Amount)

For the payment whereof Contractor and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, Contractor has by written agreement dated _____ entered into a contract with County for:

2024-K NEW FIRE DEPARTMENT ADMINISTRATION BUILDING
1579 NW LAKE JEFFREY ROAD
LAKE CITY, FLORIDA
ARCHITECT'S PROJECT NO. 2338

in accordance with documents prepared by:

KAIL PARTNERS ARCHITECTURE & INTERIORS
P.O. BOX 359055
GAINESVILLE, FLORIDA 32635-9055

which contract is by reference made a part hereof, and is hereinafter referred to as the Contract.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION is such that, if Contractor shall promptly and faithfully perform said Contract, then this obligation shall by null and void; otherwise it shall remain in full force and effect.

The Surety hereby waives notice of any alteration or extension of time made by the County.

Whenever Contractor shall be, and declared by County to be in default under the Contract, the County having performed County's obligations thereunder, the Surety may promptly remedy the default, in accordance with Florida Statutes, and shall promptly:

1. Complete the Contract in accordance with its terms and conditions, or

2. Obtain a bid or bids for completing the Contract in accordance with its terms and conditions, and upon determination by Surety of the lowest responsible bidder or, if the County elects, upon determination by the County and Surety jointly of the lowest responsible bidder, arrange for a Contract between such bidder and County, and make available as work progresses (even though there should be a default or a succession of defaults under the Contract of Contracts of completion arranged under this paragraph) sufficient funds to

pay the cost of completion less the balance of the Contract sum; but not exceeding, including other costs and damages for which the Surety may be liable hereunder, the amount set forth in the first paragraph hereof. The term “balance of the Contract sum”, as used in this paragraph, shall mean the total amount payable by the County to Contractor under the Contract and any amendments thereto, less the amount properly paid by the County to Contractor.

No right of action shall accrue on this bond or for the use of any person or corporation other than the County named herein or the heirs, executors, administrators or successors of the County.

SIGNED AND SEALED this _____day of _____, 20_____.

_____	_____
(Signature of Witness)	(Signature of Contractor) (Seal)
	_____
	Type Name and Title
_____	_____
(Signature of Witness)	(Signature of Attorney-in-Fact)(Seal)
	_____
	Type Name
_____	_____
(Signature of Witness)	(Signature of Florida Resident Agent)
	_____
	Type Name

Attorney-In-Fact who signs this Bond must file with it a certified copy of his power of Attorney to sign said Bond.

ATTACHMENT NO. 6

LABOR AND MATERIAL PAYMENT BOND

THIS BOND IS ISSUED SIMULTANEOUSLY WITH PERFORMANCE BOND IN FAVOR OF THE COUNTY CONDITIONED ON THE FULL AND FAITHFUL PERFORMANCE OF THE CONTRACT.

STATE OF FLORIDA

KNOW BY THESE PRESENTS: that _____
(Here insert full name and address or legal title of Contractor)

as Principal, hereinafter called Contractor, and _____
(Here insert full name and address or legal title of Surety)

as Surety, hereinafter called Surety, are held and firmly bound unto **COLUMBIA COUNTY, FLORIDA.**

as Obligee, for the use and benefit of claimants as herein below defined, in the amount of:

$_____ / _____,
(Written Amount)

for the payment whereof Contractor and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, Company has by written agreement dated _____ entered into a contract with County for:

2024-K NEW FIRE DEPARTMENT ADMINISTRATION BUILDING
1579 NW LAKE JEFFREY ROAN
LAKE CITY, FLORIDA
ARCHITECT'S PROJECT NO. 2338

in accordance with documents and related addenda (herein after referred to as the Contract Documents) prepared by:

KAIL PARTNERS ARCHITECTURE & INTERIORS
PO BOX 359055
GAINESVILLE, FLORIDA 32636-9055

which contract is by reference made a part hereof, and is hereinafter referred to as the Contract.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION is as follows:

1. A claimant is defined as one having a direct Contract with the Contractor or with a Subcontractor of the Contractor for labor, material, or both, used or reasonably required for use in the performance of the Contract, labor and material being construed to include that part of water, gas, power, light, heat, oil, gasoline, telephone service or rental equipment directly applicable to the Contract.

2. Contractor shall promptly make all payments owing when due to all persons whose claims derive directly or indirectly from the prosecution of the work provided for in the Contract, then this bond is void; otherwise, it remains in full force and effect.

3. Each said claimant shall have a right of action against the Contractor and Surety for the amount due them. No such action shall subject the County to any cost, expense, loss or damage, and Contractor shall promptly pay County for the full measure of all cost, expense, loss, damage and attorney's fees sustained by County as a result of any default by Contractor under the Contract.

4. Pursuant to Florida Statutes, a claimant, except a laborer, who is not in privity with the Contractor and who has not received payment for his labor, materials, equipment or supplies shall, within forty-five (45) calendar days after beginning to furnish labor, materials, equipment or supplies for the prosecution of the work, furnish the Contractor with a written notice that they intend to look to the bond for protection. A claimant who is not in privity with the Contractor and who has not received payment for their labor, materials, equipment or supplies shall, within ninety (90) calendar days after completing performance of the labor or after completing delivery of the materials, equipment or supplies, deliver to the Contractor and to the Surety written notice of the performance of the labor or delivery or materials, equipment or supplies and of the nonpayment. No action for the labor, materials, equipment or supplies and of the nonpayment. No action for the labor, materials, equipment or supplies may be instituted against the Contractor or the Surety after one (1) year from the date performance of the labor is completed or delivery of the materials, equipment or supplies is completed.

5. An action against the Surety or the Contractor or both, may be brought in the County in which the work is being constructed or repaired or in any other place authorized by the provisions of Florida Statutes.

6. The amount of this bond shall be changed only to the extent that the Contract Sum is changed in accord with applicable provisions of the Contract.

7. Neither any change in or under the Contract Documents, nor any compliance or noncompliance with any formalities provided in the Contract or the change shall relieve the Surety of its obligations under this bond.

SIGNED AND SEALED this _____day of _____, 20_____.

_____ _____

(Signature of Witness) (Signature of Contractor) (Seal)

_____

(Type Name and Title)

_____ _____

(Signature of Witness) (Signature of Attorney-in-Fact)(Seal)

_____

(Type Name)

Attorney-In-Fact who signs this Bond must file with it a certified copy of his power of attorney to sign said bond.

ATTACHMENT NO. 7

NOTES CONCERNING SURETY AND EXECUTION

A. SURETY COMPANY REQUIREMENTS

To be acceptable to the County as Surety on Performance Bond and Labor and Material Payment Bond, a Surety company shall comply with the following provisions:

1. The Surety company must be authorized to do business in the State of Florida.

2. The Surety company shall have been in business and have a record of continuous operations for at least five (5) years. The Surety company shall have at least the following minimum ratings:

CONTRACT AMOUNT			REQUIRED FINANCIAL RATING	REQUIRED MIN. SURPLUS
0	to	500,000	BBBB+	3,750,000
500,000	to	750,000	AA	5,000,000
750,000	to	1,000,000	AA+	7,000,000
1,000,000	to	1,250,000	AAA	10,000,000
1,250,000	to	1,500,000	AAA+	12,500,000
1,500,000	to	2,000,000	AAAA	15,000,000
2,000,000	to	2,500,000	AAAA+	20,000,000
2,500,000	or more		AAAAA	25,000,000

Best's Financial Ratio.

Surplus – Policyholder's surplus is the sum paid in capital and surplus funds in stock companies and surplus funds as regards mutual companies.

Best's Policyholder's Rating of "A" (which signifies "excellent" based upon good underwriting, economic management, adequate reserves for undisclosed liability, net resources for unusual stock and sound investment), or an equivalent rating from the Insurance Commissioner, if not rated by Best's.

3. The Surety company shall not expose itself to any loss on any one risk in an amount exceeding 10% of its surplus to policyholders provided:

   Any risk or portion of any risk which shall have been reinsured (in which case, these minimum requirements contained herein also apply to the reinsuring carrier) in an assuming insurer authorized or approved by the Insurance Commissioner to do such business in this State shall be deducted in determining the limitation of risk prescribed therein before.

   In the case of a Surety insurance company, there shall be deducted, in addition to the deduction for reinsurance; the amount assumed by any co-surety for the value of any security deposited, pledged or held subject to the consent of the Surety and for the protection of the Surety.

SECTION 01 0107

PROFESSIONAL SEAL PAGES

PART 1 - GENERAL

1.1 DESIGN PROFESSIONALS OF RECORD

A. ARCHITECT

1. Roy Daniel Kail, Jr.
2. AR 17039
3. Responsible for Divisions 01 – 31 Sections except where indicated as prepared by other design professionals of record.

B. STRUCTURAL ENGINEER

1. Mark A. Miller
2. PE 45319
3. Responsible for:

   Sections 03 3000, 04 0500, 04 2300 and 31 2000

SECTION 01 0145

CUTTING AND PATCHING

PART 1 - GENERAL

1.1 REQUIREMENTS INCLUDED

A. Requirements and limitations for cutting and patching of work.

B. "Cutting and Patching" is hereby defined to include, but is not limited to, the cutting and patching of nominally completed or previously existing work in order to accommodate the coordination of work, or the installation of other work, or to uncover other work for access or inspection, or to obtain samples for testing or for similar purposes; and is defined to exclude integral cutting and patching during the manufacturing, fabricating, erecting and installing process for individual units of work.

1.2 RELATED REQUIREMENTS

A. Refer to Division 00 and 01 Sections of these specifications.

1.3 SUBMITTALS: Submittals to be made in accordance with Section 01 3300. In addition, the following information to be provided:

A. Submit request in advance of cutting or alteration which affects: Structural integrity of any element, integrity of weather-exposed or moisture-resistant element, efficiency, maintenance or safety of any operational element, visual qualities of sight-exposed elements and/or work of Owner or other separate contractors performing work at the same time.

B. Include in Request: Identification of project, location and description of affected work, necessity for cutting or alteration, description of proposed work and products to be used, alternatives to cutting and patching, effect on work of County or other contractors on site, permission of affected contractor and date and time work propose to be executed.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Provide materials for cutting and patching which will result in equal-or-better work than the work to be cut and patched in terms of performance characteristics, including visual effect where applicable. Use materials identical with the original materials where feasible and where recognized that satisfactory results can be produced.

PART 3 - EXECUTION

3.1 GENERAL

A. Execute cutting, fitting and patching to complete work, and to: Fit the parts together and to integrate with other work, uncover work to install ill-timed work, remove and replace defective and non-conforming work, remove samples of installed work for testing and provide openings in elements of work for penetrations of mechanical and electrical work.

3.2 INSPECTION

A. Inspect existing conditions, including elements subject to damage or movement during cutting and patching.

B. After uncovering, inspect conditions affecting performance of work.

C. Beginning of cutting or patching means acceptance of existing conditions.

3.3 PREPARATION

A. Provide supports to assure structural integrity of surroundings and devices and methods to protect other portions of project from damage.

B. Provide protection from elements for areas which may be exposed by uncovering work and maintain excavations free of water.

3.4 PERFORMANCE

A. Execute work by methods to avoid damage to other work and which will provide proper surfaces to receive patching and finishing.

B. Employ original installer to perform cutting and patching for weather-exposed, moisture-resistant elements and sight-exposed surfaces.

C. Cut rigid materials using masonry saw or core drill within a 1/4 inch tolerance of size of opening needed. Pneumatic tools not allowed without prior approval.

D. Fit work to pipes, sleeves, ducts, conduit and other penetrations through surfaces. All voids around penetrations to be sealed.

E. Refinish surfaces to match adjacent finishes. For continuous surfaces, refinish to nearest intersection; for an assembly, refinish entire unit; for patches in walls, refinish wall-to-wall and floor-to-ceiling; for patches in masonry walls, cut out face shell of block and replace or cut out individual units as required and replace.

F. All penetrations through fire rated construction to be fire stopped using a through penetration fire stop system listed in the “Underwriters Laboratory Fire Resistance Directory”.

3.5 CLEANUP AND DEBRIS DISPOSAL

A. Contractor to clean up and remove debris resulting from these operations from the site on a regular basis and not exceeding one week intervals. More frequent cleanup in specific areas of extensive demolition may be required by the County.

B. It is envisioned that a construction dumpster will be placed on the site and emptied at an approved off-site as required.

C. The primary concern is that safety of the public and workers not be compromised in any way as a result of the demolition work required. Debris will not be allowed to collect and remain in the areas of demolition.

END OF SECTION

SECTION 01 0390

COORDINATION AND MEETINGS

PART 1 - PART 1 GENERAL

1.1 REQUIREMENTS INCLUDED

A. Preconstruction Conference.

1.2 RELATED REQUIREMENTS

A. Refer to Division 00 and 01 Sections of these specifications.

1.3 PRECONSTRUCTION CONFERENCE / PROGRESS MEETINGS

A. Contractor will administer the preconstruction conference for review of the contract requirements, clarification of responsibilities and use of project site and for review of administrative procedures. Date, time and place for Preconstruction Conference will be announced after award of the contract.

B. At the Preconstruction Conference, the County will make arrangements with the contractor for the assignment of staging areas to be used for storage of materials, parking, etc.

C. Contractor to prepare agenda with copies for participants, attend progress meetings, record minutes and distribute copies to participants.

D. Attendance: County, Contractor and Architect.

E. The dates and times of the progress meetings will be discussed at the Preconstruction Conference.

1.4 SUBCONTRACTOR PRECONSTRUCTION CONFERENCES

A. Review conditions of installation, preparation and installation procedures and coordination with related work.

END OF SECTION

SECTION 01 0811

RELEASE OF LIEN FORMS

THIS FORM TO BE USED FOR ATTACHMENT TO EACH APPLICATION AND CERTIFICATE FOR PAYMENT.

PARTIAL WAIVER AND RELEASE OF LIEN UPON PROGRESS PAYMENT

The undersigned lienor, in consideration of the sum of $_____, hereby waives and releases its lien and right to claim a lien for labor, services or materials furnished through _____ (insert date) to _____ (insert name of your Contractor) on the site of the following property:

2024-K NEW FIRE DEPARTMENT ADMINISTRATION BUILDING
1579 NW LAKE JEFFREY ROAD
LAKE CITY, FLORIDA

This waiver and release does not cover any retention, labor, services or materials furnished after the date specified above.

DATED on _____, 20__.

BY:_____
(Lienor)

DATE:_____ NOTARY:_____

THIS FORM TO BE USED FOR ATTACHMENT TO REQUEST FOR FINAL APPLICATION AND CERTIFICATE FOR PAYMENT.

FINAL WAIVER AND RELEASE OF LIEN UPON FINAL PAYMENT

The undersigned lienor, in consideration of the final payment in the amount of $_____, hereby waives and releases its lien and right to claim a lien for labor, services or materials furnished to _____ on the site of the following property:
(insert name of Contractor)

2024-K NEW FIRE DEPARTMENT ADMINISTRATION BUILDING
1579 NW LAKE JEFFREY ROAD
LAKE CITY, FLORIDA

DATED on _____, 20__.

BY:_____
(Lienor)

DATE:_____ NOTARY:_____

END OF SECTION

SECTION 01 2000

PRICE AND PAYMENT PROCEDURES

Date_____ For Period Ending_____ Payment No._____

CONTRACTOR:_____

CONTRACT FOR: 2024-K NEW FIRE DEPARTMENT ADMINISTRATION BUILDING
1579 NW LAKE JEFFREY ROAD
LAKE CITY, FLORIDA

Original Contract Sum	$ _____	Contract Time	_____	Calendar Days	_____
Adds to Date	$ _____	Authorized Ext	_____	Calendar Days	_____
Total	$ _____	Pending Requests	_____	Calendar Days	_____
Deducts to Date	$ _____	Time Lapsed To Date	_____	Calendar Days	_____
Adj. Contr. Sum	$ _____		_____	Calendar Days	_____

WORK PERFORMED TO DATE	$_____
MATERIAL SUITABLY STORED	$_____
(Itemized list of materials attached)	
TOTAL TO DATE	$_____
Less Retainage	$_____
Less Previous Payments	$_____
TOTAL	$_____
DUE THIS PAYMENT	$_____

CERTIFICATION OF THE CONTRACTOR: I certify that all items and amounts shown on the face of this Certificate are correct and that all work has been performed and material supplied in full accordance with the terms and conditions of the Contract. I further certify that all just and lawful bills against the undersigned and their subcontractors have been paid in full accordance with their terms and conditions and that all Subcontractors listed on the previous month's Application and Certificate for Payment have been paid the full amount listed on that Application as evidenced by Partial Releases of Liens attached.

Date:_____ Contractor:_____(Printed Name)
(Notarized Signature Required)

Date:_____ Notary:_____

CERTIFICATE OF THE ARCHITECT: I certify that I have reviewed this Certificate and that to the best of my knowledge it is a true statement of the value of the work performed and material suitably stored and to date.

Date:_____ Architect:_____

APPROVED FOR PAYMENT:

Date:_____ County:_____

_____

(Authorized Signature)

END OF SECTION

SECTION 01 3000

ADMINISTRATIVE REQUIREMENTS

PART 1 - GENERAL

1.1 REQUIREMENTS INCLUDED

A. Scope of work covered by Contract Documents.

B. Coordination of all trades.

C. Codes and reference standards.

D. Ordinances and regulations.

1.2 RELATED REQUIREMENTS

A. Refer to Division 00 and 01 Sections of these specifications.

1.3 SCOPE OF WORK COVERED BY CONTRACT DOCUMENTS

A. Project Description: 2024-K New Fire Department Administration Building at 1579 NW Lake Jeffrey Road in Lake City, Florida. The scope of work includes, but is not limited to cutting and patching, cast-in-place concrete, masonry grout, reinforced unit masonry, metal fabrications, miscellaneous rough carpentry, architectural wood casework, dampproofing, water repellents, blanket insulation, foamed-in-place insulation, vapor retarders, roof specialties, joint protection, door schedule, hollow metal doors and frames, flush wood doors, access doors and frames, aluminum-framed entrances and storefronts, door hardware, glazing, finish schedule, gypsum board assemblies, non-structural metal framing, tiling, acoustical panel ceilings, resilient flooring accessories, resilient flooring, resinous flooring, painting and coating, specialties, signage, toilet, bath and laundry accessories, manual roller shades, metal building systems, geotechnical report, earthwork and termite control. New structural, mechanical, plumbing, fire protection and electrical scope of work as outlined in the documents.

1.4 COORDINATION

A. Coordinate work of the various specifications sections to assure efficient and orderly sequence of installation of construction elements with provisions for accommodating items installed later.

B. Verify that characteristics of elements of interrelated operating equipment are compatible. Coordinate work of various sections having interdependent responsibilities for installing, connecting to and placing in service such equipment.

C. Utilize space efficiently to maximize accessibility for other installations, maintenance and repairs.

D. Execute cutting and patching to integrate elements of work, uncover ill-timed, defective and non-conforming work, provide proper openings for penetrations of existing surfaces and provide samples for testing. Seal all penetrations with appropriate materials.

1.5 REGULATIONS, CODES AND STANDARDS

A. Design and construction shall conform to the Florida Building Code 8th Edition 2023 and the Florida Fire Prevention Code 8th Edition.

B. For products specified in the individual specifications sections by association or trade standards, comply with requirements of the applicable standard, except when more rigid requirements are specified or are required by applicable codes.

C. All work is to conform to all applicable Florida Building Codes, ordinances and regulations governing the construction. Applicable codes are as follows:
   1. ACI 318. American Concrete Institute.
   2. AHERA. Asbestos Hazard Emergency Response Act, 40 CFR, Part 763.
   3. AISC. American Institute of Steel Construction, Allowable Stress Design - Manual of Steel Construction.
   4. AISI. American Iron and Steel Institute, Specifications for the Design of Cold-Formed Steel Structure Members.
   5. ANSI. American National Standards Institute.
   6. ASCE. American Society of Civil Engineers.
   7. ASHRAE. American Society of Heating, Refrigeration, and Air Conditioning Engineers.
   8. ASTM. American Society for Testing Materials.
   9. DCA. Department of Community Affairs. Florida Americans with Disability Implementation Act and the Florida Accessibility Code for Building Construction as adopted by the State Board of Building Codes and Standards, which has become the Florida Building Commission. Florida Energy Efficiency Code for Building Construction (FEEC), as outlined in Chapter 13 of F.B.C.
   10. DOT - AASHTO. American Association of State Highway and Transportation Officials “Standard Specifications for Highway Bridges”, as modified by Florida DOT “Structures Design Guidelines for Load and Resistance Factor Design."
   11. FDOT. Florida Department of Transportation. **“**Standard Specifications for Road and Bridge Construction.”
   12. FEMA. Federal Emergency Management Agency.
   13. Florida Building Code. Florida Building Code (FBC) 8th Edition 2023.
   14. NEC. National Electrical Code (NFPA 70). Adopted by reference in the FBC.
   15. OSHA. Occupational Safety and Health Administration, U.S. Department of Labor.
   16. SJI. Steel Joist Institute.
   17. TMS. The Masonry Society Standards.
   18. Such other codes and standards as enumerated in the technical specifications sections and included by reference. Such codes and standards shall be "current accepted edition" in effect as of the bid date, except when a specified date is specified in the individual specification sections.

END OF SECTION

SECTION 01 3300

SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.1 REQUIREMENTS INCLUDED

A. Submittals during construction, including shop drawings, product data and samples.

B. Construction progress schedules.

1.2 RELATED REQUIREMENTS

A. Refer to Division 00 and 01 Sections of these specifications.

1.3 SHOP DRAWINGS

A. Present in a clear and thorough manner. Title each drawing with project name and number, identify each element of shop drawings by reference to sheet number, detail or schedule of contract documents.

B. Identify field dimensions and show relation to adjacent or critical features of work or products.

C. Minimum sheet size shall be 8-1/2 x 11 inches.

1.4 PRODUCT DATA

A. Submit only pages which are pertinent and mark each copy of standard data to identify products, referenced to specifications section number. Show reference standards, performance characteristic and capacities, diagram, component parts, finish, dimensions and required clearances.

B. Modify manufacturer's standard schematic drawings and diagrams to supplement standard information and to provide information specifically applicable to the work. Delete information not applicable. Indiscriminate submittal of unmarked product data will not be accepted.

C. As required by Florida Statute 553.842 and Florida Administrative Code 9N-3 State Product Approval, provide the information and approval numbers on all building components that will be utilized on this construction project. Statewide approved products are listed online at www.floridabuilding.org

D. Manufacturers' Certificates: When required by individual specifications section, submit applicable manufacturer's certificates that products meet or exceed specified requirements.

E. Manufacturers' Instructions: Submit applicable manufacturer's instructions for delivery, storage, assembly, installation, adjusting and finishing.

1.5 SAMPLES

A. Submit range of manufacturer's finishes, colors, textures or patterns for selection.

B. Submit samples to illustrate functional characteristics of products, including parts and attachments.

C. Provide field samples of finishes at project, at location acceptable to County, as required by individual specifications section. Install each sample complete and finished. Acceptable finishes in place may be retained in the completed work, except where otherwise noted or specified.

1.6 CONSTRUCTION PROGRESS SCHEDULES

A. Submit network analysis system using the critical path method, generally as outlined in Associated General Contractors of America (AGC) publication "The Use of CPM in Construction - A Manual for General Contractors". Other progress schedule methods may be submitted subject to the County's review and approval.

B. Show complete sequence of construction by activity, identifying work of separate stages and other logically grouped activities. Show projected percentages of completion for each item of work as of time of each application for payment.

C. Show submittal dates required for shop drawings, product data and samples and product delivery dates.

1.7 CONTRACTOR'S REVIEW

A. Review all submittals prior to transmittal, determine and verify field measurements, field construction criteria, manufacturers' numbers and conformance of submittal with requirements of contract documents. Submittals without contractor's review stamp indicating approval will not be processed.

B. Coordinate submittals with requirements of work and of contract documents.

C. Provide notification, at time of submittal, of any deviations from requirements of contract documents.

D. Do not fabricate products or begin work which requires submittals until return of submittal with approval.

1.8 SUBMITTAL REQUIREMENTS

A. Transmit submittals in accordance with approved progress schedule and in such sequence to avoid delay in the work.

B. Apply contractor's stamp certifying to review and approval, verification of products, field dimensions and field construction criteria and coordination of information with requirements of work and contract documents. Do not send submittals until item is approved by contractor.

C. Coordinate submittals into logical groupings to facilitate interrelation of the several items.

D. Submit electronic copies of all shop drawings and product data.

1.9 RESUBMITTALS

A. Make resubmittals under procedures for initial submittals and identify changes made since previous submittal. Number the same as initial submittal, except with suffix "A", "B", etc. for each time resubmittal occurs until accepted.

B. Delays caused by the need for resubmittals will not constitute reason for an extension of contract time.

1.10 REVIEW

A. The review of submittals will be limited to general design requirements only, and will in no way relieve the contractor from responsibility for errors or omissions contained or from supplying materials specified.

B. Submittals reviewed will be marked in one of the following ways: NO EXCEPTIONS TAKEN, EXCEPTIONS AS NOTED, REVISE AND RESUBMIT or REJECTED.

1.11 DISTRIBUTION

A. Contractor to distribute copies of approved shop drawings, product data and samples to project site, subcontractors, suppliers and other entities requiring information.

END OF SECTION

SECTION 01 4000

QUALITY REQUIREMENTS

PART 1 - GENERAL

1.1 REQUIREMENTS INCLUDED

A. General quality control.

B. Workmanship.

C. Manufacturers' instructions.

D. Testing laboratory services.

1.2 RELATED REQUIREMENTS

A. Refer to Division 00 and 01 Sections of these specifications.

1.3 QUALITY CONTROL

A. Maintain quality control over suppliers, manufacturers, products, services, site conditions and workmanship to produce work of specified quality.

1.4 WORKMANSHIP

A. Comply with industry standards except when more restrictive tolerances or specified requirements indicate more rigid standards or more precise workmanship.

B. Perform work by persons qualified to produce workmanship of specified quality.

C. Secure products in place with positive anchorage devices designed and sized to withstand code stresses, vibration and racking.

1.5 MANUFACTURERS' INSTRUCTIONS

A. Comply with manufacturers' instructions including each step in sequence. If instructions conflict with contract documents request clarification prior to starting work.

1.6 TESTING LABORATORY SERVICES

A. Contractor to employ the services of an approved independent testing laboratory to perform tests and other services required by individual specification sections.

B. Services will be performed in accordance with requirements of governing authorities and with specified standards.

C. Reports will be submitted giving observations and results of tests, indicating compliance or non-compliance with specified standards and with contract documents.

D. Contractor to cooperate with testing laboratory personnel; furnish tools, samples of materials, design mix, equipment, storage and assistance as requested. Notify testing laboratory 24 hours prior to expected time for operations requiring testing services. Make arrangements with testing laboratory and pay for additional samples and tests for contractor's convenience.

END OF SECTION

SECTION 01 5000

TEMPORARY FACILITIES AND CONTROL

PART 1 - GENERAL

1.1 REQUIREMENTS INCLUDED: The contractor is to provide the following, except as specified otherwise, including all related costs for operation, maintenance and utilities, during the entire construction period until final completion of the project.

A. Temporary electricity power. Charges relative to the cost of power consumption will be paid by the County. However, costs associated with facilities and connections to provide for power are to be paid by the contractor.

B. Phone service.

C. Water.

D. Sanitary facilities.

E. Barriers.

F. Protection of installed work.

G. Security. Coordinate with County.

H. Construction use fire extinguishers.

I. Water control.

J. Cleaning during construction.

K. Offices and sheds at Contractor's option.

1.2 RELATED REQUIREMENTS

A. Refer to Division 00 and 01 Sections of these specifications.

1.3 ELECTRICITY AND CONSTRUCTION LIGHTING

A. Provide service required for construction operations, with branch wiring and distribution boxes located to allow service and lighting by means of construction-type power cords.

B. Provide temporary lighting as required for construction operations. Maintain lighting and make routine repairs.

1.4 TELEPHONE SERVICE

A. Provide phone service.

1.5 WATER

A. Contractor may connect to nearest available existing water service for construction operations.

1.6 SANITARY FACILITIES

A. Provide and maintain required temporary toilet facilities and enclosures in accordance with requirements of governing State and local health authorities.

1.7 BARRIERS

A. Construction site as designated by the County. Protect against vehicular traffic, stored materials, dumping, chemically injurious materials or water.

B. Upon issuance of the building permit and notice to proceed, a safety plan is to be provided by the contractor which clearly delineates areas for construction, safety barriers, exits and construction traffic during the various phases of the project and when conditions change.

1.8 PROTECTION OF INSTALLED WORK

A. Provide temporary protection for installed products. Control traffic in immediate area to minimize damage.

B. Provide protective coverings. Protect surfaces from traffic and movement of heavy objects and storage.

1.9 SECURITY

A. Provide security program and facilities to protect work, and County's operations from unauthorized entry, vandalism and theft. Coordinate with County's security program. County will not be responsible for the contractors' losses due to theft or vandalism to property during the construction period.

B. County will assist and cooperate with Contractor's security program.

1.10 CONSTRUCTION USE FIRE EXTINGUISHERS

A. Provide types, sizes, numbers and locations as would be reasonably effective in extinguishing fires by personnel at project site. Provide Type A extinguishers at locations of low-potential for either electrical or grease-oil-flammable liquids fires; provide Type ABC dry chemical extinguishers at other locations; comply with recommendations of NFPA . Post warning and quick-instructions at each extinguisher location.

1.11 CLEANING DURING CONSTRUCTION

A. Control accumulation of waste materials and rubbish and periodically dispose of off-site at approved location.

B. Clean areas prior to start of finish work and maintain areas free of dust and other contaminants during finishing operations.

1.12 OFFICES AND SHEDS

A. Contractor's Field Office: At contractor’s option, provide mobile structure or other structure approved by County, weather-tight, with lighting, electrical outlets, heating, cooling and ventilating equipment.

B. Storage sheds for tools, materials and equipment: At contractor’s option, provide weather-tight, with heat and ventilation for products requiring controlled conditions, with adequate space for organized storage and access and lighting for inspection of stored materials. Coordinate location with County.

1.13 REMOVAL

A. Remove temporary materials, equipment, services and construction prior to Substantial Completion.

B. Clean and repair damage caused by installation or use of temporary facilities.

END OF SECTION

SECTION 01 6000

PRODUCT REQUIREMENTS

PART 1 - GENERAL

1.1 REQUIREMENTS INCLUDED

A. Products.

B. Transportation and handling.

C. Storage and protection.

D. Product options.

E. Substitutions.

F. Systems demonstration.

1.2 RELATED REQUIREMENTS

A. Refer to Division 00 and 01 Sections of these specifications.

1.3 PRODUCTS

A. Products include material, equipment and systems.

B. Comply with specifications and referenced standards as minimum requirements.

C. As required by Florida Statute 553.842 and Florida Administrative Code 9N-3 State Product Approval, provide the information and approval numbers on all building components that will be utilized on this construction project. Statewide approved products are listed online at www.floridabuilding.org

D. Components required to be supplied in quantity within a specification section and like items to be the end products of one manufacturer in order to achieve standardization for appearance, operation, maintenance, spare parts and manufacturers' service.

E. Do not use materials and equipment removed from existing structures, except as specifically required or allowed by contract documents.

1.4 TRANSPORTATION AND HANDLING

A. Transport products by approved methods to avoid product damage, deliver in undamaged condition in manufacturers' unopened containers or packaging, dry.

B. Provide equipment and personnel to handle products by methods to prevent soiling or damage.

C. Promptly inspect shipments to assure that products comply with requirements, quantities are correct and products are undamaged.

1.5 STORAGE AND PROTECTION

A. Store products in accordance with manufacturers' instructions with seals and labels intact and legible. Store sensitive products in weather-tight enclosures and maintain within temperature and humidity ranges required by manufacturers' instructions.

B. For exterior storage of fabricated products, place on sloped supports above ground. Cover products subject to deterioration with impervious sheet covering and provide ventilation to avoid condensation.

C. Store loose granular materials on solid surfaces in a well-drained area and prevent mixing with foreign matter.

D. Arrange storage to provide access for inspection. Periodically inspect to assure products are undamaged and are maintained under required conditions.

1.6 PRODUCT OPTIONS

A. Products specified by reference standards or by description only. Any product meeting those standards or descriptions.

B. Products specified by naming one or more manufacturers with a provision for either pre-bid or post-bid substitutions. Submit a request for substitution for any manufacturer not specifically named.

C. Products specified by naming several manufacturers: Products of named manufacturers meeting specifications: No options, no substitutions allowed.

D. Products specified by naming only one manufacturer: No options, no substitutions allowed.

1.7 SUBSTITUTIONS

A. Pre-Bid Substitutions:

1. Bidders may submit bids on approved substitute products only. Acceptance and approval of all products submitted as substitutes remains the prerogative of the Architect and will be determined by quality and other overall assimilation of the products into the design of the project. It is requested that each prospective bidder review the drawings and project manual upon receipt to determine which, if any, pre-bid substitutions they plan to submit for approval.
2. Bidders having substitute products to be evaluated must submit prior to bid date, the following information, in addition to specific information required in the individual specifications sections for pre-bid substitutions: specifications, samples, available colors and finishes, a clear statement on each substitute product stating exactly where and how the products varies, if any, from the specified products in dimensions, structure, material and design.
3. Upon receipt and evaluation of the requested information, the Architect will do one of the following: Approve by Addendum the substitute products per the submitted materials; approve by Addendum the substitute products with revisions requiring the vendor to modify their substitute products accordingly; or reject the substitute products. Approval of a manufacturer other than the manufacturer specified does not indicate the approved manufacturer's standard products are acceptable. The approved manufacturers must comply with products as specified. Samples: should samples of substitute products be required for evaluation, said sample must be submitted prior to bid date.

B. Post-Bid Substitutions (after award and execution of contract):

1. Document each request with complete data substantiating compliance of proposed substitution with contract documents.
2. Request constitutes a representation that contractor: has investigated proposed product and determined that it meets or exceeds, in all respects, specified product and will provide the same warranty for substitution as for specified product. Will coordinate installation and make other changes which may be required for work to be complete in all respects. Waives claims for additional costs which may subsequently become apparent; however, deductions from contract sum will be considered and must be so noted on request.
3. Substitutions will not be considered when they are indicated or implied on shop drawing or product data submittals without separate request per provisions specified.
4. Architect will determine acceptability of proposed substitution and will notify contractor of acceptance or rejection.

1.8 SYSTEMS DEMONSTRATION

A. Prior to final review, instruct County's personnel in operation, adjustment and maintenance of equipment and systems, using the operation and maintenance manual as the basis of instruction.

B. See Section 01 7000 - Execution and Closeout Requirements.

END OF SECTION

SECTION 01 7000

EXECUTION AND CLOSEOUT REQUIREMENTS

PART 1 - GENERAL

1.1 REQUIREMENTS INCLUDED

A. Closeout procedures.

B. Final cleaning.

C. Prerequisites to final payment.

D. Record drawings.

E. Operation and maintenance manuals.

F. Warranties, guarantees and bonds.

G. Spare parts and maintenance materials.

H. Correction during contractor's one year guarantee period.

1.2 RELATED REQUIREMENTS

A. Refer to Division 00 and 01 Sections of these specifications.

1.3 CLOSEOUT PROCEDURES

A. Comply with procedures stated in general conditions of the contract. When the work is substantially complete, in accordance with the definition and requirements for the project to be reviewed for substantial completion, the contractor is to notify the Architect who shall make a substantial completion review and after said review is made, the contractor is to remedy any defects or make any corrections on the Architect’s punch lists to prepare the project for a final completion review.

B. Prerequisites to Substantial Completion Review: Before the project will be consider the project ready for substantial completion review, all of the following, as a minimum, are to be performed:

1. All general construction completed and all materials and equipment installed and operating as intended.

2. All mechanical, controls, data and all electrical work complete, fixtures in place, connected and ready for test.

3. All painting and joint sealants completed, checked by the contractor for number of coats and ready for inspection.

4. All equipment cleaned, connected and in full working order.

5. Grounds clear of all temporary materials, equipment, services and construction, field offices and storage sheds, surplus materials and equipment and raked clean of all debris with all debris removed from the site.

6. Sections of all walls, drives and other permanent features which have been damaged during construction are to be removed and replaced; patches not acceptable.

1.4 FINAL CLEANING

A. Execute prior to final review.

B. Clean exterior surfaces exposed to view, remove temporary labels, stains and foreign substances and polish transparent and glossy surfaces. Clean equipment and fixtures to a sanitary condition.

C. Clean project site, sweep paved areas and rake clean other surfaces.

1.5 PREREQUISITES TO FINAL REVIEW: When the contractor considers the work has reached final completion, and all items on the punch lists have been corrected and final cleaning has been completed, submit notice to Architect that work is complete in accordance with the contract documents and ready for final review.

A. If all items are found in order, the Architect will recommend final acceptance of the project by the County, upon receipt of all final closeout documents including, but not limited to, the following: final releases of liens from all Subcontractors and Suppliers. Guarantees and warranties. All O&M manuals, final reports and all other closeout requirements.

1.6 PREREQUISITES TO FINAL PAYMENT:

A. Contractor's affidavit that responsible representatives of the County have been properly instructed and informed as to all working characteristics of mechanical and electrical systems and equipment as required under the individual specifications sections and in accordance with the provisions of Section 01 6000 - Product Requirements, as applicable to:

1. Electrical control switches, panels, fans, motors, etc.

2. Miscellaneous equipment operation.

3. Other systems as required.

B. Record drawings, operation and maintenance manuals, warranties, guarantees and bonds.

C. Contractor's affidavit that spare parts and maintenance materials have been delivered to the facilities department of the County.

D. Submit satisfactory evidence using the latest editions of the following forms, unless otherwise stipulated by the County, showing that all labor employed on the project has been paid in full and that all materials and/or equipment and incidentals used directly or indirectly in connection with the project have been paid for in full and that no claims are outstanding against the work.

1. Contractor's Affidavit of Payment of Debts and Claims (A.I.A. Document G706), Conditional Final Releases of Lien.

2. Contractor's Affidavit of Release of Liens (A.I.A. Document G706A).

3. Consent of Surety Company to Final Payment (A.I.A. Document G707).

E. The contractor is to submit a list of all subcontractors used for this project and include their address, telephone number and email for use by the County during the warranty period.

F. Provide all submittals, approvals and certificates required by governing authorities for this project and submit a final statement of accounting giving total adjusted contract sum, previous payments, and sum remaining due.

1.7 RECORD DRAWINGS

A. Keep record drawings current and do not permanently conceal any work until required information has been recorded.

B. Procedure:

1. During the progress of the work, the contractor's superintendent will be responsible for recording any changes in the drawings.

2. Upon completion of the work, this data shall be transferred to a clean copy of the original drawings and submitted to the County.

1.8 OPERATION AND MAINTENANCE MANUALS

A. Provide Operation and Maintenance Manuals for: Equipment and controls, electrical equipment and controls and as specified in individual specification sections.

B. Submit in electronic PDF format.

C. Provide a separate volume for each system with a table of contents and index tabs for each volume.

1. Part 1: Directory, listing names, addresses and telephone numbers of: Architect, Contractor and Subcontractor.

2. Part 2: Operation and maintenance instructions arranged by system. For each system give names, addresses and telephone numbers of subcontractors and suppliers. list: appropriate design criteria, list of equipment, parts list, operating instructions, maintenance instructions, equipment, maintenance instructions, finishes, shop drawings and product data and warranties.

1.9 WARRANTIES, GUARANTEES AND BONDS

A. Execute contractor's applicable documents and assemble documents executed by subcontractors, suppliers and manufacturers.

1.10 SPARE PARTS AND MAINTENANCE MATERIALS

A. Provide products, spare parts and maintenance materials in quantities specified in individual specifications sections, in addition to that used for construction of work. Coordinate with County and deliver to project site.

1.11 CORRECTION DURING CONTRACTOR'S ONE YEAR GUARANTEE PERIOD

A. Contractor to report to the proper officials regarding corrections to be made after job completion.

1. County will notify contractor of deficiency.

2. Contractor to accomplish agreed upon corrective measures and notify the County and secure a release on the item.

END OF SECTION

SECTION 03 3000

CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes cast-in-place concrete, including formwork, reinforcement, concrete materials, mixture design requirements, placement procedures, and finishes, for the following:

1. Footings.
2. Slabs-on-grade.

B. Related Sections:

1.	Earthwork For Buildings	Section 31 2000
2.	Masonry Grout	Section 04 0500
3.	Joint Protection	Section 07 9000

C. The general provisions of the Contract, including General Conditions, Supplementary Conditions, and Special Conditions (if any) along with the General Requirements, apply to the work specified in this section.

D. Examine all Drawings and all other Sections of the Specifications for requirements therein affecting the work of this trade.

1.2 DEFINITIONS

A. SER: Structural Engineer of Record for this project.

B. Contractor: General Contractor. Also refers to Construction Manager when this form of construction is utilized on the project.

C. Sub-contractor: Provides materials or services for the project through the Contractor.

D. Cementitious Materials: Portland cement alone or in combination with one or more of the following: blended hydraulic cement, fly ash and other pozzolans, ground granulated blast-furnace slag, and silica fume; subject to compliance with requirements.

E. Delegated Engineer: Also referred to as Specialty Engineer, is a Florida professional engineer who undertakes a specialty service and provides services or creative work (delegated engineering document) regarding a portion of the engineering project. The delegated engineer is the engineer of record for that portion of the engineering project. Refer to Chapter 61G15-30 Responsibility Rules Common to All Engineers, Board of Professional Engineers, Florida Administrative Code, for additional information.

1.3 ACTION SUBMITTALS

A. General:

1. Submit all documents and samples in conformance to Specification Section 01 3300.

2. Computer drawing files are available for use in the production of shop drawings if allowed by the Architect. Requirements include disclaimer and contract provided by the Engineer and payment for files by the requesting sub-contractor.
3. Electronic submittals are required, and printed copies are not acceptable unless specifically allowed by contract with the Owner.
4. Review of shop drawings does not constitute authorization to vary from the contract documents.
5. Submittal Scheduling: The Contractor shall be responsible for scheduling submittals with ample time allotted for the review process and possible resubmittals.

B. Design Mixtures: For each concrete mixture, per ASTM C192. Submit alternate design mixtures when characteristics of materials, Project conditions, weather, test results, or other circumstances warrant adjustments.

C. Steel Reinforcement Shop Drawings:

1. Submit shop drawings for fabrication and placement of all reinforcing. Include bar schedules, stirrup spacing, arrangement and concrete cover. Provide full information for placing without reference to design drawings. Indicate walls in elevation at a scale of not less than ¼" = 1'0". Indicate openings which interrupt reinforcing, including special reinforcing. Coordinate openings with HVAC, electrical and plumbing contractors. Show all areas fully. Do not use "similar" or "opposite hand" notations.

    a. Electronic submittal is required and file format utilizing PDF format is preferred.
    b. All placing work must be checked against the contract drawings. All drawings and details shall be checked by Contractor and show Contractor's approval and the initials of the checker before they are submitted to Architect and SER for review. If required dimensions or necessary details are not clearly shown on the contract drawings, Contractor shall circle and question them on the working plans. These dimensions and details will be checked or furnished by the Architect.
    c. Drawings shall be clearly marked "FOR APPROVAL ONLY – NOT FOR FIELD USE". If drawings are not approved but are returned for corrections, the approval copies shall be resubmitted. After initial review has been made, final drawings shall be resubmitted, with all corrections made, for final review, stamped "FOR FIELD USE".

D. Product Data: For each type of product indicated.

E. Manufacturer's Data: For information only, submit manufacturer's data with application and installation instructions for all proprietary materials and items relative to the concrete work.

F. Advance Mix Design:

1. Comply with ASTM C192; each class of concrete required for the job shall be designed by the Contractor's independent engineering testing laboratory or supplier to determine the proper proportions of ingredients to insure concrete of the desired strength, workability and durability.
2. The maximum permissible water cement ratio, based on a five-inch (5") slump, shall be maximum 0.50 unless noted otherwise, and shall produce a laboratory strength at least fifteen percent (15%) greater than the strengths specified.
3. Advance mix designs shall be submitted for review far enough in advance (at least 14 days) of the placing of concrete in order not to create delays in the work. Mix designs shall be prepared in accordance with latest version of ACI 318 "Building Code Requirements for Reinforced Concrete", field experience method or trial batches.
4. Regardless of the recommendations of the testing laboratory or supplier, it shall be the responsibility of the Contractor to furnish the strength and quality of concrete specified.
5. Test results will be reported to the Architect, Engineer, Contractor, Concrete Producer, and other firms listed on the distribution list on the same day that the tests are performed.

All test reports indicating non-compliance should be e-mailed or faxed immediately to all parties on the test report distribution list.

6. Submit alternate design mixtures when characteristics of materials, Project conditions, weather, test results, or other circumstances warrant adjustments.

G. Formwork Shop Drawings: Contractor shall erect and remove all forms and shores. Forms and shores shall be designed to safely carry their own weight plus all superimposed dead, wind, lateral construction loads, and not less than fifty (50) pounds per square foot live load. Applicable codes and standards, including ACI 347, exceeding these requirements shall also be met.

H. Reports:

1. Report test results to Architect and SER immediately after tests are made.
2. Report tests of materials and advance concrete mix designs before job concrete work is started.
3. Reports of compressive strength tests shall contain the cylinder set number, project identification name and number, date of concrete placement, name of Contractor, name of supplier, truck number, name of testing service, concrete type and class, concrete mix number, location of concrete batch in structure, design compressive strengths at 28 days, compressive breaking strength, type of break for both 7 day and 28 day tests, entrained air content, slump, air temperature, weather, and any water added after leaving the plant.

1.4 INFORMATIONAL SUBMITTALS

A. Qualification Data: For Slab-on-grade Installer.

B. Welding certificates.

C. Material Certificates: For each of the following, signed by manufacturers:

1. Cementitious materials.
2. Admixtures.
3. Form materials and form-release agents.
4. Steel reinforcement and accessories.
5. Curing compounds.
6. Floor and slab treatments.
7. Bonding agents.
8. Adhesives.
9. Vapor retarders.
10. Semi-rigid joint filler.
11. Joint-filler strips.
12. Repair materials.

D. Material Test Reports: For the following, from a qualified testing agency, indicating compliance with requirements:

1. Aggregates.

E. Field quality-control reports.

F. Minutes of pre-installation conference.

1.5 QUALITY ASSURANCE

A. Applicable Codes, Specifications, and Standards: Comply with provisions of the following codes, specifications and standards, except where more stringent requirements are shown or specified. All codes, specifications and standards referred to shall be latest editions:

1. American Concrete Institute (ACI):

a.	ACI 117	Tolerances for Concrete Construction
b.	ACI 211.1	Recommended Practice for Selecting Proportions for Normal and Heavyweight Concrete
c.	ACI 211.4	Recommended Practice for Evaluation of Strength Test Results of Concrete
d.	ACI 301	Structural Concrete for Buildings
e.	ACI 302	Recommended Practice for Concrete Floor and Slab Construction
f.	ACI 304	Recommended Practice for Measuring, Mixing, Transporting and Placing Concrete
g.	ACI 305	Hot Weather Concreting
h.	ACI 306	Cold Weather Concreting
i.	ACI 308	Recommended Practice for Curing Concrete
j.	ACI 309	Recommended Practice for Consolidating Concrete
k.	ACI 315	Detailing Manual
l.	ACI 318	Building Code Requirements for Reinforced Concrete
m.	ACI 347	Concrete Formwork

2. Concrete Reinforcing Steel Institute (CRSI): Manual of Standard Practice
3. American Society for Testing Materials (ASTM): All ASTM standards shall apply where appropriate.

4. American Welding Society (AWS):

a.	AWS-D1.1	Structural Welding Code
b.	AWS-D1.4	Structural Welding Code-Reinforcing Steel

5. American Institute of Steel Construction (AISC): Specification for the Design, Fabrication and Erection of Structural Steel for Buildings.

B. Workmanship: Contractor shall furnish a full-time qualified foreman to oversee and direct the construction of all formwork, reinforcing steel placement and concrete placing. Contractor shall correct work which does not conform to specified requirements, including strength, tolerances and finish. Deficiencies shall be corrected as directed by Architect and as specified herein, at the Contractor’s expense.

C. Installer Qualifications: A qualified installer who employs on this Project, personnel qualified as ACI-certified Flatwork Technician and Finisher and a supervisor who is an ACI-certified Concrete Flatwork Technician.

D. Manufacturer Qualifications: A firm experienced in manufacturing ready-mixed concrete products and that complies with ASTM C94 requirements for production facilities and equipment.

1. Manufacturer certified according to NRMCA's "Certification of Ready Mixed Concrete Production Facilities."

E. Testing Agency Qualifications: An independent agency, acceptable to the Architect and SER, qualified according to ASTM C1077 and ASTM E329 for testing indicated.

1. Personnel conducting field tests shall be qualified as ACI Concrete Field Testing Technician, Grade 1, according to ACI CP-1 or an equivalent certification program.

2. Personnel performing laboratory tests shall be ACI-certified Concrete Strength Testing Technician and Concrete Laboratory Testing Technician – Grade I. Testing Agency laboratory supervisor shall be an ACI-certified Concrete Laboratory Testing Technician – Grade II.

F. Concrete Testing Service:

1. The Contractor shall employ, at his expense, a qualified Independent Engineering Testing Laboratory, approved by Architect and Engineer, to perform material evaluation tests, and to design the concrete mixes, and to perform quality control testing during construction, as specified.
2. Materials and installed work may require testing and retesting, as directed by Architect, at any time during the progress of the work. Allow free access to material stockpiles and facilities at all times.
3. When retesting of rejected materials or installed work is required, Contractor pays for tests. When retesting of installed work is required by the Architect due to negligence or improper construction practices by the Contractor, or low test results of Contractor installed work, the Contractor will be responsible for all costs pertaining to determination of acceptability of the work.
4. Material Sources: Sources of materials must remain unchanged during the course of the work; any variation of materials will require retesting. Certificates of material properties and compliance with specified requirements may be submitted in lieu of testing, when acceptable to the Architect, provided the proposed materials have a satisfactory service record and have been tested within the past year and such previous tests have met the specified requirements. Certificates of compliance for each material must be signed by the Contractor and the supplier.

G. Quality Control Tests During Construction: Concrete shall be sampled and tested for adequacy of design for strength, as a basis for acceptance of the concrete and for shore removal. Test cylinders shall be made, stored and tested by the testing laboratory. Protect test cylinders while stored on the site. Handle and store carefully prior to testing. Concrete shall be sampled and tested as follows:

1. Sampling and Field Concrete: ASTM C172; except modified for slump to comply with ASTM C94.
2. Slump: ASTM C143; one test for each concrete load at point of placement in the structure and one for each set of compression strength test specimens.
3. Air Content: ASTM C231, pressure method or ASTM C174, volumetric method. Use volumetric method for lightweight concrete. Air content tests must be made each time compressive test specimens are molded from concrete required to be entrained.
4. Acceptance Test Specimens: ASTM C31; one set of 4 standard test cylinders for each compression strength test. Mold and store for laboratory cured test specimens.
5. Field Stored Test Specimens: ASTM C31; one set of three standard test cylinders of all shored areas, for each compression strength test made. Store in protected location on job site, under the same conditions as concrete from which cylinders were taken, until tests are required.
6. Compressive Strength Tests:

    a. Comply with ASTM C39 and ASTM C31; one set of 4 cylinders (minimum) for each 50 cubic yards or fraction thereof, for each class of concrete placed in any one day or for each 4000 sq. ft. of surface area placed, whichever is less.
        1) Every arithmetic average of any consecutive three tests shall equal or exceed f’c and
        2) No individual strength test (average of two cylinders) shall be less than f’c by more than 500 psi.
    b. For acceptance tests, break 1 cylinder at 7 days for information and 2 at 28 days for acceptance, with 1 cylinder held in reserve.

c. Field stored cylinders shall be taken in same manner as acceptance cylinders, except they shall be taken only from those portions of the structure which are shored or braced or as noted. To check items for removing shores, break one cylinder at a time until required strength is reached.
d. When the strength of field stored cylinders is less than 85% of companion laboratory-cured cylinders, evaluate current operations and provide corrective procedures for protecting and curing in-place concrete.

7. Tests of In-Place Concrete:

a. Testing service shall make additional tests of in-place concrete when results indicate to the Architect that specified concrete strengths or other characteristics have not been met.
b. Tests may consist of cored cylinders complying with ASTM C42, or if these tests are not conclusive, by load test performed in accordance with Chapter 27 of ACI Standard 318.
c. These tests shall be paid for by the Contractor.

H. Source Limitations: Obtain each type or class of cementitious material of the same brand from the same manufacturer's plant, obtain aggregate from single source, and obtain admixtures from single source from single manufacturer.

I. Welding Qualifications: Qualify procedures and personnel according to AWS D1.4, "Structural Welding Code - Reinforcing Steel."

J. Pre-installation Conference: Conduct conference at Project site

1. Before submitting design mixtures, review concrete design mixture and examine procedures for ensuring quality of concrete materials. Require representatives of each entity directly concerned with cast-in-place concrete to attend, including the following:

a. Contractor's superintendent.
b. Independent testing agency responsible for concrete testing.
c. Ready-mix concrete manufacturer.
d. Concrete subcontractor.

2. Review inspection and testing agency procedures for field quality control, concrete finishes and finishing, cold-weather and hot-weather concreting procedures, curing procedures, construction contraction and isolation joints, and joint-filler strips, semi-rigid joint fillers, forms and form removal limitations, shoring and reshoring procedures, vapor-retarder installation, anchor rod and anchorage device installation tolerances, steel reinforcement installation, floor and slab flatness and levelness measurement, concrete repair procedures, and concrete protection.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Steel Reinforcement: Deliver, store, and handle steel reinforcement to prevent bending and damage.

PART 2 - PRODUCTS

2.1 FORM-FACING MATERIALS

A. Exposed Smooth-Formed Finished Concrete: Form-facing panels that will provide continuous, true, and smooth concrete surfaces. Furnish in largest practicable sizes to minimize number of joints.

1. Plywood, metal, or other approved panel materials.

a. Exterior-grade plywood panels, suitable for concrete forms, complying with DOC PS 1, and as follows: B-B Plyform (Concrete Form), Class 1 Exterior Type – Douglas Fir Plywood Association or better; mill oiled and edge sealed.

B. Unexposed Formed Finished Concrete: Plywood, lumber, metal, or another approved material. Provide lumber dressed on at least two edges and one side for tight fit.

C. Chamfer Strips: Wood, metal, PVC, or rubber strips, 3/4 by 3/4 inch, or as shown on the drawings.

D. Rustication Strips: Wood, metal, PVC, or rubber strips, kerfed for ease of form removal. Refer to drawings for details.

E. Form-Release Agent: Commercially formulated form-release agent that will not bond with, stain, or adversely affect concrete surfaces and will not impair subsequent treatments of concrete surfaces.

1. Formulate form-release agent with rust inhibitor for steel form-facing materials.

F. Form Ties: Factory-fabricated, removable or snap-off metal or glass-fiber-reinforced plastic form ties designed to resist lateral pressure of fresh concrete on forms and to prevent spalling of concrete on removal.

1. Furnish units that will leave no corrodible metal closer than 1 inchto the plane of exposed concrete surface.
2. Furnish ties that, when removed, will leave holes no larger than 1 inch in diameter in concrete surface.
3. Furnish ties with integral water-barrier plates to walls indicated to receive damp proofing or waterproofing.

2.2 STEEL REINFORCEMENT

A. Reinforcing Bars:

1. ASTM A615, Grade 60 (minimum).

B. Plain-Steel Welded Wire Reinforcement:

1. ASTM A1084 Grade 60, plain-steel bars, cut true to length with ends square and free of burrs.
2. Provide 6x6 – W1.4xW1.4 WWF (min.) unless otherwise indicated.

2.3 REINFORCEMENT ACCESSORIES

A. Bar Supports: Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars and welded wire reinforcement in place. Manufacture bar supports from steel wire, plastic, or precast concrete according to CRSI's "Manual of Standard Practice," of greater compressive strength than concrete and as follows:

1. Size and spacing sufficient to hold and support in position all reinforcing during construction and placing of concrete, but not less than the recommendations of ACI-315 and CRSI Manuals of Standard Practice Class C & D.
2. Bar supports resting on wooden forms shall have upturned legs. All supports for reinforcing shall be adequate to hold reinforcing in place during construction and during placing of concrete.
3. For concrete surfaces exposed to view where legs of wire bar supports contact forms, use CRSI Class 1 all-plastic bar supports or CRSI Class 2 stainless-steel bar supports.
4. Support foundation reinforcing on concrete support blocks as detailed on the drawings.
5. Reinforcing for slabs on grade shall be maintained in the specified locations within the slab or approved support blocks or chairs shall be used.

2.4 CONCRETE MATERIALS

A. Cementitious Material: Use the following cementitious materials, of the same type, brand, and source, throughout Project:

1. Portland Cement: ASTM C150, Type I or Type III, gray. May be Supplemented with the following:

    a. Fly Ash: ASTM C618, Class F. Fly ash (ASTM C618, Type F) may be used in quantities up to 25% of cement content by weight.
    b. Ground Granulated Blast-Furnace Slag: ASTM C989, Grade 100 or 120. Replacement of a portion of Type I cement with ground iron blast-furnace slag ASTM C989 shall be limited to 50% by weight.
    c. Silica Fume: ASTM C1240, amorphous silica. Replacement of a portion of Type I cement with Silica/Fume, AASHTO M307, shall be limited to 25% by weight.

B. Normal-Weight Aggregates:

1. Maximum Coarse-Aggregate Size: Crushed stone, rock or gravel meeting requirements of ASTM C33 and graded in accordance with Table 2 size No. 57 (max.). All aggregate for exposed concrete shall be from the same source.
2. Fine Aggregate: Clean, sharp silica or quartz sand meeting all requirements of ASTM C33 and having a fineness modulus between 2.25 and 3.0. Free of materials with deleterious reactivity to alkali in cement.
3. Aggregate shall be free of soft or friable particles, be free of unfavorable capillary absorption characteristics and shall not produce weather stains

C. Water: ASTM C94 and potable, free from acid, oil or other injurious matter.

2.5 ADMIXTURES

A. General Requirements:

1. When any specified admixture is used in the concrete, the compressive strength, bond strength and flexural strength shall not be less than that of the specified concrete strengths without admixtures.
2. All admixtures used in a mix design shall be compatible with each other.
3. Volume change of concrete shall not be more with admixtures than without admixtures.
4. No concrete ingredient shall contain more than 0.05% chloride ions or the amount present in municipal drinking water, whichever is less.
5. Written conformance to above mentioned requirements and the chloride ion content will be required from the admixture manufacturer prior to mix design review by the SER.

B. Air-Entraining Admixture: ASTM C260.

C. Chemical Admixtures: Provide admixtures certified by manufacturer to be compatible with other admixtures and that will not contribute water-soluble chloride ions exceeding those permitted in hardened concrete. Do not use calcium chloride or admixtures containing calcium chloride.

1. Water-Reducing Admixture: ASTM C494, Type A.
2. Retarding Admixture: ASTM C494, Type B.
3. Water-Reducing and Retarding Admixture: ASTM C494, Type D.
4. High-Range, Water-Reducing Admixture (Superplasticizer): ASTM C494, Type F.
5. High-Range, Water-Reducing and Retarding Admixture (Superplasticizer): ASTM C494, Type G.
6. Plasticizing and Retarding Admixture: ASTM C1017, Type II.

D. Calcium Chloride: Calcium chloride is **not** permitted.

E. Set-Accelerating Corrosion-Inhibiting Admixture: Commercially formulated, anodic inhibitor or mixed cathodic and anodic inhibitor; capable of forming a protective barrier and minimizing chloride reactions with steel reinforcement in concrete and complying with ASTM C494, Type C.

1. Products: Subject to compliance with requirements, provide one of the following or equal approved by the SER or the Architect prior to bidding

a. BASF Construction Chemicals - Building Systems; Rheocrete CNI.
b. Euclid Chemical Company (The), an RPM company; ARRMATECT, EUCON BCN or EUCON CIA.

F. Non-Set-Accelerating Corrosion-Inhibiting Admixture: Commercially formulated, non-set-accelerating, anodic inhibitor or mixed cathodic and anodic inhibitor; capable of forming a protective barrier and minimizing chloride reactions with steel reinforcement in concrete.

1. Products: Subject to compliance with requirements, provide one of the following or equal approved by the SER or the Architect prior to bidding:

a. BASF Construction Chemicals - Building Systems; Rheocrete 222+.
b. Cortec Corporation; MCI- 2000.
c. Scofield, L. M. Company.
d. Solomon Colors, Inc.

2.6 VAPOR RETARDERS

A. Sheet Vapor Retarder: 15 mil minimum, ASTM E1745, Class A. Include manufacturer's recommended adhesive or pressure-sensitive tape.

1. Products: Subject to compliance with requirements, provide the following or equal approved by the SER or the Architect prior to bidding:

a. Stego Industries, LLC; Stego Wrap 15 mil Class A.

2. Install vapor retarder directly under all interior slabs-on-grade. Following leveling and tamping of granular base for slabs on grade, place vapor retarder sheeting with the longest dimension parallel with direction of pour. Joints shall be lapped at least 6 inches and sealed with a completely continuous pressure sensitive tape. Just prior to the pouring of the concrete, the vapor retarder shall be checked for punctures. All holes shall be covered with strips of the same material lapping holes 6 inches on all sides. Vapor retarder installation must be reviewed prior to concrete placement.

2.7 LIQUID FLOOR TREATMENTS

A. VOC Content: Liquid floor treatments shall have a VOC content of 200 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

B. Penetrating Liquid Floor Treatment: Clear, chemically reactive, waterborne solution of inorganic silicate or siliconate materials and proprietary components; odorless; that penetrates, hardens, and densifies concrete surfaces.

1. Products: Subject to compliance with requirements, provide one of the following or equal approved by the SER or the Architect prior to bidding:

a. Conspec by Dayton Superior; Sure Hard Densifier J17.
b. Curecrete Distribution Inc.; Ashford Formula.
c. Euclid Chemical Company (The), an RPM company; Euco Diamond Hard.
d. L&M Construction Chemicals, Inc.; Seal Hard.
e. Meadows, W. R., Inc.; LIQUI-HARD.

2.8 CURING MATERIALS

A. Evaporation Retarder: Waterborne, monomolecular film forming, manufactured for application to fresh concrete.

1. Products: Subject to compliance with requirements, provide one of the following or equal approved by the SER or the Architect prior to bidding:

a. BASF Construction Chemicals - Building Systems; Confilm.
b. Conspec by Dayton Superior; Aquafilm J74RTU.
c. Euclid Chemical Company (The), an RPM company; Eucobar.
d. Meadows, W. R., Inc.; EVAPRE.
e. Sika Corporation; SikaFilm.

B. Absorptive Cover: AASHTO M 182, Class 2, burlap cloth made from jute or kenaf, weighing approximately 9 oz./sq. yd. when dry.

C. Moisture-Retaining Cover: ASTM C171, polyethylene film or white burlap-polyethylene sheet.

D. Water: Potable.

E. Clear, Waterborne, Membrane-Forming Curing Compound: ASTM C309, Type 1, Class B, dissipating.

1. Products: Subject to compliance with requirements, provide one of the following or equal approved by the SER or the Architect prior to bidding:

a. Anti-Hydro International, Inc.; AH Curing Compound #2 DR WB.
b. BASF Construction Chemicals - Building Systems; Kure-N-Seal.
c. Conspec by Dayton Superior; Clear Resin Cure J11W.
d. Euclid Chemical Company (The), an RPM company; Kurez W VOX.
e. Meadows, W. R., Inc.; 1100-CLEAR.

F. Clear, Waterborne, Membrane-Forming Curing Compound: ASTM C309, Type 1, Class B, 18 to 25 percent solids, nondissipating, certified by curing compound manufacturer to not interfere with bonding of floor covering.

1. Products: Subject to compliance with requirements, provide one of the following or equal approved by the SER or the Architect prior to bidding:

a. BASF Construction Chemicals - Building Systems; Kure-N-Seal W.

b. Conspec by Dayton Superior; Cure & Seal 309 J18.
c. Euclid Chemical Company (The), an RPM company; Diamond Clear VOX Meadows, W. R., Inc.; Vocomp-20.

G. Clear, Solvent-Borne, Membrane-Forming Curing and Sealing Compound: ASTM C1315, Type 1, Class A.

1. Products: Subject to compliance with requirements, provide one of the following or equal approved by the SER or the Architect prior to bidding:

a. BASF Construction Chemicals - Building Systems; Kure-N-Seal 25 LV.
b. Conspec by Dayton Superior; Cure & Seal LV 25% J20 UV.
c. Euclid Chemical Company (The), an RPM company; Super Diamond Clear.
d. Meadows, W. R., Inc.; CS-309/30.

2. VOC Content: Curing and sealing compounds shall have a VOC content of 200 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

H. Clear, Waterborne, Membrane-Forming Curing and Sealing Compound: ASTM C1315, Type 1, Class A.

1. Products: Subject to compliance with requirements, provide one of the following or equal approved by the SER or the Architect prior to bidding:

a. BASF Construction Chemicals - Building Systems; Kure 1315.
b. Conspec by Dayton Superior; Cure & Seal 1315 J22 WB.
c. Euclid Chemical Company (The), an RPM company; Super Diamond Clear VOX.
d. Meadows, W. R., Inc.; Vocomp-30.

2. VOC Content: Curing and sealing compounds shall have a VOC content of 200 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

2.9 RELATED MATERIALS

A. Expansion- and Isolation-Joint-Filler Strips: ASTM D1751, asphalt-saturated cellulosic fiber.

B. Bonding Agent: ASTM C1059, Type II, non-redispersible, acrylic emulsion or styrene butadiene.

C. Epoxy Bonding Adhesive: ASTM C881, two-component epoxy resin, capable of humid curing and bonding to damp surfaces, of class suitable for application temperature and of grade to suit requirements, and as follows:

1. Types IV and V, load bearing, for bonding hardened or freshly mixed concrete to hardened concrete.

D. Reglets: Fabricate reglets of not less than 0.022-inch- thick, galvanized-steel sheet. Temporarily fill or cover face opening of reglet to prevent intrusion of concrete or debris.

E. Post-Installed anchors and anchoring systems: Refer to the General Structural Notes on the construction drawings.

2.10 REPAIR MATERIALS

A. Repair Underlayment: Cement-based, polymer-modified, self-leveling product that can be applied in thicknesses from 1/8 inch and that can be feathered at edges to match adjacent floor elevations.

1. Cement Binder: ASTM C150, portland cement or hydraulic or blended hydraulic cement as defined in ASTM C219.
2. Primer: Product of underlayment manufacturer recommended for substrate, conditions, and application.
3. Aggregate: Well-graded, washed gravel, 1/8 to 1/4 inch or coarse sand as recommended by underlayment manufacturer.
4. Compressive Strength: Not less than 4000 psiat 28 days when tested according to ASTM C109.

B. Repair Overlayment: Cement-based, polymer-modified, self-leveling product that can be applied in thicknesses from 1/4 inchand that can be filled in over a scarified surface to match adjacent floor elevations.

1. Cement Binder: ASTM C150, portland cement or hydraulic or blended hydraulic cement as defined in ASTM C219.
2. Primer: Product of topping manufacturer recommended for substrate, conditions, and application.
3. Aggregate: Well-graded, washed gravel, 1/8 to 1/4 inchor coarse sand as recommended by topping manufacturer.
4. Compressive Strength: Not less than 5000 psiat 28 days when tested according to ASTM C109.

C. FLOOR PATCHING RESURFACER

1. Military Spec. MIL-D-3135. Fed. Spec. SS-C-1302. Latex or acrylic epoxy type.

2.11 CONCRETE MIXTURES, GENERAL

A. Prepare design mixtures for each type and strength of concrete, proportioned on the basis of laboratory trial mixture or field test data, or both, according to ACI 301.

B. Proportions: All concrete shall be accurately proportioned by weight so as to give an ultimate compressive strength at 28 days, or at a time of use, as called for on the structural drawings. The proportions of materials shall be such as to produce concrete that can be readily puddled into the corners and angles of the forms and around the reinforcement without segregation or undue accumulation of water or laitance on the surface. Water/cementitious ratio shall be held to the minimum consistent with proper placing and finishing. The amount of mixing water used shall take into account the moisture, or lack of the same, in the aggregate and liquid admixtures used.

C. Cementitious Materials Limit percentage, by weight, of cementitious materials other than portland cement in concrete as follows:

1. Fly Ash: 25 percent.
2. Combined Fly Ash and Pozzolan: 25 percent.
3. Ground Granulated Blast-Furnace Slag: 50 percent.
4. Combined Fly Ash or Pozzolan and Ground Granulated Blast-Furnace Slag: 50 percent portland cement minimum, with fly ash or pozzolan not exceeding 25 percent.
5. Silica Fume: 25 percent.

D. Limit water-soluble, chloride-ion content in hardened concrete to that present in the local Municipal water supply.

E. Admixtures: Use admixtures according to manufacturer's written instructions.

1. Use water-reducing, high-range water-reducing or plasticizing admixture in concrete, as required, for placement and workability.

2. Use water-reducing and retarding admixture when required by high temperatures, low humidity, or other adverse placement conditions.
3. Use water-reducing admixture in pumped concrete and concrete with a water-cementitious materials ratio below 0.50.
4. Use corrosion-inhibiting admixture in concrete mixtures where indicated.

2.12 CONCRETE MIXTURES FOR BUILDING ELEMENTS

A. Footings: Proportion normal-weight concrete mixture as follows:

1. Minimum Compressive Strength: 3000 psi at 28 days.
2. Maximum Water-Cementitious Materials Ratio: 0.55.
3. Minimum Cementitious Materials Content: 470 lb/cu. yd.
4. Maximum Aggregate Size: 1”.
5. Slump Range: 3inchesto 6 inches.

B. Slabs-on-Grade: Proportion normal-weight concrete mixture as follows:

1. Minimum Compressive Strength: 3500 psi at 28 days.
2. Maximum Water-Cementitious Materials Ratio: 0.50.
3. Minimum Cementitious Materials Content: 500 lb/cu. yd.
4. Maximum Aggregate Size: 3/4”.
5. Slump Range: 2 inches to 4 inches.

2.13 FABRICATING REINFORCEMENT

A. Fabricate steel reinforcement according to CRSI's "Manual of Standard Practice."

2.14 CONCRETE MIXING

A. Ready-Mixed Concrete: Measure, batch, mix, and deliver concrete according to ASTM C94 and ASTM C1116, and furnish batch ticket information. A competent foreman shall be in charge of concrete mixing at all times.

B. Mixers shall be in first class working order. Mixer blades shall not have their height reduced by more than one inch. Blades showing more wear than this shall be replaced, or the mixer shall not be used.

C. Mixers shall be equipped with accurate and dependable water measuring devices.

D. When air temperature is between 85 and 90 degrees F, reduce mixing and delivery time from 1-1/2 hours to 75 minutes; when air temperature is above 90 degrees F, reduce mixing and delivery time to 60 minutes.

E. Concrete Temperature

1. When concrete temperature is below 85 degrees when the mixer (truck) arrives on site, the total maximum time that concrete may be placed from the truck from the time of batching is 90 minutes.
2. When concrete is between 85 and 90 degrees when the mixer (truck) arrives on site, the total maximum time that concrete may be placed from the truck from the time of batching is 75 minutes.
3. When concrete is between 90 and 95 degrees when the mixer (truck) arrives on site, the total maximum time that concrete may be placed from the truck from the time of batching is 60 minutes. In this case, the following conditions must be monitored:

a. Temperature of the concrete shall be monitored with a properly calibrated thermometer. Should the temperature during placement exceed 95 degrees, the placement of concrete from the truck shall cease.

4. When concrete temperature is greater than 95 degrees when the truck arrives on site, the truck shall be rejected and may not return to the site during the current product placement.

PART 3 - EXECUTION

3.1 FORMWORK

A. Design, erect, shore, brace, and maintain formwork, according to ACI 301, to support vertical, lateral, static, and dynamic loads, and construction loads that might be applied, until structure can support such loads.

B. Construct formwork so concrete members and structures are of size, shape, alignment, elevation, and position indicated, within tolerance limits of ACI 117.

C. Limit concrete surface irregularities, designated by ACI 347 as abrupt or gradual, as follows:

1. Class A, 1/8 inch for smooth-formed finished surfaces.
2. Class B, 1/4 inch for rough-formed finished surfaces.

D. Construct forms tight enough to prevent loss of concrete mortar.

E. Fabricate forms for easy removal without hammering or prying against concrete surfaces. Provide crush or wrecking plates where stripping may damage cast concrete surfaces. Provide top forms for inclined surfaces steeper than 1.5 horizontal to 1 vertical.

1. Install keyways, reglets, recesses, and the like, for easy removal.
2. Do not use rust-stained steel form-facing material.

F. Set edge forms, bulkheads, and intermediate screed strips for slabs to achieve required elevations and slopes in finished concrete surfaces. Provide and secure units to support screed strips; use strike-off templates or compacting-type screeds.

G. Provide temporary openings for cleanouts and inspection ports where interior area of formwork is inaccessible. Close openings with panels tightly fitted to forms and securely braced to prevent loss of concrete mortar. Locate temporary openings in forms at inconspicuous locations.

F. Chamfer exterior corners and edges of permanently exposed concrete, unless noted otherwise.

1. Exposed corners of beams, columns and walls shall be chamfered with 3/4” x 3/4”, or size shown on Drawings, wood strip or PVC manufactured plastic strips. Accurately form surface to product uniformly straight lines and tight edge joints. Miter joints at changes in direction and where terminated in an exposed condition.

2. Where masonry or other framing or finish material butts flush to columns, beams or walls, corners shall be square or as noted on the drawings.

H. Form openings, chases, offsets, keyways, reglets, blocking, screeds, and bulkheads required in the Work. Determine sizes and locations from trades providing such items.

I. Provision for Other Trades: Provide openings in concrete formwork to accommodate work of other trades. Size and location of openings, recesses and chases are the responsibility of the trade requiring such items. Accurately place and securely support items to be built into the forms.

J. Clean forms and adjacent surfaces to receive concrete. Remove chips, wood, sawdust, dirt, and other debris just before placing concrete.

K. Retighten forms and bracing before placing concrete, as required, to prevent mortar leaks and maintain proper alignment.

L. Coat contact surfaces of forms with form-release agent, according to manufacturer's written instructions, before placing reinforcement.

3.2 EMBEDDED ITEMS

A. Place and secure anchorage devices and other embedded items required for adjoining work that is attached to or supported by cast-in-place concrete. Use setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.

1. Install reglets to receive waterproofing and to receive through-wall flashings in outer face of concrete frame at exterior walls, where flashing is shown at lintels, shelf angles, and other conditions.
2. Install dovetail anchor slots in concrete structures where masonry abuts structure and as indicated.
3. Set and build into the work: anchorage devices, steel angles and plates, dovetail anchor slots, ceiling inserts and other embedded items required for work that is attached to, or supported by, cast-in-place concrete.
4. Use setting drawings, diagrams, instructions and directions provided by the supplier of the items attached thereto and to other sections of these specifications.
5. Protect all embedded items that must be set by others.
6. Set all bolts, anchors, grounds and inserts as required.
7. Where structural steel shapes and other members are shown bolted to the concrete, bolts shall be set in proper position in the forms before the concrete is placed and space as indicated on the drawings.
8. Bolts and nuts exposed to moisture conditions shall be galvanized.
9. Conduit: Conduit may be placed in slabs 4-1/2” or more in thickness provided conduit or layers or conduit fall completely within the middle 1/3 of the slab depth and are spaced not closer than 24” o.c. No conduit in slabs shall be more than 1” in diameter. No pipe or conduit shall interfere with the placing or functioning of the reinforcing and it shall be rigidly held in the specified positions.
10. Conduit shall not be placed within slabs in composite slab construction or in concrete placed on steel form deck – typical.

3.3 REMOVING AND REUSING FORMS

A. General: Formwork for sides of beams, walls, columns, and similar parts of the Work that does not support weight of concrete may be removed after cumulatively curing at not less than 50 degrees F for 24 hours after placing concrete. Concrete has to be hard enough to not be damaged by form-removal operations and curing and protection operations need to be maintained.

1. ACI 301 and ACI 347 require concrete to reach its specified compressive strength.
2. Leave formwork for beam soffits, joists, slabs, and other structural elements that supports weight of concrete in place until concrete has achieved at least 75 percent of its 28-day design compressive strength.

3. Remove forms only if shores have been arranged to permit removal of forms without loosening or disturbing shores.
4. When completed, all forms shall be completely removed, and all form ties shall be broken back or pushed out and filled as specified.

B. Clean and repair surfaces of forms to be reused in the Work. Split, frayed, delaminated, or otherwise damaged form-facing material will not be acceptable for exposed surfaces. Apply new form-release agent.

C. When forms are reused, clean surfaces, remove fins and laitance, and tighten to close joints. Align and secure joints to avoid offsets. Do not use patched forms for exposed concrete surfaces unless approved by Architect.

D. Apply new form coating compound material to concrete contact form surfaces as specified for new formwork.

3.4 VAPOR RETARDERS

A. Sheet Vapor Retarders: Place, protect, and repair sheet vapor retarder according to ASTM E1643 and manufacturer's written instructions.

1. Lap joints 6 inches and seal with manufacturer's recommended tape or sealant.

3.5 STEEL REINFORCEMENT

A. General: Contractor shall be responsible for the placing and functioning of the reinforcement. Comply with the codes and standards specified, and the Concrete Reinforcing Steel Institute's recommended practice for "Placing Reinforcing Bars", for details and methods of reinforcement placing and supports, and as herein specified.

1. Do not cut or puncture vapor retarder. Repair damage and reseal vapor retarder before placing concrete.

B. Cleaning: Reinforcing shall be free of loose scale, flaking, rust, oil, mud or other foreign matter when placed in the forms and when concrete is placed. Where any spilled concrete has dried on the steel, it shall be thoroughly cleaned before additional concrete is placed.

C. Bending:

1. Reinforcement shall be of correct length and size and accurately bent in accordance with contract drawings.
2. All bars shall be shop fabricated and shall be bent cold.
3. Unless otherwise specifically noted, "recommended" hooks and bends as per ACI 315 shall be used. Slant hooks as required to maintain specified clearances – do not cut hook tails.
4. Bars which are straight except for hooks are scheduled as straight bars.
5. Where lengths of bars are called for on the drawings, they are exclusive of hooks.

D. Accurately position, support, and secure reinforcement against displacement. Locate and support reinforcement with bar supports to maintain minimum concrete cover. Do not tack weld crossing reinforcing bars.

1. Weld reinforcing bars according to AWS D1.4, only where indicated.

E. Set wire ties (18 gauge wire minimum) with ends directed into concrete, not toward exposed concrete surfaces.

F. Splicing: No splicing of main reinforcing steel will be permitted unless specifically shown on the drawings. Bars marked continuous shall be lapped forty (40) diameters (minimum) at splices and at corner conditions where corner bars shall be provided. Wire mesh shall be lapped six inches minimum and shall be wired together.

G. Protection of Reinforcing: As indicated on drawings.

H. Install welded wire reinforcement in longest practicable lengths on bar supports spaced to minimize sagging. Lap edges and ends of adjoining sheets at least one mesh spacing plus 2". Offset laps of adjoining sheet widths to prevent continuous laps in either direction. Lace overlaps with wire.

I. Tolerances: Minimum concrete cover for reinforcing indicated on drawings must be maintained. Tolerances for location of reinforcing shall fall within the limits listed below:

1. Cover on bottom bars……±1/4 inch
2. Lengthwise positioning of bars……..±1 inch
3. Spacing of bars in walls, slabs and footings……...±1 inch
4. Spacing of bars in beams……-1/4 inch
5. Cover on top bars……+1/4 inch
6. Stirrup spacing:
   For one stirrup……..-1/2 inch
   Overall group of stirrups ……+2 inches

3.6 JOINTS

A. General:

1. Construct joints true to line with faces perpendicular to surface plane of concrete.
2. Except as otherwise indicated on drawings, the work shall be planned to provide a minimum number of construction joints consistent with good placing practices.
3. Location of joints not indicated must be approved by Architect.
4. Columns shall be placed continuously to an even level of the bottoms of connecting beams.
5. Give particular attention to cleaning of laitance from top of vertical members and to cleaning of concrete from projecting reinforcing.
6. Reinforcing shall run continuous through construction joints.
7. Provide 1-1/2" deep keyways between walls and beams and walls and footings.

B. Construction Joints: Install so strength and appearance of concrete are not impaired, at locations indicated or as approved by Architect.

1. Place joints perpendicular to main reinforcement. Continue reinforcement across construction joints unless otherwise indicated. Do not continue reinforcement through sides of strip placements of floors and slabs.
2. Form keyed joints as indicated. Embed keys at least 1-1/2 inches into concrete.
3. Locate joints for beams, slabs, joists, and girders in the middle third of spans. Offset joints in girders a minimum distance of twice the beam width from a beam-girder intersection.
4. Locate horizontal joints in walls and columns at underside of floors, slabs, beams, and girders and at the top of footings or floor slabs.
5. Space vertical joints in walls as indicated. Locate joints beside piers integral with walls, near corners, and in concealed locations where possible.
6. Use a bonding agent at locations where fresh concrete is placed against hardened or partially hardened concrete surfaces.
7. Use epoxy-bonding adhesive at locations where fresh concrete is placed against hardened or partially hardened concrete surfaces.

C. Contraction (Control) Joints in Slabs-on-Grade: Form weakened-plane contraction joints, sectioning concrete into areas as indicated. Construct contraction joints for a depth equal to at least one-fourth of concrete thickness as follows:

1. Grooved Joints: Form contraction joints after initial floating by grooving and finishing each edge of joint to a radius of 1/8 inch. Repeat grooving of contraction joints after applying surface finishes. Eliminate groover tool marks on concrete surfaces.
2. Sawed Joints: Form contraction joints with power saws equipped with shatterproof abrasive or diamond-rimmed blades. Cut 1/8-inchwide gap ¼ of the slab depth joints into concrete when cutting action will not tear, abrade, or otherwise damage surface and before concrete develops random contraction cracks.

D. Isolation Joints in Slabs-on-Grade: After removing formwork, install joint-filler strips at slab junctions with vertical surfaces, such as column pedestals, foundation walls, grade beams, and other locations, as indicated.

1. Terminate full-width joint-filler strips not less than 1/2 inch or more than 1 inch below finished concrete surface where joint sealants, specified in Section 07 900 "Sealants," are indicated.

E. Expansion joints: Construct expansion joints where indicated on drawings and in slabs to form patterns of panels as indicated on drawings.

3.7 CONCRETE PLACEMENT

A. General:

1. Comply with ACI 304, and as herein specified.
2. Deposit concrete continuously or in layers of such thickness that no concrete will be placed on concrete which has hardened sufficiently to cause the formation of seams or planes of weakness within the section. If a section cannot be placed continuously, provide construction joints as specified.
3. Deposit concrete as nearly as practicable to its final location to avoid segregation due to rehandling or flowing.
4. Clean all dowels of concrete before placing new concrete.
5. Do not place concrete in standing water nor in rainy weather.

B. Before placing concrete, verify that installation of formwork, reinforcement, and embedded items is complete and that required inspections have been performed.

C. Do not add water to concrete during delivery, at Project site, or during placement unless approved by Architect.

D. Deposit concrete continuously in one layer or in horizontal layers of such thickness that no new concrete will be placed on concrete that has hardened enough to cause seams or planes of weakness. If a section cannot be placed continuously, provide construction joints as indicated. Deposit concrete to avoid segregation.

1. Deposit concrete in horizontal layers of depth to not exceed formwork design pressures and in a manner to avoid inclined construction joints.
2. Consolidate placed concrete with mechanical vibrating equipment according to ACI 301.
3. Do not use vibrators to transport concrete inside forms. Insert and withdraw vibrators vertically at uniformly spaced locations to rapidly penetrate placed layer and at least 6 inches into preceding layer. Do not insert vibrators into lower layers of concrete that have begun to lose plasticity. At each insertion, limit duration of vibration to time necessary to consolidate concrete and complete embedment of reinforcement and other embedded items without causing mixture constituents to segregate.

E. Deposit and consolidate concrete for floors and slabs in a continuous operation, within limits of construction joints, until placement of a panel or section is complete.

1. Consolidate concrete during placement operations so concrete is thoroughly worked around reinforcement and other embedded items and into corners.
2. Maintain reinforcement in position on chairs during concrete placement.
3. Screed slab surfaces with a straightedge and strike off to correct elevations.
4. Slope surfaces uniformly to drains where required.
5. Begin initial floating using bull floats or darbies to form a uniform and open-textured surface plane, before excess bleed water appears on the surface. Do not further disturb slab surfaces before starting finishing operations.

F. Cold-Weather Placement: Comply with ACI 306.1.

G. Hot-Weather Placement: Comply with ACI 305.

H. Pre-Placement Inspection:

1. Before placing concrete, inspect and complete the formwork installation, reinforcing steel, and items to be imbedded or cast-in.
2. Notify other crafts to permit the installation of their work; cooperate with other trades in setting such work, as required.
3. Coordinate the installation of joint materials and moisture retarders with placement of forms and reinforcing steel.
4. Before placing concrete for slab on grade, all piping and other utilities under slab shall have been inspected and tested and all excavations back-filled and properly compacted and tested to the specified modified proctor (95% minimum).
5. Completely clean forms of all debris, sawdust, dirt, etc. prior to concrete placement.
6. Thoroughly wet wood forms, earth, and masonry, immediately before placing concrete where forms coatings are not used.
7. Notify Architect and Engineer of placing schedule at least 48 hours in advance.

I. Placing Concrete in Forms:

1. Deposit concrete in forms in horizontal layers not deeper than 24” and in a manner to avoid cold joints. Where placement consists of several layers, place each layer while preceding layer is still plastic to avoid cold joints.
2. Remove temporary spreaders in forms when concrete placing has reached the elevation of such spreaders.
3. Consolidate placed concrete by mechanical vibrating equipment supplemented by hand-spading, rodding or tamping. Use vibrators designed to operate with vibratory element submerged in concrete, maintaining a speed of not less than 10,000 impulses per minute. Have available for use at least two vibrators, in case of breakdown, for each concrete placing crew. Use equipment and procedures for consolidation of concrete in accordance with the recommended practices of ACI 309, to suit the type of concrete and project conditions. Vibration of forms and reinforcing will not be permitted, unless expressly accepted by the Engineer. Do not use vibrators to transport concrete inside of forms. Insert and withdraw vibrators vertically at uniformly spaced locations not farther than the visible effectiveness of the machine. Place vibrators to rapidly penetrate the placed layer of concrete and at least 6 inches into the preceding layer. Do not insert vibrators into lower layers of concrete that have begun to set. At each insertion, limit the duration of vibration to the time necessary to consolidate the concrete and complete embedment of reinforcement and other embedded items without causing segregation of the mix.
4. Do not place concrete on supporting elements until the concrete previously placed in columns and walls is no longer plastic. (2 hrs. min.)

J. Placing Horizontal Concrete Work:

1. Maintain reinforcing in the proper position during concrete placement operations.
2. Deposit and consolidate concrete in a continuous operation, within the limits of construction joints, until the placing of a panel or section is completed.
3. Consolidate concrete during placing operations so that concrete is thoroughly worked around reinforcement and other embedded items and into corners. Consolidate concrete in slabs by vibrating bridge screeds, roller pipe screeds, or other acceptable methods. Limit the time of vibrating consolidation to prevent bringing an excess of fine aggregate to the surface.
4. Bring slab surfaces to the correct level with a straightedge and strikeoff. Use bull floats or darbies to smooth the surface, leaving it free of humps or hollows. Do not sprinkle water or cement on the plastic surface. Do not disturb the slab surfaces prior to beginning finishing operations. Maintain reinforcing in the proper position during concrete placement operations.

3.8 BONDING

A. General: Roughen surfaces of set concrete at all joints, except where bonding is obtained by use of a concrete bonding agent, and clean surfaces of laitance, coatings, loose particles and foreign matter. Roughen surfaces in a manner to expose bonded aggregate or remove damaged concrete at the surface.

B. New to Hardened Fresh Concrete: Dampen but do not saturate the roughened and cleaned surface of set concrete and apply a coat of neat cement grout composed of equal parts of Portland Cement and fine aggregate by weight with not more than 6 gallons of water per sack of cement. Apply with a stiff broom or brush to a minimum thickness of 1/16”. Deposit fresh concrete before cement grout has attained its initial set. In lieu of neat cement grout, surface in accordance with manufacturer’s printed instructions. Acceptable: Euclid “Euco Weld”; Larsen “Weldcrete”.

3.9 FINISHING FORMED SURFACES

A. General: Immediately after removing forms, inspect concrete for honeycombs, voids, fins, stone pockets, and other imperfections. Remove fins and other unintended projections; properly fill and patch all imperfections.

B. Rough-Formed Finish: As-cast concrete texture imparted by form-facing material with tie holes and defects repaired and patched.

1. Apply to concrete surfaces not exposed to public view.
2. After patching is completed, sack grout to fill all air and bubble holes.

C. Smooth-Formed Finish: As-cast concrete texture imparted by form-facing material, arranged in an orderly and symmetrical manner with a minimum of seams. Repair and patch tie holes and defects. Remove fins and other projections that exceed specified limits on formed-surface irregularities.

1. Apply to concrete surfaces exposed to public view, to receive a rubbed finish, to be covered with a coating or covering material applied directly to concrete

D. Rubbed Finish: Unless specifically noted otherwise, provide all concrete surfaces with a smooth rubbed finish, uniform in color and texture. Apply the following to smooth-formed finished as-cast concrete where indicated:

1. Smooth-Rubbed Finish: Not later than one day after form removal, moisten concrete surfaces and rub with carborundum brick or another abrasive until producing a uniform

color and texture. Do not apply cement grout other than that created by the rubbing process.

E. Related Unformed Surfaces: At tops of walls, horizontal offsets, and similar unformed surfaces adjacent to formed surfaces, strike off smooth and finish with a texture matching adjacent formed surfaces. Continue final surface treatment of formed surfaces uniformly across adjacent unformed surfaces unless otherwise indicated.

3.10 FINISHING FLOORS AND SLABS

A. General: Comply with ACI 302.1R recommendations for screeding, re-straightening, and finishing operations for concrete surfaces. Do not wet concrete surfaces.

B. Scratch Finish: While still plastic, texture concrete surface that has been screeded and bull-floated or darbied. Use stiff brushes, brooms, or rakes to produce a profile amplitude of 1/4 inch in one direction.

1. Apply scratch finish to surfaces indicated and to receive concrete floor toppings and to receive mortar setting beds for bonded cementitious floor finishes.

C. Float Finish: Consolidate surface with power-driven floats or by hand floating if area is small or inaccessible to power driven floats. Re-straighten, cut down high spots, and fill low spots. Repeat float passes and re-straightening until surface is left with a uniform, smooth, granular texture.

1. Apply float finish to surfaces indicated to receive trowel finish and to surfaces to be covered with fluid-applied or sheet waterproofing, built-up or membrane roofing, or sand-bed terrazzo.
2. After screeding and consolidating concrete slabs, do not work surface until ready for floating.
3. Begin floating when surface water has disappeared or when concrete has stiffened sufficiently to permit operation of power-driven or hand floating if area is small or inaccessible to power units.
4. Check and level surface plane to a tolerance not exceeding 1/4” in 10 feet when tested with a 10-foot straightedge. Cut down high spots and fill low spots.
5. Uniformly slope surface to drains.
6. Immediately after leveling, refloat surface to a uniform, smooth texture.

D. Trowel Finish: After applying float finish, apply first troweling and consolidate concrete by hand or power-driven trowel. Continue troweling passes and re-straighten until surface is free of trowel marks and uniform in texture and appearance. Grind smooth any surface defects that would telegraph through applied coatings or floor coverings.

1. Apply a trowel finish to surfaces exposed to view or to be covered with resilient flooring, carpet, ceramic or quarry tile set over a cleavage membrane, paint, or another thin-film-finish coating system.
2. After floating, make first trowel finish operation using a power-driven trowel. Begin final troweling when surface produces a ringing sound as trowel is moved over surface. Surface shall be toweled at least two additional times to produce a dense surface free of trowel marks and uniform in texture and appearance.
3. For all slab-on-grade, finish and measure surface so gap at any point between concrete surface and an unleveled, freestanding, 10-ft. long straightedge resting on two high spots and placed anywhere on the surface does not exceed 3/16 inch.
4. Grind smooth surface defects which would telegraph trough applied floor covering system.

E. Trowel and Fine-Broom Finish: Apply a first trowel finish to surfaces where ceramic or quarry tile is to be installed by either thickset or thin-set method. While concrete is still plastic, slightly scarify surface with a fine broom.

1. Comply with flatness and levelness tolerances for trowel-finished floor surfaces.
2. Coordinate required final finish with Architect before application.

F. Non-Slip Broom Finish: Apply a broom finish to exterior concrete platforms, steps, ramps, and elsewhere as indicated.

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

G. Slip-Resistive Finish: For exposed slabs, provide a non-slip surface utilizing a light broom finish.

H. Chemical-Hardener Finish: Apply chemical-hardener finish to all exposed interior concrete floors and exterior covered walks, including topping slabs, not scheduled to receive other finishes.

1. Coordinate required final finish with Architect before application.
2. Apply liquid chemical-hardener after complete curing and drying of the concrete surface.
3. Apply proprietary chemical hardeners in accordance with manufacturer's printed instructions.
4. After final coat of chemical-hardener solution is applied and dried, remove surplus hardener by scrubbing and mopping with water.

3.11 MISCELLANEOUS CONCRETE ITEMS

A. Filling In: Fill in holes and openings left in concrete structures after work of other trades is in place unless otherwise indicated. Mix, place, and cure concrete, as specified, to blend with in-place construction. Provide other miscellaneous concrete filling indicated or required to complete the Work.

B. Curbs: Provide monolithic finish to interior curbs by stripping forms while concrete is still green and by steel-troweling surfaces to a hard, dense finish with corners, intersections, and terminations slightly rounded, unless otherwise indicated on the drawings.

C. Equipment Bases and Foundations:

1. Coordinate sizes and locations of concrete bases with actual equipment provided.
2. Construct concrete bases 4 inches high unless otherwise indicated; and extend base not less than 6 inches in each direction beyond the maximum dimensions of supported equipment unless otherwise indicated or unless required for equipment anchor support.
3. Minimum Compressive Strength: 3500 psi at 28 days.
4. Install dowel rods to connect concrete base to concrete floor. Unless otherwise indicated, install dowel rods on 18-inchcenters around the full perimeter of concrete base.
5. For supported equipment, unless otherwise indicated, install galvanized anchor bolts that extend through concrete base, and anchor into structural concrete substrate.
6. Prior to placing concrete, place and secure anchorage devices. Use setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.
7. Cast anchor-bolt insert into bases. Install anchor bolts to elevations required for proper attachment to supported equipment.

D. Steel Pan Stairs: Provide concrete fill for steel pan stair treads, landings, and associated items. Cast-in inserts and accessories as shown on Drawings. Screed, tamp, and trowel finish concrete surfaces.

1. Minimum concrete strength: 3000 psi at 28 days.

3.12 CONCRETE PROTECTING AND CURING

A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures. Comply with ACI 306.1 for cold-weather protection and ACI 305 for hot-weather protection during curing.

1. Protect freshly placed concrete from premature drying, excessive cold or hot temperature, rain and mechanical injury.
2. Maintain without drying at a relatively constant temperature for a period of time necessary for hydration of cement and proper hardening. Start initial curing as soon as free water has disappeared from concrete surface after placing and finishing of slabs and as soon as forms are removed from formed surfaces. Keep slabs and other exposed fresh concrete continuously moist for not less than 7 days. Begin final curing procedures immediately following initial curing and before concrete has dried.
3. Where mechanical trades set up work areas within the building, protect concrete slabs from oil, grease and other injurious materials by substantial covering of Kraft paper or polyethylene sheeting.
4. Cold Weather Concreting: Concrete shall not be placed during period when the air temperature is at or below 40ºF or whenever it appears to the Architect, from weather reports or otherwise, that air temperature may fall below 40ºF within the twenty-four (24) hour period next following the completion of a concrete placement without taking approved precautions. Contractor shall take approved precautions to maintain the temperature of the concrete at no less than 70ºF for three (3) days or 50ºF for five (5) days after placement. For approved procedures see ACI 306 “Recommended Practice for Cold Weather Concreting”.

1. Hot Weather Concreting: During hot weather use all available means to keep concrete temperature as low as practical, but in no case shall temperature of concrete at time of placement be higher than 90ºF. At air temperature above 80ºF, use retarding admixture. For approved procedures see ACI 305 “Recommended Practice for Hot Weather Concreting”.

B. Evaporation Retarder: Apply evaporation retarder to unformed concrete surfaces if hot, dry, or windy conditions cause moisture loss approaching 0.2 lb/sq. ft. x h before and during finishing operations. Apply according to manufacturer's written instructions after placing, screeding, and bull floating or darbying concrete, but before float finishing.

C. Formed Surfaces: Cure formed concrete surfaces, including underside of beams, supported slabs, and other similar surfaces. If forms remain during curing period, moist cure after loosening forms. If removing forms before end of curing period, continue curing for the remainder of the curing period.

D. Unformed Surfaces: Begin curing immediately after finishing concrete. Cure unformed surfaces, including floors and slabs, concrete floor toppings, and other surfaces.

E. Cure concrete according to ACI 308.1, by one or a combination of the following methods and as required for the finishes to be applied to the surface:

1. Moisture Curing: Keep surfaces continuously moist for not less than seven days with the following materials:

a. Water.
b. Continuous water-fog spray.
c. Absorptive cover, water saturated, and kept continuously wet. Cover concrete surfaces and edges with 12-inch lap over adjacent absorptive covers.

2. Moisture-Retaining-Cover Curing: Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width, with sides and ends lapped at least 12 inches, and sealed by waterproof tape or adhesive. Cure for not less than seven days. Immediately repair any holes or tears during curing period using cover material and waterproof tape.

    a. Moisture cure or use moisture-retaining covers to cure concrete surfaces to receive floor coverings.
    b. Moisture cure or use moisture-retaining covers to cure concrete surfaces to receive penetrating liquid floor treatments.
    c. Cure concrete surfaces to receive floor coverings with either a moisture-retaining cover or a curing compound that the manufacturer certifies will not interfere with bonding of floor covering used on Project.

3. Curing Compound: Apply uniformly in continuous operation by power spray or roller according to manufacturer's written instructions. Recoat areas subjected to heavy rainfall within three hours after initial application. Maintain continuity of coating and repair damage during curing period.

    a. Removal: After curing period has elapsed, remove curing compound without damaging concrete surfaces by method recommended by curing compound manufacturer unless manufacturer certifies curing compound will not interfere with bonding of floor covering used on the Project.

4. Curing and Sealing Compound: Apply uniformly to floors and slabs indicated in a continuous operation by power spray or roller according to manufacturer's written instructions. Recoat areas subjected to heavy rainfall within three hours after initial application. Repeat process 24 hours later and apply a second coat. Maintain continuity of coating and repair damage during curing period.

F. Non-Oxidizing Metallic Hardener: All slabs, in the loading dock area and other areas noted on the drawings, shall receive an application of the non-oxidizing, metallic floor hardener applied per the manufacturer’s recommendations. The surface shall then be troweled, at least twice, to a smooth dense finish. Cure slab surface with curing compound recommended by hardener manufacturer. Apply curing compound immediately after final finishing.

G. Mineral Aggregate Hardener: All slabs in areas noted on the drawings, shall receive an application of the mineral aggregate hardener applied per the manufacturer’s recommendations. The surface shall be floated again to properly bond the hardener to the base concrete slab. The surface shall then be troweled, at least twice, to a smooth, dense finish.

3.13 LIQUID FLOOR TREATMENTS

A. Penetrating Liquid Floor Treatment: Prepare, apply, and finish penetrating liquid floor treatment according to manufacturer's written instructions.

1. Remove curing compounds, sealers, oil, dirt, laitance, and other contaminants and complete surface repairs.
2. Do not apply to concrete that is less than 28 days' old.
3. Apply liquid until surface is saturated, scrubbing into surface until a gel forms; rewet; and repeat brooming or scrubbing. Rinse with water; remove excess material until surface is dry. Apply a second coat in a similar manner if surface is rough or porous.

B. Sealing Coat: Uniformly apply a continuous sealing coat of curing and sealing compound to hardened concrete by power spray or roller according to manufacturer's written instructions.

3.14 JOINT FILLING

A. Prepare, clean, and install joint filler according to manufacturer's written instructions.

1. Defer joint filling until concrete has aged at least three month(s). Do not fill joints until construction traffic has permanently ceased.

B. Remove dirt, debris, saw cuttings, curing compounds, and sealers from joints; leave contact faces of joint clean and dry.

C. Install semirigid joint filler full depth in saw-cut joints and at least 2 inches deep in formed joints. Overfill joint and trim joint filler flush with top of joint after hardening.

3.15 CONCRETE SURFACE REPAIRS

A. Defective Concrete: Repair and patch defective areas when approved by Architect. Remove and replace concrete that cannot be repaired and patched to Architect's approval.

B. Patching Mortar: Mix dry-pack patching mortar, consisting of one part portland cement to two and one-half parts fine aggregate passing a No. 16sieve, using only enough water for handling and placing.

C. Repairing Formed Surfaces: Surface defects include color and texture irregularities, cracks, spalls, air bubbles, honeycombs, rock pockets, fins and other projections on the surface, and stains and other discolorations that cannot be removed by cleaning.

1. Immediately after form removal, cut out honeycombs, rock pockets, and voids more than 1/2 inch in any dimension to solid concrete. Limit cut depth to 3/4 inch. Make edges of cuts perpendicular to concrete surface. Clean, dampen with water, and brush-coat holes and voids with bonding agent. Fill and compact with patching mortar before bonding agent has dried. Fill form-tie voids with patching mortar or cone plugs secured in place with bonding agent.
2. Repair defects on surfaces exposed to view by blending white portland cement and standard portland cement so that, when dry, patching mortar will match surrounding color. Patch a test area at inconspicuous locations to verify mixture and color match before proceeding with patching. Compact mortar in place and strike off slightly higher than surrounding surface.
3. Repair defects on concealed formed surfaces that affect concrete's durability and structural performance as determined by Architect.

D. Repairing Unformed Surfaces: Test unformed surfaces, such as floors and slabs, for finish and verify surface tolerances specified for each surface. Correct low and high areas. Test surfaces sloped to drain for trueness of slope and smoothness; use a sloped template. All repairs shall be made using project approved materials.

1. Repair finished surfaces containing defects. Surface defects include spalls, popouts, honeycombs, rock pockets, crazing and cracks in excess of 0.01 inch wide or that penetrate to reinforcement or completely through unreinforced sections regardless of width, and other objectionable conditions.
2. After concrete has cured at least 14 days, correct high areas by grinding.
3. Correct localized low areas during or immediately after completing surface finishing operations by cutting out low areas and replacing with patching mortar. Finish repaired areas to blend into adjacent concrete.
4. Correct other low areas scheduled to receive floor coverings with a repair underlayment. Prepare, mix, and apply repair underlayment and primer according to manufacturer's written instructions to produce a smooth, uniform, plane, and level surface. Feather edges to match adjacent floor elevations.

5. Correct other low areas scheduled to remain exposed with a repair topping. Cut out low areas to ensure a minimum repair topping depth of 1/4 inch to match adjacent floor elevations. Prepare, mix, and apply repair topping and primer according to manufacturer's written instructions to produce a smooth, uniform, plane, and level surface.
6. Repair defective areas, except random cracks and single holes 1 inch or less in diameter, by cutting out and replacing with fresh concrete. Remove defective areas with clean, square cuts and expose steel reinforcement with at least a 3/4-inch clearance all around the reinforcing. Dampen concrete surfaces in contact with patching concrete and apply bonding agent. Mix patching concrete of same materials and mixture as original concrete except without coarse aggregate. Place, compact, and finish to blend with adjacent finished concrete. Cure in same manner as adjacent concrete.
7. Repair random cracks and single holes 1 inch or less in diameter with patching mortar. Groove top of cracks and cut out holes to sound concrete and clean off dust, dirt, and loose particles. Dampen cleaned concrete surfaces and apply bonding agent. Place patching mortar before bonding agent has dried. Compact patching mortar and finish to match adjacent concrete. Keep patched area continuously moist for at least 72 hours.

E. Perform structural repairs of concrete, subject to SER and Architect's approval, using epoxy adhesive and patching mortar.

F. Repair materials and installation not specified above may be used, subject to SER and Architect's approval.

3.16 FIELD QUALITY CONTROL

A. Testing: Contractor will engage a qualified testing agency to perform field tests and prepare test reports.

B. Concrete Tests: Testing of composite samples of fresh concrete obtained according to ASTM C172 shall be performed according to the following requirements:

1. Testing Frequency: Obtain one composite sample for each day's placement of each concrete mixture exceeding 5 cu. yd., but less than 25 cu. yd., plus one set for each additional 50 cu. yd. or fraction thereof.
2. Slump: ASTM C143 one test at point of placement for each composite sample, but not less than one test for each day's placement of each concrete mixture. Perform additional tests when concrete consistency appears to change.
3. Concrete Temperature: ASTM C1064 one test hourly when air temperature is 40 deg Fand below and when 80 deg F and above, and one test for each composite sample.
4. Compression Test Specimens: ASTM C31.

    a. Cast and laboratory cure two sets of four standard (6” x 12”) cylinder specimens for each composite sample. Cast five specimens when using 4” x 8” cylinders.
    b. Cast and field cure a minimum of two sets of two additional standard cylinder specimens for each composite sample for all shored concrete members.

5. Compressive-Strength Tests: ASTM C39 test one set of two laboratory-cured specimens at 7 days and one set of two specimens at 28 days.

    a. Test one field-cured specimen at 7 days and one set of two laboratory cured specimens at 28 days. Hold one specimen in reserve for 56-day testing if required. Note that if 4” x 8” cylinders are used, a minimum of 3 specimens are required to be tested at 28 days.
    b. A compressive-strength test shall be the average compressive strength from a set of two specimens obtained from same composite sample and tested at age indicated.

6. When strength of field-cured cylinders is less than 85 percent of companion laboratory-cured cylinders, Contractor shall evaluate operations and provide corrective procedures for protecting and curing in-place concrete.
7. Strength of each concrete mixture will be satisfactory if every average of any three consecutive compressive-strength tests equals or exceeds specified compressive strength and no compressive-strength test value falls below specified compressive strength by more than 500 psi.
8. Test results shall be reported in writing to Architect, SER, concrete manufacturer, and Contractor within 48 hours of testing. Reports of compressive-strength tests shall contain Project identification name and number, date of concrete placement, name of concrete testing agency, location of concrete batch in Work, design compressive strength at 28 days, concrete mixture proportions and materials, concrete mix design number, compressive breaking strength, and type of break for both 7- and 28-day tests.
9. Nondestructive Testing: Impact hammer, sonoscope, or other nondestructive device may be permitted by Architect but will not be used as sole basis for approval or rejection of concrete.
10. Additional Tests: Testing agency shall make additional tests of concrete when test results indicate that slump, air entrainment, compressive strengths, or other requirements have not been met, as directed by Architect. Testing agency may conduct tests to determine adequacy of concrete by cored cylinders complying with ASTM C42 or by other methods as directed by Architect.
11. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements. When retesting of rejected materials or installed work is required, Contractor pays for tests. When retesting of installed work is required by the Architect due to negligence or improper construction practices by the Contractor, or low test results of Contractor installed work, the Contractor will be responsible for all costs pertaining to determination of acceptability of the work.
12. Correct deficiencies in the Work that test reports and inspections indicate do not comply with the Contract Documents at Contractor’s expense.

3.17 PROTECTION OF LIQUID FLOOR TREATMENTS

A. Protect liquid floor treatment from damage and wear during the remainder of construction period. Use protective methods and materials, including temporary covering, recommended in writing by liquid floor treatments installer.

END OF SECTION

SECTION 04 0500

MASONRY GROUT

PART 1 GENERAL

1.1 SUMMARY

A. Section includes grout for masonry.

B. Related Sections:

1.	Cast-In-Place Concrete	Section 03 3000
2.	Reinforced Unit Masonry	Section 04 2300
3.	Unit Masonry	Section 04 2000

C. The general provisions of the Contract, including General Conditions, Supplementary Conditions, and Special Conditions (if any) along with the General Requirements, apply to the work specified in this section.

D. Examine all Drawings and all other Sections of the Specifications for requirement therein affecting the work of this trade.

1.2 DEFINITIONS

A. SER: Structural Engineer of Record for the project.

B. Contractor: General Contractor. Also refers to Construction Manager when this form of construction is utilized on the project.

C. Sub-contractor: Provides materials or services for the project through the Contractor.

1.3 SUBMITTALS

A. General:

1. Submit all documents and samples in conformance to Specification Section 01 3300.
2. Electronic submittals are required and printed copies are not acceptable unless specifically allowed by contract with the Owner.
3. Review of shop drawings does not constitute authorization to vary from the contract documents.
4. Submittal Scheduling: The Contractor shall be responsible for scheduling submittals with ample time allotted for the review process and possible resubmittals.

B. Manufacturer’s Data:

1. Submit manufacturer’s product data, with application and installation instructions, for all proprietary materials and items relative to the grout work.

C. Test Reports:

1. Report test results in writing to the Architect, Engineer and Contractor immediately after tests are made.
2. Reports of compressive strength tests shall contain the prism set number, product identification name and number, date of grout placement, name of Contractor, name of supplier, truck number, name of testing service, grout type and class, location of grout batch in structure, design compressive strengths at 28 days, compressive breaking strength, slump, air temperature, weather, and any water added after leaving the plant.

1.4 QUALITY ASSURANCE

A. Codes and Standards:

1. Comply with the provisions of the latest editions of the following codes, specifications and standards, except as shown or specified.
2. Where provisions of these codes and standards are in conflict with the building code in force for this project, the more stringent requirement shall govern.
   a. The Masonry Society, TMS 402-16 Building Code Requirements for Masonry Structures.
   b. The Masonry Society, TMS 602-16 Specification for Masonry Structures
   c. American Society for Testing Materials (ASTM): All ASTM Standards shall apply where appropriate.

B. Workmanship:

1. The Contractor is responsible for correction of grout work which does not conform to the specified requirements, including strength, tolerances and finish.
2. Deficiencies shall be corrected as directed by the Architect and as specified herein, at no additional cost to the Owner.

C. Grout Testing Service:

1. The Contractor shall employ and pay all costs for an independent testing laboratory, acceptable to the Architect and Engineer, to perform required tests during construction.
2. Contractor shall notify laboratory three days in advance of schedule for grout placement and allow free access to the site for testing operations.

D. Material Sources:

1. Sources of materials must remain unchanged during the course of the work.
2. Any variation in materials will require retesting.
3. Certificates of material properties and compliance with specified requirements may be submitted in lieu of testing, when acceptable to the Architect, provided that the proposed materials have a satisfactory service record and have been tested within the past year and such previous tests have met the specified requirements.
4. Certificates of compliance for each material must be signed by the Contractor and the supplier.

E. Advanced Design Mix:

1. Comply with ASTM C476. The Contractor shall furnish mix designs for each type of grout (i.e., aggregate size, slump, etc.) anticipated to be provided throughout the project. Furnish at least 14 days prior to any grout placement.
2. Mix designs shall be prepared by a qualified independent testing laboratory or the grout supplier's laboratory.

F. Quality Control Tests During Construction:

1. Grout shall be sampled and tested for adequacy of design for strength.
2. Test prisms shall be made, stored and tested by the testing laboratory.
3. Protect test prisms while stored on site.
4. Handle and store carefully prior to testing.
5. Grout shall be sampled and tested as follows:

    a. Slump: Comply with ASTM C143. One test for each set of prisms, taken at point of placement in the structure. Additional slump tests may be required when observed slumps appear to exceed the allowed limit.
    b. Test Prisms: Comply with ASTM C1019. Make one set of three test prisms for each 30 cubic yards, or fraction thereof, of each mix design of grout placed in any one day.
    c. Compressive Strength Tests: Comply with ASTM C617 and C39. Test 1 prism at 7 days and 2 at 28 days. Additional samples shall be taken whenever there is any change in mix proportions, method of mixing, or materials used.
    d. Tests of In-Place Grout: Testing service shall make additional tests of in-place grout when results indicate that specified grout strengths or other characteristics, such as complete filling of masonry cores, have not been met. Costs of tests shall be at Contractor's expense.

G. Maintain one copy of each document on site.

1.5 ENVIRONMENTAL REQUIREMENTS

A. Cold Weather Requirements: In accordance with TMS 602 when ambient temperature or temperature of masonry units is less than 40 degrees F.

B. Hot Weather Requirements: In accordance with TMS 602 when ambient temperature is greater than 100 degrees F or ambient temperature is greater than 90 degrees F with wind velocity greater than 8 mph.

PART 2 PRODUCTS

2.1 GROUT MATERIALS

A. Cement: Portland Cement complying with ASTM C150, Type I or Type III.

B. Lime: Hydrated Lime, Type S, complying with ASTM C207.

C. Coarse Stone Aggregate: Crushed stone, rock or gravel complying with ASTM C404 and C33. Maximum size 3/8 inch with no material smaller than No. 30 sieve size.

D. Fine Aggregate: Clean, sharp silica or quartz sand complying with ASTM C404.

E. Special Considerations: Aggregate shall be free of soft or friable particles and be free of unfavorable capillary absorption characteristics.

2.2 WATER

A. Clean, fresh, potable, free from acid, oil or other injurious matter.

2.3 ADMIXTURES

A. General:

1. No admixture shall be used in the manufacturer of grout without prior acceptance of the Architect and Engineer.
2. When any accepted admixture is used in the grout, the compressive strength, bond strength and flexural strength shall not be less than that of the specified grout strengths without admixtures.
3. Volume change of grout shall not be more with admixtures than without admixtures.
4. No grout ingredient shall contain more than 0.1% chloride ions or the amount present in municipal drinking water, whichever is less.

PART 3 EXECUTION

3.1 MASONRY GROUT QUALITY

A. General: Grout to be used for reinforced masonry shall comply with ASTM C476 and as follows.

B. Mixing:

1. Proportions:

a. Fine Grout: For spaces (masonry cells) not exceeding 3 inches , grout mix shall consist of one (1) part Portland Cement, 0 to 1/10 part hydrated lime, and sand at 2-1/2 times the sum of the volumes of the cementitious materials.
b. Coarse Grout: For spaces (masonry cells) greater than 3 inches , grout mix shall consist of one (1) part Portland Cement, 0 to 1/10 part hydrated lime, sand (fine aggregate) at 2 times the sum of the volumes of the cementitious materials, and coarse aggregate at 2 times the sum of the volumes of the cementitious materials.
c. Water: Add enough water to bring grout to a consistency as fluid as possible without causing segregation of materials.

C. Strength

1. All grout shall have a minimum compressive strength at 28 days of 2,500 psi or as required by ASTM C476, whichever is the greater.

D. Slump

1. Comply with ASTM C143. Slump shall be 8 inches to 10 inches at point of placement in structure.

3.2 READY-MIX GROUT

A. If ready-mixed grout is used, the grout shall be mixed and delivered in accordance with the requirements set forth in ASTM C94.

B. Mixers shall be in proper working order and appropriate for the intended use.

C. Mixer blades shall not have their height reduced by more than one inch.

D. Blades showing more wear than this shall be replaced or the mixer shall not be used.

E. Mixers shall be equipped with accurate and dependable water measuring devices.

F. Grout shall not be placed if it has been in the mixer for more than one and one-half hours after addition of the water or after grout has begun to heat up due to hydration.

3.3 GROUT PLACEMENT

A. General:

1. Grout shall be placed by the High-Lift or Low-Lift method of grouting.
2. Pump or place a uniform height of grout in maximum 5 foot lifts and immediately vibrate the grout.
3. Grout vibrations shall be performed not longer than 10 minutes after grout lift placement.

B. High-Lift Grouting:

1. Pour succeeding 5 foot (maximum) lifts after waiting 30 to 60 minutes to allow for settlement and absorption of excess water.
2. Reconsolidate top lift of pour after the required waiting period and fill any void left by settlement shrinkage with grout.

C. Low-Lift Grouting:

1. Rod or vibrate each grout lift during pouring operation, and again after excess moisture has been absorbed, but before plasticity is lost.

D. Preparation for Placement:

1. Prior to grout placement, remove all mortar droppings, protruding mortar, foreign materials or debris from masonry cells and lintels to be filled with grout.
2. The minimum clear vertical cell shall be 3 inches square or as required to properly position detailed reinforcing and provide specified clearances.
3. Notify Architect and inspection authorities at least 72 hours prior to a scheduled pour.

3.4 BONDING

A. General: If complete grouting of a scheduled pour cannot be completed, or time between placement of lifts will exceed the specified time, hold grout a minimum of 1-1/2 inches down from mortar joint to provide a horizontal key between successive lifts.

3.5 EMBEDDED ITEMS

A. General:

1. Set and build into the work any anchorage devices, steel angles and plates, or other embedded items required for the work that is attached to, or supported by reinforcement masonry.
2. Use setting drawings, diagrams, instructions and directions provided by the supplier of the items to be attached.
3. Bolts and nuts exposed to moisture conditions shall be galvanized.

END OF SECTION

SECTION 04 2016

REINFORCED UNIT MASONRY

PART 1 - GENERAL

1.1 WORK INCLUDED: This section covers the work necessary to furnish and install, complete, the following:

A. Concrete masonry units.

B. Split-Faced finished CMU veneer.

C. Reinforcement, anchorage and accessories.

D. Precast concrete items.

1.2 RELATED REQUIREMENTS

A. Refer to Division 00 and 01 Section of these specifications.

1.3 RELATED WORK

A. Section 03 3000 – Cast-in-Place Concrete

B. Section 04 0500 – Masonry Grout

C. Section 04 2300 – Reinforced Unit Masonry

1.4 REFERENCES

A. ASTM Standards and Test Procedures as referenced.

1.5 SUBMITTALS: Submittals during construction are to be made in accordance with Section 01 3300.

A. Submit product data for each item of accessories.

B. Submit manufacturer's certificate that supplied concrete masonry units meet or exceed requirements. Certificate to be signed by an authorized agent of the manufacturing company and contain the following information:

1. Name and address of contractor
2. Project location
3. Quantities and dates of shipment or delivery
4. Fire Rating and U. L. Certification of Fire Rated CMU, if applicable.
5. Compressive strength (psi)
6. Absorption (psf)
7. Linear shrinkage potential
8. Method of curing
9. Date of manufacture
10. Weight of unit
11. Weight of concrete (pcf)

C. Submit manufacturer's certificate for precast concrete lintels.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Deliver, store and handle materials under provisions of Section 01 6000.

B. Deliver units to the job in dried condition and stack on planking with cells horizontal and cover on top only. Units to be kept dry at all times.

1.7 ENVIRONMENTAL REQUIREMENTS

A. Maintain materials and ambient air temperature to minimum 50° F prior to, during, and 48 hours after completion of masonry work.

1.8 TESTING

A. If concrete masonry unit certificates are not submitted, then masonry units may be sampled for testing after delivery to the project site at contractor's expense. The units are to be tested in accordance with ASTM C140 by an independent testing laboratory. Masonry construction is not to proceed until test results are known and the masonry units are certified by said testing laboratory as complying with specifications.

B. Testing laboratory services to be performed under provisions of Section 01 4000, at the contractor's expense.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. The use of a manufacturer's name and specification number is for the purpose of establishing the standard of quality and general configuration desired. Products of other manufacturers, meeting the requirements, will be considered.

B. Like items of materials or equipment are to be the end products of one manufacturer in order to achieve standardization for appearance, operation, maintenance, spare parts and manufacturer's service.

C. Furnish trim shapes, cut block, end units, solid units, lintel block and other special units as required for the complete construction of masonry work.

2.2 CONCRETE MASONRY UNITS

A. Normal weight concrete masonry units. Color of units to be standard gray; surface texture to be standard. Units to be of modular dimension and size.

B. Nominal four-inch x eight-inch x sixteen-inch long colored split-faced standard weight units in conformance with ASTM C-90 with integral water proofing equal to those as manufactured by A-1 Block Corporation, Orlando, Florida. Color to be selected during submittals.

C. Furnish trim shapes, cut block, end units, solid units, lintel block and other special units as required for the complete construction of masonry work. Special units shall match color and texture of primary units.

2.3 REINFORCEMENT

A. Horizontal Joint Reinforcing: Galvanized truss-type reinforcing with No. 8 side and No. 9 cross wires in accordance with ASTM A82, as manufactured by H&B, Wire-bond or equal. Provide prefabricated corner and wall intersection members at all corners and wall intersections where horizontal joint reinforcing occurs.

B. Reinforcing Steel: Refer to Structural Documents.

C. Provide loop and eye ties as required at split-face masonry veneer. Install ties at 16” o.c. horizontally and vertically.

2.4 ACCESSORIES

A. Cleaning Solution: Non-acidic and not harmful to masonry work or adjacent materials.

B. Control Joint Filler: Manufactured rubber joints as manufactured by Wire-Bond, H&B or equal.

2.5 PRECAST CONCRETE ITEMS

A. Precast concrete lintels to be normal weight with a 28 day compressive strength of 3000 psi minimum. Precast window sills to be sized and shaped as required for this project.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify that field conditions are acceptable and are ready to receive work.

B. Verify items provided by other sections of work are properly sized and located.

C. Verify that built-in items are in proper location and ready for roughing into masonry work.

D. Beginning of installation means installer accepts existing conditions.

3.2 PREPARATION

A. Direct and coordinate placement of metal anchors supplied by other sections as applicable.

B. Provide temporary bracing during installation of masonry work. Maintain in place until building structure provides permanent bracing.

3.3 WORKMANSHIP

A. Masons to tool and brush their work at the time of laying CMU, to ensure all joints are tooled and brushed when the mortar has partially set. Masonry units to be laid to a tight line on the exposed side of the wall. Masonry units that are chipped, warped or have other imperfections are to be set aside.

3.4 COURSING

A. Establish lines, levels and coursing indicated. Protect from displacement.

B. Maintain masonry courses to uniform dimension. Form vertical and horizontal joints of uniform thickness.

C. Lay concrete masonry units in running bond and course one unit and one mortar joint to equal 8 inches. Form concave mortar joints. Lay precast items with maximum of 1/4” flush joints.

3.5 PLACING AND BONDING

A. Lay solid masonry units in full bed of mortar, with full head joints, uniformly jointed with other work.

B. Lay hollow masonry units with face shell bedding on head and bed joints. Lay hollow masonry units each side of filled cells with full bed joints including all cross webs.

C. Buttering corners of joints or excessive furrowing of mortar joints are not permitted.

D. Remove excess mortar as work progresses. Interlock all intersections and external corners. Horizontal reinforcing is not acceptable in lieu of interlocking block.

E. Do not shift or tap masonry units after mortar has achieved initial set. Where adjustment must be made, remove mortar and replace.

F. Perform job site cutting of masonry and precast units with proper tools to provide straight, clean and un-chipped edges. Prevent broken masonry unit corners or edges.

G. Cut mortar joints flush where bituminous dampproofing is applied

3.6 LINTELS

A. Install reinforced unit masonry lintels over all openings, except where precast concrete lintels are installed. Allow masonry lintels to attain specified strength before removing temporary supports. Masonry lintels to bear a minimum of 8" each side.

B. Support and secure reinforcing bars from displacement. Maintain position within 1/2 inch of dimensioned position. Lap reinforcing bars 48 diameters or 12-inches, whichever is greater, unless otherwise noted.

C. Place and consolidate grout fill without displacing reinforcing.

D. Allow masonry lintels to attain specified strength before removing temporary supports.

3.7 BOND BEAMS

A. Reinforce bond beam with reinforcing bar(s).

B. Support and secure reinforcing bars from displacement. Maintain position within 1/2 inch of dimensioned position. Lap reinforcing bars 48 diameters.

C. Place and consolidate grout fill without displacing reinforcing.

3.8 JOINT REINFORCEMENT

A. Install horizontal joint reinforcement 16 inches on center, vertically.

B. Lap horizontal joint reinforcement ends minimum 6 inches.

C. Install horizontal joint reinforcing two courses above window, door openings and two courses below all window sills.

3.9 VERTICAL REINFORCING

A. Lay masonry units with core cells vertically aligned, clear of mortar and unobstructed. Reinforce masonry unit cores with reinforcing bars and grout.

B. Retain vertical reinforcing bars in position at top and bottom of cells. Lap reinforcing bars a minimum of 48 diameters.

C. Grout spaces 2-inches or greater in width with masonry grout.

D. When grouting is stopped for more than one hour, terminate grout 1-1/2 inches below top of upper masonry unit to form a positive key for subsequent grout placement.

E. After each grout lift is poured, consolidate by rodding or vibration.

F. Low lift or high lift grouting to be permitted at the contractor’s option.

3.10 CONTROL JOINTS

A. Do not continue horizontal joint reinforcement through control joints. Provide PVC sleeves for rebar.

B. Install preformed control joint filler in continuous lengths at locations indicated. Seal joints in accordance with manufacturer's instructions.

3.11 BUILT-IN WORK

A. As work progresses, build in metal door and glazed frames, anchor bolts, plates and other applicable items furnished by other sections.

B. Build in items plumb and level.

C. Bed anchors of metal door and glazed frames in adjacent mortar joints.

D. Do not build in organic materials subject to deterioration.

3.12 TOLERANCES

A. Maximum variation from unit to adjacent unit: 1/32 inch.

B. Maximum variation from plane of wall: 1/4 inch in 10 feet and 1/2 inch in 20 feet or more.

C. Maximum variation from level coursing: 1/8 inch in 3 feet and 1/4 inch in 10 feet.

D. Maximum variation of joint thickness: 1/8 inch in 3 feet.

3.13 CUTTING AND FITTING

A. Cut and fit for pipes, conduit, sleeves, grounds and other items. Coordinate with other sections of work to provide correct size, shape and location.

B. Obtain approval prior to cutting or fitting masonry work not indicated or where appearance or strength of masonry work may be impaired.

3.14 CLEANING

A. Remove excess mortar and mortar smears. Replace defective mortar to match adjacent work. Clean soiled surfaces with cleaning solution. Use non-metallic tools in cleaning operations.

3.15 PROTECTION OF WORK

A. Without damaging completed work, provide protective boards at exposed external corners which may be damaged by construction activities.

B. Masons to cover all work daily. Covering to be of a non-absorbing nature.

END OF SECTION

SECTION 04 2300

REINFORCED UNIT MASONRY

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes reinforced masonry installation, reinforcement, and forming as required to complete this project. All reinforced masonry installation shall conform to the requirements of this and referenced specifications.

B. Related Sections:

1.	Cast-In-Place Concrete	Section 03 3000
2.	Masonry Grout	Section 04 0500
3.	Unit Masonry	Section 04 2000

C. The general provisions of the Contract, including General Conditions, Supplementary Conditions, Special Conditions (if any) along with the General Requirements, apply to the work specified in this section.

D. Examine all Drawings and all other Sections of the Specifications for requirement therein affecting the work of this trade.

1.2 DEFINITIONS

A. SER: Structural Engineer of Record for the project.

B. Contractor: General Contractor. Also refers to Construction Manager when this form of construction is utilized on the project.

C. Sub-contractor: Provides materials or services for the project through the Contractor.

1.3 SUBMITTALS

A. General:

1. Submit all documents and samples in conformance to Specification Section 01 3300.
2. Electronic submittals are required, and printed copies are not acceptable unless specifically allowed by contract with the Owner.
3. Review of shop drawings does not constitute authorization to vary from the contract documents.
4. Submittal Scheduling: The Contractor shall be responsible for scheduling submittals with ample time allotted for the review process and possible resubmittals.

B. Mill Certificates: Submit certificates as follows:

1. Certificate of compliance for concrete masonry units, aggregates, cement, and lime.
2. Steel producer’s certificates of mill analysis, tensile and bend tests for reinforcement steel required for project.

C. Mix Design for Grout: At the same time as the Concrete Masonry submittal, submit documents required by Specification Section 04 0500 – Masonry Grout as a separate submittal number.

D. Test Reports: Submit reports on all tests required herein.

E. Shop Drawings for Reinforcing:

1. Submit shop drawings for fabrication, bending, and placement of all reinforcement bars.

    a. Comply with ACI 315 “Manual of Standard Practice for Detailing Reinforced Concrete Structures”.
    b. Electronic submittal is required and file format utilizing PDF format is preferred.
    c. Drawings shall be clearly marked “FOR APPROVAL ONLY – NOT FOR FIELD USE”. If drawings are not approved but are returned for corrections, the approval copies shall be resubmitted. After initial review has been made, final drawings shall be resubmitted, with all corrections made, for final review, stamped “FOR FIELD USE”.
    d. Verify necessary dimensions at the project site and be responsible for dimensional correctness and accurately fitting work of this Section.

2. Computer drawing files are available for use in the production of shop drawings if allowed by the Architect. Requirements include disclaimer provided by the Engineer and which is to be accepted and signed by the Contractor as well as the sub-contractor requesting the files.
3. Show bar schedules, diagrams of bent bars, stirrup spacing, lateral ties and other arrangements and assemblies as required for fabrication and placement of reinforcement for unit masonry work.

1.4 QUALITY ASSURANCE

A. Reinforced Masonry Standards:

1. All concrete masonry work shall comply with the latest edition of the Specifications for Masonry Structures TMS 602 except as noted herein.

B. Concrete Masonry for Fire Rated Construction:

1. All concrete masonry to be installed as part of a fire rated assembly shall have their equivalent thickness calculated based on their material composition and nominal unit width in accordance with the latest edition of ASTM C140.

    a. The equivalent thickness shall be used to determine the appropriateness of concrete masonry units to be installed for the required hourly fire rating of Project fire assemblies.

2. The hourly rating provided by an unfilled or non-grouted concrete masonry unit shall be based on the currently enforced edition of the Florida Building Code for all concrete masonry to be installed as part of a fire rated assembly.

    a. Underwriter’s Laboratory (UL) tested and listed CMU assemblies shall only be considered if deemed acceptable by the Code Authority Having Jurisdiction over this Project.
    b. The Contractor shall notify the Architect, in writing, if concrete masonry intended for fire rated assemblies will not provide the required hourly rating as an unfilled unit and propose remedial course of action for Architect’s review and approval.
        1) Only remedial action approved by the Architect will be carried out.

C. General Testing Requirements:

1. Submit all test reports required by this Spec Section within 3 days of completion of the test to permit verification of compliance with the requirements of the Construction Documents.

a. These findings shall be reported both electronically and in print to the Architect and Engineer.
b. The Contractor shall keep a log of all testing with date of submittal to the Architect and Engineer indicated for each entry.

D. Grout Testing: Refer to Specification Section 04 0500 – Masonry Grout.

E. Mortar Testing: Refer to Specification Section 04 2000 – Unit Masonry.

F. The Contractor shall employ and pay an independent testing laboratory, acceptable to the Architect and Engineer, to provide the following tests:

1. Lab Qualifications: Testing laboratory shall meet the requirements of ASTM E329.
2. Concrete Masonry Unit Tests (Preconstruction):

a. Prior to any construction, verify by laboratory tests in accordance with ASTM C140 that the concrete masonry units to be used on this project comply with the project requirements.
1) Tests for the following information: compressive strength, absorption, unit weight (density), moisture content, and dimensions.
2) Test 6 units minimum for the first lot of 10,000 units scheduled for the project and 6 additional units for every 50,000 units thereafter which are scheduled for the project.

3. Concrete Masonry Unit Tests (During Construction):

a. During construction, verify by laboratory tests in accordance with ASTM C140 that the concrete masonry units being used on the project comply with the project requirements and reflect similar results to the preconstruction tests.
b. Test 6 units for every 10,000 square feet of each type of masonry constructed.

1.5 ENVIRONMENTAL REQUIREMENTS

A. Cold Weather Requirements: In accordance with TMS 602 when ambient temperature or temperature of masonry units is less than 40 degrees F (4 degrees C).

B. Hot Weather Requirements: In accordance with TMS 602 when ambient temperature is greater than 100 degrees F (38 degrees C) or ambient temperature is greater than 90 degrees F (32 degrees C) with wind velocity greater than 8 mph (13 km/h).

PART 2 PRODUCTS

2.1 MATERIALS

A. Concrete Masonry Units (CMU):

1. General:

a. Refer to Section 04 2000 - Unit Masonry for masonry materials and accessories not included in this section.
b. Aggregate: All aggregate shall consist of clean, hard, uncoated grains, uniform in color, free from dust, soft or flaky particles, shale, alkali, organic matter, loam, or other deleterious substances.

2. Smooth Face Units:

a. Unless required otherwise by the Architect, normal, blended or lightweight units conforming to ASTM C90 and, in addition, to the requirements of the Quality Control Standards of the National Concrete Masonry Association.
b. The units shall have a minimum compressive strength of 2000 psi on the net cross-sectional area.
c. Units shall have cured for not less than 28 days when placed in the structure.
d. Units shall be of cellular construction, with the cells vertical and an exposed face of 7-5/8 inches high x 15-5/8 inches long (8 inches x 16 inches nominal sized) x the (nominal) thicknesses indicated on the Drawings.

B. Reinforcement:

1. Deformed Reinforcement Bars: Provide deformed bars of following grades complying with ASTM A615, except as otherwise indicated.

a. Provide Grade 60 for bars except as otherwise indicated.
b. Shop-fabricate reinforcement bars which are shown to be bent or hooked.

2. Welded Wire Reinforcement: Provide wire reinforcement conforming to ASTM A82.

a. For joint reinforcement in concrete masonry, provide welded wire units prefabricated with deformed continuous side rods and plain cross rods into straight lengths of not less than 10 feet, with prefabricated corner and tee units.
b. Width shall be approximately two inches less than the nominal width of walls as required to provide mortar coverage of not less than 5/8 inch on joint faces exposed to the exterior and 1/2 inch elsewhere.
c. Wire size for side rods shall be #8 standard.
d. Wire size for cross-rods shall be #8.
e. Joint reinforcement shall be of a ladder design.
   1) Joint reinforcement for exterior wall construction shall be hot dipped galvanized after fabrication in accordance with ASTM A153, Class B-2.
   2) Joint reinforcement for interior wall construction shall be mill galvanized in accordance with ASTM A641, Class I.
f. Provide and install prefabricated “L” and “T” of the same construction as the main units to provide continuity at corners and intersections.

PART 3 EXECUTION

3.1 INSTALLATION – GENERAL

A. Refer to Section 04 2000 - Unit Masonry for general installation requirements of unit masonry.

B. All masonry shall be laid true, level, plumb and neat, reflecting the highest quality of workmanship. Masonry units shall be sound, dry, clean, and free from cracks when placed. Wetting of concrete masonry units shall not be permitted.

C. Proper masonry units shall be used to minimize cutting of units. Where cutting is necessary, all cuts shall be neat and true, and shall be cut using motor-driven saws. Provide the necessary

materials to cover and to protect the masonry units and the walls from weather and other dangers during the progress of the work.

D. Use special shaped units where shown, and as required for corners, jambs, sashes, control joints, lintels, bond beams and other special conditions.

1. Where shaped units are part of a decorative CMU assembly, use shaped unit of the same character and appearance.

E. The top surface of the concrete foundation shall be clean, all laitance removed, and aggregate exposed before starting the masonry construction.

F. Use continuous dovetail anchors between masonry units and cast-in-place concrete members.

G. Coordinate placement of all built-in work, bearing plates, and anchors supplied by other sections.

H. Temporary Formwork: Provide formwork and shores as required for temporary support of reinforced masonry elements.

1. Construct formwork to conform to shape, line and dimensions shown. Make sufficiently tight to prevent leakage of mortar, grout, or concrete (if any). Brace, tie, and support as required in order to maintain position and shape during construction and curing of reinforced masonry.

I. Isolate masonry partitions from vertical structural framing members with movement joint as indicated on drawings.

J. Isolate top of masonry from horizontal structural framing members and slabs or decks as detailed on the drawings.

3.2 REINFORCEMENT

A. General:

1. Clean reinforcement of loose rust, mill scale, concrete, earth, ice or other materials which will reduce bond to mortar or grout.
2. Reinforcing bars shall be straight except for bends around corners and where bends or hooks are indicated on the Drawings or approved shop drawings.

a. Do not use reinforcement bars with kinks or bends not shown on Drawings or final shop drawings, or bars with reduced cross-section due to excessive rusting or other causes.
b. Foundation dowels shall not slope more than 1:6 (H:V), and shall be grouted into a core in vertical alignment.

B. Position reinforcement accurately at the spacing indicated.

1. Support and secure vertical bars against displacement.

a. Vertical bars shall be held in position at the top and bottom and at intervals not exceeding 192 bar diameters.

2. Keep reinforcing bars clear of adjacent components.

a. Vertical bars shall have a minimum clearance of 1/4 inch from the masonry.

b. Where vertical bars are shown in close proximity, provide a clear distance between bars of not less than the nominal bar diameter or 1 inch, whichever is greater.
c. For columns, piers, and pilasters, provide a clear distance between vertical bars as indicated, but not less than 1-1/2 times the nominal bar diameter or 1-1/2 inches, whichever is greater. Provide lateral ties as indicated.

3. Horizontal reinforcement shall be placed as the masonry work progresses.

a. Horizontal bars shall be laid on the webs of the units in continuous masonry courses, consisting of bond beam or channel units, and shall be solidly grouted in place.

C. Extend reinforcement beyond top of masonry lift as required for splicing. Pour grout to within 1-1/2" of top course of first pour. After grouted masonry is cured, lay masonry units and place reinforcement for second pour section before grouting. Repeat sequences if more pours are required.

D. Splice reinforcement bars where shown; do not splice at other points unless acceptable to the Engineer. Provide lapped splices, unless otherwise indicated. In splicing vertical bars or with dowels, lap ends, place in contact and wire-tie together. Lap bars side by side in plane of wall to maintain proper clearances.

1. Provide not less than minimum lap shown, or if not indicated, as required by governing code or 48 times the bar diameter, whichever is greater.

E. Embed metal ties in mortar joints as work progresses, with a minimum mortar cover of 5/8 inch on exterior face of walls and ½ inch at other locations.

F. Horizontal Joint Reinforcement:

1. Unless otherwise indicated, provide horizontal joint reinforcement in every other horizontal joint for 3/16 inch side rod reinforcing, or on every joint for #8 side rod reinforcing.
2. Embed prefabricated horizontal joint reinforcement as the work progresses, with a minimum cover of 5/8 inch on exterior face of walls and ½ inch at other locations.
3. Wire reinforcement shall be lapped at least 6 inches at splices and shall contain at least one cross-wire of each piece of reinforcement in the lap distance.
4. Install prefabricated "L" and "T" at their respective corner and intersection conditions.

a. Cut and bend units only as recommended by manufacturer for continuity at returns, offsets, pipe enclosures and other special conditions.
b. Field cut and shaped corner "L's" and intersection "T's" are strictly prohibited.

G. Lateral Tie Reinforcement:

1. Embed lateral tie reinforcement in mortar joints where indicated. Place reinforcement at vertical spacing shown as masonry units are laid.
2. Where lateral ties are shown in contact with vertical reinforcement bars, embed additional lateral tie reinforcement in mortar joints. Place as shown, or if not shown, provide as required to prevent grout blowout or rupture of CMU face shells, but provide not less than No. 2 bars or 8-gage wire ties spaced 16 inches o.c. for members with 20 inches or less side dimensions, and 8 inches o.c. for members with side dimensions exceeding 20 inches.

3.3 INSTALLATION OF REINFORCED CONCRETE UNIT MASONRY

A. General:

1. Do not wet concrete masonry units (CMU) except for saw cutting per OSHA requirements.
2. Lay CMU units with full-face shell mortar beds. Fill vertical head joints (end joints between units) solidly with mortar from face of unit to a distance behind face equal to not less than the thickness of longitudinal face shells. Solidly bed cross-webs in mortar in starting courses and in all courses of piers, columns, and pilasters, and where adjacent to cells or cavities to be reinforced and filled with grout. Maintain head and bed joint widths shown, or if not shown, provide 3/8 inch joints.

    a. Where solid CMU units are shown, lay with full mortar head and bed joints.

B. Walls:

1. Pattern Bond: Lay CMU wall units in a 1/2-running bond with vertical joints in each course centered on units in courses above and below, unless otherwise indicated.
2. Bond and interlock each course at corners and intersections. Reinforce and solid-grout all cells at corners and intersections.

    a. Corners shall have a standard masonry bond by overlapping units.
    b. Intersecting masonry walls without control joints shall be interlocked by 50% overlap.

3. All masonry below grade shall be solid-grouted.
4. Maintain vertical continuity of core or cell cavities, which are to be reinforced and grouted, to provide minimum clear dimensions indicated and to provide minimum clearance and grout coverage for vertical reinforcement bars. Keep cavities free of mortar. Solidly bed webs in mortar where adjacent to reinforced cores or cells.
5. Place horizontal beam reinforcement as the masonry units are laid.
6. Where horizontal reinforced beams (bond beams) are shown, use special units or modify regular units to allow for placement of continuous horizontal reinforcement bars. Place small mesh expanded metal lath or wire screening in mortar joints under bond beam courses over cores or cells of non-reinforced vertical cells or provide units with solid bottoms (unless shown otherwise). Do not use building paper or sheet plastic to close voids due to breakage of mortar bond.

    a. Option: Where all vertical cores are not shown to be grouted. Contractor may elect to fill all vertical cores with grout provided that the area is not supported by beams but is continuous to the foundation.

C. Columns, Piers and Pilasters:

1. Use CMU units of the size, shape and number of vertical core spaces shown. If not shown, use units which provide minimum clearances and grout coverage for the number and size of vertical reinforcement bars shown.
2. Provide pattern bond shown, or if not shown, alternate head joints in vertical alignment.
3. Where bonded pilaster construction is shown, lay wall and pilaster units together to maximum pour height specified.

3.4 MORTAR

A. All mortar used for concrete masonry shall conform to the requirements of Specification Section 04 2000 – Unit Masonry.

B. Mix mortar in a power-driven batch mixer of one bag minimum capacity for at least three minutes after all materials have been added.

C. Hand mixing will not be allowed. Use mortar within two hours after mixing; discard mortar not used within this time limit. Retempering will be allowed to restore the required consistency as needed until the two-hour limit is reached.

D. Mortar joints shall be 3/8-inch thick with full mortar coverage on the face shells and webs surrounding the cells to be filled.

1. Interior Joints shall be:

a. Tooled at faces to be painted.
b. Flush at faces to received drywall, hardcoat or ceramic tile.

2. Exterior Joints shall be:

a. Tooled at faces to be exposed.
b. Flush at faces to receive brick, ceramic tile or other veneer.

3. Joints of 8" wide units shall be laid with the interior faces true.
4. Joints of 4" wide units (to receive stucco) shall be laid with exterior faces true.

E. The starting joint on foundations shall be laid with full mortar coverage on the bed joint except that the area where grout occurs shall be free from mortar so that the grout will contact the foundation.

3.5 GROUTING

A. General:

1. Refer to Section 04 0500 – Masonry Grout.
2. Use “Fine Grout” per ASTM C476 for filling spaces less than 3 inches in one or both horizontal directions.
3. Use “Course Grout” per ASTM C476 for filling 3 inches spaces or larger in both horizontal directions.
4. Place grout by pumping into grout spaces unless alternate methods are acceptable to the Architect and Engineer.
5. Rod or Vibrate each grout lift during pouring operation, and again after excess moisture has been absorbed, but before plasticity is lost.
6. Limit grout pours to sections which can be completed in one working day with not more than one-hour interruption of pouring operation.
7. Place grout in lintels or beams over openings in one continuous pour.
8. Where bond beams occur more than one course below top of pour, fill bond beam during construction of masonry.

B. Preparation of Grout Spaces:

1. Prior to grouting, inspect and clean grout spaces. Remove dust, dirt, mortar droppings, loose pieces of masonry and other foreign materials from grout spaces. Clean reinforcing and adjust to proper position. Clean top surface of structural members supporting masonry to ensure bond.
2. Do not place grout until entire height of masonry to be grouted has attained sufficient strength to resist displacement of masonry units and breaking of mortar bond, 3 days minimum. Install shores and bracing, if required, before starting grouting operations.
3. High-Lift Grouting: After final cleaning and inspection, close cleanout holes and brace closures to resist grout pressures.

C. Grouting Technique: Use grouting techniques subject to requirements which follow.

1. High-Lift Grouting:

    a. Do not use high-lift grouting technique for grouting of CMU unless minimum cavity dimension is 3 inches and area is 12 sq. in.
    b. Provide cleanout holes in first course at all vertical cells which are to be filled with grout.
        1) Use units with one face shell removed and provide temporary supports for units above, or use header units with concrete brick supports, or cut openings in one face shell (preferred alternate). Minimum cleanout size shall be 3 inches x 4 inches. Locate cleanouts in areas not exposed to view in finished structure.
    c. Construct masonry to full height of maximum grout pour specified, prior to placing grout.
        1) Limit grout lifts to a maximum height of 4 feet -8 inches and grout pour to a maximum height 24 feet, for single wythe hollow concrete masonry walls, unless otherwise indicated.
    d. Place vertical reinforcement before grouting. Place before or after laying masonry units, as required by job conditions. The vertical reinforcement to dowels at base of masonry where shown and thread CMU over or around reinforcement. Support vertical reinforcement at intervals not exceeding 192 bar diameters nor 10 feet.
        1) Where individual bars are placed after laying masonry, place wire loops extending into cells as masonry is laid and loosen before mortar sets. After insertion of reinforcement bar, pull loops and bar to proper position and tie free ends.
        2) Where reinforcement is prefabricated into caged units before placing, fabricate units with vertical reinforcement bars and lateral ties of the size and spacing indicated.
    e. Allow not less than 30 minutes, nor more than one hour between lifts of a given pour.
    f. Rod or Vibrate each grout lift during pouring operation, and again after excess moisture has been absorbed, but before plasticity is lost.
    g. Do not penetrate or damage grout placed in previous lifts or pours.

2. Low-Lift Grouting:

    a. Construct masonry to height of maximum grout lift specified, prior to placing grout.
        1) Limit grout lifts to a maximum height of 4 feet - 8 inches, unless otherwise indicated.
    b. Clean debris and mortar droppings out of cells prior to installing reinforcing.
    c. Place vertical reinforcement before grouting. Tie vertical reinforcement to dowels at base of masonry where shown and thread CMU over or around reinforcement. Support vertical reinforcement at intervals not exceeding 4 feet - 8 inches in one grout lift.
    d. Rod or Vibrate each grout lift during pouring operation, and again after excess moisture has been absorbed, but before plasticity is lost.

3. Place horizontal beam reinforcement as the masonry units are laid.
4. Embed lateral tie reinforcement in mortar joints where indicated. Place reinforcement at vertical spacing shown as masonry units are laid.

    a. Where lateral ties are shown in contact with vertical reinforcement bars, embed additional lateral tie reinforcement in mortar joints. Place as shown, or if not shown, provide as required to prevent grout blowout or rupture of CMU face shells, but provide not less than No. 2 bars or 8-gage wire ties spaced 16” o.c. for members with 20” or less side dimensions, and 8” o.c. for members with side dimensions exceeding 20”.

5. Preparation of Grout Spaces: Prior to grouting, inspect and clean grout spaces. Remove dust, dirt, mortar droppings, loose pieces of masonry and other foreign materials from grout spaces. Clean reinforcing and adjust to proper position. Clean top surface of structural members supporting masonry to ensure bond.

    a. High-Lift Grouting: After final cleaning and inspection, close cleanout holes and brace closures to resist grout pressures.

6. Do not place grout until entire height of masonry to be grouted has attained sufficient strength to resist displacement of masonry units and breaking of mortar bond, 3 days minimum. Install shores and bracing, if required, before starting grouting operations.
7. Place grout by pumping into grout spaces unless alternate methods are acceptable to the Architect and Engineer.
8. Limit grout pours to sections which can be completed in one working day with not more than one-hour interruption of pouring operation. Place grout in lifts which do not exceed 4'-8". Place grout in lintels or beams over openings in one continuous pour.

    a. High-Lift Grouting: Allow not less than 30 minutes, nor more than one hour between lifts of a given pour. Rod or Vibrate each grout lift during pouring operation, and again after excess moisture has been absorbed, but before plasticity is lost. Do not damage grout placed in previous lifts or pours.
    b. Low-Lifting Grouting: Rod or Vibrate each grout lift during pouring operation, and again after excess moisture has been absorbed, but before plasticity is lost.

9. Where bond beams occur more than one course below top of pour, fill bond beam during construction of masonry

3.6 POINTING

A. Point-up all joints at corners, openings and adjacent work to provide a neat, uniform appearance, properly prepared for application of caulking or sealant compounds.

3.7 TOLERANCES

A. Maximum Variation from Plumb: 1/4 inch per story non-cumulative; 1/2 inch in two stories or more.

B. Maximum Variation from Level Coursing: 1/8 inch in 5 feet and 1/4 inch in 10 feet; 1/2 inch in 30 feet.

3.8 CONTROL AND EXPANSION JOINTS

A. Locate all CMU control and expansion joints per the Drawings.

B. Do not continue horizontal joint reinforcement through control and expansion joints.

C. Install preformed control joint device in continuous lengths as shown in the Drawings.

1. Seal butt and corner joints.
2. Size control joint in accordance with Section 07 9000 for sealant performance.

3.9 BUILT-IN WORK

A. As work progresses, install all built-in components, bearing plates, and anchors furnished by other sections.

B. Electrical boxes and any other items that are built into exposed masonry shall be flush with face of wall.

1. Maximum recess for any built-in item is 1/8 inch.
2. No protrusion from face of wall shall be allowed.
3. Maximum clearance between masonry and built in item shall be ¼ inch.

3.10 REPAIR AND REMEDIATION

A. In the event of damage, immediately make all repairs and replacement necessary to the approval of the Architect and at no additional cost to the Owner.

1. Remove and replace masonry units which are loose, chipped, broken, stained, or otherwise damaged, or if units do not match adjoining units as intended.
2. Provide new units to match adjoining units and install in fresh mortar or grout, pointed to eliminate evidence of replacement. During the tooling of joints, enlarge any voids or holes, except weep holes, and completely fill with mortar.

B. Any concrete masonry construct that the Architect or Engineer deems to be in non-conformance to the requirements of this and all related Specification Sections shall be subject to demolition and reconstruction in conformance to the Specifications to the extent defined Architect or Engineer.

1. Any and all remedial work to resolve any non-conformance or deficiency will be wholly at Contractor’s expense.

3.11 CLEANING AND PROTECTION

A. Concrete scum and grout stains shall be removed immediately. After the concrete masonry assembly is constructed, it shall not be saturated with water for curing or any other purpose.

3.12 MOISTURE AND AIR BARRIERS

A. Prior to applying any moisture and/or air barrier on concrete masonry, fill all voids, pits and depressions greater than 1/8 inch deep measured from the CMU face surface with Spec compliant mortar. In addition, remove any debris, unused form fasteners, or excess mortar and patch as required.

1. Resultant surface shall be continuous, smooth, and free of debris to permit undisturbed sheeting of moisture over the subsequently installed moisture membrane.
2. Mortar shall not be used as a filling material after the moisture/air membrane is installed.

B. See Division 7 for moisture and air membrane materials and installation requirements.

END OF SECTION

SECTION 05 5000

METAL FABRICATIONS

PART 1 - GENERAL

1.1 WORK INCLUDED: This section covers the work necessary to furnish and install:

A. Miscellaneous metal fabrications and castings.

B. Anchoring Systems.

C. Equipment Hangers and Supports as required.

D. The tabulation of items is not intended to be all-inclusive. It is the contractor's responsibility to provide metal fabrications and castings shown on the drawings, specified or which can reasonably be inferred as necessary for the completion of this project.

1.2 GENERAL

A. Refer to Division 00 and 01 Sections of these specifications.

1.3 REFERENCES

A. ASTM Standards and Test Procedures.

B. AWS D1.1 - Structural Welding Code.

1.4 SUBMITTALS

A. Shop Drawings: Indicate profiles, sizes, connection attachments, reinforcing, anchorage, size and type of fasteners and accessories of miscellaneous metal fabrications and castings.

B. Manufacturer's Mill Certificate: Submit certification that products meet or exceed requirements.

1.5 FIELD MEASUREMENTS

A. The contractor is to verify dimensions, make field measurements necessary and be responsible for accuracy and layout of work. The contractor is to review the drawings and any discrepancies are to be reported for clarification prior to starting fabrication.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. The use of a manufacturer's name and specification number is for the purpose of establishing the standard of quality and general configuration desired. Products of other manufacturers, meeting the requirements, may be considered.

B. Like items of material or equipment are to be the end products of one manufacturer in order to achieve standardization for appearance, operation, maintenance, spare parts and manufacturer's service.

2.2 MATERIALS: Unless otherwise shown or specified, conform to the following:

A. Steel Sections: ASTM A36.

B. Steel Tubing: ASTM A500, Grade B.

C. Pipe: ASTM A 501 OR ASTM A53, Types E or S, Grade B, Schedule 40.

D. Bolts, Nuts, and Washers: ASTM A325.

E. Anchor Bolts: ASTM A307, or A36.

F. Welding Materials: AWS D1.1; type required for materials being welded.

G. Stainless Steel
Bars and Shapes: ASTM A 276, Type 316
Steel Plate, Sheet and Strip: ASTM A 167, Type 316
Bolts: ASTM A 193, Type 316
Nuts: ASTM A 194, Type 316

H. Aluminum, Structural Shapes and Plates: Alloy 6061-T6, or 6063-T6, ASTM B209.

I. Galvanized Bolts: ASTM A 307, A 153

J. Cast Iron: ASTM A 48, Class 30

K. Shop and Touch-Up Primer: Rust-inhibitive primer single packaged steel primers with anti-corrosive pigment loading; may be alkyd, vinyl epoxy ester, chlorinated rubber; 40% volume solids minimum.

L. Isolation Coating: Single-component, bituminous paint, 68% minimum solids by volume, brush applied, on coat.

2.3 SHOP PAINT PRIMER

A. Prepare ferrous metal surfaces in accordance with SSPC SP-2 or SP-3; insure that oil, grease, dirt, loose rust, mill scale and other foreign substances are removed from surfaces.

B. Shop prime; Do not prime at welds, bolts and where embedded in concrete. Apply one coat of rust-inhibitive primer at 2 mils minimum dry film thickness.

2.4 GALVANIZING

A. Galvanizing of steel plates, shapes, bars and products fabricated from these items are to conform to ASTM A123. Pipes, welded or seamless steel, are to conform to ASTM A120. Material thinner than 1/8 inch shall either be galvanized before fabrication in conformance with the requirements of ASTM A525, Coating Designation G 210, or after fabrication in conformance with the requirements of ASTM A123.

B. Welded areas are to be cleaned prior to galvanizing to remove slag or other material that would interfere with the adherence of the zinc coating. When it is necessary to straighten sections after galvanizing, such work is to be performed without damage to the zinc coating.

C. Components of bolted assemblies are to be galvanized separately before assembly.

2.5 ANCHORING SYSTEMS

A. Wedge Anchors: Stainless steel, manufactured by ITT Phillips Drill Division or Kwik-Bolt, stud type, manufactured by Hilti, Inc.; or equal. Furnish sizes shown on drawings or as required to develop full strength of materials being anchored or connected.

B. Expansion Anchors: Expansion anchors are not to be used except in dry areas where future corrosion is not a problem. In wet or damp areas, use wedge anchors. Self-drilling anchors, snap-off type or flush type. ITT Phillips Drill Division or Hilti HDI Drop-In Anchors, Hilti, Inc.; or equal. Plastic anchors not allowed.

C. Toggle Clamps: Toggle clamps are to be stainless steel and designed similar to Series 235-USS, manufactured by De-Sta-Co, Division of Dover Corporation; Series CL-351-TC, manufactured by Carr Lane; or equal.

2.6 EQUIPMENT HANGERS AND SUPPORTS

A. Provide unistrut framing system as manufactured by Unistrut Corporation or equal. Sizes, quantities and configurations as required to support items or equipment. Provide 1/2", 3/4" or 1" diameter threaded rods depending on weight of equipment to be supported. Length as required.

2.7 MISCELLANIOUS STEEL FRAMING

A. Provide angle framing required for the support of equipment and other items requiring support that are not already provided for in the contract documents and other construction. Angles are to be galvanized.

PART 3 - EXECUTION

3.1 PREPARATION

A. Make provision for erection loads with temporary bracing. Keep work in alignment.

B. Supply items required to be cast into concrete or embedded in masonry with setting templates to appropriate trades.

3.2 WORKMANSHIP

A. Workmanship of metal fabrications and castings are to be the highest grade and equal to the best practice of modern shops for the respective work. Provide necessary rabbets, lugs and brackets so that the work can be assembled in a neat and substantial manner. Conceal fastenings where practical. Drill metal fabrications as required for attaching hardware or other materials; torch cut holes are not permitted. Weld connections, unless otherwise shown or required.

3.3 ELECTROLYTIC PROTECTION

A. Where aluminum is in contact with dissimilar metals, or to be embedded in masonry or concrete, protect surfaces with isolation coating. Allow paint to dry before installation of the material. Protect painted surfaces during installation; should coating become marred, prepare and touch up surface per paint manufacturer's instructions.

3.4 INSTALLATION

A. Install items plumb and level, accurately fitted, free from distortion or defects.

B. Install in accordance with the shop drawings, the drawings, and specifications. Perform field welding and erection work by skilled mechanics. The completed installations are to be rigid, substantial and neat in appearance. Erect structural steel in accordance with the applicable portions of AISC Code of Standard Practice.

C. Install pre-manufactured and prefabricated products in accordance with manufacturers' instructions.

D. Touch-up Painting: After erection, clean field welds, bolted connections and abraded areas of the shop paint primer. Apply touch-up paint primer by brush or spray which is the same thickness and material as that used for the shop paint primer.

E. Galvanizing Repair: Galvanized surfaces that are abraded or damaged after the application of the zinc coating are to be repaired by solvent cleaning followed by hand or power tool cleaning the damaged areas, removing loose and cracked coating; after which the cleaned areas are to be painted with two coats of galvanizing repair paint.

END OF SECTION

SECTION 06 1053

MISCELLANEOUS ROUGH CARPENTRY

PART 1 - GENERAL

1.1 WORK INCLUDED: This section covers the work necessary to furnish and install:

A. General framing, plates, blocking, braces, furring and nailers.

B. Rough carpentry hardware, including, but not limited to, nails, screws, toggle bolts and other anchorage devices.

C. Treated wood products are to be used where in contact with concrete or CMU.

D. Pressure treated wood is to be arsenic-free.

1.2 RELATED REQUIREMENTS

A. Refer to Division 00 and 01 Sections of these specifications.

1.3 SUBMITTALS: Submittals during construction are to be made in accordance with section 01 3300.

1.4 RELATED WORK

A. Section 06 4100 – Architectural Wood Casework

1.5 FIELD MEASUREMENTS

A. The contractor is to verify dimensions, make field measurements necessary and be responsible for accuracy and layout of work. The contractor is to review the drawings and any discrepancies are to be reported for clarification prior to starting fabrication.

1.6 DELIVERY, STORAGE AND HANDLING

A. Upon delivery to site, place materials in an area protected from weather.

B. Store materials a minimum of 6 inches above ground on wood blocking and cover with protective waterproof covering providing for adequate air circulation or ventilation.

C. Do not store materials in wet or damp portions of building.

PART 2 - PRODUCTS

2.1 QUALITY ASSURANCE

A. Lumber grading rules and wood species are to be in conformance with U.S. Product Standard PS 20 and the National Forest Products Association. The wood members are to conform to the requirements above and provide design values equal to those published in the "Design Values for Wood Construction" of National Design Specification for Wood Construction, published by the National Forests Products Association.

2.2 GRADE MARKS

A. Each piece of lumber is to be stamped with the grade as determined by an approved grading association indicating conformance with U.S. Product Standard PS 20.

B. Moisture content is not to exceed 19 percent, unless otherwise specified.

C. Preservative and pressure treated material is to conform to American Wood Preservers Association Standards (AWPA) and bear the appropriate American Wood Preservers Bureau (AWPB) quality mark designation.

2.3 LUMBER

A. Dimensions given are nominal. Surface four sides (S4S), unless indicated otherwise, lumber is to be No. 2 Southern Yellow Pine for general framing, plates, blocking, braces, studs, furring and nailers.

2.4 PRESSURE TREATED WOOD

A. Provide arsenic free pressure treated wood in accordance with AWPA C2 and the quality control standards. AWPB LP-2 for above ground application in contact with masonry or concrete. AWPB LP-22 with round contact application.

2.5 ROUGH CARPENTRY HARDWARE

A. Nails: Steel common nails in accordance with the fastening schedule of the Florida Building Code, sizes as indicated on drawings or as required. Use hot-dipped zinc-coated nails wherever exposed to exterior, high humidity and treated wood locations.

B. Bolts and Screws: Conforming to ASTM A 307, sizes as indicated on drawings or as required. Use galvanized where exposed to exterior, high humidity and treated wood locations.

C. Anchors: Toggle bolt type for anchorage to hollow masonry. Expansion shield and lag bolt type for anchorage to solid masonry or concrete. Bolts or ballistic fasteners for anchorages to steel. No plastic anchors allowed.

PART 3 - EXECUTION

3.1 GENERAL

A. Use skilled workers and the standards of the craft. Plan work in advance and perform in proper sequence to facilitate prompt and continuous progress of the work. Lay-out, cut, fit and install rough carpentry items. Anchor sufficiently to ensure rigidity and permanence.

B. Install items accurate to dimension, level and square. Provide for installation and support of other work.

C. Provide pressure treated wood for wood blocking, furring and nailing strips in contact with concrete and concrete masonry units.

END OF SECTION

SECTION 06 4100

ARCHITECTURAL WOOD CASEWORK

PART 1 - GENERAL

1.1 WORK INCLUDED: This section covers the work to furnish and install:

A. Prefabricated millwork, including cabinet hardware, installation and storage of uninstalled millwork.

B. Shelving and high pressure decorative laminate and other related items as noted on the drawings.

Casework hardware, including locks on cabinet doors as indicated on the Drawings Interior Elevations.

1.2 RELATED REQUIREMENTS

A. Refer to Division 00 and 01 Sections of these specifications.

1.3 RELATED WORK

A. Section 06 1053 – Miscellaneous Rough Carpentry

1.4 REFERENCES

A. ASTM standards and ANSI standards as referenced.

B. Manufacturers' recommendations and specifications.

C. National Electrical Manufacturer's Association (NEMA): Standards LQ1 and LD3 for plastic laminates.

D. American National Standard Institute (ANSI): A20B.1, grade 1-M-2, "Mat-Formed Wood Particleboard".

E. PS 1 - construction and industrial plywood.

F. PS58 - basic hardboard.

1.5 SUBMITTALS: Submittals during construction are to be made in accordance with Section 01 3300. In addition, the following information is to be provided:

A. Qualifications: Submit information regarding the subcontractor’s experience.

B. Samples: Submit color and pattern samples of each finish to be applied by the millwork manufacturer for selection.

C. Manufacturers' Literature: Submit manufacturers' literature of specialty items, including but not limited to, plastic laminates and cabinet hardware. Manufacturers' literature is to be marked for each proposed item.

D. Shop Drawings: Prior to fabrication, shop drawings are to be submitted for review. Shop drawings are to describe and illustrate features of the design, materials, fabrication, profiles and layout of laminate clad cabinet items.

1.6 FIELD MEASUREMENTS

A. The contractor is to verify dimensions, make field measurements necessary and be responsible for accuracy and layout of work. The contractor is to review the drawings and any discrepancies are to be reported for clarification prior to starting fabrication, application or installation.

1.7 QUALITY ASSURANCE

A. The "Quality Standards", Section 1600 - Modular Casework of the Architectural Woodwork Institute (AWI) is to apply as a minimum and by reference are made a part of these specifications. In the event of conflict between these specifications and AWI Section 1600, then these specifications are to take precedence.

1.8 WARRANTY

A. The contractor is to guarantee items furnished and installed, including materials and workmanship for a period of one year from date of Substantial Completion.

B. Millwork is to be guaranteed against chipping, delamination, warping of doors and caulking associated with this installation, for a period of one year from date of Substantial Completion.

1.9 DELIVERY, STORAGE AND HANDLING

A. Deliver, store and handle materials or equipment under provisions of Section 01 6000.

B. Store millwork and related materials in dry and well-ventilated interior locations under constant minimum ambient temperature of 65 degrees F. and maximum relative humidity of 70 percent.

C. Do not store any millwork on project site until building has been secured with lockable doors and windows and complies with the conditions set forth above.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Products of millwork subcontractors, meeting the requirements specified, may be acceptable for the work of this section.

B. Submittals are to be accompanied by the following information:

1. List of at least ten similar installations of the same magnitude within the past three years with references, including contact name and telephone numbers of previous projects. This requirement is upon request only.
2. Construction details, technical specifications, color charts and cabinet hardware, in such detail as necessary to determine that the proposed product is in conformance with these specifications.
3. Full range of colors available in proposed HPL material.

C. Millwork items are to be the end products of one manufacturer in order to achieve standardization for appearance, operation, maintenance and spare parts.

D. High pressure laminate are to be as manufactured by Wilsonart or Formica.

2.2 GENERAL INFORMATION AND DEFINITIONS

A. Construction: Details are to conform to the reveal overlay cabinet construction (i.e., door faces cover all or part of the body members of the cabinet, with spaces between face surfaces sufficient for operating clearance).

B. Assembly: Laminate clad cabinets are to be plant assembled. Where design, delivery or site conditions require, laminate clad cabinets are to be assembled in component units with provisions made for field connecting.

C. Colors of Plastic Laminate: Provide full range of colors available for verification during construction submittals.

D. Exposed Surfaces: Exposed faces of doors when closed, exposed exterior ends, bottoms of wall cabinets and tops of cabinets less than 72-inches above finish floor are considered exposed surfaces. Visible interior surfaces, i.e. open shelving, are classified as an exposed surface and be covered with high pressure plastic laminate.

E. Semi-Exposed Surfaces: Interior surfaces which are visible and tops of cabinets 72-inches or more above finished floor are considered semi-exposed surfaces. Interior surfaces which are not visible when doors are closed and tops of cabinets 72" or more above finish floor are considered semi-exposed surfaces.

F. Concealed Surfaces: Surfaces not normally visible after installation i.e., stretchers, blocking and vertical partitions are considered concealed surfaces.

G. Exposed Edges: Edge of stiles, rail and partitions visible when a door is opened, edges of door, edges of stiles, rails and partitions of cabinets, front and back edges of shelves are considered exposed surfaces.

2.3 PREFABRICATED MILLWORK

A. Surface materials and edging requirements for laminate clad cabinets:
   1. Exposed Surfaces (other than edges) - Wilsonart, design group I, matte # 6 finish, high pressure laminate, nominal 0.028-inch thick.
   2. Semi-Exposed Surfaces (other than edges) - manufacturer has the option to utilize Wilsonart high pressure laminate or thermally fused melamine laminated panels in manufacturer's standard colors. Polyester, cabinet liner and vinyl overlays are not acceptable.
   3. Exposed edges to be extruded 0.118" thick P.V.C., or H.P.L. Color as selected from manufacturer's full range of colors. Corners of doors to be eased to eliminate sharp 90 degree corners.
   4. Directions and matching of patterns or grains to be as selected.

B. Cabinet Hardware: Manufacturer to furnish and install cabinet hardware. Cabinet hardware items to meet the following requirements:
   1. Hinges to be concealed type equal to those as manufactured by Blum 107 degree hinges. Color to be selected during construction submittals.
   2. Pulls to be 96mm Allison CTC pulls as manufactured by Amerock. Color to be selected during construction submittals.
   3. Catching devices to be magnetic type and be minimum 7-pound pull; catching devices for cabinets 72-inches and taller to have minimum 15-pound pull. In addition, cabinets over 54-inches to have minimum 2 catching devices per door.
   4. Hardware for adjustable shelves - manufacturer has the option of:
      a. Multiple holes with metal pins.
      b. Metal shelf standards with metal shelf supports.
   5. Provide special hardware as required to suit each condition.
   6. cabinet door panel locks TO be keyed cylinder, provide two keys per lock, keying and finish to be selected during construction phase submittals.

C. Flatness of doors:

1. Maximum permitted deviation from flatness in door to be 0.005 per lineal foot. Flatness to be determined by placing a straight edge on the concave face of the door, diagonally, horizontally or vertically, and measuring the maximum distance between the face of the door and the straight edge (i.e., a 20-inch by 30-inch cabinet door would measure 36-inches across the diagonal; maximum deviation would be 0.108-inch).
2. Doors over 54 inches in height to be 1" thick.

D. Thickness and materials for laminate clad cabinet components:

1. Continuous base frame base cabinets to rest on standard continuous wood base frame. Particleboard or fiberboard products are not to be used. Continuous base frame to be leveled at the front using a mechanical leveling device. Softwood shims or shakes not to be used for leveling.

Cabinet Components	Materials	Thickness of Material
Body Members	Panel Product	3/4-inch
Rails Product	Solid Lumber or Panel	3/4-inch
Shelves	Panel Product	1-inch
(Note: Shelves exceeding 36-inches span require additional support.)		
Backs	Panel Product	3/8-inch
Doors and Drawer Fronts	Panel Product	3/4-inch

E. Joinery and fastening of cabinet body members:
1. Fixed body members (i.e., shelves, bottoms, tops and rails which are fastened to sides, ends and dividers) to be joined using concealed dado or dowel matched or interlocking mechanical fasteners. Where not in violation of design, surfaces of intersecting body members may be set back not to exceed 1/8-inch provided setback is constant. Where the concealed dado and dowel methods are employed, cabinets to be assembled utilizing glue and pressure. The dado method to be reinforced with blind nailing or screwing.
2. No nails, screws or other fastening may be visible on exposed surfaces. On semi-exposed surfaces mechanical fasteners may be visible.
3. Rails or top panels to be provided where base cabinet will have a separate top in order to permit concealed fastening of the separate top.

PART 3 - EXECUTION

3.1 INSPECTION AND COORDINATION

A. Examine grounds, wood blocking and supports of casework for adequate anchorage, foreign material, moisture and unevenness that would prevent quality installation of millwork casework. Do not proceed with installation until defects are corrected and blocking is in place.

B. Contractor to coordinate with other trades for backing and reinforcement in walls, floors and ceilings where required for support or attachment of millwork.

3.2 INSTALLATION

A. Set and secure millwork in place rigid, plumb and level.

B. Scribe millwork which abuts other building materials, leaving gaps within 1/16-inch tolerance. Do not use additional overlay trim for this purpose.

C. Install matching filler and scribe panels with concealed screws or adhesive where required for a complete and finished installation.

D. Final base finish for toe space and ends of base cabinets to be furnished and installed by others. Provide solid backing for base application with no gap at floor.

3.3 ADJUSTING AND CLEANING

A. Adjust doors, hardware and other parts to function smoothly and correctly. All doors to have equal margins. Doors to be flush with each other in the closed position. Replace chipped or cracked plastic laminate with full sheet to nearest joint or edge. Patching or other repairs not acceptable.

B. Clean and wipe down millwork and hardware prior to Substantial Completion.

END OF SECTION

SECTION 07 1100

DAMPPROOFING

PART 1 - GENERAL

1.1 WORK INCLUDED: This section covers the work to furnish and install:

A. Dampproofing applied to all exterior surfaces of concrete masonry units below grade.

1.2 RELATED REQUIREMENTS

A. Refer to Division 00 and 01 Sections of these specifications.

1.3 REFERENCES

A. Federal specifications as referenced.

1.4 SUBMITTALS: Submittals during construction to be made in accordance with Section 01 3300 and the following information to be provided:

A. Submit product data indicating properties of cementitious dampproofing.

B. Submit manufacturer's application instructions.

C. Provide documentation to confirm that the dampproofing is vapor proof.

1.5 DELIVERY, STORAGE AND HANDLING:

A. Deliver, store and handle materials per manufacturer’s instructions.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. The use of a manufacturer's name and specification number is for the purpose of establishing the standard of quality and general configuration desired. Products of other manufacturers, meeting the requirements specified, may be considered.

2.2 MATERIALS

A. "Sealmastic" Type 2 bitumastic as manufactured by W.R. Meadows; "Waterban" as manufactured by Lambert Corporation or equal.

PART 3 - EXECUTION

3.1 INSPECTION

A. Verify surfaces are solid, free of foreign matter, loose particles, cracks, pits and rough projections detrimental to adhesion and application of dampproofing.

B. Verify items which penetrate surfaces to receive dampproofing are securely installed.

C. Beginning of installation means acceptance of substrate.

3.2 PREPARATION

A. Clean and prepare surfaces to receive dampproofing in accordance with manufacturer's instructions.

3.3 APPLICATION

A. Apply two coats, roller or spray continuous and uniform at an approximate rate of 15 to 18 square feet per gallon for minimum 1/16-inch thickness.

END OF SECTION

SECTION 07 1900

WATER REPELLENTS

PART 1 - GENERAL

1.1 WORK INCLUDED: This section covers the work necessary to furnish and install:

A. Water repellent coating for all new exterior split-face CMU.

1.2 RELATED REQUIREMENTS

A. Refer to Division 00 and 01 Sections of these specifications.

1.3 RELATED WORK

A. Section 04 2016 – Reinforced Unit Masonry.

1.4 QUALITY ASSURANCE

A. Applicator: 2 years of experience on projects of similar scope.

1.5 SUBMITTALS: Submittals during construction to be made in accordance with Section 01 3300. In addition, the following information to be provided:

A. Details of product description, limitations to coating, cautionary procedures required during application and chemical properties, including percentage of solids.

B. Manufacturer's application instructions.

C. Applicator's Qualification Affidavit: Water repellent coating applicator's affidavit of qualification compliance.

1.6 DELIVERY, STORAGE AND HANDLING

A. Deliver, store and handle materials per manufacturer’s recommendations.

B. Deliver materials in original sealed containers, marked with manufacturer's name, brand name and type of material. Store materials in area where temperatures are not less than 50 degrees F or over 85 degrees F, unless otherwise authorized by manufacturer.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. The use of a manufacturer's name and specification number is for the purpose of establishing the standard of quality and configuration desired. Equal products may be considered.

B. Acceptable Manufacturer: Professional Products of Kansas, Inc., 4456 S Clifton, Wichita, KS 67216; Tel: 800-676-7346; 316-522-9300; Fax: 316-522-9346; Email: ppk@watersealant.com; Web: www.watersealant.com or BASF MasterProtect H 185 high-performance, breathable, water-based, patented silane/siloxane blended water-repellent sealer.

2.2 PENTRATING WATER REPELLENTS

A. Water repellent coating to be equal to Professional Water Sealant PWS-15 Super Strength. One coat provides water repellent protection.

2.3 PERFORMANCE: Water repellent to:

A. Penetrate the surface and cure to silicone rubber, which remains below the surface and prevents water from penetrating while permitting moisture vapor transmission. The silicone rubber retains its characteristic 400 percent elongation, allowing for bridging of hairline cracks.

B. Be unaffected by ultraviolet light, airborne pollutants, salt spray or acid rain.

C. Cure to a clear, flat finish.

PART 3 - EXECUTION

3.1 PROTECTION

A. Protect adjacent surfaces not to be coated by masking off windows, doors, frames, etc. during water repellent operations.

B. Protect plants and vegetation which might be affected by coating spray or fumes with plastic. Remove after final rinse.

3.2 ENVIRONMENTAL REQUIREMENTS

A. Do not apply water repellent coating in rainy conditions or within a minimum of 3 days after surfaces become wet from rainfall or other moisture.

B. Do not apply water repellent coating when a low temperature of 40 degrees F or less is predicted within a period of 24 hours before or after application.

3.3 INSPECTION

A. Examine surfaces to receive water repellent coating to assure conditions are satisfactory for application and that surfaces are clean and ready to receive coating. Do not apply coating to surfaces that are stained, need pointing up or otherwise are not ready to receive coating.

B. Verify that mortar joints found to be unsound, hollow or otherwise defective, have been raked out to a depth of 1/2 inch and tuck pointed with mortar.

C. Product is intended to bridge hairline cracks. If a crack can be seen from 6-8 feet away, it is to be repaired.

3.4 APPLICATION

A. Perform a test patch prior to full-scale application of waterproofing sealant.

B. Apply water repellent coating in accordance with manufacturer's directions.

C. Apply starting at the top of the designated area, using high volume low pressure spray equipment, create 4-6 inch rundown of product from the point where the spray makes contact with the surface. Work all the way down building being sure to fill in the run-down with an equal volume of material. Avoid excessive overlapping. Brush any excess product that may accumulate on ledges and other areas that may hold excess material.

D. Avoid letting coating dry between passes, beginning at the corner or end of wall.

E. Prohibit fumes from entering the building being treated. Apply only when HVAC system can be shut down during application process. Coordinate with the contractor as to when HVAC system can be shut down, if it is operating.

3.5 ADJUST AND CLEAN

A. Clean spillage and overspray from adjacent surfaces as recommended by coating manufacturer.

3.6 FIELD QUALITY CONTROL

A. After water repellent coating has dried, spray coat surfaces with water. Proper coating means water will bead up and not be absorbed.

B. Re-coat surfaces that show water absorption.

3.7 GUARANTEE

A. Provide 10 year vertical warranty, which provides for the replacement of sufficient product to retreat the area that has failed. This does not cover application. Warranty to be provided by both the manufacturer and by the applicator.

END OF SECTION

SECTION 07 2116

BLANKET INSULATION

PART 1 - GENERAL

1.1 WORK INCLUDED: This section covers the work necessary to furnish and install:

A. Batt insulation and related fasteners.

B. All batt insulation is to be Class A.

1.2 RELATED REQUIREMENTS

A. Refer to Division 00 and 01 Sections of these specifications.

1.3 RELATED WORK

A. Section 09 2116 - Gypsum Board Assemblies

1.4 REFERENCES

A. ASTM standards and test procedures as referenced.

B. Federal specifications as referenced.

1.5 SUBMITTALS: Submittals during construction are to be made in accordance with Section 01 3300. In addition, the following information is to be provided:

A. Manufacturer's Literature: Submit manufacturers' technical literature for each type of insulation specified.

1.6 DELIVERY, STORAGE AND HANDLING

A. Deliver, store and handle materials per manufacturer’s recommendations.

B. Identify manufacturer, contents, brand name, applicable standard and "R" value.

C. Store materials off ground and keep dry. Protect against weather, condensation and damage. Remove damaged material from site.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Batt Insulation and Fasteners: Furnish and install 3'-1/2" thick (6” or 8” at larger stud framed walls) fiberglass or mineral wool batts conforming to Federal specification HH-I-521, Type 1 with no vapor barrier, and ANSI/NFPA NO. 101, "Life Safety Code" noncombustible classification, with minimum "R" value of 11. Fasteners are to be as recommended by insulation manufacturer for each condition. Insulation is to have a flame spread rating of not more than 75 and a smoke development rating of not more than 450.

PART 3 - EXECUTION

3.1 GENERAL

A. Coordinate installation where other trades.

3.2 INSTALLATION

A. Install in accordance with the manufacturer's instructions.

3.3 CLEANUP

A. Remove containers, wrappings and scrap insulation material from site. Leave floors broom clean.

END OF SECTION

SECTION 07 2119

FOAMED-IN-PLACE INSULATION

PART 1 - GENERAL

1.1 SUMMARY

A. Extent of insulation work is shown on drawings and indicated by provisions of this section.

B. Applications of insulation specified include the following:
   1. Foamed-In-Place masonry insulation for thermal, sound and fire resistance values.

1.2 RELATED REQUIREMENTS

A. Refer to Division 00 and 01 Sections of these specifications.

1.3 SUBMITTALS

A. Product and technical presentation as provided by the manufacturer.

B. Certified Test Reports: With product data, submit copies of certified test reports showing compliance with performance values, including R-values, fire performance and sound abatement characteristics.

C. Material Safety Data Sheet: Submit Material Safety Data Sheet complying with OSHA Hazard Communication Standard, 29 CRF 1910 1200.

1.4 QUALITY ASSURANCE

A. Manufacturing Standards: Provide insulation produced by a single and approved manufacturer. The product to come from the manufacturer pre-mixed to ensure consistency.

B. Installer Qualifications for Foamed-In-Place Masonry Insulation: Engage an experienced dealer/applicator who has been trained and licensed by the product manufacturer and which has not less than three years of experience in the installation of the product used.

C. Warranty: One year product and installation warranty to be issued by both the manufacturer and installer.

D. Fire Performance Characteristics: Provide insulation materials which are identical to those whose fire performance characteristics, as listed for each material or assembly of which insulation is a part, have been determined by testing, per methods indicated below, by a testing agency acceptable to authorities having jurisdiction.

E. Product to be classified by Underwriters Laboratory (“UL”) as to Surface Burning Characteristics
   1. Surface Burning Characteristics: ASTM E-84

PART 2 - PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

A. Manufacturers of Foamed-In-Place Masonry Insulation: Subject to compliance with requirements, provide products from the following or approved equal:
   1. "Core-Fill 500TM", Tailored Chemical Products, P.O. Box 4186, Hickory, N.C. 28603, (800) 627-1687.

2.2 INSULATING MATERIALS

A. General: Provide insulating materials which comply with requirements indicated for materials, compliance with referenced standards and other characteristics.

B. Foamed-In-Place Masonry Insulation: Two component thermal insulation produced by combining a plastic resin and catalyst foaming agent surfactant which, when properly ratioed and mixed, together with compressed air produce a cold-setting foam insulation in the hollow cores of hollow unit masonry walls.
   1. Surface Burning Characteristics: Maximum flame spread, smoke developed and fuel contributed of 0, 5 and 0 respectively.
   2. Combustion Characteristics: Noncombustible, Class A building material.
   3. Thermal Values: "R" Value of 4.91/inch @ 32 degrees F mean; ASTM C-177.
   4. Sound Abatement: Minimum Sound Transmission Class ("STC") rating of 53 and a minimum Outdoor Indoor Transmission Class ("OITC") rating of 44 for 8" wall assembly (ASTM E 90-90).

PART 3 - EXECUTION

3.1 INSPECTION AND PREPARATION

A. Application Assemblies:
   1. Block Walls: 8" concrete masonry units.

3.2 INSTALLATION OF FOAMED-IN-PLACE INSULATION

A. General: Install foamed-in-place insulation from interior, prior to installation of interior finish work and after masonry and structural concrete work is in place and comply with manufacturer's instructions.

B. Installation: Fill open cells and voids in hollow concrete masonry walls where noted on drawings. The foam insulation to be pressure injected through a series of 5/8" to 7/8" holes drilled into every vertical column of block cells (8" on center) beginning at an approximate height of four feet from finished floor level. Repeat this procedure at an approximate height of ten feet above the first horizontal row of holes (or as needed) until the void is completely filled. Patch holes with mortar and score to resemble existing surface.

END OF SECTION

SECTION 07 2600

VAPOR RETARDERS

PART 1 - GENERAL

1.1 WORK INCLUDED: This section covers the work necessary to furnish and install:

A. Under-slab 10 mil vapor barrier retarder.

B. Install vapor barrier under all new concrete slabs on grade.

1.2 RELATED REQUIREMENTS

A. Refer to Division 00 and 01 Sections of these specifications.

1.3 REFERENCES

A. ASTM standards and test procedures as referenced.

1.4 SUBMITTALS: Submittals during construction are to be made in accordance with Section 01 3300.

1.5 DELIVERY, STORAGE AND HANDLING

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

B. Deliver materials to the site in original packages with the manufacturer's labels.

PART 2 - PRODUCTS

2.1 BARRIER

A. Barrier at slabs on grade shall be minimum 10-mil minimum, Class A installation, polyurethane material equal to Stego Wrap. All joints and penetration to be staggered and taped. Caulk polyurethane sealer around all openings in the slab, including cracks, expansion joints and pipe penetrations.

PART 3 - EXECUTION

3.1 PREPARATION

A. Verify substrate materials are dry and clean and ready to receive work.

B. Coordinate the work of all trades so that all items to be placed under the slab are in place prior to the laying of any barrier.

C. Before beginning installation, inspect and approve quality of subsurface waterproofing and drainage to insure that it is acceptable.

3.2 INSTALLATION – VAPOR BARRIER

A. Under-Slab Barrier: Install barrier under all concrete floor slabs on grade or fill. After base for the slab has been leveled and tamped, and after soil treatment work has been performed, apply the barrier with the roll width parallel to the direction of the pour with all joints lapped and continuously taped 12 “ minimum.

B. Provide a puncture-free barrier. Any tears or holes to be repaired by removing defective sheet and replacing with a new sheet.

C. All penetrations in barrier to be sealed with same material lapped 12" from edge of penetration and taped.

D. Barrier to be turned up at foundation wall behind the expansion joint material and sealed to the foundation wall so as to completely seal the joint.

3.3 CLEANUP

A. Upon completion of the barrier installation clean up all waste materials and debris and dispose of such waste materials at approved location.

END OF SECTION

SECTION 07 7100

ROOF SPECIALTIES

PART 1 - GENERAL

1.1 WORK INCLUDED: This section covers the work to furnish and install:

A. Vents through roof.

B. Coordination of the extension of ductwork, exhaust fans, intake ducts and other items required to be extended through the roofing system.

C. Coordinate with the Mechanical, Plumbing and Electrical Documents.

1.2 RELATED REQUIREMENTS

A. Refer to Division 00 and 01 Sections of these specifications.

1.3 SUBMITTALS: Submittals during construction to be made in accordance with Section 01 3300. In addition, the following information to be provided:

A. Shop Drawings: Showing materials, details, flashing, anchorage and relation to adjacent structure.

B. Manufacturer's Literature: Catalog cuts.

1.4 FIELD MEASUREMENTS

A. The contractor is to verify dimensions and be responsible for accuracy and layout of work. The contractor is to review the drawings and specifications and any discrepancies are to be reported for clarification prior to starting fabrication.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. The use of a manufacturer's name and specification number is for the purpose of establishing the standard of quality and general configuration desired. Products of other manufacturers, meeting the requirements, may be considered.

B. Like items of material or equipment to be the end products of one manufacturer in order to achieve standardization for appearance, operation, maintenance, spare parts and manufacturer's service.

2.2 VENTS THROUGH ROOF

A. Vents through roof flashings and curbs associated with curb extensions to be installed by the roofing system installer.

B. Curbs for mechanical equipment, exhaust fans, intake fans and related equipment.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine surfaces and structures to receive work. Do not proceed until unsuitable conditions have been corrected. Starting work constitutes acceptance of conditions as suitable to the proper execution of the work.

3.2 COORDINATION

A. Schedule and coordinate work with the work of all sections involved as applicable.

3.3 INSTALLATION

A. Install items in accordance with manufacturers' instructions.

B. Work to be weather-tight and free of expansion and contraction noise.

C. Work to be designed, fabricated and installed to compliment the design and installation of the work of other related sections including wind loading and thermal expansion/contraction.

D. Notify contractor of conditions that would adversely affect installation or subsequent use.

END OF SECTION

SECTION 07 9000

JOINT PROTECTION

PART 1 - GENERAL

1.1 WORK INCLUDED: This section covers the work necessary to furnish and install:

A. Preparing substrate surfaces, sealants and joint backing for joints related to buildings, structures, roofing, flashings and equipment.

B. Firestop sealant at all joints in any fire rated walls, ceilings and other joints.

1.2 RELATED REQUIREMENTS

A. Refer to Division 00 and 01 Sections of these Specifications.

1.3 REFERENCES

A. Federal Specifications as referenced.

B. ASTM C 920 – Elastomeric Joint Sealants.

C. ASTM C 1083 – Water Absorption of Cellular Elastomeric Gaskets and Sealants.

D. ASTM E 96 – Standard Test for Water Vapor Permeance.

E. SWRI (Sealant, Waterproofing and Restoration Institute) – Sealant and Caulking Guide Specification.

1.4 ENVIRONMENTAL CONDITIONS

A. The ambient temperature is to be between 40 and 90 degrees F when sealant is applied, unless recommended otherwise by sealant manufacturer.

1.5 QUALITY ASSURANCE

A. Applicator is to have a minimum of two years of experience installing sealants in projects of similar scope.

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

C. Color(s) of sealants selected are to be utilized throughout. The use of multiple colors on a given bead run is not accepted.

1.6 SUBMITTALS

A. Samples and Certificates: Submit samples of each sealant type showing color range.

B. Applicator's Affidavit: Submit applicator's affidavit of qualification compliance.

1.7 GUARANTEE

A. Installed sealants and accessories are to be guaranteed for a period of five years from date of Substantial Completion. Guarantee is to include coverage of installed sealants and accessories which fail to achieve air tight and watertight seal, exhibit loss of adhesion or cohesion or do not cure.

1.8 DELIVERY, STORAGE AND HANDLING

A. Deliver sealants to the site in sealed containers bearing manufacturer's name and product designation.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. The use of a manufacturer's name or product is for the purpose of establishing the standard of quality and general configuration desired. Products of other manufacturers, meeting the requirements, may be considered.

2.2 SEALANTS

A. Sealants are to be self-leveling for horizontal and sloping joints with a maximum slope of 1 percent. Non-sag sealants are to be used for steeper sloped joints, vertical joints and overhead joints. Silicone sealants are not acceptable.

B. Vertical Joints in Cast-in-Place Concrete and Concrete Masonry Units: Two-part polyurethane sealant conforming to federal specification TTS-00227E, Type II, N/S, Mameco Vulken 227 or approved equal. Color to be selected.

C. Horizontal Joints in Cast-in-Place Concrete: Two-part polyurethane sealant conforming to federal specification TT-S-00227E, Type I, Class A, S/L, Mameco Vulkem 245 or approved equal. Color to be selected.

D. Special Applications: One-part polyurethane sealant conforming to Federal Specification TT-S-00230C, Type II, Class A, N/S; Mameco Vulkem 116 or approved equal. Color to be selected.

E. Surface Applied Reglets: Polyurethane, Chemrex 889 or approved equal. Color to be selected.

F. Silicone Sealant Type S, ASTM C920, Grade NS, Class 25, single component, chemical curing, non-sagging with color selected. Equal to Dow Corning 795. Color to be selected.

G. Polyurethane Sealant Type S, ASTM C920, Grade NS, Class 25, single component, chemical curing, non-sagging with color as selected. Equal to Sika 1A. Color to be selected.

H. Firestop Sealant: Equal in all respects to Dow Corning 2000, red in color. Sealant to meet fire test data per ASTM E 814. Apply in accordance with manufacturer's instructions. Firestop sealant to be used at all locations of fire rated walls, ceilings or other fire rated areas. Apply per manufacturer’s recommendations by full depth of sealant at head, base and intersections of all fire rated walls. Apply at all penetrations of electrical or plumbing piping as required to meet NFPA requirements.

I. Aluminum-Framed Items: Dow Corning 795 or approved equal. Color to be selected during construction submittals.

J. Plumbing Fixtures: Dow Corning 784 Silicone Sealant or approved equal. Color to be selected during construction submittals.

2.3 BACKUP MATERIAL

A. Use closed-cell polyethylene foam rod conforming to ASTM D 1751 and compatible with sealant used. Size as shown or as recommended by manufacturers for joints greater than 3/16 inch.

2.4 BOND BREAKER

A. As recommended by sealant manufacturer.

2.5 PRIMER

A. As recommended by sealant manufacturer.

PART 3 - EXECUTION

3.1 PREPARATION

A. Surfaces are to be clean, dry, sound and free of dust, loose mortar and other foreign materials. Mask adjacent surfaces where necessary to maintain neat edge. Starting of work will be construed as acceptance of sub-surfaces.

3.2 INSTALLATION

A. Apply materials following manufacturer's recommendation and instructions.

B. Fill sealant joint completely from back to top, without voids.

C. Tool sealant joints slightly concave after sealant is installed on vertical and horizontal joints that are flush with adjacent surfaces. On flashing reglets, sealant to be installed with convex surface to shed water.

3.3 CLEANING

A. The surfaces next to the sealed joints are to be cleaned of smears or other soiling resulting from sealant applications. At no additional cost to Owner, replace or repair to Owner's satisfaction any damaged surfaces resulting from sealant application or cleaning.

END OF SECTION

SECTION 08 1000
DOOR SCHEDULE

REMARKS

1. SINGLE EXTERIOR DOOR. DOOR TO BE FLUSH WITH APPROXIMATELY 10" X 30" NARROW GLAZING LIT. FRAME TO BE 3'-4" WIDE WITH 2" JAMBS AND 7'-4" HIGH WITH 4" HEAD.
2. SINGLE INTERIOR DOOR. DOOR TO BE FLUSH WITH NO GLAZING. FRAME TO BE 3'-4" WIDE WITH 2" JAMBS AND 7'-2" HIGH WITH 2" HEAD.
3. SINGLE INTERIOR DOOR. DOOR TO BE FLUSH WITH APPROXIMATELY 10" X 30" NARROW GLAZING LITE. FRAME TO BE 3'-4" WIDE WITH 2" JAMBS AND 7'-2" HIGH WITH 2" HEAD.
4. PAIR OF INTERIOR DOORS. DOOR TO BE FLUSH WITH NO GLAZING. FRAME TO BE 6'-4" WIDE WITH 2" JAMBS AND 7'-2" HIGH WITH 2" HEAD.

DOOR SCHEDULE

OPEN'G NO.	DOOR WIDTH	DOOR HT.	DOOR THK.	DOOR MAT'L.	FRAME MAT'L.	HEAD DET.	JAMB DET.	HDW.	REMARKS
101	3'-0"	7'-0"	1-3/4"	H.M.	H.M.	A/A-1	B/A-1	1	1
102	3'-0"	7'-0"	1-3/4"	SCWD	H.M.	C/A-1	D/A-1	8	2
103	3'-0"	7'-0"	1-3/4"	SCWD	H.M.	C/A-1	D/A-1	7	3
104	3'-0"	7'-0"	1-3/4"	H.M.	H.M.	MANUF.	MANUF.	1	1
105	3'-0"	7'-0"	1-3/4"	SCWD	H.M.	C/A-1	D/A-1	3	3
106	3'-0"	7'-0"	1-3/4"	SCWD	H.M.	C/A-1	D/A-1	7	3
107	3'-0"	7'-0"	1-3/4"	SCWD	H.M.	C/A-1	D/A-1	7	3
108	3'-0"	7'-0"	1-3/4"	SCWD	H.M.	C/A-1	D/A-1	7	3
109	3'-0"	7'-0"	1-3/4"	SCWD	H.M.	C/A-1	D/A-1	6	2
109A	3'-0"	7'-0"	1-3/4"	SCWD	H.M.	C/A-1	D/A-1	5	4
110-1	3'-0"	7'-0"	1-3/4"	SCWD	H.M.	C/A-1	D/A-1	3	2
110-2	3'-0"	7'-0"	1-3/4"	SCWD	H.M.	C/A-1	D/A-1	4	3
112	3'-0"	7'-0"	1-3/4"	SCWD	H.M.	C/A-1	D/A-1	2	2
113	3'-0"	7'-0"	1-3/4"	SCWD	H.M.	C/A-1	D/A-1	8	2
114	3'-0"	7'-0"	1-3/4"	SCWD	H.M.	C/A-1	D/A-1	8	2
116	3'-0"	7'-0"	1-3/4"	SCWD	H.M.	C/A-1	D/A-1	9	2
117	3'-0"	7'-0"	1-3/4"	SCWD	H.M.	C/A-1	D/A-1	9	2
118	3'-0"	7'-0"	1-3/4"	SCWD	H.M.	C/A-1	D/A-1	9	2
119	3'-0"	7'-0"	1-3/4"	SCWD	H.M.	C/A-1	D/A-1	9	2
120	3'-0"	7'-0"	1-3/4"	SCWD	H.M.	C/A-1	D/A-1	9	2
121	3'-0"	7'-0"	1-3/4"	H.M.	H.M.	MANUF.	MANUF.	1	1

SECTION 08 1113

HOLLOW METAL DOORS AND FRAMES

PART 1 - GENERAL

1.1 RELATED REQUIREMENTS

A. Refer to Division 00 and 01 Sections of these Specifications.

1.2 SUMMARY

A. Section Includes:
   1. Standard and custom hollow metal doors and frames.
   2. Light frames and glazing installed in hollow metal doors.

B. Related Sections:
   1. Section 08 1000 – Door Schedule
   2. Section 08 1416 - Flush Wood Doors
   3. Section 08 7100 – Door Hardware
   4. Section 08 8000 - Glazing
   5. Section 09 9000 – Painting and Coating

C. Codes and References: Comply with the version year adopted by the Authority Having Jurisdiction.
   1. ANSI/SDI A250.8 - Recommended Specifications for Standard Steel Doors and Frames.
   2. ANSI/SDI A250.4 - Test Procedure and Acceptance Criteria for Physical Endurance for Steel Doors, Frames, Frames Anchors and Hardware Reinforcing.
   3. ANSI/SDI A250.6 - Recommended Practice for Hardware Reinforcing on Standard Steel Doors and Frames.
   4. ANSI/SDI A250.10 - Test Procedure and Acceptance Criteria for Prime Painted Steel Surfaces for Steel Doors and Frames.
   5. ANSI/SDI A250.11 - Recommended Erection Instructions for Steel Frames.
   6. ASTM A1008 - Standard Specification for Steel Sheet, Cold-Rolled, Carbon, Structural, High-Strength Low-Alloy and High-Strength Low-Alloy with Improved Formability.
   7. ASTM A653 - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
   8. ASTM A924 - Standard Specification for General Requirements for Steel Sheet, Metallic-Coated by the Hot-Dip Process.
   9. ASTM C 1363 - Standard Test Method for Thermal Performance of Building Assemblies by Means of a Hot Box Apparatus.
   10. ANSI/BHMA A156.115 - Hardware Preparation in Steel Doors and Frames.
   11. ANSI/SDI 122 - Installation and Troubleshooting Guide for Standard Steel Doors and Frames.
   12. ANSI/NFPA 80 - Standard for Fire Doors and Fire Windows; National Fire Protection Association.
   13. ANSI/NFPA 105: Standard for the Installation of Smoke Door Assemblies.
   14. NFPA 252 - Standard Methods of Fire Tests of Door Assemblies; National Fire Protection Association.
   15. UL 10C - Positive Pressure Fire Tests of Door Assemblies.

16. UL 1784 - Standard for Air Leakage Tests of Door Assemblies.

1.3 QUALITY ASSURANCE

A. Source Limitations: Obtain hollow metal doors and frames through one source from a single manufacturer wherever possible.

B. Quality Standard: In addition to requirements specified, furnish SDI-Certified manufacturer products that comply with ANSI/SDI A250.8, latest edition, "Recommended Specifications for Standard Steel Doors and Frames".

1.4 DELIVERY, STORAGE AND HANDLING

A. Deliver hollow metal work palletized, wrapped or crated to provide protection during transit and Project site storage. Do not use non-vented plastic.

B. Deliver welded frames with two removable spreader bars across bottom of frames, tack welded to jambs and mullions.

C. Store hollow metal work under cover at Project site. Place in stacks of five units maximum in a vertical position with heads up, spaced by blocking, on minimum 4-inch high wood blocking. Do not store in a manner that traps excess humidity.
   1. Provide minimum 1/4-inch space between each stacked door to permit air circulation. Door and frames to be stacked in a vertical upright position.

1.5 PROJECT CONDITIONS

A. Field Measurements: Verify actual dimensions of openings by field measurements before fabrication.

1.6 COORDINATION

A. Coordinate installation of anchorages for hollow metal frames. Furnish setting drawings, templates and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts and items with integral anchors. Deliver such items to Project site in time for installation.

1.7 WARRANTY

A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace doors that fail in materials or workmanship within specified warranty period.

B. Warranty includes installation and finishing that may be required due to repair or replacement of defective doors.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide steel doors and frames from a SDI Certified manufacturer:
   1. CECO Door Products (C).
   2. Curries Company (CU).
   3. Steelcraft (S).
   4. Daybar.

2.2 MATERIALS

A. Cold-Rolled Steel Sheet: ASTM A 1008/A 1008M, Commercial Steel (CS), Type B; suitable for exposed applications.

B. Metallic-Coated Steel Sheet: ASTM A 653/A 653M, Commercial Steel (CS), Type B; with minimum G60 (Z180) or A60 (ZF180) metallic coating.

C. Frame Anchors: ASTM A 653/A 653M, Commercial Steel (CS), Commercial Steel (CS), Type B; with minimum G60 (Z180) or A60 (ZF180) metallic coating.

2.3 HOLLOW METAL DOORS

A. General: Provide 1-3/4 inch doors of design indicated, not less than thickness indicated; fabricated with smooth surfaces, without visible joints or seams on exposed faces unless otherwise indicated. Comply with ANSI/SDI A250.8 and ANSI/NAAMM HMMA 867.

B. Exterior Doors: Face sheets fabricated of commercial quality hot-dipped zinc coated steel that complies with ASTM A 653/A 653M, Coating Designation A60. Provide doors complying with requirements indicated below by referencing ANSI/SDI A250.8 for level and model and ANSI/SDI A250.4 for physical performance level:
   1. Design: Flush panel.
   2. Core Construction: Manufacturer's standard polystyrene. Where indicated, provide doors fabricated as thermal-rated assemblies with a minimum R-value of 2.8 or better.
   3. Level/Model: Level 3 and Physical Performance Level A (Extra Heavy Duty), Minimum 16 gauge (0.053) thick steel, Model 2.
   4. Top and Bottom Edges: Reinforce tops and bottoms of doors with a continuous steel channel not less than 16 gauge, extending the full width of the door and welded to the face sheet. Doors with an inverted top channel to include a steel closure channel, screw attached, with the web of the channel flush with the face sheets of the door. Plastic or composite channel fillers are not acceptable.
   5. Hinge Reinforcement: Minimum 7 gauge (3/16") plate 1-1/4" x 9" or minimum 14 gauge continuous channel with pierced holes, drilled and tapped.
   6. Hardware Reinforcements: Fabricate according to ANSI/SDI A250.6 with reinforcing plates from same material as door face sheets.

2.4 HOLLOW METAL FRAMES

A. General: Comply with ANSI/SDI A250.8 and with details indicated for type and profile.

B. Exterior Frames: Fabricated of hot-dipped zinc coated steel that complies with ASTM A 653/A 653M, Coating Designation A60.
   1. Fabricate frames with mitered or coped corners. Profile as indicated on drawings.
   2. Frames: Minimum 14 gauge (0.067-inch) thick steel sheet.
   3. Manufacturers Basis of Design:
      a. Curries Company (CU) – M Series.

C. Interior Frames: Fabricated from cold-rolled steel sheet that complies with ASTM A 1008/A 1008M.
   1. Fabricate frames with mitered or coped corners.
   2. Manufacturers Basis of Design:
      a. CECO Door Products (C) - SU Series.
      b. Curries Company (CU) - M Series.

D. Hardware Reinforcement: Fabricate according to ANSI/SDI A250.6 Table 4 with reinforcement plates from same material as frames.

2.5 FRAME ANCHORS

A. Jamb Anchors: Masonry Type: Adjustable strap-and-stirrup or T-shaped anchors to suit frame size, formed from A60 metallic coated material, not less than 0.042 inch thick, with corrugated or perforated straps not less than 2 inches wide by 10 inches long; or wire anchors not less than 0.177 inch thick. Stud Wall Type: Designed to engage stud and not less than 0.042 inch thick. Compression Type for Drywall Slip-on (Knock-Down) Frames: Adjustable compression anchors.

B. Floor Anchors: Floor anchors to be provided at each jamb, formed from A60 metallic coated material, not less than 0.042 inches thick.

C. Mortar Guards: Formed from same material as frames, not less than 0.016 inches thick.

2.6 LIGHT OPENINGS AND GLAZING

A. Stops and Moldings: Provide stops and moldings around glazed lites where indicated. Form corners of stops and moldings with butted or mitered hairline joints at fabricator’s shop. Fixed and removable stops to allow multiple glazed lites each to be removed independently. Coordinate frame rabbet widths between fixed and removable stops with the type of glazing and installation indicated.

B. Moldings for Glazed Lites in Doors and Loose Stops for Glazed Lites in Frames: Minimum 20 gauge thick, fabricated from same material as door face sheet in which they are installed.

C. Fixed Frame Moldings: Formed integral with hollow metal frames, a minimum of 5/8 inch high unless otherwise indicated. Provide fixed frame moldings and stops on outside of exterior and on secure side of interior doors and frames.

D. Preformed Metal Frames for Light Openings: Manufacturer's standard frame formed of 0.048-inch-thick, cold rolled steel sheet; with baked enamel or powder coated finish; and approved for use in doors of fire protection rating indicated. Match pre-finished door paint color where applicable.

2.7 ACCESSORIES

A. Mullions and Transom Bars: Join to adjacent members by welding or rigid mechanical anchors.

B. Grout Guards: Formed from same material as frames, not less than 0.016 inches thick.

2.8 FABRICATION

A. Fabricate hollow metal work to be rigid and free of defects, warp, or buckle. Accurately form metal to required sizes and profiles, with minimum radius for thickness of metal. Where practical, fit and assemble units in manufacturer's plant. When shipping limitations so dictate, frames for large openings are to be fabricated in sections for splicing or splining in the field by others.

B. Tolerances: Fabricate hollow metal work to tolerances indicated in ANSI/SDI A250.8.

C. Hollow Metal Doors:
   1. Exterior Doors: Provide optional weep-hole openings in bottom of exterior doors to permit moisture to escape where specified.
   2. Glazed Lites: Factory cut openings in doors with applied trim or kits to fit. Factory install glazing where indicated.

3. Continuous Hinge Reinforcement: Provide welded continuous 12 gauge strap for continuous hinges as/if specified in hardware sets.

D. Hollow Metal Frames:
   1. Shipping Limitations: Where frames are fabricated in sections due to shipping or handling limitations, provide alignment plates or angles at each joint, fabricated of same thickness metal as frames.
   2. Welded Frames: Weld flush face joints continuously; grind, fill, dress, and make smooth, flush, and invisible.
      a. Welded frames are to be provided with two steel spreaders temporarily attached to the bottom of both jambs to serve as a brace during shipping and handling. Spreader bars are for bracing only and are not to be used to size the frame opening.
   3. Continuous Hinge Reinforcement: Provide welded continuous 12 gauge straps for continuous hinges as/if specified in hardware sets.
   4. Provide countersunk, flat- or oval-head exposed screws and bolts for exposed fasteners unless otherwise indicated for removable stops, provide security screws at exterior locations.
   5. Mortar Guards: Provide guard boxes at back of hardware mortises in frames at all hinges and strike preps regardless of grouting requirements.
   6. Floor Anchors: Weld anchors to bottom of jambs and mullions with at least four spot welds per anchor.
   7. Jamb Anchors: Provide number and spacing of anchors as follows:
      a. Masonry Type: Locate anchors not more than 18 inches from top and bottom of frame. Space anchors not more than 32 inches o.c. and as follows:
         1). Two anchors per jamb up to 60 inches high.
         2). Three anchors per jamb from 60 to 90 inches high.
         3). Four anchors per jamb from 90 to 120 inches high.
         4). Four anchors per jamb plus 1 additional anchor per jamb for each 24 inches or fraction thereof above 120 inches high.
      b. Stud Wall Type: Locate anchors not more than 18 inches from top and bottom of frame. Space anchors not more than 32 inches o.c. and as follows:
         1). Three anchors per jamb up to 60 inches high.
         2). Four anchors per jamb from 60 to 90 inches high.
         3). Five anchors per jamb from 90 to 96 inches high.
         4). Five anchors per jamb plus 1 additional anchor per jamb for each 24 inches or fraction thereof above 96 inches high.
         5). Two anchors per head for frames above 42 inches wide and mounted in metal stud partitions.
   8. Door Silencers: Except on weatherstripped or gasketed doors, drill stops to receive door silencers.
   9. Bituminous Coating: Where frames are fully grouted with an approved Portland Cement based grout or mortar, coat inside of frame throat with a water based bituminous or asphaltic emulsion coating to a minimum thickness of 3 mils DFT, tested in accordance with UL 10C and applied to the frame under a 3rd party independent follow-up service procedure.

E. Hardware Preparation: Factory prepare hollow metal work to receive template mortised hardware; include cutouts, reinforcement, mortising, drilling, and tapping according to the Door Hardware Schedule.
   1. Locate hardware as indicated, or if not indicated, according to ANSI/SDI A250.8.

2. Reinforce doors and frames to receive non-template, mortised and surface mounted door hardware.
3. Comply with applicable requirements in ANSI/SDI A250.6 and ANSI/DHI A115 Series specifications for preparation of hollow metal work for hardware.

2.9 STEEL FINISHES

A. Prime Finishes: Doors and frames to be cleaned, and chemically treated to insure maximum finish paint adhesion. Surfaces of the door and frame exposed to view to receive a factory applied coat of rust inhibiting shop primer.
1. Shop Primer: Manufacturer's standard, fast-curing, lead and chromate free primer complying with ANSI/SDI A250.10 acceptance criteria; recommended by primer manufacturer for substrate; and compatible with substrate and field-applied coatings.

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. General Contractor to verify the accuracy of dimensions given to the steel door and frame manufacturer for existing openings or existing frames (strike height, hinge spacing, hinge back set, etc.).

C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Remove welded in shipping spreaders installed at factory. Restore exposed finish by grinding, filling, and dressing, as required to make repaired area smooth, flush, and invisible on exposed faces.

B. Prior to installation, adjust and securely brace welded hollow metal frames for square, level, twist, and plumb condition.

C. Tolerances shall comply with SDI-117 "Manufacturing Tolerances Standard Steel Doors and Frames."

D. Drill and tap doors and frames to receive non-template, mortised, and surface-mounted door hardware.

E. Verify tolerances against manufacturers installations instructions for tornado and hurricane storm shelter openings.

3.3 INSTALLATION

A. General: Install hollow metal work plumb, rigid, properly aligned and securely fastened in place; comply with Drawings and manufacturer's instructions.

B. Hollow Metal Frames: Install hollow metal frames. Comply with ANSI/SDI A250.11.
1. Set frames accurately in position, plumbed, leveled, aligned and braced securely until permanent anchors are set. After wall construction is complete and frames properly set and secured, remove temporary braces, leaving surfaces smooth and undamaged. Shim as necessary to comply with installation tolerances.
2. Floor Anchors: Provide floor anchors for each jamb and mullion that extends to floor, and secure with post-installed expansion anchors.

3. Masonry Walls: Coordinate installation of frames to allow for solidly filling space between frames and masonry with mortar.
4. Grout Requirements: Do not grout head of frames unless reinforcing has been installed in head of frame. Do not grout vertical or horizontal closed mullion members.

C. Hollow Metal Doors: Fit hollow metal doors accurately in frames, within clearances specified below. Shim as necessary.
1. Non-Fire-Rated Standard Steel Doors:
a. Jambs and Head: 1/8 inch plus or minus 1/16 inch.
b. Between Edges of Pairs of Doors: 1/8 inch plus or minus 1/16 inch.
c. Between Bottom of Door and Top of Threshold: Maximum 3/8 inch.
d. Between Bottom of Door and Top of Finish Floor (No Threshold): Maximum 3/4 inch.

D. Field Glazing: Comply with installation requirements of hollow metal manufacturer's instructions.

3.4 ADJUSTING AND CLEANING

A. Final Adjustments: Check and readjust operating hardware items immediately before final inspection. Leave work in complete and proper operating condition. Remove and replace defective work, including hollow metal work that is warped, bowed, or otherwise unacceptable.

B. Remove grout and other bonding material from hollow metal work immediately after installation.

C. Prime-Coat and Painted Finish Touchup: Immediately after erection, sand smooth rusted or damaged areas of prime coat, or painted finishes, and apply touchup of compatible air drying, rust-inhibitive primer, zinc rich primer (exterior and galvanized openings) or finish paint.

3.5 FIELD QUALITY CONTROL

A. Field Inspection (Punch Report): Produce project punch report for each installed door opening indicating compliance with approved submittals and verification hardware is properly installed, operating and adjusted. Include list of items to be completed and corrected, indicating the reasons or deficiencies causing the Work to be incomplete or rejected.

B. Organization of List: Include separate Door Opening and Deficiencies and Corrective Action Lists organized by Mark, Opening Remarks and Comments and related Opening Images and Video Recordings.

END OF SECTION

SECTION 08 1416

FLUSH WOOD DOORS

PART 1 - GENERAL

1.1 RELATED REQUIREMENTS

A. Refer to Division 00 and 01 Sections of these specifications.

1.2 SUMMARY

A. Section Includes:
   1. Solid core doors with wood veneer faces.
   2. Factory finishing wood doors.
   3. Factory fitting wood doors to frames and factory machining for hardware.
   4. Light frames and glazing installed in wood doors.

B. Related Sections:
   1. Section 08 1000 - Door Schedule
   2. Section 08 1113 - Hollow Metal Doors and Frames
   3. Section 08 7100 – Door Hardware
   4. Section 08 8000 - Glazing

C. Standards and References: Comply with the version year adopted by the Authority Having Jurisdiction.
   1. ANSI A117.1 - Accessible and Usable Buildings and Facilities.
   2. ANSI A208.1 – Wood Particleboard.
   3. UL 10C - Positive Pressure Fire Tests of Door Assemblies; UL 1784 - Standard for Air Leakage Tests of Door Assemblies.
   4. Window and Door Manufacturers Association - WDMA I.S.1-A Architectural Wood Flush Doors.

1.3 SUBMITTALS

A. Product Data: For each type of door indicated. Include details of core and edge construction, louvers, trim for openings and WDMA I.S.1-A classifications. Include factory finishing specifications.

B. Shop Drawings to include:
   1. Indicate location, size and hand of each door.
   2. Indicate dimensions and locations of mortises and holes for hardware.
   3. Indicate dimensions and locations of cutouts.
   4. Indicate requirements for veneer matching.
   5. Indicate location and extent of hardware blocking.
   6. Indicate construction details not covered in product data.
   7. Indicate doors to be factory finished and finish requirements.

C. Samples for Initial Selection: For factory finished doors.
   1. Factory finishes applied to actual door face materials, approximately 8 by 10 inches, for each material and finish. For each wood species and transparent finish, provide samples showing typical range of color and grain to be expected in the finished work.

2. Corner sections of doors, 8 by 10 inches, with door faces and edges representing actual materials to be used.
    a. Provide samples for each species of veneer and core material.
    b. Finish veneer faced door samples with same materials proposed for factory finished doors.
3. Frames for light openings, 6 inches long, for each material, type and finish required.

D. Warranty: Provide sample of manufacturer’s warranty.

1.4 QUALITY ASSURANCE

A. Source Limitations: Obtain flush wood doors through one source from a single manufacturer.

B. Quality Standard: In addition to requirements specified, comply with WDMA I.S.1-A, latest edition, "Industry Standard for Architectural Wood Flush Doors’.

C. Pre-Submittal Conference: Conduct conference with attendance by representatives of supplier, installer and contractor to review proper methods and procedures for receiving, handling and installing flush wood doors.

1.5 DELIVERY, STORAGE AND HANDLING

A. Comply with requirements of referenced standard and manufacturer's instructions.

B. Package pre-finished doors individually in plastic bags and wrap bundles of doors in plastic sheeting.

C. Mark each door on top rail with opening number used on shop drawings.

1.6 PROJECT CONDITIONS

A. Environmental Limitations: Do not deliver or install doors until spaces are enclosed and weather tight, wet work in spaces is complete and dry and HVAC system is operating and maintaining ambient temperature and humidity conditions at occupancy levels during the remainder of the construction period.

1.7 WARRANTY

A. Warranty: Manufacturer's standard form in which 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 wood face veneers exceeding 0.01 inch in a 3-inch span.
2. Warranty includes 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 DOOR CONSTRUCTION – GENERAL

A. WDMA I.S.1-A Performance Grade: Extra Heavy Duty; Aesthetic Grade: Premium.

2.2 CORE CONSTRUCTION

A. Particleboard Core Doors:
   1. Particleboard: Wood fiber based materials complying with ANSI A208.1 Particleboard standard. Grade LD-2.
   2. Adhesive: Fully bonded construction using Polyurethane (PUR) glue.
   3. Blocking: As indicated under article “Blocking”.

2.3 VENEERED DOORS FOR TRANSPARENT FINISH

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
   1. Eggers Industries: Premium Series.
   2. Graham: GPD Series.
   3. VT Industries: Artistry Series.
   4. Five Lakes Manufacturing.

B. Interior Solid Core Doors:
   1. Grade: Premium.
   2. Faces: Veneer grades as noted below, veneer minimum 1/50-inch thickness at moisture content of 12% or less.
      a. Manufacturer Standard Face: As selected.
      b. Plain Sliced Select White Birch, A grade faces.
   3. Match between Veneer Leaves: Book match.
   4. Assembly of Veneer Leaves on Door Faces:
      a. Running Match.
   5. Pair and Set Match: Provide for doors hung in same opening or separated only by mullions.
   6. Transom Match: Continuous match.
   7. Vertical Edges: Matching same species as faces. Wood or composite material, one piece, laminated or veneered. Minimum requirements per WDMA section P-1, Performance Standards for Architectural Wood Flush Doors.
   8. Horizontal Edges: Solid wood or structural composite material meeting the minimum requirements per WDMA section P-1, Performance Standards for Architectural Wood Flush Doors
   9. Construction: Five plies. Stiles and rails are bonded to core, then entire unit sanded before applying face veneers.
   10. At doors over 40% of the face cut-out for lights and or louvers, furnish engineered composite lumber core.

2.4 LIGHT FRAMES AND GLAZING

A. Wood Beads for Light Openings in Wood Doors up to and including 20-minute rating:
   1. Wood Species: Same species as door faces.
   2. Profile: M1 Flush Bead.
      a. At wood core doors with 20-minute fire protection ratings, provide wood beads and metal glazing clips approved for such use.

B. Glazing: Comply with installation requirements in Section 08 8000 - glazing and with the flush wood door manufacturer's instructions.

2.5 FABRICATION

A. Factory fit doors to suit frame opening sizes indicated.
   1. Undercut: As required per manufacturer’s templates and sill condition.

B. Factory machine doors for hardware that is not surface applied. Comply with final hardware schedules, door frame Shop Drawings, DHI A115-W series standards and hardware templates.
   1. Coordinate with hardware mortises in metal frames to verify dimensions and alignment before factory machining.

C. Openings: Cut and trim openings through doors in factory.
   1. Light Openings: Trim openings with moldings of material and profile indicated.
   2. Glazing: Comply with applicable requirements in Section 08 8000 - Glazing.

2.6 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 top and bottom edges, edges of cutouts and mortises.

B. Transparent Finish: Provide a clear protective coating over the wood veneer allowing the natural color and grain of the selected wood species to provide the appearance specified. Stain is applied to the wood surface underneath the transparent finish to add color and design flexibility.
   1. Finish: Meet or exceed WDMA I.S. 1A TR8 UV Cured Acrylated Polyester finish performance requirements.
   2. Staining: Custom stain to match architect’s sample.
   3. Sheen: Satin.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine doors and installed door frames before hanging doors.
   1. Verify that 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 7100 - Door Hardware.

B. Installation Instructions: Install doors and frames to comply with manufacturer's instructions and the referenced quality standard and as indicated.

C. Factory Fitted Doors: Align in frames for uniform clearance at each edge.

D. Factory Finished Doors: Restore finish before installation if fitting or machining is required at project site.

E. Field modifications to doors shall not be permitted, except those specifically allowed by manufacturer or fire rating requirements.

3.3 ADJUSTING

A. Operation: Re-hang or replace doors that do not swing or operate freely.

B. Finished Doors: Replace doors 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 3113

ACCESS DOORS AND FRAMES

PART 1 - GENERAL

1.1 WORK INCLUDED: This section covers the work to furnish and install:

A. Access Panels.

1.2 RELATED REQUIREMENTS

A. Refer to Division 00 and 01 Sections of these specifications.

1.3 RELATED WORK

A. Section 09 9000 – Painting and Coating

1.4 REFERENCES

A. ASTM Standards and Test Procedures as referenced.

1.5 SUBMITTALS: Submittals during construction are to be made in accordance with Section 01 3300. In addition, the following information to be provided:

A. Shop drawings:
   1. Prior to ordering or fabricating doors, submit for review shop drawings and manufacturer's literature showing construction and installation details.

B. Color Samples: Manufacturer's current color samples of factory finished coatings for selection.

1.6 DELIVERY, STORAGE AND HANDLING

A. Deliver, store and handle materials per manufacturer’s recommendations.

B. Deliver, store and handle doors in a manner to prevent damage and deterioration.

1.7 FIELD MEASUREMENTS

A. The contractor is to verify dimensions, make any field measurements necessary and be responsible for accuracy and lay out of work. The contractor is to review the drawings and any discrepancies are to be reported for clarification prior to starting fabrication.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Like items of material or equipment to be the end products of one manufacturer in order to achieve standardization for appearance, operation, maintenance, spare parts and manufacturer's service.

2.2 WALL ACCESS PANEL

A. Bar-Co, Milcor or equal. For masonry or stud wall installation with anchor strips, frame, concealed spring hinges and key operated cylinder lock. Provide at locations where required for access to above ceiling elements. Provided minimum 18" x 18". Review the mechanical, plumbing and electrical documents for locations requiring access panels.

2.3 CEILING ACCESS PANEL

A. Bar-Co, Milcor or equal. For gypsum board ceilings with frame and key operated cylinder locks. Provide minimum 24" x 24". Provide and install at locations required for access to concealed elements. Review the mechanical, plumbing and electrical documents for locations requiring access panels.

2.4 FIRE RATED ACCESS PANELS

A. Provide at locations where located in a fire-rated wall or ceiling. Review the life safety plan and mechanical, plumbing and electrical documents for fire-rated conditions.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install in accordance with the manufacturers' recommendations and instructions. Adjust doors for smooth operation.

3.2 PRIME COAT TOUCH-UP

A. After installation, areas where prime coat has been damaged shall be sanded smooth and touched up with same primer as applied at the shop. Remove any rust before touch-up is applied. Touch-up not to be obvious.

3.3 PROTECTION

A. Protect installed panel against damage from other construction work.

B. Panels which are damaged beyond repair to be replaced at no cost to the Owner.

3.4 WARRANTY

A. Panels to be warranted against defects in workmanship and materials for a period of one year from date of Substantial Completion.

END OF SECTION

SECTION 08 4113

ALUMINUM-FRAMED ENTRANCES AND STOREFRONTS

PART 1 - GENERAL

1.1 WORK INCLUDED: This section covers the work necessary to furnish and install**:**

A. Exterior Storefront Aluminum Framing.

B. Sealant associated with the work.

1.2 RELATED REQUIREMENTS

A. Refer to Division 00 and 01 Sections of these specifications.

1.3 RELATED WORK

A. Section 07 9000 – Joint Protection

B. Section 08 8000 - Glazing

1.4 REFERENCES

A. Manufacturer’s recommendations and specifications.

B. The Aluminum Association (AA): “Designation System for Aluminum Finishes”.

C. ASTM Standards and Test Procedures as referenced.

1.5 SUBMITTALS: Submittals during construction are to be made in accordance with Section 01 3300. In addition, the following information is to be provided:

A. Samples: Six-inch long samples of anodized extruded aluminum.

B. Shop Drawings:

1. Details of framing and anchorage to structure.
2. Field measure existing conditions prior to preparation of Shop Drawings. Make dimensional adjustment as required on the Shop Drawings.
3. Provide information in conformance with ASCE 7 and exterior wind loading criteria, anchorage design and related work at all exterior storefront framing and glass.

1.6 DELIVERY, STORAGE AND HANDLING

A. Deliver, store and handle materials or equipment so as not to damage materials or equipment.

1.7 FIELD MEASUREMENTS

A. The contractor is to field verify all dimensions and existing conditions and make any field measurements necessary. Contractor is to be fully responsible for accuracy and layout of work and make adjustments as required for a complete installation at no additional cost to the Owner. The contractor is to review the Drawings and any discrepancies are to be reported to the Architect for clarification prior to starting fabrication.

1.8 GUARANTEE

A. Provide a guarantee to make, at contractor’s expense, any repairs necessary because of faulty materials or workmanship for a period of two years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Components for the aluminum framing and storefronts are to be, for the purpose of establishing the standard of quality and general configuration desired, as manufactured by OLDCASTLE ARCHITECTURAL PRODUCTS SERIES FG-3000 for exterior applications. Equal products as manufactured or supplied by other manufacturers, provided they can meet the requirements of these specifications, may be considered.

2.2 STOREFRONT MATERIALS

A. The tabulation of items is not intended to be all inclusive, and it is the contractor's responsibility to provide all components for aluminum entrance and storefronts as necessary to complete the project.

B. Aluminum framing and extrusions are to have a face dimension as specified. The framing is to be accurately assembled with unexposed fasteners utilizing extruded splines, clips and/or snap-in features. Glass is to be held in place by E.P.D.M. glazing gaskets on both sides. No applied stops permitted.

C. Finish is to be selected during construction submittals, Class 1.

D. The framing is to be accurately assembled with unexposed fasteners utilizing extruded splines, clips and/or snap-in features. Refer to Section 08 8000 for glazing. Glass is to be set in the center of the section. Glass is to be held in place by E.P.D.M. glazing gaskets on both sides. All exposed surfaces are to be free of unsightly scratches and blemishes.

E. Storefront Framing:

1. Materials: All framing sections are to be of extruded aluminum alloy and tempered to meet or exceed finishing and structural criteria. Framing is to be tubular and have 0.125" wall thickness. All weathering on exterior installations are to be hard-backed silicone treated polypropylene.
2. Finish: All exposed surfaces are to be free of unsightly scratches and blemishes.
3. No exposed screws permitted. Framing is to be accurately joined at corners with hairline joints, with concealed screws.

2.3 FABRICATION OF STOREFRONT

A. Cut out, reinforce, drill and tap for hardware. Provide reinforcing in storefront to support doors.

B. Reinforce exterior mullions as necessary to limit deflection to 1/175 of span per wind loading requirements.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verification of Conditions: Examine areas and conditions under which the work is to be installed and notify the contractor of any conditions detrimental to the proper and timely completion of the work. Do not proceed with the work until unsatisfactory conditions have been corrected. Beginning of the work indicates acceptance of the areas and conditions as satisfactory.

3.2 PREPARATION

A. Coordinate and furnish anchors, inserts, sleeves, bolts, etc. Coordinate delivery of such items.

3.3 INSTALLATION

A. General: Installation is to be in accordance with reviewed product data, final shop drawings, the manufacturer’s specifications and recommendations and as indicated on the drawings.
   1. Erection Tolerances: Comply with manufacturer's instructions.

B. All items are to be set in their correct locations and be level, square, plumb and at proper elevations and in alignment with other work.

C. Seal all joints. Framing members are to be screwed in place using backing, anchor plugs or straps as required. Where moldings are joined, they are to be accurately cut and fitted to result in a tightly closed hairline joint. No unfinished aluminum is to be visible.

3.4 FIELD QUALITY CONTROL

A. Testing Services:
   1. Water Leakage Test: After completion of the installation and nominal curing of sealants, test for water leaks in accordance with AAMA 501.2.

3.5 ADJUSTING AND CLEANING

A. Touch-Up Painting: Touch-up scratched, nicked, abraded, chipped or otherwise damaged areas of the finish so as to be unnoticeable.

B. Cleaning: Wash to remove mortar, plaster and any other deleterious material from finished surfaces.

3.6 PROTECTION

A. Provide final protection and maintain conditions that ensure that the glazed storefronts are without damage at time of Substantial Completion.

END OF SECTION

SECTION 08 7100

DOOR HARDWARE

PART 1 - GENERAL

1.1 RELATED REQUIREMENTS

A. Refer to Division 00 and 01 Sections of these specifications.

1.2 SUMMARY

A. This Section includes commercial door hardware for the following:
   1. Swinging doors.
   2. Other doors to the extent indicated.

B. Door hardware includes, but is not necessarily limited to, the following:
   1. Mechanical door hardware.

C. Related Sections:
   1. Section 06 1053 – Miscellaneous Rough Carpentry
   2. Section 08 1113 - Hollow Metal Doors and Frames
   3. Section 08 1416 - Flush Wood Doors

D. Codes and References: Comply with the version year adopted by the Authority Having Jurisdiction.
   1. ANSI A117.1 - Accessible and Usable Buildings and Facilities.
   2. FBC – Florida Building Code.
   3. NFPA 70 - National Electrical Code.
   4. NFPA 80 - Fire Doors and Windows.
   5. NFPA 101 - Life Safety Code.
   6. NFPA 105 - Installation of Smoke Door Assemblies.
   7. Local Amendments.

E. Standards: All hardware specified are to comply with the following industry standards as applicable. Any undated reference to a standard is to be interpreted as referring to the latest edition of that standard:
   1. ANSI/BHMA Certified Product Standards - A156 Series.
   2. UL10C - Positive Pressure Fire Tests of Door Assemblies.
   3. ANSI/UL 294 - Access Control System Units.
   4. UL 305 - Panic Hardware.
   5. ANSI/UL 437- Key Locks.

1.3 SUBMITTALS

A. Product Data: Manufacturer's product data sheets including installation details, material descriptions, dimensions of individual components and profiles, operational descriptions and finishes.

B. Door Hardware Schedule: Prepared by or under the supervision of supplier, detailing, fabrication and assembly of door hardware, as well as procedures and diagrams. Coordinate the final Door Hardware Schedule with doors, frames, and related work to ensure proper size, thickness, hand, function and finish of door hardware.

1. Format: Comply with scheduling sequence and vertical format in DHI's "Sequence and Format for the Hardware Schedule."
2. Organization: Organize the Door Hardware Schedule into door hardware sets indicating complete designations of every item required for each door or opening. Organize door hardware sets in same order as in the Door Hardware Sets at the end of Part 3.
3. Content: Include the following information:
    a. Type, style, function, size, label, hand and finish of each door hardware item.
    b. Manufacturer of each item.
    c. Fastenings and other pertinent information.
    d. Location of door hardware set, cross-referenced to Drawings, both on floor plans and in door and frame schedule.
    e. Explanation of abbreviations, symbols and codes contained in schedule.
    f. Mounting locations for door hardware.
    g. Door and frame sizes and materials.
    h. Warranty information for each product.
4. Submittal Sequence: Submit the final Door Hardware Schedule at earliest possible date, particularly where approval of the Door Hardware Schedule must precede fabrication of other work that is critical in the project construction schedule. Include Product Data, Samples, Shop Drawings of other work affected by door hardware, and other information essential to the coordinated review of the Door Hardware Schedule.

C. Keying Schedule: After a keying meeting with the Owner has taken place prepare a separate keying schedule detailing final instructions. Submit the keying schedule in electronic format. Include keying system explanation, door numbers, key set symbols, hardware set numbers and special instructions. Owner must approve submitted keying schedule prior to the ordering of permanent cylinders/cores.

D. Informational Submittals:
1. Hurricane Resistant Openings (State of Florida): Within the State of Florida, provide copy of current State of Florida Product Approval as proof of compliance that doors, frames and hardware for exterior opening assemblies have been tested and approved for use at the wind load and design pressure and debris impact resistance level requirements specified for the project.
    a. Hurricane Resistant Components (State of Florida): Within the State of Florida, provide copy of independent, third party certified listing to ANSI A250.13.
2. Product Test Reports: Indicating compliance with cycle testing requirements, based on evaluation of comprehensive tests performed by manufacturer and witnessed by a qualified independent testing agency.

1.4 CLOSEOUT SUBMITTALS

A. Operating and Maintenance Manuals: Provide manufacturers operating and maintenance manuals for each item comprising the complete door hardware installation.

1.5 QUALITY ASSURANCE

A. Manufacturers Qualifications: Engage qualified manufacturers with a minimum 5 years of documented experience in producing hardware and equipment similar to that indicated for this project and that have a proven record of successful in-service performance.

B. Certified Products: Where specified, products must maintain a current listing in the Builders Hardware Manufacturers Association (BHMA) Certified Products Directory (CPD).

C. Installer Qualifications: A minimum 3 years documented experience installing door hardware similar in material, design and extent to that indicated for this project and whose work has resulted in construction with a record of successful in-service performance.

D. Door Hardware Supplier Qualifications: Experienced commercial door hardware distributors with a minimum 5 years documented experience supplying both door hardware installations comparable in material, design and extent to that indicated for this project. Supplier recognized as a factory direct distributor by the manufacturers of the primary materials with a warehousing facility in project's vicinity. Supplier to have on staff a certified Architectural Hardware Consultant (AHC) available during the course of the work to consult with contractor and Owner concerning door hardware and keying.

E. Source Limitations: Obtain each type and variety of door hardware from a single source unless otherwise indicated.
   1. Electrified modifications or enhancements made to a source manufacturer's product line by a secondary or third party source will not be accepted.

F. Hurricane Resistant Exterior Openings (State of Florida including the High Velocity Hurricane Zone (HVHZ)): Provide exterior door hardware as complete and tested assemblies, or component assemblies, including approved doors and frames, to meet the design pressures, debris impact resistance and glass and glazing requirements as detailed in the current State of Florida building code sections applicable to the project.
   1. Each unit to bear third party permanent label in accordance with the Florida Building Code requirements.

G. Each unit to bear third party permanent label indicating compliance with the referenced testing standards.

H. Keying Conference: Conduct conference to comply with and incorporate the following criteria into the final keying schedule document:
   1. Function of building, purpose of each area and degree of security required.
   2. Plans for existing and future key system expansion.
   3. Requirements for key control storage and software.
   4. Installation of permanent keys, cylinder cores and software.
   5. Address and requirements for delivery of keys.

I. Pre-Submittal Conference: Conduct coordination conference with attendance by representatives of supplier(s), installer(s) and contractor(s) to review proper methods and the procedures for receiving, handling and installing door hardware.
   1. Prior to installation of door hardware, conduct a project specific training meeting to instruct the installing contractors' personnel on the proper installation and adjustment of their respective products. Product training to be attended by installers of door hardware for hollow metal and wood doors. Training will include the use of installation manuals, hardware schedules, templates and physical product samples as required.
   2. Inspect and discuss electrical roughing-in, power supply connections and other preparatory work performed by other trades.
   3. Review sequence of operation narratives for each unique access controlled opening.
   4. Review and finalize construction schedule and verify availability of materials.
   5. Review the required inspecting, testing, commissioning and demonstration procedures

J. At completion of installation, provide documentation that components were applied according to manufacturer's instructions and recommendations and according to approved schedule.

1.6 DELIVERY, STORAGE AND HANDLING

A. Inventory door hardware on receipt and provide secure lock-up and shelving for door hardware delivered to project site. Do not store electronic access control hardware, software or accessories at project site without prior authorization.

B. Tag each item or package separately with identification related to the final Door Hardware Schedule and include basic installation instructions with each item or package.

C. Deliver, as applicable, permanent keys, cylinders, cores, access control credentials, software and related accessories directly to Owner via registered mail or overnight package service. Instructions for delivery to the Owner to be established at the "Keying Conference".

1.7 COORDINATION

A. Templates: Obtain and distribute to the parties involved templates for doors, frames and other work to be factory prepared for installing hardware. Check shop drawings of other work to confirm that adequate provisions are made for locating and installing hardware to comply with indicated requirements.

B. Door and Frame Preparation: Doors and corresponding frames are to be prepared, reinforced and pre-wired (if applicable) to receive the installation of the specified access control system hardware without additional in-field modifications.

1.8 WARRANTY

A. General Warranty: Special warranties specified in this article so not deprive Owner of other rights Owner may have under other provisions of the Contract Documents and is in addition to, and run concurrent with, other warranties made by contractor under requirements of the Contract Documents.

B. Warranty Period: Written, executed by manufacturer(s), agreeing to repair or replace components of door hardware that fails in materials or workmanship within specified warranty period after final acceptance by the Owner. Failures include, but are not limited to, the following:
   1. Structural failures including excessive deflection, cracking or breakage.
   2. Faulty operation of the hardware.
   3. Deterioration of metals, metal finishes and other materials beyond normal weathering.
   4. Electrical component defects and failures within the systems operation.

C. Warranty Period: Unless otherwise indicated, warranty to be one year from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 BUTT HINGES

A. Hinges: ANSI/BHMA A156.1 butt hinges with number of hinge knuckles and other options as specified in the Door Hardware Sets.
   1. Quantity: Provide the following hinge quantity:
      a. Two Hinges: For doors with heights up to 60 inches.
      b. Three Hinges: For doors with heights 61 to 90 inches.
      c. Four Hinges: For doors with heights 91 to 120 inches.
      d. For doors with heights more than 120 inches, provide 4 hinges, plus 1 hinge for every 30 inches of door height greater than 120 inches.
   2. Hinge Size: Provide the following, unless otherwise indicated, with hinge widths sized for door thickness and clearances required:

a. Widths up to 3’0”: 4-1/2” standard or heavy weight as specified.
b. Sizes from 3’1” to 4’0”: 5” standard or heavy weight as specified.

3. Hinge Weight and Base Material: Unless otherwise indicated, provide the following:
   a. Exterior Doors: Heavy weight, non-ferrous, ball bearing or oil impregnated bearing hinges unless Hardware Sets indicate standard weight.
   b. Interior Doors: Standard weight, steel, ball bearing or oil impregnated bearing hinges unless Hardware Sets indicate heavy weight.
4. Hinge Options: Comply with the following:
   a. Non-removable Pins: With the exception of electric through wire hinges, provide set screw in hinge barrel that, when tightened into a groove in hinge pin, prevents removal of pin while door is closed; for the all out-swinging lockable doors.
5. Manufacturers:
   a. McKinney (MK) - TA/T4A Series, 5-knuckle.

2.2 DOOR OPERATING TRIM

A. Flush Bolts and Surface Bolts: Provide products conforming to ANSI/BHMA A156.3 and A156.16, Grade 1.
1. Flush bolts to be furnished with top rod of sufficient length to allow bolt retraction device location approximately six feet from the floor.
2. Furnish dust proof strikes for bottom bolts.
3. Surface bolts to be minimum 8” in length and U.L. listed for labeled fire doors and U.L. listed for windstorm components where applicable.
4. Provide related accessories (mounting brackets, strikes, coordinators, etc.) as required for appropriate installation and operation.
5. Manufacturers:
   a. Rockwood (RO).

B. Door Push Plates and Pulls: ANSI/BHMA A156.6 door pushes and pull units of type and design specified in the Hardware Sets. Coordinate and provide proper width and height as required where conflicting hardware dictates.
1. Push/Pull Plates: Minimum .050 inch thick, size as indicated in hardware sets, with beveled edges, secured with exposed screws unless otherwise indicated.
2. Door Pull and Push Bar Design: Size, shape and material as indicated in the hardware sets. Minimum clearance of 2 1/2-inches from face of door unless otherwise indicated.
3. Offset Pull Design: Size, shape and material as indicated in the hardware sets. Minimum clearance of 2 1/2-inches from face of door and offset of 90 degrees unless otherwise indicated.
4. Pulls, where applicable, to be provided with a 10” clearance from the finished floor on the push side to accommodate wheelchair accessibility.
5. Fasteners: Provide manufacturer's designated fastener type as indicated in Hardware Sets. When through-bolt fasteners are in the same location as a push plate, countersink the fasteners flush with the door face allowing the push plate to sit flat against the door.
6. Manufacturers:
   a. Rockwood (RO).

2.3 CYLINDERS AND KEYING

A. General: Cylinder manufacturer to have minimum (10) years experience designing secured master key systems and have on record a published security keying system policy.

B. Cylinder Types: Original manufacturer cylinders able to supply the following cylinder formats and types:

1. Threaded mortise cylinders with rings and cams to suit hardware application.
2. Rim cylinders with back plate, flat-type vertical or horizontal tailpiece and raised trim ring.
3. Bored or cylindrical lock cylinders with tailpieces as required to suit locks.
4. Tubular deadlocks and other auxiliary locks.
5. Mortise and rim cylinder collars to be solid and recessed to allow the cylinder face to be flush and be free spinning with matching finishes.
6. Keyway: Manufacturer's Standard.

C. Large Format Interchangeable Cores: Provide removable cores (LFIC) as specified, core insert, removable by use of a special key and for use with only the core manufacturer's cylinder and door hardware.

D. Permanent Cores: Match standard.
1. Small Format Interchangeable Cores: Core insert, removable by use of a special key; usable with other manufacturers' cylinders.

E. Keying System: Each type of lock and cylinders to be factory keyed.
1. Supplier to conduct a "Keying Conference" to define and document keying system instructions and requirements.
2. Furnish factory cut, nickel-silver large bow permanently inscribed with a visual key control number as directed by Owner.
3. New System: Key locks to a new key system as directed by the Owner.

F. Key Quantity: Provide the following minimum number of keys:
1. Change Keys per Cylinder: Two (2)
2. Master Keys (per Master Key Level/Group): Five (5).
3. Construction Keys (where required): Ten (10).
4. Construction Control Keys (where required): Two (2).
5. Permanent Control Keys (where required): Two (2).

G. Construction Keying: Provide construction master keyed cylinders.

H. Key Registration List (Bitting List):
1. Provide keying transcript list to Owner's representative in the proper format for importing into key control software.
2. Provide transcript list in writing or electronic file as directed by the Owner.
3. KEY CONTROL
a. Key Control Cabinet: Provide a key control system including envelopes, labels and tags with self-locking key clips, receipt forms, 3-way visible card index, temporary markers, permanent markers and standard metal cabinet. Key control cabinet to have expansion capacity of 150% of the number of locks required for the project.
1). Manufacturers:
a). Lund Equipment (LU).
b). MMF Industries (MM).
c). Telkee (TK).

2.4 CYLINDRICAL LOCKS AND LATCHING DEVICES

A. Cylindrical Locksets, Grade 1 (Heavy Duty): ANSI/BHMA A156.2, Series 4000, Operational Grade 1 Certified Products Directory (CPD) listed cylindrical locksets. Listed manufacturers to meet all functions and features as specified herein.
1. Manufacturers:

a. Corbin Russwin Hardware (RU) - CLX3300 Series.
b. Sargent Manufacturing (SA) - 10X Line.

2.5 DEADLOCKS AND LATCHES

A. Cylindrical Deadlocks: ANSI/BHMA A156.36 Grade 2 Certified Products Directory (CPD) deadbolts to fit standard ANSI 161 preparation in functions and with visual status indicators as specified in the hardware sets.
1. Manufacturers:
a. ASSA ABLOY ACCENTRA, formerly known as Yale (YA) - D200 Series.
b. Corbin Russwin (RU) - DL2200 Series.
c. Sargent Manufacturing (SA) - 460 Series.

2.6 LOCK AND LATCH STRIKES

A. Strikes: Provide manufacturer's standard strike with strike box for each latch or lock bolt, with curved lip extended to protect frame, finished to match door hardware set, unless otherwise indicated, and as follows:
1. Flat-Lip Strikes: For locks with three-piece antifriction latchbolts, as recommended by manufacturer.
2. Extra-Long-Lip Strikes: For locks used on frames with applied wood casing trim.
3. Aluminum-Frame Strike Box: Provide manufacturer's special strike box fabricated for aluminum framing.
4. Double-lipped strikes: For locks at double acting doors. Furnish with retractable stop for rescue hardware applications.

B. Standards: Comply with the following:
1. Strikes for Mortise Locks and Latches: BHMA A156.13.
2. Strikes for Bored Locks and Latches: BHMA A156.2.
3. Strikes for Auxiliary Deadlocks: BHMA A156.36.
4. Dustproof Strikes: BHMA A156.16.

2.7 CONVENTIONAL EXIT DEVICES

A. General Requirements: All exit devices to meet or exceed the following criteria:
1. Exit devices to have a five-year warranty.
2. At doors not requiring a fire rating, provide devices complying with NFPA 101 and listed and labeled for "Panic Hardware" according to UL305. Provide proper fasteners as required by manufacturer including sex nuts and bolts at openings specified in the Hardware Sets.
3. Where exit devices are required on fire rated doors, provide devices complying with NFPA 80 and with UL labeling indicating "Fire Exit Hardware". Provide devices with the proper fasteners for installation as tested and listed by UL. Consult manufacturer’s catalog and template book for specific requirements.
4. Except on fire rated doors, provide exit devices with hex key dogging device to hold the pushbar and latch in a retracted position. Provide optional keyed cylinder dogging on devices where specified in Hardware Sets.
5. Devices must fit flat against the door face with no gap that permits unauthorized dogging of the push bar. The addition of filler strips is required in any case where the door light extends behind the device as in a full glass configuration.
6. Lever Operating Trim: Where exit devices require lever trim, furnish manufacturer's heavy duty escutcheon trim with threaded studs for thru-bolts.
a. Lock Trim Design: As indicated in Hardware Sets, provide finishes and designs to match that of the specified locksets.

b. Where function of exit device requires a cylinder, provide a cylinder (Rim or Mortise) as specified in Hardware Sets.

7. Vertical Rod Exit Devices: Where surface or concealed vertical rod exit devices are used at interior openings, provide as less bottom rod (LBR) unless otherwise indicated. Provide dust proof strikes where thermal pins are required to project into the floor.
8. Narrow Stile Applications: At doors constructed with narrow stiles, or as specified in Hardware Sets, provide devices designed for maximum 2" wide stiles.
9. Dummy Push Bar: Nonfunctioning push bar matching functional push bar.
10. Rail Sizing: Provide exit device rails factory sized for proper door width application.
11. Through Bolt Installation: For exit devices and trim as indicated in Door Hardware Sets.

B. Conventional Push Rail Exit Devices (Heavy Duty): ANSI/BHMA A156.3, Grade 1 Certified Products Directory (CPD) listed exit devices. Listed manufacturers to meet all functions and features as specified herein.
1. Manufacturers:
a. Corbin Russwin Hardware (RU) - ED4000 / ED5000 Series.
b. Sargent Manufacturing (SA) - 80 Series.

2.8 DOOR CLOSERS

A. All door closers to meet or exceed the following criteria:
1. General: Door closers to be from one manufacturer, matching in design and style, with the same type door preparations and templates regardless of application or spring size. Closers to be non-handed with full sized covers.
2. Standards: Closers to comply with UL-10C for Positive Pressure Fire Test and be U.L. listed for use of fire rated doors.
3. Size of Units: Comply with manufacturer's recommendations for sizing of door closers depending on size of door, exposure to weather and anticipated frequency of use. Closers to be accessible to the Americans with Disabilities Act, provide units complying with ANSI ICC/A117.1.
4. Closer Arms: Provide heavy duty, forged steel closer arms unless otherwise indicated in Hardware Sets.
5. Closers not to be installed on exterior or corridor side of doors; where possible install closers on door for optimum aesthetics.
6. Closer Accessories: Provide door closer accessories including custom templates, special mounting brackets, spacers and drop plates as required for proper installation. Provide through-bolt and security type fasteners as specified in the hardware sets.

B. Door Closers, Surface Mounted (Large Body Cast Iron): ANSI/BHMA A156.4, Grade 1 Certified Products Directory (CPD) listed surface mounted, heavy duty door closers with complete spring power adjustment, sizes 1 thru 6; and fully operational adjustable according to door size, frequency of use and opening force. Closers to be rack and pinion type, one piece cast iron body construction, with adjustable backcheck and separate non-critical valves for closing sweep and latch speed control.
1. Large body cast iron surface mounted door closers to have a 30-year warranty.
2. Manufacturers:
a. Corbin Russwin Hardware (RU) - DC8000 Series.
b. Norton Rixson (NO) - 9500 Series.
c. Sargent Manufacturing (SA) - 281 Series.

2.9 ARCHITECTURAL TRIM

A. Door Protective Trim

1. General: Door protective trim units to be of type and design as specified below or in the Hardware Sets.
2. Size: Fabricate protection plates (kick, armor, or mop) not more than 2" less than door width (LDW) on stop side of single doors and 1” LDW on stop side of pairs of doors and not more than 1" less than door width on pull side. Coordinate and provide proper width and height as required where conflicting hardware dictates. Height to be as specified in the Hardware Sets.
3. Where plates are applied to fire rated doors with the top of the plate more than 16” above the bottom of the door, provide plates complying with NFPA 80. Consult manufacturer’s catalog and template book for specific requirements for size and applications.
4. Protection Plates: ANSI/BHMA A156.6 protection plates (kick, armor, or mop), fabricated from the following:
    a. Stainless Steel: 300 grade, 050-inch thick.
5. Options and fasteners: Provide manufacturer's designated fastener type as specified in the Hardware Sets. Provide countersunk screw holes.
6. Manufacturers:
    a. Rockwood (RO).

2.10 DOOR STOPS AND HOLDERS

A. General: Door stops and holders to be of type and design as specified below or in the Hardware Sets.

B. Door Stops and Bumpers: ANSI/BHMA A156.16, Grade 1 door stops and wall bumpers. Provide wall bumpers, either convex or concave types with anchorage as indicated, unless floor or other types of door stops are specified in Hardware Sets. Do not mount floor stops where they will impede traffic. Where floor or wall bumpers are not appropriate, provide overhead type stops and holders.
    1. Manufacturers:
        a. Rockwood (RO).

2.11 ARCHITECTURAL SEALS

A. General: Thresholds, weatherstripping and gasket seals to be of type and design as specified below or in the Hardware Sets. Provide continuous weatherstrip gasketing on exterior doors and provide smoke, light or sound gasketing on interior doors where indicated. At exterior applications provide non-corrosive fasteners and elsewhere where indicated.

B. Smoke Labeled Gasketing: Assemblies complying with NFPA 105 that are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for smoke control ratings indicated, based on testing according to UL 1784.
    1. Provide smoke labeled perimeter gasketing at all smoke labeled openings.

C. Fire Labeled Gasketing: Assemblies complying with NFPA 80 that are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for fire ratings indicated, based on testing according to UL-10C.
    1. Provide intumescent seals as indicated to meet UL10C Standard for Positive Pressure Fire Tests of Door Assemblies, and NFPA 252, Standard Methods of Fire Tests of Door Assemblies.

D. Sound-Rated Gasketing: Assemblies that are listed and labeled by a testing and inspecting agency, for sound ratings indicated.

E. Replaceable Seal Strips: Provide only those units where resilient or flexible seal strips are easily replaceable and readily available from stocks maintained by manufacturer.

F. Manufacturers:

1. Pemko (PE).

2.12 FABRICATION

A. Fasteners: Provide door hardware manufactured to comply with published templates generally prepared for machine, wood and sheet metal screws. Provide screws according to manufacturers recognized installation standards for application intended.

2.13 FINISHES

A. Standard: Designations used in the Hardware Sets and elsewhere indicate hardware finishes complying with ANSI/BHMA A156.18, including coordination with traditional U.S. finishes indicated by certain manufacturers for their products.

B. Provide quality of finish, including thickness of plating or coating (if any), composition, hardness, and other qualities complying with manufacturer's standards, but in no case less than specified by referenced standards for the applicable units of hardware

C. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine scheduled openings, with installer present, for compliance with requirements for installation tolerances, labeled fire door assembly construction, wall and floor construction and other conditions affecting performance.

B. Notify architect of any discrepancies or conflicts between the door schedule, door types, drawings and scheduled hardware. Proceed only after such discrepancies or conflicts have been resolved in writing.

3.2 PREPARATION

A. Hollow Metal Doors and Frames: Comply with ANSI/DHI A115 series.

B. Wood Doors: Comply with ANSI/DHI A115-W series.

3.3 INSTALLATION

A. Install each item of door hardware and access control equipment to comply with manufacturer's instructions and according to specifications.
   1. Installers are to be trained and certified by the manufacturer on the proper installation and adjustment of fire, life safety and security products including: hanging devices; locking devices; closing devices; and seals.

B. Mounting Heights: Mount door hardware units at heights indicated in following applicable publications, unless specifically indicated or required to comply with governing regulations:
   1. Standard Steel Doors and Frames: DHI's "Recommended Locations for Architectural Hardware for Standard Steel Doors and Frames."
   2. DHI TDH-007-20: Installation Guide for Doors and Hardware.
   3. Accessibility requirements, comply with ANSI A117.1 "Accessibility Guidelines for Buildings and Facilities."
   4. Provide blocking in drywall partitions where wall stops or other wall mounted hardware is located.

C. Retrofitting: Install door hardware to comply with manufacturer's published templates and instructions. Where cutting and fitting are required to install door hardware onto or into surfaces that are later to be painted or finished in another way, coordinate removal, storage and reinstallation of surface protective trim units with finishing work. Do not install surface-mounted items until finishes have been completed on substrates involved.

D. Push Plates and Door Pulls: When through-bolt fasteners are in the same location as a push plate, countersink the fasteners flush with the door face allowing the push plate to sit flat against the door.

E. Thresholds: Set thresholds for exterior and acoustical doors in full bed of sealant.

F. Storage: Provide a secure lock up for hardware delivered to the project but not yet installed. Control the handling and installation of hardware items so that the completion of the work will not be delayed by hardware losses before and after installation.

3.4 FIELD QUALITY CONTROL

A. Field Inspection (Punch Report): Produce project punch report for each installed door opening indicating compliance with approved submittals and verification hardware is properly installed, operating and adjusted. Include list of items to be completed and corrected, indicating the reasons or deficiencies causing the work to be incomplete or rejected.

1. Organization of List: Include separate Door Opening and Deficiencies and Corrective Action Lists organized by Mark, Opening Remarks and Comments and related Opening Images and Video Recordings.

3.5 ADJUSTING

A. Initial Adjustment: Adjust and check each operating item of door hardware and each door to ensure proper operation or function of every unit. Replace units that cannot be adjusted to operate as intended. Adjust door control devices to compensate for final operation of heating and ventilating equipment and to comply with referenced accessibility requirements.

3.6 CLEANING AND PROTECTION

A. Protect all hardware stored on construction site in a covered and dry place. Protect exposed hardware installed on doors during the construction phase. Install any and all hardware at the latest possible time frame.

B. Clean adjacent surfaces soiled by door hardware installation.

C. Clean operating items as necessary to restore proper finish. Provide final protection and maintain conditions that ensure door hardware is without damage or deterioration at time of owner occupancy.

3.7 DEMONSTRATION

A. Instruct Owner's maintenance personnel to adjust, operate and maintain door hardware.

3.8 DOOR HARDWARE SETS

A. The hardware sets represent the design intent and direction of the Owner and architect. They are a guideline only and should not be considered a detailed hardware schedule. Discrepancies, conflicting hardware and missing items should be brought to the attention with corrections made prior to the bidding process. Omitted items not included in a hardware set should be scheduled with the appropriate additional hardware required for proper application and functionality.

1. Quantities listed are for each pair of doors, or for each single door.
2. The supplier is responsible for handing and sizing all products.

3. Where multiple options for a piece of hardware are given in a single line item, the supplier is to provide the appropriate application for the opening.
4. At existing openings with new hardware the supplier to field inspect existing conditions prior to the submittal stage to verify the specified hardware will work as required. Provide alternate solutions and proposals as needed.

B. Manufacturer's Abbreviations:

1. MK - McKinney
2. RO - Rockwood
3. SA - SARGENT
4. KA - Kaba Ilco
5. SC - Schlage
6. PE – Pemko
7. VO – Von Duprin

Hardware Sets

Set: 1.0

Doors: 101, 104, 121
Description: EXT - EXIT - HM

3	Hinge, Full Mortise, Hvy Wt	T4A3386 X NRP 4-1/2" x 4-1/2"	US32D	MK
1	Rim Exit Device	98 Series Exit Device Less Trim	US32D	VO
1	LP1000	Exit device Trim only	US26D	KA
1	IC Core	IC Core as required (Schlage Keyway)	US26D	SC
1	Door Closer	281 CPS	EN	SA
1	Kick Plate	K1050 10" X 2" LDW	US32D	RO
1	Gasketing	S88BL X LAR		PE
1	Rain Guard	346C x LAR		PE
1	Sweep	3452AV		PE
1	Threshold	2005AT MSES25SS		PE

Notes: Hollow Metal: Exterior opening to comply with FBC windstorm requirements.

Confirm compatibility between exit device and exit trim.

Set: 2.0

Doors: 112

Description: SGL - LOCK - IT

3	Hinge, Full Mortise	TA2714 4-1/2" x 4-1/2"	US26D	MK
1	Storeroom/Closet Lock	60 10XG04 LP	US26D	SA
1	IC Core	IC Core as required (Schlage Keyway)	US26D	SC
1	Door Closer	281 PS	EN	SA
1	Kick Plate	K1050 10" X 2" LDW	US32D	RO
1	Gasketing	S88BL X LAR		PE

Set: 3.0

Doors: 105, 110-1

Description: SGL - LOCK - HALL

3	Hinge, Full Mortise	TA2714 4-1/2" x 4-1/2"	US26D	MK
1	Classroom Lock	60 10XG37 LP	US26D	SA
1	IC Core	IC Core as required (Schlage Keyway)	US26D	SC
1	Door Closer	281 Reg / PA	EN	SA
1	Kick Plate	K1050 10" X 2" LDW	US32D	RO
1	Door Stop	409 / 446 as required	US26D	RO
1	Gasketing	S88BL X LAR		PE

Set: 4.0

Doors: 110-2

Description: SGL - LOCK - DECONTAMINATION

3	Hinge, Full Mortise	TA2714 4-1/2" x 4-1/2"	US26D	MK
1	Classroom Lock	60 10XG37 LP	US26D	SA
1	IC Core	IC Core as required (Schlage Keyway)	US26D	SC
1	Door Closer	281 PS	EN	SA
1	Kick Plate	K1050 10" X 2" LDW	US32D	RO
1	Door Stop	409 / 446 as required	US26D	RO
1	Gasketing	S88BL X LAR		PE

Set: 5.0

Doors: 109A

Description: PR - LOCK - MEP

6	Hinge, Full Mortise	TA2714 4-1/2" x 4-1/2"	US26D	MK
2	Flush Bolt	555 [12" / 72" AFF]	US26D	RO
1	Dust Proof Strike	570	US26D	RO
1	Storeroom/Closet Lock	60 10XG04 LP	US26D	SA
1	IC Core	IC Core as required (Schlage Keyway)	US26D	SC
1	Door Closer	281 Reg / PA	EN	SA
2	Kick Plate	K1050 10" X 2" LDW	US32D	RO
2	Door Stop	409 / 446 as required	US26D	RO
1	Astragal	357SP X S88BL		PE
1	Gasketing	S88BL X LAR		PE

Set: 6.0

Doors: 109

Description: SGL - LOCK - STORAGE

3	Hinge, Full Mortise	TA2714 4-1/2" x 4-1/2"	US26D	MK
1	Storeroom/Closet Lock	60 10XG04 LP	US26D	SA
1	IC Core	IC Core as required (Schlage Keyway)	US26D	SC
1	Door Closer	281 Reg / PA	EN	SA
1	Kick Plate	K1050 10" X 2" LDW	US32D	RO
1	Door Stop	409 / 446 as required	US26D	RO
1	Gasketing	S88BL X LAR		PE

Set: 7.0

Doors: 103, 106, 107, 108

Description: SGL - LOCK - OFFICE

3	Hinge, Full Mortise	TA2714 4-1/2" x 4-1/2"	US26D	MK
1	Entry/Office Lock	60 10XG05 LP	US26D	SA
1	IC Core	IC Core as required (Schlage Keyway)	US26D	SC
1	Door Stop	409 / 446 as required	US26D	RO
3	Silencer	608		RO

Set: 8.0

Doors: 102, 113, 114
Description: SGL - TOILET

3	Hinge, Full Mortise	TA2714 4-1/2" x 4-1/2"	US26D	MK
1	Passage Latch	10XU15 LP	US26D	SA
1	Deadbolt	V21 468	US26D	SA
1	Door Closer	281 CPS	EN	SA
1	Mop Plate	K1050 4" X 1" LDW	US32D	RO
1	Gasketing	S88BL X LAR		PE

Set: 9.0

Doors: 116, 117, 118, 119, 120
Description: SGL - DORMITORY

3	Hinge, Full Mortise	TA2714 4-1/2" x 4-1/2"	US26D	MK
1	Privacy Lock	10XU65 LP	US26D	SA
1	Door Stop	409 / 446 as required	US26D	RO
1	Gasketing	S88BL X LAR		PE

END OF SECTION

SECTION 08 8000

GLAZING

PART 1 - GENERAL

1.1 WORK INCLUDED: This section covers the work necessary to furnish and install:

A. Exterior and interior glass and glazing.

1.2 RELATED REQUIREMENTS

A. Refer to Division 00 and 01 Sections of these specifications.

1.3 RELATED WORK

A. Section 07 9000 - Joint Protection

B. Section 08 1113 – Hollow Metal Doors and Frames

C. Section 08 1416 – Flush Wood Doors

D. Section 08 4113 – Aluminum-Framed Entrances and Storefronts

1.4 REFERENCES

A. ANSI Z97.1, "Performance Specifications and Methods of Tests for Safety Glazing Material used in Buildings".

B. Flat Glass Marketing Association: "Glazing Manual".

C. ASTM Standards and Test Procedures as referenced.

D. Sealed Insulating Glass Manufacturer's Association Standards and Specifications.

E. Manufacturer's recommendations and specifications.

F. Safety Standard for Architectural Glazing Materials (16 CFR 1201) issued by the Consumer Product Safety Commission.

1.5 QUALITY ASSURANCE

A. Glazier is to be regularly engaged in the installation of glass and glazing and have previous experience within the last two years on project similar in scope. Upon request, submit evidence of qualification compliance with references.

1.6 SUBMITTALS: Submittals are to be made during construction in accordance with Section 01 3300. In addition, the following information is to be provided:

A. Shop Drawings: Prior to delivery or fabrication, submit shop drawings of the following for review:
   1. Complete schedule of glass and glazing material to be used for each purpose.
   2. Shop drawings showing in detail method of glazing for each type of glazing condition.
   3. Catalog cuts of each glass type with inclusion of glass edge cutting procedures.
   4. For exterior glazing, provide Florida Product Approval documentation.

1.7 DELIVERY, STORAGE AND HANDLING

A. Deliver, store and handle materials or equipment.

1.8 FIELD MEASUREMENTS

A. The contractor is to verify all dimensions, make any field measurements necessary and be fully responsible for accuracy and layout of work. The contractor is to review the drawings and any discrepancies are to be reported for clarification prior to starting fabrication.

1.9 MANUFACTURERS' WARRANTY

A. Furnish manufacturers' warranty.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Acceptable Glass Manufacturers: Vitro, Guardian and Pilkington.

B. Products of other manufacturers, meeting the requirements specified, will be considered.

2.2 GLASS

A. Factory labeled and labels to remain until final cleaning. Keep glass free from contamination by materials capable of staining glass.

B. Glass Type Exterior: Exterior Lite of ¼" PPG Solarban 70XL on Clear Low-E #2, Interior Lite ¼" Clear and ½" cavity air fill. 80% transparent. Color to be selected during construction phase submittals.

C. Glass Type: ¼" clear tempered at doors lites.

2.3 ANCILLARY ITEMS

A. Setting Blocks: Neoprene 70-90 Shore A durometer hardness, chemically compatible with sealant.

B. Glazing Tape: Polyisobutylene, color as selected.

C. Glazing Channels: As provided with frames to be glazed.

PART 3 - 3 EXECUTION

3.1 PREPARATION

A. No glazing work when temperatures are not within range recommended by glass manufacturer.

B. Installation of materials will be considered as evidence of glazier's acceptance of frames and surfaces as proper for glazing.

C. Surfaces are to be smooth, even, sound, dry and clean.

D. Measure size of frames to receive glass and compute actual glass size allowing for edge clearances in accordance with glass manufacturers' specifications.

3.2 INSTALLATION OF GLASS

A. Installation is to be in accordance with applicable glass reference and manufacturers' instruction.

B. Provide hose test by flooding glazing from top to bottom. Any leaks are to be corrected by re-glazing and retesting until leaks are eliminated.

3.3 CLEANING

A. Leave glass and glazing in undamaged condition and ready for final cleaning. On completion, there is to be no shifting or rattling of glass. Remove excess glazing compound from installed glass. Remove labels from glass surface. Wash and polish both faces of glass. Remove debris from project.

3.4 PROTECTION OF COMPLETED WORK

A. Protection: Install tape across lights secured to frames or structure.

B. Replacements and Repairs: Replace broken, defective or scratched glass until final acceptance of the project by the Owner.

END OF SECTION

SECTION 09 1000

FINISH SCHEDULE

REMARKS

1. ALL FOUR WALLS TO BE FINISHED WITH ¾" AC GRADE PLYWOOD TO A HEIGHT OF 8'-0" ABOVE FINISHED FLOOR WITH TWO COATS OF FIRE RETARDANT PAINT ON BOTH SIDES AND EDGES. IMPERFECTIONS AND VOIDS TO BE FILLED, SEALED AND SANDED PRIOR TO PRIME AND PAINT. PAINT COLOR TO BE GRAY.

2. PROVIDE FRP AT NORTH, SOUTH AND EAST WALLS OF PANTRY 115, WHERE THE MOP SINK AND WATER COOLER ARE LOCATED, TO A HEIGHT OF 4'-0" ABOVE FINISHED FLOOR.

3. GENERAL NOTE THROUGHOUT: COORDINATE WITH SECTION 09 1000 FINISH DIAGRAMS.

4. GENERAL NOTE THROUGHOUT: COLOR SELECTIONS ARE TO BE MADE (OR VERIFIED IF SPECIFIED) DURING CONSTRUCTION AFTER SHOP DRAWINGS AND SAMPLES ARE RECEIVED.

5. GENERAL NOTE THROUGHOUT: NEW HOLLOW METAL DOORS AND FRAMES ARE TO BE PAINTED TO MATCH THE WALL COLOR THEY ARE IN.

FINISH SCHEDULE

SPACE #	SPACE NAME	FLOOR	WALL FINISHES				BASE	CL. HT.	REMARK
			NORTH	SOUTH	EAST	WEST			
101	ENTRY	LVT	PAINT	PAINT	PAINT	PAINT	VINYL	9'-0"	
102	RESTROOM	EPOXY	TILE / PAINT	TILE / PAINT	TILE / PAINT	TILE / PAINT	EPOXY	8'-0"	
103	OFFICE	LVT	PAINT	PAINT	PAINT	PAINT	VINYL	9'-0"	
104	LAUNDRY	LVT	PAINT	PAINT	PAINT	PAINT	VINYL	9'-0"	
104A	DECONTAMINATION	SL. CONC.	PAINT	PAINT	PAINT	PAINT	VINYL	9'-0"	
105	HALL	LVT	PAINT	PAINT	PAINT	PAINT	VINYL	9'-0"	
106	OFFICE	LVT	PAINT	PAINT	PAINT	PAINT	VINYL	9'-0"	
107	OFFICE	LVT	PAINT	PAINT	PAINT	PAINT	VINYL	9'-0"	
108	OFFICE	LVT	PAINT	PAINT	PAINT	PAINT	VINYL	9'-0"	
109	GEAR STORAGE	SL. CONC.	PAINT	PAINT	PAINT	PAINT	VINYL	9'-0"	
109A	MECHANICAL	SL. CONC.	PAINT	PAINT	PAINT	PAINT	VINYL	EXP.	

SPACE #	SPACE NAME	FLOOR	WALL FINISHES				BASE	CL. HT.	REMARK
			NORTH	SOUTH	EAST	WEST			
110	DAY AREA	LVT	PAINT	PAINT	PAINT	PAINT	VINYL	9’-0”	
111	KITCHEN	LVT	PAINT	PAINT	PAINT	PAINT	VINYL	9’-0”	
112	I.T.	SL. CONC.	PAINT	PAINT	PAINT	PAINT	VINYL	9’-0”	1
113	RESTROOM	EPOXY	TILE PAINT	TILE PAINT	TILE PAINT	TILE PAINT	EPOXY	8’-0”	
114	RESTROOM	EPOXY	TILE PAINT	TILE PAINT	TILE PAINT	TILE PAINT	EPOXY	8’-0”	
115	PANTRY	LVT	PAINT	PAINT	PAINT	PAINT	VINYL	9’-0”	2
116	DORMITORY	LVT	PAINT	PAINT	PAINT	PAINT	VINYL	9’-0”	
117	DORMITORY	LVT	PAINT	PAINT	PAINT	PAINT	VINYL	9’-0”	
118	DORMITORY	LVT	PAINT	PAINT	PAINT	PAINT	VINYL	9’-0”	
119	DORMITORY	LVT	PAINT	PAINT	PAINT	PAINT	VINYL	9’-0”	
120	DORMITORY	LVT	PAINT	PAINT	PAINT	PAINT	VINYL	9’-0”	
121	HALL	LVT	PAINT	PAINT	PAINT	PAINT	VINYL	9’-0”	

END OF SECTION

SECTION 09 2116

GYPSUM BOARD ASSEMBLIES

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Gypsum board wall panels.

B. Accessories and Trim.

1.2 RELATED REQUIREMENTS

A. Refer to Division 00 and 01 Sections of these specifications.

1.3 RELATED SECTIONS

A. Section 07 9000 - Joint Protection

B. Section 09 2116 – Nonstructural Metal Framing

C. Section 09 9000 – Painting and Coating

1.4 REFERENCES

A. ASTM C473 - Standard Test Methods for Physical Testing of Gypsum Panel Products.

B. ASTM C 475 - Standard Specification for Joint Compound and Joint Tape for Finishing Gypsum Board.

C. ASTM C 840 - Standard Specification for Application and Finishing of Gypsum Board.

D. ASTM C 1002 - Standard Specification for Steel Self-Piercing Tapping Screws for the Application of Gypsum Panel Products to Steel Studs.

E. ASTM C 1047 - Standard Specification for Accessories for Gypsum Wallboard and Gypsum Veneer Base.

F. ASTM C 1396 - Standard Specification for Gypsum Board.

G. ASTM D 3273 - Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber.

H. GA-214 - Recommended Levels of Gypsum Board Finish.

I. GA-216 - Application and Finishing of Gypsum Board.

J. GA-231 - Assessing Water damage to Gypsum Board.

K. GA-238 - Guidelines for the Prevention of Mold Growth on Gypsum Board.

L. UL (FRD) – Fire Resistance Directory; Underwriters Laboratories, Inc.

1.5 SUBMITTALS

A. Submit under provisions of Section 01 3300.

B. Product Data: Manufacturer's data sheets on each product to be used, including:

1. Preparation instructions and recommendations.
2. Storage and handling requirements and recommendations.
3. Design data test reports.
4. Installation methods.

C. Manufacturer's Certificates: Certify products meet or exceed specified requirements.

1.6 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing products with minimum ten years of experience.

B. Installer Qualifications: Company specializing in performing with minimum three years of experience.

1.7 DELIVERY, STORAGE AND HANDLING

A. Store products in manufacturer's unopened packaging indicating manufacturer and product name and protect until ready for installation.

B. Store gypsum in accordance with GA-238 and manufacturer recommendations.

1.8 PROJECT CONDITIONS

A. Maintain environmental conditions (temperature, humidity, and ventilation) in accordance with ASTM C 840 and within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's limits.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Acceptable Manufacturer: Georgia-Pacific, American Gypsum Co., National Gypsum Company or equal.

B. Single Source Responsibility: Obtain gypsum board products, joint treatment and accessories from a single manufacturer or from manufacturers recommended by prime manufacturer of gypsum board products.

2.2 GYPSUM BOARD WALL PANELS

A. Interior Gypsum Board: Basis of Design Product: G-P Gypsum ToughRock Mold-Guard Type X Gypsum Board, 5/8” thick, with long edges tapered. Note fire-rated wall locations as indicated on the drawings.

B. Interior Gypsum Tile Backing Panels Glass-Mat, Water-Resistant Backing Board with Water-Resistant Coating: Basis of Design Product: G-P Gypsum DensShield Tile Backer 5/8” thick, with long edges square. Install in Restrooms, Custodial Rooms and areas subject to moisture

C. Interior Trim: Complying with ASTM C 1047, plastic LC-bead J-shaped exposed flange receives joint compound.

D. Fasteners: Laminating adhesive recommended by manufacturer for directly adhering gypsum board to continuous substrate. Steel drill screws complying with ASTM C 1002 for fastening panels to steel members.

E. Joint Treatment: Joint tape, joint compound and coats as recommended by the manufacturer for a Level 5 finish.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Do not begin installation until supports and substrates have been properly prepared.

B. Verify that framing and supports are ready to receive work.

3.2 PREPARATION

A. Clean surfaces thoroughly prior to installation.

B. Examine gypsum board panels for damage and existence of mold. Install undamaged panels

C. Examine gypsum board in accordance with GA 231 for water damage.

D. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

3.3 INSTALLATION

A. Install in accordance with manufacturer's instructions, ASTM C 840 and GA 216.

B. Erect single layer gypsum board in most economical direction with ends and edges occurring over firm bearing.

C. Place corner beads at external corners. Use longest practical length. Place edge trim where gypsum board abuts dissimilar materials.

3.4 FINISHING

A. General: Comply with ASTM C 840, GA 214 and GA 216. Level 5.

3.5 PROTECTION

A. Protect installed products until completion of project.

B. Touch-up, repair or replace damaged products.

END OF SECTION

SECTION 09 2216

NON-STRUCTURAL METAL FRAMING

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Metal partition framing.

B. Framing accessories.

1.2 RELATED REQUIREMENTS

A. Refer to Division 00 and 01 Sections of these specifications.

1.3 REFERENCE STANDARDS

A. AISI S100-12 - North American Specification for the Design of Cold-Formed Steel Structural Members; American Iron and Steel Institute.

B. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.

C. ASTM C645 - Standard Specification for Nonstructural Steel Framing Members.

D. ASTM C754 - Standard Specification for Installation of Steel Framing Members to Receive Screw-Attached Gypsum Panel Products.

E. ASTM C1002 - Standard Specification for Steel Self-Piercing Tapping Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Wood Studs or Steel Studs.

F. SSPC-Paint 20 - Zinc-Rich Primers (Type I, "Inorganic," and Type II, "Organic"); Society for Protective Coatings.

1.4 SUBMITTALS

A. See Section 01 3300 – Submittal Procedures.

B. Product Data: Provide data describing framing member materials and finish, product criteria, load charts and limitations.

C. Product Data: Provide manufacturer's data on partition head to structure connectors showing compliance with requirements.

1.5 QUALITY ASSURANCE

A. Installer Qualifications: Company specializing in performing work with minimum five years of experience.

PART 2 - PRODUCTS

2.1 FRAMING MATERIALS

A. Non-Loadbearing Framing System Components: ASTM C645; galvanized sheet steel, of size and properties necessary to comply with ASTM C754 for the spacing indicated, with maximum deflection of wall framing of L/240 at 5 psf.

1. Studs: C shaped with flat or formed webs with knurled faces.

2. Runners: U shaped, sized to match studs.
3. Steel Stud Framing Connectors:
4. Products:
    a. Simpson Strong Tie, Bridging Connectors; DBC Bridging Connector: www.strongtie.com.

B. Partition Head to Structure Connections: Provide mechanical anchorage devices that accommodate deflection using slotted holes, screws and anti-friction bushings, preventing rotation of studs while maintaining structural performance of partition.
    1. Structural Performance: Maintain lateral load resistance and vertical movement capacity required by applicable code, when evaluated in accordance with AISI S100-12.
    2. Material: ASTM A653/A653M steel sheet, SS Grade 50, with G60/Z180 hot dipped galvanized coating.
    3. Provide components UL-listed for use in UL-listed fire-rated head of partition joint systems.
    4. Provide top track preassembled with connection devices spaced to fit stud spacing; minimum track length of 12 feet.

C. Tracks and Runners: Same material and thickness as studs, bent leg retainer notched to receive studs with provision for crimp locking to stud.

D. Furring and Bracing Members: Of same material as studs; thickness to suit purpose; complying with applicable requirements of ASTM C754.

E. Fasteners: ASTM C1002 self-piercing tapping screws.

F. Sheet Metal Backing: 0.036 inch thick, galvanized.

G. Anchorage Devices: Powder actuated.

H. Touch-Up Primer for Galvanized Surfaces: SSPC-Paint 20, Type I - Inorganic.

2.2 FABRICATION

A. Fabricate assemblies of framed sections to sizes and profiles required.

B. Fit, reinforce and brace framing members to suit design requirements.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify existing conditions before starting work.

B. Verify that rough-in utilities are in proper location.

3.2 INSTALLATION OF STUD FRAMING

A. Comply with requirements of ASTM C754.

B. Extend partition framing to structure unless noted otherwise on the drawings.

C. Partitions Terminating at Structure: Attach top runner to structure, maintain clearance between top of studs and structure, and connect studs to track using specified mechanical devices in accordance with manufacturer's instructions; verify free movement of top of stud connections; do not leave studs unattached to track.

D. Align and secure top and bottom runners at 24 inches on center.

E. Fit runners under and above openings; secure intermediate studs to same spacing as wall studs.

F. Install studs vertically at 16 inches on center unless noted otherwise.

G. Align stud web openings horizontally.

H. Secure studs to tracks using crimping method. Do not weld.

I. Stud splicing is permissible; splice studs with 8 inch nested lap, secure each stud flange with flush head screw.

J. Fabricate corners using a minimum of three studs.

K. Double stud at wall openings, door and window jambs, not more than 2 inches from each side of openings.

L. Brace stud framing system rigid.

M. Coordinate erection of studs with requirements of door frames; install supports and attachments.

N. Coordinate installation of bucks, anchors and blocking with electrical, mechanical and other work to be placed within or behind stud framing.

O. Blocking: Use wood blocking secured to studs. Provide blocking for support of plumbing fixtures, toilet partitions, wall cabinets, toilet accessories, hardware, opening frames and all locations where required by manufacturer's recommendations.

3.3 TOLERANCES

A. Maximum Variation From True Position: 1/8 inch in 10 feet.

B. Maximum Variation From Plumb: 1/8 inch in 10 feet.

END OF SECTION

SECTION 09 3000

TILING

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Tile and Accessories:
   1. Wall Tile.
   2. Trim and Accessories.
   3. Setting Materials.

1.2 RELATED REQUIREMENTS

A. Refer to Division 00 and 01 Sections of these specifications

1.3 RELATED WORK

A. Section 09 1000 – Finish Schedule

B. Section 09 2116 – Gypsum Board Assemblies

1.4 REFERENCES

A. American National Standards Institute (ANSI):
   1. ANSI A108.1A - Specifications for Installation of Ceramic Tile in the Wet-Set Method with Portland Cement Mortar.
   2. ANSI A108.1B - Specifications for Installation of Ceramic Tile on a Cured Portland Cement Mortar Setting Bed with Dry-Set or Latex Portland Cement Mortar.
   3. ANSI A108.5 - Specifications for Ceramic Tile Installed with Dry-Set Portland Cement Mortar or Latex-Portland Cement Mortar.
   4. ANSI A108.10 - Specifications for Installation of Grout in Tilework.
   5. ANSI A118.1 - Standard Specification for Dry-Set Portland Cement Mortar.
   6. ANSI A118.4 - Latex-Portland Cement Mortar.
   7. ANSI A118.6 - Standard Ceramic Tile Grouts.
   8. ANSI A137.1 - Specifications for Ceramic Tile.

B. ASTM International (ASTM):
   1. ASTM C 503 - Standard Specification for Marble Dimension Stone.
   2. ASTM C 1028 - Standard Test method for Determining the Static Coefficient of Friction or Ceramic Tile by the Horizontal Dynamometer Pull meter Method.

C. Tile Council of North America (TCNA): TCA Handbook for Ceramic Tile Installation.

1.5 SUBMITTALS

A. Submit under provisions of Section 01 3300.

B. Manufacturer's data sheets on each product to be used, including:
   1. Preparation instructions and recommendations.
   2. Storage and handling requirements and recommendations.

3. Installation methods.

C. Shop Drawings: Indicate tile layout, patterns, color arrangement, perimeter conditions, ceramic accessories and setting details.

D. Selection Samples: Color charts illustrating range of colors and patterns.

E. Manufacturer's Certificate:
   1. Certify that products meet or exceed specified requirements.

F. Maintenance Data: Include recommended cleaning methods, cleaning materials, stain removal methods and polishes and waxes.

1.6 QUALITY ASSURANCE

A. Installer Qualifications: Company specializing in performing the work with minimum of two years of experience.

B. Single Source Responsibility: Obtain each type and color of tile from a single source. Obtain each type and color of mortar, adhesive and grout from the same source.

1.7 DELIVERY, STORAGE AND HANDLING

A. Deliver and store products in manufacturer's unopened packaging until ready for installation.

B. Protect adhesives and liquid additives from freezing or overheating in accordance with manufacturer's instructions.

C. Store tile and setting materials on elevated platforms, under cover and in a dry location and protect from contamination, dampness, freezing or overheating.

1.8 ENVIRONMENTAL REQUIREMENTS

A. Do not install adhesives in an unventilated environment.

B. Maintain ambient and substrate temperature of 50 degrees F during tiling and for a minimum of 7 days after completion.

1.9 EXTRA MATERIALS

A. Provide for Owner's use a minimum of 2 percent of the sizes and colors of tile, boxed and labeled.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Acceptable Manufacturer: Portobello America as basis of design.

B. Requests for substitutions will be considered.

2.2 TILE

A. General: Provide tile that complies with ANSI A137.1 for types, compositions and other characteristics indicated. Provide tile in the locations as scheduled. Tile is also to be provided in accordance with the following:

1. Factory Blending: For tile exhibiting color variations within the ranges selected, blend tile in the factory and package so tile taken from one package shows the same range of colors as those taken from other packages.
2. Mounting: For factory-mounted tile, provide back or edge mounted tile assemblies as standard with the manufacturer.
3. Factory Applied Temporary Protective Coatings: Protect exposed surfaces of tile against adherence of mortar and grout by pre-coating with a continuous film of petroleum paraffin wax applied hot. Do not coat unexposed tile surfaces.

B. Wall Tile:
1. Product: Portobello America Paddington in Gloss White, 4”x16”. Grout in Tek Platinum 028, 1/8”, installed stacked vertical.

2.3 TRIM AND ACCESSORLES

A. Trim Units: Schluter Jolly in anodized aluminum to finish bottom, top and side edges.

B. Thresholds: Zero International as basis of design:
1. Material:
a. Zero #8452A Shower Threshold, Wheelchair Accessible with Neoprene Seal.
2. Size:
a. 1.75" W, 1" H
3. Transition at shower’s edge.

2.4 SETTING MATERIALS

A. Epoxy Adhesive: ANSI A118.3, thin-set bond type.

B. Mortar Bed Materials:
1. Portland cement: ÅSTM C150, type 1, gray or white.
2. Hydrated Lime: ÅSTM C207, Type S.
3. Sand: ÅSTM C144, fine.
4. Latex additive: As approved.
5. Water: Clean and potable.

C. Mortar Bond Coat Materials:
1. Dry-Set Portland Cement type: ANSI A118.1.
2. Latex-Portland Cement type: ANSI A118.4.
3. Epoxy: ANSI A118.3, 100 percent solids.

D. Standard Grout: Cement grout, sanded or un-sanded, in ANSI A118.6; color as selected.

E. Polymer modified cement grout, sanded or un-sanded, in ANSI A118.7; color as selected.

F. Epoxy Grout: ANSI A118.8, 100 percent solids epoxy grout; color as selected.

G. Silicone Sealant: Silicone sealant, moisture and mildew resistant type, white.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify that wall surfaces are free of substances which would impair bonding of setting materials, smooth and flat within tolerances specified in ANSI A137.1, and are ready to receive tile.

B. Verify that wall mounted utilities are in correct location.

3.2 PREPARATION

A. Protect surrounding work from damage.

B. Remove any curing compounds or other contaminates.

C. Vacuum clean surfaces and damp clean.

D. Seal substrate surface cracks with filler. Level existing substrate surfaces to acceptable flatness tolerances.

E. Prepare substrate surfaces for adhesive installation in accordance with adhesive manufacturer's instructions.

3.3 INSTALLATION - GENERAL

A. Install tile and grout in accordance with applicable requirements of ANSI A108.1 through A108.13, manufacturer's instructions and TCA Handbook recommendations.

B. Arrange pattern so that a full tile or joint is centered on each wall and that no tile less than 1/2 width is used. Do not interrupt tile pattern through openings.

C. Cut and fit tile to penetrations through tile, leaving sealant joint space. Form corners and bases neatly. Align joints.

D. Place tile joints uniform in width, subject to variance in tolerance allowed in tile size. Make joints watertight, without voids, cracks, excess mortar or excess grout.

E. Form internal angles square and external angles bull-nosed.

F. Install non-ceramic trim in accordance with manufacturer's instructions.

G. Install threshold.

H. Sound tile after setting. Replace hollow sounding units.

I. Allow tile to set for a minimum of 48 hours prior to grouting.

J. Grout tile joints.

K. Apply sealant to junction of tile and dissimilar materials and junction of dissimilar planes.

3.4 CLEANING

A. Clean tile and grout surfaces.

END OF SECTION

SECTION 09 5113

ACOUSTICAL PANEL CEILINGS

PART 1 - GENERAL

1.1 WORK INCLUDED: This section covers the work to furnish and install:

A. Suspended acoustical ceiling system of acoustical ceiling panels and associated grid.

1.2 RELATED REQUIREMENTS

A. Refer to Division 00 and 01 Sections of these specifications.

1.3 REFERENCES

A. ASTM Standards and Test Procedures as referenced.

B. Federal specifications as referenced.

1.4 ENVIRONMENTAL REQUIREMENTS

A. Maintain humidity of 65 to 75 percent for 24 hours before, during and after installation. Maintain a uniform temperature of 55 to 80 degrees F. prior to and during installation.

1.5 QUALITY ASSURANCE

A. Installer is to be regularly engaged in the installation of suspended acoustical ceilings and have previous experience on projects similar in scope. Upon request, submit evidence of qualification compliance with references.

1.6 SUBMITTALS: Submittals are to be made in accordance with the Section 01 3300. In addition, the following information is to be provided:

A. Samples: Submit one sample of each acoustical ceiling panel type. Submit one sample of suspension system main runners and edge molding.

B. Submit the grid manufacturer’s installation instructions.

C. Product Data: Submit manufacturer product data for acoustical ceiling panels, suspension system components and access panels.

1.7 DELIVERY, STORAGE AND HANDLING

A. Deliver, store and handle materials per manufacturer’s recommendations.

B. Deliver material to project site in manufacturer's original unopened containers.

C. Store materials inside in original protective packaging to prevent damage.

1.8 WARRANTY

A. Provide a guarantee against defects in materials and workmanship for a period of one year from the date of Substantial Completion. Defects occurring during this warranty period to be repaired at no cost to the Owner.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. The use of a manufacturer's name and specification number is to establish the standard of quality and general configuration desired. Products of other manufacturers, meeting the requirements, may be considered.

B. Like items of material or equipment are to be the products of one manufacturer in order to achieve standardization for appearance, operation, maintenance, spare parts and manufacturer's service.

2.2 ACOUSTICAL CEILING PANEL TYPES

A. Ceiling panels are to be equal to Armstrong Cortega 2’ x 2’ x 5/8”, tegular and white. Product is to have a Class A finish with a .55 NRC rating and be zero emissions (VOC Class). See Reflected Ceiling Plan for locations.

B. Ceiling panels in areas subject to moisture are to be USG Sheetrock Brand Lay-In Ceiling Panel ClimaPlus, Vinyl with square edge, 2’ x 2’ x ½”, Item No. 3260. Equal products are acceptable. See Reflected Ceiling Plan for locations.

2.3 SUSPENSION SYSTEMS

A. Ceiling System is to conform to ASTM C 635, intermediate duty, with components manufactured by Donn Exposed Tee System or equal.
   1. Main and Cross Members: Double web design, intermediate duty cold rolled steel with minimum thickness of .02”, electrozinc-coated and factory painted low sheen satin finish. Color is to be white. Main tees to be 1-½”, cross tees to be 1” and flange width to be 15/16”. For wet area ceiling panels, double web design, light duty aluminum, white.
   2. Edge Molding: Minimum .02” steel, angle-shaped and flange width of 15/16”. Finish to match main members.
   3. Hanger Wire: Minimum 12 gauge, galvanized, soft-annealed, mild steel wire. Provide hanger wires attached to structure for final connection to light fixtures by the electrical subcontractor and A/C diffusers and grilles by the mechanical subcontractor.
   4. Wire Ties: 18-gauge, galvanized, annealed steel wire.

PART 3 - EXECUTION

3.1 GENERAL

A. The suspension system and acoustical ceiling panels are to be installed in line and level with a maximum deflection of 1/300 of the span, symmetrical to spaces and with structural stability. Adjust layout, soffits and heights as required to accommodate conditions at ducts, piping and structural members at no additional cost to the Owner.

3.2 SEQUENCING

A. Do not install suspended acoustical ceilings until sufficient heat is provided, dust-generating activities have terminated and overhead work is completed.

B. Lay out grid as shown on Reflected Ceiling Plan. Coordinate with mechanical and electrical equipment in framing and cutting material around ceiling penetrations.

3.3 CONDITION OF SURFACES

A. Examine surfaces scheduled to receive suspended acoustical ceilings for unevenness, irregularities and dampness that could affect quality and execution of work. The contractor is to report any adverse conditions that could affect the installation.

3.4 INSTALLATION

A. Suspension System: Hang level directly from structure in accordance with the manufacturer's instructions. Space hanger wires a maximum of 4 feet on center each direction. Install additional hangers at ends of each suspension member. Install additional hangers to structure for electrical and mechanical trades to connect at each corner of light fixtures and mechanical diffusers and grilles. Do not splay wires more than 5-inches in 4-foot vertical drop or a maximum of 30° angle from support to grid or fixture. Final attachment to light fixtures and mechanical diffusers/grilles to be by those respective trades.

B. Attach supporting wires to structural members, i.e. steel beams, unistrut or concrete attached to the structure. Provide additional supports as required. Wrap wire a minimum of three times horizontally within 3", turning ends upward.

C. Connect runners according to manufacturer's directions. Install edge molding at intersection of suspended ceiling and vertical surfaces. Miter corners where moldings intersect or install corner caps. Attach to vertical surface with mechanical fasteners. Provide additional channels and hangers as required for support of mechanical and electrical work.

D. Review the mechanical and electrical documents for the type and extent of work and coordinate with other trades. Adjust as required at no additional cost, to accommodate ductwork, piping and other interferences.

E. Acoustical Ceiling Panels: Upon completion of suspension system, other concealed work and the above ceiling review, install the acoustical ceiling panels. Place material to bear on suspension members. Provide clips at vertical installations.

3.5 CLEANING

A. Clean dirty or discolored panel surfaces after installation. Touch up scratches, abrasions, voids and other defects in finished surfaces. Remove and replace damaged or improperly installed units.

END OF SECTION

SECTION 09 6500

RESILIENT FLOORING ACCESSORIES

PART 1 - GENERAL

1.1 WORK INCLUDED: This section covers the work to furnish and install:

A. Vinyl base, 4” high, 1/8”.

B. Transition strips.

1.2 RELATED REQUIREMENTS

A. Refer to Division 00 and 01 Sections of these specifications.

1.3 REFERENCES

A. Federal Specifications as referenced.

1.4 ENVIRONMENTAL REQUIREMENTS

A. Store materials for three days prior to installation in area of installation to achieve temperature stability.

B. Maintain ambient temperature required by adhesive manufacturer three days prior to, during and 24 hours after installation of materials.

1.5 QUALITY ASSURANCE

A. Flooring Contractor: To be regularly engaged in the installation of vinyl wall base and have previous experience within the last three years on projects similar in scope. Upon request, submit evidence of qualification compliance with references.

1.6 SUBMITTALS: Submittals to be made in accordance with Section 01 3300. In addition, the following information to be provided:

A. Product Data: Provide product data describing physical and performance characteristics, sizes, patterns and full color range available.

B. Samples: Submit strips of wall base material illustrating full color ranges for selection.

1.7 MAINTENANCE DATA

A. Furnish flooring manufacturer's recommended maintenance products and recommended maintenance schedule for cleaning.

1.8 DELIVERY, STORAGE AND HANDLING

A. Deliver, store and handle materials per manufacturer’s recommendations.

B. Deliver materials to project site in manufacturer's original, unopened containers with labels indicating brand names legible and intact.

C. Store and protect materials in accordance with manufacturers' directions and recommendations.

1.9 GUARANTEE

A. Provide a guarantee against defects in materials and workmanship for a period of one year from the date of Substantial Completion. Any defects occurring during this warranty period to be repaired at no cost to the Owner.

PART 2 - PRODUCTS

2.1 BASE MATERIALS

A. Acceptable Manufacturers: Johnsonite, Burke or equal.

B. General: Provide uniform in thickness and in as long lengths as practicable to suit conditions of installation, rolled goods, not individual strips. Color to be as selected during submittals from provided samples.

C. Vinyl Base: Conforming to Federal Specification SS-W-40, Type II, 4-inch-high and 1/8-inch thick.

2.2 TRANSITION STRIPS

A. Provide accessory transition strips equal to “VT” Series as manufactured by Armstrong Commercial Flooring. Color to be selected during construction submittals.

2.3 APPLICATION MATERIALS

A. Primers and Adhesives: Provide type and brands as recommended by applicable materials manufacturer for the conditions of the installation.

PART 3 - EXECUTION

3.1 WORKING CONDITIONS

A. The building to be dry and closed in. Installation is not to begin until work which would cause damage, dirt, dust or interruption of normal installation pace in completed. Adequate ventilation to be provided and safety precautions to be observed.

3.2 APPLICATION OF ADHESIVES

A. Mix and apply adhesives in accordance with manufacturer's instructions. Apply uniformly over surfaces. Remove any adhesive which dries or films over. Do not soil walls, bases or adjacent areas with adhesives. Remove any spillage.

3.3 INSTALLATION OF BASE

A. General: Remove defects in wall that would prevent level installation of the material. Ensure wall material provides a sound backing for base. Install base around perimeter of room where and at toe spaces of millwork base units. Unroll base material and cut into accurate lengths as required for minimum number of joints. Match edges at seams or double cut adjoining lengths to give continuous appearance. Install with butt joints with no joint widths greater than 1/64-inch.

B. Top-Set Base: Apply adhesive and adhere to wall surfaces. Press down so that bottom edge follows floor profile. Top and bottom edges of base to be in firm contact with walls and floors. Scribe base accurately to abutting materials.

END OF SECTION

SECTION 09 6520

RESILIENT FLOORING

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes luxury vinyl tile flooring and accessories.

B. Related Sections:
   1. Section 09 6500 – Resilient Flooring Accessories

1.2 REFERENCES

A. American Concrete Institute (ACI):
   1. ACI 302.1 Guide for Concrete Floor and Slab Construction.
   2. ACI SP-15 Field Reference Manual - Standard Specifications for Structural Concrete.

B. ASTM International:
   1. ASTM D2047 Standard Test Method for Static Coefficient of Friction of Polish-Coated Floor Surfaces as Measured by the James Machine.
   2. ASTM E648 Standard Test Method for Critical Radiant Flux of Floor-Covering Systems Using a Radiant Heat Energy Source.
   3. ASTM E662 Standard Test Method for Specific Optical Density of Smoke Generated by Solid Materials.
   4. ASTM E1643 Standard Practice for Installation of Water Vapor Retarders Used in Contact with Earth or Granular Fill under Concrete Slabs.
   5. ASTM E1745 Standard Specification for Water Vapor Retarders Used in Contact with Soil or Granular Fill under Concrete Slabs.
   6. ASTM F137 Standard Test Method for Flexibility of Resilient Flooring Materials with Cylindrical Mandrel Apparatus.
   7. ASTM F386 Standard Test Method for Thickness of Resilient Flooring Materials Having Flat Surfaces.
   8. ASTM F536 Test Method for Size of Resilient Floor Coverings.
   9. ASTM F540 Test Method for Squareness of Resilient Floor Tile by Dial Gage Method.
   10. ASTM F710 Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring.
   11. ASTM F925 Standard Test Method for Resistance to Chemicals of Resilient Flooring.
   12. ASTM F970 Standard Test Method for Static Load Limit.
   13. ASTM F1482 Standard Guide to Wood Underlayment Products Available for Use under Resilient Flooring.
   14. ASTM F1514 Standard Test Method for Measuring Heat Stability of Resilient Vinyl Flooring by Color Change.
   15. ASTM F1515 Standard Test Method for Measuring Light Stability of Resilient Vinyl Flooring by Color Change.
   16. ASTM F1700 Standard Specification for Solid Vinyl Floor Tile.
   17. ASTM F1869 Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride.
   18. ASTM F1914 Standard Test Method for Short-Term Indentation and Residual Indentation of Resilient Floor Covering.

19. ASTM F2170 Standard Test Method for Determining Relative Humidity in Concrete Floor Slabs Using in situ Probes.

C. Americans with Disabilities Act (ADA) of 1990.

D. Federal Specifications (FS):
   1. Federal Standard Number 501a (Notice 1) Federal Test Method Standard for Floor Covering, Resilient, Non-Textile, Sampling and Testing Method 6211 Dimensional Stability.

E. International Organization for Standardization (ISO):
   1. ISO 9001 Quality Systems - Model Quality Assurance in Production, Installation, and Servicing.
   2. ISO 14001 Environmental Management Systems - Specification with Guidance for Use.
   3. National Fire Protection Association (NFPA):
   4. NFPA 253 Standard Method of Test for Critical Radiant Flux for Floor Covering Systems Using a Radiant Heat Energy Source.
   5. NFPA 258 Recommended practice for Determining Smoke Generation of Solid Materials.

1.3 SYSTEM DESCRIPTION

A. Performance Requirements:
   1. The manufacturer of the flooring product to be accredited to both ISO 9001 (Quality Management System) and ISO 14001 (Environmental Management System).
   2. Provide resilient tile flooring which has been manufactured and can be installed to maintain performance criteria stated by manufacturer without defects, damage or failure.
   3. LVT to have aggregate in top performance wear layer.

1.4 SUBMITTALS

A. Section 01 3300 – Submittal Procedures.

B. Product Data: Submit product data, including manufacturer’s technical specifications, for each type of specified products.

C. Shop Drawings: Submit shop drawings showing layout, pattern and colors.

D. Samples: Submit 2 verification samples of each selected color/style.

E. Quality Assurance/Control Submittals: Submit the following:
   1. Test Reports: Upon request, submit test reports of physical performance and characteristics from recognized test laboratories.
   2. Technical Specifications: Submit manufacturer’s technical specification document that certifies products meet or exceed specified requirements.
   3. Manufacturer’s Instructions: Submit manufacturer’s installation instructions for resilient flooring.

F. Closeout Submittals: Submit the following:
   1. Maintenance Data: Maintenance data for installed products. Include methods for maintaining installed products and precautions against cleaning materials and methods detrimental to finishes and performance.
   2. Warranty: Submit warranty documents.

G. Substitutions:
   1. All substitutions to conform to the criteria below and be submitted to and approved by Owner 7 days prior to bid.
   2. All substitutions to conform to the physical specifications in this document.
   3. Substitutions to be submitted using a full production sample and complete specification with written description of comparison to basis of design.

1.5 QUALITY ASSURANCE

A. Manufacturer: The manufacturer of the flooring product to be accredited to both ISO 9001 (Quality Management System) and ISO 14001 (Environmental Management System).

B. Flooring Contractor Qualifications:
   1. The awarded contractor to be an established firm with experience in the installation of the specified product and have access to all manufacturers required technical, maintenance, specifications and related documents.
   2. The flooring contractor to have completed at least 3 projects of similar scope, material and complexity. Upon request, provide project reference details including contact names and telephone numbers.

C. Installer Qualifications: An experienced installer, as determined by contractor, who has specialized in the installation of work similar to that required for this project is to perform the work of this section.
   1. Installation procedures to be in accordance with Amtico International published technical documentation and to not begin until the work of all other trades has been completed.

D. Pre-installation Meetings: Conduct pre-installation meeting to verify project requirements, substrate conditions, manufacturer's installation instructions and manufacturer's warranty requirements.

1.6 DELIVERY, STORAGE & HANDLING

A. Ordering: Comply with manufacturer's ordering instructions and lead time requirements to avoid construction delays.

B. Delivery: Deliver materials in manufacturer's original, unopened, undamaged containers with identification labels intact.

C. Storage and Protection: Store materials flat, protected from exposure to harmful weather conditions, between 50 degrees F - 81 degrees F and 50% (± 10%) relative humidity.

1.7 PROJECT CONDITIONS

A. Substrate Conditions: Use the current test methods described below to determine the dryness as required to ensure initial and long-term success:
   1. Comply with ASTM F1869 testing procedures.
   2. Comply with ASTM F2170 testing procedures.
   3. The general contractor to be responsible for providing 3rd Party relative humidity testing (ASTM F2170) and calcium chloride testing (ASTM F1869). Perform minimum of 3 tests for the first 1000 square feet, and at least one test for each additional 1000 square feet, to ensure concrete internal relative humidity does not exceed 80% or moisture vapor emissions do not exceed 5.0 lb per 1000 square feet within a 24 hour period.

4. Contingency for High Moisture Readings: If at the time of testing the moisture readings are in excess of 80% internal relative humidity or 5.0 lb moisture vapor emissions, the contractor will initiate testing using petrographic analysis to determine the Water/Cement Ratio and if sufficient hydration has taken place. If the specifications were not followed in their entirety, water/cement ratio (as specified), and/or the concrete surface has been inadequately hydrated, the contractor is to be responsible for the placement of the cement and be responsible for the costs associated with the petrographic analysis and subsequent remediation requirements.

B. The flooring contractor to verify to the Owner, a minimum of thirty (30) days prior to scheduled resilient flooring installation, the following substrate conditions:
   1. Moisture: Maximum of 80% internal relative humidity tested in accordance with the current ASTM F2170 or maximum of 5.0 lb Moisture Vapor Emission Rate tested in accordance with the current ASTM F1869.
   2. Alkalinity (ASTM F710): Between 7.0 - 10.0 pH.
   3. Suitability of Substrate Surface: Ensure that substrate surface is sound, smooth and flat to 1/8 inch in 10 feet.
   4. For substrate conditions that require additional preparation, flooring contractor to furnish Owner and general contractor with documentation detailing noncompliance, proposed remediation, timing and cost.

C. Environmental Requirements/Conditions: In accordance with manufacturer's recommendations. Areas to receive flooring to be clean, fully enclosed, weathertight with stable environmental conditions between 64 degrees F - 81 degrees F and 50% (± 10%) relative humidity. The flooring material to be conditioned in the same manner.

D. Temperature Requirements: Maintain air temperature and relative humidity levels in spaces where products will be installed for time period before, during and after installation as recommended by manufacturer.
   1. Temperature Conditions: Maintain 64 degrees F - 81 degrees F for 48 hours before, during and continuously after installation.
   2. Relative Humidity Conditions: Maintain 50% (± 10%) relative humidity for 48 hours before, during and continuously after installation.

E. Close spaces to traffic during resilient flooring installation and for time period after installation recommended by the manufacturer.
   1. No foot traffic for 24 hours after installation.
   2. No point loads for 48 hours after installation.
   3. Wait 48 hours after installation before any wet maintenance is performed.

F. Install resilient flooring material and accessories after all other finishing operations, including painting, have been completed.

1.8 WARRANTY

A. Manufacturer's Warranty: Submit manufacturer's Commercial Limited Wear Warranty for Owner's acceptance.
   1. QuantumGuardElite_Warranty_Distributor.pdf (widen.net)
   2. LVT_Product_Direct_Warranty.pdf (widen.net)

B. Manufacturer's warranty is in addition to, and not a limitation of, other rights Owner may have under the Contract Documents.
   1. Warranty Period: 20 years commencing on Date of Substantial Completion.

1.9 MAINTENANCE

A. Extra Materials: Deliver extra materials from same production run as products installed to Owner. Package products with protective covering and identify with descriptive labels.
   1. Quantity: Furnish quantity of full-size units equal to 5% of amount installed.
   2. Delivery, Storage and Protection: Comply with Owner's requirements for delivery, storage and protection of extra materials.

PART 2 - PRODUCTS

2.1 LUXURY VINYL TILE FLOORING

A. Manufacturer: Mannington Commercial
   Contact: Sean DeVore / sean.devore@mannington.com / 352 630 9884

B. LVT Basis of Design
   1. Material to be selected from Mannington Commercial selections below.
      a. Mannington/ Amtico 30mil with Quantum Guard Elite 20-year Warranty
      b. Mannington Select Wood
      c. Mannington Select Tile
      d. Mannington Divergent Collection
      e. Mannington Portland Collection
      f. Mannington Drift Collection
   2. Quantum Guare Elite Aluminum Oxide Aggregate in Performance Wear Layer
   3. 30mil wear layer
   4. Non-Ortho Phthalate
   5. 2.5MM Thickness
   6. Not micro-beveled

C. Product Testing (Minimum): Provide manufacturer's products which have been tested to meet the following minimum test standards:
   1. Comply with ASTM F1700, including the following:
      a. Classification (ASTM F1700): Class III, Type B
      b. Flexibility (ASTM F137): 1 inch (25.4 mm) mandrel, no crack or break; pass.
      c. Total Thickness (ASTM F386): 0.098 inch (2.5mm)
      d. Chemical Resistance (ASTM F925): Excellent resistance.
      e. Heat Resistance (ASTM F1514): $\Delta E < 8$ average; satisfies requirement.
      f. Light Stability (ASTM F1515): $\Delta E < 8$ average; satisfies requirement.
      g. Short-Term Residual Indentation (ASTM F1914): < 8% satisfies requirement.
      h. Tile Size Dependent on color choice
      i. Tile Squareness (ASTM F540): Maximum 0.010 inch (0.25 mm); satisfies requirement.
      j. Dimensional Stability (Fed. Std. No. 501a Method 6211): Maximum 0.020 inch/lineal foot (0.51 mm/305 mm); satisfies requirement.
      k. Wearlayer Thickness (EN 429):20mils
         1). Static Load Limit 750psi.
   2. Fire Performance:
      a. Critical Radiant Flux (ASTM E648 and NFPA 253): > 0.45 W/cm, Class 1.
      b. Optical Smoke Density (ASTM E662 and NFPA 258) Non-Flaming DM Corrected: < 450; pass.
      c. Slip Resistance (Dry Static Coefficient of Friction) (ASTM D2047 James Test): 0.6, ADA compliant

D. Installation Adhesive
   1. QuickStix pre-applied adhesive RH >95% = 99% for Existing Slab.

a. Mannington V-88 Pressure Sensitive Adh. RH 99% New Slab
b. Mannington Xpress Step Premium Spray Adhesive /RH 93%
c. Mannington V-88 Pressure Sensitive Adh. RH 95% < existing slab.
d. Mannington Moisture Loc Wet Set for heavy rolling loads

2.2 RELATED MATERIALS

A. Leveling and Patching Compounds:

B. Concrete Curing, Sealing, Hardening and Parting Compounds.

C. Vapor Retarders.

2.3 SOURCE QUALITY CONTROL

A. Source Quality Control: Obtain resilient tile flooring proprietary products, including vinyl tile, from a single manufacturer.

PART 3 - EXECUTION

3.1 MANUFACTURER'S INSTRUCTIONS

A. Compliance: Comply with manufacturer's product data for substrate condition, preparation and installation, including product technical bulletins, product catalog installation instructions and product packaging instructions for installation. Flooring contractor to examine areas and conditions under which resilient flooring and accessories are to be installed and notify general contractor of conditions detrimental to proper and timely completion of work. Do not proceed with work until unsatisfactory conditions have been corrected in manner acceptable to Owner.

3.2 EXAMINATION

A. Substrates: Examine and verify that all substrates, which have been previously installed under other sections, are acceptable for product installation in accordance with manufacturer's instructions.

B. To ensure a good quality appearance and good adhesion, the subfloor to be hard, smooth, clean, dry and free from defects. Slab on-grade floors to incorporate an approved vapor retarder (ASTM E1745) properly installed (ASTM E1643) to ensure they are sufficiently dry and to reduce ground moisture vapor transmission from entering the slab after construction. This can be checked by using a suitable moisture test method.

C. Concrete Substrate Testing: Prior to flooring installation, test concrete substrates for internal relative humidity (maximum 80% per ASTM F2170) or water vapor emission (maximum 5.0 lb per ASTM F1869) and alkalinity (7.0 - 10.0 pH per ASTM F710) harmful to resilient flooring installation performance. Consult resilient flooring manufacturer for requirements pertaining to proprietary resilient flooring products. Include testing costs in contract sum.

3.3 PREPARATION

A. Surface Preparation:
1. Concrete subfloors to be constructed in accordance with ACI 302.1 and ACI SP-15, utilizing a water-to-cement ratio of 0.45 or less containing no admixtures or surface treatments that are adverse to the installation of resilient flooring.
2. Concrete subfloors to be finished and cured without additives or surface treatments that will adversely affect the flooring materials according to ACI and ASTM F710 with a minimum compressive strength of 3500 psi (24,115 kPa).
3. Floors to be clean, dry and smooth.

4. Incompatible Compounds: Remove compounds and other substances harmful or incompatible with installation adhesives and flooring products. This includes any surface materials, such as paint, wax, grease, oil, adhesive residues, etc. Chemical adhesive removers to be completely removed. Floors to be free of any sealers, curing, hardening or parting compounds that would adversely affect the adhesive used with the flooring. Refer to ACI and ASTM F710.
5. A vapor retarder to be installed prior to pouring of on grade or below grade slabs. Moisture vapor transmission shall not exceed 80% internal Relative Humidity per ASTM F2170 In-Situ Relatived Humidity Test and/or 5.0 lb/1000 ft P/24 hours per ASTM F1869 Calcium Chloride Test.
6. Provide 3rd Party RH moisture testing results prior or before pre-installation meeting
7. Maintain room temperature, adhesive and flooring material at 64 degrees F - 81 degrees F and 50% (±10%) relative humidity for 48 hours before, during and continuously after installation.
8. Broom clean or vacuum surfaces to be covered and inspect substrate. Start of flooring installation indicates acceptance of subfloor conditions and full responsibility for completed work.
9. Adjacent Surfaces Protection: Protect adjacent work areas and finish surfaces from damage during product installation.
10. Substrate Cleaning and Preparation: Comply with manufacturer's requirements for substrate cleaning and preparation for resilient flooring products.
11. Leveling and Patching: Use only Portland cement based leveling and patching compounds, in accordance with compound manufacturer's requirements, to fill depressions, holes and cracks and to smooth substrate surface to 1/8 inch in a 10 foot radius to receive resilient flooring.

3.4 INSTALLATION

A. Resilient Tile Installation: Install tiles from established center marks so that tiles at opposite room edge are of equal tile width. Follow installation procedures in accordance with Mannington Commercial Published Technical Manual, and do not begin until the work of all other trades has been completed.
   1. Patterns: Install tiles in patterns selected by Owner.
   2. Rolling: Roll floor using 100 lb roller in both directions within 1 hour.

B. Adhesive: Apply adhesive to substrate in accordance with manufacturer's instructions, including trowel notching, adhesive mixing and adhesive open and working times.

3.5 FIELD QUALITY CONTROL

A. Manufacturer's Field Services: Upon Owner's request, provide manufacturer's field service consisting of product use recommendations and periodic site visit for inspection of product installation in accordance with manufacturer's instructions.

3.6 CLEANING & PROTECTION

A. Initial Cleaning: Remove temporary coverings and protection of adjacent work areas. When installation has been finished for 24 hours, inspect workmanship and repair or replace damaged installed products. Clean installed products in accordance with manufacturer's instructions prior to Owner's acceptance. Remove construction debris from project site and legally dispose of debris.
   1. Pick up litter and sweep floor to remove debris using a non-treated dust mop or vacuum cleaner with hard surface attachment.

B. Initial Wet Cleaning: Wait at least 48 hours after installation is complete before performing the initial wet cleaning process.

C. This will allow the adhesive to cure.
   1. Clean new floor thoroughly using a proprietary cleaner/maintainer solution of neutral pH detergent diluted in accordance with manufacturer's instructions. Machine scrub the wet floor using a 3M Red scrubbing pad or equivalent.
   2. When finished, remove remaining cleaning solution using a mop or wet vacuum. Rinse floor with clean water and allow to dry thoroughly.
   3. In conditions of heavy soiling, pre-wash the floor using a proprietary cleaner solution of neutral pH detergent mixed in accordance with manufacturer's instructions. Allow the solution to stand for 5 - 10 minutes before machine scrubbing or in accordance with the manufacturer's instructions.

D. Routine Maintenance: Frequency of mop or machine cleaning should be determined based upon daily usage and soiling conditions. Perform routine maintenance in accordance with the Mannington Commercial Maintenance Procedures.

E. Protection: Protect installed product's finish surfaces from damage during construction. After the floor has been installed, cover with RamBoard or similar product. Not to include craft paper or plastics with adhesive backings.

END OF SECTION

SECTION 09 6723

RESINOUS FLOORING

PART 1 - GENERAL

1.1 RELATED REQUIREMENTS

A. Refer to the Division 00 and 01 Sections of these specifications.

B. Coordinate with Section 09 1000 Finish Schedule and Finish Diagrams for locations.

1.2 SUMMARY

A. This Section includes one resinous flooring system, one with epoxy body.
   1. Application Method (RES-1): Squeegee, screed and broadcast.

1.3 SUBMITTALS

A. Product Data: Include manufacturer's technical data, application instructions and recommendations.

B. Samples for Verification: 6 inches square, applied to a rigid backing.

C. Product Schedule: Use resinous flooring designations indicated in Part 2 and room designations indicated in Section 09 1000.

D. Installer Certificates: Signed by manufacturer certifying that installers comply with specified requirements.

E. Maintenance Data: For resinous flooring to include in maintenance manuals.

1.4 QUALITY ASSURANCE

A. Equivalent materials of other manufactures may be substituted for consideration prior to the Bid Date.

B. Installer Qualifications: Engage an experienced installer experienced in applying resinous flooring systems similar in material, design and extent, whose work has resulted in applications with a record of successful in-service performance and who is acceptable to resinous flooring manufacturer.
   1. Engage an installer who is certified by resinous flooring manufacturer as qualified to apply resinous flooring systems.

C. Source Limitations: Obtain primary resinous flooring materials, including primers, resins, hardening agents, grouting coats and topcoats, through one source from a single manufacturer. Provide secondary materials, including patching and fill material, joint sealant and repair materials, of type and from source recommended by manufacturer of primary materials.

D. Manufacturer Field Technical Service Representatives: Resinous flooring manufacture is to retain the services of Field Technical Service Representatives who are trained on installing the system to be used.
   1. Field Technical Services Representatives are to be employed by the system manufacture to assist in the quality assurance and quality control process of the installation and be available to perform field problem solving issues with the installer.

E. Mockups: Apply mockups to verify selections made under sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.
   1. Apply full-thickness mockups on 48-inch square floor area.
      a. Include 48-inch length of 4” high integral cove base.
   2. Approved mockups may become part of the completed work if undisturbed at time of Substantial Completion.

1.5 DELIVERY, STORAGE AND HANDLING

A. Deliver materials in original packages and containers, with seals unbroken, bearing manufacturer's labels indicating brand name and directions for storage and mixing with other components.

B. Store materials to prevent deterioration from moisture, heat, cold, direct sunlight or other detrimental effects.

C. Materials used are to be factory pre-weighed and pre-packaged in single, easy to manage batches to eliminate on site mixing errors. No on site weighing or volumetric measurements allowed.

1.6 PROJECT CONDITIONS

A. Environmental Limitations: Comply with resinous flooring manufacturer's instructions for substrate temperature, ambient temperature, moisture, ventilation and other conditions affecting resinous flooring application.
   1. Maintain material and substrate temperature between 65 and 85 deg F during resinous flooring application and for not less than 24 hours after application.

B. Lighting: Provide permanent lighting or, if permanent lighting is not in place, simulate permanent lighting conditions during resinous flooring application.

C. Close spaces to traffic during resinous flooring application and for not less than 24 hours after application, unless manufacturer recommends a longer period.

D. Concrete substrate to be properly cured for a minimum of 30 days. A vapor barrier must be present for concrete subfloors on grade.

1.7 WARRANTY

A. Manufacturer is to furnish a warranty covering both material and workmanship for a period of one year from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 RESINOUS FLOORING (RES-1)

A. Available Products: Subject to compliance with requirements.
   1. Confirm inclusion of 25mil body coat and broadcast quartz into primer increasing bond strength.

B. Products: Subject to compliance with requirements:
   1. Stonhard, Inc.; Stontec ERF®. Basis of Design.
   2. Resinous Flooring manufactured by Plexi-Chemie, Neogard, Sikafloor and Sherwin-Williams are acceptable substitutions.

C. System Characteristics:
   1. Color and Pattern: Select from manufactures standards

2. Wearing Surface: Standard
3. Integral Cove Base, 4” high.
4. Overall System Thickness: 2mm

D. System Components: Manufacturer's standard components that are compatible with each other and as follows:
   1. Primer:
      a. Material Basis: Stonhard Standard Primer.
      b. Resin: Epoxy.
      c. Formulation Description: Two component 100 percent solids.
      d. Application Method: Squeegee and roller.
      e. Number of Coats: One.
      f. Aggregates: Broadcast quartz into wet primer coat.
   2. Body Coat(s):
      a. Material Basis: Stonshield Undercoat.
      b. Resin: Epoxy.
      c. Formulation Description: Three component solvent free epoxy.
      d. Application Method: Notched squeegee.
         1). Thickness of Coats: 25-30 mils with standard primer coat.
         2). Number of Coats: One.
   3. Broadcast:
      a. Material Basis: Stontec Flakes.
      b. Formulation Description: Decorative flake.
      c. Type: Tweed (chips to be mixed in Mfg. facility).
      d. Finish: Broadcast to rejection.
      e. Number of Coats: One.
   4. Topcoat:
      a. Material Basis: CE4.
      b. Resin: Epoxy.
      c. Formulation Description: Two component, UV stable, solvent free epoxy.
      d. Type: Clear.
      e. Finish: Gloss.
      f. Number of Coats: Two.

2.2 ACCESSORY MATERIALS

A. Patching and Fill Material: Resinous product of or approved by resinous flooring manufacturer and recommended by manufacturer for application indicated. No Single component or cementitious materials.

B. Joint Sealant: Type recommended or produced by resinous flooring manufacturer for type of service and joint conditions.

PART 3 - EXECUTION

3.1 PREPARATION

A. General: Prepare and clean substrates according to resinous flooring manufacturer's instructions. Provide clean, dry and neutral Ph substrate for resinous flooring application.

B. Concrete Substrates: Provide sound concrete surfaces free of laitance, glaze, efflorescence, curing compounds, form-release agents, dust, dirt, grease, oil and other contaminants incompatible with resinous flooring.

1. Mechanically prepare substrates as follows:
    a. Mechanically prepare with the use of Diamond grinding equipment to provide surface sound concrete surfaces free of laitance, glaze, efflorescence, curing compounds, form-release agents, dust, dirt, grease, oil and other contaminants incompatible with resinous flooring. Or,
    b. Shot-blast surfaces with an apparatus that abrades the concrete surface, contains the dispensed shot within the apparatus and recirculates the shot by vacuum pickup.
    c. Comply with ASTM C 811 requirements, unless manufacturer's instructions are more stringent.
2. Repair damaged and deteriorated concrete according to resinous flooring manufacturer's recommendations.
3. Verify that concrete substrates are dry.
    a. Perform in situ probe test, ASTM F 2170. Proceed with application only after substrates do not exceed a maximum potential equilibrium relative humidity of 80 percent.
    b. For applying impermeable resinous flooring systems, 3 lb of water/1000 sq. ft. of slab in 24 hours is generally considered a safe moisture-vapor-emission rate. Consult manufacturers for appropriate rates for permeable systems that will allow moisture vapor to continue through them once cured.
    c. Perform anhydrous calcium chloride test, ASTM F 1869. Proceed with application only after substrates have maximum moisture-vapor-emission rate of 3 lb of water/1000 sq. ft. of slab in 24 hours.
    d. Perform additional moisture tests recommended by manufacturer. Proceed with application only after substrates pass testing.
4. Verify that concrete substrates have neutral Ph and that resinous flooring will adhere to them. Perform tests recommended by manufacturer. Proceed with application only after substrates pass testing.

C. Resinous Materials: Mix components and prepare materials according to resinous flooring manufacturer's instructions.

D. Use patching and fill material to fill holes and depressions in substrates according to manufacturer's instructions.

E. Treat control joints and other nonmoving substrate cracks to prevent cracks from reflecting through resinous flooring according to manufacturer's recommendations. Stonflex MP7 joint fill material.

3.2 APPLICATION (RES-1)

A. General: Apply components of resinous flooring system according to manufacturer's instructions to produce a uniform, monolithic wearing surface.

1. Coordinate application of components to provide optimum adhesion of resinous flooring system to substrate and optimum intercoat adhesion.
2. Cure resinous flooring components according to manufacturer's instructions. Prevent contamination during application and curing processes.
3. At substrate expansion and isolation joints, provide joint in resinous flooring to comply with resinous flooring manufacturer's recommendations.
    a. Apply joint sealant to comply with manufacturer's recommendations.

B. Mix and apply primer over properly prepared substrate with adherence to manufacturer's installation procedures and coverage rates.

C. Broadcast: Immediately broadcast quartz silica aggregate into the primer using manufacturer's specially designed spray caster. Adherence to manufacturer's installation procedures and coverage rates is imperative.

D. Integral Cove Base: Apply cove base mix to wall surfaces before applying flooring. Apply according to manufacturer's instructions and details including those for taping, mixing, priming, troweling, sanding and top coating of cove base. Round internal and external corners. 4” high.

E. Body Coat: Mix base material according to manufacturer's recommended procedures. Uniformly spread mixed material over previously primed substrate using manufacturer's installation tool. Roll material with adherence to manufacturer's installation procedures and coverage rates.

F. Broadcast: Immediately broadcast decorative flakes into the body coat. Adherence to manufacturer's installation procedures and coverage rates is imperative.

G. First Sealer: Remove excess un-bonded flakes by lightly brushing and vacuuming the floor surface. Mix and apply sealer with adherence to manufacturer's installation procedures.

H. Second Sealer: Lightly sand first sealer coat. Mix and apply second sealer coat with adherence to manufacturer's installation procedures.

3.3 TERMINATIONS

A. Chase edges to “lock” the coating system into the concrete substrate along lines of termination.

B. Penetration Treatment: Lap and seal coating onto the perimeter of the penetrating item by bridging over compatible elastomer at the interface to compensate for possible movement.

C. Trenches: Continue coating system into trenches to maintain monolithic protection. Treat cold joints to assure bridging of potential cracks.

D. Treat floor drains by chasing the coating to lock in place at point of termination.

3.4 JOINTS AND CRACKS

A. Treat control joints to bridge potential cracks and to maintain monolithic protection.

B. Treat cold joints and construction joints to bridge potential cracks and to maintain monolithic protection on horizontal and vertical surfaces as well as horizontal and vertical interfaces.

C. Discontinue floor coating system at vertical and horizontal contraction and expansion joints by installing backer rod and compatible sealant after coating installation is completed. Provide sealant type recommended by manufacturer for traffic conditions and chemical exposures to be encountered.

3.5 FIELD QUALITY CONTROL

A. Material Sampling: Owner may at any time and any numbers of times during resinous flooring application require material samples for testing for compliance with requirements.
   1. Owner will engage an independent testing agency to take samples of materials being used. Material samples will be taken, identified, sealed and certified in presence of contractor.
   2. Testing agency will test samples for compliance with requirements, using applicable referenced testing procedures or, if not referenced, using testing procedures listed in manufacturer's product data.
   3. If test results show applied materials do not comply with specified requirements, the contractor is to pay for testing, remove noncomplying materials, prepare surfaces coated with unacceptable materials and reapply flooring materials to comply with requirements.

3.6 CLEANING, PROTECTING, AND CURING

A. Cure resinous flooring materials in compliance with manufacturer's directions, taking care to prevent contamination during stages of application and prior to completion of curing process. Close area of application for a minimum of 18 hours.

B. Protect resinous flooring materials from damage and wear during construction operation. Where temporary covering is required for this purpose, comply with manufacturer's recommendations for protective materials and method of application. Contractor is responsible for protection and cleaning of surfaces after final coats.

C. Cleaning: Remove temporary covering and clean resinous flooring just prior to final inspection. Use cleaning materials and procedures recommended by resinous flooring manufacturer.

END OF SECTION

SECTION 09 9000

PAINTING AND COATING

PART 1 - GENERAL

1.1 WORK INCLUDED: This section covers the work necessary to furnish and install:

A. All Field Painting. It is the intent that the painting subcontractor be responsible for painting or finishing of exposed metal building steel framing (frame, purlins, girts, etc.) gypsum board, hollow metal doors and frames and piping and ductwork exposed to view, whether specifically mentioned or not, except where scheduled and/or specifically noted otherwise on the drawings. Coordinate with the Finish Schedule.

B. Any painting of mechanical piping and equipment is to be the responsibility of the painting subcontractor.

C. Shop painting of fabricated items is to be as specified in other sections. However, the painting of any exposed steel fabrications and shop primed metal surfaces after erection is included in this section.

D. Certain items are manufactured prefinished and except for spot touch up of damaged areas are not to be again painted. The damaged areas which cannot be touched up without noticeable differences between the manufacturer's finish and field finished areas and items which have been prefinished in colors other than that specified are to be brought to attention for determination of treatment to be used to correct.

E. The contractor is to be responsible for painting or finishing existing surfaces which are damaged during construction.

F. Color selections are to be submitted for selection / verification during submittal phase of construction.

1.2 RELATED REQUIREMENTS

A. Refer to Division 00 and 01 sections of these specifications.

1.3 SURFACES NOT REQUIRING PAINTING: Unless otherwise specifically scheduled and/or indicated in the documents, the following areas or items will not require painting:

A. Nonferrous and corrosion-resistant ferrous alloys such as copper, bronze, aluminum, chromium plate and stainless steel, except where required for insulation between dissimilar metals and aluminum is in contact with concrete or masonry.

B. Nonmetallic materials such as PVC.

1.4 QUALITY ASSURANCE

A. Painting Subcontractor: To be regularly engaged in the application of paints and coatings and have previous experience on projects similar in scope. Upon request, submit evidence of qualification compliance with references.

1.5 SUBMITTALS

A. Product Data: For each paint system used submit paint or coating manufacturers' technical product data sheets, application instructions and paint colors available. The information is to be submitted on a system-by-system basis.

1.6 ENVIRONMENTAL CONDITIONS

A. Paints and coatings are not to be applied in extreme heat, ambient temperatures below 40 degrees F. or relative humidity in excess of 90 percent, unless otherwise recommended by the paint or coating materials manufacturer, nor in dust, smoke-laden atmosphere or damp weather.

1.7 DELIVERY, STORAGE AND HANDLING

A. Materials are to be delivered to the project site in unopened containers. Paint and coating materials are to be stored in a suitable protected area that is heated or cooled as required to maintain temperatures within the range recommended by the paint or coating manufacturer.

B. Paint and coating material are to be kept sealed when not in use.

C. Take precautionary measures to prevent fire hazards and spontaneous combustion.

1.8 SAFETY

A. Painting is to be performed in accordance with the safety recommendations of the applicable paint or coating materials manufacturer, with the safety recommendations of the National Association of Corrosion Engineers contained in the publication "Manual for Painter Safety" and with applicable federal, state and local agencies having jurisdiction.

1.9 GUARANTEE

A. Contractor is to provide a guarantee against defects in materials and workmanship for a period of two years from the date of Substantial Completion. This guarantee is to include, but not be limited to, blistering, peeling, cracking, sagging, flaking, chalking or alligatoring. Defects occurring during this warranty period are to be repaired at no cost to the Owner.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Products of Sherwin-Williams are approved, substitutions may be considered.

2.2 FILM THICKNESS

A. Coverage is listed as either total minimum dry film thickness in mils (MDFT) or the spreading rate in square feet per gallon (SFPG). Per coat determinations are listed as MDFTPC or SFPGPC. The number of coats is the minimum required irrespective of the coating thickness. Additional coats may be required to obtain the minimum required paint thickness depending on method of application, differences in manufacturers' products and atmospheric conditions. Maximum film build per coat is not to exceed the coating manufacturer's recommendations.

2.3 PAINT AND COATING MATERIALS

A. Accessory Materials: Shellac, turpentine, linseed oil, paint thinners and other materials required to achieve the finishes are to be commercial quality and as recommended by the manufacturer of the applicable paint or coating materials.

B. Drywall: Latex System. Coat 1: B28W02600 – ProMar 200 Zero VOC Interior Latex Primer White. Coat 2: B20W02651 – ProMar 200 Zero VOC Interior Latex Eg-Shel Extra White. Coat 3: B20W02651 – ProMar 200 Zero VOC Interior Latex Eg-Shel Extra White.

C. Drywal at Wet Areas (Restrooms and Custodial Rooms): Water Based Epoxy System, Eg-Shel Finish. Coat1: S-W Multi-Purpose Int/Ext. Latex Primer/Sealer, B51-450 Series. Coat 2: S-W Pro Industrial Water Based Catalyzed Epoxy, Eg-Shel B73-360 Series. Coat 3: S-W Pro Industrial Water Based Catalyzed Epoxy, Eg-Shel B73-360 Series.

D. Hollow Metal Frames: Urethane System. Coat 1: B66W00310 - Pro Industrial Pro-Cryl Universal Primer Off White. Coat 2: B65W00181 Hydrogloss Single Component Waterbased Urethane Extra White. Coat 3: B65W00181 Hydrogloss Single Component Waterbased Urethane Extra White.

E. SGL System – Exposed Structural Steel and Miscellaneous Ferrous Metals: 1st Coat Inhibitive Industrial Primer. 2nd and 3rd Coat Satin Alkyd Enamel.

F. Metal Enclosed Roof Deck, Beams, Purlins, Columns and Framing: Primer: B66W01310 – Pro Industrial Pro Cryl Universal Primer; 2 Coats: B66W01561 – Pro Industrial Multi-Surface Acrylic Eg-Shel.

G. Conduit and Piping exposed to View – Acrylic System. Coat 1: B66W00310 - Pro Industrial Pro-Cryl Universal Acrylic Primer Off White. Coat 2: B66W00661 - Pro Industrial High Performance Acrylic – Eg-Shel Extra White. Coat 3: B66W00661 - Pro Industrial High Performance Acrylic – Eg-Shel Extra White.

H. PVC or Plastic exposed to view - Acrylic System. Coat 1: B51W00620 – PrepRite ProBlock Interior/Exterior Latex Primer/Sealer White. Coat 2: B66W00661 - Pro Industrial High Performance Acrylic - Eg-Shel Extra White. Coat 3: B66W00661 - Pro Industrial High Performance Acrylic – Eg-Shel Extra White.

I. Flooring – Sealed Concrete: Superkote, special clear sealer manufactured by Ben-Chem, Inc. or Supershield or Clearseal manufactured by James Darcey Company, Inc. or Sonclear CS100, Stonkote CE4 or Stonseal SK6 manufactured by Stonhard or approved equal.

J. Wood Doors are specified to be factory finished.

2.4 COLORS

A. Color selections are to be made / verified during construction phase submittals.

B. Where more than one coat of paint or coating material is applied within a given system, color is to be tinted slightly differently, but in the same hue as top coat to provide a visual reference that the required coats have been applied.

PART 3 - EXECUTION

3.1 INSPECTION

A. Verify that surfaces are ready to receive work as instructed by the product manufacturer.

B. Examine surfaces scheduled to be finished prior to commencement of work. Report any condition that may potentially affect proper application.

C. Beginning of paint and coating application means acceptance of surfaces.

3.2 PREPARATION

A. Remove electrical plates, hardware, light fixture trim and fittings prior to preparing surfaces or finishing.

B. Correct minor defects and clean surfaces which affect work.

C. Shellac and seal marks which may bleed through surface finishes.

D. Impervious Surfaces: Remove mildew by scrubbing with solution of tri-sodium phosphate and bleach. Rinse with clean water and allow surface to dry.

E. Galvanized and Other Non-Ferrous Metal Surfaces: Remove surface contamination and oils and wash with solvent.

F. Plaster Surfaces: Fill hairline cracks, small holes and imperfections with patching plaster. Make smooth and flush with adjacent surfaces. Wash and neutralize high alkali surfaces.

G. Uncoated Steel Surfaces: Remove grease, scale, dirt and rust. Where heavy coatings of scale are evident, remove by wire brushing or sandblasting and clean by washing with solvent. Apply a treatment of phosphoric acid solution, ensuring weld joints, bolts and nuts are similarly cleaned.

H. Shop Primed Steel Surfaces: Sand and scrape to remove loose primer and rust. Feather edges to make touch-up patches inconspicuous. Clean surfaces with solvent. Prime bare steel surfaces.

I. Interior Wood Surfaces: Wipe off dust and grit prior to priming. Seal knots, pitch streaks and sappy sections with shellac or other knot sealer. Fill nail holes and cracks after primer dries with wood putty approved by the paint material manufacturer.

3.3 PROTECTION

A. Protect elements surrounding the work from damage or disfiguration. Repair damage to other surfaces caused by work.

B. Furnish drop cloths, shields and protective methods to prevent spray or droppings from disfiguring other surfaces. Remove empty paint containers from site.

3.4 APPLICATION

A. General: Paint and coating manufacturers' instructions for applying each type of paint or coating are to be furnished prior to application. Apply paints and coatings in accordance with the paint manufacturers' recommendations. Sufficient time is to be allowed between coats to assure drying and/or curing of previously applied paint or coatings.

B. Damaged Coatings: Damaged coatings, pinholes or holidays are to have the edges feathered and repaired in accordance with the recommendations of the paint manufacturer.

C. Unsatisfactory Application: If the item has an improper finish color or insufficient film thickness, the surface is to be cleaned and top coated with paint to obtain color and coverage. Specific surface preparation information to be secured from the paint or coating manufacturer. Work is to be free of runs, bridges, shiners, laps or other imperfections.

3.5 CLEANING

A. Cloths and waste that may constitute a fire hazard are to be placed in closed metal containers or destroyed.

B. Upon completion of the work, staging, scaffolding and containers are to be removed from the site. Paint spots, oil or stains upon adjacent surfaces and floors are to be removed and the site left clean.

END OF SECTION

SECTION 10 0000

SPECIALTIES

PART 1 - GENERAL

1.1 WORK INCLUDED: This section covers the Work necessary to furnish and install:

A. Fire extinguishers and mounting brackets.

1.2 RELATED REQUIREMENTS

A. Refer to Division 00 and 01 Sections of these specifications.

1.3 RELATED WORK

A. Section 09 2116 – Gypsum Board Assemblies

1.4 REFERENCES

A. Manufacturer's recommendations, specifications and installation instructions.

B. Florida Fire Prevention Code 8th Edition.

C. Underwriters' Laboratories (UL): "Fire Protection Equipment List".

1.5 SUBMITTALS: Submittals during construction are to be made per Section 01 3300. In addition, the following information is to be provided:

A. Manufacturer's Literature: Catalog data for each item.

B. Shop Drawings: Shop Drawings as required for backing and preparation for built-in items.

1.6 DELIVERY, STORAGE AND HANDLING

A. Deliver, store and handle materials or equipment per manufacturer recommendations.

1.7 WARRANTY

A. Provide a guarantee against defects in materials and workmanship for a period of one year from the date of Substantial Completion. Any defects occurring during this warranty period are to be repaired at no cost to the Owner.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. The use of a manufacturer's name and specification number is for the purpose of establishing the standard of quality and general configuration desired. Products of other manufacturers, meeting the requirements specified, will be considered.

B. Like items of material or equipment specified are to be the end products of one manufacturer in order to achieve standardization for appearance, operation, maintenance, spare parts and manufacturer's service.

2.2 PORTABLE FIRE EXTINGUISHERS

A. Provide and install portable fire extinguishers where indicated on the Life Safety Plan. Fire extinguishers are to be tagged in the month of Substantial Completion.

B. Fire extinguisher units and brackets for extinguishers are to be equal to those as manufactured by J.L. Industries, Potter-Roemer, Inc. or Larsen's Fire Protection and Safety Equipment.

C. Fire Extinguisher are to be 2A-10B:C (5 lbs.) bracket wall mounted.

D. Provide necessary stainless steel screws, bolts and other fasteners of suitable type and size to secure items of fire and safety equipment in position.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install in accordance with manufacturers' instructions. Equipment to be plumb and level.

END OF SECTION

SECTION 10 1400

SIGNAGE

PART 1 - GENERAL

1.1 WORK INCLUDED: This section covers the work necessary to furnish and install:

A. Interior Signage.

1.2 RELATED WORK

A. Section 09 2116 – Gypsum Board Assemblies

1.3 SUBMITTALS: Submittals during construction are to be made in accordance with Section 01 3300. In addition, the following information is to be provided:

A. Shop Drawings, Product Data and Samples: Prior to ordering, submit for review, manufacturers' descriptions, installation data, color charts, applicable shop drawings and other data pertinent to manufacture or fabrication as required for all items.

1.4 DELIVERY, STORAGE AND HANDLING

A. Deliver, store and handle materials or equipment per manufacturer’s recommendations.

B. Deliver and store materials in manufacturers' original, unopened and undamaged containers. Handle materials in such a manner as to prevent damage to products or finishes.

1.5 WARRANTY

A. The contractor is to provide a guarantee of all items installed against defects in materials and workmanship for a period of one year from the date of Substantial Completion. Any defects occurring during this warranty period are to be repaired or replaced at no cost to the Owner.

B. In addition, provide the specific manufacturer's warranty on each item.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. The use of a manufacturer's name and specification number is for the purpose of establishing the standard of quality and general configuration desired. Products of other manufacturers, meeting the requirements of each item specified, will be considered. Basis of Design: Signco, Apopka, FL.

1. Like items of material or equipment specified are to be the end products of one manufacturer in order to achieve standardization for appearance, operation, maintenance, spare parts and manufacturer's service.

2.2 SIGNAGE

A. Sign Type 01 – Room Name and Gender and Accessibility Graphics: .625” high letters and 5” high gender symbol with associated wheelchair accessibility graphic. 125” solid matte acrylic – 9” x 6”. Color to be selected during construction phase submittals. .5” radius corners. Helvetica condensed font. Grade II Braille – ADA compliant. Double foam tape.

B. Sign Type 02 – Exit: 1” high letters. .125” solid matte acrylic – 4” x 6”. Color to be white letters on red field. Square corners. Helvetica condensed font. Grade II Braille – ADA compliant. Double foam tape.

C. Sign Type 03 – Emergency Evacuation with Slot for Insert by Contractor: Back panel .125” solid matte acrylic – 10” x 11”. Color to be black. Front panel .0625” solid matte acrylic. Color clear. Square corners. Double foam tape. Map inserted into slot.

D. Submit shop drawings for review prior to ordering any signs. Colors of signs and lettering to be selected / verified during construction phase submittals.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install signage in accordance with the manufacturers' recommendations and instructions.

B. Install signage level and attach securely to the adjacent materials with suitable fasteners and adhesives. Prevent scratching or damaging adjacent materials during the installation.

END OF SECTION

SECTION 10 2800

TOILET, BATH AND LAUNDRY ACCESSORIES

PART 1 - GENERAL

1.1 WORK INCLUDED: This section covers the work furnished and installed:

A. Toilet accessories as specified and/or as shown on the Drawings. Should there be a conflict between specifications and drawings, provide accessories shown in either, to carry out the intent of the documents at no additional cost to the Owner.

B. Wall blocking for accessories as required.

C. Attachment hardware.

1.2 RELATED REQUIREMENTS

A. Refer to the Division 00 and 01 Sections of these specifications.

1.3 RELATED WORK

A. Section 09 2116 – Gypsum Board Assemblies

1.4 REFERENCES

A. ACCESSIBILITY REQUIREMENTS MANUAL: Latest Edition, promulgated by Dept. of Community Affairs, Florida Board of Building Codes and Standards.

B. Americans with Disabilities Act (A.D.A.) - Specifications for Making Buildings and Facilities Accessible To and Usable by Physically Handicapped People.

C. Florida Building Code 8th Edition (2023).

1.5 SUBMITTALS: Submittals to be made in accordance with Section 01 3300. In addition, the following information to be provided:

A. Product data on accessories describing size, finish, details of function and attachment methods.

B. Submit manufacturer's installation instructions.

1.6 KEYING

A. Supply two keys for each lockable accessory to Owner.

1.7 SEQUENCING AND SCHEDULING

A. Contractor to coordinate with the placement of other items and finish materials.

1.8 DELIVERY, STORAGE AND HANDLING

A. Store and handle materials per manufacturer’s recommendations.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Accessories to be as manufactured (basis of design) by Bobrick Washroom Equipment. Like items of material or equipment to be the end products of one manufacturer in order to achieve standardization for appearance, operation, maintenance, spare parts and manufacturer's service.

2.2 MATERIALS

A. Stainless Steel Sheet: ASTM A167, Type 316.

B. Fasteners, Screws and Bolts: Stainless steel, ASTM A 193, Type 316.

C. Anchors: Plastic anchors not acceptable.

PART 3 - PREPARATION

3.1 EXAMINATION

A. Verify that site conditions are ready to receive work and dimensions are as instructed by the manufacturer.

B. Beginning of installation means acceptance of substrate.

3.2 PREPARATION

A. Deliver inserts and rough-in frames to site at appropriate time for building-in.

B. Provide templates and rough-in measurements to accomplish the installation. Verify location of accessories for installation with the Owner prior to installing and adjust locations as required.

3.3 INSTALLATION

A. Install accessories in accordance with manufacturers' instructions. Install plumb and level, securely and rigidly anchored to blocking or substrate.

3.4 SCHEDULE OF CONTRACTOR FURNISHED AND INSTALLED ITEMS: Provide items listed in each location, coordinate with the drawings.

A. B-5806.99 x 36 Horizontal Grab Bar with Peened Grip – ADA compliant. Locations as indicated on the drawings.

B. B-5806.99 x 42 Horizontal Grab Bar with Peened Grip – ADA compliant. Locations as indicated on the drawings.

C. B-270 Surface-Mounted Sanitary Napkin Disposal. Locations as indicated on the drawings.

D. B-2888 Surface-Mounted Multi Roll Toilet Tissue Dispenser. Locations as indicated on the drawings.

E. B-2111 Surface-Mounted Soap Dispenser. Locations as indicated on the drawings.

F. B-262 Paper Towel Dispenser. Locations as indicated on the Drawings.

G. B-165 Series Mirror, 18” W x 30” H – ADA compliant. Locations as indicated on the drawings.

H. B-239 Shelf and Mop Holder, 34” long, stainless steel shelf, 3 mop holders and four rag holders. Locations as indicated on the drawings.

END OF SECTION

SECTION 12 4920

MANUAL ROLLER SHADES

PART 1 - GENERAL

1.1 SCOPE

A. Furnish and install Manual Roller Shades for windows as noted on the Drawings.

1.2 RELATED REQUIREMENTS

A. Refer to the Division 00 and 01 Sections of these specifications.

1.3 RELATED WORK

A. Section 08 4113 – Aluminum-Framed Entrances and Storefronts

1.4 REFERENCES

A. Flame-resistant materials shall pass or exceed the following tests:
   1. National Fire Protection Association NFPA 701.
   2. Florida Fire Prevention Code and Florida Building Code.

1.5 SUBMITTALS

A. Product Data: Manufacturer's data sheets to be submitted for each product, including: preparation instructions and recommendations, finishes, material descriptions, dimensions of individual components, construction and installation instructions and manufacturers recommendations for maintenance and cleaning.

B. Drawings and Diagrams: Product details, installation details, working and assembly drawings to be supplied as requested.

C. Sample: Responsible contracting officer or agent to supply sample shade of each type for approval. Supplied units to be furnished complete with all required components, mounting and associated hardware, instructions and warranty.

1.6 QUALITY ASSURANCE

A. Supplier: Manufacturer, subsidiary or licensed agent to be approved to supply the products and to honor claims against product presented in accordance with warranty.

B. Installer: Installer or agent to be qualified to install products by prior experience, demonstrated performance and acceptance of requirements of manufacturer, subsidiary or licensed agent. Installer to be responsible for an acceptable installation.

C. Uniformity: Provide Manual Roller Shades of one manufacturer for entire project.

1.7 DELIVERY, STORAGE AND HANDLING

A. Product to be delivered to site in manufacturer's original packaging.

B. Product to be handled and stored to prevent damage to materials, finishes and operating mechanisms.

1.8 JOB CONDITIONS

A. Prior to shade installation, building to be enclosed.

B. Interior temperature to be maintained between 60° F. and 90° F. during and after installation and relative humidity not to exceed 80%. Wet work to be complete and dry.

1.9 WARRANTY

A. Provide a Lifetime Limited Warranty from the date of Substantial Completion. Fabrics warranted for 5 years. Specific product warranties available from manufacturer or its authorized agent.

PART 2 - PRODUCTS

2.1 ACCEPTABLE MANUFACTURER

A. Hunter Douglas Architectural Manual Operated RB 500 Roller Shade or approved equal.

2.2 MANUAL ROLLER SHADES

A. Product: Hunter Douglas Manual RB 500 Roller Shade

B. MATERIALS

1. Fabrics: Inherently anti-static, flame retardant, fade and stain resistant, light filtering, room darkening and blackout fabrics providing 0% to 20% openness, 5 oz/sq.yd. to 20.70 oz/sq.yd. containing fiberglass, PVC, polyester, acrylic, vinyl laminates, cotton and vinyl coatings. Finish selected during construction from manufacturer's available contract colors.
2. Control System: Clutch-Operated. Chain-driven operator capable of lifting up to 20 pounds of weight with a maximum allowable pull force of 10 pounds. Utilization of adjustment-free continuous qualified T304 stainless ball chain with 110 lbs breaking strength for precise control, smooth operation and ensures a uniform look. Components to be maintenance-free from adjustments or lubrication for trouble-free lifetime operation.
3. Roller Tube: Circular-shaped aluminum tube extruded from alloy and temper 6063 T-6. Extruded tube to have a .063" wall thickness. Heavily reinforced with minimum of six internal ribs and flutes providing additional tensile strength and allows for secure placement of clutch and end plug.
4. Spring-Loaded Idle End: Reinforced idler assembly containing spring loaded end plug with positive locking wheel allowing for up to 7/8" adjustment and provides for a secure installation and removal of shade. Locking tube bearing plugs contains minimum six ribs and flutes and inserted a minimum of 2-3/8" into roller tube on heavy duty systems.
5. Bottom Bar: Industry standard sealed hembar with weight sewn into pocket providing for tracking adjustments and uniform look for the hanging fabric panel. RB500 Bottom Bar.
6. Mounting Hardware: Manufacturer's standard or heavy duty bracket constructed of hardened 1/8" thick steel to support full weight of shade with bracket and screw hole covers to provide uniform look. Locking mechanism on bracket adapter provides for a secure installation and removal of the shade.
7. Integrated Leveling Device: Built into the idle-end bracket allowing for the vertical height adjustment of ½" direction up or down and allowing the easy leveling of a fabric panel on its mounting surface.
8. Fascia: L-shaped removable aluminum extrusion valance that attaches to brackets and conceals roller shade. Fascia at the bottom enclosure shall allow a maximum of 1" gap to allow fabric to come through.

2.3 FABRICATION

A. Shade measurements to be accurate to within + 1/8" or as recommended by manufacturer.

2.4 FABRICS

A. Solar Fabric: E Screen 7705 KoolBlack, (5% Openness) with color selected during submittals.

PART 3 - EXECUTION

3.1 INSPECTION

A. Subcontractor to be responsible for inspection on site, approval of mounting surfaces, installation conditions and field measurements.

B. Other interfacing trades to receive drawings of shade systems, dimensions, assembly and installation methods from subcontractor upon request.

3.2 INSTALLATION

A. Installation to comply with manufacturer's specifications, standards and procedures.

B. Adequate clearance to be provided to permit unencumbered operation of shade and hardware.

C. Clean finish installation of dirt and finger marks. Leave work area clean and free of debris.

3.3 DEMONSTRATION

A. Demonstrate operation method and instruct Owner in the proper operation and maintenance of the shades.

END OF SECTION

SECTION 13 3419

METAL BUILDING SYSTEMS

PART 1 - GENERAL

1.1 WORK INCLUDED: This section covers the work to furnish and install the following:

A. Provide all operations, labor, tools, equipment, services and materials necessary to design, furnish, deliver and erect all of the pre-engineered metal building systems, metal roofing, roofing insulation, metal siding, wall insulation, gutters and downspouts, etc. as indicated on the Drawings or required for a complete installation.

B. The materials furnished to also include, but not be limited to, all primary and secondary structural framing, purlins, girts, eave struts, braces, column base plates, accessories and bracing as required.

C. The building manufacturer to interface their work with all other trades.

D. The building manufacturer to be responsible to perform design calculations for all building structural members.

1.2 RELATED REQUIREMENTS

A. Refer to the Division 00 and 01 Sections of these specifications.

1.3 QUALITY ASSURANCE

A. The building is to be the design of a manufacturer regularly engaged in the design and fabrication of prefabricated metal buildings conforming to the Florida Building Code 8th Edition 2023.

B. The general design of the building to be framed with column locations as indicated. The building is to be compatible with the architectural, foundation and structural details shown on the drawings.

C. Cross-bracing may be used in walls and roof planes when fully coordinated with all other building functions and mechanical, fire protection and electrical items installed in the walls and below the roof.

D. Lateral Deflection of Frames in the direction of their span shall be limited to H/180. If additional angle bracing for lateral supports is required, Contractor to increase the gauge of the purlins as required to meet the lateral bracing requirements.

E. All structural steel sections and welded plate members to be designed in accordance with the latest edition of the AISC "Specification for the Design, Fabrication, and Erection of Structural Steel for Buildings." Design members to withstand UL 580 Uplift Class 60.

F. All cold-formed structural members and exterior coverings to be designed in accordance with the latest edition of the AISI, "Specifications for the Design of Cold-Formed Steel Structural Members." Lateral bracing for wind uplift and gravity load condition to be included in the design and clearly detailed. Exterior wall and roof system to withstand imposed loads with maximum allowable deflection of L/360 Live Load and L/180 Total Load.

G. All primary framing members to be shop welded and field bolted assembly.

H. Design primary and secondary members and exterior covering for applicable loads and combination of loads in accordance with MBMA "Recommended Design Practices Manual".

1.4 SUBMITTALS: Submittals during construction to be made in accordance with section 01 3300. In addition, the following specific information to be provided:

A. Calculations: The building manufacturer to perform complete design calculations for all building structural members inclusive of suspended items.

1. The calculations to clearly indicate the design codes used in the design of the pre-engineered building, as well as the applicable dead, live and wind loads, section properties for all structural members utilized and ultimate and allowable material stresses. The calculations to illustrate all controlling loading design cases utilizing free body diagrams showing all applied loads, reactions, moments, shears and any other pertinent data. All calculations to bear the signature and seal of a Professional Structural Engineer registered to practice in the State of Florida.

B. Shop/Erection Drawings: The building manufacturer to furnish an anchor bolt setting plan drawing showing anchor bolt settings for all anchor bolts. The anchor bolt setting plan drawing to clearly indicate the design codes used in the pre-engineered building design and the applicable dead, live and wind load building reactions, including moments, at all anchor bolts.

1. The building manufacturer to furnish complete shop/erection drawings showing base plate details, sidewall, endwall and roof framing inclusive of all necessary bracing, transverse cross sections, covering and flashing details and accessory installation details to clearly indicate the proper assembly and interfacing with other systems of all building parts. All drawings to be of sufficient detail to depict the proper assembly of all furnished building components. All drawings to bear the seal of a Professional Structural Engineer registered to practice in the State of Florida.
2. Location and type of fasteners. Show provisions for thermal movement.
3. Details of structural conditions, joints, supports and related items. Distinguish between factory and field assembly work.
4. All other items pertinent to fabrication and installation of the complete system.

C. Design Calculations: Submit design calculations for wind load requirements, prepared under the direction of and signed, dated and sealed by a Florida Registered Structural Engineer.

D. Calculations showing compliance with negative pressures to be submitted for approval, signed, dated and sealed by a Structural Engineer registered in the State of Florida.

E. Design Loads: Include dead load, roof live load, collateral loads, deflection, wind load and exposure.

F. Manufacturer's Literature: Submit manufacturer's technical literature for each component of the metal wall panel system. Manufacturer's literature to be clearly marked for each proposed item. Include performance data on panels, anchor clips and all fasteners proposed for use.

G. Upon completion and acceptance of the work, submit executed copies of the warranties.

H. Erector's Affidavit: Submit Erector's affidavit of qualification compliance with references.

1.5 REFERENCES

A. MBMA - Metal Building Systems Manual.

B. AISI - Specification for the Design of Cold Formed Steel Structural Members.

C. AWS D1.1 - Standard Welding Code.

D. AISC - Specifications for the Design, Fabrication and Erection of Structural Steel for Buildings.

E. ASTM Standards and Test Procedures.

1.6 GUARANTEE

A. The roof and siding manufacturer to guarantee that for a period of twenty (20) years from the date of the Substantial Completion there will be no perforation or structural failure of the roofing or siding sheets. The panel manufacturer to also guarantee that for a period of 5 years from Substantial Completion the finish color coating:
   1. Will not chalk in excess of ASTM D-659-74 number eight rating. Chalk rating to be determined by the procedure outlined in ASTM D-659-44 specification test.
   2. Will not change color more than five (5) NBS units as determined in accordance with ASTM D-2244-78. When a complaint is received that a change greater than five (5) NBS units has occurred, a technically responsible manufacturer's representative is to inspect the alleged failure, with the original color control and a five (5) NBS color change standard.
      a. After cleaning of the in-place panel according to procedures selected by the manufacturer, these standards to be used to determine the extent of fading by visual means.
   3. Will not crack, check or peel (lost adhesion).

B. The roof and siding manufacturer to further guarantee against:
   1. Galvanized steel substrate cracks.
   2. Inherent structural defects (perforation or structural failure) of roofing sheets.
   3. Corrosion perforation caused by normal atmospheric conditions.

1.7 FIELD MEASUREMENTS

A. The contractor to verify all dimensions, make any field measurements necessary and be fully responsible for accuracy and layout of work. The contractor to review the Drawings and any discrepancies are to be reported for clarification prior to starting fabrication, application or installation.

1.8 DELIVERY, STORAGE AND HANDLING

A. Deliver, store and handle materials or equipment under provisions of Section 01 6000.

B. The contractor to store, handle and protect the building components, both before and during installation, so there will be no damage to any material. Material to be stacked on platforms and covered or stored in any other approved manner which will protect the materials from contact with the soil and exposure to the weather.

C. Surface finishes which are damaged prior to or during erection, or where material and workmanship on any component does not conform, are to be replaced or restored to the original condition at the contractor's expense.

PART 2 - PRODUCTS

2.1 GENERAL

A. The tabulation of items herein is not intended to be all inclusive, and it is the contractor's responsibility to provide all prefabricated metal building components shown on the Drawings, specified, or which can be reasonably inferred as necessary to complete this project.

2.2 MANUFACTURERS

A. All components for the prefabricated metal building, as the Basis of Design, and for the purpose of establishing the standard of quality and general configuration desired, be as manufactured and supplied by Metallic Building Systems or LASTEEL Metal Buildings or approved equal.

B. Products as manufactured or supplied by other prefabricated metal building manufacturers, meeting the requirements specified, will be considered.

C. Like items of material or equipment to be the end products of one manufacturer in order to achieve standardization for appearance, operation, maintenance, spare parts and manufacturer's service.

2.3 FOUNDATION AND FOOTINGS

A. The contractor to coordinate the details of anchorages of the building to its foundations.

B. The prefabricated metal building manufacturer to supply the diameter and locations of the anchor bolts as part of their design. The prefabricated metal building manufacturer to provide their anchor bolt layout and initial diameter (which the design structural engineer will verify in the construction submittal phase) and the baseplate.

C. The prefabricated metal building manufacturer to provide uncoated column anchor bolts for embedment in the foundation.

D. The prefabricated metal building manufacturer to provide anchor bolt setting templates along with directions and drawings indicating template orientation, setting dimensions and acceptable tolerances for use in setting anchor bolts. Templates to be of 3/4-inch plywood or similar material designed to prevent relative movement of anchor bolts during setting and concrete casting.

2.4 STRUCTURAL

A. Hot Rolled Structural Shapes: ASTM C-36 or A-529.

B. Tubing or Pipe: ASTM A-500, Grade B; ASTM A-501; or ASTM A-53.

C. Members Fabricated from Plate or Bar Stock: 42,000 psi minimum yield strength; ASTM A-529, A-570 or A-572.

D. Members Fabricated by Cold Forming: ASTM A-607, Grade 50.

E. Galvanized Steel Sheet: ASTM A-446 with G 90 coating: "Class" to suite building manufacturer's standard.

F. Frames: Hot rolled structural steel. Factory welded and shop painted built-up "I" shape or open rigid frame consisting of tapered or parallel flange beams and non-tapered columns. Furnish complete with attached plates, bearing plates and splice members. Factory drilled for bolted field assembly.

G. Length of span and spacing of frames as indicated.

H. Wind Bracing: Adjustable, threaded steel rods, 1/2" diameter minimum; ASTM A-36 or A-572, Grade D at roof plane only.

I. Secondary Framing: Purlins, eave struts, flange and sag bracing; minimum 16 ga. rolled formed sections, shop painted. Purlins to be connected to the primary framing elements.

J. Purlin Spacers and Bracing: Minimum 14 ga. cold formed steel, galvanized.

K. Bolts: ASTM A-307 or A-325 as necessary for design loads and connection details. Shop painted, except provide zinc or cadmium-plated units when in direct contact with panels.

2.5 ROOFING PANELS

A. Metal roofing panels to be a minimum of 24 gauge steel. The metal roofing panels to be standing seam type with intermediate breaks to avoid oil canning and with seams 1-1/2” or 1-3/4” high and spaced at 16” on center with optional striations included with color as selected during construction phase submittals. Panels to be UL-90 rated and have Florida Building and Miami-Dade Product Approvals.

B. Samples: Color samples of factory finish items, including roof panels, trim and flashings of all types. Provide sample panels 12 inches long by panel width in profile and color selected. Include clips, fasteners, closures and related accessories.

C. Design Calculations: Submit design calculations for wind load requirements prepared under the direction of and signed, dated and sealed by a Florida Registered Structural Engineer. The indiscriminate submittal of general structural calculations that have not been specifically prepared for this project will not be approved.

D. Manufacturer's Literature: Submit manufacturer's technical literature for each component of the metal roofing panel system. Manufacturer's literature to be clearly marked for each proposed item. Indiscriminate submittal of unmarked literature will not be accepted. Include performance data on panels, anchor clips and all fasteners proposed for use.

E. Flashing: All flashings to be the same material, gauge and finish and color as the metal roofing.

F. Metal Finish: All exposed surfaces of panels to be given factory applied oven cured fluorpon coating with a minimum of full strength 70 percent solids content of "Kynar 500" resin over a primer in accordance with the manufacturer's procedures, minimum dry film thickness of 1.0 mils.

G. Gutters and downspouts to be formed of metal specified hereinbefore in accordance with the Drawings and SMACNA standards. Outlet tubes and gutter ends to be furnished and installed as indicated and in accordance with industry standards.

H. Securely anchor gutters with hangers of the same material.

I. At locations where downspouts fit into stormwater piping, extend a minimum of 4" into piping hub and fit into place. Securely anchor downspouts with straps of same material. Furnish all accessories as required, including fasteners.

2.6 ROOFING INSULATION

A. Roofing insulation to be banded liner system with an R-value of R-30 minimum, installed between the roof girts.

B. Insulation to have a polyethylene vapor retarder liner fabric in white or black with galvanized metal support straps (bands).

C. The assembly of insulation to comply with Surface Burning Characteristics by Test Method ASTME84, Flame Spread Index of 25 or less and a Smoke Developed Index of 50 or less.

D. The assembly of insulation to comply with ASTM E136 for Combustion Characteristics – Noncombustible, ASTM C1104 for Water Vapor Sorption, ASTM C1304 for Odor Emission, ASTM C665 for Corrosiveness, ASTM C1338 for Fungi Resistance and ASTM E96 for Water Vapor Permeance.

2.7 WALL PANELS

A. Preformed metal siding panels to be of seam type at 18” on center with intermediate breaks to avoid oil canning, formed of a minimum of 24 gauge steel. Panels to be designed for wind loads per the structural drawings. Panels shall be UL-90 rated and have Florida Building and Miami-Dade Product Approvals.

B. Siding coating/finish to consist of one mil Kynar based coating applied to the exterior surface and an off-white 0.5 mil wash coat on the interior surface. Finish to have a 20 year warranty. Color(s) to be selected during construction phase submittals.

C. Samples: Color samples of factory finish items and flashings. Provide sample panels in profile and color selected. Include clips, fasteners, closures and related accessories.

2.8 FACTORY TESTS

A. The preformed metal manufacturer to have conducted tests on previously manufactured sheets of the same type and finish as proposed for this project to assure conformance and to further certify that the coating has been applied in accordance with the paint manufacturer's recommendation to obtain the thickness specified.

2.9 PREFORMED METAL ANCHORAGE SYSTEM

A. The anchorage system for securing roof and siding to be designed so that panels are free to move for thermal expansion and contraction. Anchorage clips or hold-down brackets to be designed and spaced for wind loading requirements.

B. Fasteners for securing anchorage clips to roof purlins or siding to substructure to be of type to prevent rusting.

C. Accessories: Provide components required for complete roofing and siding system, including trim, copings, fascias, sills, corner units, clips, covers, battens, flashings, gutters, downspouts, sealants, gaskets, fillers, closure strips and similar items. Match materials/finishes of preformed panels.
   1. Apply heavy brush coat of approved primer followed by two coats of accepted galvanized metal paint.
   2. Apply a heavy coat of approved bituminous paint.
   3. Separate contact surfaces with approved non-absorptive gasket tape.

2.10 STORAGE OF MATERIALS

A. Do not allow copper or other metals not compatible with galvanized steel to contact or provide drainage to galvanized steel. Do not store metal sheets in a “nested” fashion. Store metal roofing and siding up off grade on wood blocking and stack separated by visqueen or other approved separation sheets under cover to prevent rust.

B. Do not use copper or lead-base primers, paints or other preparations in contact with or providing drainage to galvanized products.

PART 3 - EXECUTION

3.1 INSPECTION

A. Prior to performing any work, verify that all work of other trades, as applicable, is complete to the point where the installation may properly commence.

3.2 STRUCTURAL

A. Fabrication: Shop fabricate to the indicated size and section, complete with base plates, bearing plates and other plates as required for erection, welded in place and with all required holes for anchoring or connections shop drilled or punched to template dimensions.
   1. Shop connections power riveted, bolted or welded.
   2. Field connections bolted.

B. Shop Painting: Clean surfaces to be primed of loose mill scale, rust, dirt, oil, grease and other matter precluding paint bond.
   1. Prime structural steel primary and secondary framing members with manufacturer's standard rust-inhibitive primer.
   2. Prime galvanized members, after phosphoric acid pretreatment, with zinc-dust zinc-oxide primer; anchor bolts need not be painted.

C. Erection: Erect metal building complete in accordance with manufacturer's installation instructions and final approved shop drawings.

D. Field Modifications: Adjustments and modifications required during construction to be detailed and submitted for review. Install downspouts plumb in the vertical plane. No field cutting or enlarging holes with a torch will be permitted. No modifications to be made until approval is received from the building manufacturer.

E. Field Painting: Apply finish coating to factory-primed items in colors as selected from manufacturer's standard.
   1. Apply painting and finishing materials in accordance with manufacturer's directions. Use applicators and techniques best suited for materials and surfaces to which applied.
   2. For shop-primed metal surfaces apply the following:
      a. Exterior: Two coats semi-gloss alkyd enamel (FS TT-E-529).
      b. Interior: Two coats lusterless alkyd enamel (FS TT-E-527).

3.3 INSULATION INSTALLATION

A. Thermal insulation to be installed in accordance with the building manufacturer's instructions and details.

B. Insulation supports under roof to span from purlin to purlin and be installed in accordance with the manufacturer's recommendations. The completed installation to be neat in appearance without sags and buckles. Tears in vinyl facing to be repaired with patches of the same vinyl applied with adhesive.

3.4 METAL ROOFING AND SIDING INSTALLATION

A. Anchor panels and other components of the work securely in place, with provisions for thermal/structural movement. Install panels with continuous lengths from rigid frame to eave and girt to girt.

B. Installation Tolerances: Shim and align panel units within installed tolerance of 1/4" in 20'-0" on level/plumb/slope and location/line and within 1/8" offset of adjoining faces and of alignment of matching profiles.

C. Seaming: Complete seaming of panel joints by operation of portable power-driven equipment or method recommended by preformed metal panel manufacturer.

D. Joint Sealer: Install gaskets, joint fillers and sealants where required for weatherproof performance of panel system.
   1. Provide types of gaskets and sealants/fillers types recommended by manufacturer.

3.5 FLASHING

A. All flashing and related closures and accessories in connection with the preformed metal panels to be provided as required and as necessary to provide a watertight installation. Details of installation which are not indicated to be in accordance with the panel manufacturer's shop drawings, instructions and details. Installation to allow for expansion and contraction of flashing.

3.6 CLEANING AND PROTECTION

A. Damaged Units: Replace panels, insulation and other components of the work which have been damaged or have deteriorated beyond successful repair by means of finish touch-up or similar minor repair procedures.

B. Cleaning: Remove protective covering and strippable films (if any) at the time in project construction sequence which will afford the greatest protection of work. Clean finished surfaces as recommended by panel manufacturer and maintain in a clean condition during construction.

C. Protection: Installer to advise the contractor of protection and surveillance procedures as required so that work will be without damage or deterioration at time of Substantial Completion.

END OF SECTION

SECTION 31 1000

GEOTECHNICAL REPORT

PART 1 - GENERAL

1.1 GEOTECHNICAL DATA

A. This document provides Owner's information for bidders' convenience and is not meant to supplement the bidders' own investigations. The Geotechnical Report listed below is made available for bidders' information only.

B. Geotechnical Engineering Exploration Report provided by Cal-Tech Testing, Inc.

C. The subsurface soil investigation is to determine the nature of the soil below the natural grade has been made at various locations on the site. Test borings indicate only the soil conditions at the points where samples were taken and are not intended to indicate the soil conditions for the entire site.

D. Data on indicated subsurface conditions is not intended as representations or warranties of accuracy or continuity of such soil conditions between soil borings. It is expressly understood that the Owner, architect or engineers will not be responsible for interpretations or conclusions drawn there from by bidders.

E. Test boring and exploratory operations may be made by the contractor at no additional cost to the Owner.

1.2 RELATED REQUIREMENTS

A. Refer to the Division 00 and 01 Sections of these specifications.

END OF SECTION

Cal -Tech Testing, Inc.

- Engineering
- Geotechnical
- Environmental

LABORATORIES

P.O. Box 1625 • Lake City, FL 32056
Tel. (386) 755-3633 • Fax (386) 752-5456

7540 103rd Street, Suite 215, Jacksonville, FL 32210
Tel. (904) 381-8901 • Fax (904) 381-8902

June 12, 2024

Mr. Chad Williams, P.E.
Columbia County Board of County Commissioners
P.O Box 1529
Lake City, Florida 32056-1529

RE: Geotechnical Engineering Exploration Report
Lake Jeffery Road Fire Department Administration Building-Structure
Lake City, Florida
Cal-Tech Testing Inc. Project No. 24-00254-01

Dear Mr. Chad Williams, P.E.:

This report presents the results of our geotechnical engineering exploration for the Lake Jeffery Road Fire Department Administration Building Structure in Lake City, Florida.

PROJECT INFORMATION

Based on information in the Floor Plan (dated April 1, 2024) and Site Plan (no date) provided to us, the referenced building consists of a 1-story, approx. 3,600 ft^2, steel structure (Finished Floor elevation el +181.5 ft.) scheduled for construction next to the existing building. Estimated maximum dead and live column and wall loads of 18 kips and 0.5 kips, respectively, were provided by Miller Engineering, LLC. (the structural engineer).

SUBSURFACE SOIL EXPLORATION

Per your authorization, the subsurface soil exploration was performed on June 12, 2024, and consisted of drilling two (2) Standard Penetration Test (SPT) borings (B1 and B2) to a depth of 15 ft. at locations laid out by our field crew within the proposed structure extension footprint. The Global Positioning System (GPS) coordinates of the boring locations were recorded using a hand-held device. Refer to the enclosed Boring Location Plan.

We contacted Sunshine State One Call of Florida to mark out existing, known underground utilities prior to the beginning of our field exploration.

The SPT borings were advanced using continuous-flight auger and automatic hammer. The split-spoon sampling was performed continuously in the upper 10 ft. and at 5 ft. intervals thereafter to the termination depth of the borings at 15 ft. The penetration tests were performed by driving a 2-inch O.D. split spoon sampler with an automatic hammer falling 30 inches. The number of hammer blows required to drive the sampler a total of 24 inches

(upper 10 ft.) and 18 inches in 6-inch increments were recorded in boring logs. The penetration resistance, N-value, is the summation of the second and third 6-inch increments and is used to derive soil engineering parameter indexes from empirical correlations. The boreholes were backfilled with soil cuttings at completion.

SUBSURFACE SOIL CONDITIONS

SUBSURFACE SOIL PROFILE

Inferred from the results of the field exploration, the subsurface soil profile consists of a SAND stratum to explored depth of 15 ft.

The SPT N-values increased 28% to account for the automatic hammer higher efficiency) indicate a predominate Very Loose (i.e. N<4) to Loose (i.e. 5<N<10) relative density of the strata to the explored depth.

Details of the subsurface soil strata classification and recorded SPT blows/foot (N-value) are presented in the log of borings enclosed to this report.

Groundwater

Groundwater was encountered at a depth of 4.5 ft. at completion of the borings. The US Department of Agriculture (USDA) – Natural Resources Conservation Service (NRCS) indicates groundwater at 24 inches to 36 inches from natural levels. The Seasonal High Groundwater Table (SHGWT) depth at 2.0 ft. was estimated as part of a separate report for the project's associated stormwater retention pond.

EVALUATION & RECOMMENDATIONS

Building Structure

The geotechnical engineering consideration for supporting the proposed building structure on shallow foundations is the predominate Very Loose to Loose relative density of the strata; however, footings and on-grade slab could be used after the satisfactory performance of a site preparation work in accordance with the following recommendations.

The site preparation work should consist of the removal of vegetation and Topsoil followed by densification by proofrolling the resulting grades to 5 ft. beyond the structure footprint with a large vibratory roller (i.e. Ingersoll Rand D-100, or equivalent) till minimal indentation is left by the roller drum on the surface. A satisfactory densification procedure is expected to improve the strata relative density to at least 6 ft. depth. Light vibration of the roller should be used within 10 ft. of the adjacent building or walk-behind plate compactors otherwise.

Subsequently, grades should be raised to establish the Finished Floor Elevation by placement of 12-in-thick lifts of approved fill compacted to at least 95% of the material's Maximum Dry Density (ASTM D1557).

After satisfactory performance of the recommended site preparation work, the proposed building structure should be supported on footings bearing on the exiting or approved fill soils at a minimum depth of 12 inches and designed for an allowable soil bearing capacity of 1,200 lb/ft^2, allowable sliding resistance of 0.30 and settlements within 1 inch.

After excavation of the footings, the subgrade upper 12 inches should be compacted to at least 95% of the material's Maximum Dry Density (ASTM D1557).

The ground floors could be designed on grade after compaction of the subgrade upper 12-inches to at least 95% of the material's Maximum Dry Density (ASTM D 1557).

Approved fill should consist of granular soils with 3-in maximum size particles, no more than 12% of fines and no organic matter.

A minimum of five (5) in-place soil compaction tests should be performed at every lift of raised grades. Similarly, two (2) in-place soil compaction tests should be performed at every 30 ft. of continuous footing subgrade and one (1) at every spread footing subgrade.

LIMITATIONS

Information on subsurface strata and groundwater levels shown on the logs represent conditions encountered only at the locations indicated and at the time of the exploration.

CLOSURE

It has been a pleasure working with you and we look forward to continuing providing our geotechnical engineering and construction materials testing expertise on this and future projects.

Sincerely,

Cal-Tech Testing, Inc.

IVAN E. MARCANO LICENSE No. 65550 STATE OF FLORIDA PROFESSIONAL ENGINEER 6/12/24

Ivan E. Marcano, P.E.
Sr. Geotechnical Engineer

Mike Stalvey, Jr.
Vice-President

Enclosures:
Boring Location Plan (1 sheet)
Boring Log (2 sheets)

CAL-TECH TESTING, INC.
P.O. BOX 1625

Lake City, Florida 32056-1625
Phone: (386) 755-3633
Fax: (386) 752-5456

BORING LOCATION PLAN

Lake Jeffery Road Fire Department Administration Building

Lake City, Florida

Project: Lake Jeffery Road Fire Dept. Administration Building-Structure Project Location: Lake City, Florida Project Number: 24-00254-01	**Cal-Tech Testing, Inc.** 3309 SR 247 Lake City, Florida 32024	Log of Boring B1 Page 1 of 1

Date(s) Drilled **06/12/24**	Logged By **KS**	Checked By **IM**
Drilling Method **Continuous Flight Auger**	Drill Bit Size/Type **3-in dia. CFA**	Total Depth of Borehole **15 feet bgs**
Drill Rig Type **BK 51HD**	Drilling Contractor **Cal-Tech Testing, Inc.**	Approximate Surface Elevation **Referred to ground surface**
Groundwater Level and Date Measured **4.5 ft.**	Sampling Method(s) **Split Spoon**	Hammer Data **Automatic Hammer**
Borehole Backfill **Soil cuttings**	Location **N30°12'07.74" W82°39'41.09"**	

MATERIAL DESCRIPTION	Depth (ft)	Sample No.	Blow Counts/0.5 ft	N Value (blows/ft)	REMARKS (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, Etc.)
Gray **SAND (SP)**	0	1	2-2-2-3	4	Sample Type: 2-in Split Spoon
		2	2-2-2-2	4	
Reddish gray **SAND (SP)**	5	3	1-1-0-1	1	Zero (0) blow counts=Weight of Hammer
Dark reddish brown **SAND (SP)**		4	1-1-1-2	2	
		5	3-3-4-6	7	
	10				
		6	4-5-7	12	
Bottom of Boring at 15 ft.	15				
	20				
	25				
	30				

G:\PROJECTS\2024\24-00175-01\Boring Logs\Boring Logs.bg4|Lates Boring Log.tpl

Project: Lake Jeffery Road Fire Dept. Administration Building-Structure Project Location: Lake City, Florida Project Number: 24-00254-01	**Cal-Tech Testing, Inc.** 3309 SR 247 Lake City, Florida 32024	Log of Boring B2 Page 1 of 1

Date(s) Drilled **06/12/24**	Logged By **KS**	Checked By **IM**
Drilling Method **Continuous Flight Auger**	Drill Bit Size/Type **3-in dia. CFA**	Total Depth of Borehole **15 feet bgs**
Drill Rig Type **BK 51HD**	Drilling Contractor **Cal-Tech Testing, Inc.**	Approximate Surface Elevation **Referred to ground surface**
Groundwater Level and Date Measured **4.5 ft.**	Sampling Method(s) **Split Spoon**	Hammer Data **Automatic Hammer**
Borehole Backfill **Soil cuttings**	Location **N30°12'07.33" W82°39'41.27"**	

MATERIAL DESCRIPTION	Depth (ft)	Sample No.	Blow Counts/0.5 ft	N Value (blows/ft)	REMARKS (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, Etc.)
Gray **SAND (SP)**	0	1	1-2-3-2	5	Sample Type: 2-in Split Spoon
		2	2-1-3-1	4	
Reddish gray **SAND (SP)**	5	3	1-1-1-1	2	
Dark reddish brown **SAND (SP)**		4	1-1-1-1	2	
		5	1-2-1-2	3	
	10				
		6	3-4-5	9	
Bottom of Boring at 15 ft.	15				
	20				
	25				
	30				

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SECTION 31 2000

EARTHWORK

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. The general provisions of the Contract, including General Conditions, Supplementary Conditions, and Special Conditions (if any) along with the General Requirements, apply to the work specified in this section.

B. Examine all Drawings and all other Sections of the Specifications for requirements therein affecting the work of this trade.

1.2 DESCRIPTION OF WORK

A. Provide earthwork, including clearing and grubbing, excavation, fill, backfill, ground water control and compaction for building areas and slabs, shown on the drawings and specified as required to complete the work.

B. Provide soil exploration as required to delineate the limits of very loose soils encountered, and limits of undercutting and backfilling.

1.3 DEFINITIONS

A. SER: Structural Engineer of Record for the Project.

B. Contractor: General Contractor. Also refers to Construction Manager when this form of construction is utilized on the project.

C. Sub-contractor: Provides materials or services for the project through the Contractor.

D. Excavation: Consists of the removal of material encountered to subgrade elevations and the reuse or disposal of material removed.

E. Subgrade: The uppermost surface of an excavation or the top surface of a fill or backfill immediately below subbase, drainage fill, or topsoil materials.

F. Borrow: Soil material obtained off-site when sufficient approved soil material is not available from excavations.

G. Unauthorized Excavation: Consists of removing materials beyond indicated subgrade elevations or dimensions without direction by the Architect. Unauthorized excavation, as well as remedial work directed by the Architect, shall be at the Contractor's expense.

H. Structures: Buildings, footings, retaining walls, slabs, tanks, curbs, mechanical and electrical appurtenances, or other man-made stationary features constructed above or below ground surface within an area bounded by building lines 5 foot beyond foundation and building plan.

1.4 QUALITY ASSURANCE

A. Codes and Standards:

1. Perform earthwork in compliance with applicable requirements of governing authorities having jurisdiction.

B. Testing and Inspection Service:

1. The Contractor shall employ and pay Cal-Tech Testing, Inc. as the independent testing laboratory to perform a soil survey for satisfactory soil materials, sampling and testing soil materials proposed for use in the work, and field testing for quality control during earthwork operations including deep cement grout injection.

C. Test for Proposed Soil Materials:

1. Test soil materials proposed for use in the work and promptly submit test result reports.
2. Provide one optimum moisture-maximum density curve for each type of soil encountered in subgrade and fills under building foundations and slab areas. Determine maximum densities in accordance with ASTM D-1557 and ASTM D-4253, as applicable.

1.5 SUBMITTALS

A. Test Reports: Submit two copies of the following reports to the Architect and one copy to the Engineer:

1. Field density test reports.
2. Optimum moisture-maximum density curve for each type of soil encountered.

B. Submit Manufacturer's Literature for vibratory compaction equipment.

1.6 JOB CONDITIONS

A. Protection:

1. Protect existing structures, utilities, sidewalks, pavements and other facilities from damages caused by settlement, lateral movement, undermining, washout, vibration and other hazards created by excavation and compaction operations.

PART 2 - PRODUCTS

2.1 SOIL MATERIALS

A. Fill and Backfill Materials:

1. Clean, free-draining sand (max. 10% passing the 200 mesh sieve) free from organic material or rubble.
2. Excavated material conforming to requirements for fill and backfill material may be used for fill and backfill.
3. Provide additional fill material from off-site when required to complete the work.
4. Unsatisfactory Soil Materials: ASTM D 2487 soil classification groups GC, SC, ML, MH, CL, CH, OL, OH, and PT.

2.2 COMPACTION EQUIPMENT

A. Compaction Equipment:

1. Site Compactor: Vibratory drum roller with a static at-drum weight acceptable to the Geotechnical Engineer and as required in order to provide the soil compaction specified. Do not use in vibratory mode within 30 feet of existing buildings.
2. Lightweight vibratory roller with a maximum total weight of 1,500 pounds and/or slow-moving lightweight dozer equipment.
3. Mechanical Hand Tampers: Hand tampers or vibratory sled compactors shall be capable of meeting the compaction requirements specified herein. Use for limited space areas only.

PART 3 - EXECUTION

3.1 CLEARING AND GRUBBING BUILDING AREAS

A. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earthwork operations.

B. Clear and grub the entire building area to at least 5 feet beyond perimeter of the foundation to remove stumps, roots, trees, vegetation, organic material, pavement, limerock base, rubble and other obstructions to the work. Grub out all roots larger than 1/4 inch diameter, matted roots and other organic material to at least 24 inches below the bottom elevation of the slab.

C. Undercut the equivalent to the projection of a 45 degree angle line drawn down from the footing bottom edge and to a depth of 72 inches below the existing ground surface (44” below bottom of footing). Existing soils are ‘loose’ and over excavation and sub-sequent re-compaction is required. See Section 3.3 for fill requirements. Bring up over-excavation in maximum 12” lifts.

D. Native fill materials having less than 15 percent soil fines passing the No. 200 sieve should be compacted to a minimum of 95 percent of the Modified Proctor maximum dry density (ASTM D1557).

E. Native fill material having more than 15 percent of soil fines passing the No. 200 sieve should be compacted to a minimum of 98 percent of the Standard Proctor maximum dry density (ASTM D698) at or near optimum moisture content.

3.2 EXCAVATION

A. Excavate to depths and dimensions required for footings, slabs and structures. Remove and dispose of all obstructions to the work that are encountered above and below the grade during excavation operations. Removal and disposal includes the following:

1. Stumps, roots, trees and other organic materials.
2. Pavement, foundations, concrete and other inorganic materials (rubble).
3. Abandoned utilities and utilities indicated to be removed.
4. Loose and other unsuitable soil materials. See paragraph 3.1.

B. Stability of Excavations:

1. Slope the sides of excavations to comply with local codes and ordinances having jurisdiction. Shore and brace where sloping is not possible either because of space

restrictions or stability of material excavated. Maintain sides and slopes of excavations in a safe condition until completion of backfilling.

2. Shoring and Bracing: Provide shoring and bracing to comply with local codes and authorities having jurisdiction including State of Florida and OSHA.

C. Dewatering

1. Prevent surface water and subsurface or ground water from flowing into excavations and flooding the project site and surrounding area. During compaction operations, ground water table shall be maintained at least 2'-0" below the compacted surface.
2. Subsurface water control may be required. Monitor adjacent soil supported structures during period when water table is lowered.
3. Do not allow water to accumulate in excavations. Provide dewatering system components necessary to convey the water away from excavations and maintain ground water at levels specified.

D. Excavation for Structures:

1. Conform to the elevations and dimensions shown on the drawings, with a tolerance of plus or minus 0.10 ft., and extending a sufficient distance from footings and foundations to permit placing and removal of concrete formwork, installation of services, other construction, and for inspection.
2. In excavating for footings and foundations, take care not to disturb bottom of the excavation. Excavate by hand to final grade just before concrete reinforcement is placed. Trim bottoms to the required lines and grades to leave a solid base to receive concrete.
3. Where bottom of footing occurs in fill material, the fill and compaction operations shall continue until minimum grade of 12" above bottom of footing is obtained. Footings may then be placed by excavating in accordance with methods herein specified.

3.3 COMPACTION REQUIREMENTS

A. General:

1. Compact all fill and backfill to the same density as adjacent in-place material but no less than 95% of the Modified Proctor maximum dry density (ASTM D1557).

B. Compaction Under Slabs and Structures:

1. All building areas shall be compacted and densified using required equipment. Compaction shall extend at least 5 feet beyond perimeter of building foundations. A minimum of sixteen complete coverages, eight in each direction, shall be made with the compactor. Fill shall be placed in lifts not exceeding 12 inches to loose thickness for site compactor and 4 inches in loose thickness for lightweight compactors (1500 pounds max.). Continue compaction until requirements specified herein are obtained.

C. Percentage of Maximum Density Requirements: Compact soils to not less than the following percentages of the Modified Proctor maximum dry density, ASTM 1557:

1. Refer to section 3.1 for additional specific information.
2. Existing Subgrades Under Structures: Unless noted otherwise, compact subgrade 12 inches below existing grade or foundation bearing elevation to at least 95 percent of modified Proctor maximum dry density.
3. Fill and Backfill under Footings and Foundations: Unless noted otherwise, compact each 12 inch (max.) lift of fill and backfill to at least 95 percent of modified Proctor maximum dry density.

4. Slabs and Attached Walks: Unless noted otherwise, compact top 12 inches of subgrade and each layer of fill or backfill to at least 95 percent of modified Proctor maximum dry density.
5. Unpaved Areas: Compact top 6 inches of subgrade and each layer of fill or backfill to at least 90 percent of modified Proctor maximum dry density.

D. Moisture Control:

1. Where the subgrade or layer of soil material must be moisture conditioned before compaction, uniformly apply water to the surface or subgrade, or layer of soil material, to prevent free water appearing on the surface during and subsequent to compaction operations.
2. Remove and replace, dewater or scarify and air-dry soil material that is too wet to permit compaction to specified density.

E. Backfilling Under Slabs and Structures:

1. Continue backfilling and compaction over entire building area to final elevation. Backfilling shall be in equal layers compatible with equipment used.

3.4 FIELD TESTING

A. Number of Tests: Make one optimum moisture-maximum density curve test in accordance with ASTM D-1557 for each class of material. Make in-place density tests (ASTM 1557) in the existing subgrade and each lift (thickness varies) of fill as follows:

1. Every 100 feet in continuous wall footings (one per wall, min.).
2. One test per 2,500 square feet of slab area for each lift of fill.

B. Work on Tested Areas:

1. Placing permanent construction over fill that has not been tested and approved will require the Contractor to remove permanent work, recompact the fill and replace the work at the Contractor's expense.

C. Test Reports:

1. Two copies of test reports shall be transmitted directly from the laboratory to the Architect and one to the Civil Engineer and one to the SER, as directed.
2. Test reports shall be identified by the project title, file number, project location, and location and depth of each on-site test submitted.

END OF SECTION

SECTION 31 3116

TERMITE CONTROL

PART 1 - GENERAL

1.1 WORK INCLUDED: This section covers the work necessary to furnish and install:

A. The soil treatment for subterranean termite control.

1.2 RELATED REQUIREMENTS

A. Refer to Division 00 and 01 Sections of these specifications.

1.3 RELATED WORK

A. Section 07 2600 – Vapor Retarders

1.4 QUALITY ASSURANCE

A. Termite control is to comply with the requirements set forth in the Florida Building Code, Termite Protection Standards.

B. Soil treatment is to be performed by a pest control firm licensed and/or otherwise approved by the appropriate Federal, State or local health agency.

1.5 SUBMITTALS: Submittals during construction are to be made in accordance with Section 01 3300. In addition, the following information is to be provided:

A. Applicator's compliance affidavit.

B. Applicator's guarantee.

C. Manufacturer's literature of chemicals proposed for use, indicating composition by percentage, dilution schedule and intended applicable rate.

1.6 WARRANTY

A. Provide warranty for material and application for one year from date of Substantial Completion.

B. Cover against invasion or propagation of subterranean termites, damage to buildings or contents of buildings caused by terminates. Provide repairs to building or contents of building if caused at no additional cost to Owner.

C. Inspect work annually and report to Owner. Owner reserves right to renew warranty on an annual basis for an additional five years.

PART 2 - PRODUCTS

2.1 CHEMICALS

A. Use working solutions containing any one of the following chemicals at the listed minimum concentrations:

1. TERMIDOR 80 WG as manufactured and/or supplied by the BASF Chemical Company. Active ingredients:
   a. Fipronil: 5-amino-1-(2, 6-dichloro-4-(trifluoromethyl)
   b. Phenyl-4-(1, R, S) – (trifluoromethyl) sulfiny-1-H-pyrazole-3-carbonitrile.

B. Other Chemicals may be used provided:
   1. They have legal approval by the appropriate Federal, State or local health agency.
   2. That no toxic effects to humans, beneficial plant or animal life will result from the chemical used.

PART 3 - EXECUTION

3.1 GENERAL

A. Duplicate treatment certificates are to be provided, one posted at site, one submitted with permit application.

B. Do not begin soil treatment work until all preparations for slab placement have been completed. Soil poisoning is to be completed prior to placement of underslab vapor barrier.

C. Do not apply soil treatment when surface water is present.

D. Unless the treated areas are to be immediately covered, precautions are to be taken to prevent disturbance of the treatment by human or animal contact with the treated soil.

3.2 LOCATION

A. Apply soil treatment to all areas beneath concrete floor slabs and along the interior sides of all foundation walls.

3.3 RATE OF APPLICATION

A. Building Areas: Apply soil poison at the minimum rate of one gallon of working solution per 10 square feet of area under new floor slabs.

B. Miscellaneous: Apply soil treatment at the rate of gallons of working solution per lineal feet as recommended by the manufacturer immediately below expansion and control joints and all areas where floor slabs will be penetrated by construction features, such as plumbing pipes, electrical conduit, etc.

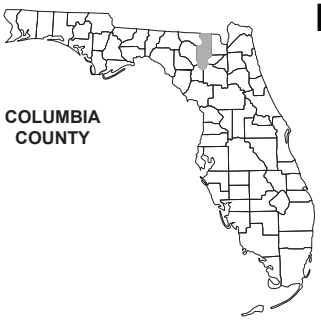
3.4 RETREATMENT

A. If inspection identifies the presence of termites, retreat soil and retest.

B. Use same chemicals as for original treatment.

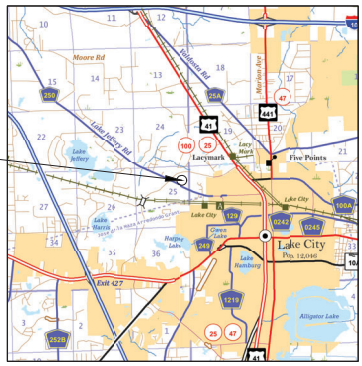
END OF SECTION

LAKE JEFFERY ROAD FIRE STATION EXPANSION
COLUMBIA COUNTY, FLORIDA



COLUMBIA COUNTY

PROJECT LOCATION



SHEET INDEX

ATTACHEMENTS

NOTE: FOR INFORMATION PURPOSES ONLY

GOVERNING CRITERIA:
Florida Department of Transportation; Manual of Uniform Minimum Standards for Design, Construction and Maintenance for Streets and Highways (2018 Edition)

GOVERNING STANDARD PLANS:
Florida Department of Transportation, FY 2024-25 Standard Plans for Road and Bridge Construction and applicable Interim Revisions (Irs).

Standard Plans for Road Construction and associated Irs are availalbe at the following website:

http://www.fdot.gov/design/Standardplans.shtm

APPLICABLE IRs:

Standard Plans for Bridge Construction are included in the Structures Plans Component.

GOVERNING STANDARD SPECIFICATIONS:
Florida Department of Transportation, July, 2020 Standard Specifications for Road and Bridge Construction are available at the following website:
http://www.fdot.gov/programmanagement/Implemented/SpecBooks

PLANS PREPARED FOR:

COLUMBIA COUNTY BOCC
135 NE HERNANDO AVENUE, SUITE 203
LAKE CITY, FL 32055
386-758-1005

REVISIONS	
DATE	DESCRIPTION

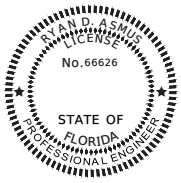
NORTH FLORIDA PROFESSIONAL SERVICES, INC.
P.O. BOX 3823 LAKE CITY, FL 32056 PH. 386-752-4675 LIC NO. LB8356
2551 BLAIRSTONE PINES DR. TALLAHASSEE, FL 32301 WWW.NFPS.NET CA# 29011

JOB NUMBER: L150209CCB
EOR: RYAN D. ASMUS
P.E. NO.: 66626

COVER SHEET

SHEET NO. C-1

Keegan Ronick 9/11/2024 10:48:23 AM X:\2015\L150209CCB\H.CADD\FSS1\Roadway\KEYSRD_FSS1_01.dwg



THIS ITEM HAS BEEN DIGITALLY SIGNED AND SEALED BY RYAN D. ASMUS ON THE DATE ADJACENT TO THE SEAL.

PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED AND THE SIGNATURE MUST BE VERIFIED ON ANY ELECTRONIC COPIES.

NORTH FLORIDA PROFESSIONAL SERVICES INC.
P.O. BOX 3823
LAKE CITY, FL 32056
CERTIFICATE OF AUTHORIZATION: 29011
RYAN D. ASMUS, P.E. NO. 66626

THE ABOVE NAMED PROFESSIONAL ENGINEER SHALL BE RESPONSIBLE FOR THE FOLLOWING SHEETS IN ACCORDANCE WITH RULE 61G15-23.004, F.A.C.

SHEET INDEX

REVISIONS					
DATE	DESCRIPTION	NORTH FLORIDA PROFESSIONAL SERVICES, INC.	JOB NUMBER: L150209CCB EOR: RYAN D. ASMUS P.E. NO.: 66626	**SIGNATURE SHEET** LAKE JEFFERY ROAD FIRE STATION EXPANSION COLUMBIA COUNTY, FLORIDA	SHEET NO. C-2

P.O. BOX 3823 LAKE CITY, FL 32056 PH. 386-752-4675 LIC NO. LB8356
2551 BLAIRSTONE PINES DR. TALLAHASSEE, FL 32301 WWW.NFPS.NET CA# 29011

GENERAL NOTES

1. THE CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS AND DIMENSIONS AT THE JOB SITE TO ENSURE THAT ALL NEW WORK WILL FIT IN THE MANNER INTENDED ON THE PLANS. SHOULD ANY CONDITIONS EXIST THAT ARE CONTRARY TO THOSE SHOWN ON THE PLANS, THE CONTRACTOR SHALL NOTIFY THE ENGINEER AND THE COLUMBIA COUNTY, FLORIDA (BUILDING DEPARTMENT) OF SUCH DIFFERENCES IMMEDIATELY AND PRIOR TO PROCEEDING WITH THE WORK.

2. THE CONTRACTOR SHALL COMPLY WITH ALL CONDITIONS AS SET FORTH BY THE ISSUED FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION 10/2 SELF-CERTIFICATION.

3. THE CONTRACTOR SHALL MAINTAIN THE CONSTRUCTION SITE IN A SECURE MANNER. ALL OPEN TRENCHES AND EXCAVATED AREAS SHALL BE PROTECTED FROM ACCESS BY THE GENERAL PUBLIC.

4. ANY PUBLIC LAND CORNER WITHIN THE LIMITS OF CONSTRUCTION SHALL BE PROTECTED. IF A CORNER MONUMENT IS IN DANGER OF BEING DESTROYED AND HAS NOT BEEN PROPERLY REFERENCED, THE CONTRACTOR SHOULD NOTIFY THE ENGINEER.

5. THE SITE IS LOCATED IN SECTION 25, TOWNSHIP 3 SOUTH, RANGE 16 EAST, COLUMBIA COUNTY, FLORIDA.

6. THE CONTRACTOR SHALL IMPLEMENT ALL COMPONENTS OF THE EROSION AND SEDIMENTATION CONTROL PLAN PRIOR TO ANY EARTH DISTURBING ACTIVITIES. ALL COMPONENTS SHALL BE MAINTAINED BY THE CONTRACTOR UNTIL ALL VEGETATION IS ESTABLISHED, THE ENTIRE PROJECT AREA IS STABILIZED AND THE OWNER HAS ACCEPTED OPERATION AND MAINTENANCE.

7. ALL SLOPES OF THE STORMWATER BASIN SHALL BE GRASSED. ALL SLOPES STEEPER THAN 3:1 SHALL BE STAPLED SOD.

8. ALL DISTURBED AREAS NOT SODDED SHALL BE SEEDED WITH A MIXTURE OF LONG-TERM VEGETATION AND QUICK GROWING SHORT-TERM VEGETATION FOR THE FOLLOWING CONDITIONS. FOR THE MONTHS FROM SEPTEMBER THROUGH MARCH, THE MIX SHALL CONSIST OF 70 POUNDS PER ACRE OF LONG-TERM SEED AND 20 POUNDS PER ACRE OF WINTER RYE. FOR THE MONTHS OF APRIL THROUGH AUGUST, THE MIX SHALL CONSIST OF 70 PER ACRE OF LONG-TERM SEED AND 20 POUNDS PER ACRE OF MILLET.

9. THE LOCATION OF THE UTILITIES SHOWN IN THE PLANS ARE APPROXIMATE ONLY. THE EXACT LOCATION SHALL BE DETERMINED BY THE CONTRACTOR DURING CONSTRUCTION. CONTRACTOR SHALL PROTECT ALL UTILITIES WITHIN THE PROJECT AREAS.

10. ALL SITE CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE COLUMBIA COUNTY LAND DEVELOPMENT REGULATIONS.

11. CONTRACTOR SHALL COORDINATE ALL WORK WITH OTHER CONTRACTORS WITHIN PROJECT AREA.

12. IF UNSUITABLE MATERIAL IS ENCOUNTERED DURING GRADING, CONTRACTOR SHALL REMOVE UNSUITABLE MATERIAL TO A DEPTH OF 24" BELOW FINISHED GRADE WITHIN THE CONSTRUCTION LIMITS.

13. THE CONTRACTOR SHALL NOTIFY THE COUNTY AT LEAST 48 HOURS PRIOR TO BEGINNING OF CONSTRUCTION.

14. THE CONTRACTOR SHALL NOTIFY THE COUNTY AT LEAST 48 HOURS IN ADVANCE OF THE PRESSURE AND LEAKAGE TESTS.

15. NO FINAL TESTING OR PRESSURE TESTING WILL BE ACCEPTED UNLESS WITNESSED BY THE COUNTIES REPRESENTATIVE.

16. NO WORK SHALL BE PERFORMED ON SATURDAY OR SUNDAY WITHOUT WRITTEN NOTIFICATION TO THE COUNTY AND COUNTY ENGINEER.

17. CONTRACTOR SHALL PROVIDE AN AS-BUILT SURVEY MEETING THE REQUIREMENTS OF CHAPTER 61G17 F.A.C. FOR THE STORMWATER MANAGEMENT SYSTEMS. INCLUDE HORIZONTAL AND VERTICAL DIMENSIONAL DATA SO THAT IMPROVEMENTS ARE LOCATED AND DELINEATED RELATIVE TO THE BOUNDARY. THIS AS-BUILT SURVEY SHOULD INCLUDE ALL OUTFALL STRUCTURES. PROVIDE SUFFICIENT DETAILED DATA TO DETERMINE WHETHER THE IMPROVEMENTS WERE CONSTRUCTED IN ACCORDANCE WITH THE PLANS. A COPY OF THE AS-BUILT SURVEY (IN PAPER AND DIGITAL AUTOCAD FORMAT) MUST BE SUBMITTED TO THE COLUMBIA COUNTY, FLORIDA (BUILDING DEPARTMENT) AND THE ENGINEER.

18. THE CONTRACTOR SHALL SUBMIT A NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM NOTICE OF INTENT ALONG WITH SUPPORTING DOCUMENTATION TO THE FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION AT LEAST 48 HOURS PRIOR TO BEGINNING OF CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL PERMIT FEES.

19. IF DURING CONSTRUCTION OR OPERATION OF THE STORM WATER MANAGEMENT SYSTEM, A STRUCTURAL FAILURE IS OBSERVED THAT HAS THE POTENTIAL TO CAUSE THE DIRECT DISCHARGE OF SURFACE WATER INTO THE FLORIDAN AQUIFER SYSTEM, CORRECTIVE ACTIONS DESIGNED OR APPROVED BY A REGISTERED PROFESSIONAL SHALL BE TAKEN AS SOON AS PRACTICAL TO CORRECT THE FAILURE. SEE KARST REPAIR DETAIL #E23. IN ADDITION, A REPORT PREPARED BY A REGISTERED PROFESSIONAL MUST BE PROVIDED AS SOON AS PRACTICAL TO THE DEPARTMENT FOR REVIEW AND APPROVAL THAT PROVIDES REASONABLE ASSURANCE THAT THE BREACH WILL BE PERMANENTLY CORRECTED.

20. ALL CONCRETE SLABS ABUTTING EXTERIOR WALLS SHALL BE SOIL TREATED FOR TERMITES.

21. ALL UTILITY AND/OR DRAINAGE STRUCTURES SHALL BE PRECAST UNLESS APPROVED BY THE ENGINEER. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR APPROVAL PRIOR TO PROCUREMENT.

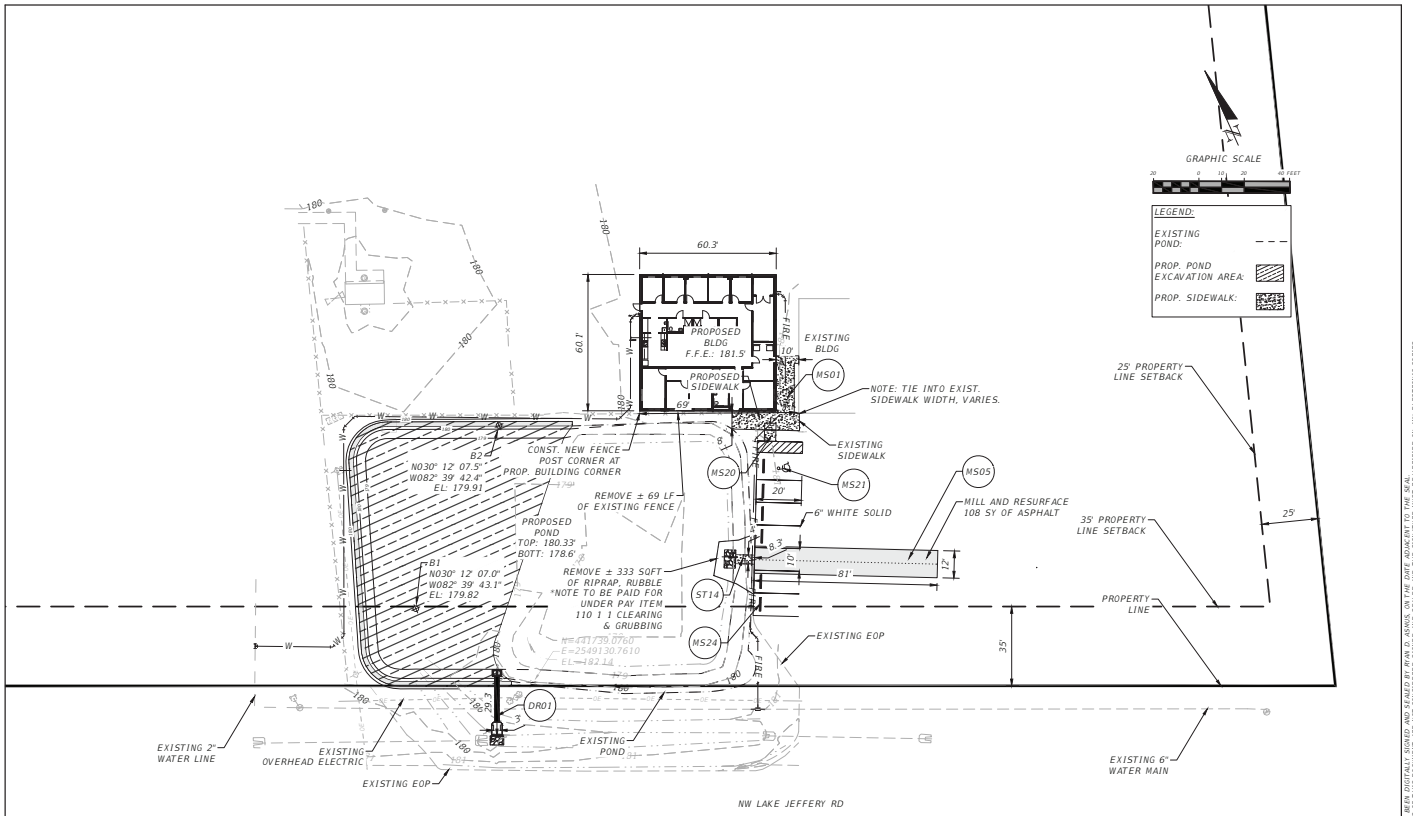
REVISIONS	
DATE	DESCRIPTION

NORTH FLORIDA PROFESSIONAL SERVICES, INC.
P.O. BOX 3823 — 2551 BLAIRSTONE PINES DR.
LAKE CITY, FL 32056 — TALLAHASSEE, FL 32301
PH. 386-752-4675 — WWW.NFPS.NET
LIC NO. LB8356 — CA# 29011

JOB NUMBER: L150209CCB
EOR: RYAN D. ASMUS
P.E. NO.: 66626

GENERAL NOTES
LAKE JEFFERY ROAD FIRE STATION EXPANSION
COLUMBIA COUNTY, FLORIDA

SHEET NO. C-3



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NORTH FLORIDA PROFESSIONAL SERVICES, INC.
P.O. BOX 3823
LAKE CITY, FL 32056
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CA# 29011

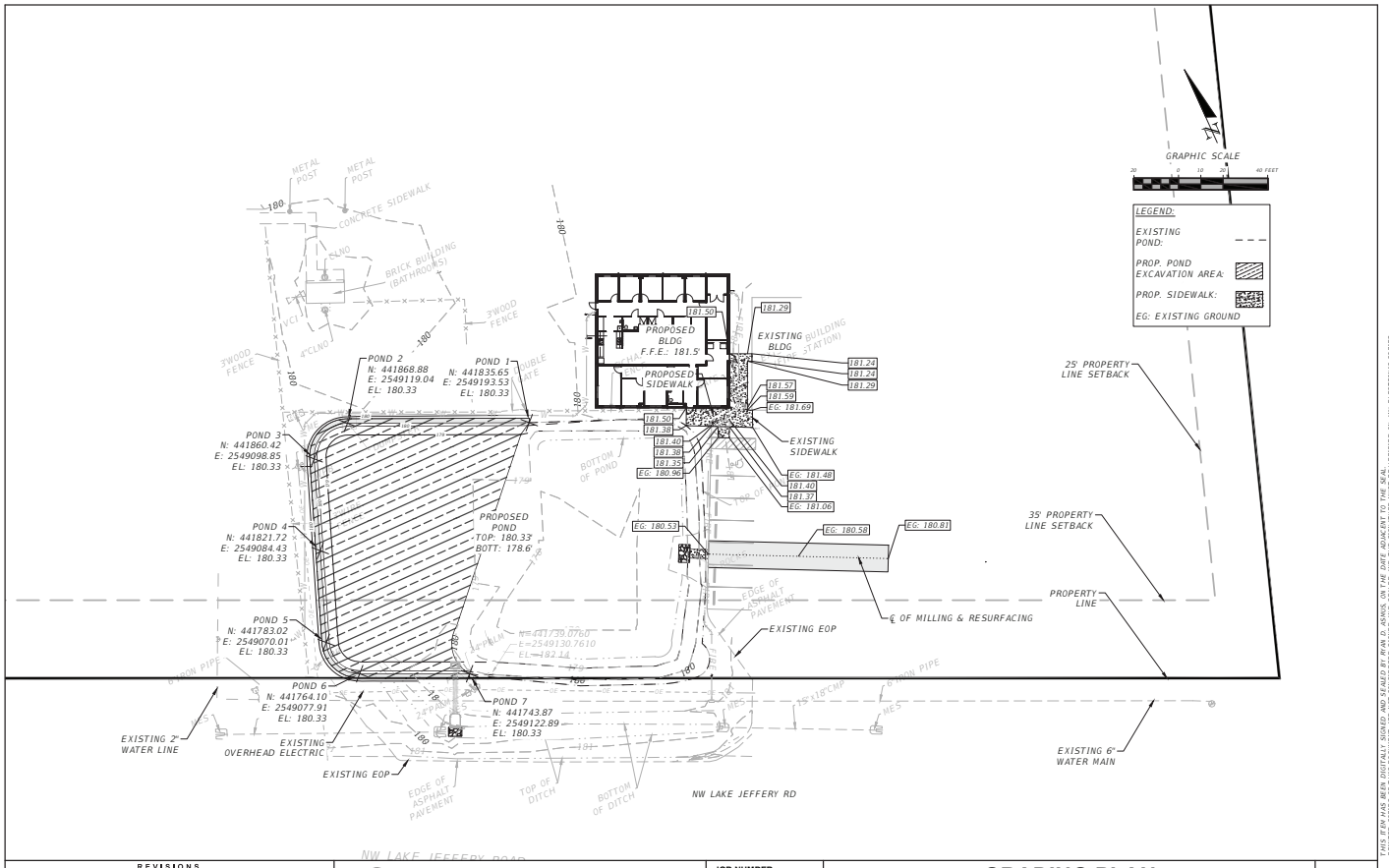
JOB NUMBER: L150209CCB
EOR: RYAN D. ASMUS
P.E. NO.: 66626

SITE PLAN

LAKE JEFFERY ROAD FIRE STATION EXPANSION
COLUMBIA COUNTY, FLORIDA

SHEET NO. C-4

Keegan Renick 9/11/2024 10:48:25 AM X:\2015\L150209CCB\H.CADD(FSS1)\Roadway\PLANRD_FSS1_01.dwg C-4 SITE PLAN



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REVISIONS	
DATE	DESCRIPTION

NORTH FLORIDA PROFESSIONAL SERVICES, INC.
P.O. BOX 3823 LAKE CITY, FL 32056 PH. 386-752-4675 LIC NO. LB8356
2551 BLAIRSTONE PINES DR. TALLAHASSEE, FL 32301 WWW.NFPS.NET CA# 29011

JOB NUMBER: L150209CCB
EOR: RYAN D. ASMUS
P.E. NO.: 66626

GRADING PLAN
LAKE JEFFERY ROAD FIRE STATION EXPANSION
COLUMBIA COUNTY, FLORIDA

SHEET NO. C-5

Keegan Renick 9/11/2024 10:48:26 AM X:\2015\L150209CCB\H.CADD(FSS1)\Roadway\PLANRD_FSS1_01.dwg C-5 GRADING PLAN

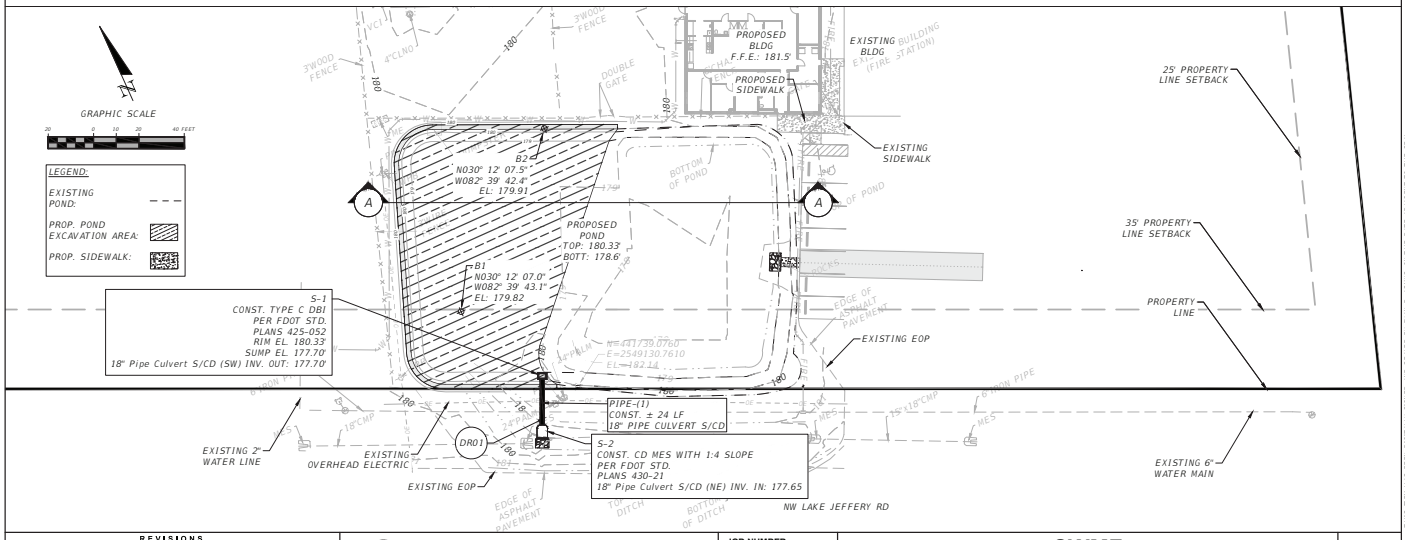
CRITICAL EVENT: 100 YR - 8 HR

MAX STAGE: 179.32'

STORMWATER MANAGEMENT FACILITY # DETAIL

C-6 / A-A

SCALE: N.T.S



REVISIONS	
DATE	DESCRIPTION

NORTH FLORIDA PROFESSIONAL SERVICES, INC.
P.O. BOX 3823, LAKE CITY, FL 32056, PH. 386-752-4675, LIC NO. LB8356
2551 BLAIRSTONE PINES DR., TALLAHASSEE, FL 32301, WWW.NFPS.NET, CA# 29011

JOB NUMBER: L150209CCB
EOR: RYAN D. ASMUS
P.E. NO.: 66626

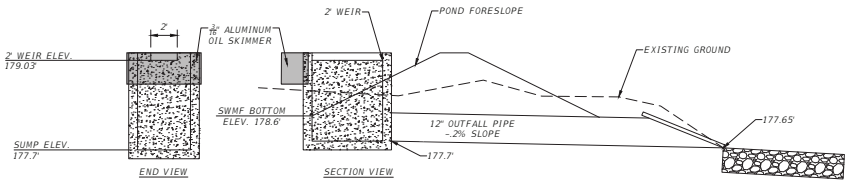
SWMF

LAKE JEFFERY ROAD FIRE STATION EXPANSION
COLUMBIA COUNTY, FLORIDA

SHEET NO. C-6

Keegan Renick 9/11/2024 10:48:26 AM X:\2015\L15020CCB\H.CADD\FSS1\Roadway\PLANRD_FSS1_01.dwg C-6 SWMF

TYPE C DBI



DR01 **SWMF #1 CONTROL STRUCTURE DETAIL**
SCALE: N.T.S.

REVISIONS	
DATE	DESCRIPTION

NORTH FLORIDA PROFESSIONAL SERVICES, INC.
P.O. BOX 3823 — 2551 BLAIRSTONE PINES DR.
LAKE CITY, FL 32056 — TALLAHASSEE, FL 32301
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LIC NO. LB8356 — CA# 29011

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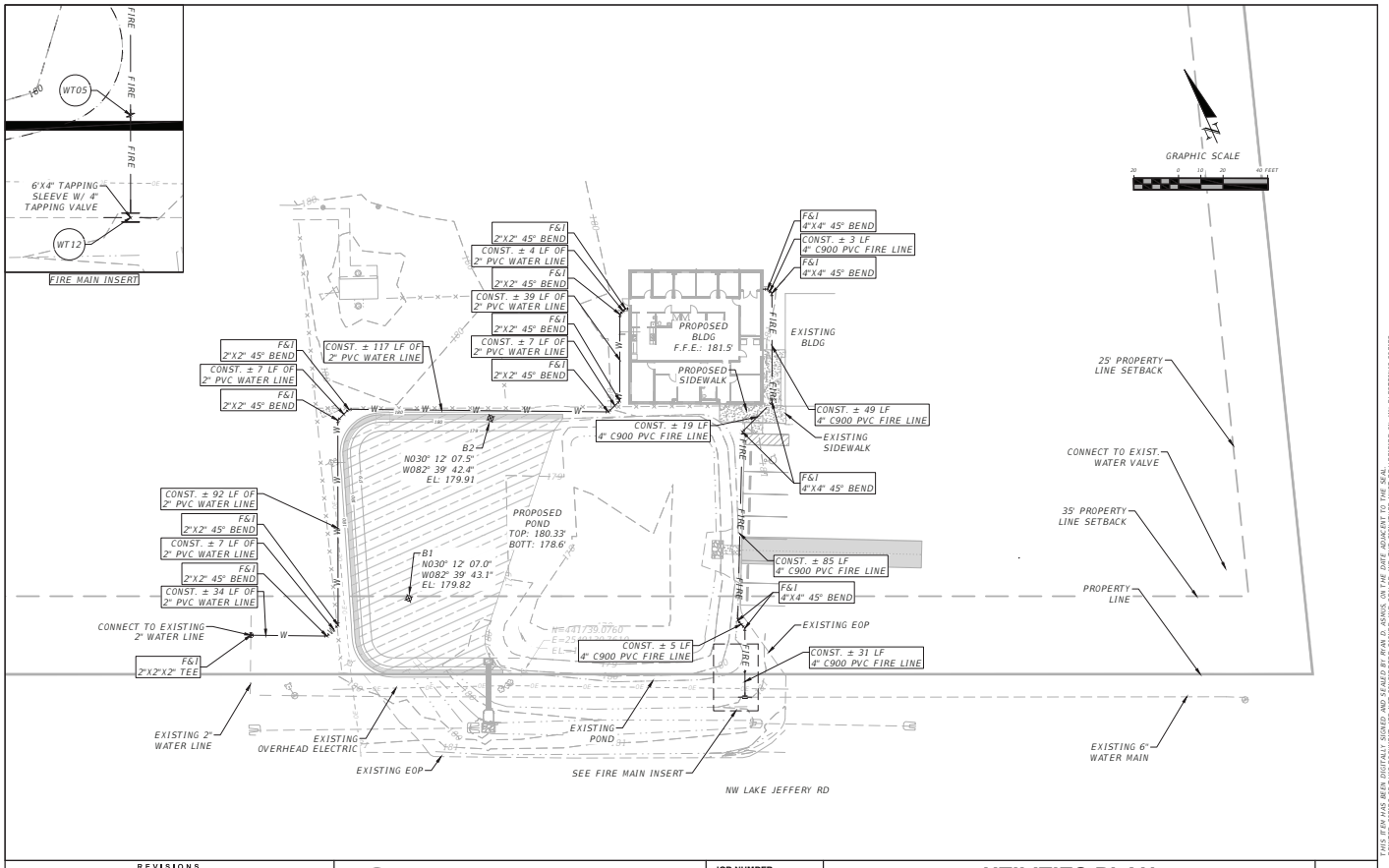
P.E. NO.: 66626

SWMF DETAILS
LAKE JEFFERY ROAD FIRE STATION EXPANSION
COLUMBIA COUNTY, FLORIDA

SHEET NO. C-7



REVISIONS	
DATE	DESCRIPTION

NORTH FLORIDA PROFESSIONAL SERVICES, INC.
P.O. BOX 3823 — LAKE CITY, FL 32056 — PH. 386-752-4675 — LIC NO. LB8356
2551 BLAIRSTONE PINES DR. — TALLAHASSEE, FL 32301 — WWW.NFPS.NET — CA# 29011

JOB NUMBER: L150209CCB
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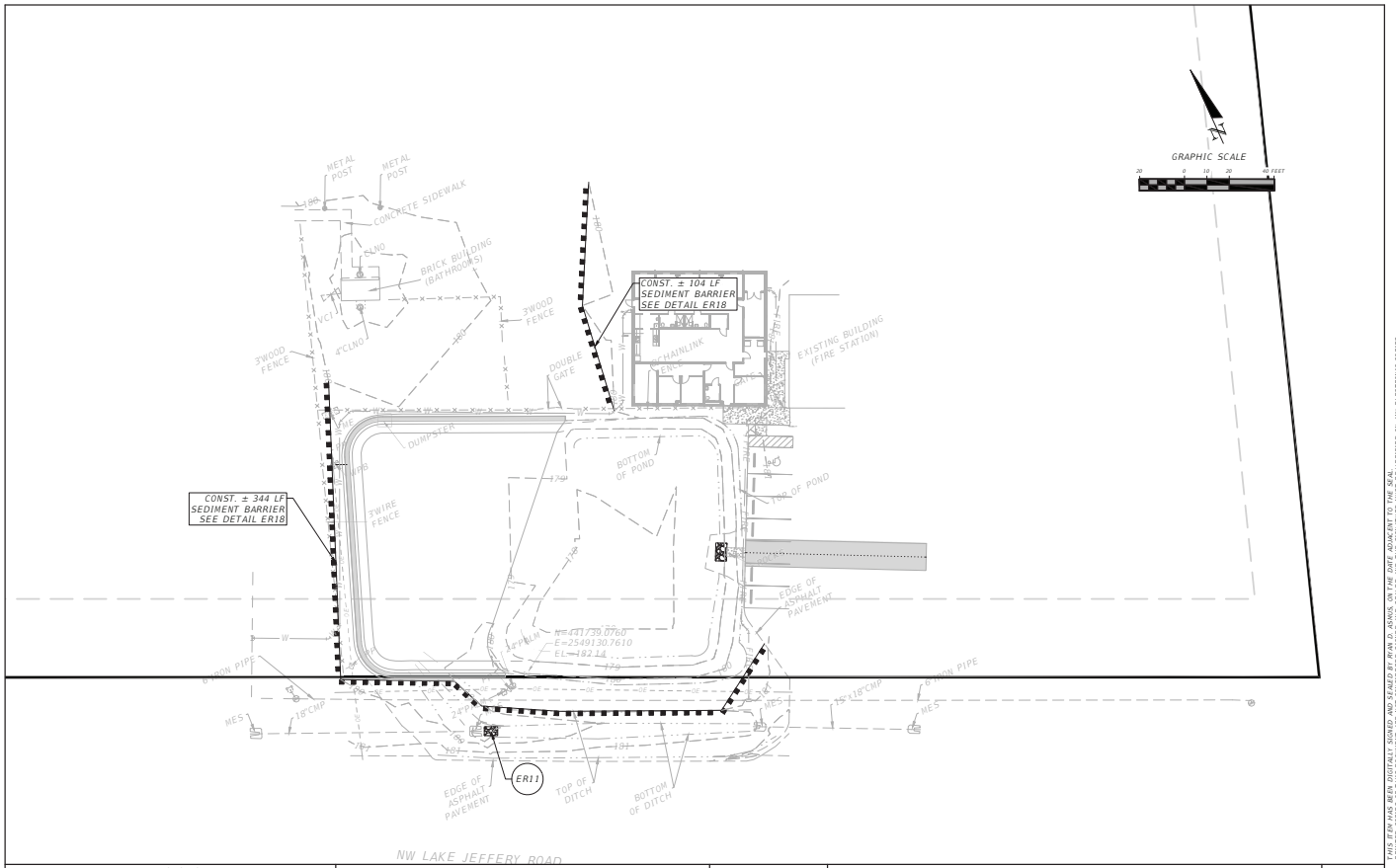
P.E. NO.: 66626

UTILITIES PLAN

LAKE JEFFERY ROAD FIRE STATION EXPANSION
COLUMBIA COUNTY, FLORIDA

SHEET NO. C-8

Keegan Renick 9/11/2024 10:48:28 AM X:\2015\L150209CCB\H.CADD\FSS1\Roadway\PLANRD_FSS1_01.dwg C-8 UTILITIES PLAN



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EROSION CONTROL PLAN

LAKE JEFFERY ROAD FIRE STATION EXPANSION
COLUMBIA COUNTY, FLORIDA

SHEET NO. C-9

Keegan Renick 9/11/2024 10:48:28 AM X:\2015\L150209CCB\H.CADD\FSS1\Roadway\PLANRD_FSS1_01.dwg C-9 EROSION CONTROL PLAN

EROSION CONTROL NOTES

1. THIS EROSION AND SEDIMENTATION CONTROL PLAN COMPLIES WITH THE REQUIREMENTS OF THE "FLORIDA DEVELOPMENT MANUAL" AND THE "FLORIDA EROSION AND SEDIMENT CONTROL INSPECTOR'S MANUAL".

2. THE CONTRACTOR SHALL ADHERE TO COLUMBIA COUNTY, SRWMD, AND OTHER GOVERNING AUTHORITIES FOR EROSION AND SEDIMENT CONTROL REGULATIONS. IF THE CONTRACTOR NEEDS TO CHANGE THIS PLAN TO MORE EFFECTIVELY CONTROL EROSION AND SEDIMENTATION, THE CONTRACTOR SHALL USE BMP's FROM THE "FLORIDA EROSION AND SEDIMENT CONTROL INSPECTOR'S MANUAL".

3. THE CONTRACTOR SHALL ADJUST AND REVISE THIS PLAN TO MEET ACTUAL FIELD CONDITIONS. ANY REVISIONS SHALL BE APPROVED BY THE REVIEWING AGENCIES.

4. SEDIMENT AND EROSION CONTROL FACILITIES, STORM DRAINAGE FACILITIES AND DETENTION BASINS SHALL BE INSTALLED PRIOR TO ANY OTHER CONSTRUCTION.

5. EROSION CONTROL MEASURES SHALL BE INSPECTED WEEKLY AND AFTER EACH RAINFALL OF 0.5 INCHES OR GREATER, AND REPAIRED OR REPLACED AS NECESSARY.

6. SEDIMENT AND EROSION CONTROL MEASURES SHALL NOT BE REMOVED UNTIL ALL CONSTRUCTION IS COMPLETE AND UNTIL A PERMANENT GROUND COVER HAS BEEN ESTABLISHED.

7. ALL OPEN DRAINAGE SWALES SHALL BE GRASSED AND RIPRAP SHALL BE PLACED AS REQUIRED TO CONTROL EROSION.

8. SILT FENCES SHALL BE LOCATED ON SITE TO PREVENT SEDIMENT AND EROSION FROM LEAVING PROJECT LIMITS.

9. CONTRACTOR SHALL PLACE A DOUBLE ROW OF SILT FENCE IN AREAS WHERE RUNOFF FROM DISTURBED AREAS MAY ENTER WETLANDS.

10. DURING CONSTRUCTION AND AFTER CONSTRUCTION IS COMPLETE, ALL STRUCTURES SHALL BE CLEANED OF ALL DEBRIS AND EXCESS SEDIMENT.

11. ALL GRADED AREAS SHALL BE STABILIZED IMMEDIATELY WITH A TEMPORARY FAST-GROWING COVER AND/OR MULCH.

12. A PAD OF RUBBLE RIP RAP SHALL BE PLACED AT THE BOTTOM OF ALL COLLECTION FLUMES AND COLLECTION PIPE OUTLETS. GRANITE OR LIMESTONE RIPRAP IS REQUIRED, NO BROKEN CONCRETE WILL BE ACCEPTED.

13. ALL SIDE SLOPES STEEPER THAN 3:1 SHALL BE ADEQUATELY PROTECTED FROM EROSION THROUGH THE USE OF SYNTHETIC BALES OR SODDING.

14. ALL STABILIZATION PRACTICES SHALL BE INITIATED AS SOON AS PRACTICABLE IN AREAS OF THE JOB WHERE CONSTRUCTION ACTIVITIES HAVE TEMPORARILY OR PERMANENTLY STOPPED, BUT IN NO CASE SHALL THE DISTURBED AREA BE LEFT UNPROTECTED FOR MORE THAN SEVEN DAYS.

15. ALL WASTE GENERATED ON THE PROJECT SHALL BE DISPOSED OF BY THE CONTRACTOR IN AREAS PROVIDED BY CONTRACTOR.

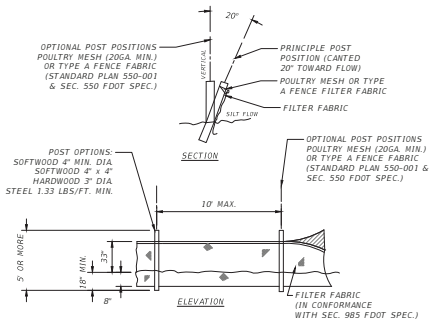
16. LOADED HAUL TRUCKS SHALL BE COVERED WITH TARPS.

17. EXCESS DIRT SHALL BE REMOVED DAILY.

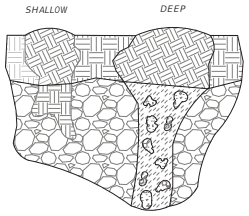
18. THIS PROJECT SHALL COMPLY WITH ALL WATER QUALITY STANDARDS. PERMIT REQUIRED FROM SRWMD HAS BEEN OBTAINED.

19. QUALIFIED PERSONNEL SHALL INSPECT THE AREA USED FOR STORAGE OF STOCKPILES, THE SILT FENCE AND STRAW BALES, THE LOCATION WHERE VEHICLES ENTER OR EXIT THE SITE, AND THE DISTURBED AREAS THAT HAVE NOT BEEN FINALLY STABILIZED, AT LEAST ONCE EVERY SEVEN CALENDAR DAYS AND WITHIN 24 HOURS OF THE END OF A STORM OF 0.5 INCHES OR GREATER.

20. SITES THAT HAVE BEEN FINALLY STABILIZED WITH SOD OR GRASSING SHALL BE INSPECTED AT LEAST ONCE EVERY WEEK.



ER18 TYPE IV SILT FENCE
SCALE: N.T.S.



NOTES:
THE FOLLOWING SHALL BE PERFORMED IN THE EVENT ANY KARST FEATURES FORM DURING CONSTRUCTION – E.G. SOLUTION CAVITIES, CHIMNEYS, SINKHOLES.

1. NOTIFY THE WATER MANAGEMENT DISTRICT AND THE APPLICABLE MUNICIPAL OR COUNTY PUBLIC WORKS IMMEDIATELY WHEN THE FEATURES ARE ENCOUNTERED. THE METHOD OF REPAIR SHALL BE SUBMITTED FOR REVIEW, COMMENT, AND APPROVAL PRIOR TO ATTEMPTING ANY REPAIR.
2. SHALLOW KARST FEATURES ARE TYPICALLY LESS THAN 5' DEEP AND ONLY HAVE SMALL VOIDS IN THE LIMESTONE. THE FEATURE CAN BE REPAIRED BY BACKFILLING WITH A LOWER PERMEABILITY MATERIAL SUCH AS CLAYEY-SAND OR CLAY. COMPACT THE BACKFILL AND CREATE A SMALL MOUND SLIGHTLY ABOVE GRADE TO ACCOUNT FOR SETTLING.
3. DEEP KARST FEATURES SHALL BE REPAIRED MORE PERMANENTLY. EXCAVATE THE FEATURE TO THE LIMESTONE BEDROCK. PLUG VOIDS IN THE BEDROCK WITH CLEAN GROUT. BACKFILL OVER THE PLUG WITH A LOWER-PERMEABILITY MATERIAL SUCH AS CLAYEY-SAND OR CLAY. COMPACT THE BACKFILL TO GRADE.

ER23 KARST FEATURE REPAIR DETAIL
SCALE: N.T.S.

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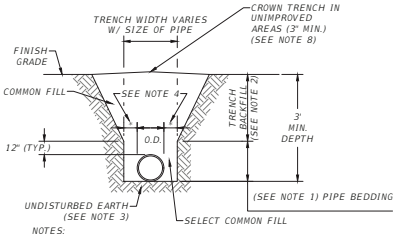
PH. 386-752-4675 — WWW.NFPS.NET
LIC NO. LB8356 — CA# 29011

JOB NUMBER: L150209CCB
EOR: RYAN D. ASMUS
P.E. NO.: 66626

EROSION CONTROL NOTES & DETAILS
LAKE JEFFERY ROAD FIRE STATION EXPANSION
COLUMBIA COUNTY, FLORIDA

SHEET NO. C-10

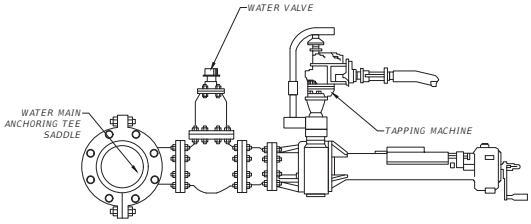
Keegan Renick 9/11/2024 10:48:29 AM X:\2015\L150209CCB\H.CADD\FSS1\Roadway\KEYSRD_FSS1_01.dwg



NOTES:

1. PIPE BEDDING: SELECT COMMON FILL COMPACTED TO 95% OF THE MAXIMUM DENSITY AS PER AASHTO T-180.
2. TRENCH BACKFILL: COMMON FILL COMPACTED TO 95% OF THE MAXIMUM DENSITY AS PER AASHTO T-180.
3. PIPE BEDDING UTILIZING SELECT COMMON FILL OR BEDDING ROCK WILL BE REQUIRED IFOVER-EXCAVATION OCCURS.
4. (*): 15" MAX. FOR PIPE DIAMETER LESS THAN 24", AND 24" MAX. FOR PIPE DIAMETER 24" AND LARGER.
5. WATER SHALL NOT BE PERMITTED IN THE TRENCH DURING CONSTRUCTION.
6. ALL PIPE TO BE INSTALLED WITH BELL FACING UPSTREAM TO THE DIRECTION OF THE FLOW.
7. PROVIDE TRENCH SLOPING AND BRACING AS REQUIRED FOR SAFETY.
8. FINAL RESTORATION IN IMPROVED AREAS SHALL BE IN COMPLIANCE WITH ALL APPLICABLE REGULATIONS OF GOVERNING AGENCIES. SURFACE RESTORATION WITHIN PAVED AREAS SHALL COMPLY WITH THE REQUUIREMENTS OF THE ROAD CONSTRUCTION SPECIFICATIONS.

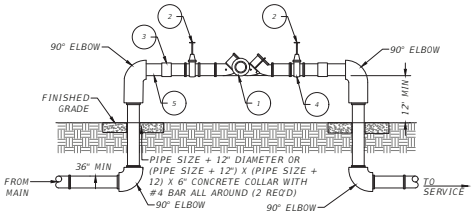
WT11 **TRENCH AND BACKFILL DETAILS**
SCALE: N.T.S



NOTES:

1. CONTACT BRIAN SCOTT AT THE CITY OF LAKE CITY FOR WET TAP REQUIREMENTS.

WT12 **WET TAP AND SADDLE ASSEMBLY**
SCALE: N.T.S



MATERIALS	
ITEM	DECRIPTION
1	BACKFLOW PREVENTER
2	GATE VALVE
3	UNION
4	TEST COCKS
5	THREADED NIPPLE

NOTES:

1. UNDER NO CONDITION WILL ANY CONNECTION BE ALLOWED BETWEEN THE SERVICE METER AND A BACKFLOW PREVENTER USED FOR SYSTEM CONTAINMENT. BACKFLOW PREVENTER SHALL ALWAYS BE INSTALLED DOWNSTREAM OF METER.
2. IF A PRESSURE MONITOR IS TO BE INSTALLED, ADD A TEE, VALVE FITTINGS, AND MOUNT ON SUPPLY SIDE PRIOR TO BACKFLOW PREVENTION DEVICE: UNDER NO CIRCUMSTANCE, SHALL TEST PORTS BE MODIFIED OR UTILIZED FOR THIS OR OTHER APPLICATION OTHER THAN BACKFLOW DEVICE TESTING.
3. A CONBRACO SERIES 40-000 FREEZE PROTECTION VALVE SHALL BE INCLUDED.
4. PROVIDE AND INSTALL COVER OVER BACKFLOW PREVENTER AS REQ'D BY LOCAL AUTHORITIES.

WT05 **REDUCED PRESSURE BACKFLOW PREVENTER**
SCALE: N.T.S

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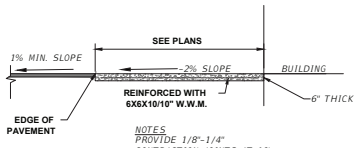
P.E. NO.: 66626

UTILITIES DETAILS
LAKE JEFFERY ROAD FIRE STATION EXPANSION
COLUMBIA COUNTY, FLORIDA

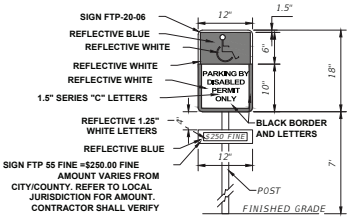
SHEET NO. C-11

Keegan Renick 9/11/2024 10:48:29 AM X:\2015\L150209CCB\H.CADD(FSS1)\Roadway\KEYSRD_FSS1_01.dwg



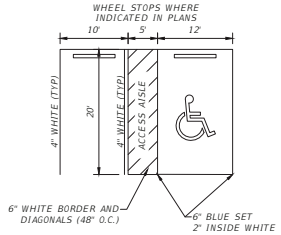
NOTES
PROVIDE 1/8"-1/4" CONTRACTION JOINTS AT 10' CENTERS MAXIMUM.

MS01 SIDEWALK DETAIL
SCALE: N.T.S



SIGN NOTES:

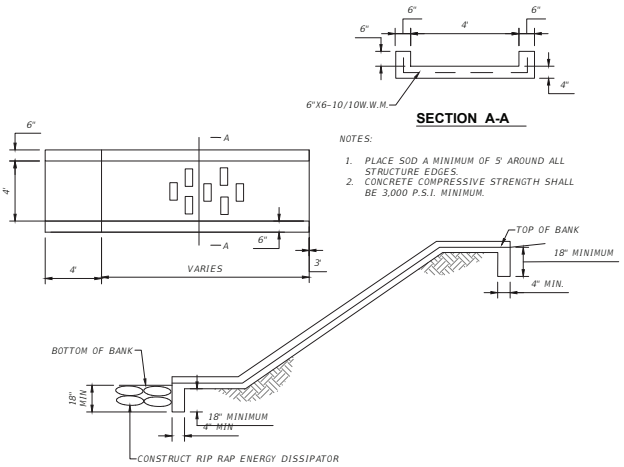
1. SIGN CONSTRUCTION, DESIGN AND PLACEMENT SHALL COMPLY WITH STATE AND LOCAL STATUES.



NOTES:

1. SIGN SHALL BE PLACED IN FRONT OF ALL DESIGNATED HANDICAPPED SPACES. SIGN HEIGHT SHALL BE 7' FROM PAVEMENT TO BOTTOM OF SIGN.
2. 5' HANDICAPPED AISLE MAY BE PLACED ON THE RIGHT OR LEFT SIDE OF PARKING STALL.
3. HANDICAPPED PARKING SYMBOL SHALL BE 3 OR 5 FT. HIGH.
4. BLUE PAVEMENT MARKINGS SHALL BE TINTED TO MATCH SHADE 15180 OF FEDERAL STANDARDS 595A.

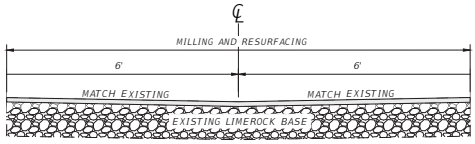
MS21 HANDICAP PARKING SIGN & STALL DETAIL
SCALE: N.T.S



NOTES:

1. PLACE SOD A MINIMUM OF 5' AROUND ALL STRUCTURE EDGES.
2. CONCRETE COMPRESSIVE STRENGTH SHALL BE 3,000 P.S.I. MINIMUM.

ST14 CONCRETE SPILLWAY DETAIL
SCALE: N.T.S



MS05 ASPHALT REPAIR DETAIL
SCALE: N.T.S

MILL: 2" DEPTH AT EXISTING CROSS SLOPE
RESURFACE: 2" DEPTH TYPE SP 12.5 STRUCTURAL COURSE

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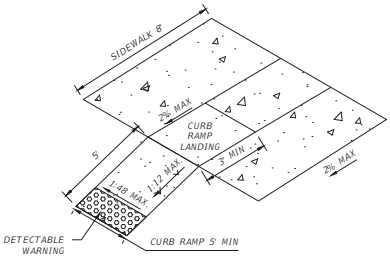
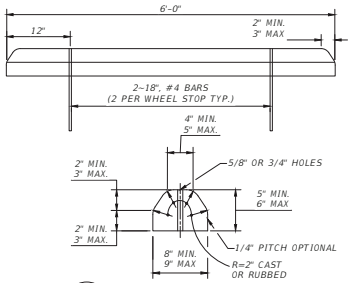
MISC DETAILS
LAKE JEFFERY ROAD FIRE STATION EXPANSION
COLUMBIA COUNTY, FLORIDA

SHEET NO. C-12



MS20 **ADA RAMP DETAIL "A"**
SCALE: N.T.S



MS24 **WHEEL STOP DETAIL**
SCALE: N.T.S

THIS ITEM HAS BEEN DIGITALLY SIGNED AND SEALED BY RYAN D. ASMUS, ON THE DATE ADJACENT TO THE SEAL.
PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED AND THE SIGNATURE MUST BE VERIFIED ON ANY ELECTRONIC COPIES.

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DATE	DESCRIPTION

NORTH FLORIDA PROFESSIONAL SERVICES, INC.
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MISC DETAILS
LAKE JEFFERY ROAD FIRE STATION EXPANSION
COLUMBIA COUNTY, FLORIDA

SHEET NO. C-13

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Summary of Lump Sum Items

Pay Item Number	Pay Item Description	Unit of Measure	Quantity		Total Quantity		Design Notes	Construction Remarks
			P	F	P	F		
0101 1	MOBILIZATION	LS	1		1			

Summary of Clearing & Grubbing

Pay Item Number	Pay Item Description	Unit of Measure	Quantity		Total Quantity		Design Notes	Construction Remarks
			P	F	P	F		
110 1 1	CLEARING & GRUBBING	AC	0.22		0.22			

Summary of Earthwork

Pay Item Number	Pay Item Description	Unit of Measure	Quanity		Total Quantity		Design Notes	Construction Remarks
			P	F	P	F		
0120 1	REGULAR EXCAVATION	CY	77					

Summary of Pavement

Pay Item Number	Pay Item Description	Unit of Measure	Quantity		Total Quantity		Design Notes	Construction Remarks
			P	F	P	F		
0327 70 5	MILLING EXIST ASPH PAVT, 2" DEPTH	SY	107.7		107.7			
0334 1 12	SUPERPAVE ASPHALTIC CONC, TRAFFIC B	TN	12		12			

Summary of Sidewalk and Detectable Warnings

Pay Item Number	Pay Item Description	Unit of Measure	Quantity		Total Quantity		Design Notes	Construction Remarks
			P	F	P	F		
522 2	Concrete Sidewalk and Driveways, 6" Thick	SY	51.52		51.52			
527 2	Detectable Warning Surface	SF	10		10			

Summary of Drainage

Pay Item Number	Pay Item Description	Unit of Measure	Quantity		Total Quantity		Design Notes	Construction Remarks
			P	F	P	F		
425 1521	INLETS, DT BOT, TYPE C, <10'	EA	1		1			
430175112	PIPE CULVERT, OPTIONAL MATERIAL, ROUND, 12" S/CD	LF	24		24			
430982121	MITERED END SECTION, OPTIONAL ROUND, 12" CD	EA	1		1			
524 1 49	CONCRETE DITCH PAVEMENT, 6", REINFORCED	SY	3.7		3.7			

SUMMARY OF EROSION AND SEDIMENT CONTROL DEVICES

Pay Item Number	Pay Item Description	Unit of Measure	Quantity		Total Quantity		Design Notes	Construction Remarks
			P	F	P	F		
0104 10 3	SEDIMENT BARRIER	LF	448		448			
0530 3 4	RIPRAP, RUBBLE, F&I, DITCH LINING	TN	3.2		5.12			
			1.92					

Summary of General Items

Pay Item Number	Pay Item Description	Unit of Measure	Quantity		Total Quantity		Design Notes	Construction Remarks
			P	F	P	F		
0542 70	BUMPER GUARDS, CONCRETE	EA	6		6			

SUMMARY OF PERFORMANCE TURF

Pay Item Number	Pay Item Description	Unit of Measure	Quantity		Total Quantity		Design Notes	Construction Remarks
			P	F	P	F		
0570 1 2	PERFORMANCE TURF, SOD	SY	1031.1		1031.1			

Summary of Signing and Pavement Marking

Pay Item Number	Pay Item Description	Unit of Measure	Quantity		Total Quantity		Design Notes	Construction Remarks
			P	F	P	F		
0710 11 101	PAINT, STANDARD, WHITE, SOLID, 6" FOR PARKING SPACES	LF	120		120			
0710 11 160	PAINT, STANDARD, WHITE, MESSAGE OR SYMBOL (HANDICAP SYMBOL)	EA	1		1			
0710 11 142	PAINT, STANDARD, BLUE, SOLID, 6"	LF	110		110			

Summary of Utility Items

Pay Item Number	Pay Item Description	Unit of Measure	Quanity		Total Quantity		Design Notes	Construction Remarks
			P	F	P	F		
1050 31202	UTILITY PIPE- POLY VINYL CHLORIDE, FURNISH & INSTALL, WATER/SEWER, 2"	LF	303		303			
1050 31204	UTILITY PIPE- POLY VINYL CHLORIDE, FURNISH & INSTALL, WATER/SEWER, 4"	LF	193		193			
1080 23104	UTILITY FIXTURE- TAPPING SADDLE/SLEEVE, FURNISH & INSTALL, 4"	EA	1		1			

REVISIONS

DATE	DESCRIPTION

NORTH FLORIDA PROFESSIONAL SERVICES, INC.
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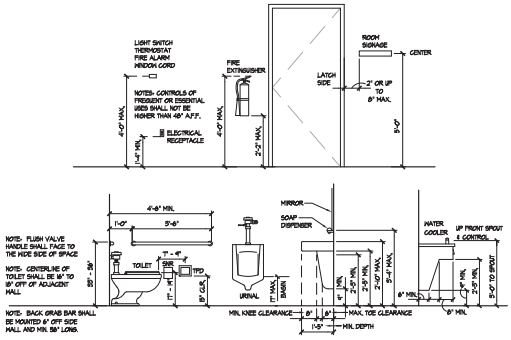
P.E. NO.: 66626

SUMMARY OF QUANTITIES
LAKE JEFFERY ROAD FIRE STATION EXPANSION
COLUMBIA COUNTY, FLORIDA

SHEET NO. C-14

2024-K NEW FIRE DEPARTMENT ADMINISTRATION BUILDING
1579 NW LAKE JEFFERY ROAD
LAKE CITY, FLORIDA

STANDARD MOUNTING PER A.D.A. REQUIREMENTS



DESIGN CRITERIA

1. FLORIDA BUILDING CODE 8TH EDITION 2023
2. FLORIDA FIRE PREVENTION CODE 8TH EDITION
3. OCCUPANCY CLASSIFICATION IS MIXED USED WITH RESIDENTIAL GROUP R-2 AS THE MAIN OCCUPANCY AND BUSINESS GROUP B AS A NONSEPARATED OCCUPANCY
4. ALLOWABLE BUILDING HEIGHT IS 75' FOR BUILDINGS WITH AN AUTOMATIC SPRINKLER SYSTEM AND PROPOSED BUILDING HEIGHT IS APPROXIMATELY 16'-6"
5. ALLOWABLE NUMBER OF STORIES IS 9 FOR BUILDINGS WITH AN AUTOMATIC SPRINKLER SYSTEM AND PROPOSED NUMBER OF STORIES IS 1
6. ALLOWABLE BUILDING AREA IS 84,000 SF FOR BUILDINGS WITH AN AUTOMATIC SPRINKLER SYSTEM AND PROPOSED BUILDING GROSS SQUARE FOOTAGE IS 5,600
7. BUILDING CONSTRUCTION IS TYPE IIB
8. STRUCTURAL FIRE-RESISTANT RATING REQUIREMENTS IS 0 HOURS
9. AN AUTOMATIC SPRINKLER SYSTEM IS REQUIRED AND PROPOSED
10. EGRESS CALCULATIONS = 20 OCCUPANTS X 0.2" = 4" EGRESS WIDTH REQUIRED WITH 68" EGRESS WIDTH PROPOSED
11. ALLOWABLE MAXIMUM TRAVEL DISTANCE IS 250'-0" AND MAXIMUM DISTANCE PROPOSED IS 152'-9"
12. REFER TO LIFE SAFETY PLAN FOR ADDITIONAL INFORMATION

OCCUPANT LOAD CALCULATIONS

1. SPACES CALCULATED AS DORMITORY AT 50 SF PER OCCUPANT = SPACES 116, 117, 118, 119 AND 120 = 316 SF = 10.32 OCCUPANTS
2. SPACES CALCULATED AS BUSINESS AT 150 SF PER OCCUPANT = SPACES 105, 106, 107 AND 108 = 582 SF = 3.88 OCCUPANTS
3. SPACES CALCULATED AS RESIDENTIAL AT 200 SF PER OCCUPANT = SPACES 110, 111 AND 115 = 686 SF = 3.43 OCCUPANTS
4. SPACES CALCULATED AS STORAGE / UTILITY AT 300 SF PER OCCUPANT = SPACES 104, 104A, 109, 109A AND 112 = 491 SF = 1.47 OCCUPANTS
5. TOTAL OCCUPANT LOAD FOR RESIDENTIAL GROUP R-2 OCCUPANCY = 10.32 + 3.43 + 1.47 = 15.22 OCCUPANTS = 16 TOTAL OCCUPANTS
6. TOTAL OCCUPANT LOAD FOR BUSINESS GROUP B OCCUPANCY = 3.88 OCCUPANTS = 4 OCCUPANTS
7. NUMBER OF EXITS REQUIRED IS TWO WITH TWO PROVIDED
8. REFER TO THE LIFE SAFETY PLAN FOR ADDITIONAL INFORMATION

PLUMBING FIXTURE CALCULATIONS

1. TOTAL OCCUPANT LOAD FOR RESIDENTIAL GROUP R-2 = 16 OCCUPANTS = 8 MALE AND 8 FEMALE
2. RESIDENTIAL GROUP R-2 OCCUPANCY TOTAL WC = 1 PER 10 FOR MALE AND FEMALE = 1 WC REQUIRED FOR EACH WITH 1 PROPOSED FOR EACH
3. RESIDENTIAL GROUP R-2 OCCUPANCY TOTAL LAV = 1 PER 10 FOR MALE AND FEMALE = 1 LAV REQUIRED FOR EACH WITH 1 PROPOSED FOR EACH
4. RESIDENTIAL GROUP R-2 OCCUPANCY SHOWERS = 1 PER 8 REQUIRED = 2 REQUIRED WITH 2 PROPOSED
5. RESIDENTIAL GROUP R-2 OCCUPANCY SERVICE SINKS = 1 REQUIRED WITH 1 PROPOSED
6. RESIDENTIAL GROUP R-2 OCCUPANCY DRINKING FOUNTAINS = 1 PER 100 REQUIRED WITH 1 PROPOSED
7. TOTAL OCCUPANT LOAD FOR BUSINESS GROUP B = 4 OCCUPANTS = 2 MALE AND 2 FEMALE
8. BUSINESS GROUP B OCCUPANCY TOTAL WC = 1 PER 25 FOR FIRST 50 AND 1 PER 50 FOR THE REMAINDER EXCEEDING 50 FOR MALE AND FEMALE = 1 WC REQUIRED TOTAL PER FBC-P 403.2.4 WITH 1 PROPOSED
9. BUSINESS GROUP B OCCUPANCY TOTAL LAV = 1 PER 40 FOR FIRST 80 AND 1 PER 80 FOR THE REMAINDER EXCEEDING 80 FOR MALE AND FEMALE = 1 LAV REQUIRED TOTAL PER FBC-P 403.2.4 WITH 1 PROPOSED
10. BUSINESS GROUP B OCCUPANCY SHOWERS = 0 WITH 0 PROPOSED
11. BUSINESS GROUP B OCCUPANCY SERVICE SINKS = 0 PER FBC-P 403.1, E WITH 0 PROPOSED
12. BUSINESS GROUP B OCCUPANCY DRINKING FOUNTAINS = 0 PER FBC-P 410.2 WITH 0 PROPOSED

DEFERRED DOCUMENTATION

AS REQUIRED BY FLORIDA STATUE 553.842 AND FLORIDA ADMINISTRATIVE CODE 9N-3.006, THE CONTRACTOR IS TO PROVIDE THE INFORMATION AND THE PRODUCT APPROVAL NUMBERS ON THE BUILDING COMPONENTS THAT WILL BE UTILIZED ON THIS PROJECT

SHEET INDEX

kail partners
ARCHITECTURE & INTERIORS
AA0003056 • GAINESVILLE, FLORIDA • 352-371-4199

NEW FIRE DEPARTMENT ADMINISTRATION BUILDING
1579 NW LAKE JEFFERY ROAD
LAKE CITY, FLORIDA

#	Date	Note
Revisions		

GENERAL COVER SHEET
NTS
CONSTRUCTION DOCUMENTS

DATE
4/12/2024

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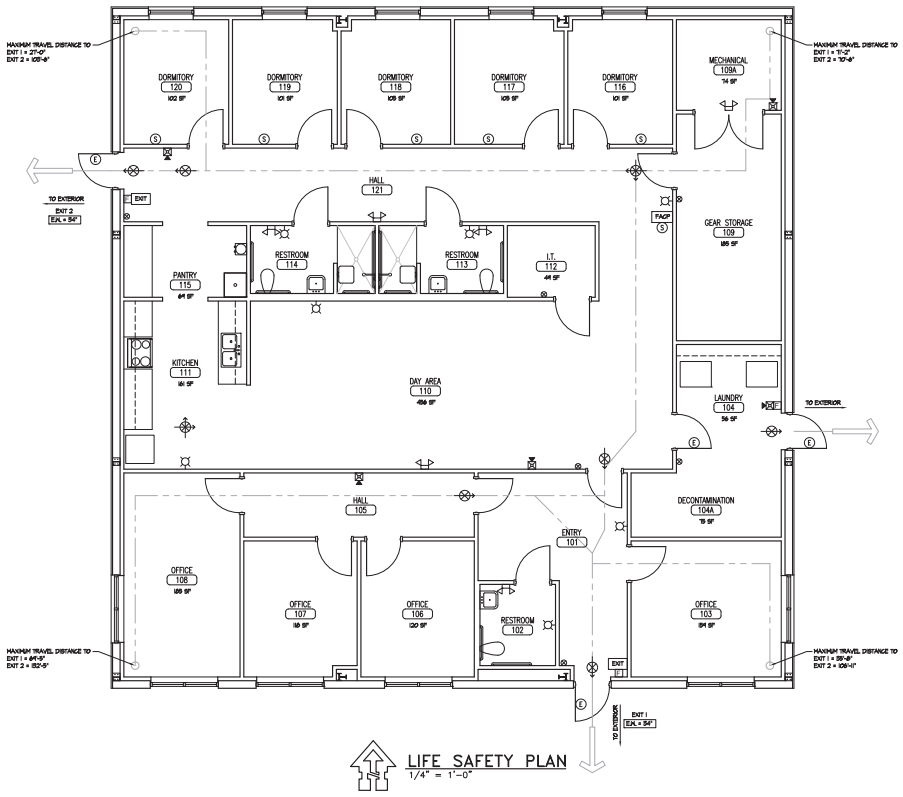

LIFE SAFETY PLAN
1/4" = 1'-0"

LIFE SAFETY LEGEND

- EXIT SIGN - SEE ELEC.
- WALL HUNG FIRE EXTINGUISHER
- (E) EXIT DEVICE
- EXIT TACTILE SIGNAGE
- WALL MOUNTED EMERGENCY LIGHT FIXTURE - SEE ELEC.
- FIRE ALARM PULL STATION - SEE ELEC.
- WALL MOUNTED FIRE ALARM SPEAKER / STROBE - SEE ELEC.
- WALL MOUNTED STROBE - SEE ELEC.
- (S) SMOKE DETECTOR - SEE ELEC.
- FACP FIRE ALARM CONTROL PANEL - SEE ELEC.

GENERAL NOTES

1. PROVIDE AND POST GRAPHIC DIAGRAM OF EMERGENCY EVACUATION ROUTES ADJACENT TO THE PRIMARY AND SECONDARY EXIT DOORS AS REQUIRED BY AHJ.
2. REFER TO THE ELECTRICAL DRAWINGS FOR FIRE ALARM SYSTEM

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NEW FIRE DEPARTMENT ADMINISTRATION BUILDING
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LIFE SAFETY PLAN
1/4" = 1'-0"
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4/12/2024

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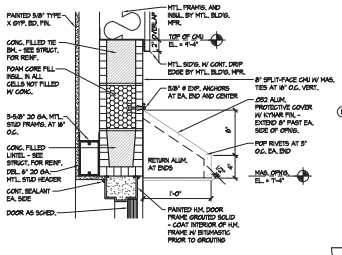
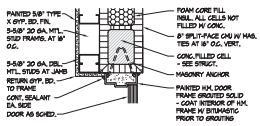
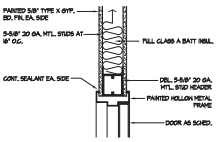
LS-1



DOOR HEAD DETAIL
1-1/2" = 1'-0" (A-1)



DOOR JAMB DETAIL
1-1/2" = 1'-0" (B-A-1)



DOOR HEAD DETAIL
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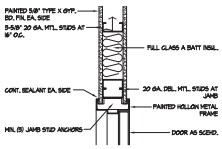
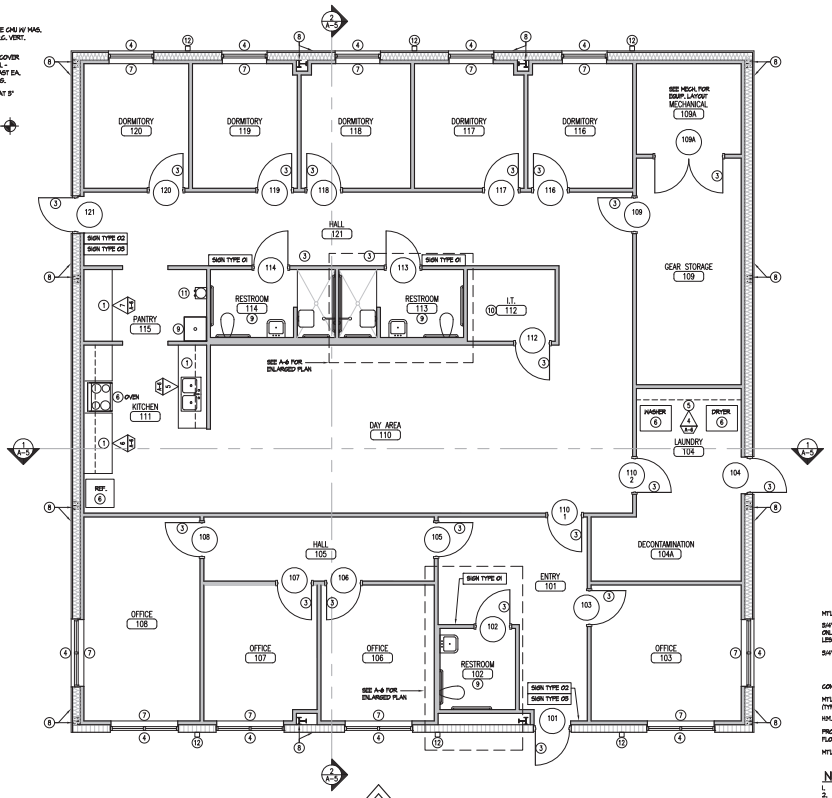


DOOR JAMB DETAIL
1-1/2" = 1'-0" (B-A-1)



FLOOR PLAN
1/4" = 1'-0"
5800 GSF

WALL LEGEND

EXTERIOR SPLIT-FACE 8" CMU WALL W/ FOAM INSUL. IN ALL CELLS NOT FILLED W/ CONC. - SEE STRUCT. FOR CMU REINF. - SEE EXT. ELEVS.

EXTERIOR PRE-ENGINEERED MTL. BLDG. FRAMG. (GIRTS), INSUL. AND EXT. PANELING. - SEE EXT. ELEVS. - INTERIOR 5-5/8" 20 GA. MTL. STUD. FRAMG. AT 16" O.C. AND ONE LAYER OF 5/8" TYPE X GYP. BD. ON INT. SIDE - EXTEND WALLS TO 12'-0" A.F.F.

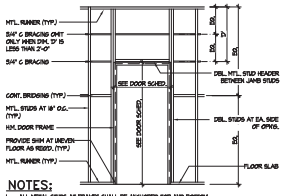
INTERIOR 3-5/8" (OR LARGER WHERE INDICATED) 20 GA. MTL. STUD FRAMG. AT 16" O.C. W/ ONE LAYER OF 5/8" TYPE X GYP. BD. ON EA. SIDE (5/8" MOISTURE RESISTANT TILE BACKER BD. ON RESTROOM AND CUSTODIAL ROOM SIDES) - EXTEND WALLS TO 12'-0" A.F.F.

SIGNAGE LEGEND

SIGN TYPE C1	ROOM NAME AND GENDER AND ACCESSIBILITY GRAPHICS SIGN - REFER TO PROJECT MANUAL SECTION 10 1400 SIGNAGE
SIGN TYPE C2	EXIT SIGN - REFER TO PROJECT MANUAL SECTION 10 1400 SIGNAGE
SIGN TYPE C5	EMERGENCY EVACUATION SIGN - REFER TO PROJECT MANUAL SECTION 10 1400 SIGNAGE

FLOOR PLAN NOTES

1. ARCHITECTURAL CASEWORK W/ SINKS WHERE INDICATED - COORD. W/ MEP DOCUMENTS
2. SHT. MTL. DOWNSPOUT - COORD. W/ ROOF PLAN, EXTERIOR ELEVATIONS AND CIVIL DOCUMENTS
3. DOOR, FRAME AND DOOR HARDWARE AS SCHED.
4. EXTERIOR ALUM.-FRAMED STOREFRONT FRAMG. AND GLAZG. SYS.
5. ADJUSTABLE MTL. SHELVES.
6. OWNER FURNISHED AND INSTALLED EQUIP. - COORD. W/ MEP DOCUMENTS FOR ROUGH-IN REQUIREMENTS
7. MANUAL ROLLER SHADES
8. PRE-ENGINEERED MTL. BLDG. STRUCT. AND ASSOCIATED EXT. WALLS
9. PLUMBG. FIXTURES AND ACCESSORIES - COORD. W/ PLUMBG. DOCUMENTS
9A. SHALLOW FLOOR MOP SINK FOR OWNER FURNISHED AND INSTALLED ICE MAKER ABOVE SINK - COORD. W/ MEP DOCUMENTS FOR ROUGH-IN REQUIREMENTS
10. PLYWOOD AROUND ROOM INTERIOR - PAINT W/ GRAY FIRE RETARDANT PAINT - INSTALL AT 6" A.F.F.
11. WATER COOLER - OWNER FURNISHED AND INSTALLED - COORD. W/ MEP DOCUMENTS FOR ROUGH-IN REQUIREMENTS
12. DOWNSPOUT - COORD. W/ CIVIL DOCUMENTS FOR UNDERGROUND TIE-IN
13. REFER TO SECTION 09 1000 OF PROJECT MANUAL FOR FINISH SCHEDULE - TYP. NOTE THROUGHOUT
14. COORD. W/ CIVIL, STRUCTURAL AND MEP DOCUMENTS FOR ADDITIONAL SCOPE OF WORK - TYP. NOTE THROUGHOUT



NOTES:
1. ALL METAL STUDS AT FRAMES SHALL BE ANCHORED TOP AND BOTTOM.
2. STUD TRACK AT DOOR HEAD SHALL BE CUT, BENT AND FASTENED TO JAMB STUDS.

STUD FRAMING DETAIL
NTS (C-A-1)

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NEW FIRE DEPARTMENT ADMINISTRATION BUILDING
1579 NW LAKE JEFFERY ROAD
LAKE CITY, FLORIDA

#	Date	Note
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FLOOR PLAN
1/4" = 1'-0"
CONSTRUCTION DOCUMENTS

DATE
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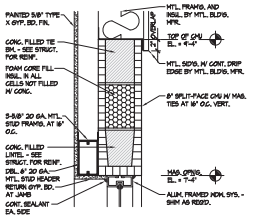
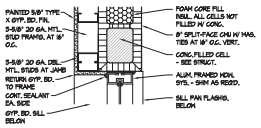
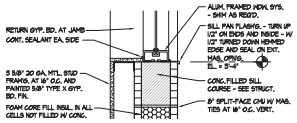


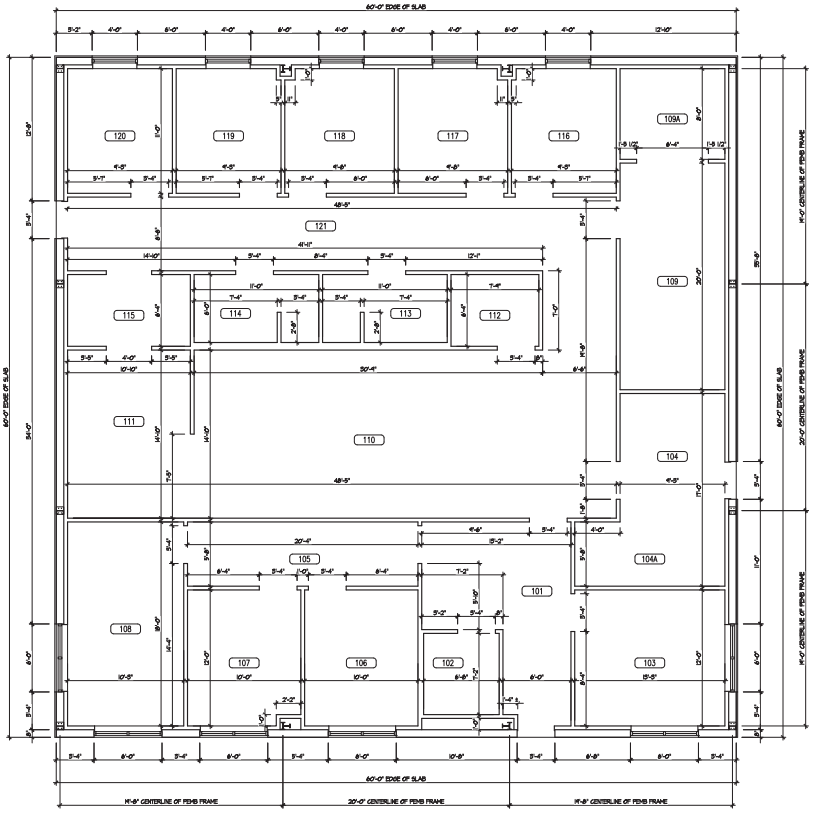
WINDOW HEAD DETAIL (A/A-2)
1-1/2" = 1'-0"



WINDOW JAMB DETAIL (B/A-2)
1-1/2" = 1'-0"



WINDOW SILL DETAIL (C/A-2)
1-1/2" = 1'-0"



DIMENSION PLAN
1/4" = 1'-0"

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NEW FIRE DEPARTMENT ADMINISTRATION BUILDING
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DIMENSION PLAN
1/4" = 1'-0"

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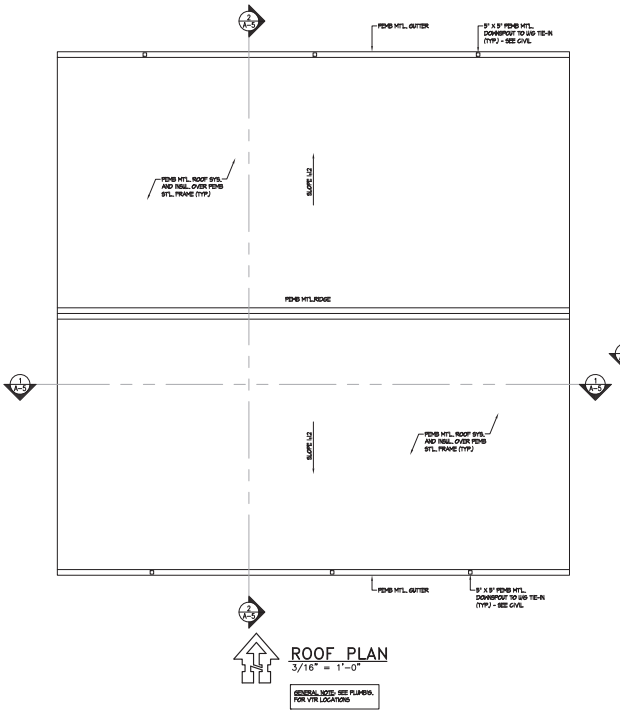
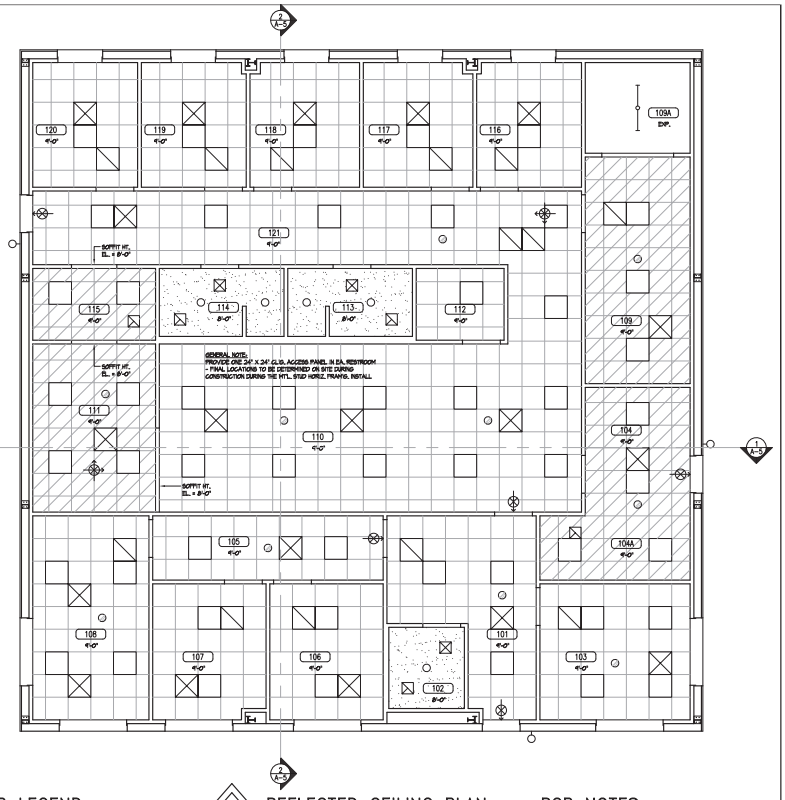


ROOF PLAN
3/16" = 1'-0"

GENERAL NOTE: SEE PLUMBG. FOR VTR LOCATIONS



REFLECTED CEILING PLAN
1/4" = 1'-0"

RCP LEGEND

- EXIT LIGHT - SEE ELEC.
- 2X2 SUSP. A.T. GRID AND TILE SYS.
- 2X2 SUSP. MOISTURE RESISTANT GRID AND TILE SYS.
- SUSP. 5/8" MOISTURE RESISTANT GYP. BD. OVER DRYWALL / PLASTER GRID SYS. AND 6-1/2" BATT INSUL. ON GYP. BD. ABV.
- SUPPLY AIR DIFFUSER - SEE MECH.
- RETURN AIR GRILLE - SEE MECH.
- EXHAUST FAN - SEE MECH.
- LIGHT FIXTURE - SEE ELEC.
- RECESSED LIGHT FIXTURE - SEE ELEC.
- EXTERIOR LIGHT FIXTURE - SEE ELEC.
- OCCUPANCY SENSOR - SEE ELEC.
- SUSP. LIGHT FIXTURE - SEE ELEC.

RCP NOTES

1. SUSPENDED CEILINGS, SUSPENSION SYSTEMS AND LIGHT FIXTURES ARE TO BE SUSPENDED FROM STRUCTURE ABOVE - LIGHT FIXTURES ARE TO BE SUSPENDED SEPARATELY FROM GRID ON DIAGONAL CORNERS
2. SUPPLY DIFFUSERS AND RETURN GRILLES ARE TO BE SUPPORTED BY THE SUSPENDED GRID WHICH IS TO BE SUPPORTED BY TIE WIRE AT DIAGONAL CORNERS AT EACH LOCATION
3. THE CEILING SUBCONTRACTOR IS TO PROVIDE AND INSTALL THE TIE WIRE FOR THE CEILING GRID, MECHANICAL ITEMS AND LIGHT FIXTURES - THE MECHANICAL AND ELECTRICAL SUBCONTRACTORS ARE TO MAKE THE FINAL CONNECTIONS OF THEIR RESPECTIVE ITEMS TO THE TIE WIRE AND CEILING GRID
4. REPORT ANY CONFLICTS PRIOR TO ANY INSTALLATION
5. REFER TO THE MECHANICAL, PLUMBING, FIRE PROTECTION AND ELECTRICAL DOCUMENTS FOR ADDITIONAL CEILING INFORMATION

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NEW FIRE DEPARTMENT ADMINISTRATION BUILDING
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ROOF PLAN AND REFLECTED CEILING PLAN
VARES

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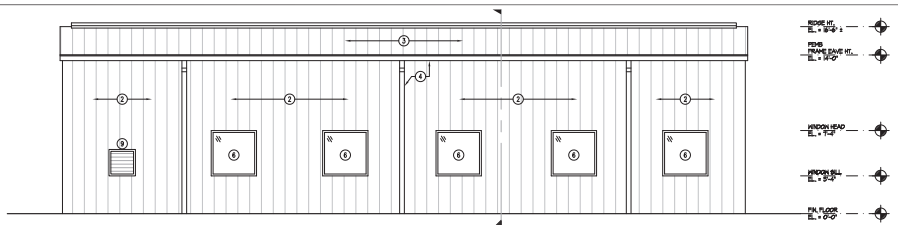
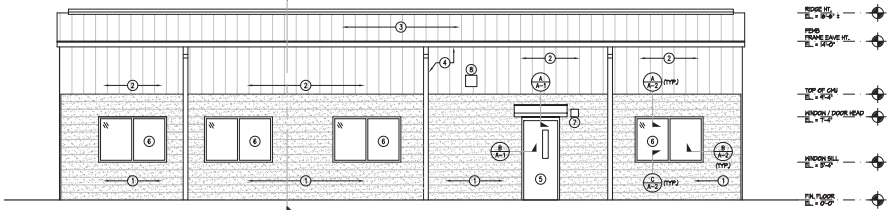
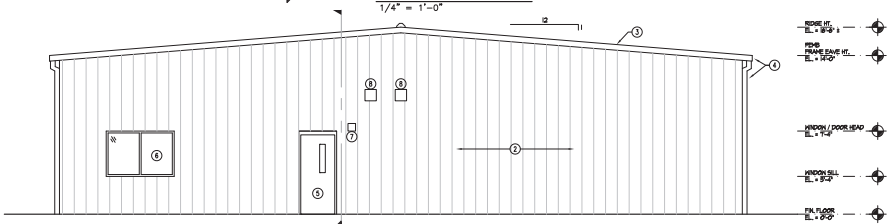


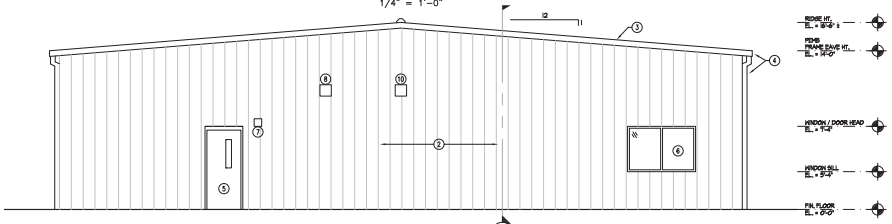
NORTH ELEVATION
1/4" = 1'-0"



SOUTH ELEVATION
1/4" = 1'-0"



EAST ELEVATION
1/4" = 1'-0"



WEST ELEVATION
1/4" = 1'-0"

NOTE:
ALL LIGHTS, LOUVERS, ETC. NEED TO BE LOCATED BETWEEN RIBS OF PANELS WHENEVER POSSIBLE

NOTE:
USING SPLIT-FACE CMU SMOOTH OR PROMISE REGULAR CMU AT DOOR HOODS AND LIGHT FIXTURES FOR FLASH'G.

ELEVATION NOTES

1. SPLIT-FACE 8" CMU WALL W/ FOAM INSUL. IN ALL CELLS NOT FILLED W/ CONC. - SEE STRUCT. DOCUMENTS FOR CMU REINF.
2. PRE-ENGINEERED MTL. BLDG. MTL. WALL PANELS.
3. PRE-ENGINEERED MTL. BLDG. ROOF WALL PANELS.
4. PRE-ENGINEERED MTL. BLDG. MTL., GUTTER AND ASSOCIATED DOWNSPOUTS - COORD. W/ CIVIL DOCUMENTS FOR UNDERGROUND TIE-IN
5. DOOR, FRAME AND DOOR HARDWARE AS SCHED.
6. EXTERIOR ALUM.-FRAMED STOREFRONT FRAMS. AND GLASS. SYS.
7. EXTERIOR LIGHT FIXTURE - SEE ELEC.
8. EXT. WALL CAP - SEE MECH.
9. HVAC LOUVER - SEE MECH.
10. KITCHEN HOOD EXT. WALL CAP - SEE MECH.
11. COORD. W/ CIVIL, STRUCTURAL AND MEP DOCUMENTS FOR ADDITIONAL SCOPE OF WORK - TYP. NOTE THROUGHOUT

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NEW FIRE DEPARTMENT ADMINISTRATION BUILDING
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EXTERIOR ELEVATIONS
1/4" = 1'-0"

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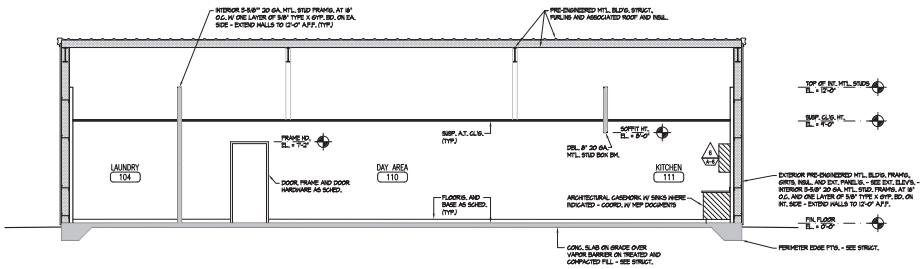
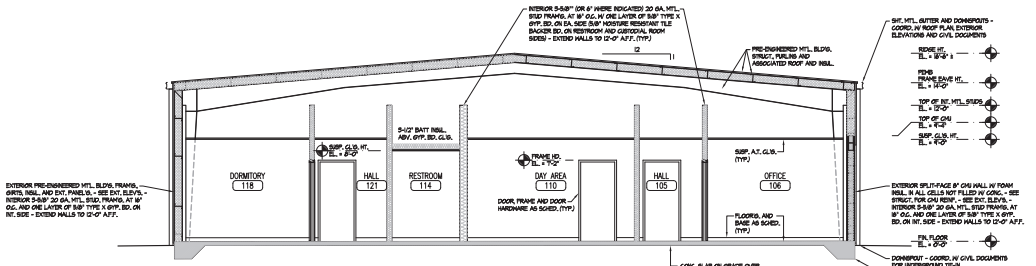


BUILDING SECTION 1/A-5

1/4" = 1'-0"



BUILDING SECTION 2/A-5

1/4" = 1'-0"

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BUILDING SECTIONS
1/4" = 1'-0"
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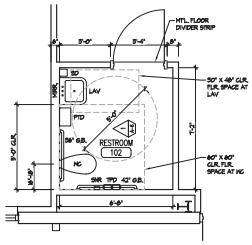
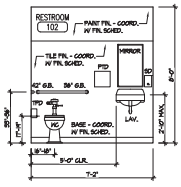
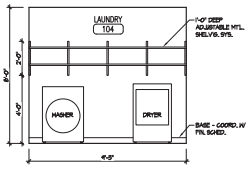


RESTROOM PLAN
3/8" = 1'-0"



INTERIOR ELEVATION
3/8" = 1'-0"



INTERIOR ELEVATION
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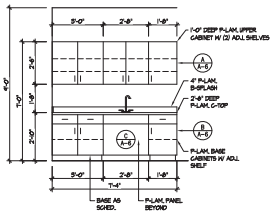
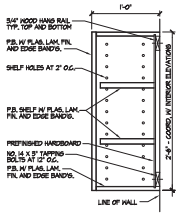
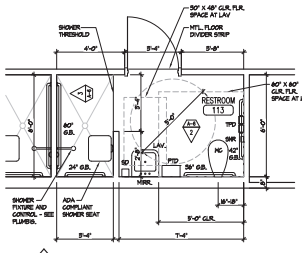


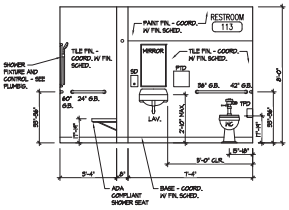
INTERIOR ELEVATION
3/8" = 1'-0"
KITCHEN 111



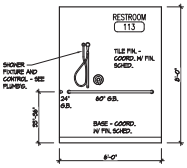
CASEWORK SECTION
1-1/2" = 1'-0"



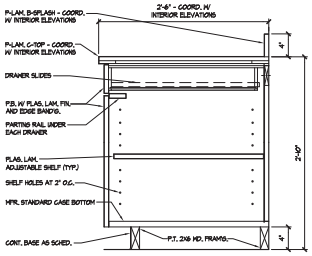
RESTROOM PLAN
3/8" = 1'-0"
RESTROOM PLAN IS OPPOSITE FOR ROOM 114



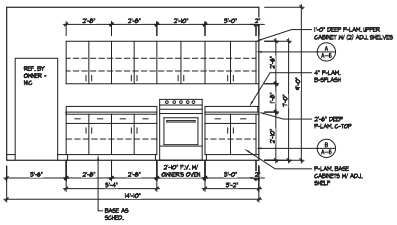
INTERIOR ELEVATION
3/8" = 1'-0"
RESTROOM PLAN IS OPPOSITE FOR ROOM 114



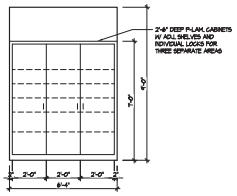
INTERIOR ELEVATION
3/8" = 1'-0"
RESTROOM PLAN IS OPPOSITE FOR ROOM 114



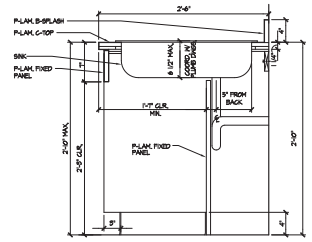
CASEWORK SECTION
1-1/2" = 1'-0"



INTERIOR ELEVATION
3/8" = 1'-0"
KITCHEN 111



INTERIOR ELEVATION
3/8" = 1'-0"
PANTRY 115



CASEWORK SECTION
1-1/2" = 1'-0"

kaii partners
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ADDRESS • AVENTURA FLORIDA • 305-971-4199

NEW FIRE DEPARTMENT ADMINISTRATION BUILDING
1379 NW LAKE JEFFERY ROAD
LAKE CITY, FLORIDA

#	Date	Note
Revisions		

ENLARGED PLANS AND INTERIOR ELEVATIONS
VARIES

CONSTRUCTION DOCUMENTS

DATE
4/12/2024

2338

A-6

GENERAL STRUCTURAL NOTES

GENERAL REQUIREMENTS:

1. STRUCTURAL DRAWINGS SHALL BE USED IN CONJUNCTION WITH THE SPECIFICATIONS AND OTHER PROJECT DRAWINGS BY OTHER DISCIPLINES. ALL WORK SHALL CONFORM TO THE REQUIREMENTS OF THE CODES LISTED BELOW.
2. THE GENERAL CONTRACTOR SHALL COMPARE AND COORDINATE THE CONSTRUCTION DOCUMENTS OF ALL DISCIPLINES PRIOR TO SUBMITTAL OF SHOP DRAWINGS OR BEGINNING CONSTRUCTION IN THE AFFECTED AREAS. THIS COMPARISON/COORDINATION SHALL INCLUDE, BUT NOT BE LIMITED TO, DIMENSIONS, EVALUATIONS, EMBEDDED ITEMS, ANCHORED OR OTHERWISE SUPPORTED ITEMS, FLOOR, ROOF, AND WALL OPENINGS, ETC. NOTIFY THE ARCHITECT/ENGINEER OF ANY DISCREPANCIES ALONG WITH THE APPLICABLE DOCUMENT REFERENCES.
3. CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND ELEVATIONS RELATING TO EXISTING CONDITIONS BY MAKING FIELD SURVEYS AND MEASUREMENTS PRIOR TO COMMENCING FABRICATION OR CONSTRUCTION.
4. THE GENERAL CONTRACTOR SHALL ENSURE THAT ALL CONSTRUCTION METHODS USED WILL NOT CAUSE DAMAGE TO ADJACENT BUILDINGS, UTILITIES, OR OTHER PROPERTY. THIS REQUIREMENT IS PARTICULARLY IMPORTANT DURING FOUNDATION INSTALLATION.
5. THE GENERAL CONTRACTOR IS ADVISED TO CONSIDER PERFORMING PHOTOGRAPHIC SURVEYS AND OTHER DOCUMENTATION OF THE CONDITION OF ADJACENT BUILDINGS AND OTHER STRUCTURES BEFORE THE START OF CONSTRUCTION.
6. THE GENERAL CONTRACTOR SHALL OBTAIN COPIES OF THE LATEST CONTRACT DOCUMENTS, INCLUDING ALL ADDENDA, AND PROVIDE THE RELEVANT PORTIONS TO ALL SUB-CONTRACTORS AND SUPPLIERS PRIOR TO PREPARATION AND SUBMITTAL OF SHOP DRAWINGS AND FABRICATION AND ERECTION OF STRUCTURAL MEMBERS.
7. PARTIAL PLANS, ELEVATIONS, SECTIONS, DETAILS, AND SCHEDULES LABELED "TYPICAL" SHALL APPLY TO ALL SITUATIONS THAT ARE THE SAME OR SIMILAR TO THOSE SPECIFICALLY DETAILED. SEE DETAIL TITLES FOR APPLICABILITY OF A PARTICULAR PARTIAL PLAN, ELEVATION, SECTION OR DETAIL. TYPICAL DETAILS SHALL APPLY WHETHER OR NOT THEY ARE SPECIFICALLY REFERENCED AT EACH LOCATION. THE STRUCTURAL ENGINEER OF RECORD SHALL HAVE FINAL AUTHORITY TO DETERMINE APPLICABILITY OF TYPICAL DETAILS.
8. WHERE CONFLICTS EXIST BETWEEN STRUCTURAL DOCUMENTS THE STRICTEST REQUIREMENTS, AS INDICATED BY THE STRUCTURAL ENGINEER, SHALL GOVERN.
9. DELEGATED ENGINEER REQUIREMENTS: THE FLORIDA BOARD OF PROFESSIONAL ENGINEERS HAS ISSUED STATEMENTS ON RESPONSIBILITIES OF PROFESSIONAL ENGINEERS, PURSUANT TO CHAPTERS 61G15-30 AND 61G15-31 OF THE FLORIDA ADMINISTRATIVE CODE. CERTAIN COMPONENTS OF THE STRUCTURE REQUIRE THE WORK OF DELEGATED ENGINEERS FOR THE DESIGN OF THOSE COMPONENTS. ALL RELEVANT PROCEDURES PRESENTED IN THE FLORIDA ADMINISTRATIVE CODE SHALL APPLY TO THIS PROJECT.
10. DESIGN OF PRE-ENGINEERED METAL BUILDING SYSTEM, COLD FORMED STEEL FRAMING (CFS) OR THEIR SPECIALTY ENGINEERED ITEMS NOT FULLY DETAILED OR PROVIDED FOR IN THE CONSTRUCTION DOCUMENTS SHALL BE DESIGNED, DETAILED, FURNISHED AND INSTALLED WITH ALL THE PROVISIONS OF THE CONSTRUCTION DOCUMENTS SPECIFIED HERE AND ELSEWHERE.
11. THE STRUCTURAL ENGINEER OF RECORD (SER) SHALL REVIEW AND RESPOND TO STRUCTURAL REQUESTS FOR INFORMATION (RFI'S) AS REQUIRED DURING THE COURSE OF THE PROJECT. ANY RESPONSE BY THE SER SHALL NOT BE AN AUTHORIZATION TO PROCEED IF THE RESPONSE REQUIRES ADDITIONAL COST OR TIME. PROCEEDING WITH THE WORK IS ACKNOWLEDGEMENT THERE WILL BE NO CHANGE IN COST OR TIME. IF ANY RFI RESPONSE REQUIRES A CHANGE IN COST OR TIME, THE CONTRACTOR SHALL NOT PROCEED WITH THE WORK UNTIL SUCH TIME AS THE CHANGE IS DOCUMENTED AND APPROVED IN ACCORDANCE WITH THE REQUIREMENTS OF THE CONTRACT DOCUMENTS.
12. NO STRUCTURAL MEMBER SHALL BE CUT OR NOTCHED OR OTHERWISE REDUCED IN STRENGTH UNLESS APPROVED BY THE STRUCTURAL ENGINEER.

CONSTRUCTION RESPONSIBILITY:

1. THE CONTRACT STRUCTURAL DRAWINGS AND SPECIFICATIONS REPRESENT THE COMPLETED STRUCTURE, AND ARE NOT INTENDED TO INDICATE THE METHOD OR MEANS OF CONSTRUCTION. THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE WORK AND SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION MEANS, METHODS, PROCEDURES, TECHNIQUES, SEQUENCES, AND FOR JOB SAFETY.
2. THE ENGINEER DOES NOT HAVE CONTROL OR CHARGE OF, AND SHALL NOT BE RESPONSIBLE FOR, CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, OR PROCEDURES, FOR SAFETY PRECAUTIONS AND PROGRAMS IN CONNECTION WITH THE WORK, FOR THE ACTS OR OMISSIONS OF THE CONTRACTOR, SUBCONTRACTOR, OR ANY OTHER PERSONS PERFORMING ANY OF THE WORK, OR FOR THE FAILURE OF ANY OF THEM TO CARRY OUT THE WORK IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
3. PERIODIC SITE OBSERVATION VISITS MAY BE PROVIDED BY THE STRUCTURAL ENGINEER. THE SOLE PURPOSE OF THESE VISITS IS TO ASSIST AND TO REVIEW THE GENERAL CONFORMANCE OF THE COMPLETED CONSTRUCTION WITH THE STRUCTURAL CONTRACT DOCUMENTS. THESE LIMITED OBSERVATIONS SHOULD NOT BE CONSTRUED AS CONTINUOUS OR EXHAUSTIVE TO VERIFY THAT ALL CONSTRUCTION IS IN COMPLIANCE WITH THE CONSTRUCTION DOCUMENTS. THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR PERFORMING ALL WORK IN COMPLIANCE WITH THE CONSTRUCTION DOCUMENTS.

PRIMARY CODES AND SPECIFICATIONS:

1. GENERAL BUILDING CODE:
   A. FLORIDA BUILDING CODE - BUILDING, EIGHTH EDITION, 2023.
2. DESIGN LOADS:
   A. ASCE 7-22 MINIMUM DESIGN LOADS AND ASSOCIATED CRITERIA FOR BUILDINGS AND OTHER STRUCTURES.
3. CONCRETE CODES:
   A. ACI 318-19 BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE.
   B. ACI 301-16 SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS.
   C. CRSI MANUAL OF STANDARD PRACTICE.
4. MASONRY CONSTRUCTION:
   A. TMS 402-16 BUILDING CODE REQUIREMENTS FOR MASONRY STRUCTURES.
   B. TMS 602-16 SPECIFICATIONS FOR MASONRY STRUCTURES.
5. STRUCTURAL STEEL CODES:
   A. AISC 360-16 SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS.
   B. AISC 303-16 CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES.
6. COLD FORMED STEEL FRAMING:
   A. AISI S100-16 NORTH AMERICAN SPECIFICATION FOR THE DESIGN OF COLD FORMED STEEL STRUCTURAL MEMBERS (SUPPLEMENT 2 - 2020).
   B. AISI S202-20 CODE OF STANDARD PRACTICE FOR COLD FORMED STEEL FRAMING.
   C. AISI S240-20 NORTH AMERICAN STANDARD FOR COLD-FORMED STEEL STRUCTURAL FRAMING.

DESIGN LOADS:

1. SUPERIMPOSED DEAD LOADS:
   A. ROOFS:
      MINIMUM (COMBINED w/ WIND UPLIFT LOADINGS)..... 1 PSF
      MAXIMUM ALLOWANCE ..... 10 PSF
      SEE ROOF PLANS FOR OTHER CONCENTRATED LOADS
2. LIVE LOADS:
   A. ROOF LIVE LOADS:
      UNIFORMLY DISTRIBUTED LIVE LOAD ON HORIZONTAL PROJECTION..... 20 PSF
   B. UNIFORMLY DISTRIBUTED FLOOR LIVE LOADS:
      SLAB ON GRADE..... 100 PSF
3. WIND LOADS:
   A. ULTIMATE DESIGN WIND SPEED, 3 SECOND GUST, Vult..... 133 MPH
      NOMINAL DESIGN WIND SPEED, 3 SECOND GUST, Vasd..... 103 MPH
      TORNADO DESIGN WIND SPEED, Vt..... 50 MPH
      HURRICANE PRONE REGION..... YES
      WINDBORNE DEBRIS REGION..... NO
      EFFECTIVE WIND AREA (A_e)..... 3,650 SQ FT
      BUILDING RISK CATEGORY..... IV
      WIND EXPOSURE CATEGORY..... C
      WIND TOPOGRAPHIC FACTOR (Kzt)..... 1.0
      ENCLOSURE CATEGORY..... ENCLOSED
      INTERNAL PRESSURE COEFFICIENT..... +/- 0.18
      MEAN ROOF HEIGHT..... 12 FEET
      WIND DIRECTIONALITY FACTOR, Kd..... 0.85
      VELOCITY PRESSURE COEFFICIENT (Kh)..... 0.85
      ULTIMATE VELOCITY PRESSURE (qh)(ult)..... 38 PSF
      NOMINAL VELOCITY PRESSURE (qh)(nom))..... 23 PSF
   B. SEE LOADING NOTES, TABLES AND DIAGRAMS FOR DESIGN FORCES FOR COMPONENTS DESIGNED BY DELEGATED ENGINEERS.
4. SEISMIC: EXEMPT PER EXCEPTION 2 OF FLORIDA BUILDING CODE SECTION 101.2.
5. GROUND SNOW LOADS: EXEMPT PER EXCEPTION 2 OF FLORIDA BUILDING CODE SECTION 101.2.
6. RAIN LOADS:
   RAIN LOAD..... N/A PSF (SLOPED, FREE DRAINING)
   RAIN INTENSITY - 100 YEAR PER NOAA..... 5.0 INCHES / HOUR (PRIMARY)
   RAIN INTENSITY - 100 YEAR PER NOAA..... 10.0 INCHES / 15 MINUTES (SECONDARY)
   DEPTH TO SECONDARY DRAIN, d_s..... N/A INCHES
   OVERFLOW DIAMETER..... N/A INCHES
   DESIGN HEAD OVER SECONDARY, h_s..... N/A INCHES
   OVERFLOW RATE..... N/A GALLONS PER MINUTE

FUTURE BUILDING GROWTH:

1. THE BUILDING HAS NOT BEEN DESIGNED FOR ANY FUTURE VERTICAL OR HORIZONTAL GROWTH.

FOUNDATIONS:

1. FOUNDATION DESIGN IS BASED ON THE FOLLOWING GEOTECHNICAL REPORT:
   NUMBER: 24-00254-01
   BY: CAL-TECH TESTING, INC.
   AND DATED: JUNE 12, 2024
   THE GENERAL CONTRACTOR MAY REVIEW A COPY OF THE GEOTECHNICAL REPORT AT THE OFFICE OF THE ARCHITECT.
2. ALL VEGETATION, TOPSOILS, ROOTS AND ORGANIC ZONES SHALL BE STRIPPED AND REMOVED FROM THE CONSTRUCTION AREA FOR A DISTANCE OF AT LEAST 5 FEET BEYOND THE EXTERIOR OF BUILDING FOUNDATION LIMITS. THE DEPTH OF STRIPPING SHALL BE THAT REQUIRED TO REMOVE SIGNIFICANT ROOT ZONES, SMALL TREE STUMPS AND OTHER UNACCEPTABLE MATERIALS, BUT IN NO CASE LESS THAN 6 INCHES.
3. EXCAVATIONS FOR LARGE STUMPS, ABANDONED UTILITIES, UNDERGROUND TANKS, ETC. SHALL BE BACKFILLED IN LAYERS WITH COMPACTION AND TESTING OF EACH LAYER AS DESCRIBED FOR PLACEMENT AND COMPACTION OF FILL MATERIAL. USE LOOSE BACKFILL LAYER THICKNESS APPROPRIATE FOR THE SIZE OF COMPACTOR BEING USED.
4. AFTER THE SITE HAS BEEN CLEARED, THE SITE SHALL BE PROOF-ROLLED UNDER THE DIRECT OBSERVATION OF THE PROJECT GEOTECHNICAL REPRESENTATIVE. PROVIDE A MINIMUM OF 8 OVERLAPPING COVERAGES IN EACH DIRECTION (16 TOTAL) WITH A MINIMUM OF 30% OVERLAP. REMOVE AND REPLACE ALL UNSUITABLE MATERIALS TO A DEPTH OF AT LEAST 4'-0" BELOW THE BOTTOM OF THE FOUNDATIONS AND THE SLAB-ON-GRADE.
5. AFTER THE SITE HAS BEEN CLEARED AND PROOF-ROLLED, THE EXPOSED SOILS AT THE STRIPPED SURFACE WITHIN AND TO A POINT 10 FEET OUTSIDE THE BUILDING CONSTRUCTION AREA SHALL BE COMPACTED TO DENSITIES OF AT LEAST 95 PERCENT OF THE MODIFIED PROCTOR MAXIMUM DRY DENSITY (ASTM D-1557) SHALL BE UNIFORMLY OBTAINED TO A DEPTH OF AT LEAST 12 INCHES BELOW THE COMPACTED SURFACE. REGARDLESS OF THE DEGREE OF COMPACTION ACHIEVED, A MINIMUM OF EIGHT COMPLETE COVERAGES SHALL BE MADE WITHIN THE BUILDING AREA. THE COVERAGES SHALL BE DIVIDED EVENLY INTO TWO PERPENDICULAR DIRECTIONS. THE CONTRACTOR IS ADVISED NOT TO USE THE VIBRATORY MODE OF COMPACTORS IN CLOSE PROXIMITY TO EXISTING STRUCTURES. THE CONTRACTOR SHALL COORDINATE COMPACTION EFFORTS AND FOUNDATION INSTALLATIONS TO INSURE THAT NO DAMAGE OCCURS TO ADJACENT STRUCTURES.
6. AFTER COMPLETION OF DENSIFICATION OF EXISTING SOILS, STRUCTURAL FILL SHALL THEN BE PLACED IN LIFTS NOT EXCEEDING 12 INCHES IN LOOSE THICKNESS WHEN USING THE ROLLER PREVIOUSLY DESCRIBED. EACH LIFT SHALL BE THOROUGHLY COMPACTED WITH THE VIBRATORY ROLLER UNTIL DENSITIES EQUIVALENT TO AT LEAST 95 PERCENT OF THE MODIFIED PROCTOR MAXIMUM DRY DENSITY ARE UNIFORMLY OBTAINED. STRUCTURAL FILL SHALL CONSIST OF AN INORGANIC, NON-PLASTIC, GRANULAR SOIL CONTAINING LESS THAN 10 PERCENT MATERIAL PASSING THE NO. 200 MESH SIEVE, A RELATIVELY CLEAN SAND WITH A UNIFIED SOIL CLASSIFICATION OF SP OR SP-SM.
7. FOOTINGS HAVE BEEN DESIGNED FOR AN ALLOWABLE BEARING PRESSURE OF 1200 PSF. THE UPPER 12 INCHES OF SANDY BEARING SOILS IN THE FOOTING EXCAVATION BOTTOMS SHALL BE COMPACTED TO DENSITIES EQUIVALENT TO 95 PERCENT OF THE MODIFIED PROCTOR MAXIMUM DRY DENSITY. COMPACTION, OR RECOMPACTION OF THE FOOTING EXCAVATION BEARING LEVEL SOILS LOOSENED BY THE EXCAVATION PROCESS, SHALL BE ACHIEVED BY MAKING SEVERAL PASSES WITH A RELATIVELY LIGHTWEIGHT, WALK-BEHIND VIBRATORY SLED OR ROLLER COMPACTOR.
8. UNLESS NOTED, ALL FOOTINGS SHALL BE CENTERED UNDER COLUMNS, PIERS AND WALLS.
9. SLAB-ON-GRADE CONSTRUCTION SHALL BE SUPPORTED ON SUBGRADE COMPACTED TO A DENSITY OF NO LESS THAN 95% OF THE MODIFIED PROCTOR MAXIMUM DRY DENSITY (ASTM D-1557) TO A DEPTH OF AT LEAST 12 INCHES. INTERIOR SLABS-ON-GRADE SHALL BE CAST OVER A VAPOR RETARDER. SEE SPECIFICATIONS.
10. SEE SPECIFICATIONS FOR SURFACE AND GROUND WATER CONTROL.

CAST-IN-PLACE CONCRETE:

1. THE LATEST EDITION OF THE FOLLOWING ACI STANDARDS APPLY:
   ACI 304 (PLACING) ACI 306 (WINTER CONCRETING)
   ACI 315 (DETAILING) ACI 305 (HOT WEATHER CONCRETING)
   ACI 347 (FORMWORK) ACI 211.1 (MIX PROPORTIONING)
   ACI 301 (SPECIFICATIONS)
2. ALL CONCRETE SHALL BE NORMAL WEIGHT (145 PCF), WITH MIXES DESIGNED TO MEET THE FOLLOWING CRITERIA FOR USE IN VARIOUS ELEMENTS OF THE STRUCTURE AS FOLLOWS:

STRUCTURAL ELEMENT	28-DAY COMPRESSIVE STRENGTH (PSI)	MAX. SIZE AGGREGATE	MAX. W/C RATIO	SLUMP RANGE (IN)
FOOTINGS & SLAB-ON-GRADE	3500	3/4"	0.50	2-4

3. CONCRETE SLUMP IS TAKEN AT POINT OF PLACEMENT INTO STRUCTURE.
4. WATER REDUCING AND AIR ENTRAINING AGENTS SHALL BE INCLUDED IN DESIGN MIXES. SUPERPLASTICIZERS MAY BE USED AT THE CONTRACTOR'S OPTION.
5. A CONCRETE MIX DESIGN FOR EACH UNIQUE COMBINATION OF STRENGTH, COARSE AGGREGATE GRADATION AND WATER CEMENT RATIO SPECIFIED SHALL BE PREPARED BY THE SUPPLIER OR AN INDEPENDENT TESTING LABORATORY AND BE SUBMITTED FOR REVIEW PRIOR TO CASTING ANY CONCRETE. MIXES THAT WILL BE TRANSPORTED AT THE PROJECT SITE BY PUMPING SHALL BE SPECIFICALLY DESIGNED FOR PUMPING.
6. SEE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
7. SLABS ON GRADE: UNLESS NOTED OTHERWISE, CONCRETE SLABS ON GRADE SHALL BE A MINIMUM OF 4" THICK, REINFORCED WITH 6x6 W1.4/W1.4 WWF PLACED 1-1/2" CLEAR FROM THE TOP OF THE SLAB. SLABS SHALL BE PLACED OVER PROPERLY COMPACTED EARTH.

REINFORCING STEEL:

1. REINFORCING STEEL: ASTM A615, GRADE 60.
2. REINFORCING STEEL TO BE WELDED: ASTM A706 (DBA's, EMBEDS)
3. WELDED WIRE FABRIC: ASTM A1064, FLAT SHEETS.
4. MINIMUM REINFORCING STEEL CLEAR COVER (U.N.O.):
   A. CONCRETE CAST DIRECTLY AGAINST EARTH ..... 3"
   B. FOUNDATION AND EXTERIOR WALLS ..... 2"
   C. SLABS ON GRADE ..... 1-1/2" FROM TOP
5. WHERE REINFORCING BARS ARE NOTED AS CONTINUOUS THE TERMINATION OF ALL CONTINUOUS REINFORCING BAR RUNS SHALL BE A STANDARD HOOK UNLESS NOTED OTHERWISE.
6. WHERE SPLICE LENGTHS ARE NOT SPECIFIED, USE 48 BAR DIAMETERS.
7. REINFORCING STEEL SHALL NOT BE TACK WELDED FOR ANY REASON.
8. LAP ALL WELDED WIRE FABRIC A MINIMUM OF ONE CROSS WIRE SPACING PLUS 2 INCHES.
9. ALL REINFORCING STEEL SHALL BE SUPPORTED ON STANDARD ACCESSORIES, HELD RIGIDLY AND ACCURATELY IN PLACE, AND PROTECTED AGAINST DISPLACEMENT BEFORE AND DURING PLACEMENT OF CONCRETE. SUPPORTING ACCESSORY LEGS THAT REST ON CONCRETE SURFACES THAT WILL BE EXPOSED IN THE FINISHED STRUCTURE SHALL BE FABRICATED OF STAINLESS STEEL.
10. DOWELS AND OTHER MISCELLANEOUS STEEL EMBEDDED ITEMS SHALL BE LOCATED AND HELD IN SPECIFIED POSITION PRIOR TO PLACEMENT OF CONCRETE AND SHALL NOT BE PUSHED INTO CONCRETE FOLLOWING CONCRETE PLACEMENT.
11. FOUNDATION, GRADE BEAM AND SLAB ON GRADE REINFORCING SHALL BE SUPPORTED ON PRECAST BLOCKS OR 3000 PSI CONCRETE BRICK OF THE PROPER THICKNESS.
12. SOFT METRIC BAR SIZES VS. INCH POUND BAR SIZES:

METRIC	INCH-POUND
#10	#3
#13	#4
#16	#5
#19	#6
#22	#7
#25	#8

CONCRETE FORMWORK:

1. SEE NOTES ON PRIMARY CODES AND SPECIFICATIONS.
2. ALL FORMWORK SHALL BE DESIGNED, ERECTED, SUPPORTED, BRACED, AND MAINTAINED ACCORDING TO ACI 347, RECOMMENDED STANDARD PRACTICE FOR CONCRETE FORMWORK.
3. RESPONSIBILITY: THE DESIGN, CONSTRUCTION, AND SAFETY OF ALL FORMWORK SHALL BE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR. ALL FORMS, SHORES, BACKSHORES, FALSEWORK, BRACING, AND OTHER TEMPORARY SUPPORTS SHALL BE ENGINEERED TO SUPPORT ALL LOADS IMPOSED INCLUDING THE WET WEIGHT OF CONCRETE, CONSTRUCTION EQUIPMENT, LIVE LOADS, LATERAL LOADS DUE TO WIND AND WET CONCRETE IMBALANCE. SEE SPECIFICATIONS FOR DETAILED REQUIREMENTS.
4. TOLERANCES: UNLESS SPECIFIED OTHERWISE, ALL TOLERANCES FOR CONCRETE FORMWORK SHALL CONFORM TO ACI STANDARD 117. STANDARD TOLERANCES FOR CONCRETE CONSTRUCTION AND MATERIALS. THE CONTRACTOR SHALL ENGAGE A LICENSED SURVEYOR TO VERIFY THAT WORK IS WITHIN SPECIFIED TOLERANCES UNLESS WRITTEN AUTHORIZATION IS OBTAINED FROM THE ARCHITECT TO PROVIDE TOLERANCE CONTROL USING THE CONTRACTOR'S OWN FORCES PRIOR TO BEGINNING WORK.
5. ALL EXPOSED EDGES OF CONCRETE SHALL BE CHAMFERED WHERE SHOWN ON THE ARCHITECTURAL OR STRUCTURAL DRAWINGS.
6. PLUMBING SLEEVE SPACING SHALL BE THE LARGER OF THREE (3) DIAMETERS CENTER TO CENTER OF THE LARGER SLEEVE, OR 6" CLEAR BETWEEN SLEEVES. SUBMIT SLEEVE LOCATIONS AND SIZES TO ENGINEER FOR REVIEW PRIOR TO CONSTRUCTION.
7. PENETRATIONS SHALL NOT BE PERMITTED IN ANY STRUCTURAL MEMBERS OTHER THAN THOSE SPECIFICALLY INDICATED ON THE STRUCTURAL DRAWINGS WITHOUT THE WRITTEN REVIEW OF THE STRUCTURAL ENGINEER OF RECORD. THE CONTRACTOR SHALL SUBMIT DRAWINGS TO THE STRUCTURAL ENGINEER OF RECORD FOR REVIEW INDICATING ANY CONCENTRATION OF PIPES, OPENINGS OR PENETRATIONS NOT SHOWN ON THE STRUCTURAL DRAWINGS PRIOR TO CONCRETE PLACEMENT.

STRUCTURAL DRAWING INDEX

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NEW FIRE DEPARTMENT ADMINISTRATION BUILDING
3579 NE LAKE JEFFREY ROAD
LAKE CITY, FLORIDA

Revisions:

GENERAL STRUCTURAL NOTES & STRUCTURAL DRAWING INDEX

CONSTRUCTION DOCUMENTS

DATE:
9/12/2024

2338

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GENERAL STRUCTURAL NOTES

CONCRETE MASONRY:

1. SEE NOTES ON PRIMARY CODES AND SPECIFICATIONS.
2. CONCRETE MASONRY UNITS SHALL BE LOAD BEARING TYPE CONFORMING TO ASTM C-90 HAVING A MINIMUM COMPRESSIVE STRENGTH OF 2000 PSI (NET AREA).
3. MORTAR SHALL CONFORM TO ASTM C-270 TYPE S.
4. PLAIN END TWO CELLED UNITS SHALL BE USED FOR BLOCKS THAT ARE TO HAVE CELLS REINFORCED AND FILLED. WEB SHELLS ADJACENT TO CELLS THAT ARE TO BE FILLED ARE TO BE BEDDED IN MORTAR.
5. FILL CELLS AS NOTED ON DRAWINGS WITH 3000 PSI GROUT, OR GROUT CONFORMING TO ASTM C-476, SPECIFICALLY DESIGNED FOR FILLING OF CELLS.
6. IN SPLICING VERTICAL BARS, LAP ENDS, PLACE IN CONTACT AND WIRE-TIE TOGETHER OR USE BAR POSITIONERS. LAP BARS SIDE BY SIDE IN THE PLANE OF THE WALL TO MAINTAIN PROPER COVER.
7. SEE PRIMARY CODES, SPECIFICATIONS AND DRAWINGS FOR GROUTING PROCEDURES.
8. INSTALLATION OF CONCRETE MASONRY SHALL BE COMPATIBLE WITH ALL APPLIED FINISHES SUCH AS STUCCO OR PAINT. DO NOT SPONGE WALLS WITHOUT PROPER CLEANING COMPATIBLE WITH FINISHES.
9. PROVIDE GALVANIZED WIRE TYPE HORIZONTAL JOINT REINFORCING AT 16" O.C. (MAX) AND AS INDICATED ON ARCHITECTURAL DRAWINGS. PROVIDE HOT DIP GALVANIZED HJR ON ALL EXTERIOR WALLS. IN ADDITION TO SCHEDULED OR DETAILED LINTEL AND SILL REINFORCING, PROVIDE TWO LAYERS OF HJR AT 8 INCHES ON CENTER ABOVE AND BELOW ALL LINTELS AND SILLS WHICH SPAN MORE THAN 12 INCHES. EXTEND ADDED HJR 24 INCHES BEYOND THE OPENING JAMBS EXCEPT AT W.C.I.
10. MASONRY BOND BEAMS AND CONCRETE TIE BEAMS CAST ON MASONRY WALLS SHALL BE CONSTRUCTED SO AS TO KEY BOND INTO BLOCK CELLS. THE USE OF BUILDING PAPER OR SHEET PLASTIC TO CLOSE VOIDS BELOW BEAMS IS NOT ALLOWED DUE TO BREAKAGE OF MORTAR BOND.
11. SEE ARCHITECT'S DRAWINGS FOR THE EXTENT AND EXACT LOCATION OF MASONRY WALLS.
12. WALL CONTROL JOINTS (WCJ):
    A. WALL CONTROL JOINTS SHALL BE PROVIDED IN ALL CONCRETE MASONRY CONSTRUCTION AT LOCATIONS INDICATED ON THE STRUCTURAL OR ARCHITECTURAL DRAWINGS BUT UNLESS NOTED OTHERWISE AT A SPACING NOT GREATER THAN 24' O.C.
    B. HORIZONTAL JOINT REINFORCING SHALL BE INTERRUPTED EACH SIDE OF WALL CONTROL JOINTS.
    C. WALL CONTROL JOINTS SHALL NOT BE PLACED OVER OPENINGS OR WITHIN AN OPENING JAMB WIDTH. SEE PLANS AND/OR JAMB REINFORCING SCHEDULE FOR MINIMUM JAMB WIDTHS.
    D. SEE ARCHITECTURAL DRAWINGS FOR SEALANT REQUIREMENTS AT WALL CONTROL JOINTS.
    E. SEE THESE DRAWINGS FOR ADDITIONAL REQUIREMENTS.
13. MASONRY WALLS SHALL BE BRACED EITHER BY OTHER INTERSECTING WALLS OR BY ANCHORAGE OR BRACING TO THE STRUCTURE ABOVE, OR TO ADJACENT WALLS, AS DETAILED ON THE STRUCTURAL DRAWINGS.
14. BLOCK LINTELS SHALL BE SPECIALLY FORMED U-SHAPED LINTEL OR LOW WEB LINTEL UNITS WITH REINFORCING BARS, OR PRECAST UNITS DESIGNED FOR THE WEIGHT OF MASONRY ABOVE AND OTHER APPLIED LOADS.
15. ALL MASONRY WALLS SHOWN ON THE STRUCTURAL DRAWINGS HAVE BEEN DESIGNED TO RESIST THE REQUIRED CODE VERTICAL AND LATERAL FORCES IN THE FINAL CONSTRUCTED CONFIGURATION ONLY. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO ADEQUATELY BRACE THE WALLS FOR VERTICAL AND LATERAL LOADS THAT COULD POSSIBLY BE APPLIED PRIOR TO COMPLETION OF LATERAL SUPPORT BY CONNECTIONS AT FLOORS OR ROOF FRAMING LEVELS.
16. QUALITY ASSURANCE: ALL REINFORCED MASONRY SHALL BE TESTED/INSPECTED IN CONFORMANCE WITH THE REFERENCED ACI 530/ASCE 5/TMS 402 CODES AND THE PROJECT SPECIFICATIONS. QUALITY ASSURANCES SHALL MEET THE REQUIREMENTS OF SECTION 1.6, TABLE 4 LEVEL B, UNLESS MORE RESTRICTIVE REQUIREMENTS ARE SPECIFIED ELSEWHERE IN THESE DOCUMENTS
17. TYPICAL SCHEDULED VERTICAL WALL REINFORCING SIZE AND SPACING SHALL ALSO BE CONTINUED ABOVE AND BELOW ALL OPENINGS.

STRUCTURAL STEEL:

1. SEE NOTES ON PRIMARY CODES AND SPECIFICATIONS.
2. MATERIALS:

C-SHAPES & MC-SHAPES	ASTM A36
ANGLES & PLATES	ASTM A36
STEEL PIPE	ASTM A53, GRADE B
HSS SHAPES	ASTM A1085, GRADE A OR ASTM A500, GRADE C
HIGH STRENGTH BOLTS	GROUP A - ASTM F3125, GRADE A325 OR F1852, UNO
ANCHOR RODS	ASTM F1554, GRADE 55 TYPE 51(UNO)
MACHINE BOLTS	ASTM A307, GRADE A
WELDED HEADED STUDS	ASTM A108
DEFORMED BAR ANCHORS	ASTM A496
WELDING ELECTRODES	AWS D1.1, E70 SERIES

3. SUBMIT FOR REVIEW SHOP DRAWINGS OF STEEL DETAILS PRIOR TO FABRICATING STRUCTURAL STEEL.
4. NON-SHRINK, NON-METALLIC GROUT WITH A MINIMUM 28 DAY STRENGTH OF 5000 PSI SHALL BE USED UNDER BASE PLATES AND SHALL CONFORM TO CORPS OF ENGINEERS CRD-C621, FACTORY PREMIX GROUT. SEE SPECIFICATIONS FOR TESTING REQUIREMENTS.
5. ENGINEER SHALL BE CONTACTED FOR APPROVAL OF ANY FIELD MODIFICATIONS OF ANCHOR BOLTS OR RODS AND COLUMN BASE PLATES (PER OSHA).
6. TEMPORARY BRACING OF STRUCTURAL STEEL ELEMENTS IS THE RESPONSIBILITY OF THE CONTRACTOR. STRUCTURAL STABILITY SHALL BE MAINTAINED AT ALL TIMES DURING THE ERECTION PROCESS.

   CONTRACTOR MUST PROVIDE NOTIFICATION TO THE ERECTOR THAT, BY TESTING, THE FOUNDATION AND SUPPORTING WALLS HAVE ATTAINED SUFFICIENT STRENGTH TO SUPPORT THE STEEL TO BE ERECTED BEFORE ERECTING STRUCTURAL STEEL.
7. PROVIDE ONE SHOP COAT OF PRIMER (TI-P-636) ON ALL STEEL EXCEPT FOR ITEMS TO BE HOT DIPPED GALVANIZED OR SPRAY FIREPROOFED. DO NOT PAINT PORTIONS EMBEDDED IN CONCRETE.
8. ALL WELD OPERATORS SHALL BE CURRENTLY AWS QUALIFIED.
9. DURING THE ERECTION OF STEEL BEAMS AND DIAGONAL BRACING, ALL BOLTING AND FIELD WELDING SHALL BE COMPLETE BEFORE RELEASING HOISTING CABLES.
10. STEEL COLUMNS, BASE PLATES AND ALL STEEL BELOW GRADE SHALL HAVE A MINIMUM 3" CONCRETE COVER PROTECTION.
11. MEMBERS NOTED AS "CONTINUOUS" SHALL BE FULLY WELDED AT ALL BUTT SPLICES OR CONNECTIONS SHALL BE DETAILED TO PROVIDE CONTINUITY.

PRE-ENGINEERED BUILDING:

1. THE BUILDING SHALL BE A STANDARD PREFABRICATED METAL STRUCTURE OF THE APPROXIMATE INSIDE AREA SHOWN, WITH FRAMES SPACED AS SHOWN. MINIMUM WEB THICKNESS OF RIGID FRAMES SHALL BE 3/16" AND MINIMUM FLANGE THICKNESS SHALL BE 1/4". RIGID FRAMES SHALL BE DESIGNED FOR PINNED CONDITIONS AT COLUMN BASES.
2. THE COMPLETE BUILDING SHALL BE DESIGNED AND FABRICATED ACCORDING TO AISC, MBMA, AISI LATEST SPECIFICATIONS, THE PROJECT CONTRACT DOCUMENTS, AND COMPLY WITH PROVISIONS OF THE APPLICABLE BUILDING CODE. WHERE REFERENCED SPECIFICATIONS CONFLICT, THE MORE STRINGENT SHALL APPLY. THE DIMENSIONAL TOLERANCES OUTLINED IN THE AWS CODE AND THE AISC CODE SHALL BE COMPLIED WITH IN THE FABRICATION OF THE STEEL BUILDING FRAMES. THE CONTRACTOR [CONSTRUCTION MANAGER] SHALL BE RESPONSIBLE TO PROVIDE ALL MANUFACTURERS PROPOSING TO SUPPLY THE PRE-ENGINEERED BUILDING FOR THIS PROJECT A SET OF CONTRACT DOCUMENTS DEFINING REQUIREMENTS.
3. THE BUILDING FRAMES AND COMPONENTS SHALL BE DESIGNED TO LIMIT DEFLECTIONS AND LATERAL DRIFT TO THE FOLLOWING RATIOS UNDER CONTROLLING GRAVITY, WIND, AND SEISMIC LOADINGS AND COMBINED LOADINGS:

FRAME MAXIMUM VERTICAL DEFLECTION	L/240
FRAME LIVE LOAD VERTICAL DEFLECTION	L/360
FRAME LATERAL DRIFT (AT EAVE LINE)	H/360
ROOF PURLIN MAXIMUM DEFLECTION	L/180
ROOF PURLIN LIVE LOAD DEFLECTION	L/360
WALL GIRT MAXIMUM LATERAL DEFLECTION	L/180

4. A COMPLETE DESIGN ANALYSIS SHOWING ALL CALCULATIONS FOR THE RIGID FRAMES, GIRTS, PURLINS AND X-BRACING FOR GRAVITY, WIND, AND SEISMIC LOADS AND A LAYOUT OF ANCHOR BOLTS AND OTHER EMBEDDED ITEMS SHALL BE SUBMITTED FOR APPROVAL WITH THE SHOP DRAWINGS. SHOP DRAWINGS SHALL INCLUDE DETAILS OF ALL MAIN MEMBERS, TYPICAL CONNECTIONS (SHOWING BOLT HOLES AND WELDS), ANCHOR BOLTS AND ERECTION DRAWINGS. ALL OF THE ABOVE ARE TO BE SUPPLIED BY BUILDING MANUFACTURER.
5. THE BUILDING SHALL BE DESIGNED TO SUPPORT ALL OVERHEAD DOORS, DOOR FRAMES AND MECHANICAL EQUIPMENT INCLUDING EXHAUST SYSTEMS, ETC. ADDITIONAL PURLINS OR GIRTS SHALL BE PLACED AT REQUIRED LOCATIONS FOR ATTACHMENT OF ALL MECHANICAL EQUIPMENT.
6. THE FOUNDATIONS SHOWN HAVE BEEN DESIGNED FOR ESTIMATED FOOTING LOADS TO ACCOMMODATE PINNED COLUMN BASES. FOUNDATIONS SHOWN ARE TO BE USED FOR ESTIMATING PURPOSES ONLY. FINAL COLUMN MAXIMUM HORIZONTAL AND VERTICAL LOADS SHALL BE VERIFIED FOR THE BUILDING FURNISHED FOR THIS PROJECT. THE CONTRACTOR OR CONSTRUCTION MANAGER SHALL ALLOW 3 WEEKS AFTER APPROVAL OF FINAL REACTIONS FOR DESIGN TO BE VERIFIED AND UPDATED AS REQUIRED.
7. THE CONTRACTOR / CONSTRUCTION MANAGER SHALL SUBMIT, AS A PART OF THE PROPOSAL OR BID TO THE OWNER, A CERTIFICATE FROM THE PRE-ENGINEERED BUILDING MANUFACTURER SELECTED TO FURNISH THE PRE-ENGINEERED PORTION OF THE WORK STATING THE FOLLOWING:

   "[MANUFACTURER'S NAME] CERTIFIES THAT STRUCTURAL DRAWINGS, GENERAL NOTES, AND SPECIFICATIONS DESCRIBING THE GEOMETRY, LOADING CONDITIONS, DEFLECTION AND DRIFT LIMITATIONS, AND OTHER SPECIFIC REQUIREMENTS FOR THIS PROJECT HAVE BEEN EXAMINED IN DETAIL BY OUR PROJECT MANAGER AND DESIGN ENGINEER. WE ACKNOWLEDGE THAT SOME REQUIREMENTS DESCRIBED IN THE CONSTRUCTION DOCUMENTS MAY BE MORE STRINGENT THAN MBMA REQUIREMENTS AND OUR NORMAL DESIGN AND SHOP PRACTICE. WE CERTIFY THAT WE UNDERSTAND THE REQUIREMENTS OF THE CONTRACT DOCUMENTS AND THAT OUR PROPOSAL TO THE GENERAL CONTRACTOR [CONSTRUCTION MANAGER] FOR SUPPLYING THE PRE-ENGINEERED BUILDING AND ITS COMPONENTS WILL MEET OR EXCEED ALL REQUIREMENTS OF THE CONTRACT DOCUMENTS. "

   FAILURE OF THE MANUFACTURER TO PROVIDE THIS CERTIFICATE SHALL BE REGARDED AS NON-RESPONSIVE BY THE CONTRACTOR [CONSTRUCTION MANAGER] AND THE MANUFACTURER'S PROPOSAL SHALL BE CONSIDERED INVALID.

POST-INSTALLED ANCHORS:

1. POST-INSTALLED ANCHORS SHALL ONLY BE USED WHERE SPECIFIED ON THE DRAWINGS. CONTRACTOR SHALL OBTAIN APPROVAL FROM THE STRUCTURAL ENGINEER OF RECORD (SER) PRIOR TO USING POST-INSTALLED ANCHORS OR ADHESIVE ANCHORING SYSTEM FOR MISSING OR MISPLACED CAST-IN-PLACE ANCHORS AND/OR REINFORCING DOWELS.
2. ALL POST-INSTALLED ANCHOR INSTALLATION SHALL BE BY A QUALIFIED PERSONNEL IN ACCORDANCE WITH THE MANUFACTURER'S PRINTED INSTALLATION INSTRUCTIONS (MPII).
3. SUBSTITUTION REQUESTS, FOR PRODUCTS OTHER THAN THOSE LISTED BELOW, SHALL BE SUBMITTED TO THE SER WITH CALCULATIONS THAT ARE PREPARED & SEALED BY A STATE OF FLORIDA REGISTERED PROFESSIONAL ENGINEER SHOWING THAT THE SUBSTITUTED PRODUCT WILL ACHIEVE AN EQUIVALENT CAPACITY USING THE APPROPRIATE DESIGN PROCEDURE REQUIRED BY THE BUILDING CODE. PRODUCT ICC-ES CODE REPORTS SHALL BE INCLUDED WITH SUBMITTAL PACKAGE. THE ACCEPTANCE OF THE PRODUCT WILL BE AT THE SER'S DISCRETION.
4. MINIMUM REQUIREMENTS FOR POST-INSTALLED ANCHORS AT TIME OF INSTALLATION:

   A. MINIMUM COMPRESSIVE STRENGTH OF BASE MATERIAL:
      GROUTED MASONRY ..... 1500 PSI
      NORMAL-WEIGHT CONCRETE ..... 2500 PSI
5. ANCHOR PRODUCTS APPROVED FOR USE ON THIS PROJECT ARE LISTED BELOW (UNO):

   A. MECHANICAL ANCHORS INTO CONCRETE SHALL HAVE BEEN TESTED IN ACCORDANCE WITH ACI 355.2 AND ICC-ES AC193 FOR CRACKED CONCRETE:
      1. THE FOLLOWING ANCHORS ARE ACCEPTABLE FOR USE WITH THE REQUIRED EMBEDMENT SPECIFIED ON THE CONSTRUCTION DOCUMENTS OR BY THE SER:
         A. HILTI "KWIK BOLT-TZ2" EXPANSION ANCHOR (ICC-ES ESR-4266)
         B. HILTI "KWIK HUS EZ" SCREW ANCHOR (ICC-ES ESR-3027)
         C. SIMPSON STRONG-TIE "STRONG-BOLT 2" WEDGE ANCHOR (ICC-ES ESR-3037)
         D. SIMPSON STRONG-TIE "TITEN-HD" (ICC-ES ESR-2713)
      2. THE FOLLOWING HEAVY DUTY ANCHORS SHALL ONLY BE USED WHERE SPECIFICALLY REQUIRED ON THE CONSTRUCTION DOCUMENTS:
         A. HILTI "HDA" UNDERCUT ANCHOR (ICC-ES ESR-1546)
         B. HILTI "HSL-4" EXPANSION ANCHOR (ICC-ES ESR-4396)
         C. SIMPSON STRONG-TIE "TORQ-CUT" UNDERCUT ANCHOR (ICC-ES ESR-2705)

   B. ADHESIVE ANCHORS INTO CONCRETE SHALL HAVE BEEN TESTED IN ACCORDANCE WITH ACI 355.4 AND ICC-ES AC308 FOR CRACKED CONCRETE:
      1. THE FOLLOWING ANCHORS ARE ACCEPTABLE FOR USE WITH THE REQUIRED EMBEDMENT SPECIFIED ON THE CONSTRUCTION DOCUMENTS OR BY THE SER:
         A. HILTI "HIT-HY 200 V3" ADHESIVE WITH HILTI HIT-Z STEEL ROD (ICC-ES ESR-4868)
         B. HILTI "HIT-HY 200 V3" ADHESIVE WITH HILTI HAS-E STEEL THREADED ROD (ICC-ES ESR-4868)
         C. HILTI "HIT-RE 500 V3" ADHESIVE WITH HILTI HAS-E STEEL THREADED ROD (ICC-ES ESR-3814)
         D. SIMPSON STRONG-TIE "SET-3G" EPOXY ADHESIVE ASTM A193 Gr B7 STEEL THREADED ROD,UNO (ICC-ES ESR-4057)

   C. STEEL REINFORCING BARS ANCHORED INTO CONCRETE WITH ADHESIVE ANCHORING SYSTEM SHALL HAVE BEEN TESTED IN ACCORDANCE WITH ACI 355.4 AND ICC-ES AC308 FOR CRACKED CONCRETE:
      1. THE FOLLOWING ADHESIVE ANCHORING SYSTEMS ARE ACCEPTABLE FOR USE ONLY WHERE SPECIFIED ON THE CONSTRUCTION DOCUMENTS OR APPROVED BY THE SER:
         A. HILTI "HIT-HY 200 V3" ADHESIVE (ICC-ES ESR-4868)
         B. HILTI "HIT-RE 500 V3" ADHESIVE (ICC-ES ESR-3814)
         C. SIMPSON STRONG-TIE "SET-3G" EPOXY ADHESIVE (ICC-ES ESR-4057)

COLD FORMED STEEL (CFS) FRAMING:

1. SEE NOTES ON PRIMARY CODES AND SPECIFICATIONS.
2. ALL INTERIOR BEARING WALLS, LINTELS, BEAMS, ETC. SHALL BE DESIGNED, SIGNED AND SEALED BY THE SUPPLIER'S DELEGATED ENGINEER REGISTERED IN THE STATE OF FLORIDA.
3. ALL MEMBERS SHALL BE FORMED FROM HOT-DIPPED GALVANIZED STEEL, CORRESPONDING TO THE REQUIREMENTS OF ASTM A653 SQ GRADE 33 (Fy = 33,000 PSI). GALVANIZED COATING SHALL CONFORM TO ASTM A924 WITH COATING DESIGNATION G60.

AUTOMATIC FIRE PROTECTION SPRINKLERS:

1. THE AUTOMATIC SPRINKLER SYSTEM SHALL BE LAID OUT SO THAT LARGE DIAMETER MAIN FEEDER LINES OCCUR NEAR JOIST SUPPORTS IN ORDER TO PREVENT OVERLOADING JOISTS.
2. USE TWO JOISTS TO SUPPORT LINES LARGER THAN 3 INCHES IN DIAMETER AND RUNNING PARALLEL TO STEEL JOISTS.
3. IN ALL CASES, LOADS SUPPORTED FROM JOISTS AND/OR BEAMS SHALL BE APPLIED IN SUCH A MANNER SO AS NOT TO EXCEED A 3 PSF ALLOWANCE FOR SPRINKLER DEAD LOAD.
4. LOCATE SUSPENDED CONCENTRATED LOADS AT JOIST PANEL POINTS WHERE POSSIBLE. SEE DETAILS FOR METHODS OF SUPPORTING CONCENTRATED LOADS FROM JOIST CHORDS LOCATED BETWEEN PANEL POINTS

BUILDING DEFLECTIONS:

1. THE BUILDING HAS BEEN DESIGNED TO COMPLY WITH APPLICABLE BUILDING CODES AND VERTICAL DEFLECTION ALLOWANCES. THE CONTRACTOR SHOULD ANTICIPATE AND CONSIDER SOME VERTICAL MOVEMENT DURING PERFORMANCE OF HIS WORK.
2. ROOF BEAMS SHALL BE ASSUMED TO DEFLECT AN AMOUNT EQUAL TO THE SPAN LENGTH IN INCHES DIVIDED BY 360 (L/360), BUT NOT LESS THAN 3/8" AFTER SUPERIMPOSED LOADS ARE APPLIED.

BUILDING MAINTENANCE:

1. THE BUILDING OWNER SHALL BE AWARE THAT ALL BUILDINGS AND STRUCTURES REQUIRE ROUTINE AND PERIODIC MAINTENANCE. THIS MAINTENANCE IS ESPECIALLY IMPORTANT FOR ALL ELEMENTS EXPOSED TO THE ATMOSPHERE OR HARSH CHEMICALS. THE OWNER SHALL ESTABLISH A MAINTENANCE PROGRAM IN ORDER TO PREVENT DAMAGE TO THE STRUCTURE WHICH WILL SHORTEN THE LIFESPAN. ROUTINE MAINTENANCE ITEMS WOULD INCLUDE CLEANING, PAINTING, PRESSURE WASHING, SEALANT REPLACEMENT AND REPAIR OF ANY CRACKED OR SPALLED CONCRETE.

VIBRATION CHARACTERISTICS OF FLOORS:

1. FLOOR VIBRATION CHARACTERISTICS HAVE NOT BEEN CHECKED AS IT WAS OUTSIDE THE REQUESTED AND CONTRACTED STRUCTURAL SCOPE OF SERVICES.
2. SENSITIVE EQUIPMENT TO BE LOCATED WITHIN THE STRUCTURE SHALL BE ISOLATED WITH INDIVIDUAL VIBRATION ATTENUATING SUPPORTS.
3. ALL BUILDING MECHANICAL AND ELECTRICAL SYSTEM COMPONENTS LIKELY TO INDUCE OBJECTIONABLE VIBRATIONS WITHIN THE BUILDING SHALL BE ISOLATED FROM THE STRUCTURE WITH INDIVIDUAL VIBRATION ATTENUATING SUPPORTS.
4. VIBRATIONS ORIGINATING BEYOND THE LIMITS OF THE STRUCTURE THAT MAY BE TRANSMITTED TO THE STRUCTURE THROUGH FOUNDATIONS OR GROUND FLOOR SLAB ARE BEYOND THE SCOPE OF BASIC STRUCTURAL SERVICES AND HAVE NOT BEEN CONSIDERED OR EVALUATED.

SUBMITTALS:

1. ALL SHOP DRAWINGS MUST BE REVIEWED AND STAMPED BY THE GENERAL CONTRACTOR PRIOR TO SUBMITTAL. SUBMITTAL WITHOUT CONTRACTOR REVIEW WILL RESULT IN DELAYS. THE CONTRACTOR SHALL CONFIRM THAT SHOP DRAWINGS HAVE BEEN COMPLETED AND CHECKED BY THE SUPPLIER PRIOR TO SUBMISSION.
2. CONTRACTOR IS TO PROVIDE ELECTRONIC COPIES (PDF) OF CONTRACTOR REVIEWED AND STAMPED SHOP DRAWINGS FOR A/E REVIEW AND PROCESSING.
3. SHOP DRAWING SUBMITTAL REQUIREMENTS SHALL BE IN ACCORDANCE WITH THE STRUCTURAL SPECIFICATIONS. CHANGES OR ADDITIONS MADE ON RESUBMITTED SHOP DRAWINGS SHALL BE CLEARLY INDICATED, AND THE PURPOSE OF THE RESUBMITTAL SHALL BE NOTED ON THE TRANSMITTAL. REVIEW OF RESUBMITTED SHOP DRAWINGS SHALL BE LIMITED SPECIFICALLY TO THE ITEMS NOTED FOR CORRECTION ON THE PREVIOUS SUBMITTAL.
4. THE GENERAL CONTRACTOR SHALL SUBMIT FOR STRUCTURAL ENGINEER REVIEW SHOP DRAWINGS FOR THE FOLLOWING ITEMS:

   CONCRETE MIX DESIGNS
   COLD FORMED STEEL FRAMING(a)
   PRE-ENGINEERED METAL BUILDING (a, b, c)
   REINFORCING STEEL

   THE NOTATIONS FOLLOWING SUBMITTAL ITEMS INDICATE THE FOLLOWING:

   (a) CALCULATIONS AND SHOP DRAWINGS SHALL BE SIGNED AND SEALED BY A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF FLORIDA.

   (b) INCLUDE A CERTIFICATE OF COMPLIANCE WITH CONTRACT DOCUMENTS SIGNED AND SEALED BY THE PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF FLORIDA RESPONSIBLE FOR THE DESIGN.

   (c) SUBMIT ONE COPY FOR INFORMATION AND RECORD ONLY.
5. MANUFACTURER'S LITERATURE: SUBMIT TWO COPIES OF MANUFACTURER'S LITERATURE FOR ALL MATERIALS AND PRODUCTS USED IN CONSTRUCTION ON THE PROJECT.
6. THE ENGINEER'S REVIEW OF SHOP DRAWINGS IS FOR GENERAL CONFORMANCE OF THE DESIGN CONCEPT. CONTRACTOR SHALL SUBMIT A SCHEDULE OF SHOP DRAWING SUBMITTALS THAT IS ACCEPTABLE TO BOTH CONTRACTOR AND ENGINEER. AFTER THE CONTRACTOR HAS REVIEWED THE SHOP DRAWINGS, PRIOR TO SUBMITTAL FOR REVIEW BY THE ENGINEER WILL BE MADE OF ALL SUBMITTALS. FOR LARGE SUBMITTALS, REASONABLE REVIEW TIME SHALL BE ALLOWED AND MAY EXCEED TWO WEEKS. THE CONCURRENT SUBMITTAL OF MULTIPLE SHOP DRAWINGS ("DUMPING") WILL FURTHER EXTEND THE REVIEW PROCESS AND TIME FRAME NECESSARY TO PROPERLY REVIEW EACH SUBMITTAL.
7. REPRODUCTION OF THESE CONTRACT DOCUMENTS BY ANYONE FOR USE IN SHOP DRAWINGS SHALL SIGNIFY THEIR ACCEPTANCE OF ALL INFORMATION SHOWN AS BEING CORRECT. MILLER ENGINEERING, LLC. SHALL BE INDEMNIFIED AND HELD HARMLESS FROM ALL CLAIMS, DAMAGES, LOSSES, EXPENSES OR LIABILITIES OF ANY KIND, INCLUDING ATTORNEYS FEES. THE CONTRACTOR IS RESPONSIBLE FOR PROPER CHECKING AND COORDINATING OF DETAILS, DIMENSIONS, SIZES AND QUANTITIES AS REQUIRED TO FACILITATE COMPLETE AND ACCURATE FABRICATION AND ERECTION.

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LAKE CITY, FLORIDA

Revisions:

GENERAL STRUCTURAL NOTES - CONTINUED

CONSTRUCTION DOCUMENTS

DATE: 9/12/2024

2338

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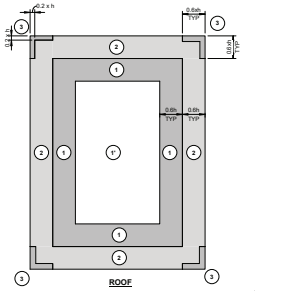
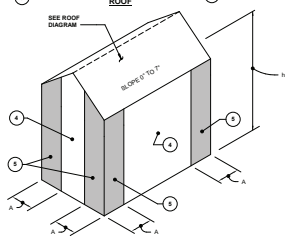
ABBREVIATIONS

AIE - ARCHITECT AND/OR ENGINEER
AB - ANCHOR BOLT
ACI - AMERICAN CONCRETE INSTITUTE
AFF - ABOVE FINISHED FLOOR
AHU - AIR HANDLING UNIT
AISC - AMERICAN INSTITUTE OF STEEL CONSTRUCTION
AISI- AMERICAN IRON AND STEEL INSTITUTE
AITC - AMERICAN INSTITUTE FOR TIMBER CONSTRUCTION
ALT - ALTERNATE
ALUM- ALUMINUM
ANCH - "ANCHOR, ANCHORAGE"
ANSI - AMERICAN NATIONAL STANDARDS INSTITUTE
APPROX - APPROXIMATE
ARCH - "ARCHITECT, ARCHITECTURAL"
ASCE- AMERICAN SOCIETY OF CIVIL ENGINEERS
ASD - ALLOWABLE STRESS DESIGN
ASTM - AMERICAN SOCIETY OF TESTING & MATERIALS
AVG - AVERAGE
AWS - AMERICAN WELDING SOCIETY
BLDG - BUILDING
BLK - BLOCK
BLKG - BLOCKING
BM - BEAM
BOTT - BOTTOM
BRG - BEARING
CANT - CANTILEVER
CAP - CAPACITY
CB - CORNER BAR
CC - CENTER TO CENTER
CF - "CUBIC FEET, COLUMN FOOTING"
CFS - COLD FORMED STEEL
CIP - CAST-IN-PLACE
CJ - CONSTRUCTION JOINT
CL - CENTERLINE
CLG - CEILING
CLR - "CLEARANCE, CLEAR"
CM - CONSTRUCTION MANAGER
CMU - CONCRETE MASONRY UNIT
COL - COLUMN
COMP - "COMPOSITE, COMPRESSOR, COMPRESSIVE"
CONC - CONCRETE
CONN - "CONNECTION, CONNECT"
CONSTR - CONSTRUCTION
CONT - CONTINUOUS
CONTR- CONTRACTOR
CRSI - CONCRETE REINFORCING STEEL INSTITUTE
CSK - COUNTERSINK
CTR - CENTER
CTRD- CENTERED
CY - CUBIC YARD
DBA - DEFORMED BAR ANCHOR
DBL - DOUBLE
DEMO - DEMOLITION
DET - DETAIL
DIA - DIAMETER
DIAG - DIAGONAL
DIM- DIMENSION
DL - DEAD LOAD
DN - DOWN
DWG - DRAWING
DWL - DOWEL
EA - EACH
EB - EACH END
EF - EACH FACE
EJ - EXPANSION JOINT
EL - ELEVATION
ENGR - ENGINEER
EOD - EDGE OF DECK
EOR - ENGINEER OF RECORD
EOS - EDGE OF SLAB
EQ - EQUAL
EQPT- EQUIPMENT
ES - EACH SIDE
EW - EACH WAY
EXIST - EXISTING
EXP - EXPANSION
EXP JT - EXPANSION JOINT
EXT - EXTERIOR
f'm - MINIMUM 28-DAY CONCRETE STRENGTH
f'm - SPECIFIED MASONRY STRENGTH
FBC - FLORIDA BUILDING CODE
FD - FLOOR DRAIN
FDN - FOUNDATION
FF - FINISHED FLOOR
FIN - "FINISH, FINISHED"
FLR - FLOOR
FRT - "FIRE, FIRE STUD
FRT - FIRE RETARDANT
FS - FAR SIDE
FT - "FOOT, FEET"
FTG - FOOTING
Fy - YIELD STRENGTH OF MATERIAL
GA - GAGE
GALV - GALVANIZED
GC - GENERAL CONTRACTOR
GEN - GENERAL
GR - GRADE
GRND - GROUND
GWB - GYPSUM WALLBOARD
GYP - GYPSUM
HC - HOLLOW CORE
HCA - HEADED CONCRETE ANCHOR
HDG - HOT DIPPED GALVANIZED
HGR - HANGER
HGT - HEIGHT
HJR - HORIZONTAL JOINT REINFORCING
HK - HOOK
HORIZ - HORIZONTAL
HS - HIGH STRENGTH
HSK - HOUSEKEEPING
HSS - HOLLOW STRUCTURAL SECTION
IN - INCHES
INSUL - INSULATION
INT - INTERIOR
JST- JOIST
JT - JOINT
K - KIPS (1000 LBS.)
KB - KNEE BRACE
KSF - KIPS PER SQUARE FOOT
KSI - KIPS PER SQUARE INCH
LBS - POUNDS
LF - LINEAL FEET
LL - LIVE LOAD
LLBB - LONG LEG BACK TO BACK
LLH- LONG LEG HORIZONTAL
LLV- LONG LEG VERTICAL
LRFD - LOAD AND RESISTANCE FACTOR DESIGN
LSH - LONG SIDE HORIZONTAL
LSL- LONG SLOTTED
LSV - LONG SIDE VERTICAL
LT - LIGHT
LW - "LIGHTWEIGHT, LONG WAY"
MATL - MATERIAL
MAX - MAXIMUM
MBR - MEMBER
MECH - MECHANICAL
MFR - MANUFACTURER
MID- MIDDLE
MIN- MINIMUM
MISC - MISCELLANEOUS
MTL - "METAL, MATERIAL"
NIC - NOT IN CONTRACT
NTS - NOT TO SCALE
OA - OVERALL
OC - ON CENTER
OPNG - OPENING
OPP - OPPOSITE
OVS - OVERSIZED
PAF - POWDER ACTUATED FASTENER
PCF - POUNDS PER CUBIC FOOT
PE - PROFESSIONAL ENGINEER
PEMB - PRE-ENGINEERED METAL BUILDING
PERP- PERPENDICULAR
PL - PLATE
PLF- POUNDS PER LINEAL FOOT
PREFAB - PREFABRICATED
PRELIM - PRELIMINARY
PSF - POUNDS PER SQUARE FOOT
PSI - POUNDS PER SQUARE INCH
PT - PRESSURE TREATED
QA - QUALITY ASSURANCE
QC - QUALITY CONTROL
R - "RISER, RADIUS"
R - "RISER, REACTION, RADIUS"
RD - "ROOF DECK MARK, ROOF DRAIN"
REF - REFERENCE
REINF - "REINFORCED, REINFORCING"
REM - REMAINDER
REQD - REQUIRED
RET - RETURN
REV - REVISION
RTU - ROOF TOP UNIT
SCHED - SCHEDULE
SDI - STEEL DECK INSTITUTE
SE - STRUCTURAL ENGINEER
SECT - SECTION
SER - STRUCTURAL ENGINEER OF RECORD
SF - SQUARE FEET
SHT - SHEET
SIM - SIMILAR
SJ - SAWED CONTROL JOINT
SJI - STEEL JOIST INSTITUTE
SOG - SLAB ON GRADE
SPA - "SPACED, SPACING, SPACES"
SPEC- SPECIFICATION
SQ - SQUARE
SS - STAINLESS STEEL
SSL - SHORT SLOTTED
STD - STANDARD
STIFF- STIFFENER
STL - STEEL
STRUCT - STRUCTURAL
SW - "SHORT WAY, SHEAR WALL"
SYM - SYMMETRICAL
SYP - SOUTHERN YELLOW PINE
SYS - SYSTEM
T&B - TOP & BOTTOM
T&G - TONGUE & GROOVE
TB - TIE BEAM
TEMP - "TEMPORARY, TEMPERATURE"
THRD- THREADED
TOC - TOP OF CONCRETE
TOF - TOP OF FOOTING
TOJ - TOP OF JOIST
TOM - TOP OF MASONRY
TOP - TOP OF PLATE
TOS - TOP OF STEEL
TOSL- TOP OF SLAB
TOW - TOP OF WALL
TYP - TYPICAL
UNO - UNLESS NOTED OTHERWISE
VERT - VERTICAL
VOL - VOLUME
W - "STEEL WIDE FLANGE SHAPE, WEST"
W - WITH
W/O - WITHOUT
WC - WALL COLUMN
WCJ - WALL CONTROL JOINT
WD - WOOD
WF - WALL FOOTING
WGT - WEIGHT
WL - WIND LOAD
WP - "WORKING POINT, WATERPROOF"
WWF - WELDED WIRE FABRIC
XS - EXTRA STRONG
XXS - DOUBLE EXTRA STRONG
YD - YARD

COMPONENT & CLADDING DESIGN WIND LOAD INFORMATION





WIND PRESSURE DIAGRAMS

COMPONENTS & CLADDING
WIND LOAD PRESSURE SCHEDULE

COMPONENT	ZONE	EFFECTIVE WIND AREA (SF)	ULTIMATE (FACTORED) DESIGN PRESSURE (PSF) POSITIVE	NEGATIVE
ROOF ELEMENTS	1	10	+16.0	-61.6
		20	+16.0	-57.5
		50	+16.0	-52.2
		> 100	+16.0	-48.1
	1'	10	+16.0	-35.4
		20	+16.0	-35.4
		50	+16.0	-35.4
		> 100	+16.0	-35.4
	2	10	+16.0	-81.3
		20	+16.0	-76.0
		50	+16.0	-69.1
		> 100	+16.0	-63.9
	3	10	+16.0	-110.7
		20	+16.0	-100.3
		50	+16.0	-86.5
		> 100	+16.0	-76.0
EXTERIOR WALL ELEMENTS, WINDOWS, DOORS AND CURTAIN WALLS	4	10	+35.4	-38.3
		20	+33.8	-36.8
		50	+31.7	-34.7
		100	+30.2	-33.1
		> 500	+26.5	-29.5
	5	10	+35.4	-47.2
		20	+33.8	-44.0
		50	+31.7	-39.9
		100	+30.2	-36.8
		> 500	+26.5	-29.5

NOTES:
1. DESIGN WIND PRESSURES SHALL BE USED IN THE DESIGN OF ALL COMPONENTS AND CLADDING ELEMENTS COMPRISING THE BUILDING ENVELOPE.
2. REFER TO THE WIND PRESSURE DIAGRAM FOR ZONE LOCATIONS AND EXTENTS.
3. POSITIVE PRESSURES ACT TOWARD COMPONENT SURFACES AND NEGATIVE PRESSURES ACT AWAY FROM EACH COMPONENT SURFACE.
4. LINEAR INTERPOLATION BETWEEN EFFECTIVE WIND AREAS MAY BE USED TO OBTAIN THE REQUIRED COMPONENT AND CLADDING DESIGN WIND PRESSURE.
5. DIMENSION A = 5'-0".
6. DIMENSION h = 12'-0"
7. MULTIPLY TABULAR 'ULTIMATE' PRESSURES BY 0.60 TO OBTAIN 'NOMINAL' PRESSURES.

SYMBOL LEGEND

VIEW REFERENCES

- DETAIL NUMBER / SHEET WHERE DRAWN
- SECTION NUMBER / SHEET WHERE DRAWN
- MATCHLINE / SHEET TO MATCH

PLAN SYMBOLS

- NORTH ARROW
- COLUMN LINE
- EXISTING COLUMN LINE
- ELEVATION
- SPAN DIRECTION (SLAB DECK, GRATING, ETC.)
- SLAB DEPRESSION
- FOOTING STEP
- KNEE-BRACE/KICKER BRACE

REFERENCE SYMBOLS & TAGS

- CLOUD INDICATES LIMITS OF REVISION
- REVISION NUMBER
- PLAN NOTE

SYMBOLS & TAGS FOR SCHEDULED FOUNDATION ELEMENTS:
"CF#-#" DENOTES COLUMN FOOTING MARK
"CCF#" DENOTES COMBINED COLUMN FOOTING MARK
"WF#-#" DENOTES WALL FOOTING MARK
"MF#" DENOTES MAT FOUNDATION MARK

SYMBOLS & TAGS FOR SCHEDULED WALL ELEMENTS:
"CW#" DENOTES CONCRETE WALL MARK
"MW#" DENOTES MASONRY WALL MARK

SYMBOLS & TAGS FOR SCHEDULED COLUMN ELEMENTS:
"PP" DENOTES CONCRETE PIER/PEDESTAL MARK
"C#" DENOTES CONCRETE COLUMN MARK
"MC#" DENOTES MASONRY COLUMN MARK
"WC#" DENOTES CONCRETE WALL COLUMN MARK

SYMBOLS & TAGS FOR SCHEDULED SLAB & DECK ELEMENTS:
"SOG#" DENOTES CONCRETE SLAB ON GRADE MARK
"S#" DENOTES CONCRETE SLAB MARK
"CS#" DENOTES COMPOSITE SLAB MARK
"R#" DENOTES ROOF DECK MARK
"WFD#" DENOTES WOOD FLOOR DECK MARK
"WRD#" DENOTES WOOD ROOF DECK MARK

TAGS FOR SCHEDULED FRAMING ELEMENTS (UNO):
"B#" DENOTES BEAM MARK
"TB#" DENOTES TIE BEAM MARK
"LB#" DENOTES LINTEL BEAM MARK

MATERIAL DESIGNATIONS

- CAST-IN-PLACE CONCRETE
- PRECAST CONCRETE OR PRECAST PRESTRESSED CONCRETE
- NON-SHRINK GROUT
- GROUT FILL
- BRICK
- STRUCTURAL STEEL
- COMPACTED EARTH
- CONCRETE MASONRY UNIT
- WOOD OR TIMBER IN SECTION
- LAMINATED WOOD MEMBER
- PLYWOOD

TYPICAL FOUNDATION PLAN ANNOTATION STYLES: (UNO)

THE FOLLOWING EXAMPLES OF TYPICAL STRUCTURAL ANNOTATION MAY APPEAR ON FOUNDATION PLANS, BUT NOT ALL SYMBOLS AND / OR NOTATIONS MAY BE USED.

- COLUMN, SPREAD, WALL, MAT, OR COMBINED FOOTING MARK
- TOP OF FOOTING ELEVATION (PROVIDED FOR FOOTING ELEVATIONS OTHER THAN TYPICAL)
- COLUMN SIZE IF NOT PROVIDED IN GRAPHICAL COLUMN SCHEDULE

TYPICAL CONCRETE PLAN ANNOTATION STYLES (UNO)

THE FOLLOWING EXAMPLES OF TYPICAL STRUCTURAL ANNOTATIONS MAY APPEAR ON CONCRETE FRAMING PLANS, BUT NOT ALL SYMBOLS AND / OR NOTATIONS MAY BE USED.

- REINFORCING STEEL NOTED IN PLAN SHALL BE LOCATED ACCORDING TO PLAN NOTES, TYPICAL VIEWS, AND SCHEDULES. HOOKS ARE INDICATED IN PLAN WHERE REQUIRED FOR NON-SCHEDULED REINFORCING STEEL. WHERE HOOKS ARE SHOWN, LENGTHS PROVIDED DO NO INCLUDE HOOK.
- A SINGLE ARROWED LINE INDICATES THE EXTENT OVER WHICH THE REINFORCING STEEL IS TO BE DISTRIBUTED WITH AN EQUAL SPACING BETWEEN BARS.
- REFERENCE LINE OR OBJECT WHERE REINFORCING STOPS.
- A LEADERED TAG INDICATES THAT THE REINFORCING STEEL IS TO BE PROVIDED IN EACH DIRECTION UNTIL ONE OF THE FOLLOWING OCCUR:
  1. AN EDGE OF SLAB OR SLAB OPENING
  2. A SIGNIFICANT CHANGE IN SLAB GEOMETRY
  3. OTHER REINFORCING OF A SIMILAR NATURE IS SHOWN
- REINFORCING STEEL WITH A STANDARD ACI 90° HOOK
- REINFORCING STEEL WITH A STANDARD ACI 180° HOOK
- CONCRETE FRAMING PENETRATION

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NEW FIRE DEPARTMENT ADMINISTRATION BUILDING
3579 NE LAKE JEFFERY ROAD
LAKE CITY, FLORIDA

Revisions:

ABBREVIATIONS, SYMBOL LEGEND AND WIND LOAD INFORMATION

CONSTRUCTION DOCUMENTS

DATE: 9/12/2024

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S0.3

FOUNDATION & GROUND FLOOR PLAN NOTES

PLAN NOTES ARE TYPICAL FOR THIS DRAWING UNLESS SPECIFICALLY DESIGNATED OTHERWISE.

GENERAL INFORMATION:

1A REFER TO DRAWING S0.1 FOR GENERAL STRUCTURAL NOTES AND STRUCTURAL DRAWING INDEX.

1B ALL LEVELS AND ELEVATIONS ARE REFERENCED TO THE GROUND FLOOR TOP OF SLAB **(TOSL)** ◆ **0'-0"** (DATUM - SEE CIVIL DWGS).

1C CONTRACTOR SHALL REVIEW AND VERIFY ALL DIMENSIONS, ELEVATIONS, AND CONDITIONS RELATING TO THE EXISTING STRUCTURE THAT INTERFACES WITH THE NEW CONSTRUCTION SHOWN ON THE CONSTRUCTION DOCUMENTS. NOTIFY THE SER WHEN EXISTING CONDITIONS VARY FROM THE PROJECT CONSTRUCTION DOCUMENTS. REFER TO ARCHITECTURAL DRAWINGS FOR REQUIRED DEMOLITION.

1D REFER TO ARCHITECTURAL DRAWINGS FOR DIMENSIONS, DETAILS AND LOCATIONS OF INTERIOR PARTITIONS, DOORS AND WINDOWS, AND TO VERIFY DEPTH AND EXTENT OF SLAB DEPRESSIONS.

1E VERIFY AND COORDINATE EDGE OF STRUCTURE WITH ARCHITECTURAL DRAWINGS TO SUIT EACH TYPE OF ARCHITECTURAL FINISH.

TYPICAL FOUNDATION CONSTRUCTION (UNO):

2A TYPICAL TOP OF FOOTING **(TOF) IS** ◆ -0'-0" UNO.

2B CONCRETE FOUNDATIONS ARE DENOTED AND SCHEDULED BY MARK. REFER TO FOUNDATION SCHEDULES AND DETAILS FOR SPECIFIC SIZE AND REINFORCING. TYPICAL COLUMN FOUNDATIONS SHALL BE **CF3.5**, UNO.

TYPICAL WALL CONSTRUCTION (UNO):

3A WALLS ARE DENOTED AND SCHEDULED BY MARK. REFER TO WALL SCHEDULES AND DETAILS FOR SPECIFIC SIZE AND REINFORCING. TYPICAL 8" MASONRY WALLS SHALL BE **MW1**, UNO.

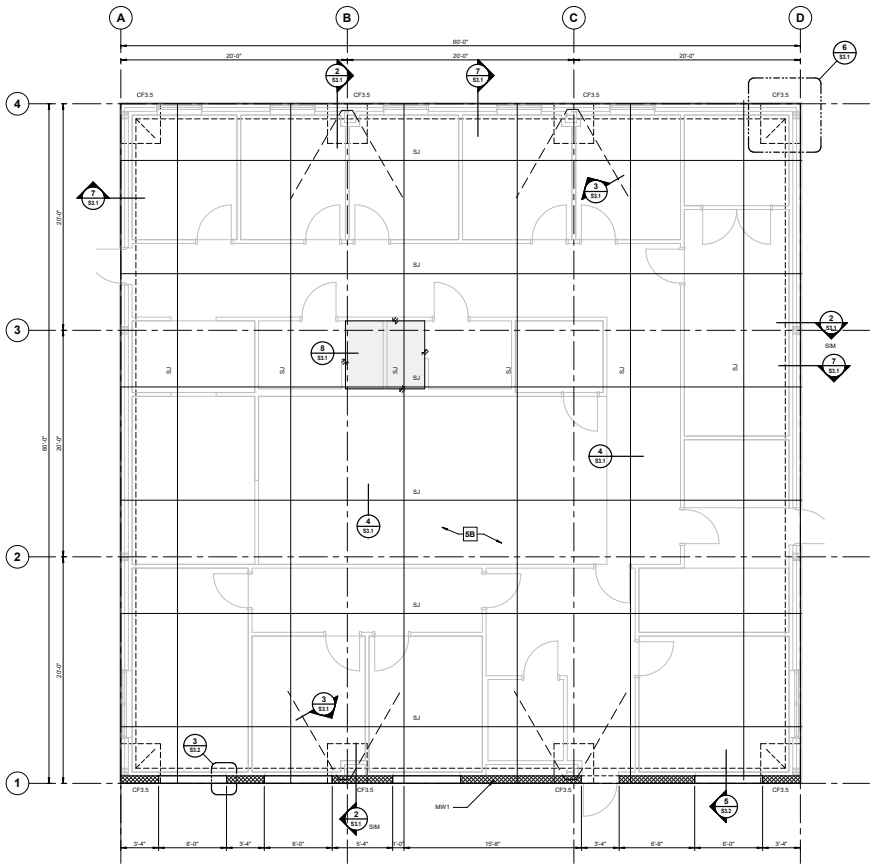
TYPICAL COLUMN CONSTRUCTION (UNO):

4A COLUMNS ARE BY PEMB DELEGATED DESIGNER. VERIFY ALL COLUMN AND ANCHOR BOLTS LOCATIONS AND SIZE WITH FINAL APPROVED PEMB SHOP DRAWINGS.

TYPICAL FLOOR SLAB CONSTRUCTION (UNO):

5A TYPICAL TOP OF SLAB **(TOSL)** IS ◆ **0'-0"**, UNO.

5B 4" CONCRETE SLAB OVER VAPOR RETARDER AND COMPACTED EARTH. REINFORCE W/ 6x6-W1.4xW1.4 WWF, 1 1/2" CLEAR FROM TOP OF SLAB. ELEVATION TOP OF SLAB = ◆ **0'-0"**.



FOUNDATION & GROUND FLOOR PLAN

1/4" = 1'-0"

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LAKE CITY, FLORIDA

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FOUNDATION & GROUND FLOOR PLAN

CONSTRUCTION DOCUMENTS

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9/12/2024

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S1.1

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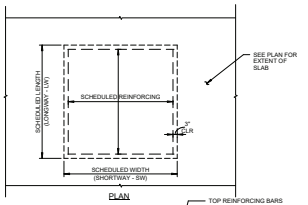


NOTE: FOOTINGS HAVE BEEN DESIGNED FOR MAXIMUM ALLOWABLE (ASD) LEVEL COMBINATION LOADS OF:

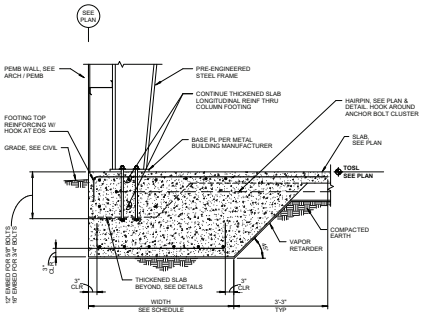
VERTICAL: +6.6k / -7.4k
HORIZONTAL: +2.7k / -2.8k

THESE SHALL BE VERIFIED UPON RECEIPT OF FINAL DESIGN REACTIONS.

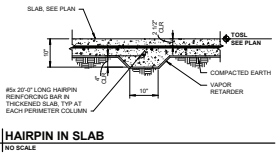
MONOLITHIC COLUMN FOOTING SCHEDULE

MARK	LENGTH	WIDTH	DEPTH	TOP BARS	BOTT BARS	REINF DIRECTION	REMARKS
CF3.5	3'-6"	3'-6"	2'-0"	5-#5	5-#5	EW	

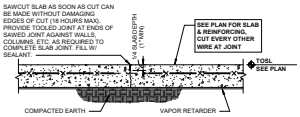
1 MONOLITHIC FOOTING SCHEDULE
S3.1 NO SCALE



2 MAT FOUNDATION DETAIL
S3.1 NO SCALE



3 HAIRPIN IN SLAB
S3.1 NO SCALE

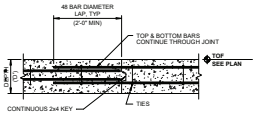


NOTES:

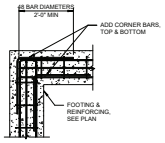
1. WHERE POSSIBLE, PLACE SAWED CONTROL JOINT (SJ) AT COLUMN CENTERLINES, UNO.
2. REFER TO ARCHITECTURAL/CIVIL SPECIFICATIONS FOR ALL EXTERIOR SLABS, ETC.
3. COORDINATE LOCATIONS W/ ARCHITECTURAL REQUIREMENTS.
4. MAXIMUM SPACING - 10'-0" OC, UNO.

NOTED AS 'SJ'

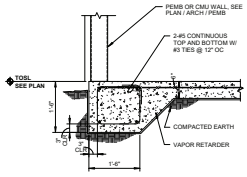
4 TYPICAL SLAB SAWED CONTROL JOINT
S3.1 NO SCALE



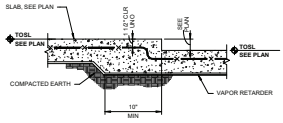
5 WALL FOOTING CONSTRUCTION JOINT
S3.1 NO SCALE



6 CONTINUOUS FOOTING CORNER BARS
S3.1 NO SCALE



7 PERIMETER TURN DOWN
S3.1 NO SCALE



8 TYPICAL SLAB STEP DETAIL
S3.1 NO SCALE

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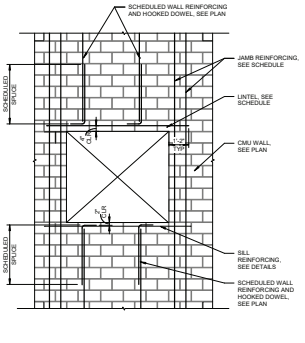
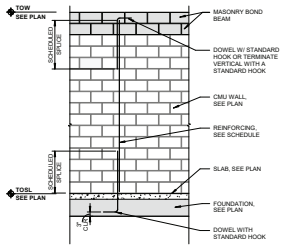
S3.1



TYPICAL WINDOW OPENING IN CMU WALL (DOOR SIMILAR)



AT SINGLE STORY WALL

TYPICAL CMU WALL VERTICAL REINFORCING

NOTES:

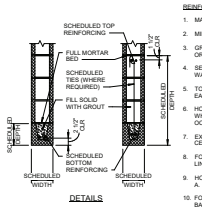
1. REFER TO PLANS AND SCHEDULES FOR SIZE, NUMBER AND LOCATION OF VERTICAL REINFORCING.
2. CLEAN-OUTS AND HJR NOT SHOWN BUT ARE REQUIRED, SEE SPECIFICATIONS.
3. SPLICE LOCATIONS ARE DIAGRAMMATIC. SPLICE AS REQUIRED.

1 DIAGRAMMATIC MASONRY WALL CONSTRUCTION ELEVATIONS

S3.2 | NO SCALE

REINFORCED CMU LINTEL SCHEDULE

MASONRY OPENING WIDTH	NOMINAL CMU WIDTH 8" NOMINAL DEPTH	8" REINFORCING	MINIMUM END BEARING	STIRRUP SIZE & SPACING
UP TO 4'-0"	8"	2-#4 B	8"	
UP TO 6-0"	16"	2-#4 B & T	8"	



DETAILS

REINFORCED CMU LINTEL SCHEDULE NOTES

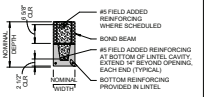
1. MASONRY DIMENSIONS INDICATED ARE NOMINAL RATHER THAN ACTUAL DIMENSIONS.
2. MINIMUM MASONRY STRENGTH f'm SHALL BE 2000 PSI (UNLESS NOTED OTHERWISE).
3. GROUT FILL SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 3000 PSI AT 28 DAYS OR MEET ASTM C476.
4. SEE ARCHITECTURAL DRAWINGS FOR SIZE AND LOCATIONS OF OPENINGS IN MASONRY WALLS REQUIRING LINTELS.
5. TOP AND BOTTOM REINFORCING SHALL EXTEND A MINIMUM OF 14" OVER SUPPORT AT EACH END.
6. HORIZONTAL WALL REINFORCING SHALL CONTINUE THROUGH MASONRY LINTELS WHERE BOTH HORIZONTAL WALL REINFORCING AND LINTEL REINFORCING WOULD OCCUR IN THE SAME COURSE. THE LARGER BARS SHALL BE USED.
7. EXTEND VERTICAL REINFORCING THROUGH LINTEL AT BEARINGS WHERE END VERTICAL CELL IS REINFORCED.
8. FOR WALL ABOVE LINTEL, DOWEL VERTICAL REINFORCING INTO FULL DEPTH OF THE LINTEL AND HOOK OR LAP 48 BAR DIAMETERS, WHICHEVER IS LESS.
9. HORIZONTAL JOINT REINFORCING:
   A. PROVIDE STANDARD LADDER REINFORCING AT 16" OC IN LINTEL SPANS UP TO 6'.
10. FOR CONTINUOUS LINTEL REINFORCING WHERE SPLICES ARE REQUIRED, SPLICE TOP BARS AT MID-SPAN OF OPENINGS AND BOTTOM BARS AT PIERS OR SUPPORT LOCATIONS.
11. GROUT MASONRY LINTELS MONOLITHICALLY WITH THE SUPPORT WALL AT EACH END.
12. TYPICAL LINTELS SHOWN ARE TO BE USED WHERE NO SPECIFIC LINTEL OR CAST-IN-PLACE CONCRETE BEAM HAS BEEN DETAILED AND ARE FOR SUPPORT OF WALL LOADS ONLY (UNO).

REINFORCED CONCRETE MASONRY UNIT (CMU) LINTELS

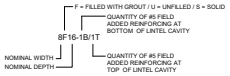
PRECAST CONCRETE LINTEL SCHEDULE

MASONRY OPENING WIDTH	NOMINAL CMU WIDTH 8"	MINIMUM END BEARING	STIRRUP SIZE & SPACING
UP TO 4'-0"	8F8-1B/0T	8"	
UP TO 8'-0"	8F16-1B/1T	8"	

EXAMPLES FOR 8" CMU



DETAIL

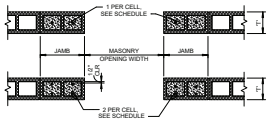


NOTE:
LINTELS SHALL BE "CAST-CRETE" OR APPROVED EQUAL.

PRECAST CONCRETE LINTELS

2 8" LINTEL SCHEDULE & DETAILS

S3.2 | NO SCALE

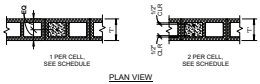


PLAN VIEW

JAMB REINFORCING SCHEDULE

MASONRY OPENING WIDTH	NUMBER OF REINFORCED CELLS PER JAMB WALL THICKNESS 'T'	OPENING IN EXTERIOR WALL	SPLICE LENGTH
UP TO 4'-0"	8"	1-#5 PER CELL IN 2 CELLS	30"
UP TO 8'-0"	8"	1-#5 PER CELL IN 3 CELLS	30"

JAMB REINFORCING SCHEDULE & DETAIL



PLAN VIEW

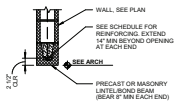
NOTES:

1. VERTICAL REINFORCING SHALL RUN FROM FOOTING TO 4" CLEAR FROM TOP OF UPPERMOST SUPPORTED BEAM (ROOF BEAM OR OPENING LINTEL). VERTICALS MAY BE LAP SPLICED AS REQUIRED FOR EASE OF BLOCK INSTALLATION. PROVIDE HOOKED DOWEL FROM FOOTING OR SUPPORT BEAM AT EACH FILLED BLOCK CELL. PROVIDE HOOK AT TOP OF VERTICAL. EACH POUR OF GROUT SHALL BE STOPPED AT LEAST 1 1/2" BELOW THE TOP OF THE LAST COURSE OF BLOCK LAID (EXCEPT AT PRECAST LINTELS).
2. SEE TYPICAL DETAILS AND CODE REQUIREMENTS FOR CLEAN-OUTS.
3. SEE SEPARATE DETAILS / SCHEDULES FOR JAMB AND PIER REINFORCING.
4. SEE DIAGRAMMATIC MASONRY WALL ELEVATIONS FOR ADDITIONAL INFORMATION.

WALL REINFORCING SCHEDULE

WALL TYPE	WALL THICKNESS 'T'	REINFORCING	MAXIMUM SPACING OC	SPLICE LENGTH	REMARKS
MW1	8"	1-#5	48"	30"	TYP EXTERIOR UNO

TYPICAL WALL REINFORCING WITH 1 BAR OR 2 BARS PER FILLED CELL



3 JAMB REINFORCING SCHEDULE & DETAIL

S3.2 | NO SCALE

4 MASONRY WALL REINFORCING SCHEDULES & DETAILS

S3.2 | NO SCALE

5 TYPICAL WINDOW/DOOR HEAD DETAIL

S3.2 | NO SCALE

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LAKE CITY, FLORIDA

Revisions:

MASONRY SECTIONS & DETAILS

CONSTRUCTION DOCUMENTS

DATE: 9/12/2024

2338

S3.2

HVAC GENERAL NOTES

1. CONNECTION TO EQUIPMENT SHALL BE VERIFIED WITH MANUFACTURER'S CERTIFIED DRAWINGS. TRANSITIONS TO ALL EQUIPMENT SHALL BE VERIFIED AND PROVIDED FOR EQUIPMENT FURNISHED.
2. DIMENSIONS SHALL BE FIELD-VERIFIED AND COORDINATED PRIOR TO PROCUREMENT OR FABRICATION. COORDINATE ALL WORK WITH OTHER TRADES INVOLVED. FIELD MODIFICATIONS, SUCH AS OFFSETS IN PIPING OR DUCTWORK, (INCLUDING ENDED DUCTWORK) NEEDED DUE TO OBSTRUCTIONS OR INTERFERENCES SHALL BE PROVIDED AT NO ADDITIONAL COST. FOR RENOVATION PROJECTS, COORDINATE NEW WORK WITH EXISTING ELEMENTS SUCH AS THE BUILDING STRUCTURE, ARCHITECTURAL FEATURES, SPRINKLER PIPING, LIGHTS, PLUMBING, AND ELECTRICAL CONDUIT.
3. DUCTWORK CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE SMACNA HVAC DUCTWORK CONSTRUCTION STANDARD.
4. INSTALL ALL FIRE DAMPERS, SMOKE DAMPERS, AND COMBINATION FIRE/SMOKE DAMPERS IN ACCORDANCE WITH MANUFACTURER'S INSTALLATION INSTRUCTIONS. PROVIDE ACCESS DOORS TO ALLOW COMPLETE INSPECTION AND MAINTENANCE OF ALL DEVICES.
5. PROVIDE 1.5R ELBOWS IN DUCTWORK AS INDICATED ON DRAWING. IF 1.5R ELBOWS DO NOT FIT, PROVIDE 1.0R ELBOWS. IF 1.0R ELBOWS DO NOT FIT, PROVIDE 90 DEGREE RECTANGULAR DUCT ELBOWS WITH TURNING VANES.
6. COORDINATE DIFFUSER, GRILLE, AND REGISTER LOCATIONS WITH ARCHITECTURAL REFLECTED CEILING PLANS AND EQUIPMENT OF ALL TRADES.
7. LOCATE THERMOSTATS, TEMPERATURE SENSORS, HUMIDISTATS, AND HUMIDITY SENSORS AT 48" ABOVE FINISHED FLOOR UNLESS NOTED OTHERWISE. COORDINATE LOCATIONS WITH OTHER EQUIPMENT, FURNITURE, AND DOOR SWINGS.
8. ALL EQUIPMENT, DUCTWORK, ETC., SHALL BE SUPPORTED AS DETAILED AND/OR SPECIFIED. PROVIDE ADDITIONAL SUPPORTS AS REQUIRED TO PROVIDE A VIBRATION-FREE, RIGID INSTALLATION.
9. ALL DUCTWORK SIZES SHOWN ARE INSIDE CLEAR DIMENSIONS.
10. DAMPERS AND RODDES OF DUCTWORK VISIBLE THROUGH GRILLES, REGISTERS, AND DIFFUSERS SHALL BE PAINTED FLAT BLACK.
11. ACCESS PANELS IN DUCTWORK AND CEILINGS SHALL BE PROVIDED WHERE REQUIRED FOR OPERATION, BALANCING, OR MAINTENANCE OF ALL MECHANICAL EQUIPMENT.
12. ALL DUCTWORK AND PIPING IS SHOWN SCHEMATICALLY. PROVIDE ALL TRANSITIONS, TURNING VANES, ELBOWS, FITTINGS, ETC., TO ALLOW SMOOTH FLOW. ALL SPLIT DUCTWORK FITTINGS SHALL TRANSITION TO FULL SIZE OF THE SUM OF BOTH BRANCHES, UPSTREAM OF SPLIT.
13. COORDINATE SIZE REQUIREMENTS OF ALL CONCRETE HOUSEKEEPING PADS UNDER ALL FLOOR MOUNTED EQUIPMENT.
14. PROVIDE TRANSITIONS AT DIFFUSER NECKS AS REQUIRED TO MATCH SIZES OF FLEX DUCTWORK TO BE CONNECTED.
15. SLEEVE AND SEAL ALL PIPING PENETRATIONS THROUGH BUILDING PARTITIONS.
16. MAINTAIN CLEARANCE OF A MINIMUM OF 6" BETWEEN DUCTWORK, PIPING, EQUIPMENT, ETC., AND ALL FIRE RATED AND FIRE/SMOKE RATED PARTITIONS, TO ALLOW FOR INSPECTIONS OF RATED WALLS.
17. LOCATE ALL OUTSIDE AIR INTAKES A MINIMUM OF 10'-0" CLEAR FROM ALL PLUMBING VENTS AND EXHAUST AIR DISCHARGE LOCATIONS. LOWEST POINTS OF EACH OUTSIDE AIR OR ROOF SHALL BE A MINIMUM OF 24" ABOVE ROOF.
18. DUCTWORK RUNOUTS TO DIFFUSERS SHALL MATCH THE SIZE OF THE DIFFUSER NECK.
19. UNLESS OTHERWISE NOTED, ALL EQUIPMENT AND VALVE DRAINS SHALL BE INDEPENDENTLY PIPED FULL SIZE TO THE NEAREST PLUMBING DRAIN.
20. ALL EQUIPMENT, DUCTWORK, ETC., TO BE REMOVED SHALL REMAIN PROPERTY OF THE OWNER OR DISPOSED OF LEGALLY, AS DIRECTED BY THE OWNER.
21. ALL ROOFTOP MECHANICAL EQUIPMENT SHALL MAINTAIN A MINIMUM DISTANCE OF 10'-0" FROM ROOF EDGE. WHERE REQUIRED, A 42" GUARDRAIL OR STRUCTURALLY DESIGN 10'-0" FROM FOR FALL PROTECTION CAN BE PROVIDED IN ACCORDANCE WITH THE MECHANICAL CODE.
22. DUCTWORK AND PIPING INSTALLED INSIDE THE BUILDING SHALL BE KEPT A MINIMUM OF THREE FEET (36 INCHES) HORIZONTALLY FROM THE FACE OF ALL ELECTRICAL PANELS, SWITCH GEAR, AND TRANSFORMERS REGARDLESS OF THE DIFFERENCE IN ELEVATION BETWEEN THE UTILITIES AND THE ELECTRICAL EQUIPMENT.

HVAC SYMBOL LEGEND

SYMBOL	DESCRIPTION
	-CEILING DIFFUSER, ROUND NECK (CEILING DIFFUSERS ARE 4-WAY THROW UNO)
	-CEILING RETURN
	-CEILING EXHAUST
M	-MOTOR OPERATED CONTROL DAMPER (MOD)
	-MANUAL BALANCING DAMPER
	-FLEXIBLE DUCT
	-TRANSITION, CONCENTRIC
	-TRANSITION, ECCENTRIC
	-SQUARE THROAT ELBOW W/TURNING VANES
	-RADIUS ELBOW
	-RECTANGULAR/ROUND BRANCH TAKE-OFF OR ROUND-ROUND BRANCH TAKE-OFF
	-STANDARD BRANCH TAKE-OFF
	-SPIN-IN TAKE-OFF
UP DN	-DUCT ELBOW, POSITIVE PRESSURE (SUPPLY)
UP DN	-DUCT ELBOW, EXHAUST
UP DN	-DUCT ELBOW, NEGATIVE PRESSURE, RETURN
	-SUPPLY REGISTER OR GRILLE (VERTICAL MOUNT, SIDEWALL)
	-RETURN/EXHAUST REGISTER OR GRILLE (VERTICAL MOUNT, SIDEWALL)
FD	-FIRE DAMPER
2	-REVISION REFERENCE
T H	-TEMPERATURE / HUMIDITY SENSOR
	-DUCT SMOKE DETECTOR
W	-SHEET NOTE CALLOUT
	-CEILING MOUNTED ACCESS DOOR
	-DEMO TO
	-CONNECT TO

NOTE: SOME SYMBOLS SHOWN ON THIS LEGEND MAY NOT PERTAIN TO THIS PROJECT

HVAC ABBREVIATIONS

SYMBOL	DESCRIPTION
AFF	-ABOVE FINISHED FLOOR
AFR	-ABOVE FINISHED ROOF
AHU	-AIR HANDLING UNIT
AP	-ACCESS PANEL
BOP	-BOTTOM OF PIPE
BHP	-BRAKE HORSEPOWER
BTU	-BRITISH THERMAL UNIT
℄	-CENTER LINE
∫	-CFM (CUBIC FEET PER MINUTE)
CD	-CEILING DIFFUSER
CT	-COOLING TOWER
CV	-CONSTANT AIR VOLUME
CFM	-CUBIC FEET PER MINUTE
CU	-CONDENSING UNIT
DDC	-DIRECT DIGITAL CONTROLS
DN	-DOWN
EAT	-ENTERING AIR TEMPERATURE
ESP	-EXTERNAL STATIC PRESSURE
EWT	-ENTERING WATER TEMPERATURE
FCU	-FAN COIL UNIT
FD	-FIRE DAMPER
FF	-FINAL FILTERS
FLA	-FULL LOAD AMPS
FPM	-FEET PER MINUTE
GD	-GRAVITY DAMPER
KW	-KILOWATT
LAT	-LEAVING AIR TEMPERATURE
LWT	-LEAVING WATER TEMPERATURE
MBH	-THOUSAND BTUH PER HOUR
MCA	-MINIMUM CIRCUIT AMPS
MOCP	-MAXIMUM OVER CURRENT PROTECTION
NC	-NORMALLY CLOSED
NO	-NORMALLY OPEN
NTS	-NOT TO SCALE
OA	-OUTSIDE AIR
OAL	-OUTSIDE AIR LOUVER
PRV	-PRESSURE REDUCING VALVE
PRS	-PRESSURE REDUCING STATION
PSI	-POUNDS PER SQUARE INCH
PSG	-PSI GAUGE
PTAC	-PACKAGED TERMINAL AIR CONDITIONER
PVC	-POLYVINYL CHLORIDE PIPE
RA	-RETURN AIR
RHC	-REHEAT COIL
RPM	-REVOLUTIONS PER MINUTE
RTU	-ROOFTOP AIR HANDLING UNIT
SA	-SUPPLY AIR
SP	-STATIC PRESSURE
TSP	-TOTAL STATIC PRESSURE
UNO	-UNLESS NOTED OTHERWISE
V/PH	-VOLTS/PHASE
VAV	-VARIABLE AIR VOLUME
VFD	-VARIABLE FREQUENCY DRIVE
VRF	-VARIABLE REFRIGERANT FLOW
ΔP	-CHANGE IN PRESSURE
ΔT	-CHANGE IN TEMPERATURE

MECHANICAL EQUIPMENT TAGS

DIFFUSER/GRILLE TAG: A/B — A = NECK SIZE, B = CFM

AHU FLOOR LOCATION AND NUMBER — AHU-1 — AIR HANDLING UNIT

TERMINAL UNIT TYPE — VAV = VARIABLE VOLUME, CAV = CONSTANT VOLUME — AHU NUMBER — TERMINAL UNIT NUMBER — VAV-1-1

APPLICABLE CODES & STANDARDS

FLORIDA BUILDING CODE – MECHANICAL, 2023 EDITION
FLORIDA BUILDING CODE – PLUMBING 2023 EDITION
FLORIDA BUILDING CODE – ENERGY CONSERVATION 2023 EDITION
FLORIDA ADMINISTRATIVE CODE – 69A-3.012
NFPA-13, STANDARD FOR INSTALLATION OF SPRINKLER SYSTEMS – 2019 EDITION
NFPA-70, NATIONAL ELECTRICAL CODE – 2020 EDITION
NFPA-72, NATIONAL FIRE ALARM CODE – 2019 EDITION
NFPA-90A, STANDARD FOR THE INSTALLATION OF AIR CONDITIONING AND VENTILATION SYSTEMS – 2021 EDITION
NFPA-90B, STANDARD FOR THE INSTALLATION OF WARM AIR HEATING AND AIR CONDITIONING SYSTEMS – 2021 EDITION

SHEET INDEX

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KYLE J. DAVIS — LICENSED — No. 94275 — STATE OF FLORIDA — REGISTERED ARCHITECT

NEW FIRE DEPARTMENT ADMINISTRATION BUILDING
1570 NW LAKE JEFFERY ROAD
LAKE CITY, FLORIDA
CCBCC PROJECT NUMBER

#	Date	Note
Revisions		

GENERAL NOTES, LEGEND, AND SHEET INDEX - HVAC

CONSTRUCTION DOCUMENTS

DATE
09/12/2024

2338

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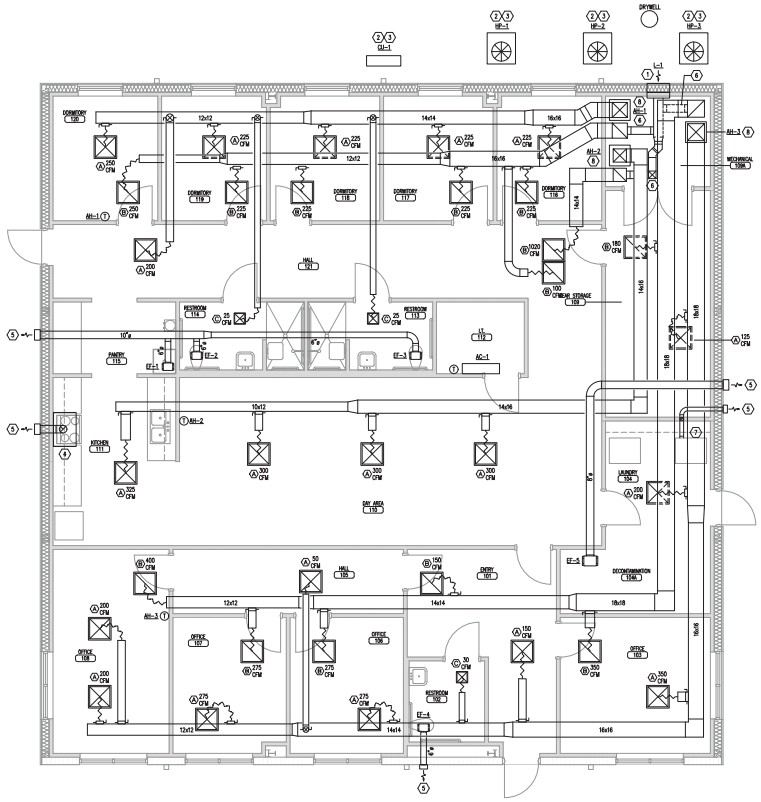

HVAC FLOOR PLAN

SCALE: 1/4" = 1'-0"

DRAWING NOTES:

1. PROVIDE FULL SIZE DUCTWORK FOR AIR HANDLER INTAKE AND DISCHARGE. PROVIDE TRANSITION TO DUCTWORK SHOWN ON PLAN. CONFIRM EXACT SIZE OF AIR HANDLER INTAKE / DISCHARGE BASED ON FINAL SUBMITTALS.
2. BRANCH DUCTWORK TO CEILING DEVICES SIZE SHALL MATCH SIZE INDICATED ON AIR DISTRIBUTION SCHEDULE UNLESS OTHERWISE NOTED ON PLAN.

KEY NOTES:

1. LOUVER WITH PLENUM BOX. REFER TO LOUVER SCHEDULE FOR SIZE AND FREE AREA REQUIREMENTS. REFER TO ARCHITECTURAL EXTERIOR ELEVATIONS FOR LOUVER MOUNTING HEIGHT REQUIREMENTS.
2. INSTALL NEW OUTDOOR UNITS ON NEW EQUIPMENT PAD.
3. ROUTE NEW REFRIGERANT PIPING TO ASSOCIATED INDOOR UNIT. SIZE PER MANUFACTURER'S INSTALLATION REQUIREMENTS. PROVIDE REFRIGERANT LINE SET COVER FOR ANY PIPING ROUTED UP THE SIDE OF THE EXTERIOR WALL.
4. WALL MOUNTED EXHAUST HOOD OVER NEW RESIDENTIAL RANGE EQUIVALENT TO CAPTIVEAIRE WRH-36. BALANCE TO 250 CFM AND ROUTE NEW 10"ø DUCTWORK FROM HOOD TO NEW EXHAUST WALL CAP.
5. NEW EXHAUST WALL CAP. MATCH EXHAUST DUCTWORK SIZE. PAINT TO MATCH EXTERIOR WALL COLOR.
6. 8x8 OUTDOOR AIR DUCTWORK EXTENDED FROM OUTDOOR AIR PLENUM TO RETURN AIR PLENUM. PROVIDE MOTORIZED 2-POSITION MOTORIZED OUTDOOR AIR DAMPER. DAMPER SHALL OPEN UPON UNIT STARTUP TO ARROW INDICATED ON BALANCE SCHEDULE AND SHALL CLOSE UPON UNIT SHUTDOWN.
7. PROVIDE NEW DRYER VENT, EXTEND FROM NEW DRYER VENT BOX TO WALL CAP.
8. ROUTE NEW 3/4" CONDENSATE PIPING TO NEW DRYWELL.

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1570 NW LAKE JEFFERY ROAD
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CCBCC PROJECT NUMBER

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HVAC FLOOR PLAN

CONSTRUCTION DOCUMENTS

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09/12/2024

2338

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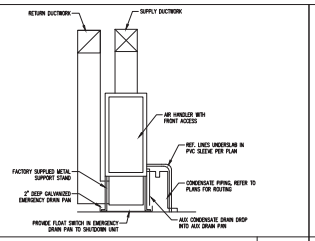
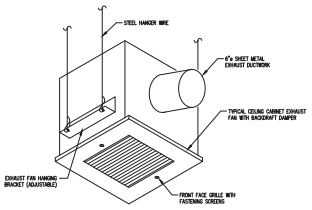
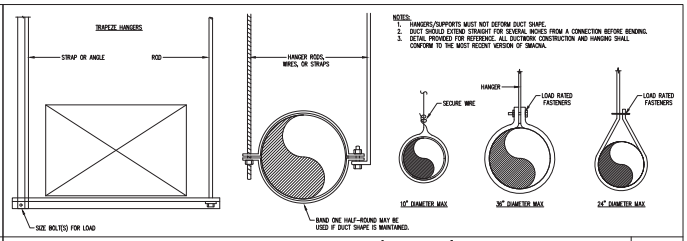


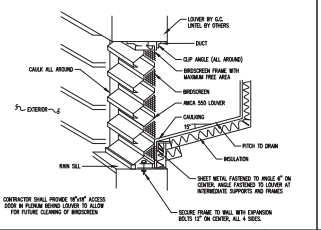
TYPICAL AIR HANDLER DETAIL NTS 7



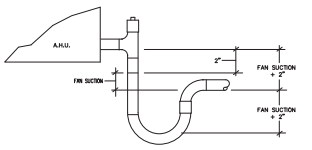
CEILING MOUNTED EXHAUST FAN NTS 4



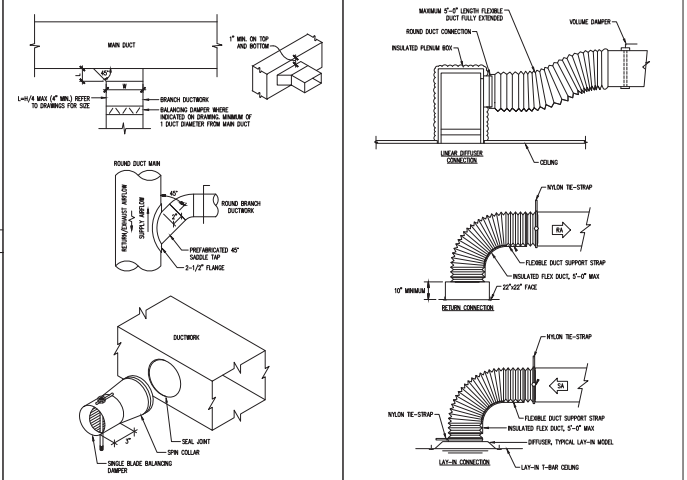
RIGID ROUND + RECTANGULAR DUCT SUPPORT (SMACNA) NTS 1



WALL LOUVER W/ PLENUM NTS 8

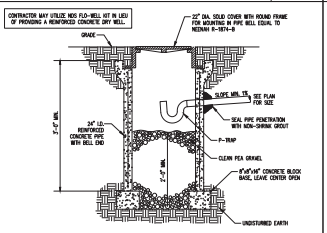


AHU CONDENSATE DRAIN DETAIL NTS 5

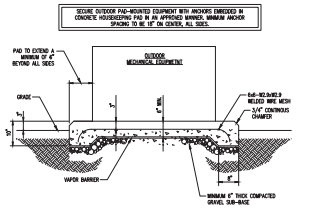


DUCTWORK CONNECTION DETAILS NTS 3

DIFFUSER/GRILLE CONNECTION NTS 2



DRYWELL DETAIL NTS 9



EQUIPMENT PAD DETAIL NTS 6

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KYLE J. DAVIS LICENSED ARCHITECT No. 94275 STATE OF FLORIDA

NEW FIRE DEPARTMENT ADMINISTRATION BUILDING
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LAKE CITY, FLORIDA
CCBCC PROJECT NUMBER

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HVAC DETAILS

CONSTRUCTION DOCUMENTS

DATE
09/12/2024

2338

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CA JOB NUMBER 2350

SPLIT SYSTEM AIR CONDITIONING SCHEDULE

MARK	SYSTEM TYPE	AHU MODEL	L/W/H/WT	NOMINAL TONNAGE	COOLING CAPACITY			RATING CONDITIONS		HEAT PUMP CAPACITY			AHU TYPE		FAN				AUXILIARY HEATER				AH W/MCA(A)		CONDENSING UNIT		COMP	FAN	ELECTRICAL			DIMENSIONS		WT.
					SENS.	TOTAL	SEER2	AMB	EAT-DB/WB	TOTAL	HSPF2	CONTG	AIR FLOW	ESP	CFM	ESP	DRIVE	HP	VOLTS/Ø/FLA	KW	STAGE	VOLTS	PH	MCA	BKR	MODEL	AMPS	AMPS	MCA	BKR	V/PH	H/W/D	LBS
AH-1 / HP-1	HEAT PUMP	TEM4A0C48H41	24/22/52/185	4	34,845	46,181	14.3	95	80/67	44,000	7.5	CONV	VERT.	1400	0.7	D	0.75	240/1/6.0	7.7	1	240	1	48	50	4TWB4048N1	18.5	2.8	26	40	240/1	46/38/35	255
AH-2 / HP-2	HEAT PUMP	TEM4A0C42H41	24/22/52/145	3.5	30,318	39,494	14.3	95	80/67	38,500	7.5	CONV	VERT.	1225	0.7	D	0.5	240/1/4.3	7.7	1	240	1	45	45	4TWB4042N1	16.7	2.8	24	40	240/1	46/38/35	230
AH-3 / HP-3	HEAT PUMP	TEM4B0C60S51	24/22/52/185	5	41,982	55,230	14.3	95	80/67	55,000	7.5	CONV	VERT.	1855	0.7	D	0.75	240/1/6.0	7.7	1	240	1	48	50	4TWB4060N1	23.7	2.8	32	50	240/1	46/38/35	255

NOTE: STATIC PRESSURE IN INCHES OF WATER EXTERNAL TO UNIT AND ALL ACCESSORIES.

D= DIRECT DRIVE W/ MULTI-SPEED MOTOR
B= BELT DRIVE

ACCESSORIES: (PROVIDE FOR ALL UNITS)
1. 2" THROWAWAY FILTERS 2. INTERGRAL FUSE DISCONNECT & CONTACTORS 3. VARIABLE SPEED TAPS, REFER TO AH PERFORMANCE DATA 4. SINGLE POINT ELECTRICAL CONNECTION

FMC TABLE 403.3.1.1 - OUTSIDE AIR REQUIREMENTS

AIR HANDLER NUMBER – AH-1

ROOM NAME	AREA (SQ. FT.)	SPACE REQUIREMENTS		OCCUPANCY REQUIREMENTS				TOTAL O/A CFM
		CFM/SQFT	CFM	PEOPLE/SQFT	PEOPLE	CFM/PERSON	CFM	
113 – RESTROOM	66	70E/T	70E	---/1000	---	---	---	70E
114 – RESTROOM	66	70E/T	70E	---/1000	---	---	---	70E
115 – PANTRY	69	0.12	8	---/1000	---	---	---	8
116 – DORMITORY	102	0.06	6	30/1000	2	5	10	16
117 – DORMITORY	106	0.06	6	30/1000	2	5	10	16
118 – DORMITORY	102	0.06	6	30/1000	2	5	10	16
119 – DORMITORY	102	0.06	6	30/1000	2	5	10	16
120 – DORMITORY	102	0.06	6	30/1000	2	5	10	16
121 – HALL	361	0.06	22	---/1000	---	---	---	22
TOTAL								110 / 140E

AIR HANDLER NUMBER – AH-2

ROOM NAME	AREA (SQ. FT.)	SPACE REQUIREMENTS		OCCUPANCY REQUIREMENTS				TOTAL O/A CFM
		CFM/SQFT	CFM	PEOPLE/SQFT	PEOPLE	CFM/PERSON	CFM	
110 – DAY AREA	553	0.06	33	30/1000	17	7.5	128	161
111 – KITCHEN	161	0.12	20	30/1000	3	7.5	23	43
TOTAL								204

AIR HANDLER NUMBER – AH-3

ROOM NAME	AREA (SQ. FT.)	SPACE REQUIREMENTS		OCCUPANCY REQUIREMENTS				TOTAL O/A CFM
		CFM/SQFT	CFM	PEOPLE/SQFT	PEOPLE	CFM/PERSON	CFM	
101 – ENTRY	177	0.06	11	10/1000	2	5	10	21
102 – RESTROOM	48	70E/T	70E	---/1000	---	---	---	70E
103 – OFFICE	159	0.06	10	5/1000	1	5	5	15
104 – LAUNDRY	105	0.12	13	---/1000	---	---	---	13
104A – DECONTAMINATION	75	0.12	9	---/1000	---	---	---	9
105 – HALL	116	0.06	7	---/1000	---	---	---	7
106 – OFFICE	120	0.06	7	5/1000	1	5	5	12
107 – OFFICE	118	0.06	7	5/1000	1	5	5	12
108 – OFFICE	185	0.06	11	5/1000	1	5	5	12
109 – GEAR STORAGE	185	0.12	22	---/1000	---	---	---	22
TOTAL								123 / 70E

MINI-SPLIT DUCTLESS HEAT PUMP SCHEDULE

INDOOR UNIT					OUTDOOR UNIT							
MARK	MODEL NO.	CONFIGURATION	SA CFM (MAX.)	TOTAL COOLING CAPACITY (BTH/H)	TOTAL HEATING CAPACITY (BTH/H)	MARK	MODEL NO.	SEER	NOMINAL TONS	AMBIENT TEMP. (°F)	UNIT ELECTRICAL			
											FAN FLA	MCA	MOCP	V/PH/HZ
AC-1	LSUY60HSV5	WALL MOUNT	700	18,000	21,600	CU-1	LSUY60HSV5	21.5	1.5	95	0.25	13	20	240/1/60

NOTES:
1. MODEL NUMBERS AND UNIT SELECTIONS ARE BASED ON LG.
2. INDOOR UNIT IS ELECTRICALLY POWERED FROM THE OUTDOOR UNIT.
3. PROVIDE SINGLE POINT ELECTRICAL CONNECTION.
4. PROVIDE LOW AMBIENT KIT FOR OPERATION IN AMBIENT TEMPERATURES DOWN TO 32° F.
5. SIZE REFRIGERANT LINES PER MANUFACTURER RECOMMENDATIONS. PROVIDE OVERSIZE LINES AND/OR REFRIGERATION LINE EXTENSION KIT BASED ON MANUFACTURERS RECOMMENDATION FOR EXTENDED REFRIGERATION LINE RUNS.
6. PROVIDE 62° MINIMUM TEMPERATURE KIT.
7. PROVIDE 5 YEAR COMPRESSOR WARRANTY.
8. PROVIDE 7 DAY PROGRAMMABLE THERMOSTAT. UNITS SHALL BE THERMOSTATICALLY CONTROLLED TO CYCLE WITH LOADS. NO ADDITIONAL CONTROLS ARE REQUIRED.
9. MOUNT OUTDOOR UNIT ON EQUIPMENT SUPPORTS OR ON NEW EQUIPMENT PAD BASED ON HVAC PLANS.
10. PROVIDE CLEANABLE ANTIBACTERIAL FILTERS.
11. PROVIDE VERTICAL AND HORIZONTAL OSCILLATING ADJUSTABLE AIR FLOW.

EQUIPMENT BALANCE

MARK	SUPPLY AIR CFM	RETURN AIR CFM	OUTDOOR AIR CFM
AH-1	1400	1290	150
AH-2	1225	1020	205
AH-3	1855	1630	225

NOTES:
1. PROVIDE NEW MERV 8 FILTERS PRIOR TO TEST AND BALANCE AND AT SUBSTANTIAL COMPLETION.

EXHAUST FAN SCHEDULE

MARK	MFGR.	MODEL	TYPE	WATTS	HP	RPM	CFM	ESP	VOLT/Ø	COMMENTS
EF-1	GREENHECK	SP-A70	CEILING	13	---	850	50	0.25	120/1	INTERLOCK WITH AH-2
EF-2	GREENHECK	SP-A125	CEILING	21	---	1100	100	0.25	120/1	INTERLOCK WITH LIGHT SWITCH
EF-3	GREENHECK	SP-A125	CEILING	21	---	1100	100	0.25	120/1	INTERLOCK WITH LIGHT SWITCH
EF-4	GREENHECK	SP-A300-VG	CEILING	25	---	988	300	0.25	120/1	INTERLOCK WITH AH-1
EF-5	GREENHECK	SP-A80	CEILING	16	---	900	70	0.25	120/1	INTERLOCK WITH LIGHT SWITCH

FURNISH ALL FANS WITH INTEGRAL DISCONNECT, THERMALLY PROTECTED MOTOR, AND BACKDRAFT DAMPER

LOUVER SCHEDULE

MARK	MANUFACTURER	MODEL	AREA SERVED	FINISH	WxH(IN.)	MIN. FREE AREA (SF)	CFM	MAX. FACE VELOCITY	NOTES
L-1	GREENHECK	DVH-550	OA – AH-1,2,3	CLEAR ANODIZED	24x24	1.2	580	500 FPM	1,2,3,4

NOTES:
1. INSECT SCREEN
2. COORDINATE FRAME TYPE WITH WALL CONSTRUCTION
3. COUNTERBALANCED BACKDRAFT DAMPER
4. AMCA 540 & 500 RATED

AIR DISTRIBUTION SCHEDULE

MARK	TYPE	NECK	FACE SIZE	DESCRIPTION
A	000–60 61–110 111–240 241–420 421–550	6Ø 8Ø 10Ø 12Ø	12x12 24x24 24x24 24x24 24x24	SUPPLY DIFFUSER BASIS OF DESIGN: TITUS OMNI COLOR: WHITE / PAINT TO MATCH MATERIAL: ALUMINUM MOUNTING: 24x24 LAY-IN OPPOSED BLADE DAMPERS: NO
B	000–90 91–110 111–225 226–360 361–520 521–730	6Ø 8Ø 10Ø 12Ø 14Ø	12x12 24x24 24x24 24x24 24x24 24x24	RETURN/EXHAUST GRILLE BASIS OF DESIGN: TITUS 50F COLOR: WHITE / PAINT TO MATCH MATERIAL: ALUMINUM MOUNTING: 24x24 LAY-IN OPPOSED BLADE DAMPERS: NO

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KYLE J. DAVIS
LICENSED
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FLORIDA
REGISTERED
ARCHITECT

NEW FIRE DEPARTMENT ADMINISTRATION BUILDING
1570 NW LAKE JEFFERY ROAD
LAKE CITY, FLORIDA
CCBCC PROJECT NUMBER

#	Date	Note
Revisions		

HVAC SCHEDULES

CONSTRUCTION DOCUMENTS

DATE
09/12/2024

2338

M301

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HVAC SPECIFICATIONS

A. It is the intent of these specifications to define the work and materials typically installed by a Mechanical Contractor. However, it is not intended to define a subcontract between the Mechanical Contractor and the General Contractor. The General Contractor is responsible for the entire project and any questions regarding scope of work shall be directed to the General Contractor.

B. Work shall include all labor, materials, fixtures, equipment, tools and service necessary for installation, testing and adjusting of all mechanical systems shall be furnished and installed in compliance with the Drawings, Specifications, and any Addenda thereto.

C. Drawings and Specifications shall be understood to cover, according to their intent and meaning, complete mechanical systems. Work shown and not specified, or work specified and not shown shall be performed as though mentioned in both.

D. Minor details not usually shown or specified but necessary for the complete and proper operation of any system shall be provided by contractor or subcontractor for each system whether or not they are specifically called for.

E. Before submitting a bid, the Mechanical Contractor is to coordinate with the General Contractor to ascertain, in detail, the division of work, and the extent of performance other subs and the General Contractor.

F. All work shall be performed or installed in strict accordance with Florida Building Code 2023 – Mechanical, NFPA 101, NFPA 90A and local ordinances.

G. Fees for permits, inspections, patent use, royalties, etc. shall be paid by the contractor.

H. All systems shall be tested for proper operation, rotation air supply, water supply, pressures, flows, balance, vibration, and appropriate interlocks as required by these specifications or manufacturers' recommendations.

I. All work shall be installed in accordance with the appropriate codes and satisfy the local inspector having jurisdiction.

J. Upon completion of each part of the mechanical system, the contractor shall demonstrate to the Engineer that each item on that system is installed with proper covers, safeties, controls, etc., and that all are in proper working order.

K. A set of "red-lined" mechanical drawings shall be carefully maintained at the job site. Actual conditions are to be put on the drawings in red on a daily basis as the drawings will continuously show locations and routings of piping, ducts, grilles, equipment, valves, etc. as installed and shall be kept up to date at all times.

L. Equipment and materials shall be new and meet or exceed specification / schedule requirements.
1. All products shall be current model for which replacement parts are available.

M. Acceptable manufacturers are listed, additional manufacturers may request approval for their products up to 10 days in advance of bid. Engineer may require supplemental information prior to accepting or rejecting the alternate.

N. All work shall be performed in compliance with OSHA regulations.

O. Shop drawings and product data shall be submitted on all equipment, fixtures, etc
1. Submittals shall include all equipment to be installed by the subcontractor and all submittals must be made at same time.
2. Each package must have the General Contractors review stamp prior to submittal.
3. The Engineer will review one submittal and one resubmittal; subsequent resubmittals may require a review charge to be paid by subcontractor.
4. Shop drawings shall be labeled in the same designation as the drawings

P. Job conditions shall be determined prior to bidding in the following manner:
1. Site visit to determine:
a. Existing conditions
b. Where and how materials will be delivered and stored.
c. Special problems encountered during construction.
2. Examine all Contract Drawings and Specifications to determine:
a. Type of construction to be used.
b. How construction or work will affect the work of this Section.
c. Nature and extent of work of other trades.

Q. Failure to determine existing conditions or nature of construction will not be considered as a basis for granting additional compensation.

R. Installation:
1. Contract Drawings show the arrangements and sizes of principal apparatus and devices to be provided under this Contract and connection thereto. These shall be followed as closely as actual building construction will permit.
2. Dimensions of work as indicated on Plans are not guaranteed to be ex-built d dimensions.
3. No measurements shall be scaled from Drawings and used as definite dimensions for layout or fitting work in place.
4. Layout of equipment, as shown on the plans, shall be checked and exact location determined before installation of equipment approved by the Architect.
5. Consult the Drawings of all dimensions, locations of partitions, sizes of structural members, foundations, etc.
6. Do not make final layouts until shop or equipment drawings are approved and job conditions verified.
7. Mechanical reference symbols are given on the mechanical legend on the drawings.

S. Rough-In
1. Work included:
a. Contractor shall rough-in for all equipment, fixtures, etc., in building whether or not such equipment is furnished by this Contractor or by Owner.
2. Method:
a. Determine in advance the location and size of all openings and chases necessary for proper installation of all work and have openings and chases provided during construction.
b. Install all inserts for hangers and supports of mechanical work and equipment work as general construction progresses.
c. Provide openings in masonry or steel where shall be cut, not broken or chipped.
d. Sleeves shall be required at all points where piping passes through concrete walls, slabs or masonry walls. sleeves installed below grade or where subject to high water conditions shall be installed watertight.

T. Coordination:
1. Work shall be coordinated between all Contractors, Subcontractors, Installers, Suppliers, Trades, etc., to:
a. Insure a neatly fitted installation.
b. Determine the nature and extent of the work of others.
c. Eliminate interferences.
d. Maintain maximum headroom and clearances.
2. Any interference which develops or is foreseen and cannot be resolved by the affected trades, shall be handled as follows:
a. Cease installation of that portion of the work which is in conflict on no additional compensation will be allowed for any relocation, etc.
b. Continue work only on other portions of the work which are not in conflict.
c. Notify the Architect immediately.
d. Architect's decision shall be final as to any relocation, rerouting, removal, etc.
e. No additional compensation will be allowed for removal, relocation, reporte installation of equipment by the Architect.

U. Clear away all debris, surplus materials, etc., resulting from work on operations, leaving job and equipment in clean first-class condition.

V. Clean all rotating equipment, ducts, piping, etc., and leave them in a ready-to-use condition.

W. Where factory finish is provided on equipment, all marred or damaged surfaces shall be touched-up or refinished hereunder as approved.

X. Thoroughly clean all items of equipment, leaving them in first-class condition.

Y. Wipe clean or wash if necessary all surfaces of all coils, fan housings, fan wheels, fan motors, air unit plenums, and all air filters.

Z. All pumps, motors, fans and other rotating equipment shall be stored at Site with openings, bearing, etc., covered to exclude dust and moisture; all straighted conduit shall be placed on damage, and protected from weather, from entry of foreign materials.

BALANCING OF AIR SYSTEMS

A. Balance and adjust each air distribution system shown on the Drawings.

B. Perform work in accordance with procedures and standards described in SMACNA Balancing and Adjustment Manual."

C. Fuse sizes and thermal overload heaters shall be checked against each motor nameplate.

D. The amperage shall be read at each electrical motor to determine the load imposed on it.

E. Adjustment and Balance
1. Adjust variable type pulleys, volume dampers, control dampers, etc. to provide correct volumes to main trunk lines.
2. Check and adjust outside air quantities as required.
3. Adjust air extractors and manual balancing dampers to supply correct air volume to each main branch duct from main trunk lines.
4. Adjust manual balancing dampers to supply correct volume to each individual branch duct.
5. Use individual registers only for minimal adjustment of air flows, i.e. less than 5% of air volume.
6. Fit supplies and diffusers for proper air flow patterns.
7. Air conditioning units shall be placed in operation and both wet and dry bulb temperatures taken at one-hour intervals to determine the amount of cooling being accomplished and to indicate adjustments needed.
8. After spaces have been brought down to design temperatures and equipment is functioning properly, air shall be rebalanced if necessary by means of calibrated thermometers placed in each room and in open spaces,mid over 20' apart. There shall be no variation in temperature of more than 2 F throughout the space cooled.
9. A thorough check shall be made, with an anemometer, of air motion in the occupied space. Any air motion exceeding 50 fpm shall be remedied.

HVAC SYSTEMS

A. Split System or packaged heating and cooling units with reverse cycle and heat strip where specified.

B. Acceptable Manufacturers
1. Trane
2. Carrier
3. Lennox

C. BLOWER COIL SECTION
1. Airflow as indicated on drawings.
2. Fan shall be direct – drive, forward-curved, double inlet, statically and dynamically balanced.
3. Fan motor shall be resiliently mounted and shall be easily removable for service.
4. Fan motor shall be permanent –split–capacitor type with integral overload protection, high – efficiency, Florida Energy Code Minimum.
5. Cooling coil shall have aluminum fins mechanically bonded to copper tubing. Coil shall have factory installed refrigerant metering devices.

D. CONDENSING SECTION
1. Outdoor unit shall be designed for use with thefrigerant 410a and contain sufficient charges (RATing) for complete system. Brass service valves with refrigerant line fittings and service ports shall be located on exterior of unit.
2. Outdoor unit shall be constructed with aluminum fins mechanically bonded to non-ferrous tubing. Factory installed coil refrigerant metering device shall be mounted on unit liquid service valve. Metering device bilateral components shall be removable for cleaning or replacement.
3. Outdoor unit fan shall be propeller type, direct driven, and arranged for vertical air discharge. Fan motor shall be factory fabricated, inherently protected and resiliently mounted.
4. Compressor shall be of the welded-hermetic type with bilateral vibration isolation and shall be covered with a sibilat to muffle operating sound. Compressor motor shall have both thermal and current – sensitive overload device. Compressor shall be equipped with a crank–case heater and have bilateral high–pressure protection.
5. Controls shall be factory wired and located in a readily accessible location. Controls and protective devices shall include a liquid line low pressure switch, suction line accumulator and pressure relief device. Control wiring terminal board shall be designed to match indoor unit terminal board and accessory thermostat terminals for standardized point–to–point connection.

E. Refer to Mechanical Equipment Schedule for Model Numbers.

EXHAUST FANS

A. All exhaust fans mounted in the ceiling inside the building and ducted to the outside.

B. Meet the specification for air delivery at static pressure as specified on the Equipment schedule.

C. Meet the noise criteria (if specified on Schedule).

D. Be of the manufacture and model number specified in the Equipment Schedule or equal.

E. Shall be UL listed.

F. Acceptable Manufacturers
1. Greenheck
2. Cornes
3. Greenheck

G. General
1. Aerodynically brassisted steel housing
2. Baked enamel finish on housing
3. Adjustable mounting brackets
4. Automatic backdraft damper at the discharge duct
5. Lifetime lubricated motor
6. Terminal box on housing with cord, plug and receptacle inside the housing.
7. Fan motor and wheel shall be removable without removing entire fan housing.

DUCTWORK

A. RECTANGULAR SUPPLY DUCTWORK SHALL INSULATED LOW PRESSURE SHEET METAL

B. EXPOSED ROUND DUCT SHALL BE GALVANIZED DOUBLE WALL WITH 1" INSULATION BETWEEN THE WALLS.

C. GENERAL EXHAUST DUCTWORK SHALL BE GALVANIZED SHEETMETAL WITH NO INSULATION.

D. RETURN DUCTWORK SHALL BE INSULATED LOW PRESSURE GALVANIZED SHEET METAL.

E. FLEXIBLE DUCTWORK IS ALLOWED ONLY WHERE SHOWN AND SHALL NOT EXCEED 12' FEET IN LENGTH. FLEXIBLE DUCT SHALL MEET UL 181 CLASS 1.

J. FLEXIBLE DUCTWORK WHERE INSTALLED SHALL BE ATTACHED USING SPIN–IN TAKE–OFFS WITH LOCKING QUADRANT DAMPERS.

F. LOW – PRESSURE SHEETMETAL DUCTWORK
1. Except as otherwise specified or detailed on the drawings, all ductwork shall be constructed in accordance with the Sheet Metal and Air Conditioning Contractor's National Association (SMACNA)
2. Each systems shall be complete, including all duct fittings, turning vanes, transverse reinforcing hangers, supports, etc., as detailed on the Drawings or in the standards.
3. Provide and install balancing dampers or adjustable splitters at all branch ducts, and where required for balancing the system.
4. Each damper shall be adjustable with an approved quadrant or regulator. Dampers to be opposed blade type for ducts over 12" in any dimension, for ducts 12" single blade is acceptable except for outdoor air intakes which shall be low–leakage opposed blade.

G. Dimensions shown are net inside dimensions (including insulation).

H. Galvanized sheetmetal duct shall conform to the following thicknesses

a. Largest dimension	Gauge
0–30 inches	24
30–54 inches	22
55–84 inches	20
over 84 inches	18

I. All joints shall be sealed with tape and cooled with mastic.

J. Ductwork shall be seal class – 2" w.c. unless otherwise noted.

G. Plenums shall be constructed and tested in accordance with SMACNA STANDARDS.

H. FLEXIBLE CONNECTIONS
1. Provide between duct system and air moving equipment
2. Connection shall be made with not less than 4" wide flexible collar using "Ventglas" 30–ounce neoprene coated glass fabric.

I. Where construction methods for various items are not indicated on the Drawings or specified herein, all such work shall be fabricated & installed in strict accordance with the recommended methods, metal gauges, hanging procedures, access door and accessory installation, etc., as outlined, the latest edition of SMACNA'S Duct Manual and Sheet Metal Construction for Ventilating and Air Conditioning System.

J. Leakage:
1. Contractor shall make necessary repair and shall make duct system ready for a leakage test.
2. Test shall be performed by Test and Balance Contractor.
3. Leakage shall not exceed 16 leakage for high pressure duct and 8% for low pressure duct construction.

DUCT INSULATION

A. Acceptable Manufacturers
1. Johns–Manville
2. Certainteed
3. Knauf

B. Duct Wrap
1. 2" bulk thick fiberglass – NS INSTALLED
2. Flamespread 25 per ASTM E–84
3. Smoke developed 50 per ASTM E–84
4. Factory applied vapor barrier – heavy duty 4 mil vinyl film, class 1, meeting NFPA 90A and 90B, UL rated
5. Product:
a. Johns–Manville "Microflex"

C. Accessories:
1. Insulation tape, mastic, adhesives, etc., shall have the same flamespread and smoke rating as the insulation to which they are applied and meet manufacturer's recommendations.

D. Ductwrap
1. Overlap seams of ductwrap, secure with 4" wide open mesh glass fabric and two coats of vapor retarder mastic.
2. Underside of ductwork greater than 24" wide shall also be secured with mechanical fasteners with tape.
3. Pressure tape is not acceptable.

E. Provide rigid insulation on supply and return ducts inside mechanical rooms or on any exposed ductwork.

DUCT HANGERS AND SUPPORTS

A. All ductwork for air supply, return, fresh air or exhaust shall be supported by duct hangers, clamps, clips or supports.

B. Acceptable Manufacturers
Duct hangers may be a manufactured item or field fabricated as required.

C. Galvanized steel straps
1. Minimum 18 gauge and one inch wide

D. Trapeze hangers
1. Ducts 30 inches to 40 inches largest dimension.
a. Minimum 1 inch x 1 inch x 1/4 inch steel angles.
b. Minimum 1/4 inch threaded rod
2. Ducts above 40 inches largest dimension and plenums
a. Minimum 1–1/2 inch x 1–1/2 inch x 1/4 inch steel angles.
b. Minimum 3/8 inch threaded rod.

E. Supports
1. All ductwork shall be supported from structural building members, i.e. block, beamscolumns, purlins, joists, etc.
2. Ductwork shall not be supported from ceiling tile or grids, conduit, mechanical equipment, piping or non–structural steel.
3. Ductwork hangers shall be attached to building steel by bolts, screws, clamps or welding.

F. Hanger Rods
1. Horizontal concealed ductwork up to 20 inches largest dimension shall be supported by one (1) inch x 16 gauge galvanized steel straps at a maximum spacing of 10 ft. and at each elbow or branch takeoff.
2. Bends and spacing shall be at a maximum spacing of 10 feet on horizontal runs and at each elbow or branch takeoff.
a. No rods shall be either through any ductwork and into floor joists, trusses, etc.
3. Vertical ductwork, all sizes, shall be supported by bands bolted or screwed to walls, studs, etc.
4. Hanger bands shall be bent over one (1) inch from end and turned under corners of rectangular duct.
5. Duct hanger bands shall be fastened with sheet metal screws at six (6) inch intervals up sides and into bottom.
a. Sheet metal screws shall be 3/4 inch an on not to penetrate duct liner completely.

G. Trapeze Hangers
1. Horizontal ductwork larger than 20 inches largest dimension and all exposed ductwork shall be supported by trapeze type hangers.
2. Trapeze hangers shall be at a maximum spacing of 10 feet and at each elbow or branch takeoff.
3. Hanger rods shall be secured to bottom bracing angles with nuts and locknuts.

DUCT ACCESSORIES

A. Air distribution system shall be furnished complete with duct accessories necessary to allow complete air balancing and adjusting of flow and volume.

B. All square duct elbows over 12" in cross–section shall be fitted with turning vanes.

C. All branch duct takeoffs shall be fitted with nonadjustable air turning vanes AND manual volume control dampers. OR adjustable volume extractors which are adjustable from outside the duct.

D. Each grille and diffuser shall be fitted with a manual volume control regulator at the face of the grille and adjustable from the face of the grille without requiring removal of the grille.

E. Acceptable Manufacturers
1. Barber Colman
2. Titus
3. Price
4. Metalaire

F. Air turning vanes:
1. Multiple radius vanes
2. Steel construction
3. Electrocoated white finish
4. Maximum pressure loss = 28 of velocity head
5. Model number – equal to Barber Colman Models AODA and AODF

G. Volume Extractors:
1. Grey aperoided parallel blade
2. Fully adjustable from side open to full closed
3. Supply with supporting feet as required for branch takeoffs not in the same plane as trunk lines.

VOLUME DAMPERS

A. All return air and fresh air dampers shall be parallel blade pivot dampers with motorized control where noted.

B. All balancing dampers shall have manual control dampers with positive position locking.

C. Acceptable Manufacturers
1. Prefco Manufacturing Co.
2. Titus
3. Ruskin

D. Parallel Blade Pivot Dampers
1. Low leakage non–degradable
2. Fibrilas free metal to metal seals incorporated into the blade and frame shapes
3. Galvanized steel frame, 16 gauge
4. Galvanized steel blades, 16 gauge with double–wrapped center and edge forming
5. Maximum leakage – 11 CFM per sq. ft. @ 1 inch S.P.
6. Velocity pressure loss shall not exceed 0.1" W.G. @ 2000 FPM and 50% modulation
7. Model Number
a. Equal to Prefco Model 5100
8. Chevelled 1–1/2 hour rating, UL Listed.
9. The dampers shall have thermal link.
10. Size
a. Dampers shall be equal to a Prefco "Low Profile 8" or approved equal.

D. Dampers – mounted horizontally in ceiling:
1. UL Listed ceiling damper
2. Round or square as required
3. 2 hour rated
4. Single or dual blade depending on duct size
5. Model Number
a. Prefco Model 5600, 5650, or 5660
1. Fusible link noted at 165 Degrees F. release temperature.

DUCT ACCESS PANELS AND TEST HOLES

A. Provide an access panel at each return air and/or fresh air damper which will allow for inspection and cleaning of dampers.
1. Where return and fresh air dampers are located adjacent, one access door is sufficient, providing each damper is accessible.

B. Provide an access panel at each fire damper for resetting and maintenance of each fire and smoke damper.

C. Provide test holes for measurement of air flow, on each branch duct and main trunk line or plenum.

D. Acceptable Manufacturers
1. Penn Ventilator Co.
2. Ruskin

E. Access Doors
1. Insulated hinged duct access door
2. Standard gauge galvanized steel
3. Continuous piano hinge
4. Gasketed at door frame surface and at frame to duct surface
5. Positive acting cam latch handle
6. Doors shall be of sufficient size to allow access to both sides of dampers
7. If duct width is greater than 36 inches, provide access doors on each side of duct for access to entire dampers.

F. Test Holes
a. Where access door must be installed in such a position that hinged opening is not possible, provide door that is completely removable.
b. Removable door shall have cam–locks on both sides
c. Where noted on drawings fire damper may be accessed through return air grille.

B. Model Numbers:
a. Hinged doors shall be equal to Penn Ventilator Model DAD
b. Non–hinged removable door shall be equal to Penn Ventilator Model DAD–RP.

F. Test Holes
1. Provide a capped access hole in each trunk line or branch duct for insertion of air–flow line or branch duct pitot for flow measurement.

GRILLES & DIFFUSERS

A. Aluminum fixed blade with air pattern and neck sizes as shown on grille and diffuser schedule.
1. Provide all supply diffusers with opposed blade dampers.

DISPOSABLE FILTERS

A. Provide 1" pleated with perforated metal back, unless otherwise noted.

B. MERV–8

CONTROL SYSTEM

PART 1 – GENERAL

DESCRIPTION

A. GENERAL
1. Furnish and install all electrical controls and components for all mechanical systems as listed below.

B. SPLIT SYSTEM / PACKAGED ROOFTOP
1. Provide Heat – Cool – Off, Fan–On–Auto, thermostat, electronic, fully programmable with 4 functions per day, seven day/week programmable, Total shall have auxiliary contacts for D.A damper control.
2. Thermostat shall have internal CO2 sensor and dedicated contacts to control D.A. damper.
3. Thermostat shall have wireless capability.

PART 2 – SEQUENCE OF OPERATION

A. SPLIT SYSTEM / PACKAGED ROOFTOP
1. Occupied Mode–
a. Air Handler shall run continuously
b. Compressor shall cycle to maintain space temperature (heating or cooling)
c. Outside air damper shall open to minimum set point cfm as noted on dwgs.

2. Unoccupied Mode–
a. Air Handler shall cycle with compressor
b. Compressor shall cycle to maintain space temperature (heating or cooling)

FIRE STATI

A. Provide fire stats on each unit as required by code.
1. Firestat shall shut down all unit components including fans, compressors.

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NEW FIRE DEPARTMENT ADMINISTRATION BUILDING
1579 NW LAKE JEFFREY ROAD
LAKE CITY, FLORIDA
CCBCC PROJECT NUMBER

#	Date	Note
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HVAC SPECIFICATIONS

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DATE
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2338

M401

PLUMBING GENERAL NOTES

1. ALL WORK SHALL BE DONE IN STRICT ACCORDANCE WITH 2023 FLORIDA BUILDING CODE, 2023 FLORIDA ENERGY CONSERVATION CODE, AND 2023 FLORIDA PLUMBING CODE.
2. PLUMBING CONTRACTOR SHALL VERIFY LOCATION, SIZE, AND ELEVATION OF ALL EXISTING UTILITIES PRIOR TO BEGINNING CONSTRUCTION.
3. DRAWINGS ARE DIAGRAMMATIC. DO NOT SCALE DRAWINGS. EXACT DIMENSION LAYOUTS ARE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR AND THE PLUMBING SUB-CONTRACTOR.
4. CONTRACTOR SHALL VISIT THE JOB SITE AND THOROUGHLY FAMILIARIZE THEMSELVES WITH ALL EXISTING CONDITIONS.
5. ALL WORK SHALL BE COORDINATED WITH OTHER TRADES TO AVOID INTERFERENCE WITH THE PROGRESS OF CONSTRUCTION.
6. ALL REQUIRED INSURANCE SHALL BE CARRIED BY THE CONTRACTOR FOR THE PROTECTION AGAINST PUBLIC LIABILITY OR PROPERTY DAMAGE FOR THE DURATION OF THE WORK.
7. ALL EXCAVATION AND BACKFILL AS REQUIRED FOR THIS PROJECT SHALL BE PROVIDED AS PART OF THIS CONTRACT.
8. ALL WORK SHALL BE PERFORMED BY A LICENSED PLUMBING CONTRACTOR IN A FIRST CLASS WORKMANLIKE MANNER. THE COMPLETED SYSTEM SHALL BE FULLY OPERABLE AND ACCEPTANCE BY THE OWNER MUST BE A CONDITION OF THE CONTRACT.
9. ANY SLAB CUTS AND REPAIRS SHALL BE COORDINATED WITH THE GENERAL CONTRACTOR TO DETERMINE IF IT SHOULD BE INCLUDED IN THE PLUMBING CONTRACTORS BID.
10. ALL MATERIALS SHALL BE NEW. ALL WATER SUPPLIES, VENT, WASTE, AND CONDENSATE LINES SHALL BE CONCEALED IN CEILING, WALLS, OR UNDER FLOOR SLAB UNLESS SPECIFICALLY NOTED OTHERWISE. SOME LINES MAY BE GRAPHICALLY DEPICTED OUTSIDE THE WALLS FOR CLARITY ONLY. THESE LINES ARE INTENDED TO BE CONCEALED UNLESS SPECIFICALLY NOTED OTHERWISE.
11. ALL SHUTOFF VALVES SHALL BE 2 TURN BALL VALVES.
12. ALL FIXTURES MUST BE PROVIDED WITH READILY ACCESSIBLE STOPS. STOPS SHALL BE CHROMED BRASS WITH CHROMED BRASS TUBING AND COMPRESSION FITTINGS. PVC SUPPLIES ARE NOT ACCEPTABLE.
13. ALL PLUMBING FIXTURES SHALL HAVE AIR CHAMBERS UNLESS SYSTEM WATER HAMMER ARRESTORS ARE SHOWN. ALL FLOOR DRAINS SHALL HAVE TRAP PRIMERS.
14. PROVIDE CLEANOUTS FLUSH WITH GRADE OR SLAB WITH APPROPRIATE COVERS. COVERS SHALL BE BRONZE TOP WITH SCORED SURFACES AND LABELED "CLO".
15. PENETRATIONS OF FIRE RATED WALLS SHALL BE MADE PER THE UL OR GYP RATING SYSTEM AS SPECIFIED BY THE ARCHITECT.
16. ALL PLUMBING FIXTURES AND TRIM SHALL BE PER THE FIXTURE SCHEDULE. SUPPLY OWNER WITH SUBMITTALS FOR HIS/HER REVIEW. IF THERE ARE SUBSTITUTIONS OR THE OWNER WISHES TO MAKE A CHANGE, ANY COST ADJUSTMENTS WILL BE BASED ON THE FIXTURE SCHEDULE.
17. IF DISSIMILAR METALS ARE TO BE JOINED, APPROVED INSULATION UNIONS SHALL BE USED.
18. PROVIDE WATER HEATER(S) AS SHOWN ON THE DRAWINGS AND PLUMBING SCHEDULES. WATER HEATERS SHALL BE INSTALLED WITH HEAT TRAPS, THERMOSTATIC RELIEF VALVE, AND A DRAIN PROPERLY PIPED TO THE OUTSIDE OR TO THE EMERGENCY OVERFLOW PAN. PLUMBING CONTRACTOR SHALL PROVIDE A COMPLETE CONDENSATE SYSTEM INCLUDING A 2" DEEP EMERGENCY DRAIN PAN AS SHOWN ON THE DRAWINGS.
19. WALL PENETRATIONS OF SUPPLY PIPING SHALL BE MADE WITH COPPER PIPING OR SLEEVED CPVC WITH CAULKING.
20. FOR NEW BUILDING PROJECTS, COORDINATE UTILITY SERVICE LOCATIONS WITH CIVIL DRAWINGS.
21. PROVIDE ACCESS PANELS FOR ALL VALVES CONCEALED IN WALLS OR ABOVE NON-ACCESSIBLE CEILINGS.
22. REFER TO ARCHITECTURAL DRAWINGS FOR FIXTURE LOCATIONS AND MOUNTING HEIGHTS.
23. MOUNT HOSE BIBBS 24" ABOVE FINISHED GRADE UNLESS OTHERWISE NOTED.
24. COORDINATE EXACT FLOOR DRAIN LOCATIONS WITH ARCHITECTURAL DRAWINGS. SET FLOOR DRAINS BELOW FINISHED FLOOR TO ALLOW FOR FLOOR SLOPING TO THE DRAIN.
25. COORDINATE PIPING WITH ALL ELECTRICAL EQUIPMENT INCLUDING BUT NOT LIMITED TO ELECTRICAL PANELS AND TRANSFORMERS. DO NOT ROUTE ANY PIPING OVER ANY ELECTRICAL EQUIPMENT UNDER ANY CIRCUMSTANCES. PLUMBING PIPING SHALL NOT RUN THROUGH DEDICATED ELECTRICAL OR TELECOM ROOMS UNDER ANY CIRCUMSTANCE. ANY PIPING RUN OVER ELECTRICAL EQUIPMENT OR THROUGH ELECTRICAL / TELECOM ROOMS SHALL BE RE-ROUTED AT NO ADDITIONAL COST.
26. ALL DOMESTIC WATER PIPING SYSTEMS SHALL BE TESTED FOR ABSOLUTE TIGHTNESS BY SUBJECTING THE SYSTEM TO HYDROSTATIC PRESSURE OF 150 PSI GAUGE OR 50 PSI OVER NORMAL PRESSURE, WHICHEVER IS GREATER. TESTING SHALL BE COMPLETED FOR NOT LESS THAN EIGHT (8) HOURS.
27. SOIL, VENT PIPES, AND CONDENSATE DRAINS SHALL BE TESTED BY TEMPORARILY PLUGGING ALL OUTLETS AND FILLING THE SYSTEM WITH WATER TO THE LEVEL OF THE HIGHEST VENT STACK. THE SYSTEM MUST BE INSPECTED AND ALL LEAKS REPAIRED.

PLUMBING SYMBOL LEGEND

SYMBOL	DESCRIPTION
CD	– ABOVE GROUND CONDENSATE DRAIN
CD	– BELOW GROUND CONDENSATE DRAIN
	– DOMESTIC COLD WATER
	– DOMESTIC HOT WATER
	– DOMESTIC HOT WATER RECIRCULATING
GR	– GREASE WATER
S	– ABOVE GROUND SANITARY
S	– BELOW GROUND SANITARY
	– SANITARY VENT
ST	– ABOVE GROUND STORM WATER LEADER
U/G	– BELOW GROUND
STD	– STORM WATER OVERFLOW
W	– WATER METER
	– WALL HYDRANT
	– HOSE BIBB
CO	– CLEAN OUT PLUG
WCO	– WALL CLEANOUT
EXCO	– EXTERIOR WALL CLEAN OUT
FCO	– FLOOR CLEAN OUT
FD / FD	– FLOOR DRAIN
FS	– FLOOR SINK
	– ROOF DRAIN
	– WATER CLOSET
	– TRAP (LAV OR SINK)
	– SHUT-OFF VALVE IN VALVE BOX
	– SHUTOFF VALVE
	– BALL VALVE
	– CALIBRATED BALANCING VALVE
	– CHECK VALVE (SWING)
	– SOLENOID OPERATED VALVE
	– RELIEF OR SAFETY VALVE
	– GAS COCK
	– GAS PRESSURE REGULATOR
	– SHUTOFF VALVE ON RISER
	– GAS COCK ON RISER
	– CONNECTION, TOP
	– CONNECTION, BOTTOM
	– ELBOW, TURNED DOWN
	– ELBOW, TURNED UP
	– TEE, TURNED UP
	– TEE, TURNED DOWN
	– CAP
	– DIRECTION OF FLOW
	– ELECTRIC WATER HEATER
	– CEILING MOUNTED ACCESS DOOR
M	– REVISION REFERENCE
1 / P-1	– DETAIL REFERENCE: TOP – DETAIL# BOTTOM – DRAWING# SHOWN ON
W	– SHEET NOTE CALLOUT
	– DEMO TO
	– CONNECT TO

NOTE: SOME SYMBOLS SHOWN ON THIS LEGEND MAY NOT PERTAIN TO THIS PROJECT

PLUMBING ABBREVIATIONS

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
AFF	–ABOVE FINISHED FLOOR	LAV	–LAVATORY
AFG	–ABOVE FINAL GRADE	LBS	–POUNDS
B/S	–BELOW SLAB	MH	–MANHOLE
CB	–CATCH BASIN	NIC	–NOT IN CONTRACT
CD	–CONDENSATE DRAIN	NC	–NORMALLY CLOSED
CFH	–CUBIC FEET PER HOUR	NO	–NORMALLY OPEN
CO	–CLEANOUT	NP	–NON-POTABLE WATER
CONT	–CONTINUATION	NTS	–NOT TO SCALE
CW	–DOMESTIC COLD WATER	OD	–OUTSIDE DIAMETER
DN	–DOWN	PRV	–PRESSURE REDUCING VALVE
DS	–DOWNSPOUT	PSI	–POUNDS PER SQUARE INCH
DWG	–DRAWING	PVC	–POLYVINYL CHLORIDE PIPE
EXIST	–EXISTING	RD	–ROOF DRAIN
ECO	–EXTERIOR CLEAN OUT	RPBP	–REDUCED PRESSURE BACKFLOW PREVENTOR
°F	–DEGREE FAHRENHEIT	SAN	–SANITARY
FCO	–FLOOR CLEANOUT	SD	–STORM DRAIN
FD	–FLOOR DRAIN	SF	–SQUARE FEET
FS	–FLOOR SINK	SH	–SHEET
G	–GAS	SDV	–SHUTOFF VALVE
GPH	–GALLONS PER HOUR	ST	–STORM WATER LEADER
GPM	–GALLONS PER MINUTE	STO	–OVERFLOW STORM WATER
GR	–GREASE WATER	T	–FLUSH VALVE TOILET
HB	–HOSE BIBB	TP.	–TRAP PRIMER
HC	–ADA ACCESSIBLE	U/G	–UNDERGROUND
HD	–HUB DRAIN	V	–VENT
HW	–DOMESTIC HOT WATER	VTR	–VENT THRU ROOF
HWR	–DOMESTIC HOT WATER RETURN (RECIRC)	VTW	–VENT THRU WALL
IE	–INVERT ELEVATION	WC	–TANK TYPE WATER CLOSET
IW	–INDIRECT WASTE	WCO	–WALL CLEANOUT
JAN	–JANITOR SINK (SEE SPEC)	WTR	–WATER
KW	–KILOWATT	WHA	–WATER HAMMER ARRESTOR

SHEET INDEX

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KYLE J. DAVIS LICENSE No. 84275 STATE OF FLORIDA REGISTERED ARCHITECT

NEW FIRE DEPARTMENT ADMINISTRATION BUILDING
1579 NW LAKE JEFFERY ROAD
LAKE CITY, FLORIDA
CCBCC PROJECT NUMBER

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GENERAL NOTES, LEGEND, & SHEET INDEX - PLUMBING

CONSTRUCTION DOCUMENTS

DATE
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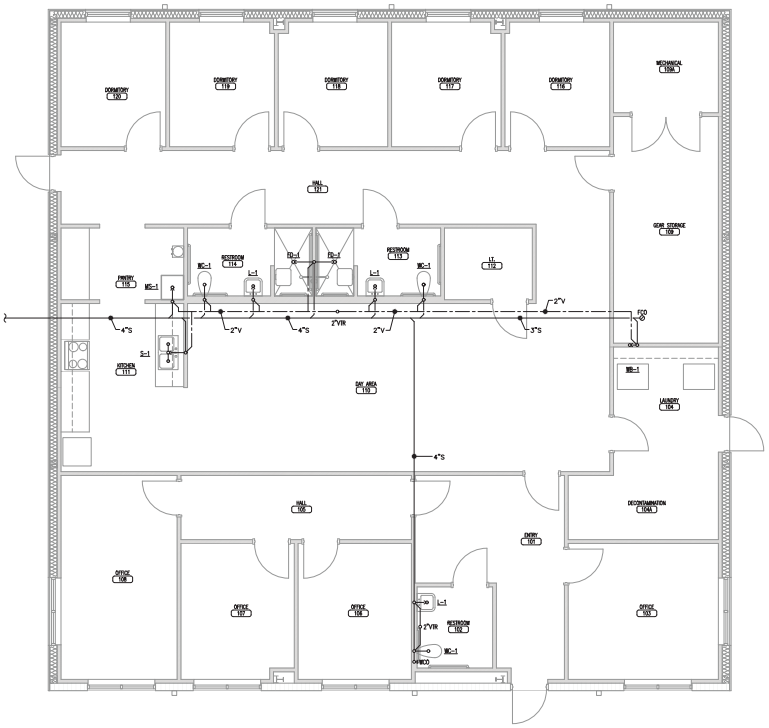
2338

P001



GRAVITY PIPING FLOOR PLAN

SCALE: 1/4" = 1'-0"

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NEW FIRE DEPARTMENT ADMINISTRATION BUILDING
1570 NW LAKE JEFFERY ROAD
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GRAVITY PIPING FLOOR PLAN

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09/12/2024

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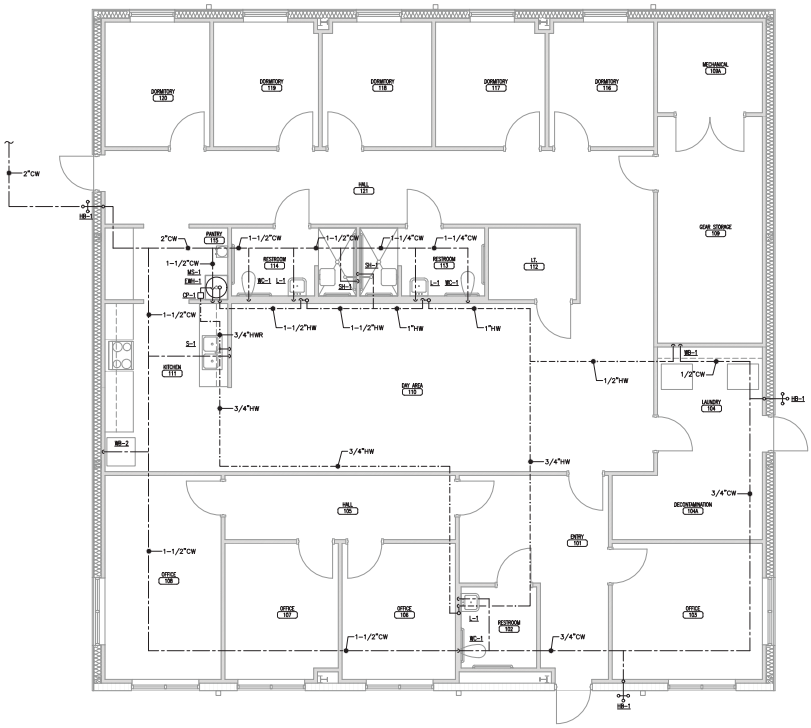
P111



PRESSURE PIPING FLOOR PLAN

SCALE: 1/4" = 1'-0"

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PRESSIRE PIPING FLOOR PLAN

CONSTRUCTION DOCUMENTS

DATE
09/12/2024

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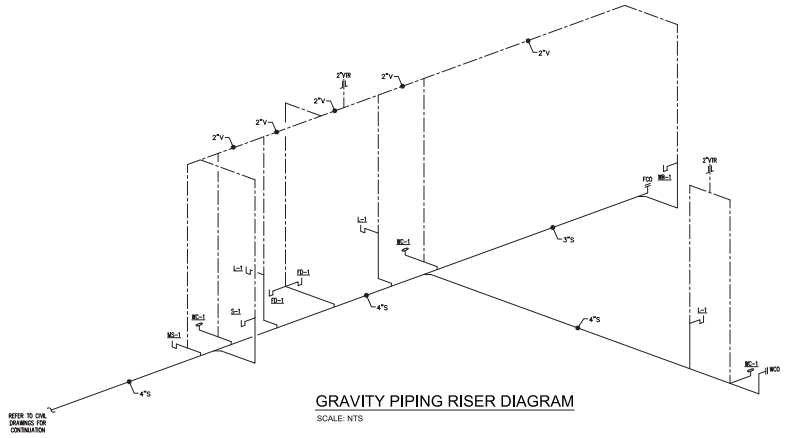
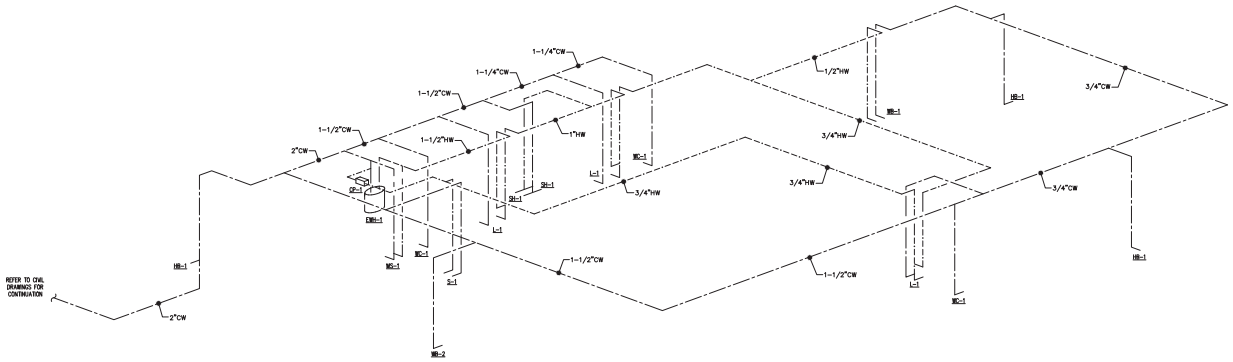


GRAVITY PIPING RISER DIAGRAM

SCALE: NTS



PRESSURE PIPING RISER DIAGRAM

SCALE: NTS

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1579 NW LAKE JEFFERY ROAD
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PLUMBING RISER DIAGRAMS

CONSTRUCTION DOCUMENTS

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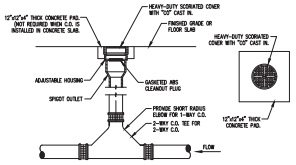
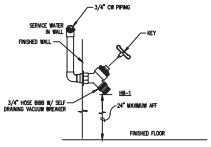
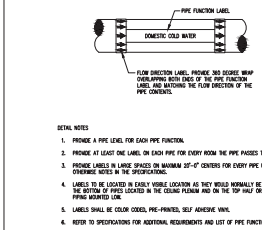


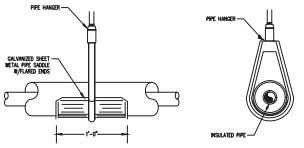
CLEANOUT DETAIL NTS 7



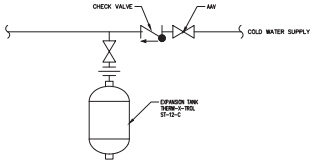
HOSE BIBB DETAIL (HB-1) NTS 4



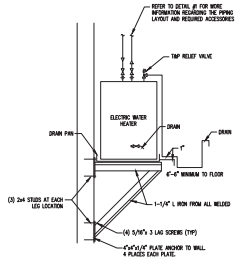
PIPE IDENTIFICATION LABEL NTS 1



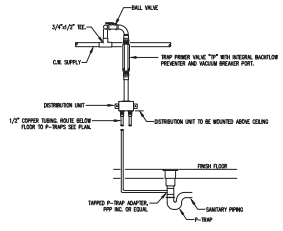
INSULATED PIPE HANGER DETAIL NTS 8



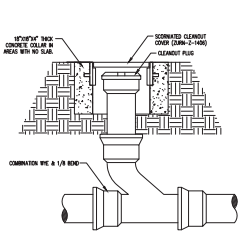
EXPANSION TANK DETAIL NTS 5



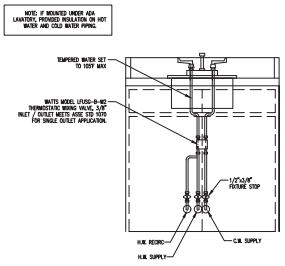
SUSPENDED EWH DETAIL NTS 2



TRAP PRIMER DETAIL NTS 9



EXTERIOR CLEANOUT NTS 6



UNDER LAV MIXING VALVE DETAIL NTS 3

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CCBCC PROJECT NUMBER

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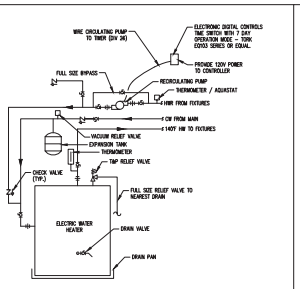
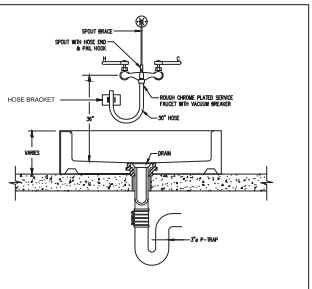
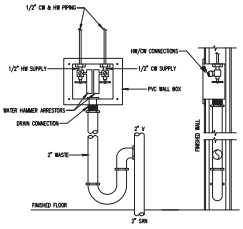


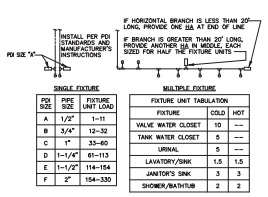
WATER HEATER PIPING DETAIL NTS 3



MOP SINK DETAIL NTS 1



WASHING MACHINE CONNECTION NTS 4



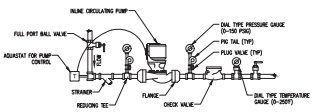
SINGLE FIXTURE

PDI SIZE	PIPE SIZE	FIXTURE UNIT LOAD
A	1/2"	1–11
B	3/4"	12–32
C	1"	33–60
D	1–1/4"	61–113
E	1–1/2"	114–154
F	2"	154–330

FIXTURE UNIT TABULATION		
FIXTURE	COLD	HOT
VALVE WATER CLOSET	10	---
TANK WATER CLOSET	5	---
URINAL	5	---
LAVATORY/SINK	1.5	1.5
JANITOR'S SINK	3	3
SHOWER/BATHTUB	2	2

PROVIDE WATER HAMMER ARRESTERS BY SIOUX CHIEF, PRECISION PLUMBING PRODUCTS, WATTS OR APPROVED EQUIVALENT WITH PISTON AND O-RING CONSTRUCTION, HAVING PDI (WH– 3SI), ASSE (#3010 AND #) AND (#477-3A/M CERTIFICATION. INSTALL IN HORIZONTAL OR VERTICAL POSITION, BUT NEVER UPSIDE DOWN. INSTALL IN LINE WITH WATER FLOW DIRECTION IF POSSIBLE. SIZE THE UNITS AS SHOWN ON THE DRAWINGS AND/OR PER THE TABLES SHOWN ABOVE. PROVIDE ACCESS PANEL FOR SERVICING OR REPLACEMENT, WHERE REQUIRED.

HAMMER ARRESTORS DETAIL NTS 3



INLINE RECIRCULATING PUMP NTS 2

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PLUMBING FIXTURE SCHEDULE

MARK	FIXTURE	MANUFACTURER	MODEL NUMBER	TYPE	MATERIAL	WASTE	VENT	CW	HW	REMARKS
WC-1	WATER CLOSET	ZURN	Z5645-BWL	FLUSH VALVE FLOOR MOUNT	VITREOUS CHINA	4"	2"	1-1/4"	--	FLOOR MOUNTED FLUSH VALVE ADA HEIGHT 1.28 GALLONS PER FLUSHING CYCLE HIGH EFFICIENCY, VITREOUS CHINA ELONGATED BOWL. 1-1/2" INLET SPUD, TOILET SEAT, ZURN Z5955SS-EL OR EQUIVALENT. ZURN Z6000AV-HET (1.28 GPF) FLUSH VALE OR EQUIVALENT.
L-1	LAVATORY	ZURN	Z5328	WALL MOUNTED	VITREOUS CHINA	1-1/2"	1-1/2"	1/2"	1/2"	ADA ACCESSIBLE WALL HUNG 20"x18.5" VITREOUS CHINA LAVATORY WITH 8" CENTER FAUCET HOLES, DRILLED FOR CONCEALED CARRIER. FAUCET: ZURN Z86740-XL-3M (0.5 GPM) METERING FAUCET. DRAIN: Z8746-PC. OFFSET WHEELCHAIR GRID DRAIN, P-TRAP: Z8700-BB-PC. TRAP WRAP: Z8946-1-NT. SUPPLY: MOGUBE 2985CC.
S-1	TWO COMPARTMENT SINK	ELKAY	ECTSRA3322RTLC	DROP-IN	STAINLESS STEEL	1-1/2"	1-1/2"	3/4"	3/4"	DROP-IN 33"x22", STAINLESS STEEL, SINGLE HOLE TWO COMPARTMENT SINK, FAUCET: LEAV7D35FCR
MS-1	MOP SINK	ZURN	Z1996-24	FLOOR MOUNT	COMPOSITE	3"	2"	3/4"	3/4"	FLOOR MOUNTED 24"x24" COMPOSITE CUSTODIAL MOP SINK, 3" IPS CONNECTION DRAIN ASSEMBLY, SERVICE SINK FCT 15/8" INTEGRAL VB SPOUT W/HOSE THREAD OUTLET & PAIL HOOK, ADJUSTABLE SWING INLETS, 2-1/2" LEVER HANDLES, HOSE AND BRACKET. FAUCET: ZURN - Z843M1.
SH-1	SHOWER	--	--	--	--	--	--	1/2"	1/2"	--
WB-1	WALL BOX	OATLEY	28529	WALL	POLYSTYRENE	3"	1-1/2"	1/2"	1/2	1/2" HIGH IMPACT POLYSTYRENE, 4 SUPPORT BRACKETS, SNAP-ON FACEPLATE FRAME, ACCOMMODATES UP TO 1" DRYWALL WITH 1/4 TURN BRASS BALL VALVE.
WB-2	WALL BOX	OATLEY	39156	WALL	POLYSTYRENE	-	-	1/2"	-	1/2" HIGH IMPACT POLYSTYRENE, 4 SUPPORT BRACKETS, SNAP-ON FACEPLATE FRAME, ACCOMMODATES UP TO 1" DRYWALL WITH 1/4 TURN BRASS BALL VALVE.

DRAINAGE SPECIALTIES SCHEDULES

MARK	FIXTURE	MANUFACTURER	MODEL NO.	MATERIAL	STYLE	SIZE	REMARKS
FD-1	FLOOR DRAIN	ZURN	EZ-PVC-NB	PVC SOLVENT WELD BODY	NICKEL BRONZE ROUND	3"	ZURN EZ1 FLOOR DRAIN, PVC SOLVENT WELD BODY WITH BOTTOM OUTLET AND 1/2" TRAP PRIMER CONNECTION KNOCK-OUT PLUG AND TOP ASSEMBLY. FLOOR DRAIN IS CAPABLE OF UP TO 3/4" OF VERTICAL POST POUR ADJUSTMENT.

ELECTRIC WATER HEATER SCHEDULE

MARK	MAKE & MODEL NO.	KW PER ELEMENT	NUMBER OF ELEMENTS	VOLTS/PH	TOTAL KW	RECOVERY (GPH) @ 70F	STORAGE (GAL.)	DIMENSIONS (D"xH") / LBS
EWH-1	AO SMITH DRE-52	4.1	3	240/1	12.3	72	50	21.75"x65.75" / 365

PIPING SCHEDULE

SYSTEM	SIZE	TYPE	CONNECTION	INSULATION	THICKNESS	COMMENTS
DOMESTIC COLD WATER	ALL	CPVC	GLUED	NONE	--	SCH 40 ASTM D2846
DOMESTIC HOT WATER	ALL	CPVC	GLUED	FIBERGLASS	1" MIN R4	SCH 40 ASTM D2846
SANITARY/VENT	ALL	DWV	GLUED	NONE	--	SCH. 40 ASTM D 1784 60T

HOT WATER RECIRC. PUMP SCHEDULE

MARK	MAKE & MODEL NO.	TYPE	CAPACITY (GPM)	HEAD (FEET)	MOTOR HP	V/PH/HZ
CP-1	TACO - 006-IEB4	INLINE	0-11.5	0-9.5	1/40	115/1/60

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STATE OF
FLORIDA
PROFESSIONAL ENGINEER

NEW FIRE DEPARTMENT ADMINISTRATION BUILDING
1579 NW LAKE JEFFERY ROAD
LAKE CITY, FLORIDA
CCBCC PROJECT NUMBER

#	Date	Note
Revisions		

PLUMBING SCHEDULES

CONSTRUCTION DOCUMENTS

DATE
09/12/2024

2338

P501

PLUMBING SPECIFICATIONS

A. It is the intent of these specifications to define the work and materials typically installed by a Plumbing Contractor. However, it is not intended to define a subcontract between the Plumbing Contractor and the General Contractor. The General Contractor is responsible for the entire project and any questions regarding the scope of work shall be resolved by the General Contractor.

B. Work shall include all labor, materials, fixtures, equipment, tools, and service necessary for installation, testing and adjusting of all plumbing systems shall be furnished and installed in compliance with the Drawings, Specifications, and any Addenda thereto.

C. Drawings and Specifications shall be understood to cover, according to their intent and meaning, the complete plumbing systems. Work shown and not specified, or work specified and not shown shall be performed as though mentioned in both.

D. Minor items and accessories reasonable inferred as necessary for the complete and proper operation of any system shall be provided by the contractor or subcontractor for such system whether or not they are specifically noted for.

E. Before submitting a bid, the Plumbing Contractor shall coordinate work with utility companies and shall include in his bid all costs for the extent of his performance by the Utility Company shall be furnished and be extent of performance and time performed by the Plumbing Contractor.

1. If well and / or septic is utilized, contractor shall coordinate with General Contractor and review civil drawings to coordinate scope of work.

F. All work shall be performed or installed in strict accordance with the appropriate regulations and codes of local state and Federal Governments having lawful jurisdiction. Each contractor and subcontractor shall be responsible for such compliance

G. Fees for permits, inspections, patent use, royalties, etc. shall be paid by the contractor.

1. Furnish all equipment and personnel and conduct all tests required to secure approval of the installation.
2. Any regular or changes required to secure the approval of the installation shall be done at no additional expense to the Owner.

H. Upon completion of each part of the plumbing system, the contractor shall demonstrate to the Engineer that each item on that system is installed with proper covers, switches, controls, etc. and that all are in proper working order.

I. A set of "red-lined" plumbing drawings shall be carefully maintained at the job site. Actual conditions are to be put on the drawings in red on a daily basis as the drawings will continuously show locations of equipment and routing of all pipe systems.

J. Equipment and materials shall be new and meet or exceed specification requirements. The product shall be current model and stock replacement parts are available.

K. Acceptance of substitutions shall be at the discretion of the Engineer. Request approval for their products up to 10 days in advance of bid. Engineer may require supplemental information prior to accepting or requesting and alternate.

L. All work shall be performed in compliance with OSHA regulations.

M. Shop drawings and product data shall be submitted on all equipment, fixtures, etc.

1. Submittals shall include all equipment to be installed by this subcontractor.
2. All submittals shall be submitted for review at the same time.
3. Each package must have the General Contractors review stamp prior to submission to engineer.
4. The engineer will review one submittal and one resubmittal; subsequent resubmittals may require a review charge to be paid by the subcontractor.
5. Shop drawings shall be labeled in the same designation as the drawings.

N. Job conditions shall be inspected to determine prior to bidding in the following manner:

1. Site Visit to determine:
   a. Existing conditions
   b. How and where materials will be delivered and stored.
   c. Special problems encountered during construction.
2. Examine all Contract Drawings and Specifications to determine:
   a. Type of construction to be joined.
   b. How connections are to be made between the work of this Section.
   c. Time requirement of work of other trades.

O. Failure to determine existing conditions or nature of construction will not be considered as a bases of granting additional compensation.

P. Installation

1. Contract drawings show the arrangements and sizes of principal apparatus and devices to be provided under this Contract and connective therein. These shall be followed as closely as actual building construction will permit.
2. Dimensions of work as indicated on Plans are not guaranteed to be on-built dimensions.
3. All measurements shall be scaled from Drawings and used as definite dimensions for layout or fitting work in place.
4. Layout of equipment, as shown on the plans, shall be checked and exact location determined by dimension of equipment approved by Architect / Engineer.
5. Consult the Drawings for all dimensions, locations of partitions, sizes of structural member, foundations, etc.
6. Do not make final layouts until shop or equipment drawings are approved and job conditions are verified.

Q. Excavation and Backfill:

1. Plumbing Contractor shall coordinate with General Contractor to determine the extent of work regarding excavation and backfill.

R. Cutting

1. Contractor shall rough-in for all equipment, fixtures, etc., in the building whether or not such equipment is furnished by the contractor or by the owner.
2. Determine in advance the location and size of all openings and chases necessary for proper installation of all work and have openings and chases provided during construction.
3. Install all inserts for hangers and supports for plumbing work and equipment as general construction progresses.
4. Rough-in openings in masonry or shut walls shall be cut, not broken or chiseled.
5. Sleeves shall be required at all points where piping passes through concrete walls, slabs, or masonry walls. Sleeves installed below grade or where subject to high groundwater shall be installed watertight.

S. Coordination

1. Work shall be coordinated between all Contractors, Subcontractors, Installers, Suppliers, Trades, etc., to:
   a. Insure a neatly fitted installation.
   b. Determine the nature and extent of work of others.
   c. Eliminate interferences.
   d. Maintain maximum headroom and clearances.
2. Any interferences which develops or is foreseen and cannot be resolved by the efforts listed above shall be brought immediately to:
   a. Cause installation of that portion of the work which is in conflict as no additional compensation will be allowed for any removal and / or relocation.
   b. Continue work only on other portions of the work area which are not in conflict.
   c. Notify the architect / engineer immediately.
   d. Architect / Engineer's decision shall be final as to any relocation, rerouting, removal, etc.
   e. No additional compensation will be allowed for removal, relocation, repairs, or changes required by interferences.

T. Clear away all debris, surplus materials, etc., resulting from work on operations, leaving job and equipment in clean first-class condition.

U. Where factory finish is provided on equipment, all marred or damaged surfaces shall be refinished to match original finish and color.

V. All plumbing fixtures shall be thoroughly cleaned of all plaster, stickers, rust stains, and other foreign matter, and be left ready for use.

W. Surfaces of all floor drains, cleanouts, and other equipment shall be cleaned and left in fine-class condition.

CHLORINATION OF DOMESTIC WATER LINES

A. Disinfection of mat water piping which shall carry potable water or any other piping connected therewith which is subject to back siphonage or contamination.

B. Disinfection shall be performed after the lines are in their permanent solution or in the form of compressed gas applied through an approved apparatus.

C. After completion of all tests, replacement, and repairs, all water supply systems shall be thoroughly flushed with water to remove sediment and/or debris.

D. Begin disinfection only after flushing the system.

E. The system shall be filled with a solution containing 50 parts per million available chlorine and allowed to stand for 24 hours, or as required by local authorities whichever is greater.

F. During Chlorination all valves and equipment shall be operated to ensure that chlorine reaches all parts of the system.

G. Following disinfection, all of water shall be flushed from the system through its outlets until the discharge water is of water delivered is comparable with the quality of the public water supply and satisfactory to the public health authority having jurisdiction.

H. Disinfection and flushing shall be repeated if samples taken daily over a period of three days show that water quality is not being maintained.

I. Samples shall be taken on from taps located and labeled in such a manner that they will not contribute any contamination.

J. Samples shall not be drawn from hydrants or through unsterilized hoses.

K. If disinfection and flushing has been repeated three times and water quality cannot be maintained, the architect / engineer shall have the authority to require disassembly of piping as deemed necessary to determine the cause of contamination.

1. Any disassembly, cleaning, or repair shall be performed at no additional cost to the owner.
2. Disinfection, flushing, and testing shall be repeated upon reassembly of the piping.

PIPE AND FITTINGS

A. Refer to "PIPING SCHEDULE" on drawings.

B. Any manufacturer engaged in the production of pipe, fittings, and associated materials, and who test, inspect, and certify that said materials that meet or exceed the ASTM designation for that material shall be acceptable.

C. Inspection for Underground Piping:

1. Examine areas to receive underground piping for:
   a. Proper excavation dimensions and slopes required.
   b. Obstructions which would interfere with drainage system installation.
2. Begin work only when conditions are satisfactory.

D. Inspection for Above Ground Piping

1. Examine areas to receive piping for:
   a. Obstructions.
   b. Work to be done prior to construction.
   c. Work of other trades in other areas.
2. Begin work only when conditions are satisfactory.

E. Installation of Underground Piping

1. Excavation:
   a. Excavate trenches of sufficient width for proper installation of pipe.
   b. Shoot and brace trenches as necessary to protect installers and adjacent structures.
   c. Comply with current OSHA standards.
2. Final grading of trench:
   a. Perform final grading of trench bottoms by hand tools; carry machine excavation only to each depth that soil bearing for pipes will not be disturbed.
   b. Grade bottom of trenches evenly to ensure uniform bearing for all piping.
   c. Cut holes as necessary for joint making.
   d. Remove stones free from water while construction is in progress.
   e. Use surveyor's level to establish elevations and grades.
   f. Manhole/Inspection shall be held a sufficient distance from foundations and footings.
   g. Provide and maintain barricades and temporary bridges around excavations as required to maintain a safe work environment.
   h. Water lines may be benched above sanitary lines in same trench as long that they are 18 inches or more above the sanitary line.
   i. Minimum bury depth for water piping shall be 24 inches.
   j. Grade horizontal drainage 1/4" per foot minimum.
   k. Install same type material specified for inside the building to 5 feet outside building.
3. Backfilling:
   a. Backfill for all sewer lines shall be placed in accordance with manufacturer's printed instructions.
   b. Backfill trenches only after piping has been inspected.
   c. Tie backfill below paved areas and walks shall be brought within 6" of the finished grade; the remaining six inches shall be backfilled with clean topsoil.
   d. Tie backfill below seeded or seeded areas shall be brought to within 6" of finished grade; the remaining six inches shall be backfilled with clean topsoil.
   e. Provide and place any additional fill material from off the site as required for backfill.

F. Installation of Above-Ground Piping

1. Pipe supported
   a. Support piping as specified by pipe hanger and supports section for this type installation.
   b. Pipe shall be adequately supported during construction with blocking or slings to prevent injury to personnel or damage to equipment / materials.
2. Exposed piping:
   a. Run exposed piping true and level
   b. Run vertical exposed piping straight and plumb in wall when where available.
   c. Run exposed piping with as few elbows and bends as possible.
   d. Group piping wherever practical at common elevations.
   e. Install concealed pipes close to building's structure to keep furring to a minimum.
   f. Slope water piping 1 inch per 40 feet and arrange to drain at low points.
   g. For closed systems, equip low points with a 3/4" drain valve and hose nipple.

PLASTIC PIPE AND FITTINGS

A. Domestic Water Supply – All

1. CPVC per ASTM D2846
2. Joints:
   a. Glued per manufacturers recommendations.
3. Fittings: CPVC

B. Vent Piping (Above Grade)

1. Piping shall be PVC – ASTM D-1784-60T
   a. Schedule 40
   b. Type 1, Grade 1
   c. Pipe shall bear NSF seal and ASTM designation.
2. Joints:
   a. Bonded joints using adhesive per manufacturer's recommendations.
3. Fittings:
   a. PVC – ASTM D-2665-69
   b. ABS – ASTM D-2661-69

C. Sanitary Piping

1. PVC
   a. Schedule 40
   b. Type 1, Grade 1.
   c. Pipe shall bear ASTM designation and NSF seal.
2. Joints:
   a. Bonded joints using adhesive per manufacturer's recommendations.
3. Fittings:
   a. PVC – ASTM D-2665-69

D. Sanitary Piping – Lab (Where Applicable)

1. Polyethylene Piping Meeting ASTM F714
   a. Schedule 40
   b. Includes all piping and fittings; including traps
   c. Pipe shall bear ASTM designation and NSF seal.

TRAPS

A. General

1. All fixtures shall be trapped according to the Florida Building Code – Plumbing
2. All traps shall be the same size as the pipe in which they are installed or as sized on the drawings.
3. All traps above grade shall have a clean-out plug in the bottom of the tap.
4. All traps above grade shall be PVC DWV exception of Lab Fixtures, which shall be polyethylene)
5. All traps below grade shall be PVC or Polyethylene where noted.
6. No trap below grade shall be less than 2 inches.
7. No fixture shall be double trapped.

SHOCK ABSORBERS

A. Furnish and install shock absorbers on all domestic water piping as shown on drawings and/or as specified in this section.

B. Acceptable Manufacturers

1. Mule
2. Josam
3. Zurn

C. Description

1. Heavy duty casing
2. Minimum burst pressure – 4500 psig
3. Sealed bellows with built in stop
4. Temperature rating from 0 F to 200 to 300 degrees F
5. Permanently sealed charge of non-combustible gas.
6. All stainless steel.
7. Designed and built in accordance with plumbing and drawing standard PDI-WH201.

D. Model Numbers (Zurn used for reference only)

1. 50-1: Model Z-1700
2. 50-2: Model 1250-B-3/4"
3. 50-3: Model 1250-B-1"
4. 50-4: Model 1250-B-1"
5. 50-5: Model 1250-B-1"
6. 50-6: Model 1250-F-1"

PIPING HANGERS AND SUPPORTS

A. All piping shall be supported by piping hangers, clamps, clips, or supports as specified in this section.

B. All clevis type hangers shall have a minimum of 1-1/2" of vertical adjustment by using turnbuckles and/or threaded rods.

C. All adjustments shall be positively secured by a locknut or setscrew.

D. Hangers shall support the pipe size for which they are manufactured.

E. Acceptable Manufacturers

1. Grinnell
2. Fee and Mason

PIPE AND FITTINGS

F. All clamps, hangers, clevis, etc. shall be steel.

G. Pipe hangers in direct contact with copper shall be copper or lead plated, or of an approved dielectric material.

H. Installation

1. All piping shall be supported from structural building members, IE block, beams, joists, decking, facia, floor slabs, etc.
2. Piping shall not be supported from ceiling tile or grids, conduit, mechanical equipment, ductwork, or non-structural steel.
3. Perforated strapping may only to be used for piping 3/4" or smaller and only when concealed in walls or ceilings.
4. Hangers for piping run flush along walls shall utilize stamped steel straps similar to conduit straps for pipes sizes 2" and smaller.
5. Hangers for piping run flush along walls shall be steel wall brackets with steel clevis type hangers and threaded rod supports for pipe over 2".
6. Hangers for piping not run along walls shall be clevis type hangers and threaded rod supports for all piping over 3/4".

I. Spacing

1. Vertical runs of piping not over 15 feet long shall be supported by hangers placed in not over one foot from risers or connecting horizontal run.
2. Hangers shall be placed so as to prevent sag and permit proper drainage.
3. Hangers shall not be placed at more than a maximum distance as shown on the table below.

Pipe Size	Max. Span (Ft.)
1/2" and 3/4"	6'
1" and 1-1/4"	7'
1-1/2", 2, 2-1/2"	10'
3" and 4"	12'
5" and 6"	14'
8" and larger	16'

4. Concentrations of valves and fittings will require closer spaces than outlined above.

J. Hanger Attachments:

1. Pipe hangers shall be attached to structural steel by heavy steel clamps.
   a. Clamps shall be bolted to steel or welded.
2. Piping hangers or clamps shall be attached to walls by means of expandens bolts (attalok).

UNIONS

A. Size

1. All unions shall be the same size as the line in which they are installed unless noted otherwise.

B. Location

1. Unions shall be located between the shut-off valve and each of the following:
   a. Inlet and outlet to all water heaters
   b. Lavoratories and Sinks
   c. Water closets
   d. Water coolers and bubblers
   e. Inlet and outlet of Cooling Coil
   f. Inlet and outlet of pumps
2. Where final fixture connection is made by compression-type fitting, unions shall not be required.
   a. This exception does not apply to the water heater.

C. Acceptable Manufacturers

1. Crane
2. Jenkins
3. Stapl
4. Nibco

D. Unions for 2-1/2" and smaller copper

1. Ground joint, brass body
2. Rated for 150#
3. Sweat to threaded to match the system in which they are installed.

E. Install in locations where wrenches can be used on each half of the union with enough clearance for at least 180 degree rotation on a 6" pipe wrench.

VALVE, COCKS, AND FAUCETS

A. Hot, Cold, and/or Tempered Water

1. Shutoff valves where grain
   a. Bronze Gate Valve
2. Shutoff valves below grade
   a. Bronze Gate Valve – Install in fiberglass box with cover.
3. Drain valves
   a. Bronze Gate Valve

B. Acceptable Manufacturers

1. Crane
2. Stapl
3. Jenkins
4. Nibco

C. Bronze gate valves:

1. 3" and smaller
   a. Rising stem, screw end gate, bronze body
   b. 800 psi wog, solder, o& gas
   c. Stuffing box and bonnet gland, screw-in bonnet
   d. Threaded ends
   e. Model equal to Nibco T-111

D. Bronze Globe Valve

1. 3" and smaller
   a. Rising stem, bronze only
   b. 150 psi, water, oil, gas
   c. Stuffing box, brass gland, screw-in bonnet
   d. Threaded ends.

E. Hose Bibbs

1. 3/4" Female thread inlet
2. 3/4" male threaded hose outlet
3. Rough chrome plated
4. Loose-key top
5. Provide with vacuum breaker
6. Model
   a. Equal to Chicago No. 3877-E37, Nibco 763-LS, or equal
7. Provide with vacuum breaker.

F. Check Valve

1. Swing check valve
2. Screwed ends and cap
3. Bronze to ground disc
4. 200 lb wog
5. NIBCO T413 or equal

G. Wall Hydrant

1. Fully recessed with "key" operated cover.
2. 3/4" female inlet
3. 3/4" male threaded hose outlet
4. Rough chrome plated
5. Vacuum breaker

PRESSURE – TEMPERATURE RELIEF VALVE

A. Supply v pressure relief valve on each hot water heater and hot water booster tank.

B. Valve size, pressure, and temperature rating shall be specified by the tank manufacturer. Valve shall have a size no smaller than 3/4" heat and outlet.

C. Valve shall have a bronze body for water operation and testing.

D. Valve shall be cast brass or bronze.

E. Discharge from all the pressure-temperature relief valve to outside of the building and terminate 2" above grade or minimum height per the local code.

INSULATION

A. Provide piping insulation on all designated on the Piping Schedule as shown on drawings and per the Florida Energy Code. Minimum R4 per inch of insulation.

B. Acceptable Manufacturers

1. Knauf Insulation
2. Owens Corning

C. Fiberglass Insulation

1. Rigid lightweight heavy density fiberglass with jacket.
2. Temperature applications to 850 degrees F.
3. Insulation, jacket, and adhesive shall be tested under procedure ASTM E-84, NFPA 255, and UL 723, not exceeding the following flame and smoke index.
   a. Flame Spread: 25
   b. Smoke developed: 50
4. Equal to Johns-Manville Micro-Lok 650 AP-T.

D. Closed Cell Elastomeric Insulation

1. Closed cell, elastomeric tubular pipe insulation
2. Tested under procedure ASTM E-84, NFPA 255, and UL 723, not exceeding the following flame and smoke index.
   a. Flame Spread: 25
   b. Smoke Density: 100
3. Adhesive
   a. Air drying contact cement
   b. Equal to Johns-Manville "Aeroboke Elastomeric Pipe Insulation"

E. Install insulation only after pipe has been thoroughly inspected and tested and accepted by the Architect / Engineer and State or local inspectors.

F. All surfaces to receive insulation shall be cleaned of all dirt, grease, and moisture prior to installing any insulation.

G. Installation of Fiberglass Insulation:

1. All insulation shall be continuous through wall and ceiling openings.
2. Pipe insulation shall be omitted on valves and pipe except domestic hot water.
3. Hangers, supports, anchors, etc., but are secured directly to cold surfaces must be adequately insulated and vapor sealed to prevent condensation.
4. Metal shields shall be applied between hangers and supports and the pipe insulation.
5. Shields shall be formed to fit the insulation and shall extend up to the centerline of the pipe and shall be a minimum of 12" long.
6. Shields shall be 16 gauge steel metal. Shields exposed to corrosive environments or installed outdoors shall be aluminum.
7. Fittings shall be covered with equivalent density insulation and covered with preformed PVC insulation fitting covers.
   a. Wrap fittings with insulation.
8. Finish with a smooth mastic coating.
9. Do not insulate over access doors or plates, type or tank.

H. Installation of Closed-Cell Rubberl

1. Make all cuts neatly with a razor blade or sharp knife.
2. All longitudinal cuts shall be sealed with adhesive.
3. All butt joints shall be made neatly and sealed with adhesive.
4. Tape shall not be allowed on joints or seams.
5. Insulation shall be applied in a relaxed state, not stretched or crushed.
6. Fittings shall be insulated by fabricating tees, elbows, or crosses as required from the tube insulation as described by the manufacturer's literature.
7. Valves shall be insulated up to the packing nut.
8. All insulation on exposed piping shall receive two coats of paint. Paint shall match the color of the wall against which it is mounted.
9. Where shall be sealed with adhesive as recommended by the manufacturer.

FLOOR AND SHOWER DRAINS

A. Acceptable Manufacturers:

1. Wade
2. Josam
3. Zurn

B. Floor Drains:

1. Cast iron floor drain with integral clamping collar
2. Seepage openings
3. Heavy duty grate, with vandalproof screws
4. Square top, polished brass
5. Adjustable top
6. 4-in outlet unless otherwise noted on drawings
7. Model – equal to Wade series W-1380 or scheduled drain.

C. Installation

1. Floor drains shall be installed in locations shown on floor plans.
2. Care shall be taken that rim of floor drain is not higher than the finished floor in which they are installed. Grade around the drain.
3. Floor drains shall be set flush with finished floor.
4. Hub drains shall extend 1" above finished floor.

CLEANOUTS AND ACCESS COVERS

A. Provide cleanouts as shown on drawings or as required by the Florida Plumbing Code.

B. Acceptable Manufacturers

1. Wade
2. Josam
3. Zurn

C. Floor Cleanouts

1. Same size as drain pipe through 4 inches.
2. Adjustable housing to match finished floor
3. Heavy duty top.
4. Sliced brass secured cover
5. Ferrule or required to match soil pipe
6. Cast iron
7. Cover shall be marked "C.O."

D. Model Number

   a. Synthetic floor covering: Wade W-7030-D Series or Equal
   b. Finished Slab – no covering: Wade W-7030 Series or Equal
   c. Carpet Covering: Wade Wade W-7024-U Series or Equal

D. Concealed Unpunched Cleanouts

1. Cleanouts in areal space or in unfinished mechanical rooms.
2. Cast iron cleanout tee on T-wall with ferrule fitting and neoprene and raised plug head.
3. Same size as drain pipe through 4 inches.
4. Position cleanout plug for easy access by electric eel.
5. Model number: Cleanout Ferrule: Wade W-8330-H series or Equal.

E. Exposed Wall Cleanouts

1. Same size as pipe.
2. Nickel chrome cleanout cover over wall opening.

F. Install all cleanouts and countersinkes flush with the finished floor in which they are installed.

1. Any cleanout which presents a tripping hazard due to improper installation shall be removed and rebabbited.

DOMESTIC WATER HEATERS – ELECTRIC

A. Water heaters shall be UL listed, ASME constructed, and meet ASHRAE 90.1 energy efficiency standards.

B. Acceptable Manufacturers

1. A.O. Smith
2. Lochinvar
3. Laars

C. Electric Water Heaters

1. Glass lining fused to steel tank
2. Screw-in type, direct immersion
3. Working pressure – 150 PSI
4. Fully automatic thermostat controls with high temperature limit safety shutoff
5. Screw-in anode corrosion protection
6. Jacket
7. 3/4" inlet, outlet, and relief opening
8. Water jacket of heated enamel finish

D. Model and Capacity

1. Refer to electric water heater schedule

E. Install per manufacturer's recommendations

F. Mount units on wall steel where noted on drawings.

G. Provide thermostatic relief valve on each unit.

PLUMBING FIXTURES

A. Furnish and install plumbing fixtures per the Plumbing Fixture Schedule

1. Manufacturers and Model Numbers establish quality equivalent fixtures by other manufacturers are acceptable.

ELECTRIC WATER COOLERS (EWC)

A. Acceptable Manufacturers

1. Oasis
2. Halsey Taylor
3. Elkay

B. Dual Height (Unless otherwise noted)

1. Semi-recessed
2. Stainless steel top, sides, and front.
3. Integral bubbler bar with push to front.
4. Self-closing pushbutton valve with optional "soft touch" handle
5. Automatic pressure regulating valve
6. Mounting height – 3" floor to top of basin.
7. Refer delivery

   a. 14 GPH @ 50 degree F water

8. Model and Manufacturer: Refer to plumbing fixture schedule
9. Accessories:

   a. Furnish with 1-1/4" ground joint tubular, 17 gauge, chrome-plated P-trap, deep flange with brass nuts; less cleanout, sterling 50100 or Dearborn 207-D-F-HM.
   b. Furnish with supply assembly equal to Kohler 7666 with loosekey stop and flexible 3/8" tube risers.

C. Unit shall be installed on wall using bracket supplied by the manufacturer.

D. Unit shall be located and supported per manufacturer recommendations.

E. Unit shall be installed per ARSI Standard 11.11-1992, Section 4.15

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NEW FIRE DEPARTMENT ADMINISTRATION BUILDING
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FIRE PROTECTION COMPLIANCE NOTES

BUILDING DESIGN:

3365 SQUARE FOOT SINGLE STORY FIRE DEPARTMENT ADMINISTRATION BUILDING WITH DORMITORIES, A DAY ROOM, BREAK ROOM, OFFICE SPACE, AND STORAGE.

SCOPE OF WORK:

PROVIDE A FULLY AUTOMATIC WET SPRINKLER SYSTEM IN ACCORDANCE WITH NFPA 13 (2019). ALL SPRINKLER HEADS SHALL BE QUICK RESPONSE TYPE. SPRINKLER CONTRACTOR SHALL USE EXTRAPOLATED FLOW DATA WHEN PERFORMING HYDRAULIC CALCULATIONS.

THE POINT OF SERVICE AND WATER SUPPLY FOR THE FIRE SUPPRESSION SYSTEM OF THIS BUILDING SHALL BE SUPPLIED BY THE SITE FIRE MAIN. REFER TO CIVIL SITE PLAN FOR CONTINUATION.

FLOW TEST:

LOCATION: ---
DATE: ---
TESTED BY: ---

STATIC PRESSURE: ---
RESIDUAL PRESSURE: ---
FLOW: ---

QUALITY AND PERFORMANCE SPECIFICATIONS OF ALL INTERIOR FIRE PROTECTION COMPONENTS:

ALL NEW INTERIOR FIRE PROTECTION EQUIPMENT SHALL BE UL LISTED AND/OR FM APPROVED.

ACCEPTANCE TEST CRITERIA:

FIRE SPRINKLER SYSTEM SHALL BE DESIGNED PER NFPA 13 (2019) AND SHALL COMPLY WITH THE LOCAL FIRE MARSHAL AND ALL AUTHORITIES HAVING JURISDICTION. THE ACCEPTANCE TESTING OF THE FIRE SPRINKLER SYSTEM AND ITS COMPONENTS SHALL CONSIST OF ALL APPLICABLE ITEMS SHOWN ON THESE (3) ITEMS, NFPA 13 (2019), CHAPTER 24 (FSI 24.1) CONTRACTOR'S MATERIAL AND TEST CERTIFICATE FOR ABOVE GROUND PIPING. REFER TO NFPA 13 (2019) AND CHAPTER 24 FOR SYSTEM ACCEPTANCE AND CHAPTER 26 FOR INSPECTION TESTING AND MAINTENANCE.

A. CHAPTER 24, SYSTEM ACCEPTANCE.
B. 24.1 APPROVAL OF SPRINKLER SYSTEMS
C. 24.2 ACCEPTANCE REQUIREMENTS
D. 24.3 CIRCULATING LOOP
E. 24.4 INSTRUCTION
F. 24.5 HYDRAULIC DESIGN INFORMATION SIGNS

APPLICABLE NFPA STANDARDS TO BE APPLIED:

A. FLORIDA BUILDING CODE – 2023
B. FLORIDA FIRE PREVENTION CODE – 2023
C. NFPA 13 – 2019 – STANDARD FOR THE INSTALLATION OF SPRINKLER SYSTEMS
D. NFPA 14 – 2019 – STANDARD FOR THE INSTALLATION OF STANDPIPE AND HOSE SYSTEMS
E. NFPA 24 – 2019 – STANDARD FOR INSTALLATION OF FIRE SERVICE MAINS.
F. NFPA 25 – 2020 – INSPECTION, TESTING AND MAINTENANCE OF WATER BASED FIRE PROTECTION SYSTEM
G. NFPA 101 – 2021 – LIFE SAFETY CODE

CLASSIFICATION OF HAZARD OCCUPANCY FOR EACH ROOM OR AREA TYPE:

LIGHT HAZARD: RESIDENTIAL, LOBBY, CORRIDORS, MEETING ROOMS, OFFICES, BREAK AREA, AND RESTROOMS.

ORDINARY HAZARD GROUP 1: STORAGE ROOMS, MECHANICAL ROOMS, ELECTRICAL ROOMS, JANITOR CLOSETS.

DESIGN APPROACH:

SPRINKLER SYSTEM SHALL EXTEND INTO ALL AREAS IN ACCORDANCE WITH NFPA 13 LIGHT HAZARD CLASSIFICATION OR AS NOTED. LISTED AND APPROVED SIDEWALL (5.6 K-FACTOR) AND PENDENT (5.6 K-FACTOR) SPRINKLER HEADS TO BE PROVIDED. UPRIGHT (5.6 K-FACTOR) HEADS TO BE PROVIDED WHERE NOTED ON DRAWINGS.

LIGHT HAZARD:

SYSTEM TYPE: WET PIPE AUTOMATIC SPRINKLER SYSTEM, STEEL SUPPLY PIPING TO NEW QUICK RESPONSE PENDENT OR UPRIGHT HEADS.

K-FACTOR: 5.6 (EXTENDED COVERAGE SPRINKLER HEADS ARE ACCEPTABLE)

DENSITY: 0.10 GPM/SQ.FT.

AREA OF OPERATION: 900 SQ.FT. MINIMUM AND 1500 SQ.FT. MAX (DESIGN AREA REDUCTION MAY ON BE USED IF CEILING HEIGHT AND AREA CLASSIFICATION PERMITS PER NFPA 13 (2019)).

HEAD TEMPERATURE RATING: 155°F

SPACING: 225 SQ.FT. MAX PER SPRINKLER HEAD OR BY MANUFACTURER LITERATURE.

HOSE ALLOWANCE: 100 GPM

ORDINARY HAZARD GROUP 1:

SYSTEM TYPE: WET PIPE AUTOMATIC SPRINKLER SYSTEM, STEEL SUPPLY PIPING TO NEW QUICK RESPONSE PENDENT OR UPRIGHT HEADS.

K-FACTOR: 5.6, 8.0, 11.2, OR 14.0 (EXTENDED COVERAGE SPRINKLER HEADS ARE ACCEPTABLE)

DENSITY: 0.15 GPM/SQ.FT.

AREA OF OPERATION: 900 SQ.FT. MINIMUM AND 1500 SQ.FT. MAX (DESIGN AREA REDUCTION MAY ON BE USED IF CEILING HEIGHT AND AREA CLASSIFICATION PERMITS PER NFPA 13 (2019)).

HEAD TEMPERATURE RATING: 155°F

SPACING: 130 SQ.FT. MAX PER SPRINKLER HEAD OR BY MANUFACTURER LITERATURE.

HOSE ALLOWANCE: 250 GPM

FIRE SPRINKLER LEGEND

SYMBOL	ORF	TEMP	RESPONSE	K-FACTOR	FINISH	MODEL	STYLE	PLATE	MFR.
●	1/2"	155°	QUICK	5.62	CHROME	TYFR	CONCEALED	WHITE	RELIABLE
◎	1/2"	155°	QUICK	5.5	CHROME	FAFR	CONCEALED	WHITE	RELIABLE
⊗	1/2"	155°	QUICK	5.6	WHITE	WS	PENDANT	WHITE	TYCO
○	1/2"	155°	QUICK	5.62	BRASS	TYFR	UPRIGHT	NONE	RELIABLE
⊠	1/2"	155°	QUICK	5.62	BRASS	TYFR	UPRIGHT	HS/SD	RELIABLE
◁	1/2"	155°	QUICK	5.62	CHROME	TYFR	HOR. SIDEWALL	WHITE	RELIABLE
◀	1/2"	155°	QUICK	8.0	CHROME	TYFR	EXT COV HOR SW	WHITE	RELIABLE

FLORIDA ADMINISTRATIVE CODE 61G15-32

1. THESE DRAWINGS HAVE BEEN PROVIDED IN ACCORDANCE WITH THE FLORIDA ADMINISTRATIVE CODE 61G15-32. THE PURPOSE OF THESE DRAWINGS IS TO MEET THE INTENT FOR THE MINIMUM ENGINEERING DRAWINGS IN ACCORDANCE WITH FAC 61G15-32. IN ADDITION, THE FIRE PROTECTION ENGINEERING DOCUMENTS ARE PROVIDED TO SET FORTH THE OVERALL DESIGN REQUIREMENTS AND PROVIDE SUFFICIENT INFORMATION FOR THE CONTRACTOR TO PROVIDE LAYOUT DOCUMENTS THAT MEET THE REQUIREMENTS OF FAC 61G15-32 AND NFPA 13 WORKING PLANS.
2. CONTRACTOR SHALL PROVIDE SHOP DRAWINGS THAT INCLUDE LAYOUT DRAWINGS, HYDRAULIC CALCULATIONS, DETAILS ON LOCATION OF RISERS, CHECK VALVES, BRANCH LINES, SPRINKLER HEADS, SIZING OF PIPE, AND HANGER LOCATIONS. THESE DOCUMENTS SHALL ALSO SERVE AS A GUIDE FOR PROCUREMENT AND INSTALLATION OF THE FIRE PROTECTION SYSTEM.
3. THESE DRAWINGS ARE SCHEMATIC IN NATURE AND ARE NO INTENDED TO SHOW ALL POSSIBLE CONDITIONS. IT IS INTENDED THAT A COMPLETE FIRE PROTECTION BE PROVIDED WITH ALL THE NECESSARY EQUIPMENT, APPURTENANCES, AND CONTROLS THAT HAVE BEEN COMPLETELY COORDINATED WITH ALL DISCIPLINES. ALL PARAMETERS PROVIDED IN THESE DOCUMENTS SHALL BE STRICTLY CONFORMED TO. ANY ITEMS AND LABOR REQUIRE FOR A COMPLETE FIRE PROTECTION SYSTEM, IN ACCORDANCE WITH ALL APPLICABLE CODES, STANDARDS, AND LOCAL ORDINANCES, AND THE CONTRACT DOCUMENTS SHALL BE FURNISHED WITHOUT MOURNING ANY ADDITIONAL COST TO THE OWNER. THE CONTRACTOR SHALL CAREFULLY REVIEW ALL CONTRACT DOCUMENTS AND THE DESIGN OF OTHER TRADES BEFORE PREPARING SHOP DRAWINGS.
4. FIRE SPRINKLER CONTRACTOR SHALL PROVIDE LAYOUT OF THE SYSTEM TO GIVE FULL CONSIDERATION TO BLIND SPACES, PIPING, STRUCTURAL ELEMENTS, ELECTRICAL EQUIPMENT, DUCTWORK, AND OTHER CONSTRUCTION UTILITIES AND EQUIPMENT. LOCATE SPRINKLER HEADS IN A CONSISTENT PATTERN WITH THE CEILING AND CEILING GRID. ENSURE PROPOSED LIGHTS, AND AIR DISTRIBUTION DEVICES. DESIGN ENGINEER NO CONTROL OVER THE WATER SUPPLIES QUALITY, OR AVAILABILITY, AND CANNOT GUARANTEE THAT THE FLOW TEST RESULTS WILL REMAIN VALID FOR ANY LENGTH OF TIME.
5. SCOPE OF FIRE PROTECTION DRAWINGS STARTS WITH ENTRANCE INTO BUILDING. ANY PIPING OR UTILITIES SHOWN ON SITE ARE FOR REFERENCE ONLY.
6. THE FIRE FLOW REQUIREMENTS AND INTERIOR CONFIGURATIONS SHALL MEET OR EXCEED REQUIREMENTS OF THE LOCAL WATER PURVEYOR. THE FIRE FLOW CALCULATION SHALL BE USED FOR FIRE PROTECTION ONLY.
7. WITH EXCEPTION TO THE POINT OF ENTRY INTO THE BUILDING, THE ENTIRE FIRE PROTECTION SYSTEM SHALL BE LOCATED ABOVE GRADE WITHIN THE BUILDING.
8. ALL MATERIAL AND DEVICES SHALL BE UL LISTED. CONTRACTOR SHALL SUBMIT PRODUCT DATA FOR REVIEW PRIOR TO INSTALLATION. THE FIRE SPRINKLER SYSTEM CONTROL VALVES AND WATER FLOW SWITCHES SHALL BE CONNECTED TO THE BUILDING FIRE ALARM SYSTEM AND MONITORED BY A UL LISTED MONITORING SYSTEM.
9. THE FIRE PROTECTION SYSTEM FOR THIS PROJECT SHALL BE IN FULL ACCORDANCE WITH THE PROVISIONS OF THE FLORIDA ADMINISTRATIVE CODE CHAPTER 61G-15-32 AS IT PERTAINS TO A "DELEGATED ENGINEER". THE FIRE PROTECTION CONTRACTOR SHALL PROCURE THE SERVICES OF A FLORIDA REGISTERED ENGINEER WHO WILL ACT AS THE DELEGATED ENGINEER FOR THE FIRE PROTECTION SYSTEM DESIGN PORTION OF THIS PROJECT. THE DELEGATED ENGINEER SHALL PREPARE AND SEAL THE SHOP DRAWINGS AND SUBMIT THEM FOR RECORD FOR THIS PORTION OF THE FIRE PROTECTION SYSTEM OF THE ENGINEERING PROJECT. THE DELEGATED ENGINEER SHALL CONFORM TO ALL REQUIREMENTS SET FORTH IN THE FLORIDA ADMINISTRATIVE CODE 61G15-32.006 "DELEGATED ENGINEER'S RESPONSIBILITY". ALL FINAL DELEGATED ENGINEERING DOCUMENTS REQUIRE THE IMPRESSED SEAL AND SIGNATURE OF THE DELEGATED ENGINEER.

FIRE PROTECTION GENERAL NOTES

1. FIRE PROTECTION SYSTEM SHALL COMPLY WITH NFPA 13 (2019), NFPA 25 (2020), APPLICABLE STATE & LOCAL CODES, AND LOCAL AHJ REQUIREMENTS FOR INSTALLATION OF SPRINKLER SYSTEMS, INSPECTION, TESTING, AND MAINTENANCE.
2. SPRINKLER SHOP DRAWINGS AND MATERIAL SUBMITTALS SHALL BE SUBMITTED TO THE ARCHITECT / ENGINEER AND STATE FIRE MARSHALL AND SHALL BE APPROVED PRIOR TO INSTALLATION. THE ENGINEER OF RECORD SHALL HAVE THE RIGHT TO REJECT ANY SUBMITTALS.
3. CUTTING OF STRUCTURAL AND/OR ARCHITECTURAL MEMBERS TO BE DONE ONLY WITH THE WRITTEN APPROVAL OF THE ARCHITECT AND ENGINEER OF RECORD.
4. FITTINGS REQUIRED FOR PROPER INSTALLATION, COORDINATION WITH OTHER EXISTING TRADES, AND/OR TO MAINTAIN PROPER CLEARANCES SHALL BE PROVIDED. VERIFY STRUCTURAL, MECHANICAL, ELECTRICAL INSTALLATIONS TO AVOID OBSTRUCTIONS OR INTERFERENCES WITH FIRE PROTECTION PIPE ROUTING.
5. FIRE STOP ALL PENETRATIONS OF FIRE/SMOKE WALLS, CEILINGS, FLOORS, ROOFS, ETC. FLASH AND COUNTERFLASH ROOF PENETRATIONS.
6. PROVIDE ACCESS PANELS FOR ALL VALVES LOCATED ABOVE NON-ACCESSIBLE CEILINGS AND CHASES.
7. SPRINKLER HEADS SHALL BE COORDINATED WITH LOCATION OF ALL DIFFUSERS, SPEAKERS, LIGHTING FIXTURES, AND STRUCTURAL SYSTEMS.
8. INDICATE CENTER TO CENTER DIMENSIONS AND/OR PIPE CUT LENGTHS AND NOMINAL PIPE DIAMETERS ON ALL PIPING. INDICATE PIPE TYPE, SCHEDULE OF WALL THICKNESS, AND METHOD OF JOINING ON SHOP DRAWINGS.
9. ALL PIPING SHALL BE SUPPORTED IN ACCORDANCE WITH NFPA 13.
10. ALL HANGERS ON 4" PIPE AND LARGER SHALL BE CLEVIS-TYPE HANGERS. HANGERS SHALL NOT INTERFERE WITH ANY OTHER TRADE. POWDER DRIVEN STUDS SHALL NOT BE USED.
11. ALL GROOVED AND SCREWED FITTINGS SHALL BE UL/FM APPROVED AND SUBMITTED TO THE ENGINEER OF RECORD FOR APPROVAL PRIOR TO INSTALLATION. THE ENGINEER OF RECORD RESERVES THE RIGHT TO DISAPPROVE ANY FITTING. ALL SCREWED PIPING SHALL BE SCHEDULE 40 BLACK STEEL PIPE IN ACCORDANCE WITH ASTM A135 AND SHALL BE JOINED BY SCREWED JOINS IN ACCORDANCE WITH ANSI B2.1. ALL GROOVED PIPING 2-1/2" OR LARGER SHALL BE SCHEDULE 10 BLACK STEEL.
12. WELD-O-LETS SHALL BE TWO SIZES SMALLER THAN CROSS MAIN. NO LENGTH OF CROSS MAIN SHALL BE GREATER THAN 18'-0". ALL SPRINKLER PIPING & FITTINGS SHALL BE INSTALLED ABSOLUTELY RUST-FREE.
13. AUTOMATIC SPRINKLER STAMPED FLOW RATINGS OF FLEXIBLE ELEMENTS TO BE IN ACCORDANCE WITH NFPA 13.
14. ALL VALVES FOR FIRE SERVICE SHALL BE UL LISTED AND FM APPROVED. ALL VALVES SHALL BE RATED FOR 175 PSI WORKING PRESSURE.
15. SPRINKLER HEADS SHALL BE INSTALLED IN ACCORDANCE WITH 13 STANDARDS. SPRINKLER LOCATIONS WITH RESPECT TO OBSTRUCTIONS SHALL COMPLY WITH NFPA 13, CHAPTER 8, OR THE APPROPRIATE CHAPTER BASED ON SPRINKLER TYPE.
16. IMMEDIATELY NOTIFY THE ARCHITECT / ENGINEER OF ANY DISCREPANCIES FOUND BETWEEN THESE PLANS, OTHER ENGINEERING DISCIPLINES, THE ARCHITECTURAL PLANS, AND/OR FIELD CONDITIONS PRIOR TO FINAL BID OR FINAL PERMITTING.
17. IN CASE OF DISPUTE OR DOUBT AS TO THE INTENT OF THE DRAWINGS, OBTAIN ARCHITECT / ENGINEER WRITTEN CLARIFICATIONS BEFORE PROCEEDING WITH BID OR CONSTRUCTION.
18. PRIOR TO SUBMISSION PROPOSAL OR BID, CONTRACTOR SHALL EXAMINE ALL DRAWINGS AND SPECIFICATIONS RELATING TO THIS PROJECT, THE AMOUNT OF SPACE AVAILABLE FOR PIPING AND EQUIPMENT, AND THE SCOPE OF THE SITE WORK.
19. PIPE SHALL BE REAMED AND CLEANED BEFORE ASSEMBLY, AND AFTER ASSEMBLY THE ENTIRE PIPING SYSTEM SHALL BE FLUSHED CLEAN.
20. ALL SPRINKLER PIPING AND SPRINKLER HEAD PLACEMENT TO ACCOMMODATE EXISTING CEILING HEIGHTS AND STRUCTURAL CONFIGURATIONS.
21. PROVIDE SPRINKLERS ABOVE AND BELOW EXPOSED DUCTWORK 4'-0" OR WIDER.
22. PROVIDE HAZARD COVERAGE FOR FUNCTIONS FOR EACH AREA.
23. INDICATE THE LOCATION AND SIZE OF BLIND SPACES AND CLOSETS.
24. INDICATE TOTAL SQUARE FOOT AREA PROTECTED BY SYSTEM(S).
25. ALL PENDENT SPRINKLERS SHALL BE CENTER OF TILE, UNLESS MINIMUM DISTANCES FROM WALLS OR BETWEEN HEADS IS EXCEEDED OR UNLESS EXPLICITLY SHOWN DIFFERENT ON DRAWINGS. ALL SPRINKLER HEADS MOUNTED IN CEILING SHALL BE LOCATED A MINIMUM OF 4" AWAY FROM ANY WALLS, CEILING GRID MEMBERS, CEILING HEIGHT CHANGES, OR ANY OTHER VERTICAL INTERSECTION SURFACE.
26. FIRE PROTECTION CONTRACTOR SHALL ASSIST IN PREPARATION OF COORDINATION DRAWINGS FOR ALL LEVELS WHICH SHOW ALL THE ENGINEERING DISCIPLINES & FIRE PROTECTION PIPING. THESE DRAWINGS SHALL BE APPROVED BY THE ENGINEER OF RECORD PRIOR TO ANY INSTALLATION.
27. FIRE SPRINKLER PIPING SHALL NOT TRAVEL OVER THE TOPS OF ELECTRICAL PANELBOARDS.
28. PROVIDE TEFLON COATING FOR ALL SPRINKLERS IN ANY CORROSIVE AREA.
29. REFER TO ARCHITECTURAL DRAWINGS FOR CEILING HEIGHTS IN EACH AREA / SPACE.
30. ALL EXPOSED PIPING SHALL BE PAINTED RED.
31. ALL MATERIALS, WHERE APPLICABLE, SHALL BE U.L. LISTED OR FACTORY MUTUAL APPROVED FOR USE IN AUTOMATIC SPRINKLER SYSTEMS. ALL NEW PIPING SHALL BE HYDROSTATICALLY TESTED FOR TWO HOURS IN ACCORDANCE WITH NFPA 13. MINIMUM HYDROSTATIC TEST PRESSURE SHALL BE 200 PSI.
32. FLEXIBLE SPRINKLER CONNECTIONS SHALL NOT BE PERMITTED.
33. THE SMALL ROOM RULE SHALL BE ACCEPTABLE FOR PLACEMENT OF SPRINKLERS PER NFPA 13-2019, 8.6.3.2.4.
34. UPON SPRINKLER SYSTEM IMPAIRMENT, NFPA 25-2020, 15.5.2 SHALL BE FOLLOWED DURING SPRINKLER SYSTEM DOWNTIME.

FIRE PROTECTION SYMBOL LEGEND

SYMBOL	DESCRIPTION
	–OSAY VALVE
	–GATE VALVE
	–BALL VALVE
	–ALARM CHECK VALVE
	–PRESSURE REGULATING VALVE
	–BUTTERFLY VALVE
	–FLOW SWITCH
	–FIRE DEPARTMENT CONNECTION
	–FIRE PROTECTION RISER
	–PIPE TURNING DOWN
	–PIPE TURNING UP
	–TAMPER SWITCH
	–DEMO TO
	–CONNECT TO
FP 1	–FIRE PROTECTION RISER DESIGNATION
1 A1	–REVISION REFERENCE
W	–SHEET NOTE CALLOUT

FIRE PROTECTION ABBREVIATIONS

SYMBOL	DESCRIPTION
AHJ	–AUTHORITY HAVING JURISDICTION
ANSI	–AMERICAN NATIONAL STANDARDS INSTITUTE
ASTM	–AMERICAN STANDARDS TESTING MATERIALS
DIA (Ø)	–DIAMETER
DP	–DRY PENDENT
DS	–DRY SIDE WALL
ELEV	–ELEVATION
°F	–DEGREES FAHRENHEIT
FDC	–FIRE DEPARTMENT CONNECTION
FDV	–FIRE DEPARTMENT VALVE
FM	–FACTORY MUTUAL
FP	–FIRE PROTECTION
FS	–FLOW SWITCH
FT	–FEET
GAL	–GALLON(S)
GALV	–GALVANIZED
GPM	–GALLONS PER MINUTE
HR	–HOUR
HYD	–HYDRANT
HZ	–HERTZ
IE	–INVERT ELEVATION
ID	–INTERIOR DIAMETER
IN	–INCHES
IPS	–INTERNATIONAL PIPE STANDARD

SYMBOL	DESCRIPTION
GPM	–GALLONS PER MINUTE
KW	–KILOWATT
MAX	–MAXIMUM
MIN	–MINIMUM
NP	–NOT APPLICABLE
NFPA	–NATIONAL FIRE PROTECTION ASSOCIATION
NTS	–NOT TO SCALE
P	–PUMP
PH	–PHASE
PSI	–POUNDS PER SQUARE INCH
PS	–PRESSURE SWITCH
QR	–QUICK RESPONSE
RM	–ROOM
RPM	–REVOLUTIONS PER MINUTE
SF	–SQUARE FEET
SPEC	–SPECIFICATIONS
SR	–STANDARD RESPONSE
STD	–STANDARD
TEMP	–TEMPERATURE
TS	–TAMPER SWITCH
TYP	–TYPICAL
UL	–UNDERWRITER'S LABORATORY
V/PH	–VOLTS/PHASE
W/	–WITH

SHEET INDEX

FP001	GENERAL NOTES, LEGEND, & SHEET INDEX – FIRE PROTECTION
FP111	FIRE PROTECTION FLOOR PLAN

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NEW FIRE DEPARTMENT ADMINISTRATION BUILDING
1570 NW LAKE JEFFERY ROAD
LAKE CITY, FLORIDA
CCBCC PROJECT NUMBER

#	Date	Note
Revisions		

GENERAL NOTES, LEGEND, & SHEET INDEX - FIRE PROTECTION

CONSTRUCTION DOCUMENTS

DATE
09/12/2024

2338

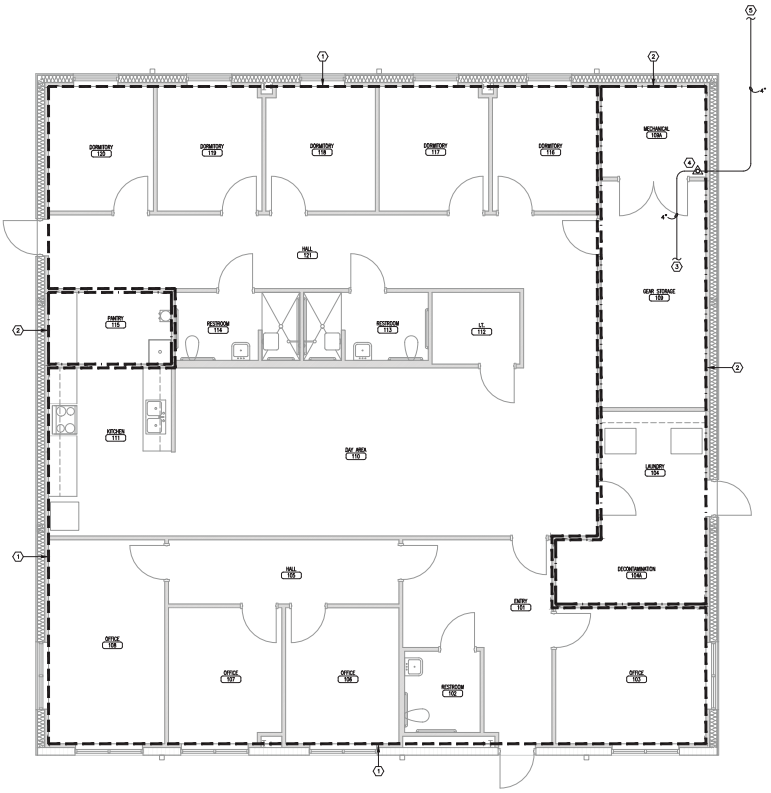
FP001

DRAWING NOTES:

1. ALL PIPING PENETRATIONS THROUGH RATED WALLS AND/OR FLOOR SLABS SHALL BE INSTALLED PER THE APPROPRIATE U.L. RATING FOR THE WALL / FLOOR CONSTRUCTION TYPE AND THE WALL / FLOOR RATING.

KEY NOTES:

1. PROVIDE A HYDRAULICALLY DESIGNED AUTOMATIC SPRINKLER SYSTEM WITH A LIGHT HAZARD COVERAGE OF 0.10 GPM/SF OVER 1500 SF PER NFPA 13.
2. PROVIDE A HYDRAULICALLY DESIGNED AUTOMATIC SPRINKLER SYSTEM WITH A ORDINARY HAZARD GROUP 1 COVERAGE OF 0.15 GPM/SF OVER 1500 SF PER NFPA 13.
3. CONTINUATION TO FIRE PROTECTION SYSTEM AS DEVELOPED BY DELEGATED DESIGN ENGINEER.
4. NEW FIRE RISER WITH FLOW SWITCH, CHECK VALVE, TAMPER SWITCH, AND INSPECTOR TEST DRAIN.
5. REFER TO CIVIL PLAN FOR FIRE MAIN CONTINUATION TO NEW BACKFLOW PREVENTOR.
6. PROVIDE FIRE SPRINKLER HEAD AT BOTTOM OF ELEVATOR PIT.
7. FIRE DEPARTMENT CONNECTION.



FIRE PROTECTION FLOOR PLAN
SCALE: 1/4" = 1'-0"

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KYLE J. DAVIS LICENSED ARCHITECT No. 94275 STATE OF FLORIDA REGISTERED

NEW FIRE DEPARTMENT ADMINISTRATION BUILDING
1570 NW LAKE JEFFERY ROAD
LAKE CITY, FLORIDA
CCBCC PROJECT NUMBER

#	Date	Note
Revisions		

FIRST FLOOR PLAN - FIRE PROTECTION

CONSTRUCTION DOCUMENTS

DATE
09/12/2024

2338

FP111

ELECTRICAL SPECIFICATIONS GENERAL

A. All work shall be performed, or installed in strict accordance with the following (each contractor and subcontractor shall be responsible for compliance):
1. NFPA 70 National Electrical Code (2020 Edition) *
2. Florida Building Code (2023, 8th Edition)
3. Florida Fire Prevention Code (2023, 8th Edition)
4. NFPA 72 National Fire Alarm and Signaling Code (2019 Edition)
5. NFPA 101 Life Safety Code (2021)
6. OSHA Regulations
7. All other applicable rules, regulations, and codes of local, state, and federal governments having lawful jurisdiction.

B. Furnish all labor, materials, fixtures, equipment, tools and service necessary for installation, testing, and adjusting of all electrical system. Electrical system shall be furnished and installed in compliance with the Drawings, Specifications, and any Addenda thereto.

C. All equipment and materials provided shall meet or exceed specification requirements, be new and unused unless noted as "Existing", be listed under an UL category, and shall be a product of a manufacturer regularly engaged in producing such equipment and materials for at least five years.

D. Drawings and Specification shall be understood to cover, according to their intent and meaning, complete electrical systems. Work shown on the drawings yet not specified, and work specified yet not shown on the drawings shall be performed as though mentioned in both.

E. Minor items and accessories reasonably inferred as necessary for a complete and proper operation of any system shall be provided by contractor or subcontractor for such system whether or not they are specifically called for.

F. The Electrical Contractor shall include in his bid the cost of furnishing, installing, maintaining, and removing all material and equipment required to provide temporary lights and power to perform the work of all trades during construction and until work is completed. Adequate lighting and receptacle outlets for operation of hand tools shall be provided as required by trades. Temporary wiring, whether in field offices, and temporary toilet enclosures - and shall be extended as construction progresses.

G. Prior to bidding, the Electrical Contractor shall coordinate with the electric power company to ascertain, in detail, the division of work, and the extent of performance by the Power Company. Each panelboard, switchboard, disconnect, pullbox larger than 4"x4", transformer, contactor, separately derived system, motor, motor starter, disconnect switch, and time clock shall be labeled with the same designation shown on the drawings.

I. Labels shall be laminated plastic engraved, with letter size no less than 3/8 inch in height. Exterior labels shall be UV resistant and weatherproof.

J. Furnish all equipment and personnel and conduct all tests required to secure approval of the installation.

K. Safety Tests
1. All systems shall test free from short circuits and grounds, shall be free from mechanical and electrical defects, and shall have insulation resistance between phase conductors and ground of not less than that specified by the cable manufacturer.
2. All systems shall show proper neutral connections.
3. Key-operated interlock mechanisms shall be demonstrated to perform as intended.

M. Upon completion of each part of the electrical system, the contractor shall demonstrate to the Engineer that each item on that system is installed and operating in accordance with plans, ... and that all are in proper working order.

N. A set of "red-lined" electrical drawings shall be carefully maintained at the job site by the contractor. Markings shall be made legibly on the drawings in red on a daily basis so the drawings will continuously show deviations and other relevant information required by the Owner and Engineer. Please note: if Engineer is contracted to draft as-built markups, the resulting documents will not be signed & sealed by the Engineer. Certification of any as-built documents by a professional engineer, if required, would fall under the responsibility of the contractor.

O. Shop drawings and product data shall be submitted on all equipment, fixtures, etc. Shop drawings shall be labeled in the same designation as individual piece of equipment for which they are being submitted; the proper designation shall be the designation used on the various equipment schedules and or in other Sections of this Specification (i.e. Panel A, Panel B, MDP, etc. Each submittal package shall be submitted in a single PDF file and emailed (or otherwise electronically transmitted) to Engineer.

P. Job condition shall be determined prior to bidding in the following manner:
1. Site visit to determine:
a. Existing conditions
b. How and where materials will be delivered and stored
c. Special problems encountered during construction
2. Examine all Contract Drawings and Specifications to determine:
a. Type of construction to be used
b. Nature and extent of work of other trades

S. General
1. Contract Drawings show the intended arrangements and sizes of principal apparatus and devices to be provided under this Contract. Drawings shall be followed as closely as actual building construction will permit.
2. Locations of outlets and equipment on Plans are not guaranteed to be as-built dimensions.
3. Measurements shall not be scaled from Drawings and used as definite dimensions for layout or fitting of work in place.
4. Layout of equipment, as shown on the plan, shall be checked and exact location determined by dimension of equipment approved by the Architect.
5. Consult the Drawings for all dimensions, locations of partitions, sizes of structural members, openings, etc.

T. Coordination:
1. Work shall be coordinated between all Contractors, Subcontractors, Installers, Suppliers, Trades, etc. to:
a. Insure a neatly fitted installation
b. Eliminate interferences
c. Maintain maximum headroom and clearances
2. Any work installed improperly or to interfere, and cannot be resolved by the affected trades, shall be handled as follows:
a. Cease installation of the portion of the work which is in conflict.
b. Continue work on items which are not in conflict.
c. Notify the Architect immediately.
d. Architect's decision shall be final as to any relocation, removing, removal, or change.
e. No additional compensation will be allowed for any relocation, removal or changes required by interferences.

U. Clear away all debris, surplus materials, etc. resulting from work. Maintain job and equipment in clean, first-class condition.

V. Clean all panel boards, switches, boxes, etc., and leave them in a ready-to-use condition.

W. All panelboard and junction box covers shall be secured with proper screws or bolts.

X. Where factory finish is provided on equipment, each scarred or damaged surface shall be touched-up or refinished in accordance with manufacturer recommendations.

Y. In addition to provisions and stipulation set forth in other Sections of these Specifications, provide various types of protection as follows:
1. Protect finished floors from chips and cutting oil by use of metal chip receiving pan and oil-proof floor cover.
2. Protect surfaces and items from over-spray and splatter during painting and similar work associated with electrical work.
3. Protect grills, diffusers, parts, openings, and vents as necessary to prevent intrusion of smoke, dust, and debris into devices, equipment, and systems. During construction, all conduit work shall be protected to prevent introduction of water, dust, or debris into conduits, fittings or boxes.
4. Previously plugged or capped conduit shall be cleaned, by means of a wire and compressed air, and residue prior to use, or the conduit shall be replaced.

Z. All conduits in floors or below grade shall be swabbed free of debris and moisture before wires are pulled.

AA. Conduit noted as "SPARE", "EMPTY", or "FOR FUTURE USE" shall be provided with pulstring and neatly removable tape or duct seal (no glue). Such conduit shall be labeled on both ends of run.

AB. Conduit shall be properly supported per NEC and as specified herein.

AC. Expansion fittings or other approved devices shall be used to provide for expansion and contraction where conduits cross building expansion joints and as recommended by manufacturer for long runs.

AD. Each conduit passing from conditioned to non-conditioned space (such as from interior to exterior) shall be sealed with duct sealant (vapor barrier) to prevent condensation and migration of moisture. Temperature differences greater than 15°F (such as from conditioned building to refrigeration unit) shall be sealed internally with duct seal or similar at the the penetration.

AE. A flexible grounding strap shall bridge expansion joints and shall be bonded to conduit.

AF. Conduit, boxes, devices, lights, and other electrical items shall be located to eliminate interference with movable or serviceable items, such as wardrobe, cranes, equipment access doors, lifts, rollup doors, valves, or other items that may require clearance.

AG. Conduit above slab shall be run concealed in the walls or ceilings unless specifically noted to be exposed. Noted exceptions include electrical and mechanical rooms.

AH. Conduit under ground shall be buried no less than 24 inches below grade, with a grade for moisture entrance, and no less than 30 inches below finished grade for service entrance (unless utility requires greater depth).

AI. Conduit installed for incoming utilities (such as service entrance power, telephone, data, cable TV, etc.) shall comply with the appropriate utility requirements. Contractor shall coordinate with utility inspection of installation prior to backfill.

AJ. Conduit bushings shall be provided at the termination point of all conduit runs.

AK. Underground raceway shall be thoroughly photographed by the contractor prior to backfill or concrete pour. The photos shall be taken in sufficient quantity and in such a manner to enable the Engineer to verify the following items: depth, trench recovery tooling, burial depth, type of trench (coated RMC, for example) and if applicable, duct bank layout and reinforcing steel.

AL. Routing with conduits less than 2" trade size is intentionally not typically depicted on drawings, but shall be provided. Routing for conduit 2" trade size and larger is typically depicted to show intended routing. Exact routing of conduit shall be determined in the field for ease of installation provided that the following criteria is met:
1. All conduit, home runs, and circuits are made to the panel specified on the drawings, unless otherwise noted. Any change to panel control device (such as time switch, contactor, or time clock).
2. Conduit runs shall comply with NEC.
3. Conduits shall not conflict with other trades.
4. Conduits shall not encroach on spaces dedicated for clearance or accessibility.

AM. Final connection to motors, etc., shall be made via one of the following methods (method must also be appropriate for the environment installed):
1. Flexible metal conduit with stranded conductors
2. Liquid-tight flexible metal conduit with stranded conductors
3. Armored flexible conduit which shall be waterproof for any location outside, in kitchens, or any inside area subject to water, heavy moisture, condensation, etc.

AC. SPECIFIC CONDUIT TO BE USED
1. All conduit and fittings shall be in new, unused condition, shall be free from rust, dirt, moisture, kinks, flats, cuts, or other damage of shape.
2. Concealed and exposed conduit in building, above slab shall be EMT with compression fittings. IMC and RMC also permitted.
3. Straight conduit embedded in concrete shall be PVC with waterproof joints or PVC-coated RMC.
4. Exposed conduit outside building, above grade shall be RMC with threaded waterproof fittings.
5. Underground straight conduit shall be PVC with waterproof joints.
6. Underground bends, penetrations through slabs-on-grade, and stub-ups from final bends up to equipment shall be PVC-coated RMC with radius of bend no less than 6x trade size of conduit.

SUPPORTS AND HANGERS

A. Conduit shall be supported on structural building members such as columns, beams, purlins, block, studs, or joists.

B. Conduit shall be supported on galvanized or aluminum hardware (steel is prohibited).

C. Conduit hangers shall be attached to building steel by beam clamps.

D. Hangers and supports shall be attached to wooden stud walls with wood screws.

E. Hangers and supports shall be attached to masonry with expansion anchors (shield).

F. Supports shall be channel type supports such as manufactured by Unistrut, Globe, Kindorf, or equal.

G. Supporting means shall not be attached to roof decking.

BOXES

A. Pullboxes in air-conditioned spaces shall be code gauge and size, galvanized steel with screw-type or hinged-type cover.

B. Exterior pullboxes above grade shall be code gauge and size, galvanized steel with enamel finish and with screw-type or hinged-type cover. Boxes shall be rainproof and rated for the environment, but not less than NEMA 3R.

C. Exterior pullboxes underground and associated conduits shall be no less than code size, shall be PVC-coated rectangular, PVC shall be high density Type I Schedule 40, unless noted otherwise.

D. Device boxes in stud walls (2-1/2" thickness or greater) shall be galvanized steel, no less than 2-1/2" deep.

E. Device boxes in furred and stud walls less than 3-1/2" thick shall be galvanized steel, 1 1/2 inch deep.

F. Wall boxes in four inch block shall be galvanized steel 2-1/2" deep. And in walls larger than four inch block, galvanized steel 3-1/2" deep.

G. Boxes may be ganged as required for multiple devices.

H. Through-wall box are prohibited.

I. Lighting outlet boxes and specified junction boxes shall be galvanized steel, 4" octagon with cover. Ratings shall not be less than N.E.C.

J. Floor boxes shall be standard depth-cast steel, flush-mounted cover with brass. Furnish with threaded brass receptacle covers, unless noted otherwise.

K. Telephone/data boxes shall be standard gauge galvanized steel, 4" square.

L. All wiring devices shall be installed in metallic boxes. Provide outlet boxes, receptacle boxes, junction boxes, and pullboxes as required by the N.E.C., the drawings and at locations required by the N.E.C.

M. Provide pull boxes as shown on the Drawings, as required by code, and as needed for ease of construction. Pull boxes shall remain accessible.

N. Outlets shall be installed in the locations shown on the drawings.

O. Contractor shall study the general building plans in relation to the space surrounding each outlet, in order that his work may fit with all other work required by these Specifications.

P. All steel supports for outlet boxes shall be furnished and installed.

Q. Outlet boxes for use with exposed steel conduit shall be cast steel. Cast metal fittings shall be cast steel. Cast metal fittings shall be Crouse-Hinds, Square D, Bryant, or equal.

R. All openings in electrical equipment, enclosures, cabinet, outlet and junction boxes shall be by means of knockouts provided by manufacturer, or shall be sawed, drilled, or punched in locations specially made for the purpose. The use of a cutting torch is prohibited.

S. All conduit connections to electrical boxes shall be made with locknuts and nonmetallic bushings.

T. Locknuts shall be drawn down tight to make ground connection between the conduit and box.

U. All boxes shall be labeled to indicate circuit (and/or feeder name). Boxes larger than 4x4 shall be provided with painted or adhesive labels. Boxes 4x4 and smaller may be legibly labeled via permanent marker. Refer to wiring devices specs regarding cover plate labeling.

WIRE AND CABLES

A. All wire used throughout work shall be soft drawn copper of not less than 98% conductivity. Aluminum is not acceptable, unless explicitly called out on specific feeders.

B. Wire and cable shall be new, and manufacturer's identification shall be clearly marked on the covering at regular intervals.

C. Conductors AWG No. 8 or smaller may be solid or stranded; larger sizes shall be stranded. Stranded conductors shall be used for final connections to vibrating equipment (such as motors).

D. All conductors for general wiring shall be insulated with THWN/THHN-2 insulation.

E. Conductors shall have solid-colored insulation with specific colors as noted on the details (based on voltage and phase), and shall be in compliance with the N.E.C.

F. Grounding conductors, if installed, shall have green solid-colored insulation.

G. NM-type (romex) not permitted.

H. AC-type, BX-type, and any cables assembly without an integral wire-type equipment ground conductor is not permitted.

I. All wiring shall be installed in conduit or part of an MC-type cable assembly. MC-type cable acceptable only for:
1. MC-type cable assembly includes integral wire-type green-insulated equipment ground conductor.
2. MC-type cable installed per NEC.

J. Conductors shall be sized according to the N.E.C., and as noted or shown on the drawings.

K. Minimum conductor size for 20A receptacle and lighting circuit shall be No. 12 AWG. Where one-way circuit distance from panelboard to furthest point of load exceeds 85 feet, use No. 10 AWG minimum; over 100 feet, use No. 8 AWG.

L. All wiring shall be fully pulled and thoroughly swab using white (or gray depending on voltage) wires for neutral and making all switching connections in colored hot wires.

M. No conductors shall be drawn into conduits until all work which may cause damage is completed; only approved cable lubricants shall be used.

N. As far as practical, all feeder cables shall be continuous from feeder source to load termination without using splices at intermediate pull boxes.

O. Splices in conductors No. 10 AWG and smaller shall be made with solderless, pressure type connectors; connectors shall be Type QA-B or Q2A as manufactured by Burndy, Okonite, Mcdunkin or equal.

P. The minimum free length of conductor at each box for the connection of a fixture, switch or receptacle shall be 6".

Q. Each branch circuit requiring a neutral connection shall be provided with a dedicated neutral conductor, even if multiple branch circuits share the same raceway. No shared neutrals permitted.

R. Boxes for light switches or other lighting control devices shall be provided with a neutral conductor from each branch circuit brought to devices in the box.

PANELBOARDS

A. The panelboards shall be of dead-front construction with hinged doors and concealed trim clamps. Door-in-door hinged front finished in gray lacquer.

B. Doors shall be provided with a plate tumbler lock with flush handle and typed directory card and holders.

C. See panel schedule for basis of design brand and model.

D. Furnish and install electrical system as described on Drawings, panel schedules and electrical riser diagram.

E. Panels shall be surface mounted or recessed (flush) as specified on the panel schedule.

F. All panelboards shall be circuit breaker type unless noted otherwise.

G. Voltage, phase, wires, poles/breaker space as specified on schedules and riser.

H. Solid neutral.

I. Panels rated at 10,000 AIC shall have stab-in breakers. Panels rated greater than 10,000 AIC shall have bolt-on breakers.

J. Provide fully rated panelboards (and breakers). Series-rated panelboards are not permitted, unless specifically noted.

K. Breakers size and quantity as shown on Schedules.

L. Breakers listed as "spare" shall be furnished and installed.

M. Panel listed with "space" shall be provided with extra space for future breakers. Each "space" shall be one single pole, unless noted otherwise. For 1-Line (or similar) panels, each "space" shall be understood to be the mounting space required to accommodate one 20A single-pole breaker.

N. Panelboards shall be provided with no less than the number of breaker spaces (poles) or mounting space indicated on the panel schedules. If not noted, provide not less than 42 poles.

O. Unless otherwise indicated on Drawings, install all panels with the top of the trim 6'-3" above finished floor.

P. Install panelboards in location shown on the Drawings.

Q. Panelboards shall be mounted with screws, bolts, or anchors as required.

R. Panels shall not be supported by conduit alone.

S. Panelboards shall be internally and externally clean and shall be free from dust, debris, and non-interference markings. Panelboards shall be vacuumed and wiped down (internally and externally) prior to substantial inspection.

T. Neutral and equipment grounding terminals shall be electrically isolated, unless specifically noted otherwise.

U. Panelboard cover shall be provided with engraved phenolic plastic identification and wiring color code nameplates. Refer to detail on drawings.

V. Mount a typewritten directory behind glass or plastic on the inside of each panel door, showing panel information, circuit number, and complete description of all outlets on each circuit. Handwritten edits are not acceptable. Directory shall be installed prior to substantial inspection

CIRCUIT BREAKERS

A. Breakers shall be of the size specified on the Panel Schedules, unless otherwise required to match equipment nameplate MOCP or MOP values.

B. Breakers rated greater than 10,000 AIC shall be bolt-on.

C. Breakers shall have visual trip indicators.

D. Breaker sizes shall be verified against equipment it serves.

E. On three-phase panels, breakers shall alternate between busses to provide a balanced load.

F. Furnish and install all circuits breakers as described on the panel schedules and drawings.

G. Contractor shall be responsible for confirming brand, breaker type, mounting type, kits, accessories, and other requirements for proper installation in the existing panelboards. Existing panelboard information and characteristics shall be field-verified.

H. Coordinate with Owner's representative.

FUSES

A. Provide size, type, and class as noted. If specifics are not noted, provide fuse suitable for application.

B. Voltage rating of fuse shall match or exceed circuit voltage.

C. Provide clips or kit as required to correctly mount the specified fuse in designated equipment.

DISCONNECTS

A. Horsepower-rated for general disconnects.

B. Horsepower-rated for motor disconnects.

C. Meet Federal Spec. W-S-865c for Heavy Duty Switches.

D. UL Listed.

E. Grey baked enamel finish.

F. Quick-break operating mechanism

G. Visible handle.

H. Meets NEMA KS-1973 for Type HD.

I. Enclosure as noted and as listed in the N.E.C.

J. Outdoor disconnects shall be NEMA 3R, unless noted otherwise.

K. Supply and install a disconnecting means for each motor/appliance required by N.E.C. or if shown on drawings.

L. Locate disconnect as shown or as near as possible to motor within N.E.C compliance.

M. Disconnects furnished as an integral part of any piece of equipment shall be acceptable in lieu of a heavy switch.

N. Switches shall be fused where shown on drawings. Provide switches with dual-element fuses.

O. Disconnects for motors shall be provided with machine-produced labels (on front cover) to indicate motor source, circuit number, and load served.

TELECOM

A. Provide conduit system for Telecom including flush wires, boxes and blank plates.

B. Conduit, cabling, and outlets shall be provided as shown on the drawings and the telecom riser.

C. Consult the local utility representative prior to bidding for any special requirements. All electrical work required by the telecom utility company shall be furnished and performed by the Electrical Contractor.

SURGE PROTECTION DEVICE (SPD)

A. Provide TYPE 2 on panels as shown.

B. Provide SPD with integral audible and visible alarm features to indicate loss of protection.

C. MOV TYPE meeting UL-1449, 3rd edition, TYPE 2 listing.
1. 120KA Surge Current Rating (L-L and L-G)
2. 20KA Nominal Discharge Current.
3. 200KA SCCR (Short Circuit Current Rating)
4. 150V MCOV (Maximum Continuous Operating Voltage) for 120/240V and 208Y/120V systems, 320V MCOV for 480Y/277V systems.

ROUGH-IN

A. Contractor shall rough-in for all equipment, fixtures, etc., in building. Exact location of equipment is furnished by this Contractor or under other divisions of Specifications by Owner.

B. Determine in advance the location and size of all openings required in masonry, brick, or studs walls. Provide sufficient openings and chases as provided during construction.

C. Install all inserts for hangers and supports of electrical work as general construction progresses.

D. Rough-in openings in masonry, brick, or stud walls shall be cut, not broken or chiseled.

E. Openings shall not be larger than the coverplate or box which will fit over it.

F. A sleeve shall be required at each location where exposed conduit is to pass through a concrete wall, concrete floor slab, or masonry wall. Sleeves installed below grade or where subject to high water table shall be watertight.

G. Rough-in openings in masonry, brick, or stud walls shall be cut, not broken or chiseled.

H. Openings shall not be larger than the coverplate or box which will fit over it.

I. A sleeve shall be required at each location where exposed conduit is to pass through a concrete wall, concrete floor slab, or masonry wall. Sleeves installed below grade or where subject to high water table shall be watertight.

BASIC MATERIALS & METHODS CONDUIT

A. Rigid metal conduit (RMC) shall be steel, hot dip galvanized, minimum trade size shall be 3/4".

B. Electrical Metallic Tubing (EMT) shall be steel, electro or hot dip galvanized. EMT fittings shall be compression type, concrete-tight.

C. Flexible Metallic Tubing shall be galvanized steel (aluminum not acceptable). Seattle type UA or Erf shall be used for all motor connections.

D. Liquid-tight Flexible Metal Conduit shall conform to UL360.

E. Rigid Non-metallic conduit shall be listed for use as underground raceways. PVC shall be high density Type I Schedule 40, unless noted otherwise.

F. Connectors shall have insulated throats.

G. All fittings and connectors shall be steel or malleable iron. Pot-metal and die-cast zinc not acceptable.

H. Power conductors shall be installed in conduit.

I. Fittings or symmetrical bends shall be required wherever right angle turns are made in exposed work.

J. Bends and offsets shall be avoided wherever possible, but where necessary, they shall be made with an approved conduit bending tool or machine.

K. All conduit joints shall be cut square, reamed smooth and drawn up tight.

L. Conduit shall be installed in horizontal and vertical runs in such a manner as to ensure against trouble from the collection of trapped condensation and shall be arranged so as to be devoid of traps.

M. Special care shall be used to ensure that aboveground conduit runs are parallel or perpendicular to walls, structural members, building lines, or intersections of vertical planes and ceiling. During construction, all conduit work shall be protected to prevent introduction of water, dust, or debris into conduits, fittings or boxes.

N. Previously plugged or capped conduit shall be cleaned, by means of a wire and compressed air, and residue prior to use, or the conduit shall be replaced.

O. All conduits in floors or below grade shall be swabbed free of debris and moisture before wires are pulled.

P. Conduit noted as "SPARE", "EMPTY", or "FOR FUTURE USE" shall be provided with pulstring and neatly removable tape or duct seal (no glue). Such conduit shall be labeled on both ends of run.

Q. Conduit shall be properly supported per NEC and as specified herein.

R. Expansion fittings or other approved devices shall be used to provide for expansion and contraction where conduits cross building expansion joints and as recommended by manufacturer for long runs.

S. Each conduit passing from conditioned to non-conditioned space (such as from interior to exterior) shall be sealed with duct sealant (vapor barrier) to prevent condensation and migration of moisture. Temperature differences greater than 15°F (such as from conditioned building to refrigeration unit) shall be sealed internally with duct seal or similar at the the penetration.

T. A flexible grounding strap shall bridge expansion joints and shall be bonded to conduit.

U. Conduit, boxes, devices, lights, and other electrical items shall be located to eliminate interference with movable or serviceable items, such as wardrobe, cranes, equipment access doors, lifts, rollup doors, valves, or other items that may require clearance.

V. Conduit above slab shall be run concealed in the walls or ceilings unless specifically noted to be exposed. Noted exceptions include electrical and mechanical rooms.

W. Conduit under ground shall be buried no less than 24 inches below grade, with a grade for moisture entrance, and no less than 30 inches below finished grade for service entrance (unless utility requires greater depth).

X. Conduit installed for incoming utilities (such as service entrance power, telephone, data, cable TV, etc.) shall comply with the appropriate utility requirements. Contractor shall coordinate with utility inspection of installation prior to backfill.

Y. Conduit bushings shall be provided at the termination point of all conduit runs.

Z. Underground raceway shall be thoroughly photographed by the contractor prior to backfill or concrete pour. The photos shall be taken in sufficient quantity and in such a manner to enable the Engineer to verify the following items: depth, trench recovery tooling, burial depth, type of trench (coated RMC, for example) and if applicable, duct bank layout and reinforcing steel.

AA. Routing with conduits less than 2" trade size is intentionally not typically depicted on drawings, but shall be provided. Routing for conduit 2" trade size and larger is typically depicted to show intended routing. Exact routing of conduit shall be determined in the field for ease of installation provided that the following criteria is met:
1. All conduit, home runs, and circuits are made to the panel specified on the drawings, unless otherwise noted. Any change to panel control device (such as time switch, contactor, or time clock).
2. Conduit runs shall comply with NEC.
3. Conduits shall not conflict with other trades.
4. Conduits shall not encroach on spaces dedicated for clearance or accessibility.

AB. Final connection to motors, etc., shall be made via one of the following methods (method must also be appropriate for the environment installed):
1. Flexible metal conduit with stranded conductors
2. Liquid-tight flexible metal conduit with stranded conductors
3. Armored flexible conduit which shall be waterproof for any location outside, in kitchens, or any inside area subject to water, heavy moisture, condensation, etc.

AC. SPECIFIC CONDUIT TO BE USED
1. All conduit and fittings shall be in new, unused condition, shall be free from rust, dirt, moisture, kinks, flats, cuts, or other damage of shape.
2. Concealed and exposed conduit in building, above slab shall be EMT with compression fittings. IMC and RMC also permitted.
3. Straight conduit embedded in concrete shall be PVC with waterproof joints or PVC-coated RMC.
4. Exposed conduit outside building, above grade shall be RMC with threaded waterproof fittings.
5. Underground straight conduit shall be PVC with waterproof joints.
6. Underground bends, penetrations through slabs-on-grade, and stub-ups from final bends up to equipment shall be PVC-coated RMC with radius of bend no less than 6x trade size of conduit.

EXCAVATION AND BACKFILL

A. Contractor shall coordinate with the General Contractor to determine the extent of his responsibility concerning the excavation and backfilling related to the electrical scope of work.

B. Contractor shall be responsible for contacting the appropriate "CALL BEFORE YOU DIG" authority prior to commencing excavation activities.

ABBREVIATIONS

A	AMPERE
AC	ABOVE COUNTER
AFC	AVAILABLE FAULT CURRENT
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AH	AIR HANDLER
AHJ	AUTHORITY HAVING JURISDICTION
AHU	AIR HANDLING UNIT
BFF	BELOW FINISHED FLOOR
BFG	BELOW FINISHED GRADE
BJ	BONDING JUMPER
BKR	BREAKER
BLDG	BUILDING
C	CONDUIT
CKT	CIRCUIT
CLG	CEILING
CONC	CONCRETE
COORD	COORDINATE
CPT	CONTROL POWER TRANSFORMER
CR	CORROSION RESISTANT INDEX
CTRL	CONTROL
CU	COPPER
CU	CONDENSING UNIT
DISC	DISCONNECT
DGR	DRIVEN GROUND ROD
EA	EACH
EBJ	EQUIPMENT BONDING JUMPER
EF	EXHAUST FAN
EGC	EQUIPMENT GROUNDING CONDUCTOR
EJ	EXPANSION JOINT
EM	EMERGENCY
ENCL	ENCLOSURE, ENCLOSED
ETR	EXISTING TO REMAIN
EWC	ELECTRIC WATER COOLER
EWH	ELECTRIC WATER HEATER
EX	EXISTING
EXIST	EXISTING
FA	FIRE ALARM
FACP	FIRE ALARM CONTROL PANEL
FG GND	GROUNDING
GEC	GROUNDING ELECTRODE CONDUCTOR
GFI	GROUND FAULT INTERRUPT
GWB	GYPSUM WALL BOARD
HD	HEAVY DUTY
HOA	HAND-OFF-AUTO
JB	JUNCTION BOX
KW	KILOWATT
KVA	KILO-VOLT AMPERE
LAV	LAVATORY
LED	LIGHT EMITTING DIODE
LFMC	LIQUIDTIGHT FLEXIBLE METAL CONDUIT
LTG	LIGHTING
LTS	LIGHTS
MBJ	MAIN BONDING JUMPER
MCB	MAIN CIRCUIT BREAKER
MIN	MINIMUM
MLO	MAIN LUGS ONLY
MTD	MOUNTED
N	NEUTRAL
NEC	NATIONAL ELECTRICAL CODE
NF	NON-FUSED
NL	NIGHT LIGHT
NS	NOT SWITCHED
NTS	NOT TO SCALE
OAE	OR APPROVED EQUAL
OE	OR EQUAL
OEM	ORIGINAL EQUIPMENT MANUFACTURER
OH	OVERHEAD
OL	OVERLOAD
P	POLE
PB	PULL BOX
PC	PHOTOCELL
PP	PUSH PLATE
PH, Ø	PHASE
PNL	PANEL
PR	PAIRARY
REC	RECEPTACLE
RECEPT	RECEPTACLE
REF	REFRIGERATOR
RGS	RIGID GALVANIZED STEEL
RTU	ROOFTOP UNIT
SBJ	SYSTEM BONDING JUMPER
SEC	SECONDARY
SPD	SURGE PROTECTIVE DEVICE
SW	SWITCH
TC	TIMECLOCK
THD	TOTAL HARMONIC DISTORTION
TYP	TYPICAL
UG	UNDERGROUND
UNO	UNLESS NOTED OTHERWISE
V	VOLT
VA	VOLT-AMPERE
VAC	VOLTS, ALTERNATING CURRENT
W	WIRE OR WATT
W	WITH
WID	WASHER/DRYER
WAP	WIRELESS ACCESS POINT
WP	WEATHERPROOF
XFMR	TRANSFORMER
XP	EXPLOSION PROOF
~	APPROXIMATELY
Δ	DELTA
§	SECTION
>	GREATER THAN
≥	GREATER THAN OR EQUAL TO
<	LESS THAN
≤	LESS THAN OR EQUAL TO

LIGHTING LEGEND

- 2'X4' LIGHT FIXTURE — UPPERCASE LETTER = FIXTURE TYPE; LOWERCASE LETTER = SWITCH CIRCUIT
- 2'X2' LIGHT FIXTURE
- WALL-MOUNTED LINEAR FIXTURE
- SURFACE-MOUNTED STRIP FIXTURE
- TRACK LIGHTING
- STRIP OR TAPE LIGHTING
- RECESSED CAN LIGHT
- HANGING PENDANT FIXTURE
- SURFACE-MOUNTED CIRCULAR FIXTURE
- WALL-MOUNTED SCONCE OR WALL-PACK
- EMERGENCY LIGHT, WALL-MOUNTED
- EMERGENCY LIGHT, CEILING-MOUNTED
- EXIT SIGN, WALL/CEILING-MOUNTED, CHEVRON DIRECTION INDICATED BY ARROWS
- EXIT SIGN AND EMERGENCY LIGHT, WALL/CEILING-MOUNTED — FACES INDICATED BY SOLID HATCH
- REMOTE EMERGENCY LIGHT HEADS
- OCCUPANCY SENSOR, WALL/CEILING-MOUNTED, DUAL TECHNOLOGY TYPE, UNO
- POWER PACK FOR SENSOR
- AUXILIARY RELAY FOR SENSOR
- DAYLIGHT SENSOR AND RELAY
- PHOTOCELL
- LIGHT SWITCH — 3 = 3-WAY; 4 = 4-WAY; D = 0-10V DIMMER, UNO; T = ROTARY TIMER SWITCH, UNO
- COMBINATION WALL-SWITCH/OCCUPANCY SENSOR
- CHANDELIER
- CEILING FAN
- POLE-MTD LIGHT

SYSTEMS LEGEND

- TELECOM OUTLET, INSTALL AT 18", UNO
- CABLE FOR WIRELESS ACCESS POINT
- TELECOM FLOOR OUTLET
- SPEAKER
- CAMERA
- ANTENNA

POWER LEGEND

- DUPLEX RECEPTACLE, INSTALL AT 18" AFF UNO; +48 = INSTALL AT 48" AFF; +60 = INSTALL AT 60" AFF; TV = INSTALL AT 72" AFF, UNO; " = INSTALL 8" ABOVE COUNTER OR DESK; RDF = DEDICATED FOR REFRIGERATOR; MW = DEDICATED FOR MICROWAVE; COFF = DEDICATED FOR COFFEE POT
- DUPLEX RECEPTACLE, GFI — WP = WEATHERPROOF
- CEILING DUPLEX RECEPTACLE
- DOUBLE DUPLEX RECEPTACLES
- DOUBLE DUPLEX GFI RECEPTACLES
- CEILING DOUBLE DUPLEX RECEPTACLES
- SINGLE RECEPTACLE
- SPECIAL RECEPTACLE AS NOTED
- POWER FLOOR OUTLET
- POWER/TELECOM FLOOR BOX
- JUNCTION BOX (WALL, CEILING)
- DISCONNECT SWITCH
- STARTER/DISCONNECT SWITCH
- STARTER OR CONTACTOR
- VARIABLE FREQUENCY/SPEED DRIVE
- MANUAL MOTOR STARTER WITH THERMAL OVERLOAD PROTECTION
- PANELBOARD
- ELECTRIC MOTOR
- UTILITY METER
- HOMERUN
- CIRCUIT CONTINUATION
- CONDUIT CONCEALED IN WALL OR CEILING
- CONDUIT UNDERGROUND OR IN FLOOR
- CONDUIT STUB-UP OR STUB-OUT
- DRIVEN GROUND ROD
- GROUND INSPECTION WELL
- CIRCUIT BREAKER
- FUSE
- SWITCH
- KEYNOTE SYMBOL
- INTERCEPT LOCATION
- CONCRETE-FILLED PIPE BOLLARD
- REVISION SYMBOL
- EMERGENCY PUSH BUTTON

NOTE: NOT ALL SYMBOLS AND ABBREVIATIONS ARE USED

ELECTRICAL SHEET INDEX

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ARCHITECTURE INTERIORS
ORLANDO, FLORIDA
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1579 NW LAKE JEFFREY ROAD
LAKE CITY, FLORIDA
CCBCC PROJECT NUMBER

#	Date	Note
Revisions		

ELECTRICAL LEGEND & SPECS
CONSTRUCTION DOCUMENTS

DATE
09/12/2024

2338

E001

INTERIOR LIGHTING COMPLIANCE

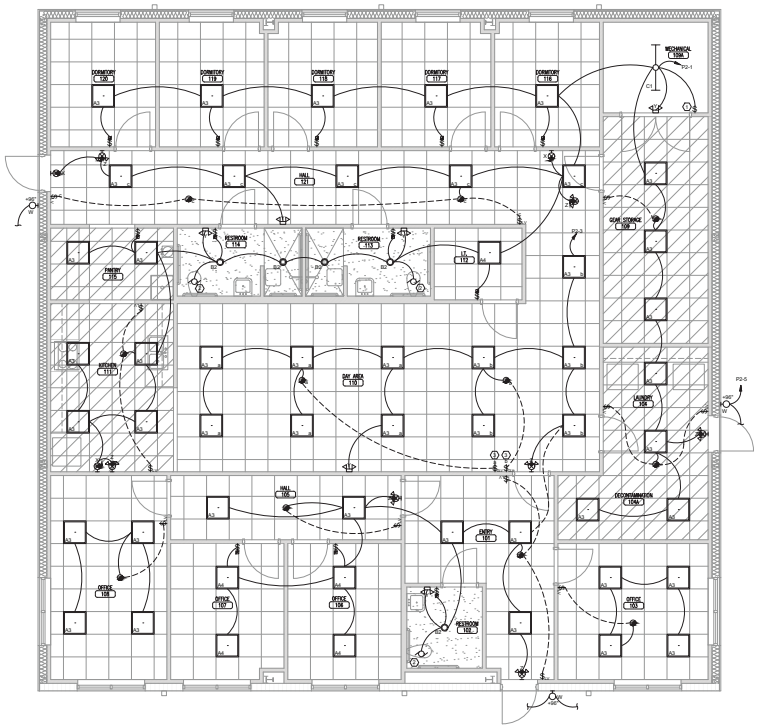
FBC 2023 FBC - ENERGY CONSERVATION, 8TH ED. - TABLE C405.5.2(1) SPACE-BY-SPACE METHOD

SPACE	CLASSIFICATION	AREA	ALLOW. W/SQFT	ALLOW. WATTS	PERVALUE	AUTO CNTRL INVLT	ON/OFF
101	ENTRY	CORRIDOR (OTHER/MISC)	175	0.41	72	10	CLG PRI	AUTO/AUTO
102	RESTROOM	RESTROOM (OTHER/MISC)	68	0.63	43	20	WALL SW PIR	AUTO/AUTO
103	OFFICE	OFFICE (ENCLOSED)	159	0.74	118	92	CLG PRI	MANUAL/AUTO
104	LAUNDRY	LAUNDRY/WASHING AREA	105	0.53	56	46	CLG PRI	AUTO/AUTO
104A	DEVENTAM	LAUNDRY/WASHING AREA	75	0.53	40	46	CLG PRI	AUTO/AUTO
105	HALL	CORRIDOR (OTHER/MISC)	125	0.41	51	40	CLG PRI	AUTO/AUTO
106	OFFICE	OFFICE (ENCLOSED)	138	0.74	102	92	CLG PRI	MANUAL/AUTO
107	OFFICE	OFFICE (ENCLOSED)	118	0.74	87	68	WALL SW PIR	MANUAL/AUTO
108	OFFICE	OFFICE (ENCLOSED)	183	0.74	135	92	CLG PRI	MANUAL/AUTO
109	GEAR STOR	STORAGE ROOM	181	0.18	76	69	CLG PRI	MANUAL/AUTO
109A	MECH	ELEC/MECH ROOM	74	0.43	32	35	NONE	MANUAL/MANUAL
110	DAY AREA	LOUNGE/RECREATION (OTHER/MISC)	553	0.59	326	184	CLG PRI	MANUAL/AUTO
111	KITCHEN	FOOD PREP AREA	144	1.09	175	92	CLG PRI	MANUAL/AUTO
112	LT	ELEC/MECH ROOM	49	0.43	21	35	WALL SW PIR	MANUAL/AUTO
113	RESTROOM	RESTROOM (OTHER/MISC)	66	0.63	42	40	WALL SW PIR	AUTO/AUTO
114	RESTROOM	RESTROOM (OTHER/MISC)	66	0.63	42	40	WALL SW PIR	AUTO/AUTO
115	PANTRY	FOOD PREP AREA	69	1.09	75	40	WALL SW PIR	MANUAL/AUTO
116	DORM	MRE STATION SLEEPING QUARTERS	100	0.23	23	23	WALL SW PIR	MANUAL/AUTO
117	DORM	MRE STATION SLEEPING QUARTERS	106	0.23	24	23	WALL SW PIR	MANUAL/AUTO
118	DORM	MRE STATION SLEEPING QUARTERS	105	0.23	24	23	WALL SW PIR	MANUAL/AUTO
119	DORM	MRE STATION SLEEPING QUARTERS	101	0.23	23	23	WALL SW PIR	MANUAL/AUTO
120	DORM	MRE STATION SLEEPING QUARTERS	102	0.23	23	23	WALL SW PIR	MANUAL/AUTO
121	HALL	CORRIDOR (OTHER/MISC)	360	0.41	148	138	CLG PRI	AUTO/AUTO
		TOTALS (WATTS)			1,724	1,332		

LIGHTING FIXTURE SCHEDULE

MARK	WATTS	LUMENS	CCT	DESCRIPTION
A3	35	3,800	3,500	2X2 LED FLAT PANEL LAY-IN FIXTURE, SMOOTH DIFFUSE LENS, 0-10V DIMMABLE. SIGNIFY DAY-DRITE #SPF2X30LB35-2-DS-UNV-DIM
A4	34	3,800	3,500	SIMILAR TO A3, EXCEPT FOR WATTS & LUMENS. SIGNIFY DAY-RITE #SPF1X8LB38-2-DS-UNV-DIM
B2	20	2,000	3,500	8" ROUND LED DOWNLIGHT, 0-10V DIMMABLE, WIDE BEAM, OPEN TRIM, CLEAR DIFFUSE REFLECTOR, SUITABLE FOR USE ABOVE SHOWER. SIGNIFY LIGHTHOLER #GRA12R30L2000SWDC0210U
C1	26	3000	4000K	4' LINEAR STRIP LIGHT, FROSTED ACRYLIC LENS. SURFACE MOUNTED OR SUSPENDED AS APPLICABLE. SIGNIFY DAYBRITE# FSS4TBL840-UNV-DIM
W	10	1,000	4,000	EXTERIOR WALL SCONCE, INTEGRAL PHOTOCELL CONTROL, 3IN UPLIGHT, BRONZE FINISH, MOUNTAIN., LISTED FOR WET LOCATION. SIGNIFY STONCO #LPW7-10-WW-G3-120-PCB-BZ
X	<5	N/A	N/A	EXIT SIGN, RED LETTERS, SELF-POWERED WITH RECHARGEABLE NI-CAD BATTERY UPON LOSS OF NORMAL VOLTAGE. THERMOPLASTIC HOUSING. PROVIDE WITH AUTOTEST. RSDWELL#PVH-SA-AT
Y	<5	N/A	N/A	EMERGENCY LIGHT, 2 HEADS (1.5W EACH), WHITE LED, THERMOPLASTIC HOUSING, SELF-POWERED WITH RECHARGEABLE NI-CAD BATTERY UPON LOSS OF NORMAL VOLTAGE. PROVIDE WITH AUTOTEST. RSDWELL#PVH-1-AT
Z	<5	N/A	N/A	COMBINATION EXIT SIGN AND EMERGENCY LIGHTS, RED LETTERS, 2 HEADS, THERMOPLASTIC HOUSING, SELF-POWERED WITH RECHARGEABLE NI-CAD BATTERY UPON LOSS OF NORMAL VOLTAGE. PROVIDE WITH AUTOTEST. RSDWELL#PVH-R-SA-AT

LIGHTING FIXTURE SCHEDULE NOTES:
1. FIXTURES SHALL HAVE 80 CRI (MIN.), UNLESS HIGHER CRI IS NOTED.
2. FIXTURES SHALL BE SUITABLE FOR CONNECTION TO 120V CIRCUITS, U.N.O.
3. MODEL NUMBERS LISTED ABOVE ARE BASIS OF DESIGN. CONTRACTOR MAY SUBMIT ALTERNATE EQUALS.



LIGHTING PLAN
SCALE: 1/4" = 1'-0"

SHEET NOTES

A. TYPE X, Y, AND Z FIXTURES, AND FIXTURES NOTED AS 'NL' SHALL BE CONNECTED TO NON-SWITCHED CIRCUIT CONDUCTOR DIRECTLY FROM THE BREAKER. PROVIDE ADDITIONAL NON-SWITCHED CONDUCTOR IN LIGHTING RUN FOR THIS PURPOSE.

B. OCCUPANCY SENSORS SHALL BE CONFIGURED FOR ON/OFF CONTROL AS NOTED IN "INTERIOR LIGHTING COMPLIANCE" TABLE.

SHEET KEYNOTES

1. MANUAL-ONLY LIGHTING CONTROL FOR SAFETY, TO COMPLY WITH NEC 110.26(D).
2. CONNECT CEILING EXHAUST FAN (120V, 1PH, <100W) TO ROOM LIGHTING CIRCUIT.
3. DIMMING CONTROL.

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NEW FIRE DEPARTMENT ADMINISTRATION BUILDING
1579 NW LAKE JEFFREY ROAD
LAKE CITY, FLORIDA
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LIGHTING

CONSTRUCTION DOCUMENTS

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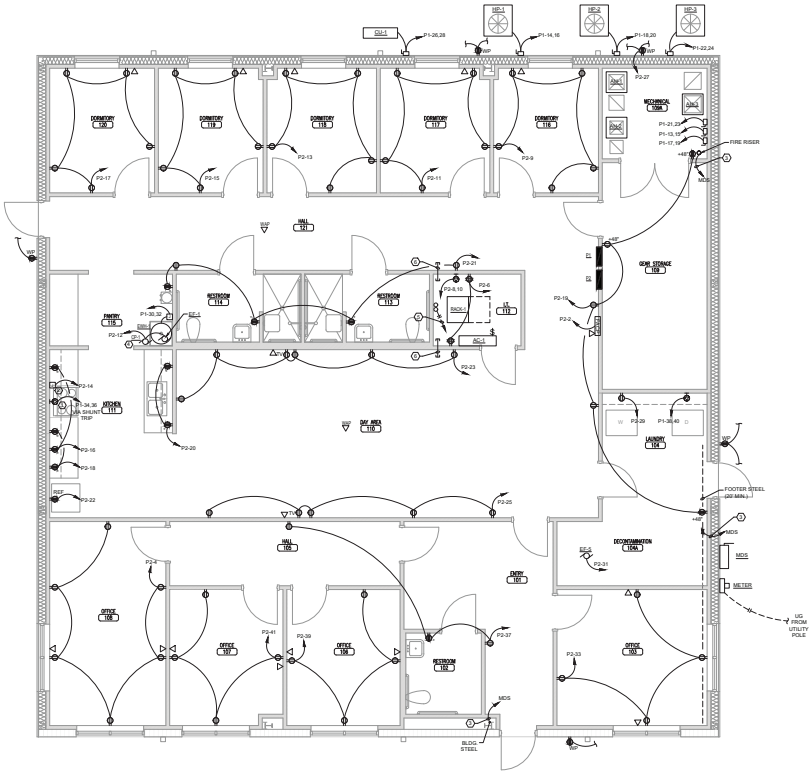
SHEET NOTES

A. NOT USED THIS SHEET.

SHEET KEYNOTES

1. APPLIANCE CIRCUIT SHALL BE ROUTED THRU LC-1.
2. J-BOX FOR CONNECTION TO HOOD.
3. BOND TO GROUNDING ELECTRODE SYSTEM PER NEC 250 WITH GEC.
4. SEE HOT WATER RECIRCULATION DETAIL.
5. (2)3"C. TO UTILITY FOR TELECOM AND SPARE.
6. 3"C. SLEEVE THRU WALL ABOVE CEILING FOR ROUTING OF TELECOM CABLES.



POWER AND SYSTEMS PLAN

SCALE: 1/4" = 1'-0"

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THIS ITEM HAS BEEN DIGITALLY SIGNED AND SEALED BY CHAD J. FRALICK, PE ON THE INDICATED DATE USING A SHA-1 AUTHENTICATION CODE. PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED AND THE SHA-1 AUTHENTICATION CODE MUST BE VERIFIED ON ANY ELECTRONIC COPIES.

NEW FIRE DEPARTMENT ADMINISTRATION BUILDING
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FIRE ALARM SPECIFICATIONS & NOTES

1. THESE ENGINEERING DRAWINGS HAVE BEEN PROVIDED TO MEET THE MINIMUM FIRE ALARM DESIGN CRITERIA IN ACCORDANCE WITH FAC 61G15-32 AND 61G15-30.003.
2. THESE DRAWINGS ARE SCHEMATIC IN NATURE AND ARE NOT INTENDED TO SHOW ALL POSSIBLE CONDITIONS. IT IS INTENDED THAT A COMPLETE FIRE ALARM SYSTEM BE PROVIDED WITH ALL THE NECESSARY EQUIPMENT, WIRING, CONDUIT, AND CONTROLS, COMPLETELY COORDINATED WITH ALL DISCIPLINES. THE MINIMUM FIRE ALARM DESIGN CRITERIA IN THESE DOCUMENT SHALL BE STRICTLY CONFORMED TO IN ACCORDANCE WITH 61G15-30.008. ANY ITEMS AND LABOR REQUIRED FOR A COMPLETE FIRE ALARM SYSTEM, IN ACCORDANCE WITH ALL APPLICABLE CODES, STANDARDS, LOCAL AUTHORITIES, AND THESE CONTRACT DOCUMENTS SHALL BE FURNISHED AT NO ADDITIONAL COST TO THE OWNER. THE FIRE ALARM CONTRACTOR SHALL CAREFULLY REVIEW ALL CONTRACT DOCUMENTS AND THE DESIGN OF OTHER TRADES BEFORE PREPARING SHOP DRAWINGS.
3. FIRE ALARM CONTRACTOR SHALL BE AWARE OF THE TYPE OF FINISHES, DECOR, AND OCCUPANCY. COORDINATION WITH THE STAKEHOLDERS SHALL BE PERFORMED BY THE FIRE ALARM CONTRACTOR FOR PLACEMENT OF ALARM DEVICES.
4. FIRE ALARM INSTALLATION SHALL BE SUPERVISED BY TECHNICIAN(S) WITH CURRENT CERTIFICATION AS A NICET LEVEL III IN FIRE ALARM.
5. FIRE ALARM PATHWAYS IN ALL AREAS SHALL BE IN 3/4" EMT. ALL FIRE ALARM WIRING SHALL BE ROUTED THROUGH CONDUIT THAT IS STRICTLY DEDICATED FOR FIRE ALARM. NO OTHER SYSTEMS MAY UTILIZE FIRE ALARM RACEWAY.
6. ALL FIRE ALARM CONDUIT AND BOX COVERS SHALL BE PAINTED RED. PRE-COLORED RACEWAY IS ACCEPTABLE.
7. FIRE ALARM CIRCUITS SHALL NOT HAVE SPLICES. CIRCUITS SHALL BE EXTENDED FROM DEVICE AND APPLIANCE SCREW TERMINALS.
8. THE FOLLOWING TESTS SHALL BE COMPLETED WITHOUT FAILURE:
   - 8.1. All systems shall test free from short-circuits and grounds, shall be free from mechanical and electrical defects.
   - 8.2. Strobes shall be shown to be synchronized.
   - 8.3. Pull stations shall be shown to function as intended.
   - 8.4. Equipment and shutdown interlocks shall be demonstrated to operate as intended, if applicable.
   - 8.5. Transmission of signals to building FACP and monitoring station shall be demonstrated.
   - 8.6. Contractor shall coordinate and schedule with monitoring station prior to tests.
9. Contractor shall submit detailed shop drawings including battery calculations, voltage drop calculations, conduit routing, riser diagrams, and product data for all equipment. Each submittal package shall be combined into a single PDF file and emailed (or otherwise electronically transmitted) to Architect/Engineer. CAD file floor plans are available from the A/E team upon request, after contract is awarded.
10. Labels
    - 10.1. All addressable devices shall be provided with a label indicating address.
    - 10.2. All notification devices shall be provided with a label indicating NAC circuit number and device number.
    - 10.3. Equipment fed with 120V shall be labeled with the source panel and circuit number.
11. Exterior devices shall be weatherproof, suitable for the location, and provided with the appropriate gasketing. Backboxes for exterior items shall be cast metal.

MINIMUM FIRE ALARM SYSTEM CRITERIA

61G15-32.008 Design of Fire Alarms, Signaling Systems, and Control Systems.

(1) Fire alarms and detection systems include fire protection supervision, emergency alarm circuits, activation of life safety system controls and remote signaling of emergency conditions. Items to be considered in the design or analysis of fire alarm and detection systems are, as applicable to the occupancy, the number and location of manual stations, detection devices, annunciation, signaling and supervision requirements, installation requirements, interoperability and performance requirements.

(2) The design specifications shall be based on the Florida Building Code, the Florida Fire Prevention Code, or as required by the local authority having jurisdiction. The Florida Building Code and the Florida Fire Prevention Code are incorporated by reference in Rule 61G15-18.011, F.A.C.

(3) For Engineering Documents pertaining to Fire Protection Systems exempted by the threshold requirements for mandatory use of professional engineering services, the Engineer of Record shall determine the level of detail shown on plans for a Fire Protection system. All such plans shall include a disclaimer stating the Fire Protection system is exempt from professional engineering services and shall provide a clear understanding of the minimum system requirements expected to be installed by the contractor and permitted by the authority having jurisdiction (AHJ). In the event the Engineer of Record determines that professional engineering services are voluntarily required, he or she shall be held responsible for the technical accuracy of the work in accordance with applicable codes, standards, and sound engineering principles. - REFER TO E001 & E203.

(4) To ensure minimum design quality of Fire Alarm and Detection Systems Engineering Documents, said documents shall include as a minimum the following information when applicable:

(a) The documents shall be clear, with a symbols legend, system riser diagram showing all initiation and notification components, and cabling requirements. The documents shall indicate locations where fire ratings are required as determined by the system's survivability requirements, and shall identify the general occupancy of the protected property and each room and area unless it is clear from features shown. - REFER TO E001 & E203.

(b) Locate initiation and notification devices and connections to related systems on the floor plans and coordinate with other trades. Related systems include elevator controls, smoke control systems, dampers, door release, and other systems or elements directly or indirectly controlled or monitored. - REFER TO E001 & E203.

(c) Strobe intensity and speaker output ratings for all notification devices. - REFER TO E203 FOR STROBE INTENSITY; SPEAKERS NOT REQUIRED FOR OCCUPANCY TYPE.

(d) Identify the Class of circuits as listed in NFPA 72, which is contained within and incorporated into the Florida Fire Prevention Code. - REFER TO FIRE ALARM RISER. NON-REDUNDANT CLASS B, UNLESS NOTED OTHERWISE ON PLANS.

(e) Identify the functions required by the alarm and control systems including the transmission of emergency signals being monitored or annunciated. - REFER TO FIRE ALARM MATRIX.

(f) Indicate whether the fire alarm is conventional zoned or digital addressable, and indicate all components. - REFER TO FIRE ALARM RISER.

(g) Locate surge protective devices and required protective features. - REFER TO FIRE ALARM RISER.

(h) Identify and locate system devices that are subject to environmental factors, and indicate requirements for the protection of equipment from temperature, humidity or corrosive atmospheres, including coastal salt air. - REFER TO E200 PLAN.

(i) The documents shall include a site plan of the immediate area around the protected building, structure or equipment when alarm devices are required outside the structure. - REFER TO SHEET E203 FOR EXTERIOR EXTERIOR BELL LOCATION.

(j) In buildings where smoke detection will be obstructed by walls, beams or ceiling features, the Engineer of Record shall provide applicable design and details to direct the installer to mitigate the problem. In buildings with smoke detection under a pitched roof, the plans shall indicate the roof pitch and a building section shall be provided as part of the Engineering Design Documents. - NOT APPLICABLE.

(k) For the detection systems utilizing smoke detection in situations where smoke stratification is anticipated, the design shall provide the necessary criteria to mitigate the detection problems. - NOT APPLICABLE.

(l) Systems designed using Performance Based criteria shall be identified and referenced to design guides or standards approved by the local authority having jurisdiction consistent with standards adopted by the Florida Fire Prevention Code and the Florida Building Code. - NOT APPLICABLE.

(m) The system design must indicate if the system is to provide a general evacuation signal or a private operating mode, and if the latter, the requirements and properties as defined in section 2 of the Florida Building Code, Building. - GENERAL EVAC SIGNAL.

(n) Wiring requirements for underground, wet locations, campus style wiring, protection against damage and burial depth shall be specified or indicated on the engineering design documents. - REFER TO E001 SPECS AND E203.

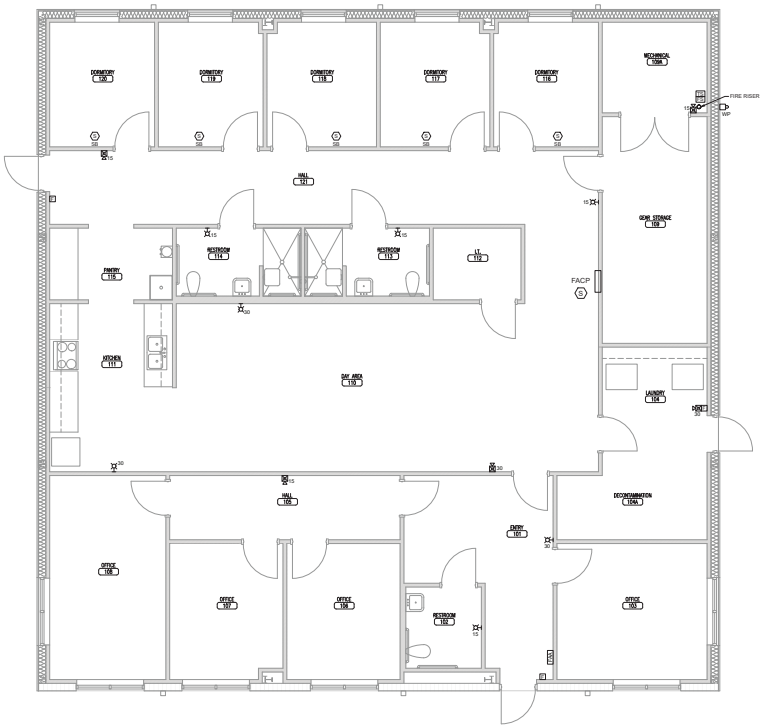
(o) Requirements for operations and maintenance procedures, manuals, system documentation, and instruction of Owner's operating personnel, as needed to operate the systems as intended. - DOCUMENTS SHALL BE PROVIDED BY CONTRACTOR AND TURNED OVER TO OWNER UPON SYSTEM COMMISSIONING.

(5) In the event that the Engineer of Record elects to specify specific equipment and to show the required wiring, battery and voltage drop (circuit analysis) calculations shall be completed. The calculations shall be performed in accordance with the manufacturer's instructions and applicable NFPA 72 procedures. - NOT APPLICABLE; SPECIFIC MANUFACTURER IS NOT SPECIFIED.

(6) System test requirements shall be noted on the Engineering Design Documents. - SYSTEM TESTING SHALL BE PERFORMED IN ACCORDANCE WITH NFPA 72 AND FIRE ALARM MATRIX.

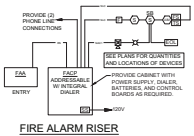
(7) When the Engineer of Record determines that special requirements are required by the owner, insurance underwriter or local fire code amendments these requirements shall be documented or referenced on the Engineering Design Documents. - NONE APPLICABLE.

(8) This rule shall be reviewed, and if necessary, repealed, modified, or renewed through the rulemaking process five years from the effective date. - NOTED.



FIRE ALARM PLAN

SCALE: 1/4" = 1'-0"



FIRE ALARM RISER

FIRE ALARM SYMBOLS

- PULL STATION, DUAL ACTION,RED, MOUNTED AT 42"AFF TO BOTTOM OF DEVICE, ADDRESSABLE
- COMBINATION HORN/STROBE, RED, MIN. CANDELA AS NOTED, MOUNTED 80" AFF TO BOTTOM OF DEVICE
- WALL-MOUNTED STROBE, RED, MIN. CANDELA AS NOTED, MOUNTED 80" AFF TO BOTTOM OF DEVICE
- SMOKE DETECTOR, PHOTO-ELECTRIC, ADDRESSABLE
- SMOKE DETECTOR WITH LOW FREQUENCY SOUNDER BASE WITH SUPERVISORY CONNECTION TO FIRE ALARM SYSTEM (FOR SLEEPING UNIT)
- FACP — FIRE ALARM CONTROL PANEL
- FAA — FIRE ALARM ANNUNCIATOR
- SD — SURGE SUPRESSOR (SPD)
- ADDRESSABLE INPUT MODULE
- FS — FLOW SWITCH
- TS — TAMPER SWITCH
- EOL — END-OF-LINE TERMINATOR

SHEET NOTES

A. CONTRACTOR SHALL DETERMINE AND PROVIDE CONDUCTOR QUANTITIES AND SIZES FOR ALL COMPONENTS AS REQUIRED FOR A FULLY FUNCTIONAL SYSTEM.

B. THIS RISER ON THIS SHEET IS FOR DIAGRAMATIC PURPOSES ONLY. SEE PLANS FOR QUANTITIES AND LOCATIONS OF DEVICES. CONTRACTOR SHALL PROVIDE COMPLETE RISER DIAGRAM WITH QUANTITIES, ADDRESSES, AND DETAILED WIRING IN SHOP DRAWING SUBMITTAL.

SHEET KEYNOTES

1. NOT USED THIS SHEET.

FIRE ALARM OPERATION MATRIX

SYSTEM INPUTS	SYSTEM OUTPUTS: FIRE ALARM PANEL INDICATION	SYSTEM OUTPUTS: NOTIFICATION
	ALARM LEVEL SIGNAL (IN FACP)	ALERT LEVEL SIGNAL (IN FACP)	ACTIVATE FIRE ALARM SIGNAL (IN FACP)	ACTIVATE SUPERVISORY LEVEL SIGNAL (IN FACP)	ACTIVATE TROUBLE SIGNAL (IN FACP)	ACTIVATE GENERAL ALARM (IN FACP)	ACTIVATE EVACUATION SIGNAL (IN FACP)	ACTIVATE EVACUATION SIGNAL (IN FACP)	ACTIVATE EVACUATION SIGNAL (IN FACP)	ACTIVATE EVACUATION SIGNAL (IN FACP)	TRANSMIT ALARM SIGNAL TO OFFSITE MONITORING	TRANSMIT SUPERVISORY SIGNAL TO OFFSITE MONITORING	TRANSMIT TROUBLE SIGNAL TO OFFSITE MONITORING
---	---	---	---	---	---	---	---	---	---	---	---	---	---
GENERAL FIRE DETECTION INITIATING DEVICES	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
MANUAL FIRE ALARM BOXES	●	●				●	●		●				
SMOKE DETECTORS (NON-SLEEPING UNIT)	●	●				●	●		●				
WATER FLOW SWITCH (SPRINKLER)	●	●				●	●		●				
TAMPER SWITCH (SPRINKLER)			●	●						●			
SMOKE DETECTOR (TYPICAL SLEEPING UNIT)		●	●				●		●				
TROUBLE CONDITIONS	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
GROUND FAULT					●								●
NOTIFICATION APPLIANCE SHORT CIRCUIT					●								●
OPEN CIRCUIT					●								●
LOW BATTERY					●								●
AC POWER FAILURE					●								●
TELEPHONE LINE FAULT					●								●
NOTIFICATION FUNCTIONS	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
SILENCE FEATURE ON FACP										●			

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THIS ITEM HAS BEEN DIGITALLY SIGNED AND SEALED BY CHAD J. FRAUEN, PE ON THE INDICATED DATE. ADDING A DIGITAL SIGNATURE TO THIS DOCUMENT DOES NOT PERMIT ANY FURTHER REVISIONS TO BE MADE. PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED AND THE SIGNATURE MUST BE VERIFIED ON ANY ELECTRONIC COPIES.

NEW FIRE DEPARTMENT ADMINISTRATION BUILDING
1579 NW LAKE JEFFREY ROAD
LAKE CITY, FLORIDA
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FIRE ALARM

CONSTRUCTION DOCUMENTS

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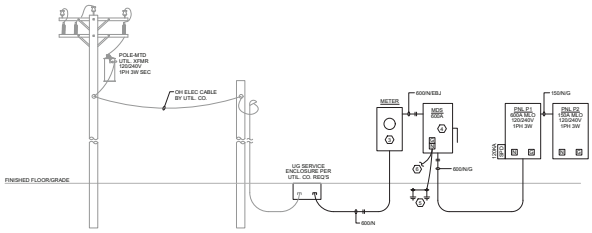

ELECTRICAL RISER DIAGRAM

SHEET NOTES

A. NOT USED THIS SHEET.

SHEET KEYNOTES

1. PROVIDE BREAKER WITH LOCK-OPEN ACCESSORY WHICH COMPLIES WITH NEC 110.25.
2. PROVIDE BREAKER WITH RED HANDLE AND LOCK-ON FEATURE.
3. 600A SELF-CONTAINED METER SOCKET. COORDINATE W/ UTILITY COMPANY.
4. SERVICE-ENTRANCE RATED FUSED SWITCH. 600A CLASS J FUSES. NEMA 3R ENCLOSURE, HEAVY DUTY.
5. PROVIDE (2) ⅝" DIAM. X 10' LONG DRIVEN GROUND RODS, 20' MIN. SEPARATION.
6. BOND TO GROUNDING ELECTRODES PER NEC 250. SEE PLAN FOR LOCATIONS.
7. PROVIDE SHUNT TRIP BREAKER FOR RANGE. INTERLOCK SHUNT TRIP WITH STATION ALARM TO OPEN BREAKER UPON STATION ALARM.

FEEDER SCHEDULE

NAME	PHASE (AWG)	N (AWG)	G (AWG)	MIN. (AWG)		CONDUIT (3PH 3W)	CONDUIT (1PH 2W)	AMPS CITY
20	12	12	12	-			3/4"	20
30	10	10	10	-			3/4"	30
50	8	8	10	8			3/4"	50
65	6	6	10	8			3/4"	65
70	4	4	8	8			1"	85
80	4	4	8	8			1"	85
90	3	3	8	8			1-1/4"	100
100	3	3	8	8			1-1/4"	100
125	1	1	6	6			1-1/2"	130
150	1/0	1/0	6	6			1-1/2"	150
175	2/0	2/0	6	4			2"	175
200	3/0	3/0	6	4			2"	200
225	4/0	4/0	4	2			2"	230
250	250	250	4	2			2-1/2"	255
300	350	350	4	1/0			3"	310
380	500	500	3	1/0			3"	380
400	(2) 3/0	(2) 3/0	(2) 3	(2) 1/0			(2) 2"	- 400
450*	600	600	3	1/0			3-1/2"	- 420
500	(2) 250	(2) 250	(2) 2	(2) 1/0			(2) 2-1/2"	- 510
600	(2) 350	(2) 350	(2) 1	(2) 2/0			(2) 3"	- 620
	-	-	-	-		-	-	- -
	-	-	-	-		-	-	- -
	-	-	-	-		-	-	- -
	-	-	-	-		-	-	- -

SIZES NOTED ABOVE ARE MINIMUM VALUES (AWG OR KCMIL)

ASSUMPTIONS FOR ITEMS ABOVE:
- AMPACITY BASED ON CU THWN/THWN-2 CONDUCTORS
- CONDUIT SIZES BASED ON PVC SCHED 40, EMT, IMC, OR RMC
- AMPACITY BASED ON TERMINATIONS & EQUIP RATED 75 DEGREE C
- CONTRACTOR IS AWARE OF CIRCUIT/FEEDER VOLTAGE

EXAMPLES:
60/G
1PH 2W FEEDER WITH EQUIPMENT GROUNDING CONDUCTOR: 2-#6AWG PHASE CONDUCTORS, NO NEUTRAL, AND 1-#10AWG EQUIPMENT GROUNDING CONDUCTOR IN A 3/4" CONDUIT

100/N/EB1
1PH 3W FEEDER WITH EQUIPMENT BONDING JUMPER: 2-#3AWG PHASE CONDUCTORS, 1-#3AWG NEUTRAL CONDUCTOR, AND 1-#8AWG EQUIPMENT BONDING JUMPER IN A 1-1/4" CONDUIT*

20/G
1PH 2W FEEDER WITH EQUIPMENT GROUNDING CONDUCTOR: 2-#12AWG PHASE CONDUCTORS (OR ONE PHASE AND ONE NEUTRAL IF 120V OR 277V), AND 1-#12AWG EQUIPMENT GROUNDING CONDUCTOR IN 3/4" CONDUIT.

NEW EQUIPMENT SCHEDULE

MARK	DESCRIPTION	VOLTS/ PH	FLA	MCA	SWR	FEEDER	DISCONNECTING MEANS	NOTES
AC/C-1	1.5T MINI SPLIT	240/1	10.4	15	20	20/G	15A, 2P, NF, GD, NEMA 1	
AH-1	4T AIR HANDLER	240/1	28	40	50	50/G	60A, 2P, NF, GD, NEMA 1	
AH-2	5.5T AIR HANDLER	240/1	36	45	45	50/G	60A, 2P, NF, GD, NEMA 1	
AH-3	5T AIR HANDLER	240/1	38	48	50	50/G	60A, 2P, NF, GD, NEMA 1	
HP-1	4T HEAT PUMP	240/1	21.0	26	40	30/G	60A, 2P, NF, GD, NEMA 3R	
HP-2	3.5T HEAT PUMP	240/1	19.5	24	40	30/G	60A, 2P, NF, GD, NEMA 3R	
HP-3	5T HEAT PUMP	240/1	26.5	32	50	40/G	60A, 2P, NF, GD, NEMA 3R	
EWH-1	32.5KW ELEC WATER HEATER	240/1	51.3	64.1	70	70/G	BRANCH CKT BKR	

EQUIPMENT SCHEDULE NOTES:
BREAKER, FEEDER, STARTER, AND DISCONNECT SWITCH CHARACTERISTICS INDICATED ABOVE ARE BASIS OF DESIGN VALUES. SIZES AND RATINGS OF ELECTRICAL EQUIPMENT SHALL BE ADJUSTED AS REQUIRED TO ACCOMMODATE MANUFACTURER'S M.C.A. (MINIMUM CIRCUIT AMPACITY) AND M.O.C.P. (MAXIMUM OVERCURRENT PROTECTION) RATINGS AS NOTED ON EQUIPMENT NAMEPLATES. FEEDERS SIZES SHALL NOT DECREASE.

SHORT CIRCUIT CALCULATIONS

UTIL-XF	KVA (V)	VS	PH	%Z (U)	MVA (U)	SCC-RMS	SCC-CND (U)
	150	240	1	1.5	100	INFINITE	30,162
CABLE FROM	CABLE TO	V	PH	SETS	WIRE	COND	FT (U)	SCC-RMS	SCC-CND (U)
UTIL-XF	MDS	240	1	2	350 Cu	NON	100	30,162	19,425
MDS	P1	240	1	2	350 Cu	NON	40	13,000	9,317
P1	P2	240	1	1	1/0 Cu	MAG	5	9,317	8,829
FUSE LOCATION		CLASS	VR	A	TABLE VALUE	SCC-RMS (A)	SCC-CND (U)		
MDS		J	250	600	35000	30,435	18,000		

SHORT CIRCUIT CALCULATION NOTES:
1. SEE SHEET E001 FOR GENERAL ASSUMPTIONS NOTES. INCLUDES TO BE MAXIMUM ASSUMED UTILITY TRANSFORMER KVA, MAXIMUM ASSUMED TRANSFORMER IMPEDANCE, AND MAXIMUM ASSUMED FEEDER DISTANCES. CONTRACTOR SHALL FIELD VERIFY ASSUMPTIONS FOR ACTUAL CONDITIONS DURING CONSTRUCTION. IF ACTUAL CONDITIONS ARE FOUND TO BE OUTSIDE OF THE MAXIMUM ASSUMED VALUES USED, CONTACT ENGINEER PRIOR TO PROCEEDING.
2. "N.I." INDICATES LIMITED IN FIELD VERIFICATION.
3. "INFINITE" INDICATES THAT THE CONDUIT IS SO LONG THAT THE IMPEDANCE OF THE CONDUIT ITSELF IS SUFFICIENT TO REDUCE THE SHORT CIRCUIT CURRENT TO NEGLIGIBLE VALUES.
4. "N/A" INDICATES NOT APPLICABLE.
5. "MAG" INDICATES MAGNETIC CONDUIT.
6. "NON" INDICATES NON-MAGNETIC CONDUIT.
7. SHORT CIRCUIT CALCULATIONS PERFORMED BY THE "POINT-TO-POINT METHOD".
8. SCC-RMS = SHORT CIRCUIT CURRENT AVAILABLE AT LINE TERMINALS OF EQUIPMENT.
9. SCC-CND = SHORT CIRCUIT CURRENT AVAILABLE AT LOAD TERMINALS OF EQUIPMENT.
10. SCC-RMS AND SCC-CND VALUES ARE SYMMETRICAL RMS VALUES.
11. SCC-RMS AND SCC-CND VALUES ARE BASED ON THE ASSUMPTION THAT THE SOURCE VOLTAGE REMAINS CONSTANT DURING THE FAULT.
12. SCC-RMS AND SCC-CND VALUES ARE BASED ON THE ASSUMPTION THAT THE SOURCE IMPEDANCE REMAINS CONSTANT DURING THE FAULT.
13. SCC-RMS AND SCC-CND VALUES ARE BASED ON THE ASSUMPTION THAT THE SOURCE IMPEDANCE IS PURELY REACTIVE.
14. SCC-RMS AND SCC-CND VALUES ARE BASED ON THE ASSUMPTION THAT THE SOURCE IMPEDANCE IS PURELY INDUCTIVE.
15. SCC-RMS AND SCC-CND VALUES ARE BASED ON THE ASSUMPTION THAT THE SOURCE IMPEDANCE IS PURELY RESISTIVE.
16. SCC-RMS AND SCC-CND VALUES ARE BASED ON THE ASSUMPTION THAT THE SOURCE IMPEDANCE IS PURELY CAPACITIVE.
17. SCC-RMS AND SCC-CND VALUES ARE BASED ON THE ASSUMPTION THAT THE SOURCE IMPEDANCE IS PURELY INDUCTIVE.
18. SCC-RMS AND SCC-CND VALUES ARE BASED ON THE ASSUMPTION THAT THE SOURCE IMPEDANCE IS PURELY RESISTIVE.
19. SCC-RMS AND SCC-CND VALUES ARE BASED ON THE ASSUMPTION THAT THE SOURCE IMPEDANCE IS PURELY CAPACITIVE.

1-PHASE PANEL SCHEDULE — P1

MLO (A): 600 | VOLTAGE: 120/240 | PHASE WIRE: 3PH 3W | INTERRUPT: 10KAIC | ENCL TYPE: 1 | POLES: 42 | MOUNTING: FLUSH | B.O.D.: 50.0 (RC) | LOCATION: HALL | FED FROM: MDS | REMARKS: H-RAISED DOOR-IN-DOOR COVER

PHASE VA

DESCRIPTION	WIR A/P	LOAD TYPE	CKT NO	A	B	CKT NO	LOAD TYPE	WIR A/P	DESCRIPTION
SHUNT TRIP POWER	20/1		1	0 11,859		2	V	20/1	PANEL P2 (4 SPACES)
SPARE	20/1		3		0 9,161	4	V	—	—
SPARE	20/1		5	0 0		6		—	—
SPARE	20/1		7		0 0	8		—	—
SPACE			9	0 0		10			SPACE
SPACE			11		0 0	12			SPACE
AH-1	50/2	V	13	4,519 2,256		14	M	40/2	HP-1
—	—	V	15		4,570 2,256	16	M	—	—
AH-2	45/2	V	17	4,366 2,160		18	M	50/2	HP-2
—	—	V	19		4,366 2,160	20	M	—	—
AH-3	50/2	V	21	4,519 3,180		22	M	40/2	HP-3
—	—	V	23		4,570 1,180	24	M	—	—
SPACE			25	0 1,248		26	M	30/2	AC/C-1
SPACE			27		0 1,248	28	M		
SPACE			29	0 4,557		30	S	70/2	EWH-1
SPACE			31		0 0,197	32	S	—	—
SPACE			33	0 4,997		34	C	50/2	RANGE
SPACE			35		0 4,000	36	C	—	—
SPACE			37	0 2,560		38	G	—	— (SHUNT TRIP)
SPD	30/2		39		0 2,500	40	C	30/2	DRYER
—	—		41	0 0		42		—	—
VA TOTAL EACH PHASE				47,038	44,545				

	CONNECTED	NEC FEEDER
AREA SERVED (SF): 8,600	VA: LIGHTING	5,437	5,888
MIN. LTG (VA/SF): 1.5	VA RECEPTACLE	14,760	12,380
MIN. LTG TOTAL (VA): 5,400	VA MOTOR	72,660	59,050
	VA GENERAL	48,405	48,405
	VA W/ MULTIPLIER	72,885	59,575
NEC Feeder calc:		VA	AMPS
Lighting per NEC 220.2 & 220.12,	TOTAL CONNECTED	91,862	381
Receptacle per NEC 220.14 & 220.44,	TOTAL NEC FEEDER	77,037	427
Motor per NEC 430.24			

LOAD TYPE
L = LIGHTING
R = RECEPTACLE
M = MOTOR
G = GENERAL
S = SPECIAL
V = VARIED
* = NON-CONCURRENT

1-PHASE PANEL SCHEDULE — P2

MLO (A): 250 | VOLTAGE: 120/240 | PHASE WIRE: 3PH 3W | INTERRUPT: 10KAIC | ENCL TYPE: 1 | POLES: 42 | MOUNTING: FLUSH | B.O.D.: 50.0 (RC) | LOCATION: HALL | FED FROM: P1 | REMARKS: HINGED DOOR-IN-DOOR COVER

PHASE VA

DESCRIPTION	WIR A/P	LOAD TYPE	CKT NO	A	B	CKT NO	LOAD TYPE	WIR A/P	DESCRIPTION
LTG - DORM & KITCHEN	20/1 AFCI	R	1	900 308		2	G	20/1 LOCK	FACP
LTG - LOUNGE & OFFICES	20/1 AFCI	V	3		688 1,898	4	R	20/1	RECES - 108
LTG - STAIRWAY	20/1 AFCI	L	5	98 728		6	R	20/1	RECES - LT. ASE
SPARE	20/1 AFCI		7		0 1,800	8	G	30/2	LT. ASC
RECES - DORM 116	20/1 AFCI	R	9	900 1,800		10	G	—	—
RECES - DORM 117	20/1 AFCI	R	11		900 308	12	RR	20/1	CP-1, EP-1
RECES - DORM 118	20/1 AFCI	R	13	900 308		14	V	20/1 ATO	HOOD
RECES - DORM 119	20/1 AFCI	R	15		900 360	16	R	20/1 ATO	RECES - KITCHEN
RECES - DORM 120	20/1 AFCI	R	17	900 360		18	R	20/1 ATO	RECES - KITCHEN
RECES - SDU, 109	20/1 AFCI	R	19		900 360	20	R	20/1 ATO	RECES - KITCHEN
RECES - 88	20/1 AFCI	R	21	900 1,800		22	G	20/1 ATO	REF
RECES - DAY AREA	20/1 AFCI	R	23		1,080 0	24		20/1 ATO	SPARE
RECES - DAY AREA	20/1 AFCI	R	25	900 0		26		20/1 ATO	SPARE
RECES - ENTRANCE	20/1 AFCI	R	27		900 0	28		20/1 ATO	SPARE
WASHER/REC	20/1 GFCI	G	29	1,200 0		30		20/1	SPARE
DECON FAN	20/1	M	31		50 0	32		20/1	SPARE
RECES - SCO	20/1	R	33	720 0		34		20/1	SPARE
SPARE	20/1	G	35		5 0	36		20/1	SPARE
RECES - ENTRY	20/1	R	37	540 0		38		20/1	SPARE
RECES - SDE	20/1	R	39		720 0	40		20/1	SPARE
RECES - SCF	20/1	R	41	720 0		42		20/1	SPARE
VA TOTAL EACH PHASE				11,859	5,103				

	CONNECTED	NEC FEEDER
AREA SERVED (SF): 3,600	VA: LIGHTING	1,437	1,898
MIN. LTG (VA/SF): 1.5	VA RECEPTACLE	14,760	12,380
MIN. LTG TOTAL (VA): 5,400	VA MOTOR	180	900
	VA GENERAL	4,595	4,305
	VA W/ MULTIPLIER	0	0
NEC Feeder calc:		VA	AMPS
Lighting per NEC 220.2 & 220.12,	TOTAL CONNECTED	21,032	88
Receptacle per NEC 220.14 & 220.44,	TOTAL NEC FEEDER	23,091	96
Motor per NEC 430.24			

LOAD TYPE
L = LIGHTING
R = RECEPTACLE
M = MOTOR
G = GENERAL
S = SPECIAL
V = VARIED
* = NON-CONCURRENT

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No 73811
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PROFESSIONAL ENGINEER

THIS ITEM HAS BEEN DIGITALLY SIGNED AND SEALED BY JOAD J. FRALICK, PE ON THE INDICATED DATE USING A DIGITAL SIGNATURE. PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED AND THE SIGNATURE MUST BE VERIFIED ON ANY ELECTRONIC COPIES.

NEW FIRE DEPARTMENT ADMINISTRATION BUILDING
1579 NW LAKE JEFFREY ROAD
LAKE CITY, FLORIDA
CCBCC PROJECT NUMBER

#	Date	Note
Revisions		

POWER RISER AND SCHEDULES
CONSTRUCTION DOCUMENTS

DATE
09/12/2024

2338

E301

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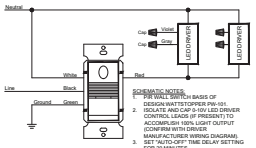
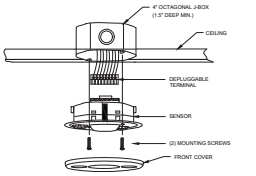
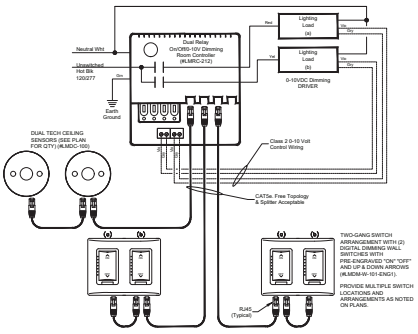


SCHEMATIC NOTES:
1. PIR WALL SWITCH BASIS OF DESIGN WATTSTOPPER PW-101
2. ISOLATE AND CAP 0-10V LED DRIVER CONTROL LEADS (IF PRESENT) TO ACCOMPLISH 100% LIGHT OUTPUT (CONFIRM WITH DRIVER MANUFACTURER WIRING DIAGRAM).
3. SET "AUTO-OFF" TIME DELAY SETTING FOR 20 MINUTES.
4. WHITE DEVICE AND COVER.

TYPICAL PIR WALL SWITCH SCHEMATIC

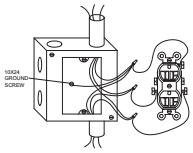


TYPICAL CEILING SENSOR MOUNTING



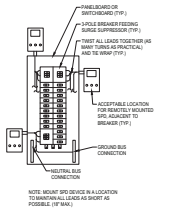
SCHEMATIC NOTES:
1. BASIS OF DESIGN MODEL NUMBERS NOTED ABOVE ARE WATTSTOPPER.
2. SET SENSOR "AUTO-OFF" TIME DELAY SETTING FOR 20 MINUTES.

MULTIPLE DIMMING CIRCUITS & CEILING SENSOR SCHEMATIC



1. NEUTRAL CONDUCTORS SHALL BE CONNECTED INDEPENDENTLY OF THE DEVICE AND PIGTAILED TO THE DEVICE.
2. HOT CONDUCTORS SHALL BE CONNECTED INDEPENDENTLY OF THE DEVICE AND PIGTAILED TO THE DEVICE.
3. UNUSED SCREW TERMINALS ON DEVICE SHALL BE TIGHTENED PRIOR TO INSTALLATION INTO OUTLET BOX.
4. INSTALL SEPARATE GREEN INSULATED EQUIPMENT GROUNDING CONDUCTOR. CONDUCTOR SHALL BE CONNECTED TO CIRCUIT EQUIPMENT GROUNDING CONDUCTOR AND BONDED TO OUTLET BOX.

TYPICAL OUTLET WIRING DETAIL



NOTE: MOUNT SPD DEVICE IN A LOCATION TO MINIMIZE ALL LEADS AS SHORT AS POSSIBLE. (6" MAX.)

REMOTE-MOUNT SPD DETAIL

PROVIDE SIGNS ON NOTED EQUIPMENT. SIGNS SHALL BE LAMINATED BLACK PHENOLIC RESIN WITH SOLID WHITE CORE WITH ENGRAVED LETTERING MINIMUM OF 3/8 INCH HEIGHT.

SIGNS ON INTERIOR ITEMS MAY BE ATTACHED USING ADHESIVE. SIGNS ON EXTERIOR ITEMS SHALL BE ATTACHED USING WEATHERPROOF/UV RESISTANT ADHESIVE.

EXAMPLES ARE DEPICTED BELOW.

VOLTAGE	120/240 1PH
PHASE A	BLACK
PHASE B	RED
NEUTRAL	WHITE
GROUND	GREEN
OTHER UNIDENTIFIED SYSTEMS EXIST ON PREMISES	

PROVIDE ON INSIDE FRONT COVER OF 120/240V (SINGLE PHASE) PANEL(S)

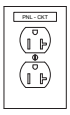
PANEL PA
120/240 VOLTS, 1-PHASE, 3-WIRE
SERVED FROM
PANEL MDP, CKTS 2,4
ELEC ROOM @123

PROVIDE ON FRONT COVER OF EACH PANEL, WITH APPROPRIATE INFORMATION ON LABEL INCLUDING PANEL NAME, VOLTAGE, PHASE, WIRE, AND FEEDER SOURCE.

MAIN DISCONNECT
1 OF #
PANEL AAA

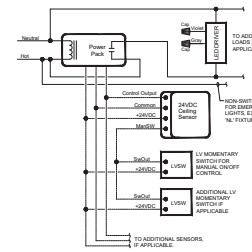
PROVIDE ON EACH MAIN DISCONNECT , FRONT COVER, WHERE # IS THE QUANTITY OF MAIN DISCONNECTS

EXAMPLE NAMEPLATE DETAILS



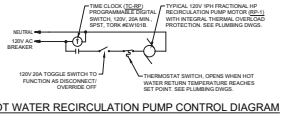
RECEPTACLES SHALL BE INSTALLED WITH GROUND PIN UP. TYPICAL FOR DUPLEX, QUADRAPLEX, AND GFI. PROVIDE ADHESIVE, MACHINE-PRINTED CIRCUIT LABEL AT TOP CENTER OF FACEPLATE INDICATING SOURCE PANEL NAME AND CIRCUIT NUMBER.

TYPICAL RECEPTACLE DETAIL

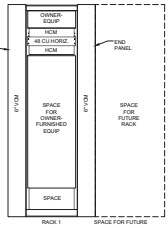


SCHEMATIC NOTES:
1. BASIS OF DESIGN MODEL NUMBERS (WATTSTOPPER):
   1.1. DUAL TECHNOLOGY (SONAR AND PASSIVE INFRARED) CEILING SENSOR: DT-300
   1.2. 24VDC POWER PACK: BZ-250
   1.3. MOMENTARY SWITCH: LVSW-101
2. ISOLATE AND CAP 0-10V LED DRIVER CONTROL LEADS (IF PRESENT) TO ACCOMPLISH 100% LIGHT OUTPUT (CONFIRM WITH DRIVER MANUFACTURER WIRING DIAGRAM).
3. CONFIGURE SETTINGS FOR "MANUAL-ON" OPERATION, EXCEPT RESTROOMS, STAIRS, LOBBY, AND CORRIDORS SHALL BE SET FOR "AUTO-ON" OPERATION.
4. SET SENSOR "AUTO-OFF" TIME DELAY SETTING FOR 20 MINUTES.
5. WHITE DEVICES AND FACEPLATES, UNLESS DIRECTED OTHERWISE BY ARCHITECT OR OWNER.
6. SEE PLAN FOR SWITCH AND SENSOR QUANTITIES.

TYPICAL NON-DIMMING CEILING SENSOR SCHEMATIC



HOT WATER RECIRCULATION PUMP CONTROL DIAGRAM

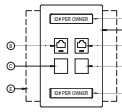


EQUIPMENT RACK ABBREVIATIONS:

48 CU HORIZ	2RU 48-PORT CAT6 COPPER HORIZONTAL CABLE PATCH PANEL (PANDUIT #DP48688TGY)
HCM	HORIZONTAL CABLE MANAGEMENT (2RU, UNLESS NOTED OTHERWISE)
VCM	VERTICAL CABLE MANAGEMENT WITH DOORS

RACK DETAIL NOTES:
1. OWNER SHALL FURNISH & INSTALL FIBER BOXES, BACKBONE CABLE, NETWORK SWITCHES, ROUTERS, POE SWITCHES, UPS, AND PATCH CABLES FOR I.T. ROOMS.
2. CONTRACTOR SHALL PROVIDE RACK, CABLE MANAGEMENT ACCESSORIES, PATCH PANELS, HORIZONTAL CABLES, AND SHALL MAKE ALL FINAL TERMINATIONS OF HORIZONTAL CABLES TO PATCH PANELS AND TELECOM OUTLETS. COMPONENTS SHALL BE COORDINATED WITH OWNER'S I.T. TO MATCH COUNTY STANDARDS.
3. I.T. ROOM RACK DETAILS ARE BASIS OF DESIGN. CONTRACTOR SHALL SUBMIT RACK LAYOUT DRAWINGS FOR OWNER I.T. DEPARTMENT REVIEW AND APPROVAL PRIOR TO COMMENCING WORK.

I.T. ROOM RACK DETAIL



A. COMMUNICATIONS FACEPLATE, 4-PORT, WHITE COLOR, WITH LABEL WINDOWS. (PANDUIT NETKEY #NK4FIWY)

B. SNAP-IN 8-PIN MODULAR PUNCHDOWN JACK ASSEMBLY, CAT 6, WHITE COLOR, 110BB PIN ASSIGNMENTS (PANDUIT NETKEY #NK6BBMWIN). SEE PLANS FOR QUANTITY OF CABLES (AND COUPLERS) AT EACH OUTLET LOCATION.

C. SNAP-IN BLANK TAB MODULE, WHITE (PANDUIT NETKEY #NKBMWIN-A). EACH UNUSED PORT ON THE 4-PORT FACEPLATE SHALL BE PROVIDED WITH BLANK TAB, AS APPLICABLE.

D. COMMUNICATIONS OUTLET IDENTIFIER ON LASER PRINTED INSERT UNDER FACTORY PLASTIC COVER. COORD. WITH OWNER FOR EXACT NOMENCLATURE.

E. BACKBOX SHALL BE 4" SQUARE 2-1/8" DEEP WITH SINGLE-GANG MUD RING.

MODEL NUMBERS AND COLORS ARE BASIS OF DESIGN (PANDUIT BRAND). SUBMIT FOR A/E AND OWNER'S I.T. DEPARTMENT APPROVAL PRIOR TO INSTALLATION.

TYPICAL TELECOM OUTLET DETAIL (CAT6)

TELECOM RISER KEYED NOTES:

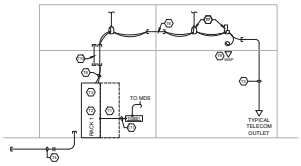
1. SPACE FOR FUTURE RACK.
2. RACK, SEE DETAIL.
3. TERMINATE ALL HORIZONTAL CABLES TO PATCH PANELS. COORD. WITH OWNER'S I.T. DEPARTMENT.
4. PROVIDE (2) 2"C. WITH PULL-STRING FOR INCOMING TELECOM SERVICE AND SPARE. STUB UP INTO I.T. ROOM.
5. 1"C. (MIN.) WITH 2 CAT6E CABLES PER TELECOM OUTLET LOCATION AS INDICATED ON PLANS. PROVIDE NON-METALLIC BUSHING ON CONDUIT END. STUB OUT 6" MIN. ABOVE CEILING.
6. PROVIDE SLEEVE THRU WALL, 12" BEYOND FACE OF WALL ON BOTH SIDES. NON-METALLIC BUSHINGS ON BOTH ENDS. SEE PLANS FOR QUANTITIES, SIZES, AND LOCATIONS.
7. SUPPORT CABLES ABOVE CEILING VIA LOOPS OR J-HOOKS AT INTERVALS NOT GREATER THAN 5' (UNLESS OTHERWISE REQUIRED TO BE SHORTER TO PREVENT DAMAGE).
8. HORIZONTAL CABLING FROM OUTLET (OR DEVICE) TO I.T. ROOM SHALL HAVE SUFFICIENT LENGTH TO ENABLE TERMINATION AT OWNER-DIRECTED PATCH PANEL LOCATION.
9. PROVIDE CABLE WITH RJ45 CONNECTOR FOR WIRELESS ACCESS POINT. PROVIDE 6' SPARE CABLE LENGTH, COILED ABOVE CEILING.
10. PROVIDE (2) 3" SLEEVES THRU CEILING GRID FOR ROUTING OF CABLES. PROVIDE BUSHINGS ON BOTH ENDS.
11. BOND RACKS, CHASES, AND OTHER METALLIC ITEMS TO TELECOM GROUND BUS BAR WITH #6 CU BONDING JUMPERS. BOND BAR DIRECTLY TO GROUND BAR IN MDS VIA 1/0 CU BONDING JUMPER.

CAT5E OUTER JACKET COLORS SHALL BE BASED ON CABLE APPLICATION AS FOLLOWS (UNLESS DIRECTED OTHERWISE BY OWNER'S I.T.):

GREEN - WIRELESS ACCESS POINTS

RED - SECURITY/LIFE-SAFETY/FIRE

BLUE - VOICE/DATA



TELECOM RISER DIAGRAM

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NEW FIRE DEPARTMENT ADMINISTRATION BUILDING
1579 NW LAKE JEFFREY ROAD
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DETAILS

CONSTRUCTION DOCUMENTS

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E401